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Performance auditing of selected public hospitals with arrears
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Deliverable 3: Performance Assessment in selected ten hospitals

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List of abbreviations

AIC	Anaesthesia Intensive Care Unit
ALOS	Average Length of Stay (in hospital)
AMI	Acute Myocardial Infarction
BOR	Bed Occupancy Rate
CMI	Case Mix Index
CS	Contracted Sum
CT	Computer Tomography
DRG	Diagnostic Related Groups
EY	Ernst &Young Romania
FA	Fixed Assets
ICU	Intensive Care Unit
IMF	International Monetary Fund
KPI	Key Performance Indicators
MoH	Ministry of Health, Romania
MDR	Multi Drug Resistant
MRI	Magnetic Resonance Imaging
NAQMH	National Authority for Quality Management in Healthcare
NHIH	National Health Insurance House, Romania
OECD	The Organisation for Economic Co-operation and Development
RON	Romanian Leu
TIA	Transient Ischaemic Attack
WHO	World Health Organization

1 Introduction

1.1 Aim of the project and suggested methodology

This report is the final deliverable of the project 'Performance auditing of public hospitals with arrears', carried out in Romania by Oxford Policy Management UK (OPM) and EY in support to the MoH.

The analyses and findings presented in this report are the product of assessing a sample of 10 public hospitals with arrears (selected by the MoH) with the intention of better understanding hospital performance in the country. The findings should be understood in the context of broader arrangements in the Romanian health system, paying attention to:

(i) Hospital comparisons and important performance outcomes, and Hospital-specific causes of arrears; and

(iii) Broader systemic issues that influence on hospital performance and contribute to generation of arrears.

The methodology and assessment tools for the study were largely discussed with the MoH team and presented in the Inception Report (and are therefore not fully reiterated here). In short, the information for the case studies was gathered through interviews with the wide group of stakeholders (including hospital management, and MoH and SHIH teams), and a documentation review (including policy papers, regulations, and previous reports by the WB and other aid agencies). A number of presentations was made to the management of each hospital included in the study, followed by the dissemination of questionnaires for financial and general performance audits. Several face-to-face meetings were held with the hospital managers to clarify data requirements. Documentation and archival records were then used to orientate subsequent semi-structured interviews with hospital managers and nominated staff, followed by new information requests to interviewees, as necessary. The data and intelligence gathered from all sources was then validated, synthesised and analysed, and major findings and recommendations were shared with the client and key stakeholders.

1.2 Selected hospitals

This report summarises the findings and analyses of the assessments in selected ten hospitals, presented below (in alphabetic order), along with the recorded arrears and the date for the last arrear-related record, as included in the 'Inception Report':

- City Hospital Buhusi (henceforth ***Buhusi***). Level IV hospital. Traditional publicly owned and run facility governed by the local council of Buhusi
- Floreasca Clinical Emergency Hospital, Bucharest (henceforth ***Floreasca***). Level I emergency hospital. Traditional publicly owned and run facility, under the coordination of the MoH;
- Foisor Orthopaedic-Traumatology and Osteo-Articular TB Clinical Hospital, Bucharest (henceforth ***Foisor***). Level IM hospital, highly specialised in Orthopaedic-Traumatology and Osteo-Articular TB. Traditional publicly owned and run facility under the coordination of the Hospital Administration and Medical Services of Bucharest of the General City Hall of Bucharest;
- Municipal Hospital Dr. Teodor Andrei. ***Lugoj*** (henceforth Lugoj). Level IV municipal general hospital. Traditional publicly owned and run facility governed by the local council of Lugoj
- Marius Nasta Pneumology Institute, Bucharest (henceforth ***Marius Nasta***). Level IM hospital, mono-speciality: TB and complex thoracic surgeries. Traditional publicly owned and run hospital under the governance of the MoH;

- Saint Pantelimon Emergency Hospital Bucharest (henceforth ***Pantelimon***). Level II emergency hospital. Traditional publicly owned and run facility under the governance of the MoH; and
- County Emergency Hospital, Ploiesti (henceforth ***Ploiesti***). Level III, emergency hospital. Traditional public facility under the direct control of Prahova County Council (owner)
- Caritas Municipal Hospital, Roșiorii de Vede (henceforth ***Rosiori***). Level IV hospital. Traditional publicly owned and run facility governed by the local council (Roșioride Vede).
- County Emergency Hospital Slatina (henceforth ***Slatina***), Level III emergency hospital. Traditional publicly owned and run facility governed by the Olt County Council since 2012
- Dr Victor Babes Infectious Disease and Pneumoftiziology Hospital Timisoara (henceforth ***Timisoara***). Level IIM Mono-specialty hospital. Traditional publicly owned and run hospital governed by the local council of Timisoara

Data on arrears is assembled in the table below:

Hospital	Last recorded arrears*	Magnitude of last recorded arrears**
Buhusi	Nov 2014	10.9%
Floreasca	Aug 2016	<0.5%
Foisor	Dec 2014	<0.5%
Lugoj	Aug 2014	4.3%
Marius Nasta	Jul 2015	0.5%
Pantelimon	Not after 2013	n/a
Ploiesti	Jul 2016	<0.5%
Roșiori	Aug 2016	33.2%
Slatina	May 2016	<0.9%
Timisoara	Aug 2016	8.7%

* Data up to August 2016 from www.monitorizarecheltuieli.ms.ro, except for Floreasca, for which data from the MoH Budget department was used.

** This figure is calculated as per the period expenditure in the year concerned: that is, % of latest arrears from that year, taking into account the date of the table, August 2016. For example, if a hospital last recorded arrears in October 2015, the magnitude is calculated as % of arrears (October 2015) from the budget execution until October 2015.

It is important to indicate that not all of the selected hospitals had arrears in 2015 (the year selected for financial audit). Some of these hospitals were selected due to significant financial challenges faced in the last few years (not categorised as arrears) and others to be a control group in a cohort.

1.3 The structure of the document

This report is structured as follows:

- After this introduction/Section 1, Section 2 includes the normative background for hospitals in Romania, indicating the elements that guide them and their functional rationale. Separate attention is paid to the areas where improvements will need to be introduced to correct the situation: service provision, stewardship/governance, financing/service purchasing and, finally, resource generation as different functions/'control knobs'
- Section 3 presents the key findings of the work performed in the hospitals selected. An industrial type of analysis is used: after identifying the typology of the facility, attention is paid to the respective inputs, processes, outputs and outcomes.

- Section 4 presents a brief summary of key performance indicators in hospitals in OECD countries (as requested by the MoH Review Committee).
- Section 5 covers the main conclusions of this study, with separate attention paid to arrears and related causes linked (respectively) to hospital management and health system causes.
- Section 6 includes the suggested recommendations
- Section 7 approaches next steps in addressing the suggested recommendations.
- Annexes close this report:
    - Annex A sets out the selection criteria and final list of hospitals;
    - Annex B include the main data sets from the concerned hospitals
    - Annex C provides the respective financial audit reports.

2 The normative background for hospitals in Romania

2.1 Performance-related perspective of hospital arrears

The importance given to modern hospitals—sharply described by someone who applied engineering principles to their analysis as 'very complex systems scarcely understood, extremely expensive and filled with inefficiencies' (Kopach-Konrad *et al*., 2007)[1] — derives from their success in dealing with death, disease, etc., and the amount of resources involved in their operation, which sometimes create arrears.

What do hospitals produce, and what specifically are *hospital services*? A non-exhaustive classification would include the following frequently available services, according to several criteria:

According to …	Services include…
…who benefits from the service	Personal Population (public health or collective or community or non-personal)
…the target group	Paediatric Geriatric Gynaecological
…the specific professional who produces it	Medical Nursing
…the natural history of disease	Health promotion Preventative Diagnostic Therapeutic Rehabilitative
…the technology used	Surgical Internal medicine Laboratory Image
…the intensity of care	Routine Intensive care
…the immediacy in the need of care	Regular Emergency
…the concentration of available technology	Primary, secondary and tertiary care Primary and specialised care

The best-known classifications classify service delivery institutions according to the level of technology involved and the specialisation required for delivering services. Three main types of institutions emerge, often combined in networks and linked by more or less explicit rules: primary care centres, hospitals and medical speciality centre of diverse types and sizes. Good health care service delivery classification should take the above issues into account and delineate spaces for the public and the private sectors (Duran and Kutzin, 2010).[2]

[1] Kopach-Konrad, R. *et al*. (2007) 'Applying systems engineering principles in improving health care delivery', *Journal of General Internal Medicine* 22(Suppl. 3), pp 431–437.
[2] Duran, A. and Kutzin, J. (2010) 'Financing of Public Health Services and Programs: Time to Look into the Black Box', in Kutzin, J., Cashin, C. and Jakab, M., *Implementing Health Financing Reform; Lessons from Countries in Transition*, WHO on behalf of the European Observatory on Health Systems and Policies, pp. 247–269.

Hospitals are thus complex institutions that accommodate users in need and provide specialised health services to them. Hospitals serve people on in-patient, ambulatory or emergency bases by means of sophisticated processes of a 'secondary' or 'tertiary' nature, usually requiring referral from lower complexity ('primary care') health care levels. For centuries, nuns served in places where patients were helped to wait for death; by the end of the 19th century hospitals had learned to apply anaesthesia, antisepsis, radiology and pharmacology in three key areas: operating theatres, laboratories and image diagnosis (Wagenaar, 2006).[3] Since then, their high costs and complex handling of diseases has dominated the question of health care delivery. It is known that global life expectancy at birth has increased on average by about four years in the last few decades; part of that gain is due to hospitals as highly qualified human resource-intensive facilities that also use expensive, sophisticated technologies (other aspects are due to improvements in primary care and environmental as well as social determinants of health).

2.2 Operational classification of hospital arrears

Per capita spending on health among the 34 Organisation for Economic Co-operation and Development (OECD) members has risen since the early 1990s by 3.2% per year in real terms, compared to an economic growth of just 2.4% a year. It now accounts for just over 9% of GDP on average and is very variable, ranging from 12.33% of GDP in OECD countries (USD $4,584 *per capita*) to 3.64% of GDP in South East Asia, some USD $68 *per capita* (WHO, 2016). Relative price increases of the factors involved are critical in influencing health expenses, a fraction of which should be seen as a transfer from other ways of paying for illness- and early death-related economic damage (WHO, 2000).[4]

As hospital expenses represent between about a third (OECD countries) and almost a half (developing countries) of total health expenses, increases in hospital cost are a constant concern. Systematic arrears in a hospital reflect a situation of revenues being lower than actual expenses, with the specification that such situation not being circumstantial occurrences of belated payments (i.e., deficits in budgetary spending that exceed the budgetary revenues in a budgetary year) but rather sustained results.

Arrears understood in this way can be due to numerous causes. Some could be called 'intra-hospital arrears', and originate inside the institution, due for example to poor procurement and outsourcing, bad financial management practices, incorrect choices in service portfolio, and other performance mistakes. In contrast, other arrears would be 'externally determined', created by insufficient funding relative to the level of activity or the costs of producing the services for structural imbalances, as done by the payers (in the case of this study, mostly public payer).

For the sake of policy 'actionability', however, the most useful classifications for the purpose of this study in the context of public hospitals in Romania are detailed in the following sub-sections.

2.2.1 Insufficient financing

There is a critical problem with the amount of money released to finance public hospitals. Such insufficiency, essentially primary but also due to legal or functional obstacles (e.g., severely unfavourable 'contracting' arrangements), lead to chronic underfunding to the extent of jeopardising the regular functioning of the hospital.

[3] Wagenaar, C. (2006) 'The architecture of hospitals', in Wagenaar, C. (ed.), *The architecture of hospitals*, NAi Publishers, Rotterdam, pp. 10–19.
[4] World Health Report (2000) *Improving Performance*, Geneva.

2.2.2 Structural problems

The core problems in this case reside in the structure (physical or otherwise) of the public hospital. Conceivably inadequate facilities (building, infrastructure, etc.) or an unchangeable, oversized staff could lead to inadequately high costs and, in turn, severe and systematic arrears.

2.2.3 Sub-optimum management

In this case, the main cause of the financing problem may be a mistaken handling of public hospitals in managerial terms. Wrong choice of services, poor service production efficiency, oversized running costs, failed investments, etc., can lead the institution to a situation in which expenses are bigger than revenues, with sub-optimum managerial actions proving unable to correct the situation.

In analysing arrears, therefore, this paper not only sticks to the 'regulation ISAE 3000 framework' (Ifac.org)[5] applied to accounting reports, but also tries to provide clarity to evaluate the policies implemented with the hospital (the degree to which they respond to the health needs of society as well as to the resources available).

To that end, ideally, services provided by different hospitals would be seen in light of the burden of disease affecting the covered population and the business plans and related unit prices of the hospitals, which should be compared.

Determining the amount of arrears and how long debts have been outstanding also depends on the type of accounting processes in place in the budgeting/accounting/financial reporting systems. A recent document by the International Monetary Fund, IMF (Flynn and Pessoa, 2014)[6] recommends that the auditing of arrears in the public sector focuses on systems and procedures set in advance, and on the extent to which they are followed. According to this criterion, no system of accounting for arrears will work satisfactorily unless the cost of goods and services received are first shown as debts and are only expunged when payment is made (the accounting system will otherwise carry these debts for ever). The budget should be 'committed' at the start of the year and transferred to debt when the invoice is received and to expense when it is paid, and so on.

This principle can be applied to any service/good (telephone costs, electricity, gas, petrol, etc.) requiring submission of an invoice. The sequence does not work so well for items like salaries and wages, for which the budget should be determined by the number of people plus individual salary adjustments, etc. A salaries budget based on multiplying the number of people by the average salary can thus be compared to realised costs and the reasons for variance determined. A simple way to account for arrears would be to transfer each pay day from the budget to a debt, or simply to treat the total salaries budget as a commitment at year start. As each payroll is met, the amount would then be transferred from debt to expense.

The use of the budget construction process set out according to the IMF document cannot however be mechanically applied in a hospital, because historical performance in health care is a weak basis for future budgets, and needs to be complemented with the projections on the expected level of activity for each major category of expense (expressing every budget item as a volume of activity and a cost per unit of activity).

[5] International Standard on Assurance Engagements (2013) *ISAE 3000 Revised, Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, https://www.ifac.org/publications-resources/international-standard-assurance-engagements-isae-3000-revised-assurance-enga.

[6] Flynn, S. and Pessoa, M. (2014) *Prevention and Management of Government Expenditure Arrears*, IMF Technical Notes and Manuals 14/01.

As will be seen, the information required for this type of analysis was unfortunately not always available. Overall, however, we feel that in this report a solid picture of the situation has been achieved, allowing us to produce informed conclusions and recommendations to be further discussed with policymakers.

2.3 Norms governing Romanian hospitals

The organisational bases of health service delivery institutions are currently under tension in virtually all societies precisely due to technological changes, the ageing of the population and increasing costs. Such factors challenge the functioning of hospitals and their relationship with other healthcare levels, raising doubts about a supposed lack of sustainability of the current models (Joint Commission, 2008).[7] Furthermore, since countries like Romania have given hospitals a role not only in the provision of specialised care but also of a wider spectrum of health services (due historically to the relative low cost of the inputs), analysing Romanian hospitals also means inquiring into most essential health services in the country.

Functions ('sets of similar, repeated activities that organisations carry out in order to achieve their results': Drucker, 1993)[8] have an enormous influence on hospital results, including the production of arrears. Arrears may be seen as a financing-sphere symptom of distorted functioning of hospitals, revealing problems that require deeper analysis.

This section will review the applicable norms in Romanian hospitals with a function-by-function perspective (i.e. a review of the most important interdependent tasks that health systems and hospitals within them need to perform to achieve their goals). The main functions analysed are service provision, stewardship/governance, hospital financing, including service purchasing, and resources (inputs) generation.

2.3.1 Service provision

This analysis covers the way hospital services (in the context of the totality of the health system) are produced and provided in the country, paying attention to hospital definitions and categories, the way in which continuity of care in relation to primary health care is ensured, and the responsibilities and rights of managers and boards:

- Law 95/2006 stipulates the classification of hospitals by several criteria: territorial (regional, county and local hospitals); pathology (general, emergency, single-speciality and chronic disease hospitals); ownership (public, private and public with private wards); medical education and research (clinical hospitals with teaching wards and institutes);
- Ministerial Order No. 1408/2010 addresses the approval of hospital classification criteria according to competencies; and
- Ministerial Order 323/2011 introduces the methodology for hospital classification by level of competence/complexity of services, with hospitals being classified in seven categories: I, IM, II, IIM, III, IV (I–IV are for acute care in local hospitals, with IV being least complex) and V (for chronic care or single-speciality chronic care, such as TB, psychiatry, etc.).

[7] Joint Commission (2008) *Health care at the crossroads: guiding principles for the development of the hospital of the future*, jointcommission.org.
[8] Drucker, P.F. (1993) *Managing for the Future*, Routledge, New York.

2.3.2 Stewardship/governance

Emphasis is placed on the strategic planning of services and related decision-making, the regulation of the sector, including staffing and structural norms, and the ensuing transparency and accountability by means of high-level intelligence over the sector. The crucial role of the MoH in leading public (and private) hospitals is analysed:

- Law 500/2002 regarding public finance, and Emergency Decision 47/2012 on the modification and completion of some normative acts and on the regulation of some fiscal-budgetary measures (Art. 2), set out the following definitions:
  - Arrear: residual payments older than 90 days, computed at due date;
  - Budgetary deficit: the part of budgetary spending that exceeds the budgetary revenues in a budgetary year, computed based on the European System of Accounts (an indicator measuring the impact of the public administrations on the rest of the domestic or international economies);
  - Surplus: the financial resources available for other institutional sectors; and
  - Deficit: the financial resources generated by other institutional sectors and utilised in the public administration sector.

At the moment, there are 28 performance indicators organised in four domains in the current hospital management framework contract (MO 1384/2010):

- Human resources (six indicators);
- Service utilisation (ten indicators);
- Financial and economic activity (six indicators):
  - Budget execution;
  - Percentage of personnel expenditure, from total expenditure;
  - Percentage of personnel expenditure, from revenue derived from health insurance and the MoH budget;
  - Percentage of drug expenditure, from total expenditure;
  - Average cost per hospital day, by ward; and
  - Percentage of own revenues, from total revenues (revenues other than from the contract with the health insurance house);
- Quality of care (six indicators):
  - Intra-hospital mortality, total and by ward;
  - Nosocomial infection rate, total and by ward;
  - Rate of readmission 30 days after discharge;
  - Agreement rate between diagnosis at admission and diagnosis at discharge;
  - Percentage of patients transferred to other hospitals, from total admissions; and
  - Number of recorded patient complaints.

2.3.3 Hospital financing, including service purchasing

Another crucial component of this section is the review of hospital financing, including the way hospitals are expected to raise their revenue, how financial risk and resources in hospitals are supposed to be pooled, and how resources are in principle allocated and services purchased under different circumstances.

The National Framework Contract 2016 stipulates the formula for the total contracted sum (CS) for acute cases in hospitals reporting under the diagnosis-related groups (DRG) system:

CS = P X (contractable beds X bed utilisation rate /hospital average length of stay, or ALOS) X hospital Case Mix Index X tariff per adjusted case

Where:

P – reference value by hospital category, as follows:

Category I hospitals: P = 85%

Category IM hospitals: P = (P-4)%

Category II hospitals: P = (P-3)%

Category IIM hospitals: P = (P-5)%

Category IV hospitals: P = (P-15)%

Annexes to the National Framework Contract specify the hospital ALOS, Case Mix Index (CMI) and tariff to be used for each hospital, based on historical activity in the previous year (2015). The bed utilisation rate is also specified by the National Framework Contract, i.e. 290 days out of 365 days for acute wards/compartments and 320 days for chronic wards/compartments.

The contract specifies work volumes and reimbursement sums for the upcoming interval (usually one year or less) with the health insurance house. The total CS for acute cases is calculated as the sum-product of cases, tariff and CMI. For chronic wards, the CS is calculated as the sum-product of cases, optimal in-patient stays and tariffs per day. For day hospitalisations, the CS is calculated as the sum-product of contracted cases/services and the reimbursement tariff for each case/service. Additionally, the contract also specifies the monthly disbursement schedule for the total CS (acute + chronic + day hospitalisation + palliative care, if applicable).

As will be explained in Section 3.2.2. ('Service purchasing and financial management'), this rule is not necessarily applied with particular rigor, and the influence of the number of beds remains paramount.

National health programmes (NHP), be they curative or public health, are an additional source of funding for hospitals. At the level of the NHIH, expenditure with NHPs has been relatively constant over the past few years (2013–2016) at about RON 3 billion or 12–14% of the total National Health Insurance Fund. By comparison, activity-based reimbursements to hospitals are worth RON 8–10 billion. Contracts for providing services that are part of curative NHPs are made with health insurance houses and contracts for public health NHPs are made with county public health authorities. Curative NHPs cover drugs, consumables, medical devices and services associated with care provision for specific diseases. Separate contracts are drawn between hospitals and health insurance houses for the reimbursement of the above as part of NHPs, adding to the complexity of reimbursement arrangements. Hospitals submit monthly to the health insurance house documents justifying the drugs, materials, etc. purchased and dispensed as part of each NHP. Hospitals are responsible for procuring the drugs, materials, etc. at prices lower than the reimbursement price, which is regulated by law.

Financial management and the financial responsibilities of public hospitals seem to lack full reflection in regulations. For instance, the hospital accreditation framework used by the NAQMH (see also below, Section 4.2.a) does not consider the capacity to avoid financial arrears and the

accuracy of the values thereof as important factors for the accreditation of hospitals. The first edition of accreditation standards included the following list of 11 reference areas for hospital accreditation (National Commission for Hospital Accreditation):

- Strategic management (nine quality standards): several quality standards here were of relevance for financial management:
  - MSO4 Hospital activity is underpinned by budgetary forecast:
    - 04.01 The hospital has a financial strategy;
    - 04.02 Professionals are involved in formulating the budgetary policy; and
    - 04.03 Investment decisions are aligned with institutional objectives and account for community needs;
  - MSO5 The hospital has functional budget oversight mechanisms;
  - MSO7 Resource control is made at organisational and sectorial levels;
    - Information management (four quality standards);
    - HR management (10 quality standards);
    - Care environment management (10 quality standards);
    - Quality of care management (four quality standards);
    - Patient rights and communication (10 quality standards);
    - Patient data management (six quality standards);
    - Health care management (15 quality standards);
    - Risk prevention and management (six quality standards);
    - Hospital infection management (10 quality standards); and
    - Transfusion and transplant safety (six quality standards).

The second iteration of the NAQMH accreditation standards was approved in August 2016 (Ministerial Order 871/2016) and includes the following reference areas:

- Organisational and strategic management (eight quality standards);
- Clinical management (17 quality standards); and
- Medical ethics and patient rights (three quality standards).

One of the quality standards in the 'Organisational and strategic management' area refers to the hospital financial and administrative management; the four quality criteria associated with this quality standard are:

- 01.04.01 The hospital has a financial strategy for development;
- 01.04.02 The hospital ledger supports the realisation of the annual service plan;
- 01.04.03 The hospital budget is periodically updated from the perspective of ensuring the efficiency of service delivery; and
- 01.04.04 Supply operations across hospital activity areas ensure the continuity of service delivery.

2.3.4 Resource generation

Finally, attention is paid also to the way the indispensable 'raw materials and inputs' for the hospitals are ensured (how the hospital inputs are generated/ gathered). Emphasis will be put on qualified personnel, adequate and properly assessed technology, the necessary physical

infrastructure and other key inputs, such as the management information needed. The most relevant regulations in this area include:

- Ministerial Order 1224/2010: defines staff normative, making the hospital manager responsible for approving the staff structure. For doctors and nurses, the norms are: 5–15 beds per doctor (bed-side assistance) and 15–30 beds (fixed general position); and 8–12 beds per nurse per shift (bed-side assistance) and 9–22 beds per nurse per shift (fixed general position). By specific ward, the highest ratios are for intensive post-operative care, respectively: one doctor for every 3–5 beds, and one nurse for every 2–4 beds (per shift);
- Ministerial Order 323/2011: defines the minimum structure, clinical specialities and equipment for hospitals in each category (I to V);
- Law 184/2013: approves Emergency Ordinance 71/2012, which designates the MoH as the centralised public procurement authority. This covers the nationwide acquisition of drugs, medical consumables, medical equipment, safety equipment, services, fuel and lubricants for the automobile fleet;
- Law 98/2016: on public procurement (general to the entire public sector); and
- Ministerial Order 861/2014: on the criteria and methodology for Health Technology Assessment.

3 Key analyses and findings

This section (somehow the core of this report) shows the findings obtained during the project by detailing how the abovementioned normative background for hospitals is applied in practice in Romania. To facilitate a hospital-centred reflection on the causes of arrears and possible solutions, this part of the document uses an industrial-type of sequence (from causes to effects) to examine the entire chain of hospital service production, from assets and inputs to the outputs and results.

In technical terms, the *dependent variable* 'arrears' (and several other outcomes) are linked to the structure of expenses and the amounts of money budgeted in each hospital, the service portfolio, the managerial practices, etc. (the *independent variables*). After an overview of the concerned facility, identifying its type, attention is paid to the relevant inputs, then to the processes expected to lead to the production of relevant outputs, and through them to the desired outcomes. Emphasis is placed on (but not restricted to) the production of arrears, for which hospital autonomous governance (for instance, through impact of investment decisions, purchase of expensive technology, etc.) also matters. This provides an overview of the performance of the sampled Romanian hospitals, which, while not intended to have statistical significance, could orientate decision-makers to move towards better hospitals.

In terms of methodology, a combination of semi-structured key informant interviews and formal questionnaires were used to collect data. Interviews were conducted with representatives of central authorities (MoH, NHIH and National Agency for Quality Management in Healthcare) and hospital representatives (manager, medical director and financial director). Hospital activity data were collected based on a 150-item questionnaire (Annex 2 in the Inception Report) structured by inputs, processes, outputs and outcomes. Data was collected from each hospital using face-to-face interviews and as many site visits as needed. Financial information was collected according to the financial audit schedule (Annex 1 in the Inception Report).

3.1 Inputs

Historically, inputs were seen as central issues for hospitals, but repeated analyses of failed experiences with increased expenditures have revealed the need for a transition towards better combinations of inputs with main processes, systems and outputs. Comparative analysis reminds us that inputs are necessary but not sufficient to create an effective hospital: even in architectural terms, good hospitals are 'much more than modern machines within modern premises' (Netherlands Board for Health Care Institutions).[9]

3.1.1 Details of physical assets in the sampled hospitals

'The newer the hospital infrastructure, the lower the risk of infections and facility-related problems' is a well-accepted rule of thumb concerning physical assets in health. Most public hospital buildings in Romania, unfortunately, date from before the 1980s and many are downgraded (although refurbishments, repainting and general disinfections have recently been widespread). The situation is aggravated by unclear services maps, too many single-speciality hospitals linked to vertical programmes with rigid designs, and even the use of health facilities for social purposes (which, however justifiable from a humanitarian viewpoint, is arguably undesirable from the perspective of the need for a functioning health system).

[9] Netherlands Board for Health Care Institutions (2005) *Future hospitals: competitive and healing. Competition report*. Netherlands Board for Health Care Institutions, Utrecht (http://www.bouwcollege.nl/smartsite.shtml?id=2065, accessed 13 April 2010).

Buhusi provides low-complexity and high frequency services. The hospital is organized in a main facility plus three additional buildings, all of them in the same city. Buildings were built at the end of the past century (1970-1980). The hospital has 193 beds; a noncomplex Intensive Care Unit; a low-mid complexity A&E unit (CPU to provide emergency care); 1 operating theatre with 3 operating rooms that is used 4-5 hours per day on average, plus a delivery room.

Floreasca provides specialised services with facilities structured in seven units, six built before 2000 (the oldest one dates from 1934 and the most modern from 2012). Consolidations, refurbishment and ordinary repairs are thus reported to be 'frequent', with the MoH and District 1 City Hall as primary funders. The hospital includes an ample set of healthcare areas, ranging from complex surgeries (such as responding to acute polytrauma, neurosurgery or cardiovascular conditions) to treating pancreatic and colon cancer. Its facilities host 725 beds, two Anaesthesia Intensive Care Units (AIC, the highest complexity intensive care unit [ICU] services), a well-endowed, highly complex A&E unit (UPU) providing emergency services, and six operating theatres (with 27 operating rooms, one devoted to emergency care).

Foisor provides highly specialised services, mostly related to patients with Orthopaedic-Traumatology and Osteo-Articular TB conditions. It has a hospital building and an ambulatory care facility, both quite old. The former, currently in process of refurbishment (expected to finish in December 2016), was originally built in 1892. The hospital has 119 beds, one well-equipped AIC (high-level ICU services), one mid-complexity A&E unit (Duty Guard) to provide emergency services, and five operating rooms (grouped in 1 operating theatre). Remarkably, the Bucharest General City Hall applied successfully for EU funds in 2009 to refurbish the ambulatory, but the funding was eventually lost due to an unsuccessful public tender.

Lugoj is a general hospital that provides noncomplex in-patient and surgical services in ten different pavilions along the same street, which date from 1911. The facility has 368 beds and a non-complex A&E Department (CPU type); four operating room in the surgical block, that performs around three thousand interventions per year, more than 95% of which are delivered on an in-patient basis.

Marius Nasta provides a mix of highly complex mono-specialised services in multi drug resistant TB cases/thoracic surgery, and old-fashioned long-term in-patient treatments for non-complex TB cases. It comprises five facilities in different locations across Bucharest (one in District 4, three in District 5, and one in District 6) with the structure of a sanatorium. All of them are reported to be 'old buildings'. About a quarter (157) of the total 632 beds are devoted to long-term TB cases, with one AIC (complex ICU services) and three operating rooms (grouped in 1 operating theatre); one mid-complexity A&E department (CPU) is devoted to emergency services.

Pantelimon provides emergency and surgical services of relatively low complexity and regular hospitalisation, plus an explicit 'substitutive role' in addressing social problems for homeless people during the winter. Its mono-bloc building, originally built in the 1970s, has been recently subject (2012 to 2014) to refurbishments with funds from the Bucharest City Hall and the MoH. It hosts 525 beds, one AIC (complex ICU), a mid-complexity A&E unit (UPU) and 17 operating rooms (grouped in 1 operating theatre).

Ploiesti provides emergency and surgical services of low complexity and low variation in five different locations in Ploiesti municipality, 2-3 km from each other. The A&E department is reasonably well endowed (UPU type, occupying 10% of the total hospital area), as well as diagnostic imaging and analytical labs. The facility has 1.160 beds (5% of which are devoted to

intensive care). The three operating theatres (with 14 operating rooms) perform around 26.000 interventions per year.

Rosiori provides low-complexity and high-frequency services. It has three buildings; the first was set up in 1898; the second in 1973, comprising mostly of ambulatory elements; and the third in 1987, the bulk of the accommodation comprising 298 beds, one AIC (low level ICU services) and a poorly endowed, low-complexity A&E unit (CPU). The hospital has three operating rooms (grouped in 1 operating theatre), including surgeries ' performed for 2–3 hours a day only, mostly because not many patients require surgical interventions' (remarkably, the same time was reported to be devoted to 'cleaning and disinfecting the operating rooms').

Slatina provides non-complex medical and surgery services organized in a main building plus two other different locations (3 and 35 km far from the main facility, respectively), all of them built a few decades ago (the oldest one, the infection diseases pavilion, dates from 1940 and the most modern, the food unit, from 2005). The facility has 1,153 beds; an Anaesthesia - Intensive Care Unit type 2 (AIC, medium level intensive care unit); a well-endowed complex A&E unit (UPU) providing emergency services; and eleven operating rooms (grouped in 1 operating theatre). A number of rehabilitations and modernizations of different degrees of intensity has been reported in recent years, mostly funded by the Olt County Council, but also by the Ministry of Health and the European Union.

Timisoara is a mono-specialized facility that provides infectious diseases related services (mostly TB and HIV/AIDS). The hospital is described as "old" by interviewed counterparts (buildings were built in three phases: around 1935-40; around 1975; plus the TB dispensary in 2008); it has 325 beds (less than 10 % of which are devoted to day care hospitalizations); a reasonable endowed diagnostic imaging department that combines own and outsourced devices and one operating theatre (with 1 operating rooms) for non-complex surgeries that performs less than 200 interventions per year.

3.1.2 Diagnostic and therapeutic equipment in the sampled hospitals

Rather erratic endowment of medical equipment and technology after a long period of scarce renewal complicates the situation (for an example, see below on the computer tomography (CT) scanner in *Rosiori*, a Level IV hospital which alongside balneology services provides cancer services). This leads to frequent situations in which modern machines are used without a particularly proper operational framework.

The existing diagnostic and therapeutic equipment in the hospitals studied is as follows:

Buhusi:

- Basic diagnostic imaging equipment (e.g. conventional X-ray machines) plus three echographers and one CT scanner;
- Basic analytical lab (e.g., haematology, biochemistry and urine analysers); and
- Rather non-complex therapeutic equipment (plus basic electrocauterization device plus a basic laparoscopic device).

Floreasca:

- Strong diagnostic imaging equipment (e.g., three CTs; one MRI; both conventional and portable X-ray devices; one gamma camera; etc.);
- Operative analytical labs to perform automated tests in haematology, microbiology, biochemistry, immunology, coagulation and hormones; and

- Specialised therapeutic equipment (e.g., advanced sets for laparoscopic surgery; nuclear medicine lab; sets of endoscopy /colonoscopy devices; well-endowed catheterisation lab; etc.).

Foisor:

- Mid-level diagnostic equipment (e.g., CT plus conventional and mobile X-rays);
- Basic analytical labs (to perform for example biochemical and microbiology blood and urine basic tests); and
- Specialised therapeutic orthopaedics and trauma equipment to perform complex surgeries in that field, including modern arthroscopy devices, etc.

Lugoj:

- Basic imaging diagnostic equipment (e.g., one conventional X-ray plus two echographers);
- Basic lab equipment (e.g., haematology, biochemistry and urine analysers); and
- Basic therapeutic equipment for dealing with non-complex patient conditions

Marius Nasta:

- Mid-level imaging diagnostic equipment (e.g., conventional and portable X-ray devices; MRIs; Gammagraphers; etc. but no CTs);
- Mid-level analytical labs to perform bacteriology-; histopathology-; haematology-related tests; and
- Diverse specialised respiratory therapeutic equipment (e.g., respiratory functional exploration devices; trans-parietal puncture biopsies; surgery ventilators, such as artificial lungs; bronchoscopy devices; bronchoalveolar lavage; etc.).

Pantelimon:

- High-level imaging diagnostic equipment (e.g., X-ray devices; both hospital-owned and outsourced CTs; outsourced 24x7 available MRI; imaging data processors; etc.);
- Mid-level analytical labs to perform biochemical and microbiology blood and urine basic tests; and
- Basic therapeutic equipment to perform general surgery; non-complex vascular, plastic, orthopaedics, trauma and thoracic surgery; etc.

Ploiesti:

- High-level imaging diagnostic equipment (e.g., two CTs; 1 mammographer; 10 echographers; both conventional and portable X-ray devices; etc.);
- Well-endowed analysis lab (e.g., haematology, biochemistry, urine automatic analysers); and
- Operating rooms and other hospital areas are reasonably well equipped to deal with general hospital related conditions.

Rosiori:

- Basic imaging diagnostic equipment such as X-ray devices, plus outsourced CT services;
- Basic analytical labs (biochemical and microbiology blood and urine basic tests);
- Basic therapeutic equipment to perform for example low-complexity surgeries, plus a phaco-emulsification device for ophthalmology (an international donation); and

- Remarkably, the facility also reports having three radiotherapy devices (whereas its structure has a medical oncology compartment with only 13 beds).

Slatina:

- Well-endowed diagnostic imaging labs (e.g., two CTs, available to provide diagnostic services also for private patients on demand; 1 MRI, recently installed in 2016; echographers; conventional X-ray machines, etc.);
- Basic analytical lab to perform non-complex analyses; and
- Medium therapeutic equipment (e.g., general surgery equipment basic laparoscopic devices, haemodialysis equipment, etc.)

Timisoara:

- High-level imaging diagnostic equipment (e.g., outsourced CTs and MRIs, echographers, conventional and portable X-ray machines, etc.) devoted to infectious diseases-related patients;
- Analytical lab equipment specialized in HIV/AIDS and other infectious conditions (e.g., lymphocytes reader devices for monitoring patients; ELISA automatic analysers; serological analysers; etc.); and
- Basic therapeutic equipment for dealing with chronic infectious conditions.

3.1.3 Staff in the sample hospitals

The staffing situation varies significantly in the assessed hospital sample. Not all hospitals comply with the norms defined by the Ministerial Order 1224/2010, stipulating staff types and numbers per beds (c.f. p. 9). Common issues in the sampled hospitals are both a high degree of almost permanently vacant posts and very low personnel turnover. In practice, the fact that the same persons occupy the same posts for years and no new staff are recruited into hospitals teams could support the perception that the country is suffering from a 'brain drain' (which was informally referred to during visits to facilities). Additional hospital-by-hospital details follow:

Buhusi:

- In 2015 the hospital had 36 doctors; 89 nurses and 2 lab and diagnostic technicians. No anaesthesiologists have been reported in the job list;
- In addition the hospital has 61 other clinical staff and 38 non clinical staff;
- 24 clinical posts remain unoccupied (out of which 10 doctors and 8 nurses, all the staff in the balneo-physiotherapy section – a reason for which the section, it was reported, "had to be closed". The number of vacant posts among non-clinical staff arises to 7.

Floreasca:

- In 2015 the hospital had 1315 doctors (of whom 994, medical residents), 66 anaesthesiologists (32 medical residents) and 848 nurses;
- In addition, there were 396 other clinical staff (e.g. stretcher-bearers, ambulance drivers, medical registrars) and 135 non-clinical staff.
- There were 444 vacant posts.

Foisor:

- The most remarkable feature here is the 81 total vacant posts (more than 40% of total staff). Of the 110 occupied clinical staff posts, 11 were doctors and 86 nurses. Some 77 non-clinical occupied staff posts are mostly auxiliary staff (49);
- The number of vacant posts for doctors equals the number of doctor-occupied posts, while 20 on-duty guard doctors almost double that of employed doctors (the consultant was told that while on duty guard doctors are better paid than during 'normal' shifts); and
- No relevant changes have taken place over 2015–2016, the only period for which data has been collected.

Lugoj:

- In 2015 the hospital had 52 doctors; 2 anaesthesiologists; 174 nurses; 1 pharmacist and 48 other clinical staff;
- The number of non-clinical staff is 72; and
- The rate of vacant posts is high: 109 vacant posts compared to 349 occupied posts.

Marius Nasta:

- A total of 385 occupied clinical staff posts, of whom 90 are doctors and 270 nurses, compared with 287 non-clinical occupied staff posts (with 150 cleaning and laundry staff forming the bulk of them); and
- 135 total vacant posts (almost 30% of total staff). No detailed breakdown of vacant posts by staff categories was provided.

Pantelimon:

- A total of 641 occupied clinical staff posts, of whom 166 were doctors and 425 nurses. In addition, some 745 resident trainee doctors provide services in the hospital;
- Non-clinical occupied staff posts are 218, of whom 165 are ancillary staff; and
- There are still 274 vacant hospital staff posts (a quarter of the total staff figure), including 183 clinical staff, of which 24 were doctor posts and 144 were nurse posts. Of 91 vacant non-clinical staff posts, 64 are for ancillary staff.

Ploiesti:

- In 2015 the hospital had 168 doctors; 8 anaesthesiologists; 942 nurses; 6 pharmacist; 8 lab and diagnostic technicians; plus 436 "other clinical staff";
- The number of non-clinical staff is 519; and
- The number of vacant posts is 364, of which 98 doctors.

Rosiori:

- The total occupied and vacant posts remains constant, around some 490 in the series;
- Occupied staff includes 281 clinical staff, of whom 37 were doctors and 151 nurses, and 61 non-clinical staff, the bulk of whom are cleaning and laundry staff, porters and drivers;
- Remarkably, on duty guard hospital staff usually 'enlarge normal shifts', i.e. extend the number of hours in the hospital for income-related purposes; and
- Vacant posts are 148 (about 30% of total staff); no detailed breakdown by staff category was provided.

Slatina:

- In 2015 the hospital had 231 doctors (of which 50 resident physicians in various stages of residency) plus 5 part-times; 13 anaesthesiologists (of which 6 residents) and 845 nurses plus 2 midwives and 4 pharmacists;
- There were as well 448 other clinical staff and 158 non clinical staff; and
- The number of vacant posts[10] (816 staff) is almost half of the occupied posts (1.701 staff).

Timisoara:

- In 2015 the hospital had 31 full-time and 12 part time doctors; 2 anaesthesiologists; 114 nurses plus 39 nursing auxiliary: and 32 "other clinical" staff (plus 2 part-timers);
- The number of non-clinical staff was 87 (plus 1 part time); and
- The number of vacant posts remained low: 23,5 vacant posts compared to 320 occupied posts.

3.1.4 Summary of infrastructure, equipment and staff in the sampled hospitals

The following table summarises the above-presented inputs. Although the hospitals' case mix of outputs is unavailable (see below), the pattern in the level of resources allocated (e.g., doctors and nurses per beds; operating theatres vs. equipment endowment) seems remarkably uneven:

			Equipment			Human resources		
	Beds	OR	Imaging	Analytical	Therapeutic	Doctors	Nurses	Vacant posts
Buhusi	193	3	**	*	*	36	89	31
Floreasca	725	27	****	****	****	1.315[11]	848	444
Foisor	119	5	**	**	***	11	88	40%
Lugoj	368	4	*	*	*	52	174	109
M Nasta	632	3	**	**	***	90	270	30%
Pantelimon	525	17	***	**	**	166	525	24%
Ploiesti	1.160	14	***	***	***	168	942	364
Rosiori	298	3	*	*	*	37	151	30%
Slatina	1.153	11	***	**	**	236	845	816
Timisoara	325	1	***	**	*	43	114	23.5

OR = Operating rooms; Doctors and Nurses refer to occupied posts; * represents the level of equipment endowment, where one single represents the lowest and four the highest; Vacant posts represent the share of total vacant posts out of total assigned hospital staff.

3.1.5 Information Systems in the sampled hospitals

A common input problem identified in many of the interviews was weak information systems, the lack of information repositories, poor registers of real practice and data of arguable reliability and consistency regarding behaviour (especially patients' complaints). A significant share of the requested info has not been provided by most hospitals.

Buhusi:

[10] Hospital managers recognized that the facility has "a sufficient number of doctors to cope with the number of admitted patients" but they have to "declare the specific number of doctors vacancies as per legal references stating the needed staff in accordance with hospital capacity"
[11] This figure includes 994 medical residents. Data provided by Floreasca Management in December 2016.

- The hospital provided detailed information on infrastructure, staff and activity, both for the whole facility and the main departments;
- Conversely, only poor information was made available on hospital results.

Floreasca:

- The hospital had activity indicators not only at overall facility level, but also as a breakdown of specific hospital specialities (e.g., ALOS; bed occupancy rate [BOR]; bed turnover; etc.). Indicators on quality, efficiency and patient-centeredness were also available in reasonable detail.

Foisor:

- Detailed information on staff (number and main characteristics) was provided;
- Regarding clinical and surgical activity, only basic information seemed to be recorded. Waiting times are the only aspect for which basic quantitative information were available; and
- Outcome indicators were not systematically measured and analysed.

Lugoj:

- The hospital information systems was presented as well organized.
- Reasonably long time series indicators were made available for hospital inputs and activity, but also for hospital results (case-fatalities, post-surgical infection rates, nosocomial infections, trauma at birth, responsiveness and patient-centeredness).

Marius Nasta:

- Detailed information was provided on staff (number and main characteristics) and basic clinical (including surgical) activity, as well as on basic quality, efficiency and patient-centredness indicators, with some information also on the situation prior to 2015.

Pantelimon:

- Detailed information requested on staff (figures and main characteristics) was available;
- Only some information was provided on medical and surgery activity, both for the hospital and for different specialities. Something similar happened with basic quality, efficiency and patient-centredness indicators.

Ploiesti:

- The facility maintains reasonably well-organized and updated information systems for hospital inputs and activity, but only very basic hospital results indicators seemed to be regularly available.

Rosiori:

- Detailed information on staff was available. The hospital also seemed to record basic clinical activity (e.g. surgeries and number of deliveries, number of bed-days, ALOS); and
- No specific info about services in the field of certain specialities (e.g., oncology) seems to exist; no details were provided on quality and efficiency indicators. Only general statements ('hospital has procedures to provide information to patients') regarding patient-centredness.

Slatina:

- The facility maintained records not only about hospital activity, but also on quality and safety indicators, adverse events and patient satisfaction in reasonable detail;
- Breakdowns per hospital department and units were also available.

Timisoara:

- Information about hospital inputs and activity, for the whole facility and for the main departments seemed to be recorded.
- The information system on hospital results was clearly weaker than that on inputs and activity.

3.2 Processes

The evolution of industry and services in the last decades proves the importance of not only doing 'the right things' but also 'doing things right'. A direct consequence has been a renewed emphasis on protocols and guidelines in all sectors (Hammer and Chiampi, 1993),[12] including health. In England, for example, participation in national audits was voluntary rather than mandatory before a new inspection regime for hospitals was initiated in November 2014 by the independent regulator of health and adult social care (the Care Quality Commission, CQC). New quality and safety regulations were introduced which all providers are expected to meet to remain registered with the CQC (CQC, 2016).[13]

A similar transition in Romanian hospitals, however, is not proving so simple. Often processes are not rigorously designed, haphazardly applied and not particularly well monitored. It is unclear to what extent such situation is consequence of lack of adequate focus on key issues, or is related to inability to follow up. How the quality of medical services is designed, monitored and improved either by the hospitals themselves (with internal quality management mechanisms) or by third parties (e.g. inspections, accreditation, and comparisons with other hospitals) is also not clear. Sometimes quality processes seem most probably copy-pasted from other countries, which means that context-specific avoidable mistakes would fail to be identified -not to mention corrected-, services duplications would not be tackled, etc.

3.2.1 Details of length of stay in the sampled hospitals

Romanian patients are in fact reported to be accustomed to rather extended lengths of stay in their treatment in public hospitals. In contrast, in a context of very limited private health insurance (less than 1% of private spending on health), direct costs incurred by staying in a private hospital usually deter patients from wanting to stay longer (Eurofound, 2016).[14]

'Bed blocking' in hospitals can in principle be reduced by easier availability of home and residential care services and length of stay as well as access to hospitals can be improved through coordination with other levels of care...

No evidence, however, has been found that much specific attention is being paid to these issues in assessed hospitals. In comparing the ALOS of the ten hospitals, *Marius Nasta* has the lengthier ALOS, which could be expected in a long-term hospital. The less complex *Buhusi* and the long-term *Timisoara* show as well long stays. *Foisor* and *Rosiori* (both of them providing less complex services) have the lowest. *Floreasca*, the most technically complex facility, seems to be among the

[12] Hammer, M. and Champy, J. (1993) *Re-engineering the Corporation: a Manifesto for Business Revolution*, Harper Business, New York.
[13] CQC 2016, http://www.cqc.org.uk/content/fundamental-standards.
[14] 'Delivering hospital services—a greater role for the private sector?' *Eurofound*, 22 September 2016, Draft for discussion, Dublin meeting.

facilities with shortest stays. Lack of information on case severity, however, suggests that some caution should be taken in interpreting this data.

The specific situation in the sampled hospitals is shown below (for more detail, see the Annexes).

Buhusi:

- Level IV hospital, with a non-complex intensive care unit and a low-mid complexity A&E unit (CPU) providing emergency services in one operating theatre. Hospital ALOS in 2015 was 11,3 days (increasing from 10,3 days in 2010);
- Psychiatry - chronic patients related ALOS is the specialty with the longest ALOS (more than 50 days).

Buhusi: Overall hospital ALOS and breakdown by hospital specialties

	2010	2011	2012	2013	2014	2015
Internal medicine	7,1	7,0	6,9	6,6	7,0	7,3
Surgery	5,6	5,9	5,7	5,2	5,6	5,2
ICU	3,4	3,4	3,2	3,2	3,2	3,4
Neurology	6,8	7,2	7,1	6,9	6,1	6,1
Paediatrics	3,8	3,8	3,9	3,9	3,6	3,6
Infectious diseases	6,2	6,5	6,2	5,9	6,2	7,1
Psychiatry - chronic patients	40,4	39,2	47,0	45,9	42,6	52,1
Rheumatology	8,9	8,2	8,4	8,7	9,8	9,5
Chronic diseases	6,4	6,3	4,9	5,1	5,7	6,6
Overall hospital	10,3	10,2	10,9	10,1	10,6	11,3

Floreasca:

- Facility reported to be a Level I Emergency hospital, with two very high complex AIC-ICU units and a UPU (complex A&E department). Reported CMI was 1.53. In general, reported ALOS seems reasonably aligned with the hospital profile (the average figure for the hospital in 2015 was 6.4; no data for additional years was collected, so no trends were available);
- Cardiovascular surgery was by far the speciality with the highest ALOS (16 days, i.e. more than double the average figure). AIC I Polytrauma, and Orthopaedics III and II were the other specialities with higher ALOS; and
- Gastroenterology and Plastic Surgery had the shortest ALOS (around 3 and 5 days, respectively).

Floreasca: Overall hospital ALOS and breakdown by hospital specialities

	ALOS
AIC I Polytrauma	8,3
Cardiology	5,8
Plastic surgery and reconstructive microsurgery	4,7
Cardiovascular surgery	16,0
General surgery I	5,7
General surgery II	5,5
General surgery III	5,5

	ALOS
Gastroenterology	2,9
Internal medicine	5,9
Neurosurgery	6,4
Neurology	6,0
Orthopaedics I	5,7
Orthopaedics II	7,0
Orthopaedics III	7,4
Toxicology: AIC II	4,8
Overall hospital	6,4

Foisor:

- Reported to be a Level IM (Orthopaedic-Traumatology and Osteo-Articular TB) hospital with a high complex AIC-ICU unit and a CPU (mid-complexity A&E unit). Reported CMI is 1.36;
- No breakdown of ALOS per hospital specialities was provided (the ALOS for the AIC-ICU unit being the only exception: ALOS = one day, a surprisingly low figure for a highly complex AIC-ICU unit). Not enough information was available to make a more complete judgment, besides the statement made by the management of Floreasca that the stay in ICU was not paid by NHIH (ICU beds need to be attributed to a speciality to be counted in the estimation of the budget ceiling for a hospital).

Foisor: Overall hospital ALOS

	2015
Overall hospital	4,3

Lugoj:

- Level IV general hospital, with a non-complex intensive care unit and a low complexity A&E unit (CPU) to provide emergency services; four operating theatres.
- Hospital ALOS in 2015 was 8,0 days (almost constant during the last six years)
- TB and psychiatry - chronic patients were the specialties with the longest ALOS (more than 38 days and 32 days, respectively), while Orthopaedics had the shortest ALOS (1,5 days)

Lugoj: Overall hospital ALOS and breakdown by hospital specialties

	2010	2011	2012	2013	2014	2015
Internal medicine	6,8	6,9	7,0	7,1	6,8	6,6
Nephrology compartment	7,2	6,9	5,9	6,4	7,1	0,0
Gastroenterology compartment	4,1	3,9	4,5	5,1	5,2	5,2
Cardiology compartment	6,1	5,7	5,8	5,6	6,0	5,9
Sugar diabetes compartment	5,4	5,4	5,6	5,9	6,0	6,1
General surgery	4,7	4,7	4,7	4,3	3,3	3,8
ENT compartment	4,5	4,2	3,6	3,9	4,0	4,1
ICU	6,0	7,1	7,5	7,7	6,8	5,3
Orthopaedics compartment	3,8	3,9	3,7	3,9	1,8	1,5
Obstetrics - gynaecology	4,8	4,9	4,9	4,8	3,8	3,7

	2010	2011	2012	2013	2014	2015
Neonatology compartment	5,3	5,2	5,2	5,1	5,2	4,8
Urology compartment	5,9	6,0	5,2	5,9	5,3	5,0
Infectious diseases compartment	6,4	6,4	6,6	5,9	5,6	5,9
Paediatrics	6,4	5,4	5,0	4,8	5,2	4,9
Neurology compartment	7,5	7,2	6,9	6,4	6,2	6,6
Psychiatry - acute patients	11,3	12,0	12,2	11,6	11,4	13,5
Psychiatry - chronic patients	30,4	29,1	29,7	30,9	31,0	32,8
Pneumology	8,3	8,4	8,7	8,5	7,9	8,3
TB compartment	35,2	36,2	35,7	36,4	35,6	38,2
Palliative care compartment	11,9	12,4	11,3	10,5	11,3	9,7
Total hospital	7,8	7,9	8,0	7,9	7,9	8,0

Marius Nasta:

- Reported as a Level IM (TB and complex thoracic surgeries) hospital, with a complex AIC-ICU unit and a CPU (mid-complexity A&E unit). Information regarding the CMI is provided below:

Ward	CMI realised 2012	CMI realised 2013	CMI realised 2014	CMI realised 2015
Surgery	2,7136	2,9703	2,2905	2,2590
Oncology(from May 2013 onwards)	N/A	1,0860	1,4413	1,7113
Overall hospital	1,5443	1,6333	1,5935	1,6471

- ALOS for Non-TB patients ranged from 7 to 11 days (ALOS for surgery was 4 days, for oncology 4 days, for AIC 3 days and for palliative care 5 days);
- With more than 14 days in 2015 (and rising from previous years), the overall ALOS seemed rather high. In that regard, the hospital highlighted that it was dealing with 'malignant' tuberculosis, for which only two hospitals provide services ('patients with this condition usually require a large number of bed-days, between 30 and 60 days'); and
- In 2015, multi drug resistant ALOS was 73 days; ALOS for other TB forms, from 22 to 44 days.

Marius Nasta: Overall hospital ALOS 2011–2015

	2011	2012	2013	2014	2015
Overall hospital	13,9	13,2	12,8	13,1	14,2

Pantelimon:

- Level II emergency hospital, with a complex AIC-ICU unit and a mid-complexity A&E unit UPU. Rather surprisingly, and for no explained reasons, the hospital reported separately specific lengths of stay 'for all admitted patients' (i.e., 'both insured and non-insured persons') and for 'patients covered by insurance schemes'; those figures were indeed different as can be seen in the table below. The hospital however did not report figures for 'non-insured patients' only (?);
- Overall ALOS for 'all patients' in 2015 was 6.3 days (slightly up from previous years). For patients covered by insurance it was around one day less than for 'all patients'. Several hypotheses can be suggested (but no conclusion is reached):

- non-insured people are poorer, and their longer stays might mean they have greater health needs or present more complex conditions requiring more health services. Alternatively, perhaps the hospital extends their stay out of charity; and
- shorter stays for insured patients could also be understood as proof that DRGs lead the hospital to provide exactly those services that will be reimbursed;

- Prematurity Ward and Orthopaedics and Traumatology are the two specialities with longer ALOS (more than 25 and 12 days, respectively, a little less for insured patients).

Pantelimon: Overall hospital ALOS and breakdown by hospital specialities

All admitted patients(*)	2012	2013	2014	2015
Cardiology	4,6	8,3	8,0	7,8
Internal medicine	5,9	7,6	8,0	7,4
Gastroenterology	5,4	5,7	5,5	5,1
General surgery	3,2	3,9	4,1	4,6
Vascular surgery	7,0	6,9	7,2	7,5
Plastic surgery	2,8	3,1	2,5	2,5
AIC	3,6	3,7	3,5	4,0
Neurosurgery	6,4	6,7	6,8	6,4
Obstetrics and gynaecology	4,3	3,3	3,2	4,5
Obstetrics pathology	2,9	3,0	3,2	3,9
Neonatology	7,7	5,8	6,2	5,2
Prematurity Ward				25,5
Orthopaedics and traumatology	7,2	6,7	7,4	8,1
OT medical recovery				12,3
ENT	4,8	5,1	5,3	4,7
Ophthalmology	3,5	4,2	2,9	2,7
Overall hospital	5,7	5,4	5,7	6,3

(*) All admitted patients (both covered and not covered by insurance).

Insurance covered patients(**)	2012	2013	2014	2015
Cardiology	6,8	6,8	8,0	6,8
Plastic and reconstructive surgery	2,0	2,2	2,5	4,0
Surgery	3,6	3,1	4,1	1,6
Vascular surgery	8,5	6,8	7,2	7,1
Gastroenterology	5,8	4,7	5,5	4,2
Medical	6,5	6,8	8,0	6,8
Neonatology	6,5	4,3	5,5	4,3
Prematurity Ward	22,7	19,0	23,4	23,0
Neurosurgery	6,4	5,6	6,8	6,3
ENT	4,0	4,3	5,3	3,8
Obstetrics and gynaecology	3,6	2,3	3,2	3,5
Obstetrics pathology	2,3	2,0	3,2	2,9
Ophthalmology	2,9	3,2	2,9	1,8
Orthopaedics and traumatology	6,8	5,5	7,3	7,3

OT medical recovery		10,7	14,0	11,2
Overall hospital	4,8	4,1	5,7	5,1

(**) Figures refer just to patients covered by insurance.

Ploiesti

- Level III emergency hospital, with a reasonably well-endowed intensive care unit and A&E unit (UPU) providing emergency services; three operating theatres.
- ALOS in 2015 was 7,0 days (no trends were made available)
- TB ALOS was by far the largest with more than 37 days. Paediatrics with less than 2 days was, on the other hand, the specialty with the shortest ALOS.

Ploiesti: Overall hospital ALOS and breakdown by hospital specialties

2015 data	ALOS
General surgery 1	4,4
Obstetrics and gynaecology	4,4
General surgery 2	4,6
Vascular surgery	5,4
Plastic surgery and microsurgery rec and burned	4,0
Internal medicine 1	5,2
Nephrology	6,1
Diabetes mellitus , nutrition and metabolic diseases	6,1
Orthopaedics and traumatology	5,3
Cardiology	3,4
Neurosurgery	4,7
Neurology	6,7
Paediatrics – older children	1,8
Gastroenterology	5,9
Internal medicine 2	7,0
Haematology	7,4
Endocrinology	4,1
Ophthalmology	3,1
Psychiatry	8,3
Dermatovenerology	7,6
Urology	3,9
ENT	5,6
Oral and maxillofacial surgery	4,4
Pneumology	9,0
TB department	37,5
Adult infectious diseases	7,7
Children infectious diseases	5,3
Total hospital	**7,0**

Ploiesti: Case-mix index 2010 – 2015

Year 2010 (01.01-31.03)	1,0435
Year 2010 (01.04 - 31.12)	0,9854
Year 2011 (01.01 - 31.05)	1,0097
Year 2011 (01.06 - 31.12)	1,0005
Year 2012	1,0871
Year 2013 (01.01 - 31.03)	1,0849
Year 2013 (01.04 - 31.12)	1,1252

Year 2014 (01.01 - 31.05)	1,1888
Year 2014 (01.06 -31.12)	1,2017
Year 2015 (01.01 - 31.03)	1,1913

Rosiori

- Level IV hospital with a low-level AIC-ICU unit and a CPU (low-complexity A&E unit): it had an overall ALOS of 5.5 in 2015 (down from 6.0 in 2010;
- CMI data (below) suggest a gradual increase in case complexity from 2010 at hospital level. This increase (at least from 2013 onwards) appears to have been driven by more complex cases in several clinical specialities (neurology, paediatrics and medical care), while over the same interval case complexity remained relatively constant or even decreased (obstetrics-gynaecology) in other specialities:

Ward	CMI realised 2010 (01 Jan 2010–31 Mar 2010)	CMI realised 2010 (01 Apr 2010–31 Dec 2010)	CMI realised 2011 (01 Jan 2011–31 May 2011)	CMI realised 2011 (01 Jun 2011–31 Dec 2011)	CMI realised 2012	CMI realised 2013 (01 Jan 2013–31 Mar 2013)
Infectious diseases	0,9577	0,8519	0,8993	1,1345	0,9913	1,0514
Cardiology 1	1,0949	0,9766	0,8803	1,1337	0,9303	0,9024
Surgery 1	0,5055	0,5078	0,5885	0,7397	0,7335	0,8503
Medical Care 1	0,9049	0,8812	0,8874	1,1586	1,0098	0,9601
Neonatology 1	0,6894	0,7197	0,6694	0,7929	0,7094	0,6325
Neurology 1	1,3458	1,2509	1,2583	1,4148	1,3648	1,4178
Obstetrics gynaecology 1	0,4956	0,5433	0,5847	0,6299	0,6702	0,5996
Ophthalmology 1	0,6334	0,6088	0,6159	0,6545	0,6527	0,6344
Medical oncology 1	1,1875	1,0419	1,0258	1,0721	1,0309	0,9678
ENL 1	0,4413	0,4979	0,4602	0,4588	0,4359	0,4373
Paediatrics 1	0,5955	0,5999	0,7276	0,6970	0,6940	0,8156
Overall hospital	0,7843	0,7637	0,7911	0,9200	0,8712	0,8698

Ward	CMI realised 2013 (01 Apr 2013–31 Dec 2013)	CMI realised 2014 (01 Jan 2014–31 May 2014)	CMI realised 2014 (01 Jun 2014–31 Dec 2014)	CMI realised 2015
Infectious diseases 1	0,8646	1,0085	0,9303	0,9447
Infectious diseases 1	0,9718	0,9366		
Infectious diseases 1	0,9770			
Cardiology 1	0,9421	0,8701	0,9214	1,0219
Cardiology 1	0,8849	0,8393		
Cardiology 1	0,8511			
Surgery 1	0,6243	0,8483	0,6808	0,6418
Surgery 1	0,5997	0,7474		
Surgery 1	0,7138			
Medical care 1	0,9005	0,9290	1,0240	1,0122

Ward	CMI realised 2013 (01 Apr 2013–31 Dec 2013)	CMI realised 2014 (01 Jan 2014–31 May 2014)	CMI realised 2014 (01 Jun 2014–31 Dec 2014)	CMI realised 2015
Medical care 1	0,9497	0,9255		
Medical care 1	0,9435			
Neonatology 1	0,6334	0,5890	0,6259	0,6787
Neonatology 1	0,5617	0,6228		
Neonatology 1	0,6540			
Neurology 1	1,3518	1,2380	1,4876	1,6070
Neurology 1	1,3479	1,5190		
Neurology 1	1,3113			
Obstetrics gynaecology 1	0,6569	0,5895	0,5483	0,4957
Obstetrics gynaecology 1	0,5447	0,6151		
Obstetrics gynaecology 1	0,6160			
Ophthalmology 1	0,6623	0,6494	0,6367	0,6364
Ophthalmology 1	0,6959	0,7207		
Ophthalmology 1	0,6282			
Medical oncology 1	0,9716	0,8923	0,9526	1,0081
Medical oncology 1	0,9711	0,9064		
Medical oncology 1	1,0567			
Orthopaedics and trauma 1		0,4938	0,7876	0,6913
ENL	0,4173	0,4462	0,4813	0,5180
ENL	0,4190	0,4733		
ENL	0,4372			
Paediatrics 1	0,7077	0,7554	0,7621	0,8080
Paediatrics 1	0,5809	0,7038		
Paediatrics 1	0,6978			
Overall hospital	0,8211	0,8301	0,8642	0,8975

- Balneo-physiotherapy was clearly the speciality with a higher ALOS (more than 11 days, double than average); 'AIC', 'Oncology' and 'Paediatrics' were the units with lowest ALOS (around three days, close to half the average value); and
- It seemed clear that some procedures (e.g., non-complex cataract surgery, often performed on ambulatory basis elsewhere) could be performed with shorter lengths of stay, while two day-admissions are required in this hospital.

Overall hospital ALOS and breakdown by hospital specialities

	2010	2011	2012	2013	2014	2015
AIC	2,1	2,2	2,1	2,0	2,3	2,5
Infectious diseases	6,4	6,7	6,3	6,2	6,1	6,3
Surgery	4,4	4,5	4,0	4,2	4,4	5,3
Medical care	4,8	4,9	5,1	4,6	4,7	5,3
Cardiology	3,6	3,9	4,3	4,0	4,0	3,9
Neurology	7,0	6,3	6,5	6,1	6,2	5,9

	2010	2011	2012	2013	2014	2015
Neonatology	5,0	5,0	4,7	4,9	5,1	5,8
Obstetrics and gynaecology	4,7	4,7	4,6	4,7	4,3	3,5
Ophthalmology	5,8	5,6	5,9	5,6	5,5	4,2
Oncology	4,8	4,6	3,9	3,8	3,3	3,0
ENT	5,7	5,6	5,7	5,5	5,6	5,4
Paediatrics	3,8	4,3	4,2	4,0	3,9	3,6
Balneo-physiotherapy	11,0	10,7	10,7	10,5	11,3	11,6
Overall hospital	6,0	6,0	6,0	5,8	5,6	5,5

Slatina

- Level III emergency hospital, with a medium level intensive care unit and a well-endowed complex A&E unit (UPU) to provide emergency services; eleven operating theatres;
- Hospital ALOS in 2015 was 7,6 days (showing a slight increase from 6,5 in 2010); and
- TB and TB-MDR were the specialties with longest ALOS (more than 30 and 50 days, respectively).

Slatina: Overall hospital ALOS and breakdown by hospital specialties

Specialty	ALOS
Infectious diseases	6,31
HIV/AIDS	7,10
Cardiology	3,73
General Surgery	5,85
Plastic Surgery	7,59
Burns	10,53
Infant Surgery	4,41
Chest Surgery	5,76
Dermato-venerology	7,67
Diabetes	6,65
Endocrinology	6,22
Gastroenterology	4,71
Internal Medicine	6,92
Haematology	5,87
Nephrology	6,06
Peritoneal dialysis	9,10
Neurology	4,13
Infant neuropsychiatry	6,08
Neonatology	5,86
Obstetrics-gynaecology I	4,64
Obstetrics-gynaecology II	4,73
ENT	6,38
Child ENT	5,92
Surgery BMF	4,43
Ophthalmology	5,46
Child ophthalmology	4,57
Oncology	4,97
Orthopaedics	7,58
Paediatrics	3,68
Psychiatry	9,98
Urology	4,93
Pneumology	9,52
Medical recovery	9,87

Specialty	ALOS
Child neuro-motor recovery	17,59
Chronic patients	10,47
Adult neurological recovery	9,45
Premature neonatology	3,28
TB	30,65
TB – MDR	50,73
Overall hospital	**7,63**

Timisoara

- Level II mono-specialized infectious diseases hospital, with a non-complex intensive care unit and a low complexity A&E unit (CPU) to provide emergency services; one operating theatre.
- Hospital ALOS in 2015 was 10,9 days (decreasing from almost 12 in previous years)
- The so called Pneumoftisiology I department was the specialty with longest ALOS, although others showed similar values (e.g., Pneumoftisiology I, thoracic surgery, medical recovery etc.)

Timisoara: Overall hospital ALOS and breakdown by hospital specialties

	2010	2011	2012	2013	2014	2015
Pneumoftisiology 1	18,5	18,9	16,8	15,6	15,5	15,6
Pneumoftisiology 2	14,3	14,2	13,5	13,0	13,6	12,7
Infectious Disease 1	8,0	8,3	7,3	8,1	8,3	8,2
Infectious Disease 2	8,3	8,2	7,5	7,4	7,6	7,5
Thoracic surgery	11,2	9,6	8,7	9,4	10,9	13,3
Medical Recovery	20,7	20,7	19,7	20,0	17,2	13,5
Hospital	**11,8**	**11,9**	**11,1**	**11,3**	**11,2**	**10,9**

3.2.2 Service purchasing and financial management

Among the most important non-clinical processes in hospitals are those related to payment methods, especially *DRGs*. These patient classification systems use routinely-collected discharge data, composed of a manageable number of clinically meaningful and economically advantageous groups (Quentin *et al.,* 2011).[15] Depending on hospital competitiveness, DRGs can improve efficiency since they provide incentives to reduce costs (by for example, shortening the ALOS) and to treat as many patients as possible. The impact of DRGs on quality is usually either positive (e.g., better coordination between care providers to reduce costs) or negative, given that they provide an incentive to reduce the cost per stay, irrespective of outcomes, or to over-provide certain services and upcode patients (Or and Häkkinen, 2011).[16]

The DRG system has been gradually implemented in Europe since the 1980s, at first to classify patients and then later for payment purposes. It was introduced in Romania in 2005, and subsequently subject to partial reforms, but has been insufficiently updated afterwards, reflecting and causing poor links between the prices paid and the actual costs of treating complex patients. The most remarkable issue, however, in Romania is that DRGs (as indicated in Section 2.3.3)

[15] Quentin, W., Geissler, A., Scheller-Kreinsen, D. and Busse, R. (2011) 'Understanding DRGs and DRG-based hospital payment in Europe', in Busse, R., Geissler, A., Quentin, W. and Wiley, M. (eds.), *Diagnosis-Related Groups in Europe, Moving towards transparency, efficiency and quality in hospitals*, World Health Organization, Geneva.
[16] Or, Z. and Häkkinen, U. (2011) 'DRGs and quality: For better or worse?', in Busse, R., Geissler, A., Quentin, W. and Wiley, M. (eds.), *Diagnosis-Related Groups in Europe, Moving towards transparency, efficiency and quality in hospitals*, World Health Organization, Geneva.

seem not to be fully used as a mechanism for estimating the hospital payment ceilings, which apparently continue to be substantially defined according to the number of beds.

The tables below summarise the main financial data (revenues, expenditures and financial result in terms of debt or surplus) on a hospital-by-hospital basis in the study sample. For the sake of ensuring proper understanding, it is important to remark that debt/surplus herewith represents accounting profit/loss, which is not necessarily correlated with any cash flow or the existence of arrears. For example, it may be impacted by non-monetary expenses, such as provisions or depreciation. Time series are not necessarily complete in all hospitals.

Buhusi

- During the last six years the hospital alternated surpluses (four years) and debts (two years), although neither figures represented large amounts of money;
- Total revenues showed a rising trend, mostly due to Insurance funds. Remarkably, in 2012, 2014 and 2015 some amounts (219.418 RON, 491.970 RON and 638.320 RON, respectively) were accounted as revenues under "arrears covered by Local Council".
- Expenditures showed a rising trend as well. In addition to the "Personnel and benefits" expenditure category, Maintenance and Other expenses appeared as relevant expenditure categories

Times series	2010	2011	2012	2013	2014	2015
Revenues by source						
State budget	301.310	252.405	336.510	473.610	440.545	427.926
Bacau health insurance house	7.485.735	6.909.213	6.954.640	7.952.764	8.767.298	9.167.675
Own incomes	118.842	210.240	208.904	206.728	265.473	232.279
Funding from Local Council	80.527	427.000	299.587	556.981	434.742	638.000
Incomes from sponsorships	0	4.000	726	0	0	0
Arrears covered by Local Council	0	0	219.418	0	491.970	638.320
Total incomes	**7.986.414**	**7.802.858**	**8.019.785**	**9.190.083**	**10.400.028**	**11.104.200**
Expenditures by categories						
Personnel and benefits	6.683.391	5.353.556	5.720.571	6.592.011	5.470.261	6.135.000
Drugs	227.800	301.010	252.413	234.836	275.750	333.289
Med. and non-med. consumables	274.304	393.829	353.108	398.935	607.876	599.121
Maintenance	800.991	1.125.890	829.134	1.111.050	2.140.801	1.751.257
Outsourced services	-	135.129	77.806	52.900	50.821	66.546
Amortization	85.996	109.901	98.799	96.596	128.090	165.068
Other expenses	231.515	137.131	618.427	721.874	1.699.138	1.775.692
Total expenditures	**8.303.997**	**7.556.446**	**7.950.256**	**9.208.202**	**10.372.738**	**10.825.973**
Surplus / Debt	**(317.518)**	**246.412**	**69.529**	**(18.119)**	**27.290**	**278.227**
Total admissions	**6.319**	**6.465**	**6.020**	**6.170**	**5.023**	**5.032**
Case mix index				0,8886	1,0249	1,0542

Floreasca

- Since 2013 the hospital shows a financial surplus, with figures that go well beyond the deficits incurred in 2011 and 2012;
- Funding from both Government and Insurance Schemes seem to be responsible for those financial results on the 'revenue' side, making total revenues in 2015 almost RON 115 million above those in 2011;
- 'Expenditures' also show a rising trend, but to a lesser degree than revenues, making 2015 expenditures 'only' RON 28 million higher than those in 2011;
- In the expenditure components 'Drugs' and 'Medical and non-medical supplies' are the lines with clearest changes: 'drugs' show a great decrease from 2011 onwards, becoming almost a third of previous figures, and then stay almost flat. Supplies, on the other hand, increase

dramatically from 2011 to 2012 by an amount comparable to the decrease in drugs. This may reflect changes in the hospitals' accounting practices, as it was not observed in any of the other four hospitals in the sample; and

- Over the past years expenditures, revenues and surplus have increased (most notably 2014–2015), but the total number of admissions has actually decreased slowly, while on average case complexity has remained the same. This may suggest that more resources concentrated on fewer patients translates into better care, but there is insufficient data to warrant this claim. The quality outcomes indicators in Section 3.5.2 below (intra-hospital death rates, adverse event rates and readmissions) are all constant or show slightly negative evolutions over the same interval.

Time series	2011	2012	2013	2014	2015
Revenues by source					
Government	79.554.774	77.616.042	91.068.653	124.912.763	121.148.277
Insurance schemes	95.603.427	104.721.671	109.278.724	108.149.906	123.597.676
Patient fees	1.023.426	705.862	640.227	664.851	497.759
Other	3.491.175	3.611.512	2.563.658	5.027.657	3.070.364
Non-refundable external aid	71.540	3.857.222	-	316.808	46.085.681
Total revenues	**179.744.343**	**190.512.309**	**203.551.261**	**239.071.986**	**294.399.757**
Expenditures by categories					
Personnel and benefits	87.832.165	88.223.897	92.926.509	93.709.341	101.683.017
Drugs	59.417.259	17.662.506	17.692.010	17.095.173	17.976.705
Medical and non-med. supplies	19.020.621	54.439.946	56.659.904	54.265.028	58.693.753
Maint, repairs and utilities	3.656.363	4.239.589	4.263.992	4.188.179	4.406.472
Outsourced services	9.417.139	8.894.196	8.918.473	6.882.247	8.384.067
Capital (amortisation)	8.355.570	9.102.110	13.312.360	13.533.462	19.605.240
Exp. with non-depreciable fixed assets (FA)	3.034.804	10.579.402	-	-	2.999.999
Other	2.246.296	1.409.177	686.914	5.931.445	7.062.374
Total expenditure	**192.980.217**	**194.550.824**	**194.460.162**	**195.604.876**	**220.811.627**
Deficit/surplus	**(13.235.874)**	**(4.038.514)**	**9.091.099**	**43.467.110**	**73.588.130**
Total admissions	**40.478**	**38.674**	**38.443**	**35.759**	**34.721**[17]
CMI			**1,2517**	**1,2435**	**1,2528**

Foisor

- This is the only hospital in which 'total expenditures' remain almost constant in the 2010–2015 period, without major variations in any expenditure category;
- Revenues, remarkably, have a different behaviour: they decrease by some RON 5 million from 2010 to 2011, and again by another RON 5 million the next year, remaining flat for more than one year then strongly increasing in the last two years (almost doubling from 2013 to 2014 and increasing by a half the next year);
- As a result, financial results move more or less in similar shape, with debts in 2012 and 2013 and surpluses in other years; and
- Activity volume (total admissions) and complexity (CMI) are remarkably (inversely) proportional, in line with expenditures. In years with more admissions, average case complexity is low; in years with fewer admissions, case complexity is higher. It is difficult to interpret this information

[17] Extrapolated from activity data spanning the period 01 April–31 December 2015 (26,041 admissions) from www.drg.ro.

in the absence of any outcome indicators. Perhaps it is worth noting, however, that the pattern is different from *Floreasca* (above).

Time series	2010	2011	2012	2013	2014	2015
Revenues by source						
Government	13.477.142	9.318.151	5.909.500	2.997.736	13.948.453	26.813.079
Economic activities(*)	17.124.379	16.112.632	14.079.645	15.818.484	21.544.595	23.107.592
Other income	320	1.048	418	641	3.750	6.217
Total revenues	**30.601.841**	**25.431.831**	**19.989.563**	**18.816.861**	**35.496.798**	**49.926.888**
Expenditures by categories						
Personnel and benefits	8.759.734	7.426.582	7.536.522	8.678.517	8.506.272	9.096.999
Drugs	1.640.670	1.971.152	1.943.664	1.379.084	1.056.469	1.110.215
Med. and non-med. supp.	8.183.777	6.741.988	6.134.693	7.846.083	8.665.864	9.118.067
Maint. repairs, etc.	1.722.385	792.305	943.283	1.082.731	1.379.386	1.290.885
Outsourced services	2.737.644	2.883.166	3.031.901	2.640.678	2.410.010	2.370.417
Capital (amortisation)	1.880.523	4.110.878	2.722.568	2.892.198	3.154.102	3.946.433
Other expenses	102.441	95.550	107.891	143.904	152.052	217.391
Total expenditure	**25.027.174**	**24.021.621**	**22.420.522**	**24.663.195**	**25.324.155**	**27.150.407**
Deficit/surplus	**5.574.667**	**1.410.210**	**(2.430.959)**	**(5.846.334)**	**10.172.643**	**22.776.481**
Total admissions		**7.931**	**7.647**	**5.799**	**6.912**	**4.468**[18]
CMI				**1,1698**	**1,0756**	**1,2775**

(*) Income from economic activities (e,g., insurance schemes, own income, etc.)

Lugoj

- The hospital financial results changed from 2011 and 2012, when surpluses were reported, to 2013, 2014 and 2015, when debts appeared;
- Among Revenues, the Insurance schemes-related funds systematically represented the biggest amount (six times higher than any other). Total revenues decreased from 2014 to 2015;
- Personnel and benefits is consistently the highest expenditure category, without any remarkable change over time.

Times series	2011	2012	2013	2014	2015
Revenues by source					
MoH and other State budgets	1.858.408	2.204.995	2.116.237	3.388.071	2.869.248
Insurance plans (national house)	16.601.453	16.778.967	16.570.972	16.877.392	18.078.319
Other own incomes	405.086	351.423	267.846	263.460	419.914
Amounts from European funds	-	-	350.412	1.558.384	277.588
Total incomes	**18.864.947**	**19.335.385**	**19.305.467**	**22.087.307**	**21.645.069**
Expenditures by categories					
Personnel and benefits	11.082.611	11.550.524	12.702.234	12.953.796	13.213.787
Drugs	1.061.346	1.076.714	1.276.207	1.246.640	1.487.539
Med. and non-med. consumables	1.445.838	1.640.378	1.860.314	1.681.364	1.855.476
Maintenance	1.146.894	1.216.473	1.257.174	1.117.909	1.166.354
Amortization	777.978	587.999	463.684	459.005	1.227.971
Other expenses	2.459.446	2.909.219	3.383.540	3.310.580	3.220.949
Total expenditures	**17.974.113**	**18.981.307**	**20.943.153**	**20.769.294**	**22.172.076**
Surplus / Debt	**890.834**	**354.078**	**(1.637.686)**	**(1.318.686)**	**(527.007)**
Total admissions	**12.497**	**11.140**	**10.290**	**10.223**	**10.036**

[18] Extrapolated from activity data spanning the period 01 April–31 December 2015 (3,351 admissions) from www.drg.ro.

Case-mix index	**0,9164**	**0,9864**	**0,9753**	**1,0189**	**1,1132**

Marius Nasta

- Specific changes in the financial data cannot be easily interpreted unless further explanations would be provided. For instance, from 2011 to 2012 Government funding increased six-fold, to suddenly decrease by about a half in the next year; almost doubled in 2014 and finally stayed flat in 2015;
- Total revenues jumped from 2011 to 2012, came down the next year and again increased in 2014 and 2015. The NHIH line also increased between 2011 and 2012, but then remained with minor changes only (?);
- Total expenditures moved in a similar way throughout these years; at the risk of sounding simplistic, the hospital showed a surplus when revenues increased, but obtained debts when revenues came down (?); and
- In 2012, the year with greatest expenditures, drugs, medical and non-medical supplies and outsourced services also increased (?).

Time series	2011	2012	2013	2014	2015
Revenues by source					
Government	4.338.802	23.010.644	9.314.180	16.290.234	17.366.021
Insurance schemes	37.488.610	53.859.550	50.312.753	52.308.214	56.976.697
Patient fees	347.639	445.156	482.060	571.726	561.771
Other (*)	1.570.579	799.210	973.022	1.515.412	3.077.907
Total revenues	**53.745.629**	**78.114.561**	**61.082.015**	**70.685.586**	**77.982.396**
Expenditures by categories					
Personnel and benefits	27.152.079	28.643.808	32.628.750	33.494.826	36.515.597
Drugs	10.799.157	14.092.887	11.350.404	10.687.036	11.159.426
Medical and non-medical supplies	6.167.334	12.608.283	10.634.867	11.667.547	11.395.582
Maintenance, repairs and utilities	2.569.420	3.590.091	2.419.755	2.477.148	2.346.253
Outsourced services	5.245.881	8.939.566	5.762.342	5.275.314	5.128.628
Capital(**)	1.839.831	1.447.797	1.448.158	1.517.964	1.187.895
Expenses with non-depreciable FA		991.394	3.426.395	136.312	
Other	388.099	350.946	614.855	335.246	1.502.785
Total expenditure	**54.161.800**	**70.664.772**	**68.285.525**	**65.591.393**	**69.236.166**
Deficit/surplus	**(416.171)**	**7.449.789**	**(7.203.510)**	**5.094.193**	**8.746.230**
Total admissions	**12.731**	**15.465**	**14.756**	**14.363**	**11.998**[19]
CMI			**1,3546**	**1,2985**	**1,3176**

(*) Including extra funds/cover of arrears by some public authority

(**) New infrastructure and equipment

Pantelimon

- Along the six-year period, aggregate figures show a remarkably common pattern with total revenues and total expenditures moving in a synchronised way. When between 2010 and 2011 total revenues decreased, total expenditure did so in a similar extension; when from 2011 to 2012 revenues increased, expenditures rose accordingly, and so on. An almost constant global

[19] Extrapolated from activity data spanning the period 01 April–31 December 2015 (8,991 admissions) from www.drg.ro

annual debt of around RON 4 million, irrespective of whether revenues increase or decrease, is the final result;

- The revenue from state budget increased during 2012–2015 to fund research activities, scholarships for the residents and the activity of UPU. Starting in 2013, the funds received from the Casa increased as a result of the increase in the realised ICM of the hospital. In 2015, the hospital received non-refundable external aid to finance six POSDRU projects;
- Regarding expenditures, from 2011 to 2015 the item 'personnel and benefits' also experienced a remarkable increase (almost RON 20 million, close to 20% of the total expenditure); other lines moved in the above-mentioned synchronized way;
- Until 2012, personnel expenses were lower as the hospital applied reductions in salary and blocked some vacancies for occupancy. Starting in 2013, when the management changed, the vacancies were occupied and there were increases in salary supported by legislation;
- Only 2015 data were provided for hospital staff, which makes it impossible to find a correlation between the observed increase in 'personnel and benefits' and possible staff hiring processes (yet 25% of total posts remained vacant in 2015); and
- Expenses with 'non-depreciable FA' showed notable amounts in 2013 and 2014 related to improvements made to the hospital building.

Time series	2010	2011	2012	2013	2014	2015
Revenues by source						
Government	28.887.652	30.636.983	39.436.538	42.037.962	42.392.431	42.029.187
Insurance schemes	46.162.618	38.179.580	37.309.549	47.350.825	49.578.357	55.053.701
Patient fees	514.272	658.429	751.969	346.185	440.810	278.540
Other income	1.335.198	1.136.358	1.218.164	1.183.327	1.419.267	2.140.062
Non-refund. ext. aid					366.156	5.767.440
Total revenues	**76.899.739**	**70.611.349**	**78.716.220**	**90.918.300**	**94.197.022**	**105.268.930**
Expenditures by categories						
Personnel and benefits	51.954.234	45.437.934	47.066.824	49.491.029	53.252.850	64.711.894
Drugs	11.388.598	13.387.692	9.178.167	11.739.429	14.608.062	13.868.053
Med. and non-med. supp.	2.509.541	3.137.818	2.785.318	3.331.214	3.659.268	4.542.961
Maint. repairs, etc.	2.126.498	2.897.078	9.733.465	2.850.615	2.517.559	2.450.760
Outsourced services	7.793.745	8.184.747	8.285.177	9.670.970	11.012.296	12.323.060
Capital (amortisation)	3.410.794	3.201.317	3.104.577	3.677.650	3.033.885	4.005.302
Exp. with non-depreciable FA				13.382.219	6.080.583	79.272
Other	890.990	67.703	210.616	952.236	4.947.179	7.322.488
Total expenditure	**80.074.400**	**76.314.288**	**80.364.143**	**95.095.363**	**99.111.682**	**109.303.790**
Deficit/surplus	**(3.174.660)**	**(5.702.939)**	**(1.647.923)**	**(4.177.063)**	**(4.914.660)**	**(4.034.860)**
Total admissions	**33.056**	**30.793**	**27.030**	**30.480**	**27.231**	**23.751**[20]
CMI				**1,0138**	**1,0139**	**1,0826**

Ploiesti

- Insurance scheme-related funds systematically represent the biggest component of revenues (not less than 75% in the studied period), followed by the Government contributions, meaning that all the remaining revenues only represent around 1% of total revenues.

- In addition to personnel and benefits expenditure category, drugs, consumables and maintenance categories represent the largest shares of expenditures.

[20] Extrapolated from activity data spanning the period 01 April–31 December 2015 (17,813 admissions) from www.drg.ro.

Time series	2010	2011	2012	2013	2014	2015
Revenues by sources						
Government	25.920.359	19.665.757	26.918.932	25.126.827	19.767.360	17.870.609
Insurance schemes	98.220.841	83.003.250	83.377.080	91.715.643	116.912.926	114.416.667
Patient fees	NA	NA	NA	43.110	41.180	41.180
Other (*)	49.136	35.624	49.183	NA	67.261	64.321
Total Income	**124.190.336**	**102.704.631**	**110.345.195**	**116.885.580**	**136.788.727**	**132.392.777**
Expenditures by categories						
Personnel & Benefits	71.979.834	62.250.283	66.095.101	72.461.303	72.292.608	80.697.368
Drugs	10.205.535	11.786.765	12.719.023	13.519.944	13.538.513	18.687.093
Medical and Non-Medical supplies	9.766.469	12.232.585	11.596.374	10.968.230	12.225.909	13.571.483
Maintenance	626.202	664.979	2.577.653	380.673	1.240.670	818.314
Outsourced services	1.129.742	1.576.512	1.606.769	1.831.061	634.776	382.182
Capital / new infrastructure & equipment	6.657.539	6.238.264	7.576.174	5.594.016	3.986.448	3.640.435
Other	10.938.829	12.538.703	13.064.313	13.294.333	24.299.243	18.657.277
Total expenditures	**111.304.150**	**107.288.091**	**115.235.407**	**118.049.560**	**128.218.167**	**136.454.152**
Surplus/Debt	12.886.186	(4.583.460)	(4.890.212)	(1.163.980)	8.570.560	(4.061.375)
Admissions				51.093 (**)	45.007 (**)	**48.007**
Case-mix index	**1,0435 - 0,9854**	**1,0097 - 1,0005**	**1,0871**	**1,0849 - 1,1252**	**1,1888 - 1,2017**	**1,1913 - N.A.**

(*) Subsidies from public authorities, sponsorship, concessions and rent

(**) Extrapolated based on data reported in DRG database (www.drg.ro)

Rosiori

- This facility almost systematically shows non-positive financial results; the 2014 financial exercise was the only exception, with a strong increase of 'government' and 'NHIH' revenues. The explanation provided is that, following a control from the Romanian Court of Accounts, the hospital invoiced NHIH in that year the amounts for medical services exceeding the agreed limit for 2011–2013. The hospital lost the legal proceedings when this matter was addressed in court, and, as a result, in 2015 the amount had to be recorded as 'expense' (hence the sudden jump in 'other expenses' from 2011–2014 to 2015). The consultant was told in person that the debt was subsequently covered by a transfer of public money (from the Treasury to the local authority and then to the Rosiori hospital);
- Regarding expenditures, the 'drugs' line shows the highest variations, almost doubling from 2010 to 2011; from 2011 to 2012; and then from 2013 to 2014 (?).

Time series	2010	2011	2012	2013	2014	2015
Revenues by source						
Government	1.184.554	934.170	1.446.848	2.049.311	17.416.916	1.988.458
Economic activities(*)	15.443.704	11.396.260	14.426.150	15.005.225	28.752.070	16.350.277
Insurance scheme(**)	15.545.998	10.590.739	13.690.357	14.388.615	15.347.200	15.252.066
Total revenues	**16.628.258**	**12.330.430**	**15.872.998**	**17.054.536**	**46.168.986**	**18.338.735**
Expenditures by categories						
Personnel and benefits	11.798.705	9.279.360	9.830.780	11.278.787	13.739.463	11.311.563
Drugs	931.799	1.439.822	2.795.899	2.512.741	5.001.609	4.628.027
Med. and non-med. supplies	1.264.869	1.571.429	1.574.875	1.844.652	1.662.270	2.202.322
Maintenance, repairs, etc.	1.542.936	1.810.575	1.645.727	1.941.488	1.459.212	1.253.957
Outsourced services	626.054	911.791	1.086.575	1.111.273	966.783	1.105.450
Capital (amortisation)	270.533	280.855	276.974	292.188	295.008	287.612
Other expenses	199.940	503.042	239.079	211.101	336.157	13.860.863
Total expenditure	**16.634.836**	**15.796.874**	**17.449.909**	**19.192.230**	**23.460.502**	**34.649.794**
Deficit/surplus	**(6.578)**	**(3.466.444)**	**(1.576.911)**	**(2.137.694)**	**22.708.484**	**(16.311.059)**
Total admissions	**11.916**	**11.509**	**11.123**	**10.684**	**9.971**	**9.205**[21]
CMI				**0,6919**	**0,6912**	**0,7201**

(*) Income from economic activities (e.g., insurance schemes, own income, etc.)

(**) Those amounts are included in the previous 'Economic activities' line, so that they do not sum to the total revenues figures

Slatina

- From 2010 to 2014 the hospital showed financial surplus and only in 2015 expenditures exceeded revenues;
- Total revenues showed a rising trend. Remarkably, however, Insurance funds decreased from 112 million RON in 2010 to 88 million RON in 2015, while funds from Government sources increased from 10 million RON in 2010 to 30 million in 2015;
- Expenditures showed an upwards trend as well, but in such a way that for 2015, expenditures exceeds incomes as already stated. Personnel and benefits expenditures seems to be the responsible for the change in the trend;
- The "other expenditure" category, finally, would require some attention due to the size of the amount and the changes in trends.

Time series	2010	2011	2012	2013	2014	2015
Revenues by source						
Government sources						
MoH/other state budgets	10.194.458	9.799.051	12.052.614	18.393.056	32.928.475	29.390.494
Total from Government sources	10.194.458	9.799.051	12.052.614	18.393.056	32.928.475	29.390.494
Insurance plans (national house)						
Health Insurance House	112.320.265	98.428.530	92.113.058	96.517.998	92.460.208	88.489.957
Total from insurance plans	112.320.265	98.428.530	92.113.058	96.517.998	92.460.208	88.489.957
Services delivered by the hospital						
Patients fees	339.910	160.452	396.725	499.825	376.473	653.165
Total from patients fees	339.910	160.452	396.725	499.825	376.473	653.165
Other revenues						
Donations and sponsorships	2.741.929	2.166.465	311	215	384	773
Incomes from provisions			159	2.178.922	1,224,648	491

[21] Extrapolated from activity data spanning the period 01 April–31 December 2015 (6,904 admissions) from www.drg.ro.

Time series	2010	2011	2012	2013	2014	2015
Other	957.788	1791900	1.960.475	1.645.043	3028088	2.846.287
Total from other revenues	3.699.717	3.958.365	1.960.945	3.824.180	3.028.472	2.847.551
Total revenues	**126.554.350**	**112.346.390**	**106.523.342**	**119.235.059**	**128.793.628**	**121.381.167**
Expenditures by sources						
Personnel and benefits	72.021.103	58.035.170	60.977.773	72.676.726	71.363.573	77.675.192
Drugs	16.332.824	17.613.101	18.749.466	16.887.546	17.589.421	19.264.210
Med. and non-med consumables	7.044.058	8.840.818	9.209.672	9.474.274	9.349.497	9.749.895
Maintenance	3.993.329	3.975.915	4.518.610	4.729.223	5.435.082	4.702.904
Outsourced services, of which:						
Elcomex - food (2010- 2011)	4.148.010	3.889.912	0	0	0	0
Laundry (July 2013- present)	0	0	0	342.472	757.171	848.888
Security (Oct 2010 - present)	92.259	388.059	684.845	759.168	692.580	872.965
Total outsourced services	4.240.269	4.277.971	684.845	1.101.640	1.449.751	1.721.853
Amortization of equipment	2.879.719	354.651	2.952.438	2.656.597	6.811.353	1.878.023
Other expenditures:	3.750.648	3.344.937	7.223.698	9.826.697	7.507.913	8.491.947
Total expenditures	**110.261.950**	**96.442.563**	**104.316.502**	**117.352.703**	**119.506.590**	**123.484.024**
Deficit / Surplus	**16.322.278**	**15.896.050**	**484.832**	**1.882.356**	**9.287.038**	**(2.102.856)**
Admissions				**48.871 (**)**	**45.135 (**)**	**42.782**
Case-mix index				**1,1400**	**1,1200**	**1,1200**

(**) Extrapolated based on data reported in the DRG database (www.drg.ro)

Details on 2011 donations and sponsorships	Amount (RON)	Comments
A.G. Med. SRL	1.366	Drugs
Antibiotice SA	67.783	Drugs
Public Health Direction	3	Drugs
Europharm Holding	4.328	Drugs
Lundbeck Export	2	Drugs
Mediplus Exim SRL	39.326	Drugs
Novo Nordisk Farma	7.454	Drugs
Romastru Trading S.R.L.	8.655	Drugs
S.C. Alcafarm SRL	65.500	Drugs
SC Nycomed Pharma SRL	4.813	Drugs
Servier-Pharma	458	Drugs
Ultramed SRL	38.928	Drugs
Pharmacy 2	45.132	Drugs
Dutchmed Sibiu	146.230	Consumables
Rotest Bucuresti	21.864	Consumables
Sanprodmed Bucuresti	17.387	Consumables
Altur SA	3.297	Fixed assets
District Council	135.000	Fixed assets
ERD Magic SRL	6.241	Fixed assets
Ministry of Health - B.M.	714.748	Fixed assets
Altex Impex Slatina	2.000	Inventory items
Erd Magic SRL	2.335	Inventory items
Sanprodmed Bucuresti	314	Inventory items
Clinical Hospital Niguarda Italy	30.200	Inventory items
Ministry of Health - B.M.	7.626	Inventory items

Details on 2011 donations and sponsorships	Amount (RON)	Comments
Various	795.475	Mistaken records[22]
Total 2011 donations and sponsorships	**2.166.465**	

Timisoara

- During the las six years, revenues did not show any constant trend, drawing some sort of zig-zag line. Remarkably, Government funds show a rising trend while those coming from Insurance schemes vary. The "Other revenues" category is also remarkable – in particular, the amount for 2013 is of the same order as the Government funds;
- Among Expenditures, the Personnel and benefits category is systematically the largest. In contrast, the Drugs expenditure category is the one showing a most remarkable trend, more than doubling from 2010 to 2015;
- A simple "total revenues - total expenditures" formula shows that in 2011, 2012 and 2015 the hospital' expenditures exceeded revenues, while in 2013 and 2014 the hospital showed financial surplus.

Time series	2011	2012	2013	2014	2015
Revenues by source					
Government	2.325.000	2.697.000	7.019.000	10.908.000	10.840.000
Insurance schemes	20.965.300	23.651.830	22.917.900	23.866.000	19.582.290
Patient fees	122.610	216.100	223.500	216.470	157.010
Other(*)	246.760	331.830	6.996.470	2.706.340	4.260.990
Total revenues	**23.659.670**	**26.896.760**	**37.156.870**	**37.696.810**	**34.840.290**
Expenditures by source					
Personnel & benefits	12.681.420	14.161.560	15.643.270	16.194.320	18.060.520
Drugs	7.580.250	9.420.140	10.128.870	10.893.280	11.205.890
Med. & non-med. Supplies	455.490	397.640	459.830	460.840	528.420
Maintenance	1.209.070	1.330.520	1.493.300	1.442.100	1.440.510
Outsourced services(*)	127.730	132.450	157.140	147.630	147.730
Capital & equipment	668.820	843.580	849.780	786.120	713.020
Other	1.917.640	3.016.400	3.217.850	3.559.640	3.461.300
Total revenues	**24.640.420**	**29.302.290**	**31.950.040**	**33.483.930**	**35.557.390**
Surplus / Debt	**(980.750)**	**(2.405.530)**	**5.206.830**	**4.212.880**	**(717.100)**
Admissions	**6.690**	**6.791**	**7.194**	**7.595**	**7.080**
Case-mix index	**N/A**	**N/A**	**N/A**	**N/A**	**1,5030**

(*) Including extra funds/ cover of arrears by some public authority

[22] The amounts were allocated in 2005 by the Ministry of Health for investments. The total amount was recorded in the accounting system under the household group category, and in 2011, the value (representing laundry equipment) was recorded separately in the accounting system. In 2013, the switch to the preservation status of the laundry equipment, starting with 01.01.2012 was decided. In 2015, the Managing Committee decided to update the values of the equipment in the accounting system, as a result of the evaluation report prepared and to remove the equipment from the preservation status.

In summary,

- Considering all aggregated figures, *Floreasca* appears by far to be the hospital with the biggest budgets—something rather predictable because of its level of complexity (Emergency Level I) and its size (765 beds). As a matter of contrast, *Buhusi* and *Rosiori* are clearly the hospitals with smallest budgets (lower Level IV of complexity and reduced number of beds, 193 and 119, respectively). Explaining all the intermediate positions is not easy as the characteristics of the hospitals involved fail to explain the situations straightforwardly:

- The second and third biggest budgets correspond to *Ploiesti* and *Slatina*, with the first and second largest number of beds, but facilities with lower complexity levels than others with lower budgets.
- The following facilities (*Pantelimon*, *Marius Nasta*, *Foisor*, *Timisoara* and *Lugoj*) are relatively well positioned according to their levels of complexity and numbers of beds. Notably, however, reported surpluses and debts do not necessarily match with the reported financial results in Section 1.2:

Debt/Surplus	2010	2011	2012	2013	2014	2015
Buhusi	*(317.518)*	*246.412*	*69.529*	*(18.119)*	*27.290*	*278.227*
Floreasca		*(13.235.874)*	*(4.038.514)*	*9.091.099*	*43.467.110*	*73.588.130*
Foisor	*5.574.667*	*1.410.210*	*(2.430.959)*	*(5.846.334)*	*10.172.643*	*22.776.481*
Lugoj		*890.834*	*354.078*	*(1.637.686)*	*(1.318.686)*	*(527.007)*
Marius Nasta		*(416.171)*	*7.449.789*	*(7.203.510)*	*5.094.193*	*8.746.230*
Pantelimon	*(3.174.660)*	*(5.702.939)*	*(1.647.923)*	*(4.177.063)*	*(4.914.660)*	*(4.034.860)*
Ploiesti	*12.886.186*	*(4.583.460)*	*(4.890.212)*	*(1.163.980)*	*8.570.822*	*(4.060.888)*
Rosiori	*(6.578)*	*(3.466.444)*	*(1.576.911)*	*(2.137.694)*	*22.708.484*	*(16.311.059)*
Slatina	*16.322.278*	*15.896.050*	*484.832*	*1.882.356*	*9.287.038*	*(2.102.856)*
Timisoara		*(980.750)*	*(2.405.530)*	*5.206.830*	*4.212.880*	*(717.100)*

- *Pantelimon* is hard to understand, not having arrears after presenting sustained debts amounting to more than RON 23 million —this could be a matter of capital depreciation but it is not clear; something similar can be said about *Buhusi*, showing relatively high percentages of arrears even after a couple of years with surpluses
- No conflicting figures relate on the other side to *Rosiori*, with strong arrears after having sustained debts year after year, and with *Foisor,* with two consecutive years of surplus in 2014-2015, after relatively smaller arrears in 2012–2013, The same applies to *Slatina*, only showing small arrears in the first year with debts after a number of previous years with surpluses.

Findings from Financial audit: Due to the insufficiency or untimely availability of requested documents the financial audit procedures were completed to a substantial degree only for part of hospitals in the sample. Nevertheless, several issues of relevance to the generation of arrears and, more broadly, to financial discipline were identified. We list the main findings below and more details can be found in the Appendix.

- **The nature of hospital revenue streams may contribute to their vulnerability to incurring arrears.** This applies to both MoH-owned and local authority-owned hospitals. For example, the inflow of cash received by *Rosiori* outside the normal course of operations from municipality in order to cover outstanding liabilities. Without the aforementioned inflow of cash, the hospital most probably would have incurred additional arrears. Pantelimon, on the other hand, receives nearly 40% of funds from MoH and requests funds one month in advance, with the actual collection realized within two weeks. It could be argued that the

Hospital is highly dependent on these funds and, should the MoH delay payments, the Hospital would incur arrears.

- **The process by which hospitals send invoices to the NHIH may lead to cut-off issues, since no accruals are recorded at the end of the month for executed and unbilled services**. For example, invoices issued in the first quarter of 2015 and referring to 2014 were identified. When this situation arises, it leads to an understatement of revenues for the period when invoices are issued.
- **For several suppliers, accounting due dates did not match contractual data and the accounting due dates varied up to 90/120 days**, as revealed from the review of trade payables ageing (on a sample basis). If contractual due dates were used instead of accounting due dates, the outstanding liabilities exceeding 90 days (hence arrears) would be higher, which means that in such cases reported arrears are understated.

- **Vulnerability due to the increased staff salaries:** Starting with October 2015, following a Government order, staff salaries increased by 25% and the additional cost was covered by the NHIH in 2016. There is no documented indication (e.g. a contractual right) that this increase will be further covered by the NHIH in subsequent years, generating financial deficits for all (not only for the assessed sample) hospitals

- **Vulnerability due to existing contractual arrangements:** due to the By reviewing documentation for a sample of service providers, it was found that while the contract specifies a certain volume of services to be provided within a month, the actual monthly invoice may not contain a detailed analysis of services and the billed amount is constant. It could be argued that, in the absence of a detailed analysis of services provided, a hospital could be in a position to pay for services which have not been realized.

- **Incompliance/ignorance of legal or internal procedures:** Instances were identified where the hospital management does not follow internal procedures/legislation concerning public acquisition, with several potential effects, including:
    . Improper use of public funds,
    . Purchasing potentially unnecessary or low quality inventories/fixed assets, and
    . Lack of fair representation of all suppliers in a public tendering process.
- **Issues related to classifying the contracts issued by hospitals to sub-contracts:** In some contracts concluded with subcontractors of medical services, the conditions and obligations of each party in the agreements are of the nature of an individual labour contract. As a consequence, there is a risk that tax authorities can challenge these agreements and classify them as individual labour contracts, resulting in additional social security contributions to state budget for the hospitals.

- **Issues related to delays in setting taxes:** In some cases significant delays were found in settling payroll-related taxes. In addition, overdue amounts carry penalties and interest of 0.06% per day, which were not recorded.

3.3 Outputs

In recent times, the importance of properly assessing health and health services needs so that the necessary services (of whatever types) could be *right-sized* has grown, as in parallel has the

potential negative impact of producing the wrong kind of services. Innovative strategic plans assigning the production of services according to business models that incorporate complexity, frequency and costs (as opposed to wishful thinking) make the difference in terms of system stability (Christensen, 2009).[23] In short, correctly addressing hospital outputs is one of the most important challenges confronted by healthcare in general (and in European hospitals in particular: Jeurissen *et al*., 2016)[24] as both the cost and variety of health services have gone up.

In Romania, the hospital map seems to be poorly planned. The analysis shows an enormous variability in the *choice* of service types and the singular services to be produced. First, it is often unclear how hospital outputs relate to the burden of disease; second, evidence abounds that complex service production is poorly organised; as indicated, duplications as well as inefficiencies are widespread among publicly owned facilities, with many facilities essentially producing much of the same type of services. The problem is not necessarily the existence of standards, but how they are applied and aligned with a broader vision for access to health services. For example, the Ministerial Order 323/2011 in Romania stipulates the type of structure, personnel, equipment and type of activity (e.g. territorial addressability and proportion of patients from other counties) for each type of hospital from level I to level V. However, the classification is awarded based on the hospital's self-evaluation against a number of criteria relating to the domains outlined above. The truth is that there is no formal vision as to the spatial and functional distribution of hospitals.

The tables below show details of the outputs in the areas of emergency care, hospitalisation, and diagnostic as well as surgical activity in the sampled hospitals.

3.3.1 Details of emergency care in the sampled hospitals

Overall:

- Total number of emergency attendances per year ranges from more than 100.000 in *Floreasca* or more than 90.000 in *Ploiesti* to some 10.900 in *Marius Nasta.* The intuitive association between hospital size and number of emergency attendances, however, is offset by the fact that those hospitals are of different nature and provide different types of services in different volumes, respectively.
- Similarly, the percentages of emergency attendances leading to hospital admission in those ten hospitals, are very different, with figures ranging from more than 90% in *Marius Nasta* to 26% in *Floreasca* or 18% in *Buhusi*.

The following tables show the available information for the ten selected hospitals (more information in the Annexes):

Buhusi

	2010	2011	2012	2013	2014	2015
Total emergencies	11.747	13.226	11.780	13.446	12.274	13.142
Solved without admission	67%	69%	66%	71%	68%	81%
Discharged without admission	62%	63%	61%	65%	62%	76%
Referred to another facility	5%	6%	5%	6%	6%	5%

[23] Christensen, C. (2009) *The Innovator's prescription. A disruptive solution for healthcare*, McGraw Hill, New York, pp. vii–xxii.
[24] Jeurissen, P., Duran, A. and Saltman, R.B. (2016) 'Uncomfortable Realities: The Challenge of Creating Real Change in Europe's Consolidating Hospital Sector', *BMC Health Services Research, Special Issue* 16(2), https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-016-1389-3.

Leading to admission	33%	31%	34%	29%	32%	18%

Floreasca

Total emergency		**107,080 cases**
Solved without admission	78.822	(73,61% of total attendances)
Discharged without admission	76.680	(71,61% of total attendances)
Referred to another facility	2.142	(2% of total attendances)
Leading to admission	28.258	(26,39% of total attendances)

Foișor

Total emergency		**15,468 cases**
Real emergency cases		
Solved without admission	5.310	(34,3% of total attendances)
Referred to another facility	0	(0% of total attendances)
Leading to admission	1.521	(9,8% of total attendances)
Total emergency cases	6.831	(44,1% of total attendances)
Non-emergency consultations		
Total number	8.637	(55,9% of total attendances)

Lugoj

	2010	**2011**	**2012**	**2013**	**2014**	**2015**
Total emergencies	15.830	16.508	18.964	19.036	18.905	20.804
Solved without admission	45%	40%	39%	34%	27%	24%
Discharged without admission	3%	3%	3%	4%	3%	4%
Referred to another facility	42%	37%	36%	30%	24%	20%
Leading to admission	55%	60%	61%	66%	73%	76%

Marius Nasta

Total emergency		**10,889 cases**
Solved without admission	1.078	(9.9% of total attendances)
Discharged without admission	915	(8.4% of total attendances)
Referred to another facility	163	(1.5% of total attendances)
Leading to admission	9.811	(90.1% of total attendances)

Pantelimon

	2012	**2013**	**2014**	**2015**
CPU attendances	83.127	90.259	89.974	85.271
Solved without admission	70,35%	68,34%	71,27%	72,84%
Referred to another facility	0,13%	0,12%	0,11%	0,18%

Leading to admission	29,52%	31,54%	28,62%	26,98%

Ploiesti

	2015
Total emergencies	91.965
Solved without admission	75%
Discharged without admission	72%
Referred to another facility	3%
Leading to admission	25%

Rosiori

Accidents and Emergencies	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Total number of A&E attendances	33.683	31.003	34.396	27.548	29.462	29.713
% of emergencies solved without admission	47,1	47,42	49,27	48,85	47,75	48,32
% of emergencies referred to another facility	7,75	6,25	7,9	3,68	6,72	6,36
% of emergencies leading to admission	42,21	46,33	42,82	47,47	45,53	45,32

Slatina

Total emergency		**52,609 cases**
Solved without admission	35,898	(68,2% of total attendances)
Discharged without admission	35.445	(67,4% of total attendances)
Referred to another facility	453	(0,8% of total attendances)
Leading to admission	16.711	(31,8% of total attendances)

Timisoara

Total emergency		**26,039 cases**
Solved without admission		(64,4% of total attendances)
Discharged without admission		(59,9% of total attendances)
Referred to another facility		(4,5% of total attendances)
Leading to admission		(27,2% of total attendances)
Refusals to be admitted		(8,4% of total attendances)

3.3.2 Details of in-patient care in the sampled hospitals

Overall:

- Total number of admissions per year ranges from 48.000 in *Ploiesti*, 43.000 in *Slatina* or 35.600 in *Floreasca*, the biggest facilities, to 5.300 in *Buhusi*, 5.800 in *Foisor* or 7.000 in *Timisoara*, the smallest hospitals. Remarkably, *Pantelimon* shows more admissions than the bigger *Marius Nasta* (although the already stated long-term care profile as pneumology institute of the latter could explain such figures);

- Regarding bed-days, again *Ploiesti, Slatina* and *Floreasca* show the biggest figures, while *Buhusi and Foisor* have the smallest (no data has been provided for *Rosiori*);
- *Floreasca* (with 86%), *Pantelimon* (with 81%) and *Ploiesti (with 80%)* show BOR typically compatible with BOR in what is currently seen as efficient facilities;
- On the other side, *Foisor* (68%), *Lugoj* (60%) and *Rosiori* (49%) show low occupancy rates, possibly reflecting bed surpluses/improvable resource utilisation.
- In contrast, particular specialities in specific hospitals (e.g. Child neuromotor recovery, 334%; Plastic surgery, 117% or Adult neurological recovery, 115% at *Slatina*; Prematurity, 165%; Ophthalmology, 110%; Orthopaedics and Trauma, 107% or Gastroenterology, 106% at *Pantelimon*; Medical recovery, 125% at *Timisoara*; Psychiatry - chronic patients, 123% at *Buhusi*; Cardiology, 119% at *Ploiesti*; or Gastroenterology, 102%; Cardiology, 99% or General Surgery, 94% at *Floreasca*) show values that could indicate beds shortage or even doubtful record keeping practices (e.g. keeping patients admitted 'on paper' but in effect allowing them to leave the hospital, at least temporarily);

Detailed tables can be found below (with more information in the Annexes):

Buhusi

	2010	2011	2012	2013	2014	2015
Admissions	6.319	6.465	6.020	6.170	5.023	5.032
ALOS	10,3	10,2	10,9	10,1	10,6	11,3
Bed-days		65.796	65.385	62.557	52.902	56.766
Occupancy rate	94	104	104	99	84	90
Case-mix index						

Admissions per dep*artment*	*2*010	2011	2012	2013	2014	2015
Internal medicine	1.045	1.144	1.078	1.042	887	902
Surgery	1.159	1.216	1.008	1.042	803	774
Neurology	415	363	508	552	483	417
Paediatrics	1.083	925	818	920	794	928
Infectious diseases	1.106	1.129	1.*133*	*1.*248	890	893
*Psy*chiatry - chronic patients	704	679	618	584	538	499
Rheumatology	615	830	709	631	502	507
Chronic diseases	192	179	148	151	126	112
Overall hospital	**6.319**	**6.465**	**6.020**	**6.170**	**5.023**	**5.032**

ALOS per department	2010	2011	2012	2013	2014	2015
Internal medicine	7,1	7,0	6,9	6,6	7,0	7,3
Surgery	5,6	5,9	5,7	5,2	5,6	5,2
ICU	3,4	3,4	3,2	3,2	3,2	3,4
Neurology	6,8	7,2	7,1	6,9	6,1	6,1
Paediatrics	3,8	3,8	3,9	3,9	3,6	3,6
Infectious diseases	6,2	6,5	6,2	5,9	6,2	7,1
Psychiatry - chronic patients	40,4	39,2	47,0	45,9	42,6	52,1
Rheumatology	8,9	8,2	8,4	8,7	9,8	9,5

ALOS per department	2010	2011	2012	2013	2014	2015
Chronic diseases	6,4	6,3	4,9	5,1	5,7	6,6
Overall hospital	10,3	10,2	10,9	10,1	10,6	11,3

Bed occupancy per department	2010	2011	2012	2013	2014	2015
Internal medicine	85	89	84	78	71	75
Surgery	90	117	97	91	76	65
ICU	69	77	78	79	68	71
Neurology	60	72	100	107	82	71
Paediatrics	75	65	58	66	52	61
Infectious diseases	79	102	99	101	77	89
Psychiatry - chronic patients	130	122	133	122	105	123
Rheumatology	75	125	110	100	90	88
Chronic diseases	42	62	40	42	39	40
Overall hospital	94	104	104	99	84	90

Floreasca

Total admissions	35,646
Total number of bed-days	229,651
BOR	86.1%

Breakdown by hospital specialities

	BOR	Bed turnover
AIC I Polytrauma	98.0%	42.8
Cardiology	98.8%	58.2
Plastic surg. and recon. microsurgery	79.4%	60.3
Cardiovascular surgery	46.1%	9.5
General surgery I	98.5%	49.9
General surgery II	77.5%	46.8
General surgery III	77.9%	48.7
Gastroenterology	102.4%	120.8
Internal medicine	94.2%	52.7
Neurosurgery	87.7%	46.6
Neurology	111.4%	63.3
Orthopaedics I	64.0%	37.3
Orthopaedics II	89.3%	43.3
Orthopaedics III	87.3%	41.3
Toxicology: AIC II	91.1%	63.6
Total hospital	**86.1%**	**48.2**

Foisor

Total admissions	5.817
Total number of bed-days	24.955
BOR	68,5%

No breakdown by hospital specialities has been provided.

Lugoj

	2010	2011	2012	2013	2014	2015
Admissions	12.497	11.140	10.290	10.198	10.223	10.036
ALOS	7,8	7,9	8,0	7,9	7,9	8,0
Bed-days	98.863	89.474	82.888	80.921	81.306	80.946
Occupancy rate	66,9	63,5	58,8	59,5	60,5	60,3
% admitted emergencies	54,79%	60,24%	60,57%	65,61%	72,80%	76,08%
Case-mix index	0,9164	0,9864	0,9753	1,0189	1,0992	1,1132

Admissions per department	2010	2011	2012	2013	2014	2015
Internal medicine	2.384	2.009	1.765	1.656	1.797	1.690
Nephrology compartment	82	106	97	77	72	0
Gastroenterology compartment	331	158	277	349	468	435
Cardiology compartment	396	430	364	364	392	380
Sugar diabetes compartment	484	485	421	450	511	493
General surgery	834	761	751	776	732	747
ENT compartment	178	93	106	147	144	123
Orthopaedics compartment	393	268	238	224	177	182
Obstetrics - gynaecology	1.597	1.311	1.158	1.203	1.029	1.045
Neonatology compartment	540	490	504	535	522	512
Urology compartment	431	360	388	293	296	285
Infectious diseases compartment	520	639	610	560	525	604
Paediatrics	1.276	1.175	927	846	888	859
Neurology compartment	673	617	600	550	600	543
Psychiatry - acute patients	666	657	637	628	569	522
Psychiatry - chronic patients	146	144	135	133	154	128
Pneumology	1.097	1.078	973	1.057	984	1.106
TB compartment	142	124	127	103	102	106
Palliative care compartment	327	235	212	247	261	276
Total hospital	**12.497**	**11.140**	**10.290**	**10.198**	**10.223**	**10.036**

ALOS per department	2010	2011	2012	2013	2014	2015
Internal medicine	6,8	6,9	7,0	7,1	6,8	6,6
Nephrology compartment	7,2	6,9	5,9	6,4	7,1	0,0
Gastroenterology compartment	4,1	3,9	4,5	5,1	5,2	5,2
Cardiology compartment	6,1	5,7	5,8	5,6	6,0	5,9
Sugar diabetes compartment	5,4	5,4	5,6	5,9	6,0	6,1
General surgery	4,7	4,7	4,7	4,3	3,3	3,8
ENT compartment	4,5	4,2	3,6	3,9	4,0	4,1
ICU	6,0	7,1	7,5	7,7	6,8	5,3
Orthopaedics compartment	3,8	3,9	3,7	3,9	1,8	1,5

ALOS per department	2010	2011	2012	2013	2014	2015
Obstetrics - gynaecology	4,8	4,9	4,9	4,8	3,8	3,7
Neonatology compartment	5,3	5,2	5,2	5,1	5,2	4,8
Urology compartment	5,9	6,0	5,2	5,9	5,3	5,0
Infectious diseases compartment	6,4	6,4	6,6	5,9	5,6	5,9
Paediatrics	6,4	5,4	5,0	4,8	5,2	4,9
Neurology compartment	7,5	7,2	6,9	6,4	6,2	6,6
Psychiatry - acute patients	11,3	12,0	12,2	11,6	11,4	13,5
Psychiatry - chronic patients	30,4	29,1	29,7	30,9	31,0	32,8
Pneumology	8,3	8,4	8,7	8,5	7,9	8,3
TB compartment	35,2	36,2	35,7	36,4	35,6	38,2
Palliative care compartment	11,9	12,4	11,3	10,5	11,3	9,7
Total hospital	**7,8**	**7,9**	**8,0**	**7,9**	**7,9**	**8,0**

Bed occupancy rate per department	2010	2011	2012	2013	2014	2015
Internal medicine	83,9	79,1	73,1	67,2	72,0	66,0
Nephrology compartment	36,4	44,2	35,2	29,9	31,1	0,0
Gastroenterology compartment	43,8	22,3	39,7	53,3	86,8	84,3
Cardiology compartment	72,0	74,0	63,4	61,5	75,3	72,0
Sugar diabetes compartment	61,8	74,4	66,4	76,9	87,8	90,0
General surgery	73,6	72,2	70,4	69,3	59,0	67,5
ENT compartment	44,4	22,0	25,3	37,2	37,1	32,6
ICU	74,0	65,4	61,3	59,2	57,8	45,3
Orthopaedics compartment	48,7	47,6	45,0	49,8	47,9	41,3
Obstetrics - gynaecology	64,4	61,4	53,5	54,1	46,0	45,9
Neonatology compartment	52,2	47,5	48,4	50,1	50,4	45,2
Urology compartment	72,3	61,7	58,9	50,2	51,6	49,3
Infectious diseases compartment	63,1	77,4	77,7	63,8	59,3	70,0
Paediatrics	61,0	50,3	36,2	45,0	57,9	52,8
Neurology compartment	79,5	69,4	64,3	54,6	58,0	56,3
Psychiatry - acute patients	77,6	81,5	80,6	76,2	68,1	73,5
Psychiatry - chronic patients	64,1	60,3	59,7	60,6	69,2	65,1
Pneumology	66,8	66,7	63,6	67,5	58,6	69,5
TB compartment	63,6	69,3	67,0	56,9	52,6	58,2
Palliative care compartment	54,9	41,3	33,2	45,6	54,3	50,4
Total hospital	**66,9**	**63,5**	**58,8**	**59,5**	**60,5**	**60,3**

Marius Nasta

	2011	2012	2013	2014	2015
Total admissions	13.032	15.820	15.033	14.675	12.923
Total number of bed-days	181.631	208.429	191.892	192.688	183.983
BOR	91,14	103,54	95,41	95,81	90,99

No breakdown by hospital specialities has been provided.

Pantelimon

	2012	2013	2014	2015
Total admissions	26.979	30.507	27.247	24.881
Total number of bed-days	152.701	163.823	155.035	155.506
Overall BOR	63,5	65,5	80,9	81,3

Hospital admissions. Breakdown by specialities

	2012	2013	2014	2015
Cardiology	2.320	2.377	2.501	2.552
Internal medicine	2.248	2.304	2.236	2.380
Gastroenterology	527	519	686	950
General surgery	6.752	8.350	6.108	4.928
Vascular surgery	85	94	127	216
Plastic surgery	265	369	399	445
Neurosurgery	2.218	2.419	2.214	1.959
Obstetrics and gynaecology	2.937	4.006	3.729	3.031
Obstetrics pathology	3.840	3.446	3.162	2.831
Neonatology	1.390	989	1.138	1.216
Prematurity Ward	0			191
Orthopaedics and traumatology	3.654	4.745	4.221	3.158
OT medical recovery	0			87
ENT	134	217	166	191
Ophthalmology	609	672	560	746
Total admissions	26.979	30.507	27.247	24.881

BOR: Breakdown by speciality

	2012	2013	2014	2015
Cardiology	58,67	66,5	83,8	83,4
Plastic and reconstructive surgery	14,65	23,4	27,7	31,0
Surgery	88,42	96,2	92,5	84,4
Vascular surgery	38,94	33,7	47,3	81,5
Gastroenterology	69,63	53,9	85,1	106,2
Medical	67,78	80,8	79,2	93,2
Neonatology	54,84	24,6	34,6	44,2
Prematurity Ward	62,05	15,7	36,0	161,5
Neurosurgery	86,15	86,7	96,4	81,8
ENT	29,86	52,2	49,3	50,5
Obstetrics and gynaecology	39,08	40,2	50,1	57,1
Obstetrics pathology	50,95	46,0	65,3	72,5
Ophthalmology	95,39	119,9	90,0	110,3
Orthopaedics and traumatology	92,63	98,1	125,0	107,0
Orthopaedics medical recovery			41,2	35,9
Hospital BOR	63,5	65,5	80,9	81,3

Ploiesti

	2015
Admissions	48.007
ALOS	7,0
Bed-days	337.876
Occupancy rate	80,1%

2015 data	Admissions	ALOS	Occupancy
General surgery 1	3.597	4,4	75,5%
Obstetrics and gynaecology	40	4,4	10,0%
General surgery 2	3.017	4,6	72,6%
Vascular surgery	376	5,4	75,3%
Plastic surgery and microsurgery rec and burned	1.309	4,0	71,2%
Internal medicine 1	3.733	5,2	73,2%
Nephrology	1.153	6,1	99,2%
Diabetes mellitus , nutrition and metabolic diseases	1.275	6,1	71,0%
Orthopaedics and traumatology	2.056	5,3	94,6%
Cardiology	6.732	3,4	119,5%
Neurosurgery	1.397	4,7	96,1%
Neurology	3.850	6,7	80,8%
Paediatrics – older children	35	1,8	1,7%
Gastroenterology	1.479	5,9	105,1%
Internal medicine 2	2.690	7,0	81,2%
Haematology	394	7,4	92,5%
Endocrinology	243	4,1	47,1%
Ophthalmology	1.449	3,1	50,3%
Psychiatry	3.966	8,3	99,3%
Dermatovenerology	664	7,6	73,1%
Urology	2.613	3,9	100,3%
ENT	2.018	5,6	80,9%
Oral and maxillofacial surgery	713	4,4	52,0%
Pneumology	1.021	9,0	89,6%
TB department	230	37,5	65,0%
Adult infectious diseases	1.098	7,7	51,0%
Children infectious diseases	859	5,3	42,3%
Total hospitals	**48.007**	**7,0**	**80,1%**

Rosiori

	2010	2011	2012	2013	2014	2015
Admissions	11,915	11,525	11,132	10,655	9,972	9,648
BOR	64,9	64,2	61,2	56,9	51,8	49,1

Breakdown by specialities

Admissions	2010	2011	2012	2013	2014	2015
Infectious diseases	687	864	854	719	649	565
Surgery	978	791	865	706	627	625
Medical care	2,166	2,262	2,180	2,028	1,934	1,892
Cardiology	655	542	637	785	730	620
Neurology	1,026	930	917	914	838	891
Neonatology	492	415	473	355	299	207
Obstaetrics and gynaecology	2.030	1.892	1.826	1.675	1.615	1.248
Ophthalmology	384	429	394	340	289	575
Oncology	766	722	766	836	806	936
ENT	446	488	305	418	374	265
Paediatrics	1.716	1.625	1.399	1.368	1.315	1.319
Balneo-physiotherapy	569	565	516	511	496	505
Total	11.915	11.525	11.132	10.655	9.972	9.648

Notably, *Rosiori* (as 16 other municipal hospitals) has medical oncology structures. *Rosiori's* throughput (number of cases discharged from the medical oncology ward) is in fact the fifth highest among municipal hospitals.

BOR	2010	2011	2012	2013	2014	2015
AIC	48,2	45,4	46,4	42,6	37,5	33,0
Infectious diseases	52,2	68,5	63,9	52,0	46,1	40,7
Surgery	59,6	51,0	50,1	32,0	28,4	30,1
Medical care	98,7	103,7	102,0	87,8	83,8	90,8
Cardiology	93,1	82,8	103,1	116,3	101,0	86,8
Neurology	74,1	63,5	62,6	61,3	56,3	55,9
Neonatology	56,7	47,4	51,0	40,1	34,9	27,8
Obst. and gynaecology	58,9	55,2	53,2	49,0	42,3	27,2
Ophthalmology	41,6	43,9	42,9	35,1	29,2	43,9
Oncology	85,6	79,0	72,0	72,6	60,4	62,3
ENT	46,5	51,6	33,1	43,7	39,7	26,7
Paediatrics	70,1	69,6	57,7	54,4	51,2	47,0
Balneo-physiotherapy	86,9	82,9	75,3	73,8	76,8	79,9
Hospital average	64,9	64,2	61,2	56,9	51,8	49,1

Slatina

	2010	2011	2012	2013	2014	2015
Discharges	54.585	51.273	50.409	47.612	43.986	42.899
ALOS	6,43	6,42	7,47	7,87	7,66	7,63
Bed-days						330.116
Occupancy rate	89,8	85,4	92,3	89,5	80,5	78,4
Case-mix index	1,10	1,06	1,04	1,14	1,12	1,12

Department	Beds	Discharges	Occupancy rate	ALOS
Infectious diseases	44	1.632	75,68	6,31
HIV/AIDS	6	106	36,62	7,10
Cardiology	80	3.546	91,34	3,73
General Surgery	70	2.365	78,58	5,85
Plastic Surgery	10	515	117,07	7,59
Burns	10	117	38,08	10,53
Infant Surgery	25	584	29,48	4,41
Chest Surgery	5	212	80,66	5,76
Dermato-venerology	14	471	71,57	7,67
Diabetes	20	902	87,25	6,65
Endocrinology	5	97	33,42	6,22
Gastroenterology	25	1145	74,98	4,71
Internal Medicine	65	2.136	71,30	6,92
Haematology	10	324	56,11	5,87
Nephrology	25	1194	92,85	6,06
Peritoneal dialysis	4	17	12,47	9,10
Neurology	55	2.444	95,11	4,13
Infant neuropsychiatry	15	426	47,40	6,08
Neonatology	30	1.357	96,31	5,86
Obstetrics-gynaecology I	60	3.000	77,72	4,64
Obstetrics-gynaecology II	60	2.815	72,95	4,73
ENT	25	1153	86,44	6,38
Child ENT	5	205	68,16	5,92
ATI	38			
Surgery BMF	5	143	43,67	4,43
Ophthalmology	23	675	44,09	5,46
Child ophthalmology	2	35	23,15	4,57
Oncology	45	2388	74,49	4,97
Orthopaedics	35	961	67,95	7,58
Paediatrics	60	4386	112,35	3,68
Psychiatry	75	1857	70,37	9,98
Urology	25	918	55,47	4,93
Pneumology	30	1161	106,37	9,52
Medical recovery	50	2015	109,37	9,87
Child neuro-motor recovery	15	204	334,00	17,59
Chronic patients	22	743	97,25	10,47
Adult neurological recovery	5	197	115,01	9,45
Premature neonatology	10	129	20,88	3,28
TB	40	309	70,53	30,65
TB – MDR	5	15	41,70	50,73
Overall hospital	**1.153**	**42.899**	**78,44**	**7,63**

Timisoara

	2010	2011	2012	2013	2014	2015
Admissions	6.150	6.690	6.791	7.194	7.595	7.080
ALOS	11,8	11,9	11,1	11,3	11,2	10,9
Bed-days	72.263	79.812	75.244	80.933	85.368	77.314
Occupancy rate	71,2	74,2	69,9	75,2	75,8	70,0
Case-mix index						1,5030

Admissions per department	2010	2011	2012	2013	2014	2015
Pneumoftisiology 1	1.109	1.050	1.093	1.414	1.564	1.450
Pneumoftisiology 2	1.752	1.762	1.789	1.918	1.923	1.731
Infectious Diseases 1	1.403	1.526	1.687	1.620	1.753	1.638
Infectious Diseases 2	1.552	2.001	1.900	1.878	1.971	1.854
Thoracic surgery	239	233	175	213	177	198
Medical Recovery	95	118	147	151	197	209
Hospital	**6.150**	**6.690**	**6.791**	**7.194**	**7.595**	**7.080**

ALOS per department	2010	2011	2012	2013	2014	2015
Pneumoftisiology 1	18,5	18,9	16,8	15,6	15,5	15,6
Pneumoftisiology 2	14,3	14,2	13,5	13,0	13,6	12,7
Infectious Diseases 1	8,0	8,3	7,3	8,1	8,3	8,2
Infectious Diseases 2	8,3	8,2	7,5	7,4	7,6	7,5
Thoracic surgery	11,2	9,6	8,7	9,4	10,9	13,3
Medical Recovery	20,7	20,7	19,7	20,0	17,2	13,5
Hospital	**11,8**	**11,9**	**11,1**	**11,3**	**11,2**	**10,9**

Bed occupancy per department	2010	2011	2012	2013	2014	2015
Pneumoftisiology 1	78,1	72,4	67,0	80,7	82,8	79,2
Pneumoftisiology 2	94,0	91,3	88,2	90,9	86,6	75,7
Infectious Diseases 1	51,3	57,7	56,1	59,9	63,3	58,7
Infectious Diseases 2	59,8	74,5	65,1	63,4	64,9	59,4
Thoracic surgery	69,8	60,9	41,6	55,0	45,2	61,2
Medical Recovery	92,7	111,6	13,6	138,1	148,7	125,4
Hospital	**71,2**	**74,2**	**69,9**	**75,2**	**75,8**	**70,0**

3.3.3 Details of diagnostic activity in the sampled hospitals

Overall:

- Activity modalities and intensity in the diagnostic sphere seem to reflect the profiles of the facilities as well as the already commented technological endowment (plausibly reflecting the adaptive principle of 'making the best of what is around' rather than revealing a perfect match between technology and need -in the opinion of the consultant).
- As indicated, the true reasons behind the observed presence of a number of imaging diagnostics in very small hospitals have not been properly explained (e.g., ecographies in *Buhusi*, *Lugoj* or *Rosiori)*,
- Particular analysis would be needed for those facilities endowed with complex and expensive technology that on average perform less than one service per day (e.g., CTs in Buhusi)

The following tables include diagnostic activity elements for the ten selected hospitals (more information can be found in the Annexes):

Buhusi

	2010	2011	2012	2013	2014	2015
CTs	--	--	17	245	448	206
Mammographies	Not performed in the hospital					
Echographies	2.520	2.300	1.900	1.908	3.405	7.992
MRIs	Not performed in the hospital					
Blood tests	147.220	136.355	145.604	162.800	167.260	187.100
Biopsies	165	232	234	235	284	268
Microbiological tests	13.950	12.760	13.395	14.390	13.890	16.110
Cytologies	Not performed in the hospital					

Floreasca

CTs performed	12,777
Echographies performed	38,983
MRI performed	2,032
Coronary angiogram	1,912
Peripheral angiogram	538
Radiology	134,827
Scintigraphy	159
Endoscopies, colonoscopies, etc.	6,914
Blood tests performed	1,151,253
Bioptic examination	5,691
Microbiological tests performed	25,762
Cytologies performed	2,214

Foisor (*)

Blood tests		
	Haemogram	4,070
	VSH	2,954
	Coagulation tests	10,704
Total blood tests performed		17,728
Biopsies		

	Total number	1,879

(*) No quantitative information about imaging diagnostics has been provided, but rather: 'Every orthopaedist undertakes his echography examination, in his own area of expertise. There is no contract closed with National Health Insurance on echographies.'

Lugoj

	2010	2011	2012	2013	2014	2015
Echographies	--	5.655	712	9.101	2.975	11.821
Blood tests	--	--	153.455	158.858	--	166.292
Microbiological tests	--	--	8.734	7.849	--	6.821
Cytologies	281	403	335	442	248	360

Marius Nasta

CTs performed (*)	3,063
Echographies performed	2, 349
Blood tests performed	232,212
Bioptic examination	1,125
Microbiological tests performed	114,389
Cytologies performed	8,968

(*) Outsourced

Pantelimon

	2012	2013	2014	2015
Total CTs performed	4,654	5,385	7,467	6,622
Total mammographies performed	n/a	n/a	n/a	n/a
Total echographies performed	16,230	17,546	14,181	16,227
Total MRI performed	527	65	24	32
Total blood tests performed (*)	622,309	474,994	353,814	357,489
Biopsies (**)				
Total analysed samples	10,222	10,376	12,243	14,039
Total persons receiving these services	4,511	4,160	4,598	5,364
Total microbiological tests performed				n/a
Total cytologies performed	634	557	510	292

(*) The number of microbiological tests is included in the total number of blood tests performed. The hospital does not have a different statistics on blood tests and on microbiological tests
(**)The hospital provided the number of analysed samples, but also the number of persons receiving this kind of services

Ploiesti

	2015
CTs	20.753
Mammograms	231
Echographies	4.806
MRIs	887

Rosiori

Diagnostic procedures	2010	2011	2012	2013	2014	2015
Total CTs performed	378	308	739	1.073	0	943
Total mammographies performed	0	0	0	0	0	0
Total echographies performed	5.948	4.987	4.123	5.582	8.470	9.538
Total MRI performed	0	119	51	24	0	0
Total blood tests performed	114.796	138.842	115.451	121.530	123.419	127.472
Total biopsies performed	15.760	13.750	15.670	18.150	9.570	3.170
Total microbiology tests performed	12.201	14.841	11.343	14.801	9.788	10.602
Total cytologies performed	2.748	1.988	1.557	1.592	566	459

Slatina

CTs performed	19.048
Mammographies performed	332
Ecographies performed	12.364
MRI performed[25]	0
Blood tests performed	871.098
Biopsies performed	6.769
Microbiological tests performed	11.452
Cytologies performed	1.267

Timisoara

	2010	2011	2012	2013	2014	2015
CTs			298	414	598	826
Echographies	4.150	3.098	4.417	4.213	3.674	3.080
MRIs			43	33	31	47
Blood tests	610	654	733	674	746	214.051
Biopsies	83	78	69	181	143	328
Microbiological tests	33.715	19.954	16.497	26.481	21.443	45.582
Cytologies	1.411	792	5.292	689	1.316	1.564

3.3.4 Details of surgical activity in the sampled hospitals

Overall:

- In the absence of any adjustment by severity to assess the reported figures, surgical production does look unremarkable in any of the analysed hospitals. The average number of surgical interventions per operating room ranges from 1.857 (at *Ploiesti*) or 1.123 (at *Marius Nasta*) to 179 (at Timisoara), 149 (at Slatina), 380 (at Buhusi) or 500 (at *Rosiori*).;
- Regarding the share of programmed vs. emergency surgeries, not all facilities have provided the information requested; reported rates range from 50-50 in *Floreasca or 67-23 in Ploiesti*, to 93-7 in *Marius Nasta or 100-0 in Timisoara*; and

[25] Started to function from 2016

- Only *Buhusi*, *Lugoj* and *Marius Nasta* report day-care / ambulatory surgical activity (about 49%, 2% and 35% of total programmed activity, respectively). In the other hospitals 100% of the activity is reported to be carried out on in-patient basis, which in light of international practice sounds rather odd. Remarkably, however, the situation is not perfectly clear: no main diagnoses have been reported for those surgeries performed on ambulatory basis in some hospitals (e.g., *Buhusi* reports the performance of day-care surgical interventions but not of ambulatory surgical interventions) while in others, specific day-care beds are reported to exist, although no day care / ambulatory surgeries are performed.

The following tables provide more info, hospital by hospital (more details in Annexes):

Buhusi

	2010	2011	2012	2013	2014	2015
Planned surgeries						
In-patient	573	564	549	474	484	521
Day-care[26]	70	113	75	106	505	509
Total planned	643	677	624	580	989	1.030
Unplanned surgeries	54	11	18	13	82	109
Total surgeries	**697**	**688**	**642**	**593**	**1.071**	**1.139**

	2010	2011	2012	2013	2014	2015
% day-care surgical interventions	16,1%	16,4%	14,3%	17,9%	50,0%	47,1%

Floreasca

Surgical interventions			
	Programmed surgeries	12.596	(49,9% of total surgeries)
	Emergency surgeries	12.658	(50,1% of total surgeries)
Total surgical interventions performed		25.254	(100% of total surgeries)

Foisor

Surgical interventions(*)			
	Programmed surgeries	1.813	(72,3% of total surgeries)
	Emergency surgeries	696	(27,7% of total surgeries)
Total surgical interventions performed		2.509	(100% of total surgeries)

(*) Some 50 interventions (2% out of the total number of surgeries) were reported as 'cancelled'. No information was provided about ambulatory surgical interventions.

Lugoj

	2010	2011	2012	2013	2014	2015
Programmed in-patient	2.397	1.688	1.914	1.828	1.594	1.812

[26] In reality, it is called "Day-care surgeries" but it consist of: localized edema, ingrown nail, nail infection, lipomas, sebaceous cysts, suture wounds, hidradenitis suppurativa, debridement for venous leg ulcers, phimosis, and the like - in other words, this is small surgery. The true relevance of the figure is that half of the surgical activity in 2014 and 2015 in this hospital would be performed in Primary Health Care in many Western European countries...

Programmed ambulatory	63	60	61	71	47	55
Total Programmed	2.460	1.748	1.975	1.899	1.641	1.867
Total emergency	1.101	782	884	849	777	794
Total surgeries	**3.561**	**2.530**	**2.859**	**2.748**	**2.418**	**2.661**

Marius Nasta

Total surgical interventions performed	**3.368**	
Cancelled interventions	98	1,7% (of total interventions)
Number of programmed interventions	3.146	93,4% (of total interventions)
No. programmed in-patient surgeries	1.113	35,4% (of programmed interventions)
No. programmed ambul. & day surgeries	2.033	64,6% (of programmed interventions)
Number of emergency surgeries	222	6,6% (of total interventions)

Pantelimon

	2012	**2013**	**2014**	**2015**
Total surgical interventions performed	11.624	13.221	10.971	10.255

(*)According to the information provided, cancelled interventions, share between programmed vs. emergency surgeries, or share between interventions performed under in-patient or ambulatory basis are not regularly monitored

Ploiesti

	2015
Programmed in-patient	19.977
Programmed ambulatory	0
Total emergency	6.020
Total surgeries	**25.997**

Selected surgeries	**In-patient**		**Ambulatory**	
Cataracts	703	(100%)	0	(0%)
Inguinal hernia	396	(100%)	0	(0%)
Arthroscopies	450	(100%)	0	(0%)

Rosiori

Surgery (in-patient; day and ambulatory)	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Total surgical interventions performed	1.801	1.958	2.047	1.970	1.619	1.416
% of surgeries performed on outpatient basis	0%	0%	0%	0%	0%	0%
% of surgeries performed on in-patient basis	100%	100%	100%	100%	100%	100%

Slatina

	Programmed surgeries	**1.286**	**(78,5% of the total surgeries)**
	Emergency surgeries	353	(21,5% of the total surgeries)
Total surgical interventions performed		**1.639**	

	In-patient surgeries	1.639	(100% of the total surgeries)
	Ambulatory surgeries	0	(0% of the total surgeries)[27]
Total surgical interventions performed		**1.639**	

Timisoara

	2010	2011	2012	2013	2014	2015
Programmed in-patient	173	189	136	175	114	179
Programmed ambulatory/day	0	0	0	0	0	
Total Programmed	173	189	136	175	114	179
Total emergency	0	0	0	0	0	0
Total surgeries[28]	**173**	**189**	**136**	**175**	**114**	**179**

	2010	2011	2012	2013	2014	2015
% surgical interventions as ambulatory	0	0	0	0	0	0

In summary, a complex situation (poor service planning?) is revealed in the field of outputs. On one side, service profiles respond to pressures from the demand side. According to the law, public hospitals are obliged to admit for evaluation every emergency case, irrespective of insurance coverage. In practice, it seems that a sense of professional duty determines hospitals to go beyond this provision and offer treatment to everyone, thereby overcoming the threshold values in the contract(s) with the health insurance house. An argument can, thus, be made that a more judicious approach to referrals/transfers and/or scheduling service provision could limit the financial impact of such cases. From the supply side perspective, every centre actively *cultivates* its own profile, with little apparent complementarity in the total map of services when seen from an overall health system perspective, as follows:

- One hospital in the sample is a big, well - endowed/productive facility, and accordingly it shows the biggest figures in terms of emergencies, admissions, surgeries, etc.;
- Two big facilities (more than 1,000 beds each), are planned as medium level complexity emergency hospitals, with different profiles (yet one shows reasonably good activity indicators, while the other delivers less satisfactory activity figures)
- Three other hospitals are very specialised facilities (namely, a surgical orthopaedics and trauma centre plus a long term infectious diseases facility, mostly devoted to HIV-AIDS and TB conditions, and a rather old-fashioned long-term TB institute);
- There is also a medium sized general hospital, with numerous operating theatres but not much surgical activity (compared to other places with less surgical infrastructure); and
- Finally, three hospitals are small and rather poorly endowed technologically, with staff shortages, and provide small amounts of low complexity in-patient, ambulatory and surgical services (one of them shows in fact an arguable service mix, including inadequately explained oncological therapy together with simple balneology services).

Yet, the choice of service modalities in particular seems rather haphazard in Romania if the sample are representative of the total situation in the country (see for example the comparisons "planned

[27] This figure requires clarification: the hospital reported having 13 beds for day hospitalisation, and despite it there is 0 ambulatory surgery reported. During the follow up interview the hospital management explained that the ambulatory service/building was separated from the hospital (became an independent entity) in 2016.
[28] Only in-patient surgery is reported in the thoracic department

versus emergency" and "in-patient versus ambulatory surgery", "hospital admissions versus emergency attendances", etc.). Also, hospitals in the sample do not seem to be particularly productive as expressed by their limited surgical activity (*Ploiesti* being the only exception).

3.4 Outcomes

The emphasis on results-based approaches is gaining pre-eminence all over the world: see, for example, the OECD Quality Project (Arah *et al*., 2006),[29] which has received enormous attention. Countries want to know if the expected results are obtained, confirming somehow that resources were 'worth spending'. Those results include both broader hospital objectives -namely quality and safety of care, responsiveness to people's expectations about how they should be treated, and efficiency- as well as intermediate objectives, such as access, utilisation, continuity, choice, etc. The same can be said concerning non-medical objectives such as generation of arrears, contracting, procurement, etc. Nevertheless, there is a long way to go; the difficulty of the concerned measurements adds to the complexity of the policy challenges involved (Papanicolas and Smith, 2013).[30]

3.4.1 Generic outcomes in the sampled hospitals

The situation in Romania is not an exception; beyond mediocre results in many terrains, an absence of information reveals the scarce command of hospital management teams over that crucial performance component. In the hospitals under study, the 'Outcomes' section is, by large, the part of the report for which less details have been provided. Public hospitals are in general only starting to use reporting systems on medical and non-medical operational and financial data for tracking purposes, as well as overall employee and patient satisfaction (see also the section on 'Processes' above).

Main findings as expressed in the studied facilities:

- With some exceptions (*Floreasca, Lugoj, Pantelimon* or *Slatina*), no systematic data is recorded regarding thirty-day standardised mortality after admission to hospital for acute myocardial infarction (AMI) and ischaemic stroke (separated and based on admission or patients data). The percentage of high risk transient ischaemic attack (TIA) patients treated within the following 24 hours of occurrence is usually not recorded;
- Causes of intra-hospital mortality are often reported without substantial details (e.g., most frequent diagnostics at discharge, or for surgery interventions). One of the most frequent replies to these queries in the questionnaire is 'This issue is not regularly monitored at this hospital';
- On safety, indicators regarding intra-hospital complications and adverse events such as post-operative sepsis/complications rates, nosocomial infections or post-operative pulmonary embolism/deep vein thrombosis (PE, DVT) are mostly provided as simple total number of cases, if at all. Something similar happens with unplanned return to operating theatre or emergency patient readmission within 28 days of hospital discharge; and
- Data regarding waiting times and waiting lists do not seem to be supported either by well-designed protocols, but rather refer to normative statements (e.g., colour codes after triage at A&E departments).

[29] Arah, O.A. *et al*. (2006) 'Conceptual framework for the OECD health care quality indicators project', *International Journal of Quality Health Care* 18(1), pp. 5–13.
[30] Papanicolas, I. and Smith, P. (eds.) (2013) *Health system performance comparison: an agenda for policy, information and research. Policy summary 4*, Open University Press, Maidenhead.

While hospitals are supposed to monitor and report on performance, there is insufficient data comparing the quality of services provided and certainly no centralised database of results. The only systematic monitoring of some quality indicators is through the key performance indicators (KPI) in the hospital management contract, but there are no reliable benchmarks/thresholds and no feedback mechanisms. Initial contacts, desk research and case studies showed that information on continuity of care and choice in particular is generally not available in Romania.

3.4.2 Details of quality outcomes in the sampled hospitals

Specific replies from the questionnaires on a hospital-by-hospital basis are summarised below (more information is in the Annexes). The great majority of provided figures show zero variation over six year trend, questioning the quality of provided data and reliability of the information system in this particular hospital.

Buhusi

	2010	2011	2012	2013	2014	2015
Intra-hospital mortality rate	0,17%	0,22%	0,23%	0,29%	0,40%	0,85%
5 most frequent post-operative mortality causes	No post-surgery deaths are recorded					
Age-sex 30-day standardised mortality AMI	0	0	0	0	0	2
Age-sex 30-day standardised mortality Stroke	0	0	0	0	0	0
% high risk TIA treated within 24 h occurrence	85%	90%	92%	91%	89%	93%

Safety indicators

	2010	2011	2012	2013	2014	2015
% post-operative Pulmonary Emb. / DeepVT	0	0	0	0	0	0
% post-operative sepsis / complications rates	0	0	0	0	0	0

Patient adverse events

	2010	2011	2012	2013	2014	2015
No. of nosocomial infections	0	0	0	0	0	1

Re-admissions

	2010	2011	2012	2013	2014	2015
Rate of unplanned return to operating theatres	0	0	0	0	0	0
Emergency re-admissions 28 days discharge	0	0	0	0	0	0

Details on % post-operative Pulmonary Embolism / Deep Vein Thrombosis nor sepsis, complication rates, number of in-hospital transfusion reactions or use of drugs, pressure ulcers / bedsores per 1000 beds or in-patient hip fractures per 1000 beds, nor foreign bodies left in per 10,000 surgeries are not available

Floreasca

Intra-hospital death rates

	2010	2011	2012	2013	2014	2015
Rate	2,93%	3,62%	3,39%	3,29%	3,86%	4,29%

Severe trauma, cardiovascular diseases, cerebrovascular diseases and malignant tumours have been highlighted as causes of intra-hospital mortality. Most frequent post-operative causes in 2015: severe trauma, malignant tumours, sepsis and severe burns.

Thirty-day standardised mortality after admission to hospital

- AMI
- At hospital level: 7%–8% (some 45% of the deceased patients in the cardiology ward). Male–female distribution: 53%–47%. Some 82% of involved patients were over 65.
- Ischaemic stroke.
- At hospital level: 3% (between 25% and 28% of the deceased patients in Neurology). Male–female distribution: 56%–44%. Some 90% of involved patients were over 65.

Adverse events

	2010	2011	2012	2013	2014	2015
Post-operative sepsis/complications rates	1,93%	1,90%	1,79%	1,90%	1,88%	2,03%
Nosocomial infections/hospital-acquired infection rate	0,81%	0,80%	0,79%	0,89%	0,99%	1,04%
Adverse event (after transfusion or use of drug) No. of cases No. of deaths	 5 0	 4 0	 6 0	 4 0	 6 0	 3 0
Pressure ulcers/bedsores developed in hospital	0,27%	0,25%	0,22%	0,25%	0,30%	0,28%
Number of in-patient hip fractures/1000 beds	0	0	0	0	0	0

The following indicators are not systematically recorded and analysed:

- Number of hip fractures while admitted in the hospital;
- Cases of foreign bodies left in during surgical procedures;
- Deep vein thrombosis at hospital; and
- Post-operative pulmonary embolism.

Readmissions (*)

	2010	2011	2012	2013	2014	2015
Rate of unplanned return to operating theatre	1-2%	1-2%	1-2%	1-2%	1-2%	1-2%
Emergency readmission within 28 days of discharge	3,33%	3,29%	3,38%	4,03%	3,89%	3,77%

(*)Approximately 95% of the re-admitted patients have the same pathology; 5% are re-admitted with different pathology.

Foisor

In general outcomes indicators are not systematically studied, so no quality indicators are measured and analysed.

Lugoj

Intra hospital mortality	2010	2011	2012	2013	2014	2015
Internal medicine	1,32	1,54	0,92	1,41	1,36	1,87
Nephrology compartment	1,18	0,93	1,98	2,56	4,11	0,00
Gastroenterology compartment	2,21	3,27	2,50	1,75	2,60	2,09
Cardiology compartment	2,96	2,82	3,81	3,58	4,17	4,82
Sugar diabetes compartment	1,05	1,64	0,48	0,00	0,80	1,01
General surgery	2,05	1,77	2,05	2,62	2,37	2,87
ENT compartment	0,00	0,00	0,95	0,00	0,00	0,00
ICU	0,52	0,37	1,67	0,91	1,73	0,53
Orthopaedics compartment	0,00	0,00	0,00	0,00	0,00	0,00
Obstetrics - gynaecology	0,00	0,00	0,00	0,00	0,00	0,00
Neonatology compartment	0,37	0,00	0,20	0,00	0,57	0,00
Urology compartment	0,23	0,55	0,52	0,00	0,66	0,70
Infectious diseases compartment	0,19	0,32	0,66	0,73	1,17	1,00
Paediatrics	0,00	0,00	0,00	0,00	0,00	0,12
Neurology compartment	0,89	0,16	0,66	0,55	1,69	1,30
Psychiatry - acute patients	0,61	0,46	0,62	0,31	1,03	1,14
Psychiatry - chronic patients	0,68	0,00	0,73	0,00	1,37	0,00
Pneumology	1,70	2,29	3,15	3,65	2,94	3,42
TB compartment	5,63	3,85	2,38	0,93	1,94	2,88
Palliative care compartment	24,24	30,71	29,81	38,80	35,94	38,93
Total hospital	**1,59**	**1,65**	**1,69**	**2,09**	**2,28**	**2,58**

Most frequent post-operative hospital mortality cause	
2010	Digestive tract diseases
2011	Digestive tract diseases
2012	Malign tumours
2013	Digestive tract diseases
2014	Digestive tract diseases
2015	Digestive tract diseases

30-day standardised mortality - AMI	2010	2011	2012	2013	2014	2015
Women	7,32	5,76	4,17	7,14	17,39	6,25
Men	7,31	5,77	12,49	7,14	13,04	18,75
All	**14,63**	**11,53**	**16,66**	**14,28**	**30,43**	**25,00**

30-day standardised mortality - Stroke	2010	2011	2012	2013	2014	2015
Women	1,33	1,06	1,37	0,00	1,11	1,33
Men	0,00	0,70	1,38	0,51	1,48	0,45
All	**1,33**	**1,76**	**2,75**	**0,51**	**2,59**	**1,78**

Sepsis rates / surgical interventions					
2010	2011	2012	2013	2014	2015
0,00	0,00	0,06	0,07	0,03	0,04

Rate of trauma at birth (out of total births)					
2010	2011	2012	2013	2014	2015
1,85	1,22	0,79	0,37	1,53	1,17

Cases of nosocomial infections	2010	2011	2012	2013	2014	2015
Infectious diseases			3	5	5	10
General surgery		1			2	2
Internal medicine	4	3				
Obstetrics - gynaecology			1			
Orthopaedics and traumatology		1				1
Pneumology	1			1		
Urology		1	2		1	
Psychiatry - Chronic patients					1	
Pneumology - TBC		1				
Total hospital	5	7	6	6	9	13

Emergency readmissions rate within 28 days after discharge					
2010	2011	2012	2013	2014	2015
10,53	9,71	8,40	7,85	9,44	9,96

Marius Nasta

	2010	2011	2012	2013	2014	2015
Intra-hospital death rates *100/number of discharged patients	1,79	1,80	1,45	1,52	1,68	2,00

Most frequent post-operative hospital mortality causes: cardiac and respiratory arrest; acute myocardial infarction (various types); and cerebral infarction.

	2010	2011	2012	2013	2014	2015
Post-operative sepsis (*)	0,16	0,27	0,15	0,15	0,45	0,21
Nosocomial infections	0,02	0,05	0,08	0,13	0,15	0,48
Rate of unplanned return to operating theatre	0,76	0,72	0,84	1,01	0,53	0,78
% emergency patient readmission within 30 days of hospital discharge	0,66	1,19	2,34	1,44	1,93	1,60

(*) Reported in relation to the number of patients with major surgical interventions

The following indicators are reported not to be systematically recorded and analysed:

- Age-sex adjusted thirty-day standardised mortality after admission to hospital for AMI and ischaemic stroke (separated and based on admission or patients' data);
- Percentage of high risk TIA patients treated within 24 hours of occurrence;
- Percentage of post-operative pulmonary embolism or deep vein thrombosis in the hospital;

- Number of pressure ulcers/bedsores per 1000 beds; and
- Number of in-patient hip fractures per 1000 beds.

Pantelimon

Intra-hospital death rates (number of deaths*100/number of discharged patients)

	2010	2011	2012	2013	2014	2015
Overall rate	2,48	2,51	3,04	2,42	3,35	3,88

Five most frequent post-operative hospital mortality causes: post-operative embolism, gastrointestinal haemorrhage; ischaemic stroke; intracranial haemorrhage; and head injury.

Intra-hospital death rates: breakdown by speciality (number of deaths*100/number of discharged patients)

	2010	2011	2012	2013	2014	2015
Cardiology	6,31	6,96	9,01	7,68	7,78	7,94
Gastroenterology	6,69	5,80	6,83	6,55	6,33	4,84
Internal medicine	7,13	7,79	8,65	7,95	11,64	11,68
Neonatology	0,25	0,07	0,08	0,21	0,09	0,16
Neonatal(premature borne)_Maternity Grade II	7,18	10,80	11,11	0,00	6,67	3,78
General surgery	2,83	2,80	2,70	2,12	3,09	4,35
Plastic and reconstructive surgery	0,00	0,00	0,00	0,00	0,00	0,00
Vascular surgery	3,13	1,89	5,94	2,75	4,20	3,77
Neurosurgery	4,90	5,30	6,26	4,77	7,55	8,64
Obstetrics	0,03	0,05	0,00	0,00	0,03	0,04
Obstetrics and gynaecology	0,02	0,05	0,00	0,00	0,03	0,03
Ophthalmology	0,00	0,00	0,00	0,00	0,00	0,00
Orthopaedics and traumatology	0,53	0,49	1,12	0,97	1,09	1,07
ENT	0,00	0,00	0,00	0,00	0,00	0,00
Orthopaedics medical recovery				0,00	1,23	0,00

Thirty-day mortality after admission to hospital for AMI (number of cases)

	2010	2011	2012	2013	2014	2015
Total	25	31	18	13	4	9
Total male	11	16	9	4	1	5
Total female	14	15	9	9	3	4
0–44 years	0	0	0	0	0	0
45–54 years	1	2	1	2	0	0
55–64 years	3	0	3	0	0	0
65–74 years	10	3	4	2	0	1
75–84 years	9	20	5	7	0	4
85+ years	2	6	5	2	4	4

Thirty-day mortality after admission to hospital for Ischaemic stroke (number of cases)

	2010	2011	2012	2013	2014	2015

	2010	2011	2012	2013	2014	2015
Total	13	15	11	10	17	28
Total male	6	6	4	1	7	10
Total female	7	9	7	9	10	18
0–34 years	0	0	0	0	0	0
35–44 years	1	0	1	0	0	0
45–54 years	1	1	1	0	0	1
55–64 years	1	2	1	3	1	3
65–74 years	4	2	0	1	4	8
75–84 years	5	9	3	4	7	12
85+ years	1	1	5	2	5	4

Nosocomial infections; pressure ulcers/bedsores; and readmissions:

	2010	2011	2012	2013	2014	2015
Nosocomial infections rate (number of infections*100/discharged patients)	0,05	0,08	0,10	0,14	0,22	0,20
Pressure ulcers/bedsores						
Bedsores per 1000 beds	72	85	99	83	78	85
Percentage out of total admissions	0,21%	0,28%	0,73%	0,27%	0,28%	0,34%
Readmissions						
Emergency within 28 days of hospital discharge	2.865	2.743	2.041	2.867	2.475	1.980
% of total number of surgical interventions	15,38	18,18	18,18	15,38	20,00	10,00

The following indicators are reported to be not systematically recorded and/or analysed:

- Percentage of high risk TIA patients treated within the following 24 hours of occurrence;
- Percentage of post-operative pulmonary embolism or deep vein thrombosis;
- Post-operative sepsis/complications rates;
- Percentage of birth trauma (out of total births);
- Adverse events related to in-hospital transfusion reactions or use of drugs;
- Cases of foreign body left in during procedure per 10,000 surgeries; and
- Rate of unplanned return to operating theatre.

Ploiesti

	2010	2011	2012	2013	2014	2015
Intra hospital death rates[31]	2,7%	2,8%	3,1%	3,0%	4,1%	3,7%
Number of nosocomial infections	18	14	15	10	210	330
Rate of nosocomial infections	0,03%	0,03%	0,03%	0,02%	0,46%	0,69%

Rosiori

No relevant data available. According to the responses to the questionnaire, no data was collected and/or analysed on the following topics:

[31] No details about case-mix provided

- Thirty-day standardised mortality after admission to hospital for AMI and ischaemic stroke (separated and based on admission or patient's data);
- Percentage of high risk TIA patients treated within 24 hours, etc.;
- Numbers of adverse events;
- Unplanned return to operating theatre or emergency patient readmission within 28 days of hospital discharge; and
- Post-operative mortality ('The hospital does not have post-operative mortality, because the surgeries performed are quite simple': *sic*.).

Slatina

Quality indicators	2010	2011	2012	2013	2014	2015
Inpatient mortality rate	0,65	0,68	0,74	0,85	0,94	1,22
% patients deaths within 24 hours after admission	0,01	0,13	0,17	0,20	0,19	0,29
% patients deaths within 48 hours after surgical intervention	0,06	0,20	0,02	0,02	0,02	0,04
% patient deaths at 28 days after admission-Male		0,29				0,19
% patient deaths at 28 days after admission-Female						0,19
Nosocomial infections rate	0,04	0,07	0,04	0,03	0,19	0,31
Agreement between diagnosis at admission and at discharge	0,78	0,74	0,73	0,75	0,76	0,96
% of patients discharged and transferred to other hospital	0,28	0,43	0,46	0,69	0,80	0,89
30-day standardised mortality after admission for AMI-Male	0	1	0	0	0	1
30-day standardised mortality after admission for AMI-Female	0	0	0	0	0	1
30-day standardised mortality after admission for Stroke-Male	0	0	0	0	0	0
30-day standardised mortality after admission for Stroke-Female	0	0	0	0	0	0
TIA patients treated within the following 24 h of occurrence	33	15	34	43	71	52

Safety indicators	2015
Post-operative pulmonary embolism or deep vein thrombosis	0
Post-operative sepsis / complications rate	Not monitored
Birth trauma (cases)	52
Birth trauma (% out of total deliveries)	3,49%

Nosocomial infections (number per hospital departments/units)

Hospital Department / Unit	2010	2011	2012	2013	2014	2015
Infectious diseases					13	24
HIV/AIDS						
Cardiology					1	2
General surgery		16	18		24	37
Plastic Surgery	6	15	3		2	
Burns						
Infant surgery						5
Chest surgery						
Dermato-venereal						
Sugar diabetes					2	1
Endocrinology						
Gastroenterology					10	13

Hospital Department / Unit	2010	2011	2012	2013	2014	2015
Internal medicine					3	2
Hematology						
Nephrology					1	18
Peritoneal dialysis					12	
Neurology						15
Neuro-psychiatry					10	
Neonatology	1					
Obstetrics gynaecology 1	2	1				3
Obstetrics gynaecology 2	3	1				
ENT						
Child ENT						
Surgery BMF						
Ophthalmology						
Child ophthalmology						
Oncology						2
Orthopaedics	5		1			6
Paediatrics					2	
Psychiatry					2	
Urology						4
Medical recovery		1			2	
Child neuro-motor recovery					3	3
Chronic patients department						
Neurological recovery - adults						
Premature neonatology						3
Total	**17**	**34**	**22**		**87**	**138**

Adverse events

	2010	2011	2012	2013	2014	2015
Transfusion / Drug use reactions[32]						1
Cases of pressure ulcers/bedsores	44	47	47	44	77	67
Pressure ulcers/bedsores per 1000 beds	41	44	44	38	66	58
In-patient hip fractures per 1000 beds	Not monitored					
Foreign body left in during procedure	0	0	0	0	0	0
Unplanned return to operating theatre	Not monitored					
Emergency readmissions 28-day (cases)	4.383	3.774	3.712	3.376	3.259	3.452
Emergency readmissions 28-day (%)	7,99	7,37	7,35	7,10	7,40	8,06

Timisoara

Effectiveness	2010	2011	2012	2013	2014	2015
Intra-hospital mortality rate	1,09	1,58	3,06	3,59	3,49	4,27

Main diagnosis for reported intra-hospital mortality cases

Diagnosis for intra-hospital mortality cases		
2010	I21.0	Acute myocardial infarction (5 deaths)
	A15.0	Pulmonary Tuberculosis (5 deaths)
	J85.1	Lung abscess with pneumonitis
	C34.9	Bronchus and lung malignant tumor (3 deaths)

[32] Only monitored after 2014

Diagnosis for intra-hospital mortality cases		
	J18.0	Bronchopneumonia (3 deaths)
2011	A15.0	Pulmonary tuberculosis (14 deaths)
	A41.9	Sepsis (9 deaths)
	B23.8	Disease by HIV associated with other conditions (6 deaths)
	J44.0	COPD (5 deaths)
	J18.0	Bronchopneumonia (5 deaths)
2012	J18.0	Bronchopneumonia (25 deaths)
	A41.9	Sepsis (24 deaths)
	B23.8	Disease by HIV associated with other conditions (10 deaths)
	I21.0	Acute myocardial infarction (9 deaths)
	A15.0	Pulmonary Tuberculosis (8 deaths)
2013	A41.9	Sepsis (37 deaths)
	J18.0	Bronchopneumonia (31 deaths)
	I46.9	Heart attack (16 deaths)
	A15.0	Pulmonary Tuberculosis (13 deaths)
	J44.1	COPD with acute exacerbation -(10 deaths)
2014	A41.9	Sepsis (50 deaths)
	J18.0	Bronchopneumonia (39 deaths)
	I46.9	Heart attack (17 deaths)
	A41.8	Other types of sepsis (17 deaths)
	J44.1	COPD with acute exacerbation (13 deaths)
2015	A41.9	Sepsis (57 deaths)
	J18.0	Bronchopneumonia (45 deaths)
	B23.8	Disease by HIV associated with other conditions (14 deaths)
	A41.8	Other types of sepsis (14 deaths)
	J15.9	Bacterial pneumonia (12 deaths)

Safety indicators	2010	2011	2012	2013	2014	2015
% post-operative sepsis / complications rates						4

Patient adverse events	2010	2011	2012	2013	2014	2015
No. of nosocomial infections rate	0,37	0,27	0,22	0,10	0,18	0,25
In-hospital transfusion reactions or use of drugs	0	0	0	0	0	0
No. of pressure ulcers / bedsores per 1000 beds	Not available					
No. of in-patient hip fractures per 1000 beds	Not available					
Foreign bodies left in per 10000 surgeries	0	0	0	0	0	0

Re-admissions	2010	2011	2012	2013	2014	2015
Rate of unplanned return to operating theatres						0
Emergency re-admissions 28 days discharge					5,75	8,56

The details on age-sex 30-day standardised mortality AMI nor stroke; % high risk TIA treated within 24 h occurrence, % post-operative Pulmonary Embolism / Deep Vein Thrombosis, number of

pressure ulcers / bedsores per 1000 beds or in-patient hip fractures per 1000 beds are not available

3.4.3 Access to services in the sampled hospitals

It has been known for some time that access to health services includes several dimensions, not only physical aspects related to geography and the design of the buildings but also cultural, economic and sociological dimensions (Aday and Andersen, 1992).[33] There is a particularly recognised impact, for example, of economic barriers against the access to all kinds of services/lack of financial coverage (Kutzin, 2013),[34] affecting hospitals because they are usually the most expensive services.

In Romania, widespread informal payments reduce access to healthcare for people with low incomes (European Commission, 2016).[35] Inadequate staff remuneration in the public sector has been identified as one of the main risk factors for soliciting or accepting informal payments (European Commission 2013); nearly half the population is estimated to make informal payments for hospital admission in Romania (ASSPRO CEE, 2007–2013).[36]

Disparities in the geographical spread of public and private hospitals have been reported, with private hospitals understood to be more present in urban areas and 'safer' places to get services from in comparison to public hospitals. However, anecdotal evidence shows that the most complex cases are still referred to public hospitals, due to long-lasting experience of rendering complex and comprehensive care.

Research on service delivery tends to focus on one or two dimensions (quantity and quality), but several other dimensions with relations and possible trade-offs are also critical. For example, higher efficiency could be achieved at the expense of quality; improvements in quality could lead to access issues; and quality improvements could raise affordability issues (Hsu, 2010).[37] Although accessibility has not been studied in recent times comprehensively, access to public hospital services in Romania (at least physical access) is in any case considered not to be a major problem, particularly in comparison to primary care, given its widespread availability and the rather limited barriers to utilisation that exist.

Specific replies from the questionnaires on a hospital-by-hospital basis are summarised below. Reporting has unfortunately been made with different formats and so comparability is uneven (more information can be found in the Annexes):

Buhusi

- No barrier of access was reported, although according to the information provided "emergency non-insured patients are compulsory admitted but discharged after three days";

[33] Aday, L.A. and Andersen, R. (1974) 'Framework for the study of access', in Frenk, J., Ordoñez, C., Paganini, J.M. and Starfield, B. (eds.) (1992) *Health Services Research: An Anthology*, PAHO, p. 546.
[34] Kutzin, J. (2013) 'Health financing for universal coverage and health system performance: concepts and implications for policy', *Bulletin of the World Health Organization* 91(8), pp. 602–11.
[35] European Commission (2016) *Recommendation for a council recommendation on the 2016 national reform programme of Romania*, http://ec.europa.eu/europe2020/europe-2020-in-your-country/romania/country-specific-recommendations/index_en.htm.
[36] ASSPRO CEE 2007 (2013) *Formal and informal out-of-pocket payments for health care services in Central and Eastern European countries. What are the actual patients' contributions?*, https://ec.europa.eu/research/social-sciences/pdf/policy_briefs/policy-briefs-assprocee2007-02-2013_en.pdf.
[37] Hsu, J. (2010) *The relative efficiency of public and private service delivery*, World Health Report Background Paper 39, WHO, Geneva.

- The waiting times reported (see below) do not seem to distinguish specialties (e.g., 15 days waiting time for surgery or 20 for internal medicine, no matter the diagnoses).

Hospitalization services (2015)	Days
Surgery	15
Internal medicine	20
Palliative care	30
Ambulatory services	**Minutes**
Having a first visit	15

Floreasca

- No barrier to access has been reported. All patients coming to the hospital receive medical services, without any kind of exclusion criteria. Sometimes patient hospitalisation refusal occurs from the side of the patients (for reasons such as the patient choosing to attend a private hospital, or familiarity with other hospitals);
- No waiting lists are reported:
  - Average waiting time for having an external consultation: 35 minutes (maximum waiting time: 120 minutes, for no severe cases, white colour code);
  - Average waiting time in being attended at emergency UPU: 8,7 minutes;
  - Average waiting time for receiving programmed surgeries: 27,5 hours from the moment of hospitalisation; and
  - 100% of elderly admitted because of hip-fracture gets surgically repaired within 48 hours.

Foisor

Waiting times is the only aspect for which limited quantitative information is available:

Number of patients with unattended fracture cases	0
Average waiting time at CPU	<24 hours
Average waiting time to receive elective surgery	<24 hours
Average waiting time for an outpatient consultation	<24 hours

Lugoj

- No specific barrier of access was reported. The only access to and utilization of services related info was the share of patients admitted through emergency

Emergency admissions	2010	2011	2012	2013	2014	2015
Patients recorded in CPU	15.830	16.508	18.964	19.036	18.9055	20.804
Patients admitted through CPU	6.699	6.061	6.845	5.692	4.482	4.257
Percentage of emergency admissions	42,32%	36,90%	36,09%	29,90%	23,71%	19,98%

Marius Nasta

More than 90% of admissions took place through the CPU door

Attendances		
Solved without admission	1,078	(9.9% of total attendances)
Discharged without admission	915	(8.4% of total attendances)

	Referred to another facility	163	(1.5% of total attendances)
Leading to admission		9,811	(90.1% of total attendances)
Total emergency cases		10,889	(100.0% of total attendances)

Hospitalisation refusals

In 2015, some 22 cases of hospitalisation refusals were reported. In four cases, the reason was lack of beds. For seven referred patients the hospital doctor considered admission to be unnecessary, and 11 patients refused to be admitted.

Waiting times

	2010	2011	2012	2013	2014	2015
Average waiting time (minutes) to be attended at A&E	10	10	12	13	12	15
Average waiting time (days) to receive surgical services	3,2	3,8	3,6	3,6	3,2	2,8

Pantelimon

The hospital has an obligation to provide services to every person stepping inside. Since 2012, according to the table below, more than 90% of admissions took place through the CPU door.

	2010	2011	2012	2013	2014	2015
Total number of admissions	33.857	30.745	26.979	30.507	27.247	24.881
Total admissions through CPU	11.778	19.642	24.539	28.468	25.751	23.006
% admissions through CPU	34,79%	63,89%	90,96%	93,32%	94,51%	92,46%

Waiting time for selected surgical procedures is as follows:

Elective cataract surgery	2 weeks
Elective hip replacement (total and partial)	2–3 months
Elective knee replacement (including revision of knee replacement)	2–3 months

Ploiesti

- *No info was provided in this regard*

Rosiori

No data is recorded and analysed on waiting lists and waiting times and access in general ('The hospital has the obligation to offer services in UPU for all patients in the following circumstances: urgencies, labour and infectious diseases').

Slatina

- *No barriers of access were referred. Specific info on waiting times and waiting lists was provided:*

	2010	2011	2012	2013	2014	2015

To be attended at A&E (min.)	19,3	18,9	19,5	18,7	19,6	19,2
Patients on waiting lists	1.248	1.105	568	899	1.465	2.036

Timisoara

- *No barriers of access were referred.*
- *The rate of patients admitted through emergency plus some "normative" waiting times at emergency were the only info provided in this regard:*

			2015
	Emergency contacts	26.039	
	Admissions after CPU contacts	7.080	
Rate of emergency admissions out of total emergency contacts(*)			**27,18%**

(*) Not available information about the main reasons for hospitalization refusal

Waiting times	**2015**
Maximum waiting time to be attended at CPU	15 min
Average and maximum waiting time to receive surgical services	N/A

3.4.4 Responsiveness/patient-centredness in the sampled hospitals

Although all public hospitals in Romania have been mandated as by 2015 to implement a patient feedback mechanism, no detailed data is currently available. Some reported figures are included below (information has not been provided in a systematic way, so comparability is rather limited; additional data may be found in the Annexes).

Buhusi

The information provided about the perception of the care provided" is as follow:

	2010	2011	2012	2013	2014	2015
% of patients who declare having received clear information upon discharge from hospital	78%	80%	83%	85%	86%	89%
% of patients who declare having been explained essential actions needed to complete treatments/avoid future preventable conditions	75%	77%	80%	84%	87%	90%
% of survey approval / satisfied response among patients after discharge	72%	75%	77%	82%	86%	87%
% of patients' approval / satisfied response with availability of the necessary equipment, pharmaceuticals and consumables to make feasible the provision of effective care to all the people in need	70%	74%	75%	80%	82%	88%

Lugoj

Information on the perception of patients about the care received and the complaints issued was referred:

Percentage of patients…	**2015**

…who declared having received clear information after discharge	100%
…who declared having been explained actions needed to complete treatments	100%

Percentage of survey approval/satisfied response …	2015
…after discharge	100%
…with availability of equipment, drugs and consumables	100%

Total number of complaints received					
2010	2011	2012	2013	2014	2015
0	8	6	4	1	0

Complaints	2015
Percentage of complaints satisfactorily solved	100%
Average time for answering to complaints	30 days

Floreasca

- In 2015, one complaint was recorded by the Hospital Ethical Council. Additionally, there were five complaints recorded at the hospital proper, 15 complaints at the Medical College and 15 complaints made to the police (or court);
- Average time for answering those complaints was 10 days. Over 90% of complaints were satisfactorily solved.

Analysis of patient satisfaction questionnaires, as provided by the hospital (2015):

- For unexplained reasons, only 1.312 patient satisfaction questionnaires were issued, out of which 1.127 were completed by patients and 185 by companions. No questionnaires were delivered blank;
- At the moment of hospitalisation, 62,5% of patients were accompanied by health staff, 15,2% by their companions and 22,3% were unaccompanied (many patients provided multiple answers);
- 76,8% of patients were accompanied by medical staff to medical investigations and inter-clinic consultations, 8,9% by companions and 14,3% were unaccompanied;
- Regarding hospitalisation procedures, 1,8% of the responding patients were overall unsatisfied; 3,9% refer bad quality in the bed linen; 2,8% mentioned insufficient degree of cleanliness; 3,1% complained about hospital meals;
- 2,6% of the responding patients were not pleased by the attitude of the duty guard staff and 0.5% by the time awarded by the doctor;
- Some 1% of patients were unsatisfied by the service received from doctors; 1,3% from nurses; and 1,6% from the health care assistants. Regarding staff benevolence and availability, 1% of interviewed people were not pleased by the doctors; 1,3% by the nurses; and 1,6% by the health care assistants;
- 90,8% of respondents recognised having been advised on how to take oral drugs. In 83,5% of the cases, drug administration was realised under nurse monitoring and medication for 85,5% included advice on dosage. In 87,8% of cases the medication was administered strictly in the hospital, for 2,1% of the patients it was bought by the family, and for 11,1% of them both options were used;

- 2,8% of the patients/companions were unsatisfied with the entire hospitalisation, and 1,3% with the services provided during the day. 2,0% were unsatisfied with the medical activity during the night and 3,0% with the one performed during the weekend and legal holidays;
- 97% were satisfied with the information regarding the investigations and medical procedures as well as about their disease. 96% of the patients declared they were satisfied with the medical services. Some 0,9% of the respondents considered their rights as patients had been abused; and
- 92% of the respondents ranked 'well' and 'very well' the topics inquired in the questionnaire and 94% declared they would return for hospitalisation at *Floreasca*.

Foisor

Responsiveness indicators are not systematically measured and analysed

Lugoj

Information on the perception of patients about the care received and the complaints issued that was referred:

Percentage of patients…	2015
…who declared having received clear information after discharge	100%
…who declared having been explained actions needed to complete treatments	100%

Percentage of survey approval/satisfied response …	2015
…after discharge	100%
…with availability of equipment, drugs and consumables	100%

Total number of complaints received					
2010	2011	2012	2013	2014	2015
0	8	6	4	1	0

Complaints	2015
Percentage of complaints satisfactorily solved	100%
Average time for answering to complaints	30 days

Marius Nasta

Responsiveness/patient centredness	2013	2014	2015
% of patients who declare having received clear information upon discharge from hospital	n/a	n/a	38,02%
% of patients who declare having been explained essential actions needed to complete treatments/avoid future preventable conditions	86,99	94,47	92,01
% of approval /satisfied response among patients after discharge	87,77	90,16	89,37

Regarding existence and implementation of a staff training programme on responsiveness, hospital staff was reported to have benefited from a specialised course on TB infection control and surveillance as part of the project entitled 'Improvement of the health of the Romanian population through enhanced tuberculosis control'.

Pantelimon

According to the hospital report, 'data monitoring regarding the perception of the care provided only started in 2015 and the results reflect the opinion of a small number of patients'. Some remarks were highlighted:

- 'Very few complaints received': the majority of them are related to three subjects: (a) waiting list for orthopaedic implants; (b) patient observation sheets ('according to the law in force, the hospitals are not required to provide it to patients'); and (c) information on hospitalised persons (for example in case of an accident, the family of the victim usually asks for information about the person who caused the accident, but the hospital is not allowed to provide such information);
- Average time for answering the complaints is 30 days according to the law;
- 'In practice, most complaints are based on inaccurate mass-media information'. Complaints are satisfactorily solved due to the efforts of the hospital legal adviser (patients are informed on their rights and obligations under the law in force); and
- 'Every year, courses on responsiveness are organised for nurses as part of staff training programmes..

Ploiesti

No info on hospital results was provided regarding this component

Slatina

The information reported only covers 2014 and 2015:

	2010	2011	2012	2013	2014	2015
% received clear information upon discharge					88,2%	82,4%
% been explained actions to complete treatments					88,6%	94,3%
% approval/satisfied responses					85,8%	91,1%
Complaints submitted to the Ethics Council						4

Timisoara

Some information about the evaluation of patients questionnaires, for a six month period in 2015 was provided:

Percentage of patients interviewed who declared to be pleased and very pleased with...

- ...the quality of medical sanitary services received in the hospital 94,35%
- ...the way their rights were respected 94,35%
- ...the way they were examined by the attending physician 97,06%
- ...the treatment received 97,06%
- ...the waiting time until they were examined for the first time 95,98%
- ...the medical examination, treatment administration, intervention risk < 90%
- ...the hospital conditions (cleanliness, toilet rooms, accommodation) < 90%

Percentage of patients interviewed who informed on the amount spent for hospitalization through expenditure settlement 24,49%

Percentage of patients interviewed who declared to be aware of the existence of the Ethic Council 79,17%

3.4.5 Efficiency in the sampled hospitals

According to many analysts, efficiency in healthcare is bound to become a critical aspect in the coming years. This is due not only to generic economic considerations in times of financial stringency, but also to the high potential returns in terms of health gain (a 30% increase in expenditure would result in the same one year of improvement in life expectancy at birth as by halving the *efficiency gap*, or the difference between LEB in OECD countries and that of best performing one at similar spending level, considering socioeconomic and lifestyle factors: Joumard *et al*., 2010).[38]

True, there is no 'optimal' level of public health spending that can provide a benchmark for comparing countries which may place different weights on equality and access, face differing fiscal constraints, or attach different importance to health spending as opposed to other uses of public funds. Yet whatever 'model' for health care is adopted, public health care services need to be provided efficiently (Clements *et al*., 2012).[39] As hospitals are responsible for the highest health care expenses in Romania, it would seem natural that efficiency gains should be essentially targeted at this sector.

An important remark regarding comparative efficiency is that private hospitals are allowed to segment their respective markets and cater for needs separately; many of them (particularly those of medium or small size) tend to specialise in a limited number of procedures, such as lab tests, radiology, elective surgery like orthopaedic care or hip replacement, etc. This allows them to be technically efficient in processes with limited risk of complication, treatments that can be well scheduled, etc. Public hospitals, as a matter of contrast, are usually obliged to provide more treatment modalities (sometimes 'all', irrespective of complexity), which to some extent may account for differences in length of stay, costs and operational complexity.

Anecdotal evidence exists that private for-profit hospitals in Romania sometimes seem to refer high risk patients to public sector hospitals, with better infrastructure to handle complications and emergencies, more specialised medical staff available on a permanent basis, etc. As a consequence, public hospitals end up loaded with unscheduled complex cases.

As unfortunately happens in other outcome areas, however, no systematic analysis on comparative efficiency between hospitals has been provided. What follows is a summary of the available data (for more information, see the Annexes). Below are several accounts of 'structural efficiency rates and ratios' derived from data taken from tables of the report to highlight comparisons between the hospitals in this study (they should be read with caution, as there are not adjustments by severity):

	No. of Doctors	No. of nurses	No. of beds	No. of OR	A&E attendances	No. of Admissions	Surgical Interventions	Total Expenditure
Buhusi	36	89	193	3	13.142	5.032	1.139	10.825.973
Floreasca	1315	848	725	27	107.080	35.646	25.254	220.811.130
Foisor	11	88	119	5	15.468	5.817	2.509	27.150.407

[38] Joumard, I., Andre, C. and Nicq, C. (2010) *Health Care Systems: Efficiency and Institutions*, Economic Department Working Paper 769, OECD, Paris, http://search.oecd.org/officialdocuments/displaydocumentpdf/?doclanguage=en&cote=eco/wkp(2010)25.

[39] Clements, B., Coady, D. and Gupta, S. (2012) 'The Challenge of Health Care Reform in Advanced and Emerging Economies', in Clements, B., Coady, D. and Gupta, S. (eds.), *The Economics of Public Health Care Reform in Advanced and Emerging Economies*, IMF, Washington, p. 6.

	No. of Doctors	No. of nurses	No. of beds	No. of OR	A&E attendances	No. of Admissions	Surgical Interventions	Total Expenditure
Lugoj	52	174	368	4	20.804	10.036	2.661	22.172.076
M. Nasta	90	270	632	3	10.889	12.923	3.368	69.236.166
Pantelimon	166	525	525	17	83.127	24.881	10.255	109.303.790
Ploiesti	168	942	1.160	14	91.965	48.007	25.997	135.842.543
Rosiori	37	151	298	3	29.713	9.648	1.416	34.649.794
Slatina	236	845	1.153	11	52.609	42.782	1.639	123.484.024
Timisoara	42	114	315	1	26.039	7.080	179	35.557.390

	Doctors per bed	Nurses per Bed	A&E attendances per doctor	A&E attendances per nurse	Admissions per doctor	Admissions per nurse
Buhusi	0.2	0.5	365	148	140	57
Floreasca	1.8	1.2	81	126	27	42
Foisor	0.1	0.7	1.406	176	529	66
Lugoj	0.1	0.5	554	166	193	58
Marius Nasta	0.1	0.4	121	40	144	48
Pantelimon	0.3	1.0	501	158	150	47
Ploiesti	0.1	0.8	547	98	286	51
Rosiori	0.1	0.5	803	197	261	64
Slatina	0.2	0.7	223	62	181	51
Timisoara	0.1	0.4	620	228	169	62

	Surgeries per OR	Surgeries per doctor	Surgeries per nurse	Expenditure per admission	Expenditure per bed	Expenditure per surgery
Buhusi	380	32	13	2.151	56.093	9.505
Floreasca	936	19	30	6.195	304.567	8.744
Foisor	502	228	29	4.667	228.155	10.821
Lugoj	665	51	15	2.209	60.250	8.332
Marius Nasta	1.123	37	12	5.358	109.551	20.557
Pantelimon	603	62	20	4.393	208.198	10.659
Ploiesti	1.857	155	28	2.830	117.106	5.225
Rosiori	472	38	9	3.591	116.274	24.470
Slatina	149	7	2	2.886	107.098	75.341
Timisoara	179	4.3	1.6	5.022	112.881	198.645

- *Floreasca* has by far the biggest staff per bed ratio (1,8). While this is driven by the large number of medical residents, it is worth pointing out that even when excluding this category (n=994) the ratio of specialist doctors and above to beds is 0,45, higher than *Pantelimon* (0,3) and all the other eight hospital in the sample (0,1 – 0,2). The range in nurses per bed is narrower, from 1,2 in *Floreasca* and 1,0 in *Pantelimon*, to 0,8 in *Ploiesti*, to 0,7 in *Foisor* and *Slatina*, 0,5 in *Buhusi*, *Lugoj* and *Rosiori* and 0,4 in *Marius Nasta* and *Timisoara*;
- It is not clear how the current staffing structures and vacancies reflect the staff norms. When examining the ratios in Ministerial Order 1224/2010 for the ten hospitals in the broadest sense, we see that *Foisor* and *Rosiori* have one doctor for every 10 beds, well within the norms (see 3.1.3 above), but employ many nurses (about one for every two beds) which is notable given that they are not emergency hospitals and do not provide intensive care either. *Floreasca* and *Pantelimon* are comparable in that they currently employ about one nurse per bed. Even accounting for three shifts, the necessity to cover 24/7/365 intensive care service and the most

generous norms, it is unclear how the current staffing structures (and deficits) respond to the norms.

- *Foisor* clearly faces the highest number of emergency attendances per doctor (almost twice as much as the following one, *Rosiori*). *Floreasca* and *Marius Nasta* have the lowest emergency attendance rates. *Timisoara*, *Rosiori* and *Foisor* (in this order) have the highest ratios of emergency attendances per nurse, whereas *Marius Nasta* and *Slatina* present the lowest rate;
- *Foisor* shows the highest rate of admissions per doctor, almost doubling any other in the list, while *Floreasca*, *Buhusi* and *Marius Nasta* have the lowest. *Foisor* has again the highest ratio in admissions per nurse, while *Floreasca* shows the lowest rate;
- Regarding surgical productivity, in terms of (unadjusted by severity) interventions per operating theatre *Ploiesti* is clearly the most productive (almost 13 times that of the lowest, *Slatina*). If measured in terms of interventions per doctor, the order changes, with *Foisor* being the most productive but *Slatina*, again, the least. In surgical productivity per nurse, *Floreasca* and *Ploiesti* are the most productive and *Slatina* and *Timisoara* the least; and
- In terms of expenditure per activity, *Floreasca* has the most expensive admissions (RON 6,200 per admission) and *Buhusi* the cheapest ones (RON 2,150 per admission). Notably however, overall the most expensive surgeries take place at Timisoara (almost RON 200,000 per intervention), while the cheapest take place at *Ploiesti* (RON 5,200). *Floreasca* again has the most expensive beds (RON 300,000 per bed per year), while the cheapest are in *Buhusi* and *Lugoj* (around RON 60,000 per bed and year) – in the three cases in line with the severity of the cases expected according to the type of hospital.

Other efficiency indicators are as follows:

Buhusi

	2010	2011	2012	2013	2014	2015
Pre-surgery ALOS	24 h	24 h	24 h	24 h	24 h	24 h

	2015
Operation room utilization index	4-5 h/day

Floreasca

ALOS	6,4 days
Pre-surgery ALOS	2,9 days
Operation room utilisation index	85,6%

Foisor

Efficiency indicators are not systematically measured and/or analysed.

Lugoj

Pre-surgery ALOS	
2015	24 h

Delivery-related ALOS					
2010	**2011**	**2012**	**2013**	**2014**	**2015**
4,84	4,88	4,85	4,76	3,82	3,66

Operating room utilization index (hours per day)					
2010	2011	2012	2013	2014	2015
5,22	3,74	4,25	4,09	3,61	3,94

Marius Nasta

	2010	2011	2012	2013	2014	2015
Average hospital BOR		91,14	103,54	95,41	95,81	90,99
Average hospital ALOS		13,94	13,18	12,76	13,13	14,24
Pre-surgery ALOS (days)	3	3	3	3	3	3
Operation room utilisation index (*)	11,5%	13,5%	19,3%	20,5%	21,5%	18,6%

(*)The hospital is not an emergency hospital, so only TB related emergencies are performed during the weekend (other surgeries are performed from Monday to Friday).

In terms of staff absenteeism, it was reported that "in the past there were 2–3 cases of one-year unpaid leave; after that time, the persons just did not return to the hospital".

Pantelimon

Details on specific procedures show clear space to efficiency increases (certain procedures broadly performed on ambulatory basis elsewhere remain delivered on an in-patient basis at Pantelimon, thus consuming more resources than technically advisable).

Surgical activity: details about specific procedures

	2010	2011	2012	2013	2014	2015
Cataract surgery						
No. of interventions performed	283	298	441	490	428	568
% of surgery carried on ambulatory basis	0	0	0	0	0	0
% of surgery carried on in-patient basis	100	100	100	100	100	100
Inguinal hernia						
No. of interventions performed	195	165	171	149	153	182
% of surgery carried on ambulatory basis	0	0	0	0	0	0
% of surgery carried on in-patient basis	100	100	100	100	100	100
Arthroscopies						
No. of interventions performed	--	--	--	--	--	419
% of surgery carried on ambulatory basis	--	--	--	--	--	0
% of surgery carried on in-patient basis	--	--	--	--	--	100
Amygdalectomy						
No. of interventions performed	3	--	--	2	3	1
% of surgery carried on ambulatory basis	0	--	--	0	0	0
% of surgery carried on in-patient basis	100	--	--	100	100	100

Obstetric activity (delivery-related ALOs, in days)

	2011	2012	2013	2014	2015
All patients (covered + not covered by insurance)		4,26	3,34	3,19	4,47

Only patients covered by the insurance	3,55	3,58	2,32	3,19	3,45

The hospital claims there has been 'no relevant staff absenteeism': 'In recent times, there was a single case of uncertified absence, which lead to the termination of the employment contract.'

No additional data have been made available for Ploiesti, Rosiori, Slatina and Timisoara

3.4.6 Managerial competence in the sampled hospitals

The above-mentioned limitations in reporting case severity details also preclude a proper analysis of the level of managerial competence in handling the hospital workload in each case, a major determinant of the necessary job for improving performance. Formally, as requested by the law, all facilities in Romania have their own 'hospital manager', 'managing committee', 'board of directors' and similar bodies. In theory, public hospitals enjoy financial autonomy (Law 95/2006), understood as 'organising the hospital activity based on the budget approved by its governing bodies and the superior budget authority (MoH, other ministries and institutions or local authorities); and drafting the budget based on revenues and proposals from hospital wards and compartments'. In practice, however, they have systematically declared having 'almost zero managerial autonomy' (see below). In this context, insights about hospital management competence can barely be indirectly inferred from responses in the provided questionnaires by each hospital, as follows:

Buhusi

- The hospital declares having a number of quality certifications (ISO 9001 - Quality Standards Ver. 2008; ISO 22000 - Food Safety Ver. 2009; OHSAS 1801 - Occupational health and Safety) and hospital accreditation (CONAS);
- A long list of hospital committees and developed clinical and operational procedures has been reported to be in place;
- However, the output, in terms of systematic records and analysis on hospital results, seems to be weaker than expected for such a managerial effort.

Floreasca:

- MoH and District 1 City Hall are the primary funding sources for the ongoing building consolidations, refurbishment and ordinary repairs;
- Three specific sources for staff funding are mentioned (as a way to show that in fact no decisions are made by the very hospital); and
- The hospital has a Quality Committee, but without appointees at present, hence perhaps the above-mentioned remarkable absence of quality indicator monitoring (e.g., deep vein thrombosis at hospital or post-operative pulmonary embolism, etc.).

Foisor:

- 'Currently, around 40% of patients reside outside Bucharest, but the facility has an obligation to accept patients from all the country and the hospital budget is mainly based on hospital expenditure of the previous year. Approval/rejection of the budget is often received in March/April of the following year (sometimes as late as June). This restricts any room for action by the manager' (for example, the budget for the period January–March is established on a monthly basis, with each month's budget equivalent to 1/12 of the previous year's budget)';

- Hospital units C and D are under construction. Completion of the works got delayed by two years due to suspension of cash flow by the General City Hall (last payments were made in November/December 2015);
- The General City Hall of Bucharest applied successfully for EU funds in 2009 to refurbish the building for ambulatory care; the project should have been completed in December 2015, but due to unsuccessful public tender for the construction works in Romania, the funding was finally lost; and some already-purchased equipment which had to be used in other parts of the facility could not be used;
- Almost 30% of positions remain vacant, yet a large number of doctors expand their work to cover duty guards. This arrangement is not official by design (it was rather decided by doctors because payment is higher than on regular shifts instead).

Lugoj

- The hospital reports to have set up several committees and developed protocols for communicating and relating to patients as well as procedures for performing hospital activities;
- Reasonably complete time series of related indicators seem to be recorded. No specific info was provided however about analyses performed upon such information.

Marius Nasta:

- Decisions on hiring/firing staff or opening/closing services are made by MoH. The hospital budget is mainly based on previous year expenditure. Revenues from own sources are used to cover equipment repairs. If a device (equipment) amounting to more than RON 2,500 is needed, the device has to be included in the MoH Investment Plan (based on general accounting regulations);
- As the hospital has the obligation to provide care to patients irrespective of financial coverage, there are months when around 20% of the total services provided are not reimbursed by the NHIH 'because patients are uninsured' (sic).

Pantelimon:

- Hospital budget is mainly based on previous year expenditure (the manager is only responsible for implementing the decisions made by 'external' authorities);
- During winter, the hospital plays a 'substitutive role' in addressing social problem of for example homeless people, but NHIH does not reimburse any such service as patients are uninsured and do not represent any emergency cases;
- As an emergency hospital, the institution is obliged to accept every person stepping in. Since 2012, more than 90% of admissions took place through the Cardiac Observation Unit door (location near A2 highway makes the facility the obvious destination for most victims of accidents on the highway).

Ploiesti

- Although committees have been reported to have been set up and protocols and procedures as designed, the output provided seems to be weaker than expected for a really productive facility.

Rosiori:

- Most often patients do not follow the circuit primary care to (ambulatory) CPU, which is usually overcrowded with homeless people or elderly patients claiming they have an emergency;
- Complaints about the way funding is designed were convincingly expressed, but not accompanied by detailed analysis on how the hospital operates its budget cycle to respond to the challenges ('We do not develop business plans because they are more suitable for private hospitals, at least from a profit making perspective' -sic). It was mentioned, however, that 'The hospital needs to focus on attracting additional funds from sponsors and increased collaboration with hospitals abroad, which is for example how the hospital got hold of a CT scanner';
- Serious concerns were expressed relating to attracting and maintaining skilled staff: 'Many are considering leaving the hospital… Lack of staff results in loss of revenue for hospital and doctors.' This trend is explained by the fact that *Rosiori* is a low-complexity hospital, located outside of Bucharest, and it is very difficult to maintain staff due to low income levels. In addition, the legislation prohibits engaging new staff members with narrow clinical specialities, unless it matches with the types of wards. While this is a well-approbated and legitimate practice, it restricts filling vacant positions.

Slatina

- Again, a long list of committees and designed protocols and procedures was reported.
- A reasonably complete list of indicators has been provided. Nevertheless such a list was shorter than the one announced as "list of the issues systematically monitored at hospital".

Timisoara

- The hospital reports to have set up a number of committees and developed protocols to provide information to patients, manage complaints and measure the perception of care provided, as well as operational procedures to provide general services;
- Reasonably complete time series of related indicators seem to have been recorded; however, no specific info has been provided about analyses performed using such recorded information.

4 Selected hospital performance indicators in EU

This section is produced in response to the MoH request to provide selected hospital performance indicators from the EU/OECD countries, to have possibility to compare it with the performance indicators collected in the assessed sample hospitals in Romania.

While having serious reservations against using EU/OECD hospital performance data for comparisons and benchmarking with the Romanian hospitals (because of numerous reasons explained further in this section), we brought together two types of data sets:

4. a. selected hospital performance indicators from OECD countries (e.g., hospital beds per 1000 population, average length of stay, bed occupancy rates, etc.); and

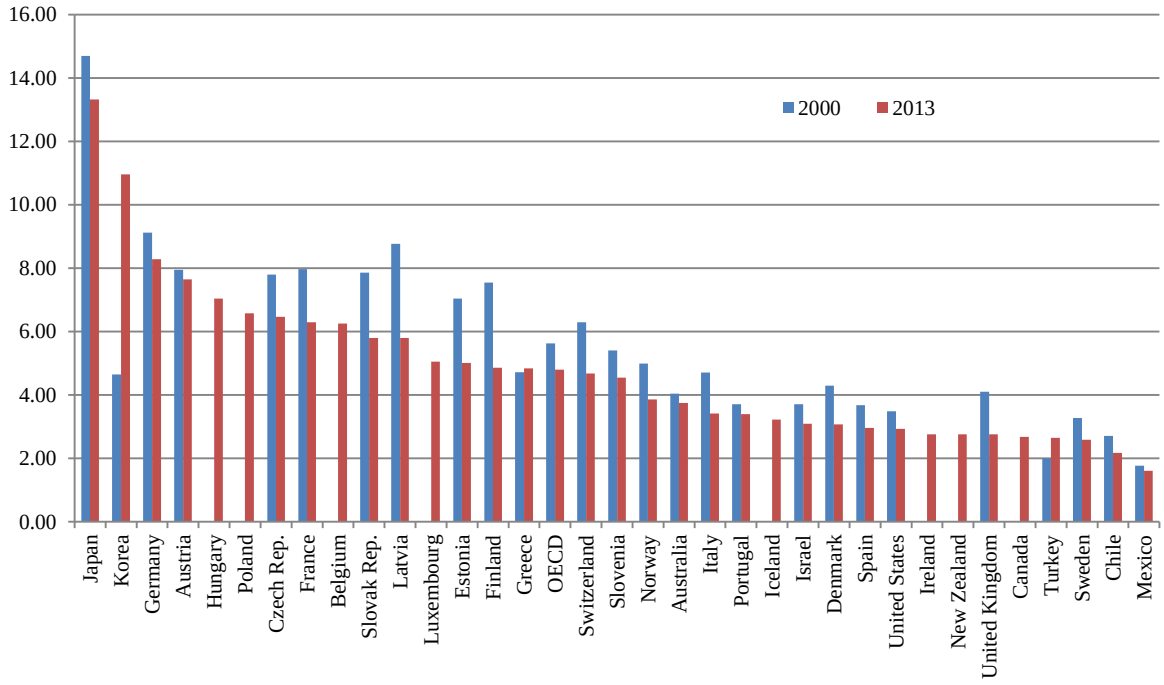
4. b. findings from the "TOP 20 project" in Spain, aimed at benchmarking and ranking Spanish hospitals.

The MoH is advised to take into consideration that the suggested data should not be used for benchmarking the audited hospitals, because of multiple reasons, including the differences and variations in hospital classification, and service organization and delivery patterns in Romania and elsewhere.

4. a. Selected Hospital performance indicators from OECD countries

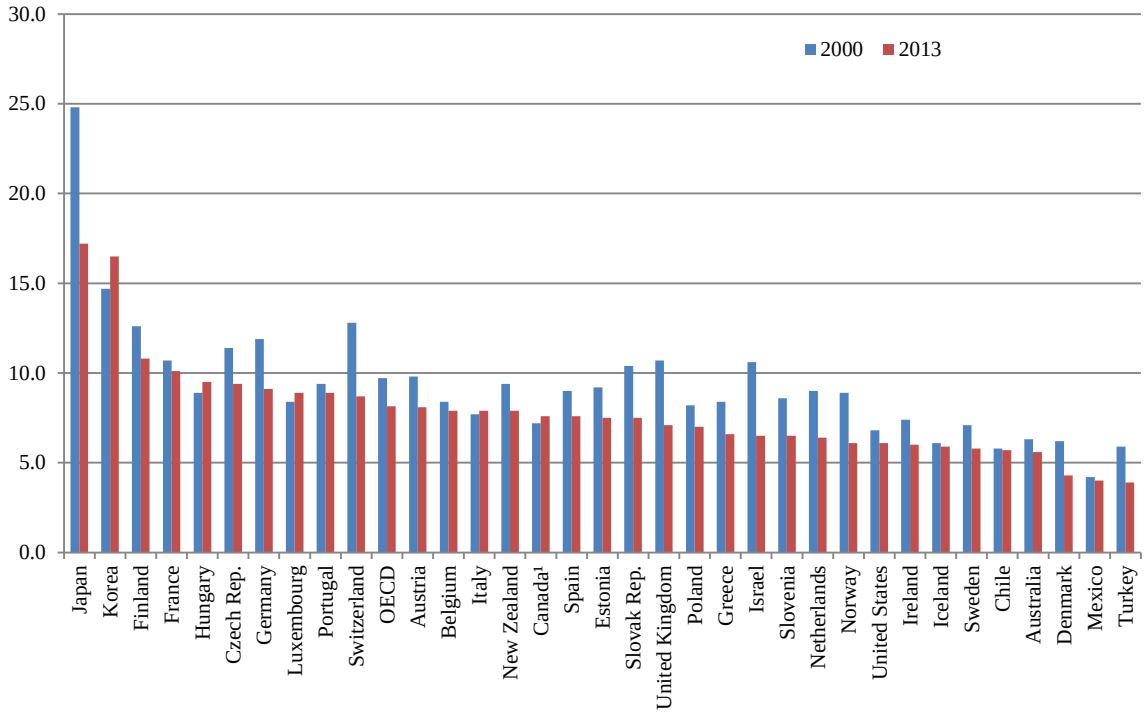
From the start it is important to emphasize that "average for hospital indicators in OECD countries" are only fully available in the international technical literature *at national level*. Data may come from all (or most) OECD countries or in some cases only from a selected series of countries, but the hospitals are aggregated *at national level.* Some recent data from the OECD is presented below.

a. Hospital beds per 1 000 population. OECD, 2000 and 2013



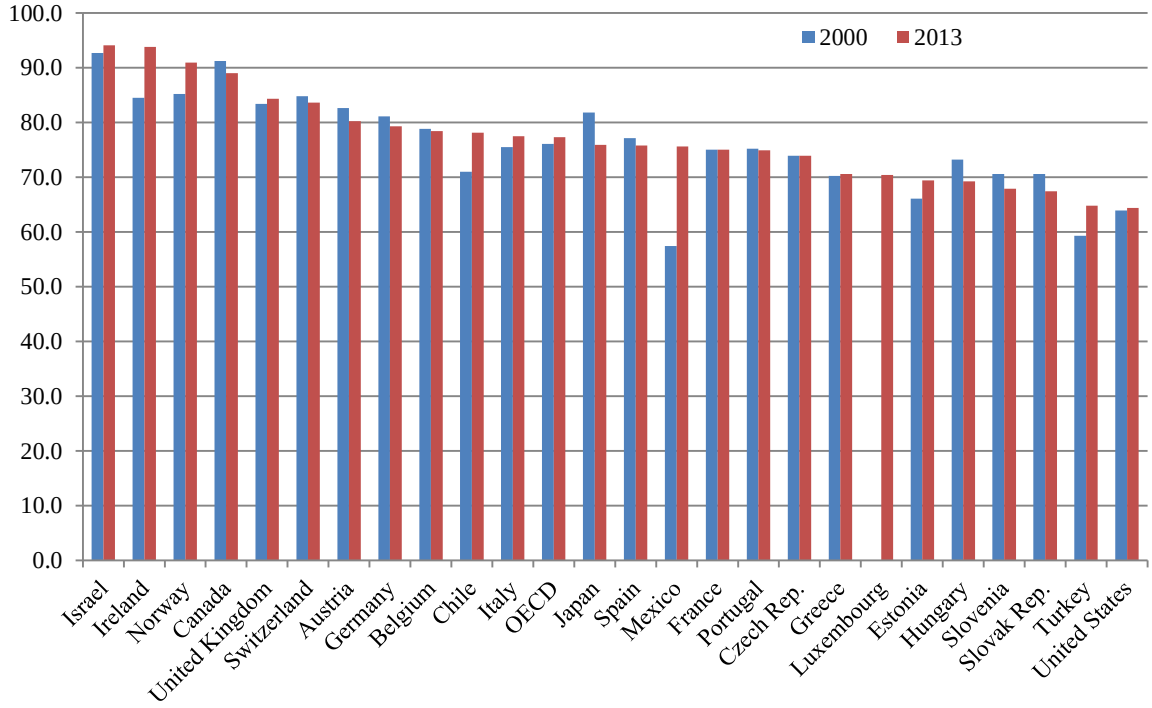
OECD. Health at a glance 2015 (http://dx.doi.org/10.1787/888933280981)

b. Average length of stay in hospital. OECD, 2000 and 2013 data



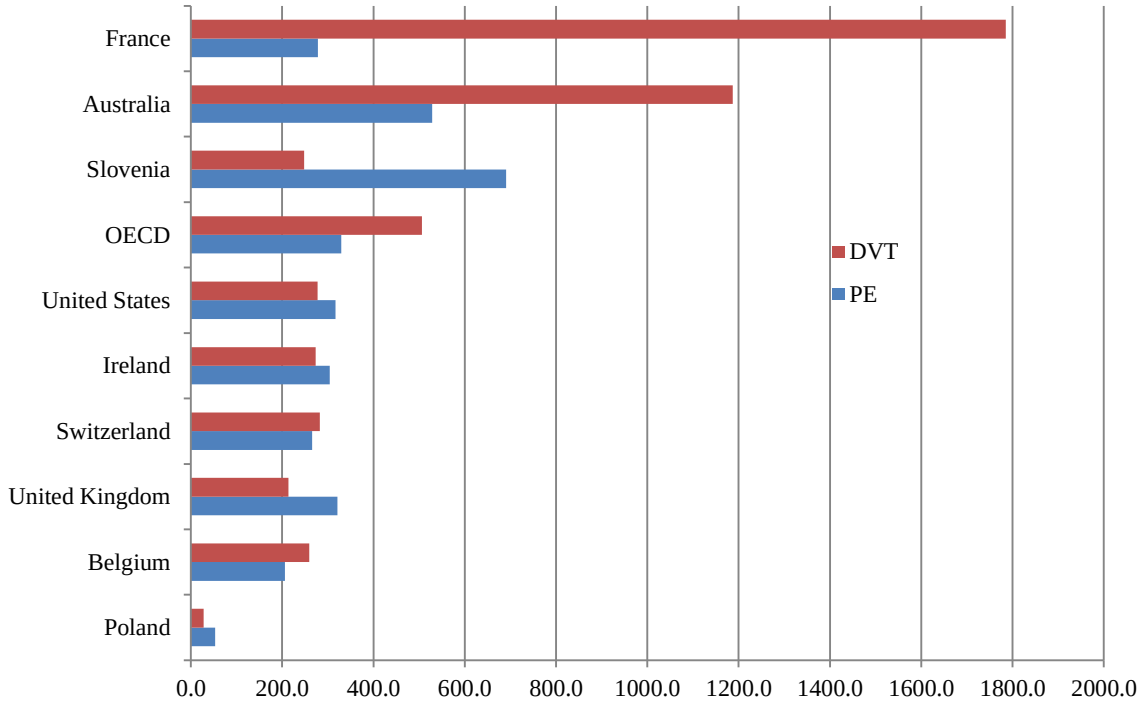
Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/888933281004

c. Occupancy rate of curative (acute) care beds. OECD, 2000 and 2013



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/888933281004

d. Surgical complications: Postoperative pulmonary embolism (PE) or deep vein thrombosis (DVT) in hip and knee surgeries (surgical admission basis). OECD, 2013



Source: OECD Health Statistics 2015, http://dx.doi.org/10.1787/888933281167

The above means that except for specific cases and specific projects, *hospital by hospital data by type of facility* are simply not available for comparison. Assessing *"the appropriate range of values"* for hospital-type specific indicators is therefore a rather common but perhaps misconstrued question, since it is virtually impossible to answer (and if at all, the assessment has to be done very carefully). This is so for several reasons:

- First, the answer to that question is context specific and thus error-bound if taken out of context. Beyond the general meaning of the measure, a higher or lower number of beds, a bigger or smaller bed occupancy rate and a shorter or lengthier stay is hardly necessarily better than the opposite outside the patterns of care in the given country (the relationship between length of stay and number of beds may reflect issues related to community and primary care, etc).

- Second, hospital size, type of staff, technological endowment, organizational arrangements and case-severity profiles are the main variables in determining the capacity of a hospital (Saltman RB, Duran A, Dubois HWF, eds., 2011, Governing Public Hospitals: Reform strategies and the movement towards institutional autonomy**,** European Observatory on Healthcare Systems and Policy, Brussels) and thus the very hospital classification system in place will be critical in order to ensure "comparability of equals".

The core problem is that in different places hospitals are defined by different criteria (the specialties offered, the territory or main population group served, the technology used, etc). As it is known, for some time the modern distinction in most Western countries was structured around “general hospitals” intended to care for patients affected by diverse conditions in "four basic specialties" (internal medicine, surgery, obstetrics and gynecology and pediatrics). “Specialized hospitals” as a matter of contrast would devote their activity to the care of either specific conditions or patients of a given age group, or any particular set of common characteristics, and be endowed with specific diagnostic and treatment equipment and services. For several reasons (including the perception of increased effectiveness and the relative low cost of the inputs, etc.) in some countries (including Western countries until the 1960s) so-called monothematic, single topic hospitals -for example, hospitals for tuberculosis, leprosy, etc. child care, “mental health and drug-

addiction treatment hospitals", etc. were developed at big scale. "Mid- to long-stay hospitals" committed to caring for patients with chronic conditions and 'Hospital Ensembles' made the comparisons even more difficult because of their use of different equipment, etc. In short, "Children" or "TB", "regional" or "specialty" hospital may mean very different things in different countries.

Case severity is one final core aspect (for example, the performance of two providers: one whose caseload consists mostly of elderly patients and another who treats a less severe case mix in a much younger population) that needs to be considered in any comparison. In the process of refining its payment methods after launching the Diagnostic Related Groups and as late as March 1986, the US Medicare Agency released for the first time hospital mortality rates. It happened that 142 hospitals had significantly higher death rates while 127 had significantly lower death rates than predicted; one facility had the most aberrant death rate (87,6%, compared with a predicted 22,5%). It reportedly came as an initial surprise that such facility was… a hospice caring for terminally ill patients! (Iezzoni, LI (2009). Risk adjustment for performance measurement. In: Smith, PC. Mossialos, E. Papanicolas, I. Leatherman, S (eds.). *Performance measurement for health system improvement: experiences, challenges and prospects*. Cambridge: Cambridge University Press).

Soon afterwards, the organization of neonatal intensive care in Trent (England) and Victoria (Australia) was compared with one another -with services being decentralised in Trent, but centralised in Australia... Initially, the results indicated the opposite but after adjusting by severity, the death rate in Trent was twice as high as in Victoria (Pearson, G, Shann F, Barry P, et al, 1997, "Should Paediatric Intensive Care Be Centralised' Trent Versus Victoria, Lancet, 349, 1213-1217).

For that reason Risk adjustment is recommended as "a statistical tool that allows data to be modified to control for variations in patient populations in order to make the differences into account when resource use and health outcomes are compared", (Institute of Medicine 2006, Committee on Redesigning Health Insurance Performance Measures. Payment and Performance Improvement Programmes; Performance Measurement, Accelerating Improvement, Pathways to Quality Health Care, National Academic Press, Washington D.C.)

Unfortunately, in summary it will not be easy to find equivalence for comparison between the hospital categories in Romania as per Ministerial Order 323/2011 (namely: I, IM, II, IIM, III, IV and V) and the ones used in other European countries.

4.b. Findings from the "TOP 20 Project" for hospital benchmarking in Spain

The "TOP 20 project" aims to benchmark and rank the Spanish hospitals along five hospital categories. It is run by a private company (IASIST) which invites hospitals to freely participate. Hospitals accept being assessed according to an agreed list of variables in order to be ranked and they themselves decide in which category they should be included. The table below illustrates such classification (taken from: 2014 IASIST - Top 20 project, available at: http://www.iasist.com/archivos/top20-2014-metodologia-resultados_161215230901.pdf, and accessed on February 6th, 2017).

Hospital profiles in Spain. Selected indicators. 2014

	Small general hospitals	Mid-general hospitals	Big-general hospitals	Reference for selected specialties	National reference hospitals
Beds	75	147	300	555	842
ALOS	4,6	5,0	5,5	6,3	7,1
BOR	65,7	77,0	80,2	79,3	79,3
Readmissions	0,79 - 0,98	0,88 - 1,03	0,94 - 1,04	0,95 - 1,10	0,94 - 1,04
Mortality	0,83 - 1,26	0,81 - 1,15	0,80 - 1,00	0,81 - 0,98	0,88 - 1,04

	Small general hospitals	Mid-general hospitals	Big-general hospitals	Reference for selected specialties	National reference hospitals
Surgical complications	0,66 - 1,14	0,96 - 1,23	0,90 - 1,09	0,86 - 1,07	0,97 - 1,13

Legend:
- Small general hospitals: facilities with less than 7.000 admissions, including hospitalizations and ambulatory surgery
- Mid-general hospitals: facilities with 7.000 - 12.000 admissions, including hospitalizations and ambulatory surgery
- Big-general hospitals: facilities with more than 7.000 admissions, including hospitalizations and ambulatory surgery; with ICUs able to provided complex conditions related services; but without any "reference specialty department", that is, not able to receive neurosurgery, cardiac surgery nor thoracic surgery complex cases referrals from any other hospital around the country
- Reference for selected specialties: facilities with more than 75 specialized doctors devoted to provide neurosurgery, cardiac surgery or thoracic surgery complex cases referrals from any other hospital around the country
- National reference hospitals: facilities with more than 75 specialized doctors devoted to provide neurosurgery, cardiac surgery and thoracic surgery complex cases referrals from any other hospital around the country, as well as to perform transplantations.
- Beds: average number of beds per hospital within the category of hospitals
- ALOS: average length of stay, in days, within the category of hospitals
- BOR: average bed occupancy rate, in %, within the category of hospitals
- Readmissions: range of readmission index adjusted by risk within a category of hospitals. The index is calculated dividing the observed number of non programmed readmissions happened within 30 days since the first admission divided by the number of expected non programmed readmissions; diagnosis code for readmissions have to be the same that those for the first admission. Values higher than 1 represent higher number of urgent readmissions than expected. Severity is approached through a combination of age, sex, type of admission -that is, urgent / programmed-, as well as main and secondary diagnosis
- Mortality: range of mortality index adjusted by risk within the category of hospitals. Calculated dividing the observed number of deaths while admitted in the hospital divided by the expected number of deaths, so values higher than 1 represent a higher than expected number of observed deaths. Calculations combine data from five areas: general in-patient mortality; general surgical mortality; neonatal mortality; in-patient oncology mortality; and oncology surgical mortality. Severity is approached through a combination of age, sex, urban/rural condition; main diagnosis code and secondary diagnosis codes)
- Surgical complications: range of surgical complications index adjusted by risk within the category of hospitals. The index is calculated dividing the observed number of surgical episodes presenting complications in the hospital divided by the expected number of episodes, so that values higher than 1 represent higher number of observed complication episodes than expected. Severity is approached through a combination of age, sex, urban/rural condition; main diagnosis code and secondary diagnosis codes

Importantly, the following remarks are essential to understand the table:

- The top 20 hospitals are publicly acknowledged and rewarded as such. However, the participant hospitals remains anonymous, so that data for particular hospitals are not published (and only participant hospitals receive their own results);

- The above stated average profile for those five categories is published according to a number of indicators (among others: beds; staff; discharges; emergencies attended; outpatient consultations; ALOS; ambulatory surgery rate; bed occupancy; readmission index; mortality index; and surgical complications index);

- It is generally accepted that the ranking only has validity strictly within Spain, but no comparisons are feasible even against neighboring European Western countries hospitals;

- In addition to the above explained anonymity circumstances, lack of comparability is related to hospital size, but also mostly to differences in technology endowment and organizational arrangements.

In summary, our advice is that rather than strictly using the project in course to *benchmark the audited hospitals*, it would probably be advisable to take advantage of the available findings and recommendations in our report as an opportunity to support the MoH effort in reviewing the current hospital classification system. In due course and after re-classifying hospitals, inter-hospital comparisons in Romania will become a more reliable and feasible task.

5 Conclusions

5.1 The need for a balanced picture

Closing this critical overview requires a careful balancing act. As one author recently put it brilliantly, for nearly all of history the illnesses that befell mankind primarily reflected our ignorance, 'but sometime over the last several decades … science has filled in enough knowledge to make ineptitude as much our struggle as ignorance' (Gawande, 2009).[40] Understanding hospitals and making them function better is the body of an increasing amount of work in this context. Indeed many aspects need to be taken into account in judging the performance of Romanian hospitals and their relationship with arrears and performance in general, hence the use of a detailed questionnaire for this research.

A core observation to be made upfront is that, for better or worse, hospitals in Romania play at the moment an important role the very way they are. With weak primary care and an almost inexistent social and community sector, and despite claims to the opposite, Romanian hospitals continue to occupy in the service provision scene a wider spectrum than is the norm in Western countries. As hospitals are today, appointments are indeed made, surgical operations are performed and medicines are prescribed, dispensed and used. Facilities also operate, and most emergency as well as regular services are provided. Service rationing (delivering much less than requested in quantity and quality) exists beyond doubt, but rationing is hardly perceived as overwhelming and queues are not found everywhere either. True, conflicts in the doctor-patient relationship occasionally emerge, but they are self-contained and limited in number. The institutional reality of Romanian hospitals, as already mentioned, also includes a plethora of modern figures and instruments (e.g. payment by diagnostic related groups, hospital boards, managers with contracts presided over by KPI, etc.).

In short, most informants expressed their perception that people are reasonably well-attended and cared for; they emphasised that many problems are solved every day at an affordable economic and social cost. We are convinced that there is a substantial amount of truth in that viewpoint.

Simultaneously, however, the detailed analysis of hospitals *also* reveals elements of a much less optimistic diagnosis. Some of those elements are analysed in sub-sections below and synthetized in the table at the end of the chapter. Several considerations are in order:

First, a distinction must be made between issues relating to the health system and issues relating specifically to hospital management. While this assignment set out by focusing on the latter, it became apparent throughout data collection and analysis that the former, i.e. system-level issues, should occupy a prominent place in the findings. The substantial variability we found in hospital managers' responses (including lack thereof) to the constraints and liberties in the organization, regulation and financing of the health system – reflected in decisions related to staffing, equipment procurement, and financial management, to name just a few – suggests that the content and alignment of incentives currently in place with a view to ensuring a high-performing hospital sector require a thorough revision from Romanian decision-makers.

Second, while the relationship between the identified challenges and hospital arrears (the central purpose of this work) is sufficiently elucidated with the existing information, the recognition of the magnitude of system level challenges generates the inverse question 'Why do some hospitals not incur arrears in the same cumbersome context?' Obviously, factors such as the location of hospitals (Bucharest vs remote areas), staffing (attraction and retention policies and HRH

[40] Gawande, A. (2009) *The Checklist Manifesto: How to Get Things Right*, Penguin, New York, p. 8.

management capabilities), profile and image (quality and complexity of services, and recognition) and others step in to define hospitals' ability to attract funding and negotiate revenues (through negotiating service volumes, types and respective income). The capability of management teams also matters. These factors in combination with a number of others referred in this document allow hospitals to avoid arrears. We discuss more below.

5.2. Health system-related causes of arrears

5.1.1 Conflicting functional design

The extent to which Romanian hospitals continue to operate essentially as they have operated for decades is remarkable. Much public hospital arrears, and in general many serious problems the country hospitals face, are due to the way health system functions are performed.

Service provision: Romania has reduced the number of public hospitals and beds contracted by the NHIH but it has also kept in the public sector a high number of facilities and resisted request from international agencies to *right-size* hospitals for the sake of better quality and sustainability. The number of hospitals and hospital beds, the inadequate size of facilities and the deficient articulation of different units/combination of business models size are all sources of conflicts. From 2006 onwards, for example, administrative decentralisation has gradually transferred all non-teaching hospitals to local administration. Experience shows that this mechanism is being used to maintain most hospital structures with public money, irrespective of their results. Furthermore, Romania is also the country in Europe in which in recent years the number of beds in for-profit hospitals has increased the most (from 23 hospitals in 2007 to 98 in 2011; in 2007 there were 960 beds in for-profit hospitals, while in 2011 there were 3627, an increase of 278%). To date, indicators for hospital infrastructure (total beds and acute beds per population) and hospital utilisation (in-patient discharges per population) are higher in Romania compared with EU15 averages.[41]

As indicated, **the linkages of units/combination of business models** is another major problem. Compared with new hospitals, old ones are very different institutions in terms of workload (type and number of cases, as well as nature of medical problems), number of available solutions, variability and predictability of expenses, etc. In fact, a remarkable finding in the analysed hospitals is the high amount of so-called *unexplained variability*. In principle, a good building and good equipment should be the platform for a good set of procedures which would maximise the outputs and the results, and vice versa. As previous sections illustrate, many decisions seem to ignore the need for consistency in the approaches (see the example of a Level IV hospital providing cancer services alongside balneology services). Beyond doubt, even if it is not measured in detail, the price the country pays for this refusal to specialise and standardise is waste and loss of service quality.

Poor management capabilities and performance assessment system: International experience shows the importance of combining in managerial positions specific thematic experience with familiarity with health care challenges. Decisions on appointments, however, are often made based on trust and ideological affinity rather than on merit and professional skills. In addition, many managers are doctors who also maintain clinical practice and are requested to follow all kinds of rules not decided by them. Just one look at the scope for action of current managers also reveals very limited room for managerial decision-making. For example, as indicated, managers have to ask permission from the MoH to change hospital structure or recruit staff.

[41] WHO, *Health for All Database* (2013 data).

Performance, however, is assessed through sophisticated KPIs, many of which are rather unspecific from a managerial standpoint (hence they have been under revision during the course of this project). While some of these indicators seem sensible, their usefulness for improving efficiency and quality of service delivery is difficult to judge for a number of reasons that have been outlined or alluded to in previous sections.

First, conflicting regulations make managerial autonomy more of a desideratum than a reality, therefore an indicator such as % personnel expenditure from total expenditure hardly makes sense when in practice it is so difficult for a manager to alter the staff structure. Second, information systems are too weak and uneven across hospitals so as to ensure reliable and comparable data e.g. patient complaints, nosocomial infections. Third, the way in which indicator targets are set and applied for each hospital is sub-optimal. National average values were computed in 2007 (MO 1567/2007) for most indicators, by type of hospital, and were used to set performance benchmarks, but these values have not been updated since and have been used year-on-year only with slight adjustments to align with the actual hospital activity. Finally, there are no *de facto* support mechanisms for managers when deviations arise, which leads to inaccurate (or at best, mechanical) reporting as was exposed nationally for nosocomial infections during 2016.

Financing and service purchasing is *unnecessarily complex and unjustifiably obscure*. Having several sources of hospital funding in the public sector usually is a recipe for difficulties. The existence of over two dozens of State programmes with several components related to selected Hospital services, equipment and pharmaceuticals, in combination with the great majority of hospital services being funded through the NHIH, underlines complexity of proposed arrangements.

Overall, hospital expenditure represents the largest expenditure item from the National Health Insurance Fund, but its share in the fund has decreased constantly over the past decade, from 51% in 2005 to 38% in 2015. The share of expenditures on curative NHP for chronic disease, which hospitals can access to reimburse selected drugs, consumables and procedures, has doubled during the same period from 7% to 13% of the fund, leaving room for some substitution effect between the two funding streams. By contrast, the average number of combined primary care and ambulatory care contacts (includes outpatient departments in hospitals) was 4,8 per person per year (2013 data), lower than the EU average (6,9) and countries like Bulgaria (5,4), Poland (7,1) or Hungary (11,7).[42] Less than 6% of the National Health Insurance Fund (2016), and constantly less than 9% since 2005, went to primary care, compared with 9–14% of total government health expenditure in other European countries.

Service purchasing and contracting is similarly complicated. The use of DRG categories/cost weights by the Health Insurance Fund (the Casa) does not match the reality of hospital service costs. To a large extent the Casa still estimates the ceiling for hospital contracts based on the number of beds/historical budgets, stimulating hospitals as indicated to keep inefficiencies in the system by having more beds than necessary, instead of rationalising their number.

Professionals interviewed during this assessment (representing MoH, hospitals, public health institutes, QA agencies, and even the NHIH) confirmed that the DRGs must be revisited. Our impression was that we were re-discovering this widely acknowledged truth in Romania. While searching for the answer to the question 'Why is this not happening?' context considerations stepped in. It is recognised that the actual revision of DRGs and its application in strategic purchasing of hospital services would have major consequences. In short, it would no longer be possible to maintain the current number of facilities through bed-based funding. Instead, the

[42] Vladescu, C., Scintee, S.G., Olsavszky, V., Hernandez-Quevedo, C. and Sagan, A. (2016) 'Romania health system review', *Health Systems in Transition* 18(4).

purchaser would have to procure services based on the population's health needs through DRGs, with unavoidable closures of beds and facilities, mainly small or medium size. It seems that, facing a choice between improving health service purchasing mechanisms and maintaining the social stability, the latter has been preferred.

Contract negotiation processes do not exist either. Despite the demonstrated importance of the contracting process (Loevinsohn, 2008);[43] hospitals are invited to make 'almost instant agreements' with the county health insurance house, where they are informed about their budget for the next year estimated as per a generic formula that accounts for the 'contractable' number of beds with the insurance house, "predicted" workload, average tariff per case/hospitalisation day and hospital CMI. In practice, however, this estimation approach starts from the budget available to the county health insurance house, (depending in turn on budgets allocated to the Casa in the respective year). Corresponding adjustments are made to historical allocations (increases if overall allocations are higher than in the previous year; deductions if overall allocations are lower than in the previous year), which are then reflected in the number of beds and/or volume of cases/services to be contracted.

Thus, the current budget allocation formula combines historical activity with an arbitrary component (the number of 'contractable' beds), ignoring the true addressability of each hospital. At the same time, other sources of funds mostly introduce additional distortions in the economic life of institutions generating opportunities for political gaming: the 'true' main funding source for hospitals are the contracts with the health insurance house. Hospitals administered by the MoH and ministries/institutions with their own health service network, however, can receive additional funding from state, county and local budgets as well as respective ministries/institutions, as applicable. Hospitals administered by local authorities can receive funding from the state and MoH budget for the following: to finalise investments prior to having been transferred to local authorities; for medical equipment, provided that local authorities contribute at least 10% of the value; and for major refurbishment (minimum 5% contribution from local authorities), and modernisation/ extension projects (minimum 10% contribution). All hospitals have reported that the keeping of dozens of segmented programmes by the MoH is a source of discretionary and arguably effective decisions. Subsidies from local authorities depend on the wealth of the concerned authority and introduce direct political influence in resource availability.

Procedural obscurity, exemplifying the additional problems faced by the system, adds to the list of contributors to generating arrears. The tables in Section 3.2.2 include ample anecdotal evidence that imbalances between revenues and expenditures seem to have continued on a large scale, but arrears have lost most of their validity as indicators of hospital performance because of the behaviour of the very same public sector. However, after drastic measures were legislated against creating arrears, the owners of public hospitals have ensured the compensation of financial imbalances with public money before measures became applicable to them. In the initial hospital management contract (MO 1384/2010), the contract would cease (i.e. the hospital manager would be automatically dismissed) for incurring outstanding payments older than two years. In 2015, this interval was shortened to three months (MO 768/2015).

Based on above, we have a solid conviction that the three causes of arrears in this study (under-financing, structural imbalances and poor management) are harming Romanian hospitals.

Resource generation: many inputs needed for the correct running of hospitals and their sustainability seem not to receive the necessary attention in Romania. The 'brain drain' the country

[43] Loevinsohn, B. (2008) *Performance-Based Contracting for Health Services in Developing Countries: A Toolkit,* Health, Nutrition, and Population Series, World Bank, Washington, p. 20, DOI: 10.1596/978-0-8213-7536-5, http://siteresources.worldbank.org/INTHSD/Resources/topics/415176 1216235459918/ContractingEbook.pdf.

suffered a number of years ago and the current number of unoccupied positions appear as examples of lack of a proper staff retention policy. In the context of international imbalances in the workforce, the danger of hospitals being unable to operate at maximum capacity because of human resources problems is a more feasible scenario than often considered (Barriball *et al*., 2015).[44]

Perhaps one particularly blatant example is the **skills and competences of managers and board members**. As explained, the role, experience and duties of dedicated managers and board members can impact the amount and quality of services produced; yet in Romania many of health care managers have limited training and experience. There is no formal education to become hospital manager (unless the degree is obtained abroad), so managers feel they lack the knowledge and skills to run hospitals until they learn. A bigger effort is needed to ensure the supply of qualified managers for (at least) the key hospitals in the country.

The **reported problems with buildings, facilities and equipment** are of no smaller calibre, with the additional dimension of their significant costs. A particularly serious challenge derives from the haphazard way in which technologies are being purchased and installed in facilities of uncertain articulation in the future health facilities map of the country.

It is also worth noting that resource allocation and activity reimbursement processes contribute to maintaining surplus infrastructure. As mentioned above, the 'hospital bed' is still the metric that dictates both types of decisions, but inconsistently so. For example, staff norms are decided based on legislated ratios (as outlined above) related to actual beds i.e. beds in the hospital structure approved by the MoH. However, hospital activity is reimbursed based on 'contractable' beds decided by the health insurance house in accordance with the national bed plan and the available budget. 'Contractable' beds are equal to or (often) lower than the available beds, in some cases representing 50–60% of available beds. Reducing the number of beds in the hospital structure would have uneasy political consequences, because it would mean laying off staff. Reducing the number of contractable beds, on the other hand, is a compromise that preserves the hospital structure, but diminishes available funding accordingly, all other things being equal (e.g. assuming constant reimbursement tariffs).

Accountability mechanisms are poor and fragmented. Multiple reports are sent to the MoH on segmented aspects of hospital performance, but there is hardly any holistic mechanism to see and show how each hospital is performing (e.g. virtually no intelligence on outcome indicators is built and/or shared for decision-making). For example, regular reports are being compiled by the MoH's Integrity Department on the hospitals' financial activity, including debts and arrears, but there are no formal policy mechanisms in place to react to these reports. In parallel, MoH Audit Department conducts regular audits in hospitals affiliated to the MoH. The triangulated coordination of these units with the health insurance, citizens' groups, professional associations, etc., to better allocate resources, avoid duplications and correct inefficiencies, is also insufficient.

5.1.2 Conflicting high-level stewardship

In addition to the above, a superficial analysis could transmit the impression that perhaps Romanian health authorities have failed to understand the true nature of modern hospitals and their challenge, or did not factor in properly the many changes occurred in the field of technologies, or refused to accept the implications of having a more demanding population. In all senses, for example, access is explicitly perceived as a major concern for policymakers; and yet **Romania**

[44] Barriball, L. *et al.* (2015) *Recruitment and Retention of the Health Workforce in Europe*, EU Directorate-General for Health and Food Safety, Brussels, http://ec.europa.eu/health/workforce/docs/2015_healthworkforce_recruitment_retention_frep_en.pdf.

lacks any robust research on the comparative accessibility, quality and efficiency of public and private hospitals, with incentives for facilities and researchers to improve data in each case.

Also for years every step in **any policy direction seems to have been systematically neutralised with measures in the opposite direction by the next administration**. Facilities closed as part of the National Plan of Rationalising Hospital Capacity, for example, were reopened over the next few years under various systems of specialisation, either as ambulatories (12 general medical centres) or other medical services (e.g. 21 elderly care centres). At the same time, however, it is clear that the government of Romania has full access to state-of-the-art assessments, starting from the Functional Review carried out by the World Bank in 2010–11.[45] In an official meeting, for example, mention was made to us of an extraordinary number of reports (365 strategic reports, one per each day of the year) waiting at this very moment for action.

In view of all the above, the tentatively empirical conclusion that **Romanian political stakeholders have *de facto* chosen a course of action combining an appearance of modernity with the preservation of the status quo** sounds plausible. What complex reasons could have led policymakers to behave in this way exceeds our understanding, but evidence points to the fact that the overall high-level stewardship of the health system seems to respond very much to that type of rationale.

Hospital governance calls for new ways to confront the variability of modern hospitals. Mention was made of the **lack of sector level strategic planning** to ensure a balanced distribution of hospital buildings and services in Romania. Hardly any ruling institution seems to have the technical profiles for such a job. In fact, expecting that a small unit in the MoH can elaborate and monitor strategic plans and structural changes for the public hospitals of a country with a population of almost 20 million is simply unrealistic in today's world.

Conflicting regulations: Hospitals in Romania have strict formal limits to the amount of resources they can use (including the explained legal regulations concerning financial arrears and legislation forbidding facilities to incur in debts). Simultaneously, however, other official rules make delivering services compulsory, and the public sector pays the dues in the end (in some case, as mentioned, this is done by transfers to the local authorities, which in turn transfer the money to the hospitals who were previously denied a better and more transparent contract).

Moreover, the National Health Reform Law 2006 made numerous provisions on the standards for providers' accreditation and certification, allowing them to engage in publicly funded activities (especially laboratory testing and ambulatory services). The reaction was that accreditation of public facilities was over-facilitated, i.e. made 'almost compulsory'. Plans intend to accredit all hospitals (public and private) into four categories by 2020 ('accredited, high confidence, low confidence and not accredited', the latter of which it has been announced will be closed). This would require evaluation of all hospitals by the National Authority for Quality Management in Healthcare on dimensions such as strategic and operational management, human resources management, and environmental management, quality of services, patient rights and communication, patient data management, health care management, and prevention and risk management. But accreditation has been verbally reported to us as 'to end being an almost void one-off procedure, rather than an ongoing monitoring and rigorous assessment, as happened with other initiatives.'

Limitations are further extended to the regulations related to staff recruitment and retention. As stipulated by Law 95/2006, the manager is responsible for the hospital's human resources

[45] World Bank (2011) *Romania: Functional Review: Health Sector*, World Bank, Washington DC, https://openknowledge.worldbank.org/handle/10986/12290.

policy and organisational structure according to the norm, proposing changes in the organisational structure (subject to the MoH must approval), appointing/revoking members of the managing committee, and appointing/dismissing staff. Furthermore, the manager approves the staff according to the norms as indicated in Ministerial Order 1224/2010. Yet the Labour Code makes it very difficult to fire staff in the public sector, due to cumbersome and lengthy administrative procedures (there must be a first verbal warning, then a written warning, then a commission must sit to analyse the individual case). The fact that the organizational structure and staff changes at hospital level need to be approved by the MoH (which can be a cumbersome process) further restricts manager's ability to deploy proper HRH management practices.

5.2 Hospital management: specific causes of arrears

In addition to the systemic causes of arrears and distortions described above, findings in this report show that hospital management practices and the way hospitals operate at micro-institutional level are also proven sources of difficulties.

a. Strategic and operational planning

To a substantial extent, in reality managers act as administrators, with no role for strategic management. This leads to number of critical limitations affecting the organization and financial stability of hospitals, but most critically, it generates **inability to respond to population's health needs through the services offered**. Close examination of hospital service organization at hospital level informed our thinking that there is significant misalignment between health needs and baskets of proposed services. The latter is more "historically driven" and complemented with "opportunistic" approaches to provide services matching either available equipment or staff profiles. None from the visited hospitals conduct health service needs assessment to update the bucket of services. While this limitation is not directly affecting the arrears, we could not resist underlining it in this report due to its significance for population's health.

Most of the examined Hospitals do **not recognise the practicality of business planning,** referring to "the list usefulness of this instrument" in a context, where the vision, opportunities and resources for upcoming year is predefined through the existing regulations, and financing and purchasing policies. Lack of clarity in the vision the hospital develops in a short-medium term future, and the resources needed to support tis development, clearly contributes to financial vulnerability.

Poor management practices is reflected in **unsystematic approach to infrastructure and technology development.** Sporadic endowments in infrastructure and equipment contribute to financial fluctuations, and are aggregated with the **lack of manager's ability to negotiate infrastructure rationalization** with the facility owners.

Similarly, **uneven human resource planning** so widely speckled per hospitals, and, sometimes, incompliance with the regulations stipulating HRH norms, limit hospitals' ability to provide needed services and affect respective revenues.

b. Accountability and oversight

While some of the examined hospitals have an excellent information systems, and demonstrate bets practices in data analyses and application in decision making, the great majority of them still operates with **poor HMIS**. Even if the data is collected (often on inputs and processes, rather than outputs and outcomes), **restricted, if at all, analyses and internal reporting** does not allow use of evidence in improving hospital performance. This includes timely capturing the cases and causes of financial complications and introducing respective mitigation measures.

c. Financial management

Evidence generated through the combination of Financial Audit and general performance assessment revealed significant limitations in financial management practices at hospital level that can be a major source of financial complexities and arrears. In several cases the essence of financial management is undermined with the simplified record keeping. This is revealed in the absence of full budget cycle; lack of resource projection and allocation practices; lack of internal monitoring or audit; lack of “corrective measures” when arrears occur; and sometimes, ignorance of recommendations by external audit, and opportunistic procurement decisions.

Revenue streams: hospitals, as indicated, are funded through three main sources: NHIH, MoH and Local Authorities. The basic principle of the 2006 Law is that NHIH funds are supposed to cover all operations. In the public sector, MoH and state funds are supposed to cover only investments, with the exception of 'salvaging' when needed. Only local authorities can contribute funds for 'administration and functioning' of any type of hospital, be it under MoH or local authority, but are under no obligation to do so. As has been seen, however, this has created opportunities for gaming.

Hospitals also have the right to funds from other sources (commercial initiatives, international agencies, etc.). This could be a positive approach as it might increase revenue-generating opportunities, but the use that is being made of such right (almost without control by the regulator) raises doubts. One remarkable instrument in that regard is the Public-Private Partnership agreement: managers are allowed to subscribe to such deals without restriction, sometimes even with foreign partners and often with complex consequences (as the example with the CT given to *Rosiori* by an Italian partner illustrates).

None of the examined hospitals have a full budget cycle in place. In the discussions undertaken during this project, often there were difficulties even in finding a standard interpretation of the true meaning of 'resource allocation' after the hospital budget is approved. As a consequence, activity and expenditure monitoring is rather weak and findings are not used for learning or informing the next budgetary processes. It is no wonder, then, that more or less hidden arrears and genuine budgetary deviations are more frequent than desirable, which forces the public funder to intervene, starting another round in a vicious cycle.

Budgets are approved on the basis of previous year data, and service lines can only be opened or closed 'by the authorities'. It is extremely difficult for managers to hire or fire staff; or purchase new equipment and technology. In practice, as stated, few changes take place.

Procurement of equipment procedures restrict the hospitals' choice when purchasing high quality equipment. This is usually done on the understanding that 'the cheapest purchase is always the most appropriate' (against high quality but expensive options). But experience shows that such an arrangement mostly invites hospitals to devise creative ways to escape the control of the funder.

Selected hospitals did not proved fully data /information related to the procurement, restricting the ability of the team to make deeper analyses in this area. The summary of findings from financial audit, presented in section 2, however, brings sufficient understanding of the shortfalls related to procurement practices in the sample hospitals.

When **outsourcing** happens, it is formally done according to the Romanian regulations (tendering, merit-based selection), and most hospitals report that they are 'inclined not to outsource services in the belief that they can deliver better and cheaper'. Almost all hospitals mentioned a 'social dimension' of maintaining jobs, and food quality control arguments through own employees. The reality seems to be, however, that the specific service is then simply run by the facility in the absence of quality comparisons and under opaque conditions. Even so, the audit has identified instances of invoicing service providers in such a way which makes it difficult to verify that services for hospitals paid have actually been provided.

d. Hospital productivity and efficiency

Productivity and efficiency vary significantly across hospitals in our sample. Based on our analysis, this variability could hardly be explained by observable hospital characteristics. While the tables presented in Section 2 are self-explanatory, we still want to comment on selected indicators: there is a room for efficiency improvements even in the most productive hospitals, examples being *Floreasca*, which has more than one doctor and one nurse per each bed, and performs over 1 million blood tests per 100.000 patients treated, equivalent to an average of 10 blood tests per patient. This is not to mention the hospitals operating with an average BOR of 49% or spending 300% more per surgery then the hospital providing the most complex surgical interventions, like *Rosiori*; or having 40 attendances or 48 admissions per nurse per year, as is the case with *Marius Nasta*.

Quality Assurance practices did not support efficiency operations. While several hospitals provided long lists of specialty-specific committees in charge of quality assurance, when examining the composition of committee members (profiles and competencies), it was revealed that these committees are often established to comply with the regulatory requirements, rather than stimulate quality improvements (e.g. staffed by the professionals with irrelevant expertise). It means that these committee members are sparing time (thus, resources) without producing any valuable good. We believe that investments in more robust QA systems will at the end, contribute to significant savings generated through the quality improvement and rationalisation of internal processes.

e. HRH management

Systemic issues related to HRH management influencing on financial stability of hospitals were discussed above. **The limitations in recruitment and retentions policies were also revealed at organizational level**. While having all-embracing implications, these limitations severely affect hospitals located in remote areas, facing particular difficulties in attracting and retaining staff. As a consequence, these hospitals either lose ability to provide required services, or make opportunistic decisions on staff employment, further distancing hospitals from responding to population's health needs. In both cases implication for the hospital is the lost revenue and poor image.

Another pattern observed is the **lack of capacity building initiatives at hospital level.** This relates to building the capabilities for mid-level managers, financial and HRH managers, as well as clinical staff. International practice shows that investment in professional development drive improvements in performance, thus contributing to the effectiveness and efficiency of the organization, and respectively, having implication on its financial stability.

Overview of challenges in the ten hospitals

Inputs	• Generally old buildings, often scattered across multiple locations. Frequent and irregular refurbishments and repairs. • The majority of assets are old, either past or close to their useful life. • Erratic endowment with medical equipment, loosely correlated with medical need in the target population. • High degree of vacant posts; low staff turnover. • Resource availability across hospitals does not seem to follow any reasonable pattern.
Processes	• Little evidence of strategic management: the need for strategic planning of hospital operations is usually discounted. Hospital boards and committees (even when they are fully in place) are seen as cumbersome rather than having added value. Managers have limited authority to change organizational structure and staffing without moH approval, which can only be obtained through a lengthy procedures. If the change happens, hospital needs to go through another accreditation cycle, which discourages managers to make reorganization. • Financial management: - Poor budget cycle: financial planning and budgeting are replaced by a simplified administration of revenues and expenditures. When expenses are not fully covered, arrears are simply recorded and there are few (if any) support mechanisms in place. Significant year-on-year fluctuations of revenues and expenditures, as well as debt/surplus, often without obvious explanations. - Limited improvements even after negative financial audit reports; - Contracting: The process and format of contracting with the National Health Insurance House leaves almost no space for contract negotiations on price, service volumes and quality. Large number of contracting frameworks, restricting reallocation of resources received from one type of contract to another (even if all contracts are with the NHIH). Invoice cut-off issues leading to miss-estimation of revenues; no mechanism to verify or substantiate billed services, e.g. based on review of medical records. - Procurement: opportunistic procurement, especially of high performance diagnostic and therapeutic equipment, based rather on availability and preference than on demonstrated need; lack of coordination with procurement in other hospitals serving the same population. - Outsourcing: subjective decisions lacking formal assessments/business cases; instances of doubtful invoicing practices. • Dysfunctional and fragmented monitoring, evaluation and learning: incomplete and inconsistent data collection for activity and outcomes; duplicate reporting to various stakeholders; Lack of analytical capabilities and no formal incorporation of past lessons in future planning cycles. Inconsistent reporting formats of in-patient activity across hospitals (e.g. some report parallel sets of statistics for insured-uninsured patients) • Clinical management: unclear link between length of stay and case severity. • Insufficient managerial autonomy widely invoked by managers as a key obstacle to improving hospital performance.
Outputs	• Substantial unexplained variability in the choice of medical services produced, with evidence of duplication and imperfect standards as well as lack of a formal nationwide vision of the spatial and functional distribution of hospitals. • Substantial unexplained variability of emergency attendances leading to admissions; • Unnecessary admissions explained by “social needs” of hospitalised individuals;

	• Diagnostic activity appears to reflect more the available technology and less the actual need. • Surgical productivity is generally low and highly variable across hospitals. • Data at clinical speciality level points to significant under/over utilisation of in-patient beds for some clinical specialities, but it is unclear whether these are real or the result of poor record keeping.
Outcomes	• Reporting systems for patient outcomes are generally weak, of little reliability and remarkably uneven across hospitals. • There appear to be no nationwide systems for monitoring continuity of care and patient choice. • Within hospitals, information on quality of care indicators, patient safety and waiting times are usually not recorded; data on staff and patient satisfaction have little comparability across hospitals. • Few barriers to physical access are in place as hospitals are obliged to provide assistance to all presenting patients. • Efficiency indicators vary across and within hospitals (e.g. across functions and departments) without any discernible pattern.

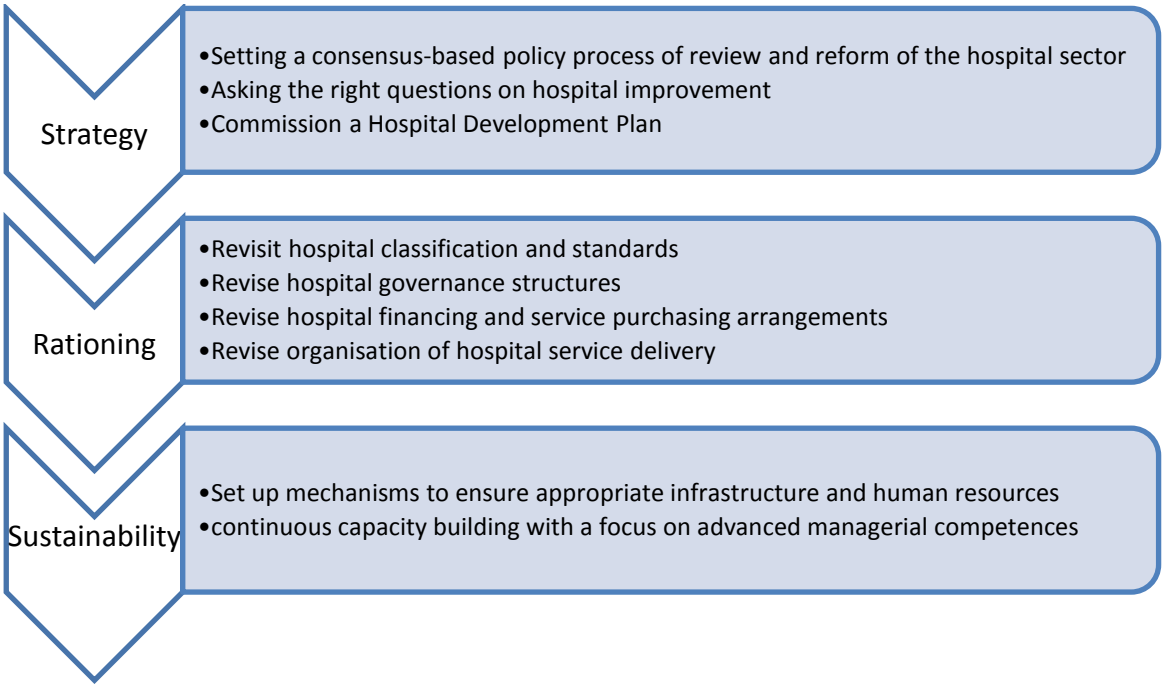
6 Recommendations

Prior to sharing our recommendations, we want to make explicit a few aspects which should guide the reader:

- First, no matter how carefully the analysis has been carried out, in light of the variety, breadth and depth of the challenges identified, the number of issues raised in this paper will most likely be perceived as overwhelming by decision-makers. As indicated in the conclusions, however, leaning towards the diagnosis of generalised dysfunctional hospitals would be a mistake despite the many areas calling for improvements;
- Second, the assessment made it clear that the question 'What are the direct causes of hospital arrears?' has less significance unless it informs analyses on the question 'What should be the proposed family of policy instruments to improve hospital performance in Romania?' In the current environment faced by public hospitals in Romania, the accumulation of arrears has lost much of its meaning as a marker of sub-optimal performance of the hospital management. Its importance is not to be underestimated, but the reader must remain aware that the existence and magnitude of arrears, as currently legislated, monitored and managed, captures only one facet of hospital performance; and
- Third, the hospitals analysed so far in this study pose pressing questions regarding hospital reform in Romania that need to be answered urgently. But by all means, this section has been made shorter than the section dealing with the problems *with the explicit objective not to predetermine any solutions*. There is, for example, no intention of leaning towards tightening regulation (standards, tariffs, norms, etc.), as this can be hugely inefficient if implemented in isolation. The same can be said of any other one-sided approach.

In our understanding, micro-managing the possible options that Romanian stakeholders could prefer for the hospitals of the future would also be rather unacceptable. After having addressed another set of five hospitals in the last three months, we've been reaffirmed that there is space for the recently-appointed government to decide what issues and areas are perceived as priorities to react respectively. In summary, our recommendations emanate directly from the analyses presented above (Figure 1 and subsequent sections).

Figure 1



6.1 Setting a consensus-based policy process of review and reform

First and foremost, a broad level consensus-oriented, positive policy analysis of the collective behaviour of main stakeholders regarding innovation and reform in health in Romania is a must. The effort could be led by any of the national stakeholders of the country (the MoH, the Prime Minister's Office, or Parliament), but it should be performed in such a way that all other actors are involved in a climate of trust and loyalty. Attention needs to be paid to keeping everybody on board while different options are identified and discussed in as inclusive a process as possible. Technical support should be provided by international agencies and professional organisations, as adequate.

6.2 Setting the agenda: asking the right questions about hospitals to inform a Hospital Development Plan

Next step should be a preparation of the Hospital sector development plan. Hospitals have traditionally adopted a structure based on areas where diagnosis and treatment technologies are concentrated, determined by professional alignment (i.e. departments are defined by one medical speciality, e.g. cardiology or surgery, where persons with similar professional experience become grouped in departments). Institutional demarcations also separate clinical (medical, nursing, non-surgical, elective and emergency, etc.) and non-clinical (administrative, hotel and industrial) facilities and processes. The rationale used in classifying hospitals in Section 2 was essentially descriptive.[46] A *sharper tool is needed to assess types of hospitals* (and the system overall) that will not face problems (or at least, not of comparable calibre) with spending more money than initially assigned. This requires asking a different set of questions, namely:

Given the burden of diseases in Romania and the available resources:

- What health services should be produced (profiles), in what circumstances and for whom (target groups)?
- Delivered by whom (providers), where and when?
- What types and numbers of hospitals are necessary and affordable?
- What attributes should those hospitals and centres have to fulfil the needs, expectations, sensitivities and preferences of Romanian citizens? and
- How should those hospitals be organised and run (structural and functional features)?

How should hospital activity coordinate with that of other types of service providers (e.g. referral patterns, defining and enforcing patient pathways, etc.)

These analyses need to inform a **Hospital Sector Development Plan** to clarify the objectives and main directions of transforming hospital sector in Romania in a holistic way, with respective actions, outputs and outcomes guiding changes and investments at a national level, with the time frame and resources required. The re-launching of the initiative to build several regional hospitals in the country offers a good opportunity in that regard.

[46] A discussion on hospital classifications with many hospital categories is not among the objectives of this document. Classifications are only commented on here to illustrate the increasing complexities of the decisions Romania has to make.

6.3 Rationalisation of hospital services

As hinted above and explained in more detail in the text, **improving planning and standardising the types of services per hospital category is an urgent must for Romania**. Structural reshuffling of hospitals is necessary, with two types of solutions:

a. intra-hospital adjustments; and

b. system re-articulation.

Efforts to better organise hospital service provision at a national level seem to have been initiated, and, as indicated, emphasis is being put on the development of selected regional hospitals in a few regions. While this is a good start, the risk should not be underestimated either that it may end up reinforcing a fragmented approach if not complemented by a holistic vision of what's required for hospital service development *in the entire country*. Elaborating a proper strategic proposal (as indicated above), which should be publicly discussed, is an urgent task.

In response to the request of the MoH review Committee, we outline below that **the rationalisation of hospital services** may include: (a) revision of hospital classification, alongside with (b) assessment of hospital service needs by geographic areas, (c) defining rationalisation strategies (through mergers, closers, or softer approaches), (d) putting in place the regulatory framework that will allow rationalisation, and possibly (e) designating a legal entity /unit to lead on the rationalisation process, including work with the line ministries, the central and local governments, the Parliament, private actors, civil society and the public.

Revising the hospital classification on its own would entail the following aspects:

- Defining hospital service needs (based on health needs assessment) at National and regional levels;
- Assessing current hospital sector capacity at National, Regional and facility levels;
- Defining the types of hospitals the country wants to have (categories) by service complexity;
- Defining requirements/norms per Type of hospital for (i) Human Resources; (ii) Premises; and (iii) Equipment;
- The above needs to be reflected in Regulations and appropriate incentives for all involved parties, with respective reinforcement mechanisms.

Finally, **the role of private providers in hospital sector organization should be carefully considered.** Available evidence shows that almost a decade ago Romania (through regulations pertaining to competition, right of property etc.) made the decision to embrace private hospital service provision under specific conditions. We have been made aware of some fear within MoH that the task of rationalising hospital services would face additional complexity in a context of excessive public provision.

We believe the rational approach to this issue would be the following:

- As long as private actors continue to match the established service delivery requirements in line with the law, the country should stick to the declared policies and provide public funding for those services. In other words, within the current regulatory framework and decleared

national policies, **private sector should maintain its freedom to compete for** public financing **with public providers** on the the conditions set forth by the law.

Having said that, however, it must also be emphasized that:

- The **MoH, as the health sector steward holds the** mandate to set up (and oversight) the health policy. This includes the policy making capability **to define the hospital services citizens should be entitled to and the State would finance** (this is expressed in colloquial terms in recommendation 2 as "what type of services, how much, where, etc.").

  With delegated responsibility from MoH, as also reflected in official regulations, the NHIH, has a mandate to **strategically purchase** those services from qualified providers. This means two main things:

  a. the **power and capability** to identify, contract health service providers who *best* meet the (clearly stated) service delivery requirements -that is, the type, volumes, quality and performance standards).

  b. **updated purchasing, contracting and monitoring mechanisms** to implement the above mandate, with a constant view to advancing key health system objectives including **efficiency**, **equity, financial protection** and **responsiveness** (see the recommendation on improving contracting and DRGs).

Instead of procuring services from any (public or private) provider who may have expressed willingness to benefit from public funding (as the current practice seems to be), Recommendation 6.5 below strongly advices **to improve the current NHIH practices in the field of strategic purchasing. Overseeing and strengthening the NHIH contracting performance is a top duty of the MoH** by which hospital services should be rationalized.

To conclude, the rationalisation of hospital services is widely perceived as an issue of maximum priority throughout the world. Meanwhile, it is also recognized however as a huge theme in terms of scope and political sensitivity, thus the resources, time and competencies required for this task should not be underestimated.

6.4 Revising hospital governance arrangements

In parallel, the **hospital governance framework** needs to be developed, defining the responsible bodies for developing the hospital sector and clarifying interrelations between various actors. The top priority should be revisiting hospital governance regulations to align them with the strategic objectives and help tackle fragmentation, controversy and overlaps in existing norms, decrees and orders.

Regulations governing hospitals need to be revised and, more importantly, implemented with support from *most* key stakeholders *in a reasonably expanded period of time*. The regulatory framework needs to put emphasis on a number of particular areas:

- Hospital regulations/laws need to be updated, with specifications about hospital types/ 'business models', rights and duties of the different actors, and a revision of critical aspects such as citizens' rights, transparency, etc.;

- The framework for hospital accreditation needs to be thoroughly revised and discussed in the coming months, aligning standards with those of the European Union while considering specific Romanian circumstances;[47] and

- A long-lasting solution should be discussed and implemented concerning the role of the private hospital sector.

6.5 Revising hospital financing

Revisiting hospital financing and service purchasing mechanisms is a must in Romania. The following areas need to receive specific attention (and be included in the accreditation framework above, as adequate):

- Vertical programme funding need to be overhauled. Splitting hospital services funding through several state programmes beside the NHIH does not help with integrated service delivery;

- Current service purchasing/contracting arrangements need to be reviewed.

    - DRG structure/cost weights need to 1) reflect the actual cost structure and 2) further support development of day care or provision of ambulatory care at a hospital level.[48]
    - Ways need to be found to reduce informal payments for hospital admission.
    - Contract templates need to be revised; and contracting processes have to be significantly modified to allow negotiation and agreement.

As already communicated to the MoH in response to the request of the Review committee, the broader Health financing reforms usually entail refining /rethinking a number of standard aspects, which include: Resource generation for the sector (sources and mechanisms); Approaches to fund pooling; Resource allocation; Costing health services/service packaging in practice; Service purchasing and payment (including service classification mechanisms, as DRGs, capitation payments, etc); Contracting arrangements; and Building capacity (individual and institutional) in each of the suggested areas. Initiatives in each of these areas sometimes articulate individual complex projects, ideally informed by a National health financing strategy for the country, which would set out the intended direction, aims and objectives. As it is well known, addressing all health financing aspects therefore is a notably demanding task for the MoH to work on over years though comprehensive strategies and programmes. A usual alternative is to select an area of particular relevance (e.g. “Revising purchasing mechanisms for outpatient and Hospital sectors”, or “Defining resource allocation methodologies”, or “Updating service purchasing contracts”, to name but a few) and address it on a project basis (importantly, assuring coherence and alignment between objectives, structures, interventions, etc.).

[47] We appreciate that the accreditation standards have been recently revised (approved in August 2016). However, we still advise returning to this after the MoH has formulated a holistic vision of the hospital sector design.
[48] There have already been steps in this direction, e.g. increasing tariffs for day hospitalisation, but more needs to be done, e.g. lists of day hospitalisation procedures are still thin and more than 20% of day hospitalisation cases are recorded as 'other'.

6.6 Revising the organisation of hospital services in the public sector

Service production in public hospitals needs modernisation, for which specific work needs to be commissioned. Attention should be paid to these aspects:

- **Hospital autonomy needs to be increased**, irrespective of ownership. Clear specifications need to be prepared for the boards of directors and managers, as well as professional organisations, in the context of the new legal and functional governance framework;

- **Public hospitals' management teams need to be given space to negotiate**, as they are expected to provide leadership at massive scale, with clear rights and responsibilities. Appointment and retention practices must be revisited for the purpose of increasing professionalism;

- **Hospital organisation needs to be decided in parallel with a review of the role of the MoH and other public agencies in service management**.

- **Emphases need to be made on improving leadership and strategic management capabilities at hospital level.**

- **Emphases need to be made on improving financial management practices in Hospitals**, with the emphases on the following aspects:

    - introducing sound financial management systems and processes (full budget cycle; resource projection, allocation and budgeting practices, including introducing “corrective measures” when arrears occur);
    - Developing capabilities to negotiate service contracts;
    - Developing sound procurement and outsourcing practices;
    - Strengthening monitoring and internal audit functions

6.7 Revising the mechanisms for stabilising the hospital infrastructure and HRH

The new hospital sector of Romania will not achieve sustainability if inadequate attention is paid to the foundations on which the sector should rest in today's fast-changing health services environment. This requires specifically addressing the following issues:

- **Indispensable human resources need to be ensured**. Personnel production plans are needed that take into account the new professional profiles in the context of European Union specifications;

- **Buildings and facilities need to be revised with a strategic perspective so as not to incur waste.** A physical 'indicative health infrastructure map' needs to be explored with the involvement of key stakeholders. The database (http://infrastructura-sanatate.ms.ro), where hospital managers are obliged to report hospital assets biannually in accordance with MO 1041/2014, requires an assessment of data quality and a formal integration in the decision-making process for infrastructure development; and

- **Hospital technology assessment needs to be carried** out as a systematic activity to avoid extravagant investment decisions. Something similar can be said regarding the

establishment of an effective hospital management information system at the service of Romanian citizens.

6.8 Capacity building for hospital governance and management

Finally, building on the governance framework and hospital development plan, **resources should be found to develop leadership, oversight and management capabilities in health sector in Romania.** The capacity building initiatives have to address the institutional and individual capabilities at National, regional and institutional levels for Health systems and hospital manages to enable them to fulfil designated functions. A capacity building plan needs to be defined in consideration of the hospital sector objectives and governance arrangements, so that capacity specifically serves the appropriate entities (people, institutions) performing specific functions e.g. leadership, purchasing services, contracting, budgeting, monitoring & evaluation etc.

The scope for **Capacity building for health systems managers** is substantial and could include tailor-made training and coaching for key health policy makers, purchasing agency /"Casa", subordinated public health institutions having any type of relations with hospitals (e.g. Public Health Institute collecting and analysing the DRG data), and a number of other aspects.

Capacity building for Hospital managers can be targeted to different groups within hospitals and related institutions, such as General managers, financial managers, Human resource managers, Information system managers, marketing and communication teams; quality assurance teams; M&E teams, etc.

The teaching modules, to be discussed in proper detail, may include: Hospital governance; Organization of hospital services; Health sector/hospital financing with focus on hospital service purchasing and contracting; etc. In turn, the capacity building per se may entail several modules, as "strategic and operation planning/business planning", "financial management and audit", "human resource management", "Health management information systems"; several modules related to DRGs (understanding the grouper and cost weights; costing; coding guidelines, DRG regulations)"; and also, "Contracts and contracting".

We look forward to discussing these issues with the MoH, collaborating hospitals, and wider stakeholders to contribute to policy-level discussions and decisions around the future hospital sector development in Romania.

Annex A Hospital selection criteria and selected hospitals

The team developed an initial set of hospital selection criteria for consideration by the MoH and the World Bank Project Management Unit (WB PMU). It was discussed with the MoH and the WB PMU and updated to respond to their requirements. The final set of selection criteria (approved by the MoH in late September 2016) is presented in Box 1.

Box 1: Hospital selection criteria

- Classification by type of hospital: county, municipal, city and institute
- Classification by service complexity: Levels I–V
- Geographic location: five hospitals in Bucharest-Ilfov; five in regions
- Hospital ownership: MoH or other owners
- Duration of arrears:
  - One year only
  - Two years and more
  - Arrears, covered recently
  - No arrears (control group)
- Magnitude of last recorded arrears relative to hospital budget

Subsequently, 10 hospitals were selected for performance auditing by the MoH based on the agreed selection criteria; the list is presented below.

Inclusion criteria across the selected hospitals

Hospital	Geography (development region)	Ownership	Hospital profile	Service complexity category (I–V)	Last recorded arrears*	Magnitude of last recorded arrears**
Bucharest Emergency Hospital (Spitalul Clinic de Urgență București)	Bucharest	MoH	Emergency	I conformation plan	August 2016	<0.5%
Marius Nasta Pneumology Institute (Institutul de Pneumoftiziologie Marius Nasta)	Bucharest	MoH	Institute	I M	July 2015	0.5%
Emergency Hospital of Saint Pantelimon (Spitalul Clinic de Urgență Sfântul Pantelimon)	Bucharest	MoH	Emergency	II conformation plan	Not after 2013	n/a
Caritas Municipal Hospital - Vedas (Spitalul Municipal Caritas – Roșiorii de Vede)	South	Local authorities	Municipal	IV	August 2016	33.2%
Foișor Orthopaedics Hospital (Spitalul Clinic de Ortopedie Foișor)	Bucharest	Local authorities	City – monospecialty	II M	December 2014	<0.5%
Slatina County Hospital (Spitalul Judetean de Urgență Slatina)	South-West	Local authorities	County	III	May 2016	0.9%
Buhusi Town Hospital (Spitalul Orasenesc Buhusi)	North-East	Local authorities	Town	IV	November 2014	10.9%
Timisoara Infectious Disease	West	Local	City –	II M	August	8.7%

Hospital	Geography (development region)	Ownership	Hospital profile	Service complexity category (I–V)	Last recorded arrears*	Magnitude of last recorded arrears**
Hospital (Spitalul Clinic de Boli Infectioase Timisoara)		authorities	monospecialty		2016	
Lugoj Municipal Hospital (Spitalul Municipal Lugoj)	West	Local authorities	Municipal	IV	August 2016	4.3%
Ploiesti County Hospital (Spitalul Judetean de Urgență Ploiesti)	South	Local authorities	County	III	July 2016	<0.5%

*Data up to August 2016 from www.monitorizarecheltuieli.ms.ro, with the exception of Bucharest Emergency Hospital where data from the MoH Budget department were used.

**Calculated as % of latest arrears (Aug ’16 data or earlier, as applicable) from period expenditure in that year.

Annex B Main data from hospitals

Hospital 1: Clinical Emergency Hospital of Bucharest ('Floreasca Hospital') – Bucharest, Romania

Clinical Emergency Hospital of Bucharest
No. 8 Calea Floreasca, Sector 1, Bucharest, 041161

Details of the physical asset(s)

Unit A	Built in 1934
Unit B and C1	Built in 1967
Unit C2	Extension built in 2002
Unit D	Built in 1967
Unit E	Built in 1998
Unit F	Built in 2012
Total hospital area	25,000 m^2

Reported infrastructure (beds and facilities)

A&E (Accidents & Emergency) – UPU (Emergency Acceptance Unit)	
Short-stay beds	15

Day care posts	
Haemodialysis	15
Other day care posts	10
Total number of day hospitalisation beds	25

Beds at hospital wards	
Anaesthesia and Intensive Care (AIC) I – Polytrauma	35
AIC II – Clinical Toxicology	25
Cardiovascular Surgery	32
Plastic Surgery and Reconstructive Microsurgery	40
Neurosurgery	40
General Surgery I	64
General Surgery II	76
General Surgery III	80
Orthopaedics and Trauma I	54
Orthopaedics and Trauma II	52
Orthopaedics and Trauma III	44
Cardiology	70
Internal medicine	63
Neurology	25
Gastroenterology	25
Total number of beds at hospital wards[49]	725

[49] The facility is going to develop a new six-bed burns unit, leading to a total number of hospital beds of 731.

Surgical block	
Operating theatres (regular)	5
Operating theatres (for emergency assistance)	1
Post-surgical recovery beds	35

Analytical and diagnostic equipment		
CTs		
	Computed tomography equipment	1
	Multi-detector computed tomography equipment	1
	Multi-slice computed tomography equipment	1
MRIs		
	Gyroscan magnetic resonance equipment	1
(Conventional) X-ray machines		
	Simple radiology equipment, with one post-graphy	1
	Radiology equipment, with one post scopy/graphy	2
	Rx-diagnosis equipment, with one post-graphy	2
(Portable) X-ray machines		
	Mobile radiology machines (to be used at AIC and operating theatres)	12
Grammographers		
	Siemens gamma camera, type C	1

Therapeutic equipment		
Laparoscopies		
	Standard laparoscopic equipment for primary and emergency surgeries	1
	Laparoscopic set	1
	Laparoscopic complete set	1
	Laparoscopic surgery system	1
	Advanced sets for laparoscopic surgery, malignant and benign digestive pathology, endocrine and bariatric surgery	2
Total laparoscopy devices		6
Catheterisation labs		
	Angiogram – interventional radiology installation	1
	Monoplane digital system for interventional radiology	1
	Monoplane system for interventional radiology	1
Total catheterisation devices		3
Other high-end medical equipment		
	Automated haematology-related analysers	2
	Automated biochemistry-related analysers	2
	Automated coagulation-related analysers	2
	Automated immunology-related analysers	1
	Automated hormone-related analysers	1
	Automated microbiology analysers	2

	Complete sets of endoscopy (colonoscopy) devices	6

Labs	
Medical analysis laboratory	1
Radiology and medical imaging laboratory	1
Nuclear medicine laboratory	1
Functional exploration laboratory – interventional cardiology	1
Diagnostic and therapeutic endoscopy laboratory	1
Recovery, physical therapy and balneology laboratory	1

Finances

Time series	2011	2012	2013	2014	2015
Revenues by source					
Government	79,554,774	77,616,042	91,068,653	124,912,763	121,148,277
Insurance schemes	95,603,427	104,721,671	109,278,724	108,149,906	123,597,676
Patient fees	1,023,426	705,862	640,227	664,851	497,759
Other	3,491,175	3,611,512	2,563,658	5,027,657	3,070,364
Non-refundable external aid	71,540	3,857,222	-	316,808	46,085,681
Total revenues	**179,744,343**	**190,512,309**	**203,551,261**	**239,071,986**	**294,399,757**
Expenditures by categories					
Personnel & benefits	87,832,165	88,223,897	92,926,509	93,709,341	101,683,017
Drugs	59,417,259	17,662,506	17,692,010	17,095,173	17,976,705
Medical and non-medical supplies	19,020,621	54,439,946	56,659,904	54,265,028	58,693,753
Maintenance, repairs and utilities	3,656,363	4,239,589	4,263,992	4,188,179	4,406,472
Outsourced services	9,417,139	8,894,196	8,918,473	6,882,247	8,384,067
Capital (amortisation)	8,355,570	9,102,110	13,312,360	13,533,462	19,605,240
Expenses with non-depreciable FA	3,034,804	10,579,402	-	-	2,999,999
Other	2,246,296	1,409,177	686,914	5,931,445	7,062,374
Total expenditure	**192,980,217**	**194,550,824**	**194,460,162**	**195,604,876**	**220,811,627**
Debt/Surplus	**(13,235,874)**	**(4,038,514)**	**9,091,099**	**43,467,110**	**73,588,130**

Last recorded arrears and magnitude of last recorded arrears

Hospital	Last recorded arrears*	Magnitude of last recorded arrears**
Floreasca	Aug 2016	<0.5%

* Data up to August 2016 from the MoH Budget department.

** This figure is calculated as per the period expenditure in the year concerned; that is, % of latest arrears from that year, taking into account the date of the table, Aug ’16. For example, if a hospital last recorded arrears in October 2015, the magnitude is calculated as % of arrears (October 2015) from the budget execution until October 2015.

List of hospital committees ('to support decision making on specific issues or to oversee hospital activities')

Name	Type	Accountable to
Managing Committee	Non-clinical	Hospital Manager

Name	Type	Accountable to
Ethics Council	Non-clinical	Hospital Manager
Medical Council	Clinical	Managing Committee
Drug Commission	Clinical	Managing Committee
Committee for Preventing and Counteracting Nosocomial Infections	Clinical	DSPB
Committee for Work Security and Health	Non-clinical	Managing Committee
Research Council	Non-clinical	Managing Committee
Haemovigilance and Blood Safety Committee	Clinical	Managing Committee
Committee on Mortality Analysis	Non-clinical	Managing Committee
Discipline Committee	Non-clinical	Managing Committee
Social Dialogue Committee	Non-clinical	Managing Committee

Hospitalisation activity

Total admissions		35,646
Total number of bed-days		229,651
Average length of stay		
	(Regular) Hospitalisation	6.4
	Details by specialties	See below
Bed occupancy rate		
	(Regular) Hospitalisation	86.1%
	Details by specialties	See below

Emergency – UPU attendances

Attendances		
Solved without admission	78,822	(73.61% of the total attendances)
Discharged without admission	76,680	(71.61% of the total attendances)
Referred to another facility	2,142	(2.00% of the total attendances)
Leading to admission	28,258	(26.39% of the total attendances)
Total emergency cases	107,080	(44.1% of the total attendances)

Surgery

Surgical interventions(*)		
Programmed surgeries	12,596	(49.9% of the total surgeries)
Emergency surgeries	12,658	(50.1% of the total surgeries)
Total surgical interventions performed	25,254	(100% of the total surgeries)

(*) Some 36 interventions (0.14% out of the total number of surgeries) were reported as 'cancelled', based on patient intervention refusal. In addition, a very low number of interventions were also cancelled for other reasons (e.g. patient health status; necessary supplementary medical analysis; etc.).

Some 3,804 interventions (15.0% out of the total number of surgeries) were reported to be performed through laparoscopy and/or arthroscopy techniques, but no details were provided about ambulatory surgical interventions.

Diagnostic activity

CTs performed	12,777
Ecographies performed	38,983

MRI performed	2,032
Coronary angiogram	1,912
Peripheral angiogram	538
Radiology	134,827
Scintigraphy	159
Endoscopies, colonoscopies, etc.	6,914
Blood tests performed	1,151,253
Bioptic examination	5,691
Microbiological tests performed	25,762
Cytologies performed	2,214

Some details on hospital activity by specialty

	ALOS	BOR	Bed turnover
AIC I Polytrauma	8.3	98.0%	42.8
Cardiology	5.8	98.8%	58.2
Plastic Surgery and Reconstructive Microsurgery	4.7	79.4%	60.3
Cardiovascular Surgery	16,0	46.1%	9.5
General Surgery I	5.7	98.5%	49.9
General Surgery II	5.5	77.5%	46.8
General Surgery III	5.5	77.9%	48.7
Gastroenterology	2.9	102.4%	120.8
Internal Medicine	5.9	94.2%	52.7
Neurosurgery	6.4	87.7%	46.6
Neurology	6.0	111.4%	63.3
Orthopaedics I	5.7	64.0%	37.3
Orthopaedics II	7.0	89.3%	43.3
Orthopaedics III	7.4	87.3%	41.3
Toxicology – AIC II	4.8	91.1%	63.6
Total hospital	**6.4**	**86.1%**	**48.2**

Outpatient consultations(*)

Number of visits	4,025

(*) Outpatient consultations take place at the ambulatory centre, which does not function as a hospital unit per se, so that patients are not regularly accounted for. Indeed, the ambulatory unit pursues the diagnosis tests on several follow-up visits. As a result, the number of outpatient consultations is equal to the sum of the number of first and follow-up visits.

Quality (effectiveness/clinical results; safety)

Intra-hospital death rates

	2010	2011	2012	2013	2014	2015
Rate	2.93%	3.62%	3.39%	3.29%	3.86%	4.29%

Age-sex thirty-day standardised mortality after admission to hospital for acute myocardial infarction (AMI) and ischaemic stroke:

- AMI
  - At the hospital level: 7%–8% (with 45% of the deceased patients from the Cardiology ward)
  - Male/female distribution: 53%–47%

  - 82% of these patients were over 65 years
- Ischaemic stroke
  - At the hospital level: 3% (with between 25% and 28% of the deceased patients from the Neurology ward)
  - Male/female distribution: 56%–44%
  - 90% of these patients were over 65 years

Adverse events

	2010	2011	2012	2013	2014	2015
Post-operative sepsis/complications rates	1.93%	1.90%	1.79%	1.90%	1.88%	2.03%
Nosocomial infections/hospital-acquired infection rate	0.81%	0.80%	0.79%	0.89%	0.99%	1.04%
Adverse events related to transfusion reactions or use of drugs						
No. of cases	5	4	6	4	6	3
No. of deaths	0	0	0	0	0	0
Pressure ulcers/bedsores developed in the hospital	0.27%	0.25%	0.22%	0.25%	0.30%	0.28%
Number of inpatient hip fractures per 1000 beds	0	0	0	0	0	0

Readmissions(*)

	2010	2011	2012	2013	2014	2015
Rate of unplanned return to operating theatre	1-2%	1-2%	1-2%	1-2%	1-2%	1-2%
Emergency re-admission within 28 days of hospital discharge	3.33%	3.29%	3.38%	4.03%	3.89%	3.77%

(*)Approximately 95% of the re-admitted patients had the same pathology; 5% are re-admitted with a different pathology.

Access to hospital services / barriers to utilisation

- No waiting lists are reported:
  - Average waiting time in having an external consultation: 35 minutes (Maximum waiting time: 120 minutes, for non-severe cases, white colour code)
  - Average waiting time in being attended at emergency UPU: 8.7 minutes
  - Average waiting time for receiving programmed surgeries: 27.5 hours from the moment of hospitalisation
  - 100% of elderly patients admitted for hip-fracture received surgical repair within 48 hours

Efficiency

Average length of stay	6.4 days
Pre-surgery ALOS	2.9 days
Operation room utilisation index	85.6%

Summary of (not adjusted by severity) structural efficiency rates

	No. of doctors	No. of nurses	No. of beds	No. of OR	A&E attendances	No. of admissions	Surgical interventions	Total Expenditure
Floreasca	238	795	725	27	107,080	35,646	25,254	220,811,130

	Doctors per bed	Nurses per bed	A&E attendances per doctor	A&E attendances per nurse	Admissions per doctor	Admissions per nurse
Floreasca	0.3	1.1	450	135	150	45

	Surgeries per OR	Surgeries per doctor	Surgeries per nurse	Expenditure/per admission	Expenditure per bed	Expenditure per surgery
Floreasca	936	106	32	6,195	304,567	8,744

Responsiveness/patient centredness

- In 2015, one complaint was recorded by the hospital's Ethical Council. Additionally, there were approximately five complaints recorded at the hospital, 15 complaints at the Medical College and 15 complaints at the police (or court).
- Over 90% of complaints were satisfactorily solved.
- Average time for answering complaints was 10 days.

Analysis of patient satisfaction questionnaires (2015) [Information provided by the hospital]

- A total of 1,312 questionnaires were issued (out of which 1,127 were by patients; 185 by companions; no questionnaires were left blank).
- At the moment of hospitalisation, 62.5% of the patients were accompanied by sanitary staff; 15.2% by their companions; and 22.3% were unaccompanied. It is important to mention that many patients provided multiple answers. Furthermore, 76.79% were accompanied by medical staff to medical investigations and inter-clinic consultations, 8.92% by companions, and 14.3% were unaccompanied.
- Regarding hospitalisation procedures, 1.8% of the responding patients were overall unsatisfied; 3.9% referred to bed linen being of bad quality; 2.8% mentioned insufficient degree of cleanliness; and 3.1% complained about hospital meals.
- 2.6% of the responding patients were not pleased by the Duty Guard's attitude and 0.5% by the time awarded by the doctor.
- Regarding hospital staff, 1.0% were unsatisfied by the service received from doctors; 1.3% from nurses; and 1.6% from the health care assistants.
- Regarding staff benevolence and availability, 1.0% of those interviewed were not pleased by the doctors; 1.3% by the nurses; and 1.6% by the health care assistants.
- 90.8% of respondents recognised having been trained on oral drug administration. For 83.5% of the cases, drug administration was realised under nurse monitoring, and 85.5% received medication broken down by dosage.
- In 87.8% of cases the medication was administered strictly in the hospital, while for 2.1% of the patients the medication was bought by the family and for 11.1% of them both options were used.
- 2.8% of patients/companions were unsatisfied with the entire hospitalisation and 1.3% with the services provided during the day. 2.0% were unsatisfied with the medical activity during the night and 3.0% with that performed during the weekend and legal holidays.
- 97% were satisfied with the information regarding the investigations, medical procedures and their disease. 96% of the patients declared they were satisfied with the medical services.
- 0.9% of the respondents considered their rights as patients to have been violated.
- Overall, 92% of the respondents ranked 'well' and 'very well' the topics investigated through the questionnaire and 94% declared they would return for hospitalisation at Floreasca.

Hospital 2: Orthopaedic-Traumatology and Oesteoarticular TB Clinical Hospital 'Foișor', Bucharest, Romania

Orthopaedic-Traumatology and Oesteoarticular TB Clinical Hospital 'Foișor', Bucharest
35-37 Ferdinand I Street [Main Hospital]/ 6 Pop de Basesti Street [Ambulatory Care], Sector 2, Bucharest

Catchment population: Profile of the patients discharged in 2015

Male	Female		Rural	Urban		<15	15 to 44	45 to 64	>64
40.3%	59.7%		29.3%	70.7%		0.9%	21.0%	42.0%	36.1%

Selected hospital managers' KPIs

Performance indicator category	Name of the performance indicator attributable to the hospital's management	Targeted value per annum	Achieved value for 2015
A. HR management	Average number of discharged patients per doctor	500	463
	Average number of consultations per doctor in duty guard	1,700	1,413
	Average number of consultations per doctor in the ambulatory centre	800	1,028
	Average number of courses / trainings per employee per annum	2	1.5
B. Services utilisation	Average number of hospitalisation days per hospital	6.5	5.19
	Hospital beds' utilisation rate	80%	66%
	Complexity index of cases per hospital	1.22	1.54
	Number of consultations granted in ambulatory regime	10,000	11,314
	Number of surgical interventions per functioning theatre room per month	60	43.9
C. Financial indicators	Actual versus approved budget	80%	76.24%
	Percentage of staff costs out of total cost	35%	25.99%
	Percentage of costs associated with drugs out of total cost	7%	3.13%
	Average cost of hospitalisation per day	780	780
	Percentage of utilities costs recorded in current reporting year out of utilities costs recorded in the previous year	93%	90.32%
D. Quality indicators	Intra-hospital rate of mortality	13%	0.07%
	Nosocomial infections rate per hospital and per ward	0.5%	0.09%
	Re-hospitalised patients rate in the 30-day interval after discharge	8%	4.56%
	Percentage of patients that are satisfied and extremely satisfied out of total number of questioned patients	90%	92%
	Total number of patient complaints	6	5

Details of the physical asset(s)

Hospital building (3.741 m^2):
Unit A (44 beds in the attic) and B (60 beds across four floors)
Unit C–D under construction; 85 beds have been approved.
Ambulatory
572 m^2; basement plus one floor and one attic

Reported infrastructure

Emergency
The hospital ensures the treatment of emergency cases through Duty Guards.

Beds
A total of 119 hospital beds (52 beds for Orthopaedics Ward I; 52 beds for Orthopaedic Ward II; 15 beds for AIC) In addition, and as stated above, the C–D unit has 85 non-operative beds, out of which 24 are for AIC.

Labs
1 Pathological anatomy lab
1 Haematology-biochemistry-bacteriology lab
1 Digital radiology and medical imaging (ultrasound) lab (for Outpatient and Duty Guard)
1 Physical recovery, physical therapy and physiotherapy lab
1 Functional investigations laboratory (ECG, spirometry)
1 Gypsum room for outpatient and duty guards
In addition, in the C–D unit there is a new CT, and an approved and budgeted (by HIH) MRI

Surgical block
5 operating rooms (endowed with vertical laminar air flow and separate room for sepsis surgeries)
Sterilisation Ward
In addition, the C–D unit has eight operating theatres

Intensive Care Unit
1 AIC, with 15 beds, well equipped (see below)
In addition, the C–D unit has one AIC with 24 beds

Equipment

Analytical and diagnostic equipment	
CTs (1)	1
(Conventional) X-Ray machines	2
(Portable) X-Ray machines	5

(1) Although it was purchased for the new C–D building, it has been used in the functioning hospital units (A and B).

Therapeutic equipment	
Surgical equipment	
	Joint prostheses, fixation materials and instrumentation for column (funded from the National Programmes of the MoH)
	Surgical instruments and equipment bags, fixation, arthroplasty complete kits
	Knee prosthesis Navigation Device
	Digital radiology equipment machine for all operating theatres, C-arm type with integrated image processing network
	Software specialised orthopaedic traumatology allowing digital preoperative planning that enhances the security of future surgery
	Latest surgical microscope with four workstations and Leica M8 tracking device with digital display, for spinal surgery (with direct fluoroscopy for tumour margins in order to achieve surgical oncology)
	Two independent dynamic microscopes with headphone-type that tracks digital screen
	Portable sensorimotor device of latest generation (NIM Eclipse device type), for monitoring intra-operative patients during spine interventions, with all data recorded in the computer throughout the intervention
	Five cauteries with bipolar loop at intraspinal level and electrical cutting systems
	Ultrasound systems for cement extraction in case of joint prosthesis revision
	Ultrasound system (sonication) for evidence of pathogens to prosthetic implants infected
	Vacuum bandage treatment system for septic wounds
	Modern arthroscopy lines (endoscopic joint)
	Tumour Ablation Device with radiofrequency
AIC equipment	
	Five anaesthesia workstations in the operating theatres (6 Draeger anaesthesia devices with ST segment monitoring capabilities, and BIS invasive pressures, rapid infusion devices Level 5 1-1000, 5)
	Warmtouch machines heated by hot air convection, one Fresenius cell-saver, two INVOS cerebral oximetry devices, 10 Braun injectomate)
	15 TIIP beds each equipped with BLT vital function monitor, antiescaras mattress, lower limbs intermittent mechanical compression system, infusomat, injectomate
	15 hot air convection machines for hypothermia treatment (Warmtouch)
	Five fans for lengthy ventilation (1 Draeger Evita 2 Draeger Savina, Nellcor Puritan Bennett 2)
	Two Oxilog transport fans
	Blood gas metering device, Hb, EAB, ionogram, lactate, glucose (Rapidlab Siemens)
	Coagulation device determination by thromboelastography
	Difficult IOT kit with flexible and rigid bronchoscopes
	Portable ultrasound with three Sonosite wells
	Neurostimulation device for locoregional anaesthesia
	Fukuda EKG
	Hemofiltration machine / Fresenius haemodialysis
	Picco hemodynamic Monitor• INVOS cerebral oximetry monitoring
	External defibrillator with pacer
	DSP transfusion point endorsed by the Haematology Institute of Bucharest

Staff

Clinical staff (occupied posts)	2015	2016
Doctors	11	10

Clinical staff (occupied posts)	2015	2016
Anaesthesiologists	6	6
Nurses	86	88
Pharmacists	1	1
Lab and diagnostic technicians	2.5	2.5
Physiotherapists/Kinetotherapists	3	3
Other (biochemist)	0	1
Total clinical staff (occupied posts)	**109.5**	**112**

Staff on duty guard	2015	2016
Doctors	20	20
Total doctors on duty guard	**20**	**20**

Non-clinical staff (occupied posts)	2015	2016
Epidemiologists	0.5	0.5
Codifiers and clinical records archivists	7	7
Health economists and accountants	3	3
Lawyers	0	0.5
Human resources specialists	3	3
Administrative staff	6	6
Cleaning and laundry staff	3	3
Catering staff	5	5
Other (auxiliary staff, driver, telephone operator, etc.)	49	49
Total non-clinical staff (occupied posts)	**76.5**	**77**

Vacant posts	2015	2016
Doctors	10	11
Anaesthesiologists	3	3
Nurses	25.5	25.5
Lab and diagnostic technicians	1.5	1.5
Other clinical posts	5	5
Research assistants	2	2
Accountants, lawyers, HR, etc.	9	8.5
Other non-clinical posts	7	7
Total clinical staff (occupied posts)	**81**	**77.5**

Occupied vs. vacant Staff	2015	2016
Total occupied staff	206	208.5
Total vacant posts	**81**	**77.5**

Finances

Time series	2010	2011	2012	2013	2014	2015
Revenues by source						
Government	13,477,142	9,318,151	5,909,500	2,997,736	13,948,453	26,813,079
Economic activities(*)	17,124,379	16,112,632	14,079,645	15,818,484	21,544,595	23,107,592
Other income	320	1,048	418	641	3,750	6,217
Total revenues	**30,601,841**	**25,431,831**	**19,989,563**	**18,816,861**	**35,496,798**	**49,926,888**
Expenditures by categories						
Personnel and benefits	8,759,734	7,426,582	7,536,522	8,678,517	8,506,272	9,096,999
Drugs	1,640,670	1,971,152	1,943,664	1,379,084	1,056,469	1,110,215
Med. and non-med. supplies	8,183,777	6,741,988	6,134,693	7,846,083	8,665,864	9,118,067
Maintenance, repairs, etc.	1,722,385	792,305	943,283	1,082,731	1,379,386	1,290,885
Outsourced services	2,737,644	2,883,166	3,031,901	2,640,678	2,410,010	2,370,417
Capital (amortisation)	1,880,523	4,110,878	2,722,568	2,892,198	3,154,102	3,946,433
Other expenses	102,441	95,550	107,891	143,904	152,052	217,391
Total expenditure	**25,027,174**	**24,021,621**	**22,420,522**	**24,663,195**	**25,324,155**	**27,150,407**
Debt/Surplus	**5,574,667**	**1,410,210**	**(2,430,959)**	**(5,846,334)**	**10,172,643**	**22,776,481**

(*) Income from economic activities (e.g. insurance schemes, own income, etc.)

Last recorded arrears and magnitude of last recorded arrears

Hospital	Last recorded arrears*	Magnitude of last recorded arrears**
Foișor	Dec 2014	<0.5%

* Data up to August 2016 from www.monitorizarecheltuieli.ms.ro.

** This figure is calculated as per the period expenditure in the year concerned; that is, % of latest arrears from that year, taking into account the date of the table, Aug '16. For example, if a hospital last recorded arrears in October 2015, the magnitude is calculated as % of arrears (October 2015) from the budget execution until October 2015.

List of hospital committees

Name	Type (Clinical / Non-clinical)	Accountable to...
Managing Committee	Non-clinical	Hospital Manager
Ethics Committee	Non-clinical	Managing Committee and Hospital Manager
Ethics Council	Non-clinical	Managing Committee and Hospital Manager
Medical Council	Clinical	Managing Committee and Hospital Manager
Drug Commission	Clinical	Managing Committee and Hospital Manager
Committee for Preventing and Counteracting Nosocomial Infections	Clinical	Public Health Authority of Bucharest (DSPB)
Committee for Work Security	Non-clinical	Managing Committee and Hospital Manager
Committee for Emergency Situations	Non-clinical	Ministry Committee/ Emergency Situation Committee of Bucharest/Emergency

Name	Type (Clinical / Non-clinical)	Accountable to...
		Board
Haemovigilance and Blood Safety Committee	Clinical	Managing Committee and Hospital Manager

Note that the Ethics Committee has decisional power, under the governing regulations, while the rest of the committees/councils have a consulting role.

Emergency – Duty Guard attendances

Attendances		
Real emergency cases		
Solved without admission	5,310	(34.3% of the total attendances)
Referred to another facility	0	(0.0% of the total attendances)
Leading to admission	1,521	(9.8% of the total attendances)
Total emergency cases	**6,831**	**(44.1% of the total attendances)**
Non-emergency consultations		
Total number	8,637	(55.9% of the total attendances)
Total non-emergency cases	**8,637**	**(55.9% of the total attendances)**
Total number of attendances	**15,468**	**(100% of the total attendances)**

Hospitalisation

Total admissions	5,817
Total number of bed-days	24,955
Average length of stay	
(Regular) Hospitalisation	4.3
AIC	1.0
Bed Occupancy Rate	
(Regular) Hospitalisation	68.5%
AIC	51.0%

Surgery

Surgical interventions(*)		
Programmed surgeries	1,813	(72.3% of the total surgeries)
Emergency surgeries	696	(27.7% of the total surgeries)
Total surgical interventions performed	2,509	(100% of the total surgeries)

(*) Some 50 interventions (2% out of the total number of surgeries) were reported as 'cancelled'. No information was provided about ambulatory surgical interventions.

Diagnostic activity(*)

Diagnostic procedures	
Blood tests	
Hemogram	4,070
VSH	2,954

	Coagulation tests	10,704
Total blood tests performed		**17,728**
Biopsies		
Total number		**1,879**
Cytologies		
Total number		**12**

(*) No quantitative information about imaging diagnostics has been provided, just the following text: 'Every orthopaedist undertakes his ecography examination, in his own area of expertise. There is no contract closed with National Health Insurance on ecographies'

Summary of structural efficiency rates (not adjusted by severity)

	No. of doctors	No. of nurses	No. of beds	No. of OR	A&E attendances	No. Of admissions	Surgical interventions	Total expenditure
Foișor	11	88	119	5	15,468	5,817	2,509	27,150,407

	Doctors per bed	Nurses per bed	A&E attendances per doctor	A&E attendances per nurse	Admissions per doctor	Admissions per nurse
Foișor	0.1	0.7	1,406	176	529	66

	Surgeries per OR	Surgeries per doctor	Surgeries per nurse	Expenditure/per admission	Expenditure per bed	Expenditure per surgery
Foișor	502	228	29	4,667	228,155	10,821

Waiting times

Number of patients – fracture cases non-attended	0
Average waiting time to be attended at Duty Guard	<24 hours
Average waiting time to receive elective surgery	<24 hours
Average waiting time for an outpatient consultation	<24 hours

Hospital 3: Marius Nasta Pneumology Institute ('Filaret/ Filaret Hill Hospital'). Bucharest, Romania

Marius Nasta Pneumology Institute of Bucharest: (different premises)
90 Viilor Avenue, District 5, Bucharest
189 Șerban Vodă Avenue, District 4, Bucharest
40 Lacul Bucura Street, District 5, Bucharest
Tuberculosis dispensary – 4 Malcoci Street, District 5, Bucharest
Tuberculosis dispensary – 17 Intrarea Aurora, District 6, Bucharest

Details of the physical asset(s)

Headquarters	
Dispensary	4,711 m^2
Pavilion I	9,607 m^2
Pavilion II	3,963 m^2
Pavilion MDR	3,913 m^2
Pavilion V	750 m^2

Șerban Vodă premises	
Pavilion IV	2,526 m^2
(New) radiology building	702 m^2
(Old) radiology building	674 m^2
Pharmacy building	126 m^2

Lacul Bucura premises	
Main building	2,429 m^2
Laundry building	171 m^2

Malcoci premises	
Tuberculosis dispensary	369 m^2

Intrarea Aurora premises	
Tuberculosis dispensary	566 m^2

Beds

Headquarters	
Pulmunology I	58
Pulmunology II	48
Pulmunology III	59
Pulmunology IV	54
Pulmunology V	55
AIC-ICU	20
Thoracic ward	52
A&E	5
Oncology	5

Headquarters	
Palliative ward	5
Day Care	5

Șerban Vodă premises	
Pulmunology VI	50
Pulmunology VII	50
Pulmunology VIII	66

Lacul Bucura premises	
Pulmunology IX	41
Pulmunology X	59

Laboratories

Bacteriology
Radiology
Medical analysis
Respiratory explorations
Pathological anatomy
Bronchial endoscopy
Bronchial lavage
Nosocomial prevention

Surgical Block

Operating rooms	3

Equipment

Analytical and diagnostic equipment	
(Conventional) X-Ray machines	8
(Portable) X-Ray machines	2
Surgery ventilators (artificial lung)	1
Bronchoscopy fully equipped (autoclaves, tables)	4
Portable EKG	3
ECOCORD in Ambulatory (a big EKG)	1

Staff

Clinical staff (occupied posts)	2015
Doctors	90
Anaesthesiologists	7
Nurses	270
Pharmacists	2
Lab and diagnostic technicians	5
Physiotherapists/Kinetotherapists	2
Other (biochemist)	9
Total clinical staff (occupied posts)	**385**

Non-clinical staff (occupied posts)	2015
Epidemiologists	1
Codifiers and clinical records archivists	29
Health economists and accountants	7
IT technicians/communication specialists	2
Lawyers	2
Human resources specialists	7
Administrative staff	25
Engineers/maintenance staff	37
Cleaning and laundry staff	150
Catering staff	11
Security staff	2
Other (porters, drivers, etc.)	14
Total non-clinical staff (occupied posts)	**287**

Vacant posts	2015
Total staff (vacant posts)	**135**

Occupied vs. vacant staff	2015
Total occupied staff	672
Total vacant posts	**287**

Finances

Time series	2011	2012	2013	2014	2015
Revenues by source					
Government	4,338,802	23,010,644	9,314,180	16,290,234	17,366,021
Insurance schemes	37,488,610	53,859,550	50,312,753	52,308,214	56,976,697
Patient fees	347,639	445,156	482,060	571,726	561,771
Other (*)	1,570,579	799,210	973,022	1,515,412	3,077,907
Total revenues	**53,745,629**	**78,114,561**	**61,082,015**	**70,685,586**	**77,982,396**
Expenditures by categories					
Personnel & benefits	27,152,079	28,643,808	32,628,750	33,494,826	36,515,597
Drugs	10,799,157	14,092,887	11,350,404	10,687,036	11,159,426
Medical and non-medical supplies	6,167,334	12,608,283	10,634,867	11,667,547	11,395,582
Maintenance, repairs and utilities	2,569,420	3,590,091	2,419,755	2,477,148	2,346,253
Outsourced services	5,245,881	8,939,566	5,762,342	5,275,314	5,128,628
Capital(**)	1,839,831	1,447,797	1,448,158	1,517,964	1,187,895
Expenses with non-depreciable FA		991,394	3,426,395	136,312	
Other	388,099	350,946	614,855	335,246	1,502,785
Total expenditure	**54,161,800**	**70,664,772**	**68,285,525**	**65,591,393**	**69,236,166**
Debt/Surplus	**(416,171)**	**7,449,789**	**(7,203,510)**	**5,094,193**	**8,746,230**

(*) Including extra funds/cover of arrears by a public authority.

(**) New infrastructure and equipment.

Last recorded arrears and magnitude of last recorded arrears

Hospital	Last recorded arrears*	Magnitude of last recorded arrears**
Marius Nasta	Jul 2015	0.5%

* Data up to August 2016 from www.monitorizarecheltuieli.ms.ro.

** This figure is calculated as per the period expenditure in the year concerned; that is, % of latest arrears from that year, taking into account the date of the table, Aug '16. For example, if a hospital last recorded arrears in October 2015, the magnitude is calculated as % of arrears (October 2015) from the budget execution until October 2015.

List of hospital committees

Name	The committee reports to:
Managing Committee	Hospital Manager
Medical Council	Hospital Manager
Ethics Council	Hospital Manager
Committee for Preventing and Counteracting Nosocomial Infections	Hospital Manager
Drug Commission	Hospital Manager
Discipline Commission	Hospital Manager
Death Analysis Commission	Hospital Manager
Committee for work security and health	Hospital Manager
Nutrition and dietetics Commission	Hospital Manager
Blood Transfusion and Haemovigilance Commission	Hospital Manager
DRG Commission	Hospital Manager
Monitoring, coordination and methodological guidance of activities specific for implementing Internal Control and development of managerial control systems	Hospital Manager

Emergency – CPU attendances

Attendances		
Solved without admission	1,078	(9.9% of the total attendances)
Discharged without admission	915	(8.4% of the total attendances)
Referred to another facility	163	(1.5% of the total attendances)
Leading to admission	9,811	(90.1% of the total attendances)
Total emergency cases	10,889	(100.0% of the total attendances)

Hospitalisation activity

	2011	2012	2013	2014	2015
Total admissions	13,032	15,820	15,033	14,675	12,923
Total number of bed-days	181,631	208,429	191,892	192,688	183,983
Average length of stay	13.94	13.18	12.76	13.13	14.24
Bed occupancy rate	91.14	103.54	95.41	95.81	90.99

Surgery

	2015
Total surgical interventions performed	3,368

	2015
Cancelled interventions	98
Number of programmed interventions	3,146
No. of programmed inpatient surgeries	1,113
No. of programmed ambulatory and day surgeries	2,033
Number of emergency surgeries	222

Diagnostic activity

	2015
CTs performed(*)	3,063
Ecographies performed	2,349
Blood tests performed	232,212
Bioptic examination	1,125
Microbiological tests performed	114,389
Cytologies performed	8,968

(*) Outsourced

Bed occupancy rates: Breakdown per hospital specialty

	2011	2012	2013	2014	2015
Ward I pulmonology – TBC	106	105	84	88	98
Ward III pulmonology – TBC	73	99	106	84	101
Ward IV pulmonology – TBC	86	98	80	70	72
Ward V pulmonology – TBC	73	106	106	85	91
Ward VI pulmonology – TBC	48	71	67	61	53
Ward VII pulmonology – TBC	46	76	91	89	90
Ward VIII pulmonology – TBC	71	94	85	86	94
Ward IX pulmonology – TBC	64	95	73	79	73
Ward X pulmonology – TBC	123	128	81	87	94
Ward I pulmonology – NTBC	243	218	208	235	180
Ward III pulmonology – NTBC	149	129	102	119	98
Ward IV pulmonology – NTBC	153	148	131	134	117
Ward V pulmonology – NTBC	151	150	138	124	106
Ward VI pulmonology – NTBC	75	74	73	77	80
Ward VII pulmonology – NTBC	98	104	111	100	88
Ward VIII pulmonology – NTBC	153	95	94	97	97
Ward IX pulmonology – NTBC	79	108	121	93	77
Ward X pulmonology – NTBC	113	151	155	111	70
MDR	61	75	77	85	86
Surgery I	87	84	82	90	83
Surgery II	51	48			
Oncology			23	90	70
AIC	79	79	80	82	77
Palliative care					77

Quality (effectiveness/clinical results; safety)

	2010	2011	2012	2013	2014	2015
Intra-hospital death rates *100/number of discharged patients	1.79	1.80	1.45	1.52	1.68	2.00

	2010	2011	2012	2013	2014	2015
Post-operative sepsis (*)	0.16	0.27	0.15	0.15	0.45	0.21
Nosocomial infections	0.02	0.05	0.08	0.13	0.15	0.48
Rate of unplanned return to operating theatre	0.76	0.72	0.84	1.01	0.53	0.78
% of emergency patient readmissions within 30 days of hospital discharge	0.66	1.19	2.34	1.44	1.93	1.60

(*) Reported in relation to the number of patients with major surgical interventions

Access to health services / Barriers to utilisation

In 2015 they were 22 reported cases of hospitalisation refusals:
- 11 patient (self) refusals
- Seven patients with referral for which the hospital doctor considered admission to be unnecessary
- Four cases of lack of beds

Waiting times

	2010	2011	2012	2013	2014	2015
Average waiting time (in minutes) to be attended at A&E	10	10	12	13	12	15
Average waiting time (in days) to receive surgical services	3.2	3.8	3.6	3.6	3.2	2.8

Efficiency

	2010	2011	2012	2013	2014	2015
Average hospital bed occupancy rate		91.14	103.54	95.41	95.81	90.99
Average hospital ALOS		13.94	13.18	12.76	13.13	14.24
Pre-surgery ALOS (days)	3	3	3	3	3	3
Operation room utilisation index (*)	11.5%	13.5%	19.3%	20.5%	21.5%	18.6%

(*)The hospital is not an emergency hospital, so surgeries are performed from Monday to Friday. Only TB-related emergencies are performed during the weekend.

Summary of structural efficiency rates (not adjusted by severity)

	No. of doctors	No. of nurses	No. of beds	No. of OR	A&E attendances	No. Of admissions	Surgical interventions	Total expenditure
M. Nasta	90	270	632	3	10,889	12,923	3,368	69,236,166

	Doctors	Nurses	A&E	A&E	Admissions	Admissions

	per bed	per bed	attendances per doctor	attendances per nurse	per doctor	per nurse
Marius Nasta	0.1	0.4	121	40	144	48

	Surgeries per OR	Surgeries per doctor	Surgeries per nurse	Expenditure/per admission	Expenditure per bed	Expenditure per surgery
Marius Nasta	1,123	37	12	5,358	109,551	20,557

Responsiveness/Patient centredness

Responsiveness/patient centredness	2013	2014	2015
% of patients who declare having received clear information upon discharge from hospital	n/a	n/a	38.02%
% of patients who declare having been explained essential actions needed to complete treatments/avoid future preventable conditions	86.99	94.47	92.01
% of survey approval / satisfied response among patients after discharge	87.77	90.16	89.37

Hospital 4: Emergency Hospital 'Saint Pantelimon' – Bucharest, Romania

Emergency Hospital Saint Pantelimon of Bucharest:
340 – 342 Pantelimon Avenue, District 2, Bucharest

Selected KPIs to assess the performance of hospital managers (non-exhaustive list)

A.	Human resources management
	Average number of discharged patients per doctor
	Average number of consultations per doctor in duty guard
	Average number of consultations per doctor in the ambulatory centre
	Average number of courses / trainings per employee per annum
	... ...
B.	**Services utilisation**
	Average number of hospitalisation days per hospital
	Hospital beds' utilisation rate
	Complexity index of cases per hospital
	Number of consultations granted in ambulatory regime
	Number of surgical interventions per functioning theatre room per month
	... ...
C.	**Financial indicators**
	Actual versus approved budget
	Percentage of staff costs out of total cost
	Percentage of costs associated with drugs out of total cost
	Average cost for hospitalisation per day
	Percentage of utilities costs recorded in current reporting year out of utilities costs recorded in the previous year
	... ...
D.	**Quality indicators**
	Intra-hospital rate of mortality
	Nosocomial infections rate per hospital and per ward
	Re-hospitalised patients rate in the 30-day interval from discharge
	Percentage of patients that are satisfied and extremely satisfied out of total number of questioned patients
	Total number of patient complaints
	... ...

Details of physical asset(s)

Part A	6,482 m^2
Part B	4,632 m^2
Part C	7,831 m^2
Part E	928 m^2

Reported infrastructure (beds and facilities)[50][51]

A&E UPU (Emergency Acceptance Unit)	
Short-stay beds	4

Beds at hospital	
Beds in wards	525
Intensive care beds	25
Beds for accompanying persons	7

[50] In addition, a detailed list with precise therapeutic equipment per hospital ward and unit has been provided.
[51] Regarding the funding of equipment, it has been reported that in 2013 the General City Hall of Bucharest furnished the kitchen with equipment while, in 2015, the General City Hall of Bucharest and the MoH provided the funds for two X-ray devices and for one compressor.

Beds at hospital	
Beds for day care hospitalisation	22
Beds for day care medical oncology	3

Surgical block	
Operating rooms	17
Neonatology post-surgical recovery posts	4
Post-surgical recovery beds	24

Imaging diagnostic equipment	
CT	1
Outsourced CT (available 24*7)	1
Outsourced MRI (available 24*7)	1
Imaging data processors	2

Labs	
Pathology (cytology; histopathology...)	1
Medical analysis	1
Nuclear medicine	1
Functional explorations	1
Recovery, physical medicine and balneology	1

Staff

Clinical staff (occupied posts)	
Doctors (*)	166
Anaesthesiologists	9
Nurses	425
Midwives	2
Pharmacists	2
Lab and diagnostic technicians	34
Physiotherapists/Kinetotherapists	3
Total clinical staff (occupied posts)	**641**

(*) In addition, there are some 745 resident doctors; there are only two doctors with CT competencies.

Clinical staff (vacant posts)	
Doctors	24
Anaesthesiologists	3
Nurses	144
Lab and diagnostic technicians	12
Total clinical staff (vacant posts)	**183**

Non-clinical staff (occupied posts)	
Epidemiologists	1
Codifiers and clinical records archivists	1

Non-clinical staff (occupied posts)	
Health economists and accountants	10
Lawyers	1
Human resources specialists	8
Administrative staff	8
Engineers/maintenance staff	1
Cleaning and laundry staff	10
Catering staff	13
Orderlies	165
Security(*)	--
Total clinical staff (occupied posts)	**218**

(*) Outsourced

Non-clinical staff (vacant posts)	
IT technicians/communication specialists	1
Lawyers	1
Administrative staff	2
Engineers/maintenance staff	1
Cleaning and laundry staff	3
Catering staff	17
Orderlies	64
Ambulance drivers	2
Total clinical staff (vacant posts)	**91**

Occupied vs. vacant staff	2015
Total occupied staff	859
Total vacant posts	**274**

Finances

Time series	2010	2011	2012	2013	2014	2015
Revenues by source						
Government	28,887,652	30,636,983	39,436,538	42,037,962	42,392,431	42,029,187
Insurance schemes	46,162,618	38,179,580	37,309,549	47,350,825	49,578,357	55,053,701
Patient fees	514,272	658,429	751,969	346,185	440,810	278,540
Other income	1,335,198	1,136,358	1,218,164	1,183,327	1,419,267	2,140,062
Non-refund. ext. aid					366,156	5,767,440
Total revenues	76,899,739	70,611,349	78,716,220	90,918,300	94,197,022	105,268,930
Expenditures by categories						
Personnel and benefits	51,954,234	45,437,934	47,066,824	49,491,029	53,252,850	64,711,894
Drugs	11,388,598	13,387,692	9,178,167	11,739,429	14,608,062	13,868,053
Med. & non-med. supplies	2,509,541	3,137,818	2,785,318	3,331,214	3,659,268	4,542,961
Mainten., repairs, etc.	2,126,498	2,897,078	9,733,465	2,850,615	2,517,559	2,450,760
Outsourced services	7,793,745	8,184,747	8,285,177	9,670,970	11,012,296	12,323,060
Capital (amortisation)	3,410,794	3,201,317	3,104,577	3,677,650	3,033,885	4,005,302
Exp. with non-depreciable				13,382,219	6,080,583	79,272

Time series	2010	2011	2012	2013	2014	2015
FA						
Other	890,990	67,703	210,616	952,236	4,947,179	7,322,488
Total expenditure	**80,074,400**	**76,314,288**	**80,364,143**	**95,095,363**	**99,111,682**	**109,303,790**
Debt/Surplus	**(3,174,660)**	**(5,702,939)**	**(1,647,923)**	**(4,177,063)**	**(4,914,660)**	**(4,034,860)**

Last recorded arrears and magnitude of last recorded arrears

Hospital	Last recorded arrears*	Magnitude of last recorded arrears**
Pantelimon	Not after 2013	n/a

* Data up to August 2016 from www.monitorizarecheltuieli.ms.ro.

** This figure is calculated as per the period expenditure in the year concerned; that is, % of latest arrears from that year, taking into account the date of the table, Aug '16. For example, if a hospital last recorded arrears in October 2015, the magnitude is calculated as % of arrears (October 2015) from the budget execution until October 2015.

Hospital councils and committees

Name	Type	Accountable to
Drug Commission	Clinical	Medical Director
Pharmacovigilance Commission	Clinical	Medical Director
Medical Council	Clinical	Medical Director
Discipline Commission	Non-Clinical	Hospital Manager
Intra-Hospital Deaths Analysis Commission	Clinical	Medical Director
Committee for Work Security and Health	Non-Clinical	Labour protection inspectorates
DRG Commission	Non-Clinical	Medical Director
Quality Committee	Non-Clinical	Medical Director
Ethics Council	Non-Clinical	Hospital Manager
Committee for Preventing and Counteracting Nosocomial Infections	Clinical	Hospital Manager-Medical Director
Haemovigilance and Blood Safety Committee	Clinical	Medical Director
Committee for Emergency Situations	Clinical	Hospital Manager

A&E

	2010	2011	2012	2013	2014	2015
UPU attendances	40,293	74,403	83,127	90,259	89,974	85,271
Solved without admission	70.65%	73.51%	70.35%	68.34%	71.27%	72.84%
Referred to another facility	0.12%	0.09%	0.13%	0.12%	0.11%	0.18%
Leading to admission	29.23%	26.40%	29.52%	31.54%	28.62%	26.98%

Hospitalisation

	2010	2011	2012	2013	2014	2015
Total admissions	33,857	30,745	26,979	30,507	27,247	24,881
Total number of bed-days			152,701	163,823	155,035	155,506

	2010	2011	2012	2013	2014	2015
Average length of stay(*)			5.7	5.4	5.7	6.3
Overall bed occupancy rate	82.9	73.2	63.5	65.5	80.9	81.3

(*) The indicator refers to all admitted patients, i.e. those both covered and not covered by insurance. Data for covered patients only are also available (see below).

Hospital admissions – breakdown per speciality

	2010	2011	2012	2013	2014	2015
Cardiology	2,977	2,626	2,320	2,377	2,501	2,552
Internal Medicine	2,386	2,323	2,248	2,304	2,236	2,380
Gastroenterology	726	600	527	519	686	950
General Surgery	8,451	6,909	6,752	8,350	6,108	4,928
Vascular surgery	108	45	85	94	127	216
Plastic surgery	327	276	265	369	399	445
Neurosurgery	2,747	2,482	2,218	2,419	2,214	1,959
Obstetrics and Gynaecology	4,303	4,407	2,937	4,006	3,729	3,031
Obstetrics Pathology	2,996	3,752	3,840	3,446	3,162	2,831
Neonatology	1,833		1,390	989	1,138	1,216
Newborns		1,702				
Premature births ward			0			191
Orthopaedics and Traumatology	6,200	4,861	3,654	4,745	4,221	3,158
OT Medical Recovery			0			87
ENT	245	204	134	217	166	191
Ophthalmology	558	558	609	672	560	746
Total admissions	**33,857**	**30,745**	**26,979**	**30,507**	**27,247**	**24,881**

ALOS(*) – breakdown per speciality

	2010	2011	2012	2013	2014	2015
Cardiology			4.6	8.3	8.0	7.8
Internal Medicine			5.9	7.6	8.0	7.4
Gastroenterology			5.4	5.7	5.5	5.1
General Surgery			3.2	3.9	4.1	4.6
Vascular surgery			7.0	6.9	7.2	7.5
Plastic surgery			2.8	3.1	2.5	2.5
AIC			3.6	3.7	3.5	4.0
Neurosurgery			6.4	6.7	6.8	6.4
Obstetrics and Gynaecology			4.3	3.3	3.2	4.5
Obstetrics Pathology			2.9	3.0	3.2	3.9
Neonatology			7.7	5.8	6.2	5.2
Premature births ward						25.5
Orthopaedics and Traumatology			7.2	6.7	7.4	8.1
OT Medical Recovery						12.3
ENT			4.8	5.1	5.3	4.7
Ophthalmology			3.5	4.2	2.9	2.7

	2010	2011	2012	2013	2014	2015
Hospital ALOS			5.7	5.4	5.7	6.3

(*)All admitted patients (both covered and not covered by insurance). See below data just for covered patient

ALOS(*) – breakdown per speciality

	2010	2011	2012	2013	2014	2015
Cardiology	6.5	6.8	6.8	6.8	8.0	6.8
Plastic and Reconstructive Surgery	1.4	2.1	2.0	2.2	2.5	4.0
Surgery	4.0	4.2	3.6	3.1	4.1	1.6
Vascular surgery	4.8	8.1	8.5	6.8	7.2	7.1
Gastroenterology	5.0	5.4	5.8	4.7	5.5	4.2
Medical	6.9	6.6	6.5	6.8	8.0	6.8
Neonatology	4.8	5.6	6.5	4.3	5.5	4.3
Premature births ward	20.6	20.1	22.7	19.0	23.4	23.0
Neurosurgery	6.0	6.1	6.4	5.6	6.8	6.3
ENT	3.3	3.2	4.0	4.3	5.3	3.8
Obstetrics and Gynaecology	3.9	3.6	3.6	2.3	3.2	3.5
Obstetrics Pathology	2.3	2.2	2.3	2.0	3.2	2.9
Ophthalmology	2.3	2.5	2.9	3.2	2.9	1.8
Orthopaedics and Traumatology	5.4	6.2	6.8	5.5	7.3	7.3
OT Medical Recovery				10.7	14.0	11.2
Hospital ALOS	4.7	5.1	4.8	4.1	5.7	5.1

(*) The indicator refers just to patients covered by insurance.

Bed occupancy rate – breakdown per speciality

	2010	2011	2012	2013	2014	2015
Cardiology	72.6	67.6	58.67	66.5	83.8	83.4
Plastic and Reconstructive Surgery	12.2	15.7	14.65	23.4	27.7	31.0
Surgery	124.0	106.9	88.42	96.2	92.5	84.4
Vascular Surgery	27.8	14.8	38.94	33.7	47.3	81.5
Gastroenterology	81.4	73.9	69.63	53.9	85.1	106.2
Medical	74.4	69.5	67.78	80.8	79.2	93.2
Neonatology	49.0	54.3	54.84	24.6	34.6	44.2
Premature births ward	147.2	117.2	62.05	15.7	36.0	161.5
Neurosurgery	96.8	94.3	86.15	86.7	96.4	81.8
ENT	44.1	35.5	29.86	52.2	49.3	50.5
Obstetrics and Gynaecology	63.5	59.3	39.08	40.2	50.1	57.1
Obstetrics Pathology	41.0	48.3	50.95	46.0	65.3	72.5
Ophthalmology	71.6	72.5	95.39	119.9	90.0	110.3
Orthopaedics and Traumatology	123.5	110.2	92.63	98.1	125.0	107.0
Orthopaedics Medical Recovery					41.2	35.9
Hospital bed occupancy rate	82.9	73.2	63.5	65.5	80.9	81.3

Surgical activity

	2010	2011	2012	2013	2014	2015
Total surgical interventions performed	13,368	11,683	11,624	13,221	10,971	10,255

(*)According to the information provided by the hospital, cancelled interventions, share between programmed vs. Emergency surgeries, or share between interventions performed under inpatient or ambulatory basis are not regularly monitored

Obstetric services

	2010	2011	2012	2013	2014	2015
Total deliveries	7,286	8,176	6,764	7,473	6,886	3,105
Number of caesarean sections	838	776	675	603	725	872
% of caesarean sections (out of the total number of deliveries)	11.5%	9.5%	10.0%	8.0%	10.5%	28.1%

Outpatient consultations

	2010	2011	2012	2013	2014	2015
Total consultations	72,130	63,755	56,194	54,876	50,834	42,655

Diagnostic procedures

	2010	2011	2012	2013	2014	2015
Total CTs performed	0	0	4,654	5,385	7,467	6,622
Total mammographies performed	n/a	n/a	n/a	n/a	n/a	n/a
Total echographies performed	12,907	13,423	16,230	17,546	14,181	16,227
Total MRI performed	0	0	527	65	24	32
Total blood tests performed (*)	502,263	685,756	622,309	474,994	353,814	357,489
Biopsies (**)						
Total analysed samples	9,942	10,958	10,222	10,376	12,243	14,039
Total persons receiving these services	4,594	4,977	4,511	4,160	4,598	5,364
Total microbiological tests performed						n/a
Total cytologies performed	1,338	814	634	557	510	292

(*) The number of microbiological tests is included in the total number of blood tests performed. The hospital does not have different statistics on blood tests and on microbiological tests.

(**)The hospital provided the number of analysed samples, but also the number of persons receiving this kind of services.

Quality (effectiveness/clinical results; safety)

Intra-hospital death rates *100/number of discharged patients

	2010	2011	2012	2013	2014	2015
Overall Rate	2.48	2.51	3.04	2.42	3.35	3.88

Intra-hospital death rates: breakdown per speciality *100/number of discharged patients

	2010	2011	2012	2013	2014	2015
Cardiology	6.31	6.96	9.01	7.68	7.78	7.94

	2010	2011	2012	2013	2014	2015
Gastroenterology	6.69	5.80	6.83	6.55	6.33	4.84
Internal Medicine	7.13	7.79	8.65	7.95	11.64	11.68
Neonatology (newborns)	0.25	0.07	0.08	0.21	0.09	0.16
Neonatology (premature births) Maternity Grade II	7.18	10.80	11.11	0.00	6.67	3.78
General Surgery	2.83	2.80	2.70	2.12	3.09	4.35
Plastic and reconstructive surgery	0.00	0.00	0.00	0.00	0.00	0.00
Vascular surgery	3.13	1.89	5.94	2.75	4.20	3.77
Neurosurgery	4.90	5.30	6.26	4.77	7.55	8.64
Obstetrics	0.03	0.05	0.00	0.00	0.03	0.04
Obstetrics and Gynaecology	0.02	0.05	0.00	0.00	0.03	0.03
Ophthalmology	0.00	0.00	0.00	0.00	0.00	0.00
Orthopaedics and Traumatology	0.53	0.49	1.12	0.97	1.09	1.07
ENT	0.00	0.00	0.00	0.00	0.00	0.00
Orthopaedics Medical Recovery				0.00	1.23	0.00

Five most frequent post-operative hospital mortality causes

Post-operative embolism
Gastrointestinal haemorrhage
Ischaemic stroke
Intracerebral haemorrhage
Head injury

Thirty-day mortality after admission to hospital for AMI (number of cases)

	2010	2011	2012	2013	2014	2015
Total	25	31	18	13	4	9
Total male	11	16	9	4	1	5
Total female	14	15	9	9	3	4
0–4 years	0	0	0	0	0	0
5–14 years	0	0	0	0	0	0
15–24 years	0	0	0	0	0	0
25–34 years	0	0	0	0	0	0
35–44 years	0	0	0	0	0	0
45–54 years	1	2	1	2	0	0
55–64 years	3	0	3	0	0	0
65–74 years	10	3	4	2	0	1
75–84 years	9	20	5	7	0	4
85 + years	2	6	5	2	4	4

Thirty-day mortality after admission to hospital for Ischaemic stroke (number of cases)

	2010	2011	2012	2013	2014	2015
Total	13	15	11	10	17	28
Total male	6	6	4	1	7	10
Total female	7	9	7	9	10	18

	2010	2011	2012	2013	2014	2015
0–4 years	0	0	0	0	0	0
5–14 years	0	0	0	0	0	0
15–24 years	0	0	0	0	0	0
25–34 years	0	0	0	0	0	0
35–44 years	1	0	1	0	0	0
45–54 years	1	1	1	0	0	1
55–64 years	1	2	1	3	1	3
65–74 years	4	2	0	1	4	8
75–84 years	5	9	3	4	7	12
85 + years	1	1	5	2	5	4

Safety

Nosocomial infections; pressure ulcers/bedsores; inpatient hip fractures and readmissions:

	2010	2011	2012	2013	2014	2015
Nosocomial infections rate (number of infection cases*100/ number of discharged patients)	0.05	0.08	0.10	0.14	0.22	0.20
Pressure ulcers/bedsores						
Number of bedsores per 1,000 beds	72	85	99	83	78	85
Percentage out of total admissions	0.21%	0.28%	0.73%	0.27%	0.28%	0.34%
Inpatient hip fractures per 1,000 beds	0	0	0	0	0	0
Readmissions						
Emergency re-admission within 28 days of hospital discharge	2,865	2,743	2,041	2,867	2,475	1,980
% re-admission out of total number of surgical interventions	15,38	18,18	18,18	15,38	20,00	10,00

Access to hospital services / barriers to utilisation

	2010	2011	2012	2013	2014	2015
Total number of admissions	33,857	30,745	26,979	30,507	27,247	24,881
Total admissions through UPU	11,778	19,642	24,539	28,468	25,751	23,006
% admissions through UPU	34.79%	63.89%	90.96%	93.32%	94.51%	92.46%

Waiting times

Elective cataract surgery	2 weeks
Elective hip replacement (total and partial)	2–3 months
Elective knee replacement (including the revision of knee replacement)	2–3 months

	2010	2011	2012	2013	2014	2015
CPU attendances	40,293	74,403	83,127	90,259	89,974	85,271
Solved without admission	70.65%	73.51%	70.35%	68.34%	71.27%	72.84%
Referred to another facility	0.12%	0.09%	0.13%	0.12%	0.11%	0.18%
Leading to admission	29.23%	26.40%	29.52%	31.54%	28.62%	26.98%

Efficiency

Surgical activity: details about specific procedures

		2010	2011	2012	2013	2014	2015
Cataract surgery							
	No. of interventions performed	283	298	441	490	428	568
	% of surgery carried out on ambulatory basis	0	0	0	0	0	0
	% of surgery carried out on inpatient basis	100	100	100	100	100	100
Inguinal hernia							
	No. of interventions performed	195	165	171	149	153	182
	% of surgery carried out on ambulatory basis	0	0	0	0	0	0
	% of surgery carried out on inpatient basis	100	100	100	100	100	100
Arthroscopies							
	No. of interventions performed	--	--	--	--	--	419
	% of surgery carried out on ambulatory basis	--	--	--	--	--	0
	% of surgery carried out on inpatient basis	--	--	--	--	--	100
Amygdalotomy							
	No. of interventions performed	3	--	--	2	3	1
	% of surgery carried out on ambulatory basis	0	--	--	0	0	0
	% of surgery carried out on inpatient basis	100	--	--	100	100	100

Obstetrics activity (delivery-related ALOs, in days)

	2011	2012	2013	2014	2015
All patients (covered and not covered by insurance)		4.26	3.34	3.19	4.47
Only patients covered by insurance	3.55	3.58	2.32	3.19	3.45

Summary of structural efficiency rates (not adjusted by severity)

	No. of doctors	No. of nurses	No. of beds	No. of OR	A&E attendances	No. of admissions	Surgical interventions	Total expenditure
Pantelimon	166	525	525	17	83,127	24,881	10,255	109,303,790

	Doctors per bed	Nurses per bed	A&E attendances per doctor	A&E attendances per nurse	Admissions per doctor	Admissions per nurse
Pantelimon	0.3	1.0	501	158	150	47

	Surgeries per OR	Surgeries per doctor	Surgeries per nurse	Expenditure/per admission	Expenditure per bed	Expenditure per surgery
Pantelimon	603	62	20	4,393	208,198	10,659

Hospital 5: Caritas Municipal Hospital – Roșiorii de Vede, Romania

Caritas Municipal Hospital - Roșiorii de Vede, Romania
33 Carpați Street [HQ]/Republicii Street [Infectious Diseases Depart.] Roșiorii de Vede, Teleorman

Details of the physical asset(s)

Mono-block building with five parts and floors (33 Carpați Street) built in 1987	
Part A:	Ground floor plus 5 floors (total size = 2.148 m^2 = 6 * 358 m^2)
Part B:	Ground floor plus 5 floors (total size = 2.880 m2 = 6 * 480 m^2)
Part C:	Ground floor plus 7 floors (total size = 1.800 m^2 = 8 * 225 m^2)
Part DD':	Ground floor plus 6 floors (total size = 6.237 m^2 = 7 * 891 m^2)
Part SB:	Ground floor plus 3 floors (total size = 2.104 m^2 = 4 * 526 m^2)
Two buildings with pavilions without floors (31 Republicii Street), built in 1973, 540 m^2; and built in 1898, 500 m^2, respectively	

Reported infrastructure (beds and facilities)

A&E – CPU (Emergency Acceptance Compartment)				
	Boxes	0		
	Exploration and consultation rooms	1		
	Short-stay beds	0		
Total beds (1)				298
	Installed	298		
	Functioning			
Laboratories				3
	Laboratory for medical analysis	1		
	Laboratory for radiology and imaging	1		
	Laboratory for physiotherapy and balneotherapy	1		
Operating theatres				3
	Installed	3		
	Functioning	3		
Post-surgical recovery rooms (1)				35
	No. of beds		35	
	General surgery ward		35	
	Orthopaedics and traumatology	10		
	Other	25		
Day care posts				
	Medical	10		
	Surgical	10		
Delivery rooms		0		
Intensive care units				
	No. of beds	15		
Consultation rooms (2)		5		
Haemodialysis posts		0		
	Infectious			

	Non-infectious			

(1) The 35 post-surgical recovery beds and the 15 ICU beds are included into the total 289 beds

(2) Only consultation rooms in mono-bloc buildings (devoted to infectious diseases, dental (part of CPU), oncology, family planning, diabetes and TBC) have been considered here. Consultation rooms from ambulatory services at 'buildings with pavilions and without floors' are not included here.

Equipment

Analytical and diagnostic equipment (1)		
	(Conventional) X-Ray machines	1
Therapeutic equipment		
	Radiotherapy (2)	3
	Phacoemulsification devices for ophthalmology (3)	1

(1) The hospital uses private CTs.

(2) Radiotherapy equipment: Rontgen 'CHAUL', RG. Profound Therapy and Rontgen DIAGNOMAX.

(3) Main financial amounts/sources of funding: Own sources and donations (as was the case for the phacoemulsification device).

Staff

		2010	2011	2012	2013	2014	2015
Clinical staff							
	Doctors	31	33	33	36	38	37
	Anaesthesiologists	1	1	1	1	1	1
	Nurses	148	151	149	142	138	151
	Midwives	4	4	4	4	4	4
	Pharmacists	2	2	2	2	1	1
	Lab and diagnostic technicians	NA	NA	NA	NA	NA	NA
	Physiotherapists/Kinetotherapists	NA	NA	NA	NA	NA	NA
	Other	101	97	91	93	92	87
	Total clinical staff	**287**	**288**	**280**	**278**	**274**	**281**
Non-clinical staff							
	Epidemiologists						1
	Codifiers and clinical records archivists	NA	NA	NA	NA	NA	NA
	Health economists and accountants	5	5	5	5	6	6
	IT technicians/communication specialists	NA	NA	NA	NA	NA	NA
	Lawyers	1	1	1	1	1	1
	Human resources specialists	4	4	4	4	4	3
	Administrative staff	8	8	8	7	6	7
	Engineers/maintenance staff	NA	1	1	1	1	1
	Cleaning and laundry staff	16	16	16	16	15	15
	Catering staff	8	8	7	7	7	6
	Security staff	NA	NA	NA	NA	NA	NA
	Other (porters, drivers…)	28	26	25	24	24	22
	Total non-clinical staff	**70**	**69**	**67**	**65**	**64**	**61**
Total staff		**357**	**357**	**347**	**343**	**338**	**342**

Vacant posts							
	No. of vacant posts per staff category	106	103	114	147	151	148
Staff turnover							
	Annual turnover rate	NA	NA	NA	NA	NA	NA

Finances

Time series	2010	2011	2012	2013	2014	2015
Revenues by source						
Government	1,184,554	934,170	1,446,848	2,049,311	17,416,916	1,988,458
Economic activ.(*)	15,443,704	11,396,260	14,426,150	15,005,225	28,752,070	16,350,277
Insurance scheme(**)	15,545,998	10,590,739	13,690,357	14,388,615	15,347,200	15,252,066
Total revenues	**16,628,258**	**12,330,430**	**15,872,998**	**17,054,536**	**46,168,986**	**18,338,735**
Exp. by categories						
Personnel & benefits	11,798,705	9,279,360	9,830,780	11,278,787	13,739,463	11,311,563
Drugs	931,799	1,439,822	2,795,899	2,512,741	5,001,609	4,628,027
Med. and non-med. supplies	1,264,869	1,571,429	1,574,875	1,844,652	1,662,270	2,202,322
Maintenance, repairs, etc.	1,542,936	1,810,575	1,645,727	1,941,488	1,459,212	1,253,957
Outsourced services	626,054	911,791	1,086,575	1,111,273	966,783	1,105,450
Capital (amortisation)	270,533	280,855	276,974	292,188	295,008	287,612
Other expenses	199,940	503,042	239,079	211,101	336,157	13,860,863
Total expenditure	**16,634,836**	**15,796,874**	**17,449,909**	**19,192,230**	**23,460,502**	**34,649,794**
Debt/Surplus	**(6,578)**	**(3,466,444)**	**(1,576,911)**	**(2,137,694)**	**22,708,484**	**(16,311,059)**

(*) Income from economic activities (e.g. insurance schemes, own income, etc.).

(**) These amounts are included in the previous 'Economic activities' line, so that they do not sum to the total revenues figures.

Last arears and magnitude of last recorded arrears

Hospital	Last recorded arrears*	Magnitude of last recorded arrears**
Roșiorii	Aug 2016	33.2%

* Data up to August 2016 from www.monitorizarecheltuieli.ms.ro.

** This figure is calculated as per the period expenditure in the year concerned; that is, % of latest arrears from that year, taking into account the date of the table, Aug ’16. For example, if a hospital last recorded arrears in October 2015, the magnitude is calculated as % of arrears (October 2015) from the budget execution until October 2015.

List of hospital committees

Name	Type	Accountable to...
Board of Directors	Non-clinical Committee	Local Council of Roșiorii de Vede
Medical Board	Clinical Committee	Hospital Manager
Ethics Committee	Non-clinical Committee	Board of Directors
Committee for Infection Control	N/A	N/A
Antibiotherapy/ Antibiotic Resistance and Drug Supervision Committee	Clinical Committee	Teleorman Public Health Directorate

Clinical activity

A&E	2010	2011	2012	2013	2014	2015
Total number of A&E attendances	33,683	31,003	34,396	27,548	29,462	29,713

A&E	2010	2011	2012	2013	2014	2015
% of emergencies solved without admission	47.1	47.42	49.27	48.85	47.75	48.32
% of emergencies referred to another facility	7.75	6.25	7.9	3.68	6.72	6.36
% of emergencies leading to admission	42.21	46.33	42.82	47.47	45.53	45.32

Diagnostic procedures	2010	2011	2012	2013	2014	2015
Total CTs performed	378	308	739	1073	0	943
Total mammographies performed	0	0	0	0	0	0
Total echographies performed	5,948	4,987	4,123	5,582	8,470	9,538
Total MRI performed	0	119	51	24	0	0
Total blood tests performed	114,796	138,842	115,451	121,530	123,419	127,472
Total biopsies performed	15,760	13,750	15,670	18,150	9,570	3,170
Total microbiological tests performed	12,201	14,841	11,343	14,801	9,788	10,602
Total cytologies performed	2,748	1,988	1,557	1,592	566	459

Hospitalisation admissions	2010	2011	2012	2013	2014	2015
Infectious diseases	687	864	854	719	649	565
Surgery	978	791	865	706	627	625
Medical Care	2,166	2,262	2,180	2,028	1,934	1,892
Cardiology	655	542	637	785	730	620
Neurology	1,026	930	917	914	838	891
Neonatology	492	415	473	355	299	207
Obstetrics and Gynaecology	2,030	1,892	1,826	1,675	1,615	1,248
Ophthalmology	384	429	394	340	289	575
Oncology	766	722	766	836	806	936
ENT	446	488	305	418	374	265
Paediatrics	1,716	1,625	1,399	1,368	1,315	1,319
Balneo-physiotherapy	569	565	516	511	496	505
Total	**11,915**	**11,525**	**11,132**	**10,655**	**9,972**	**9,648**

Length of stay	2010	2011	2012	2013	2014	2015
AIC	2.1	2.2	2.1	2.0	2.3	2.5
Infectious diseases	6.4	6.7	6.3	6.2	6.1	6.3
Surgery	4.4	4.5	4.0	4.2	4.4	5.3
Medical Care	4.8	4.9	5.1	4.6	4.7	5.3
Cardiology	3.6	3.9	4.3	4.0	4.0	3.9
Neurology	7.0	6.3	6.5	6.1	6.2	5.9
Neonatology	5.0	5.0	4.7	4.9	5.1	5.8
Obstetrics and Gynaecology	4.7	4.7	4.6	4.7	4.3	3.5
Ophthalmology	5.8	5.6	5.9	5.6	5.5	4.2
Oncology	4.8	4.6	3.9	3.8	3.3	3.0
ENT	5.7	5.6	5.7	5.5	5.6	5.4
Paediatrics	3.8	4.3	4.2	4.0	3.9	3.6
Balneo-physiotherapy	11.0	10.7	10.7	10.5	11.3	11.6

Length of stay	2010	2011	2012	2013	2014	2015
Average for the hospital	6.0	6.0	6.0	5.8	5.6	5.5

Bed occupancy rate	2010	2011	2012	2013	2014	2015
AIC	48.2	45.4	46.4	42.6	37.5	33.0
Infectious diseases	52.2	68.5	63.9	52.0	46.1	40.7
Surgery	59.6	51.0	50.1	32.0	28.4	30.1
Medical Care	98.7	103.7	102.0	87.8	83.8	90.8
Cardiology	93.1	82.8	103.1	116.3	101.0	86.8
Neurology	74.1	63.5	62.6	61.3	56.3	55.9
Neonatology	56.7	47.4	51.0	40.1	34.9	27.8
Obstetrics and Gynaecology	58.9	55.2	53.2	49.0	42.3	27.2
Ophthalmology	41.6	43.9	42.9	35.1	29.2	43.9
Oncology	85.6	79.0	72.0	72.6	60.4	62.3
ENT	46.5	51.6	33.1	43.7	39.7	26.7
Paediatrics	70.1	69.6	57.7	54.4	51.2	47.0
Balneo-physiotherapy	86.9	82.9	75.3	73.8	76.8	79.9
Average for the hospital	64.9	64.2	61.2	56.9	51.8	49.1

Surgery (inpatient; day & ambulatory)	2010	2011	2012	2013	2014	2015
Total surgical interventions performed	1,801	1,958	2,047	1,970	1,619	1,416
% of cancelled interventions	0	0	0	0	0	0
Number of programmed interventions	0	0	0	0	0	0
No. programmed inpatient surgeries	0	0	0	0	0	0
No. programmed ambulatory and day surgeries	0	0	0	0	0	0

Surgery (inpatient; day & ambulatory)	2010	2011	2012	2013	2014	2015
Number of emergency surgeries	1,801	1,958	2,047	1,970	1,619	1,416
No. of cataract surgery interventions performed	150	136	132	120	114	422
% of surgeries carried out on an outpatient and day care basis	0	0	0	0	0	0
% of surgeries carried out on an inpatient basis	100	100	100	100	100	100
No. of inguinal hernia surgery interventions performed	41	44	27	27	25	18
% of surgeries carried out on an outpatient and day care bases	0	0	0	0	0	0
% of surgeries carried out on an inpatient basis	100	100	100	100	100	100
No. of arthroscopic surgery interventions performed	0	0	0	0	0	0
% of surgeries carried out on an outpatient and day care basis	0	0	0	0	0	0
% of surgeries carried out on an inpatient basis	0	0	0	0	0	0
No. of amygdalotomy interventions performed	0	0	0	0	0	0
% of surgeries carried out on an outpatient and day care basis	0	0	0	0	0	0
% of surgeries carried out on an inpatient basis	0	0	0	0	0	0

Obstetric services	2010	2011	2012	2013	2014	2015
Total deliveries	2,036	1,887	1,829	1,674	1,611	1,252
Number of caesarean sections	22	33	43	35	13	0
% of caesarean sections (out of the total number of deliveries)	1.08	1.75	2.35	2.09	0.81	0

Summary of structural efficiency rates (not adjusted by severity)

	No. of doctors	No. of nurses	No. of beds	No. of OR	A&E attendances	No. Of admissions	Surgical interventions	Total expenditure
Rosiori	37	151	298	3	29,713	9,648	1,416	34,649,794

	Doctors per bed	Nurses per bed	A&E attendances per doctor	A&E attendances per nurse	Admissions per doctor	Admissions per nurse
Rosiori	0.1	0.5	803	197	261	64

	Surgeries per OR	Surgeries per doctor	Surgeries per nurse	Expenditure/per admission	Expenditure per bed	Expenditure per surgery
Rosiori	472	38	9	3,591	116,274	24,470

Hospital 6: City Hospital 'Buhusi' – Buhusi, Bacău County, Romania

City Hospital of Buhusi:
3 Voioaga Street, Buhusi, Bacău County

Level IV hospital. Publicly owned and run/governed by the local council of Buhusi

Governance structure

Governance structure	Members
Manager	Appointment by the Buhusi Mayor for a 3-year period. Guest at the Board of Directors with no voting rights
Board of Directors	5 members (of which 2 appointed by the Bacău Public Health Direction; 2 by the Local Council of Buhusi; 1 by the Mayor of Buhusi) plus 2 guest members (1 from the territorial unit of the Romanian College of Physicians and 1 from the Order of Nurses, Midwives and Medical Assistants in Romania)
Managing Committee	Structure and composition not reported

Hospital accreditation

ISO 9001, Quality Standards 2008, obtained in 2012
ISO 22000, Food Safety Management System 2009, obtained in 2015
OHSAS 1801, Occupational Health and Safety, obtained in 2016
CONAS, National Commission for Accreditation of Hospitals, obtained in 2014

Catchment population profile

No specific population assigned; users: 46 % rural population, 54 % urban population
Emergency non-insured patients are compulsory admitted, but discharged after 3 days

Selected hospital managers' KPIs for 2016 contract

Performance indicator category	Name of the performance indicator attributable to the hospital's management	2016 proposal
A. HR management	Average number of patients discharged per doctor	200 per year
	Average number of ambulatory consultations per doctor	1.033 consultations
	Average number of ER consultations per doctor	7000 consultations
	Percentage of doctors out of total staff	13,64%
B. Quality	Intra-hospital mortality rate	0,40
	Nosocomial infection rate	0,00
	Re-admitted patients rate within 30-day after discharge	3,62%
	Total number of patient complaints per year	0,00
C. Financial	Own incomes out of total hospital income	2,50%
	Staff costs out of total hospital costs	70%
	Drug-related costs out of total hospital costs	3%
	Range of costs per hospitalization day	550 (ICU)-110 (psychiatry)

Details of the physical assets

Four different locations:
(a) Main building at 3 Voioaga Street, Buhusi: Emergency (CPU), hospitalization wards, surgery facilities, ICU, labs, integrated ambulatory
(b) Infectious diseases department at 1, Davila Street, Buhusi: In-patient, day hospitalization and specialized ambulatory services
(c) Psychiatry for chronic patients department at 40, Libertătii Street, Buhusi: In-patient psychiatric services
(d) TB dispensary at 176, 1 Mai Street, Buhusi, Ambulatory specialized TB services, except in-patient services

Location	Physical structure	Year	Area
Main building	Ground floor and five floors	1977	26.107 m^2
Infectious diseases department	Ground floor and one floor	1977	1.000 m^2
Psychiatric chronic services	Basement, ground floor, one floor, attic	No data	1.224 m^2
TB dispensary	Basement, ground floor, one floor, attic	1970	594 m^2

Reported infrastructure

A&E (Accident & Emergency) - CPU (Emergency Acceptance Compartement)	
Beds for quarantine of contagious patients	2
Short-stay beds	3

Summary of hospital beds, not including A&E	
In-patient beds	173
Day-hospitalization beds	20
Grand total	**193**

Beds in wards		
Internal medicine		**35**
	Cardiology	5
	Rheumatology	5
	Other	25
Paediatrics		**15**
	Padiatrics acute therapy	5
	Other	10
Infectious diseases		**20**
Chronic patients		**15**
Neurology		**10**
Palliative care		**9**
ATI		**5**
Psychiatric - chronic patients		**37**
Total medical beds		**146**
General surgery		**27**

Beds in wards		
	Orthopaedics	4
	Other	23
Total surgical beds		27
Total in-patient beds		**173**

Day-hospitalization beds		
Medical specialties		**8**
	Internal medicine	3
	Rheumatology	1
	Neurology	2
	Cardiology	2
Surgical specialties		**7**
	Surgery	3
	Orthopedics	1
	ENT	1
	Obstetrics-gynaecology	2
Paediatrics		**2**
Infectious diseases		**3**
Total day-hospitalization beds		**20**

Surgical block	
Operating theatres	1
Operating rooms	3

Labs	
Medical analysis lab	1
Radiology and medical imaging	1

Equipment

Analytical devices	Number	Year
Haematology analyzers	3	2007 to 2010
Biochemistry analyzers	5	2006 to 2010
Urine analyzers	2	2007
Balances, centrifuges, sterilizers and others	13	1997 to 2012

Diagnostic equipment	
CTs	1
Echographers	3
Conventional X-Ray machines	1

Therapeutic equipment	
Laparoscopies	1
Electrocautherization device	1

Staff

	Occupied	Vacant
Doctors	36	10[52]
Anaesthetists		
Medical nurses	89	8
Midwives		
Pharmacists	2	0
Lab & diagnostic technicians	2	1
Physiotherapists	0	0
Other	61	5
Total clinical staff	190	24
Epidemiologists	0	0
Statisticians / codifiers	1	0
Economists/accountants	6	0
IT technicians	0	1
Legal advisors	2	0
HR specialists	1	0
Administrative personnel	5	1
Engineers / maintenance personnel	12	2
Cleaning and laundry	n.a.	n.a
Catering	0	0
Security	0	0
Others	11	3
Total non-clinical staff	38	7
Total hospital staff	**228**	**31**

Total positions in Jobs List	
Occupied	228
Vacant	31
Hospital management	3
Total	**262**

Finances

Times series	2010	2011	2012	2013	2014	2015
Revenues by source						
State budget	301.310	252.405	336.510	473.610	440.545	427.926
Bacau health insurance house	7.485.735	6.909.213	6.954.640	7.952.764	8.767.298	9.167.675
Own incomes	118.842	210.240	208.904	206.728	265.473	232.279

[52] The balneophysiotherapy section is closed; will be reopened if a rheumatologist doctor is employed

Times series	2010	2011	2012	2013	2014	2015
Funding from Local Council	80.527	427.000	299.587	556.981	434.742	638.000
Incomes from sponsorships	0	4.000	726	0	0	0
Arrears covered by Local Council	0	0	219.418	0	491.970	638.320
Total incomes	**7.986.414**	**7.802.858**	**8.019.785**	**9.190.083**	**10.400.028**	**11.104.200**

Times series	2010	2011	2012	2013	2014	2015
Expenditures by categories						
Personnel and benefits	6.683.391	5.353.556	5.720.571	6.592.011	5.470.261	6.135.000
Drugs	227.800	301.010	252.413	234.836	275.750	333.289
Med. and non-med. consumables	274.304	393.829	353.108	398.935	607.876	599.121
Maintenance	800.991	1.125.890	829.134	1.111.050	2.140.801	1.751.257
Outsourced services	-	135.129	77.806	52.900	50.821	66.546
Amortization	85.996	109.901	98.799	96.596	128.090	165.068
Other expenses	231.515	137.131	618.427	721.874	1.699.138	1.775.692
Total expenditures	**8.303.997**	**7.556.446**	**7.950.256**	**9.208.202**	**10.372.738**	**10.825.973**

Surplus/Debt	2010	2011	2012	2013	2014	2015
Revenues	7.986.414	7.802.858	8.019.785	9.190.083	10.400.028	11.104.200
Expenditures	8.303.997	7.556.446	7.950.256	9.208.202	10.372.738	10.825.973
Surplus/Debt	(317.583)	246.412	69.529	(18.119)	27.290	278.227

Hospital	Last recorded arrears[53]	Magnitude of last recorded arrears[54][55]
Buhusi	Nov 2014	10.9%

List of hospital committees

Name of the committee	Chairman?	Members
Managing Committee	Yes	3
Cell for Emergency Situations	Yes	5
Commission for Prevention of Fire and Fire Fighting	Yes	5
Committee for Occupational Safety and Health	Yes	8
Commission for Transfussion and Hemovigilance	Yes	9
Ethics Council	N/A	8
Discipline Commission	Yes	6
Medical Council	Yes	16
Involuntary Admission Commission	Not present in the hospital	Not present in the hospital
Inpatient Death Commission	Yes	3
Drugs Commission	Yes	14

[53] Data up to August 2016 from the MoH Budget department

[54] Calculated as per the period expenditure in year concerned; that is, % of latest arrears from that year, as per date of the table, Aug ’16 -e.g. if a hospital recorded arrears in October 2015 last time, the magnitude is calculated as % of arrears (October 2015) from the budget execution until October 2015

[55] According to information reported during interviews, hospital arrears have been gradually reduced (currently around RON 800.000)

Name of the committee	Chairman?	Members
Pharmacovigilance Cell	Yes	3

Hospitalization activity

	2010	2011	2012	2013	2014	2015
Admissions	6.319	6.465	6.020	6.170	5.023	5.032
ALOS	10,3	10,2	10,9	10,1	10,6	11,3
Bed-days		65.796	65.385	62.557	52.902	56.766
Occupancy rate	94	104	104	99	84	90
% admitted emergencies	33%	31%	34%	29%	32%	18%
Case-mix index	n.a.	n.a.	n.a.	n.a.	n.a.	1,0548

Admissions per department	2010	2011	2012	2013	2014	2015
Internal medicine	1.045	1.144	1.078	1.042	887	902
Surgery	1.159	1.216	1.008	1.042	803	774
Neurology	415	363	508	552	483	417
Paediatrics	1.083	925	818	920	794	928
Infectious diseases	1.106	1.129	1.133	1.248	890	893
Psychiatry - chronic patients	704	679	618	584	538	499
Rheumatology	615	830	709	631	502	507
Chronic diseases	192	179	148	151	126	112
Overall hospital	**6.319**	**6.465**	**6.020**	**6.170**	**5.023**	**5.032**

ALOS per department	2010	2011	2012	2013	2014	2015
Internal medicine	7,1	7,0	6,9	6,6	7,0	7,3
Surgery	5,6	5,9	5,7	5,2	5,6	5,2
ICU	3,4	3,4	3,2	3,2	3,2	3,4
Neurology	6,8	7,2	7,1	6,9	6,1	6,1
Paediatrics	3,8	3,8	3,9	3,9	3,6	3,6
Infectious diseases	6,2	6,5	6,2	5,9	6,2	7,1
Psychiatry - chronic patients	40,4	39,2	47,0	45,9	42,6	52,1
Rheumatology	8,9	8,2	8,4	8,7	9,8	9,5
Chronic diseases	6,4	6,3	4,9	5,1	5,7	6,6
Overall hospital	**10,3**	**10,2**	**10,9**	**10,1**	**10,6**	**11,3**

Bed occupancy per department	2010	2011	2012	2013	2014	2015
Internal medicine	85	89	84	78	71	75
Surgery	90	117	97	91	76	65
ICU	69	77	78	79	68	71
Neurology	60	72	100	107	82	71
Paediatrics	75	65	58	66	52	61
Infectious diseases	79	102	99	101	77	89
Psychiatry - chronic patients	130	122	133	122	105	123
Rheumatology	75	125	110	100	90	88
Chronic diseases	42	62	40	42	39	40
Overall hospital	**94**	**104**	**104**	**99**	**84**	**90**

Emergency (CPU) attendances

	2010	2011	2012	2013	2014	2015
CPU Attendances	11.747	13.226	11.780	13.446	12.274	13.142

	2010	2011	2012	2013	2014	2015
Solved without admission	62%	63%	61%	65%	62%	76%
Referred to another facility	5%	6%	5%	6%	6%	5%
Leading to admission	33%	31%	34%	29%	32%	18%

Diagnostic activity

	2010	2011	2012	2013	2014	2015
CTs	--	--	17	245	448	206
Ecographies	2.520	2.300	1.900	1.908	3.405	7.992
Blood tests	147.220	136.355	145.604	162.800	167.260	187.100
Biopsies	165	232	234	235	284	268
Microbiological tests	13.950	12.760	13.395	14.390	13.890	16.110
Cytologies	Not performed in the hospital					

Surgery

	2010	2011	2012	2013	2014	2015
Planned surgeries						
In-patient	573	564	549	474	484	521
Day-care[56]	70	113	75	106	505	509
Total planned	643	677	624	580	989	1.030
Unplanned surgeries	54	11	18	13	82	109
Total surgeries	**697**	**688**	**642**	**593**	**1.071**	**1.139**

	2010	2011	2012	2013	2014	2015
% day-care surgical interventions	16,1%	16,4%	14,3%	17,9%	50,0%	47,1%

Obstetric services

	2010	2011	2012	2013	2014	2015
Number of consultations	2.066	2.100	1.805	1.966	2.318	2.342
Number of deliveries	0	0	0	0	0	0
Number of cesaream sections	0	0	0	0	0	0

Outpatient consultations

	2010	2011	2012	2013	2014	2015
First visits	16.907	16.679	13.778	12.616	12.703	10.508
First/Follow up rate	41,9%	42,2%	35,3%	43,2%	38,6%	38,3%
Failed appointments	0	11	15	11	16	16
Total visits	**40.100**	**40.160**	**37.360**	**32.322**	**30.995**	**26.863**

[56] In reality, it is called "Day-care surgeries" but it consist of: localized edema, ingrown nail, nail infection, lipomas, sebaceous cysts, suture wounds, hidradenitis suppurativa, debridement for venous leg ulcers, phimosis, and the like - in other words, this is small surgery. The true relevance of the figure is that half of the surgical activity in 2014 and 2015 in this hospital would be performed in Primary Health Care in many Western European countries...

Summary of structural efficiency rates (not adjusted by severity)

	No. of doctors	No. of nurses	No. of beds	No. of OR	A&E attendances	No. Of admissions	Surgical interventions	Total expenditure
Buhusi	36	89	193	3	13.142	5.032	1.139	10.825.973

	Doctors per bed	Nurses per bed	A&E attendances per doctor	A&E attendances per nurse	Admissions per doctor	Admissions per nurse
Buhusi	0,2	0,5	365	148	140	57

	Surgeries per OR	Surgeries per doctor	Surgeries per nurse	Expenditure/ per admission	Expenditure per bed	Expenditure per surgery
Buhusi	380	32	13	2.151	56.093	9.505

Procedures in place

Procedures in place	
To provide information to patients and their relatives	
	Procedure concerning patient's rights and obligations
To manage patients' and families' complaints	
	Procedure concerning recording patients' claims and complaints
	Patients' satisfaction questionnaire for inpatient and outpatient care
To measure the perception of the care provided	
	Graphical analysis of patients' satisfaction questionnaires

Outsourced services

	Year
Laundry services	2013
Security services	2012

Quality indicators

	2010	2011	2012	2013	2014	2015
Intra-hospital mortality rate	0,17%	0,22%	0,23%	0,29%	0,40%	0,85%
5 most frequent post-operative mortality causes	No post-surgery deaths are recorded					
Age-sex 30-day standardised mortality AMI	0	0	0	0	0	2
Age-sex 30-day standardised mortality Stroke	0	0	0	0	0	0
% high risk TIA treated within 24 h occurrence	85%	90%	92%	91%	89%	93%

Safety indicators

	2010	2011	2012	2013	2014	2015
% post-operative PE / DVT	0	0	0	0	0	0
% post-operative sepsis / complications rates	0	0	0	0	0	0

Patient adverse events

	2010	2011	2012	2013	2014	2015
No. of nosocomial infections	0	0	0	0	0	1
In-hospital transfusion reactions or use of drugs	Not monitored					
No. of pressure ulcers / bedsores per 1000 beds	Not monitored					
No. of in-patient hip fractures per 1000 beds	Not monitored					
Foreign bodies left in per 10000 surgeries	Not monitored					

Re-admissions

	2010	2011	2012	2013	2014	2015
Rate of unplanned return to operating theatres	0	0	0	0	0	0
Emergency re-admissions 28 days discharge	0	0	0	0	0	0

Waiting times

Hospitalization services (2015)	Days
Surgery	15
Internal medicine	20
Palliative care	30

Ambulatory services	Minutes
Having a first visit	15

Efficiency

	2010	2011	2012	2013	2014	2015
Pre-surgery ALOS	24 h	24 h	24 h	24 h	24 h	24 h

	2015
Operation room utilization index	4-5 h/day

	2010	2011	2012	2013	2014	2015
% day care surgical interventions	16,1%	16,4%	14,3%	17,9%	50,0%	47,1%

Responsiveness

Perception of the care provided	2010	2011	2012	2013	2014	2015
% of patients who declare having received clear information upon discharge from hospital	78%	80%	83%	85%	86%	89%
% of patients who declare having been explained essential actions needed to complete treatments/avoid future preventable conditions	75%	77%	80%	84%	87%	90%
% of survey approval / satisfied response among patients after discharge	72%	75%	77%	82%	86%	87%
% of patients' approval / satisfied response with availability of the necessary equipment, pharmaceuticals and consumables to make feasible the provision of effective care to all the people in need	70%	74%	75%	80%	82%	88%

Hospital 7: Municipal Hospital Dr. Teodor Andrei 'Lugoj' – Lugoj, Timis County, Romania

Municipal Hospital Dr. Teodor Andrei of Lugoj:
36 Georghe Doja Street, Lugoj, postal code 305500, Timis County

Level IV municipal general hospital. Publicly owned and run/governed by the local council of Lugoj

Governance structure

Governance structure	Members
Manager	Appointed by and accountable to the Mayor of Lugoj
Managing Committee	Hospital manager; Medical director; Financial accounting director
Board of Directors	5 members: 2 appointed by the Timis Public Health Direction, 2 by the Lugoj City Local Council, 1 by the Mayor of Lugoj

Catchment Population

Urban and rural environment patients from Lugoj city and adjacent areas

Details of the physical assets

Two different locations with ten different pavilions:
(a) Head offices at 36, Gheorghe Doja Street, Lugoj
(b) Secondary offices at 59, Gheorghe Doja Street, Lugoj (TB compartment, TB dispensary, administrative wing)

	Beds	Year	Area
Pavilion 1	180	1911	14.112 m^2
Pavilion 2		1911	216 m^2
Pavilion 3		1911	634 m^2
Pavilion 4	22	1911	170 m^2
Pavilion 5	33	1911	584 m^2
Pavilion 6	15	1911	980 m^2
Pavilion 7		1911	125 m^2
Pavilion 8	118	1911	2.262 m^2
Pavilion 9		1911	2.944 m^2
Pavilion 10		1911	738 m^2
Summary	**368**		**22.765 m^2**

Reported infrastructure

A&E (Accident & Emergency - CPU)	
Beds	7

Beds in Pavilion 1 wards		
Internal medicine		75
	Nephrology	5
	Cardiology	10
	Gastroenterology	10
	Other	50
General surgery		35
	ENT	5
	Orthopedics	10
	Other	20
ICU		15
Obstetrics-gynaecology		30
Neonatology		15
Urology		10
Total Pavilion 1		**180**

Beds in Pavilion 4 wards	
Paediatrics	22
Total Pavilion 4	**22**

Beds in Pavilion 5 wards	
Neurology	18
Palliative care	15
Total Pavilion 5	**33**

Beds in Pavilion 6 wards	
Infectious diseases	15
Total Pavilion 6	**15**

Beds in Pavilion 8 wards		
Psychiatry		48
	Chronic	20
	Other	28
Pneumology		60
	TBC	20
	Other	40
Nutrition and metabolic		10
Total Pavilion 8		**118**

Surgical block	
Operating rooms	4
Post-surgical recovery rooms	5

Obstetrics block	
Delivery rooms	2

Consultation rooms	
Consultation rooms	13

Hemodialysis	
Station machines	7

Labs	
Medical analysis lab	1
Radiology and medical imagining	1
Pathological anatomy	1

Equipment

Labs equipment
Hematology analyzers
Biochemistry analyzers
Coagulation analyzers
Urine strip reader unit
Blood gas analyzer
Centrifuges (8 and 16 samples)
Autoclave
Vertical laminar flow hood
Microscopes

Imaging diagnostic equipment	
(Conventional) X-Ray	
Digital device with one post connected to network	1
Echography	
Doppler Color device	2

Therapeutic equipment (no numbers reported)
Laparoscopies
EKG machines
Holters
Anesthesia machine
Portable Multiparameter Patient Monitor
Oxygenotherapy machine
Defibrillator with accessories
Ventilator with accessories
Video-endoscopy machine
Electro-surgery unit Force
Electrocautery machine
Dialysis machines
Inverse osmosis system

Staff

	Occupied	Vacant
Doctors	52	16
Anaesthetists	2	
Medical nurses	174	28
Pharmacists	1	0
Physiotherapists	0	0
Other	48	35
Total clinical staff	277	79
Epidemiologists	1	0
Codifiers and clinical recorders	4	3
Economists/accountants	7	0
IT technicians/Communication	2	0
Lawyers	1	0
HR specialists	5	0
Administrative personnel	5	0
Engineers / maintenance personnel	16	0
Cleaning and laundry	25	
Others	6	27
Total non-clinical staff	72	30
Total hospital staff	**349**	**109**
Total positions in Jobs List	**458**	

Finances

Times series	2011	2012	2013	2014	2015	2016(*)
Revenues by source						
MoH and other State budgets	1.858.408	2.204.995	2.116.237	3.388.071	2.869.248	1.516.742
Insurance plans (national house)	16.601.453	16.778.967	16.570.972	16.877.392	18.078.319	16.659.864
Other own incomes	405.086	351.423	267.846	263.460	419.914	543.759
Amounts from European funds	-	-	350.412	1.558.384	277.588	798.262
Total incomes	**18.864.947**	**19.335.385**	**19.305.467**	**22.087.307**	**21.645.069**	**19.518.627**

(*) Until 31 October 2016

Times series	2011	2012	2013	2014	2015	2016(*)
Expenditures by categories						
Personnel and benefits	11.082.611	11.550.524	12.702.234	12.953.796	13.213.787	13.675.794
Drugs	1.061.346	1.076.714	1.276.207	1.246.640	1.487.539	1.334.667
Med. and non-med. consumables	1.445.838	1.640.378	1.860.314	1.681.364	1.855.476	1.811.075
Maintenance	1.146.894	1.216.473	1.257.174	1.117.909	1.166.354	956.390
Amortization	777.978	587.999	463.684	459.005	1.227.971	490.994
Other expenses	2.459.446	2.909.219	3.383.540	3.310.580	3.220.949	1.883.351
Total expenditures	**17.974.113**	**18.981.307**	**20.943.153**	**20.769.294**	**22.172.076**	**20.152.271**

(*) Until 31 October 2016

Surplus/Debt	2011	2012	2013	2014	2015
Revenues	18.864.947	19.335.385	19.305.467	22.087.307	21.645.069
Expenditures	17.974.113	18.981.307	20.943.153	20.769.294	22.172.076
Surplus	890.834	354.078	(1.637.686)	(1.318.013)	(527.007)

Hospital	Last recorded arrears[57]	Magnitude of last recorded arrears[58]
Lugoj	Aug 2014	4,3%

Hospitalization activity

	2010	2011	2012	2013	2014	2015
Admissions	12.497	11.140	10.290	10.198	10.223	10.036
ALOS	7,8	7,9	8,0	7,9	7,9	8,0
Bed-days	98.863	89.474	82.888	80.921	81.306	80.946
Occupancy rate	66,9	63,5	58,8	59,5	60,5	60,3
% admitted emergencies	54,79%	60,24%	60,57%	65,61%	72,80%	76,08%
Case-mix index	0,9164	0,9864	0,9753	1. 0189	1,0992	1,1132

Admissions per department	2010	2011	2012	2013	2014	2015

[57] Data up to August 2016 from the MoH Budget department

[58] This figure is calculated as per the period expenditure in the year concerned; that is, % of latest arrears from that year, taking into account the date of the table, Aug '16. For example, if a hospital last recorded arrears in October 2015, the magnitude is calculated as % of arrears (October 2015) from the budget execution until October 2015

Internal medicine	2.384	2.009	1.765	1.656	1.797	1.690
Nephrology compartment	82	106	97	77	72	0
Gastroenterology compartment	331	158	277	349	468	435
Cardiology compartment	396	430	364	364	392	380
Sugar diabetes compartment	484	485	421	450	511	493
General surgery	834	761	751	776	732	747
ENT compartment	178	93	106	147	144	123
Orthopaedics compartment	393	268	238	224	177	182
Obstetrics - gynaecology	1.597	1.311	1.158	1.203	1.029	1.045
Neonatology compartment	540	490	504	535	522	512
Urology compartment	431	360	388	293	296	285
Infectious diseases compartment	520	639	610	560	525	604
Paediatrics	1.276	1.175	927	846	888	859
Neurology compartment	673	617	600	550	600	543
Psychiatry - acute patients	666	657	637	628	569	522
Psychiatry - chronic patients	146	144	135	133	154	128
Pneumology	1.097	1.078	973	1.057	984	1.106
TB compartment	142	124	127	103	102	106
Palliative care compartment	327	235	212	247	261	276
Total hospital	**12.497**	**11.140**	**10.290**	**10.198**	**10.223**	**10.036**

ALOS per department	2010	2011	2012	2013	2014	2015
Internal medicine	6,8	6,9	7,0	7,1	6,8	6,6
Nephrology compartment	7,2	6,9	5,9	6,4	7,1	0,0
Gastroenterology compartment	4,1	3,9	4,5	5,1	5,2	5,2
Cardiology compartment	6,1	5,7	5,8	5,6	6,0	5,9
Sugar diabetes compartment	5,4	5,4	5,6	5,9	6,0	6,1
General surgery	4,7	4,7	4,7	4,3	3,3	3,8
ENT compartment	4,5	4,2	3,6	3,9	4,0	4,1
ICU	6,0	7,1	7,5	7,7	6,8	5,3
Orthopaedics compartment	3,8	3,9	3,7	3,9	1,8	1,5
Obstetrics - gynaecology	4,8	4,9	4,9	4,8	3,8	3,7
Neonatology compartment	5,3	5,2	5,2	5,1	5,2	4,8
Urology compartment	5,9	6,0	5,2	5,9	5,3	5,0
Infectious diseases compartment	6,4	6,4	6,6	5,9	5,6	5,9
Paediatrics	6,4	5,4	5,0	4,8	5,2	4,9
Neurology compartment	7,5	7,2	6,9	6,4	6,2	6,6
Psychiatry - acute patients	11,3	12,0	12,2	11,6	11,4	13,5
Psychiatry - chronic patients	30,4	29,1	29,7	30,9	31,0	32,8
Pneumology	8,3	8,4	8,7	8,5	7,9	8,3
TB compartment	35,2	36,2	35,7	36,4	35,6	38,2
Palliative care compartment	11,9	12,4	11,3	10,5	11,3	9,7
Total hospital	**7,8**	**7,9**	**8,0**	**7,9**	**7,9**	**8,0**

Bed occupancy rate per department	2010	2011	2012	2013	2014	2015
Internal medicine	83,9	79,1	73,1	67,2	72,0	66,0
Nephrology compartment	36,4	44,2	35,2	29,9	31,1	0,0
Gastroenterology compartment	43,8	22,3	39,7	53,3	86,8	84,3
Cardiology compartment	72,00	74,0	63,4	61,5	75,3	72,0
Sugar diabetes compartment	61,8	74,4	66,4	76,9	87,8	90,0
General surgery	73,6	72,2	70,4	69,3	59,0	67,5
ENT compartment	44,4	22,0	25,3	37,2	37,1	32,6
ICU	74,0	65,4	61,3	59,2	57,8	45,3
Orthopaedics compartment	48,7	47,6	45,0	49,8	47,9	41,3
Obstetrics - gynaecology	64,4	61,4	53,5	54,1	46,0	45,9

Bed occupancy rate per department	2010	2011	2012	2013	2014	2015
Neonatology compartment	52,2	47,5	48,4	50,1	50,4	45,2
Urology compartment	72,3	61,7	58,9	50,2	51,6	49,3
Infectious diseases compartment	63,1	77,4	77,7	63,8	59,3	70,0
Paediatrics	61,0	50,3	36,2	45,0	57,9	52,8
Neurology compartment	79,5	69,4	64,3	54,6	58,0	56,3
Psychiatry - acute patients	77,6	81,5	80,6	76,2	68,1	73,5
Psychiatry - chronic patients	64,1	60,3	59,7	60,6	69,2	65,1
Pneumology	66,8	66,7	63,6	67,5	58,6	69,5
TB compartment	63,6	69,3	67,0	56,9	52,6	58,2
Palliative care compartment	54,9	41,3	33,2	45,6	54,3	50,4
Total hospital	**66,9**	**63,5**	**58,8**	**59,5**	**60,5**	**60,3**

Emergency (CPU) attendances

	2010	2011	2012	2013	2014	2015
CPU records	15.830	16.508	18.964	19.036	18.905	20.804
Solved without admission	2,62%	2,74%	3,33%	3,96%	3,41%	3,77%
Referred to another facility	42,32%	36,90%	36,09%	29,90%	23,71%	19,98%
Leading to admission	54,79%	60,24%	60,57%	65,61%	72,80%	76,08%

Diagnostic activity

	2010	2011	2012	2013	2014	2015
Ecographies	--	5.655	712	9.101	2.975	11.821
Blood tests	--	--	153.455	158.858	--	166.292
Microbiological tests	--	--	8.734	7.849	--	6.821
Cytologies	281	403	335	442	248	360

Surgery

	2010	2011	2012	2013	2014	2015
Programmed in-patient	2.397	1.688	1.914	1.828	1.594	1.812
Programmed ambulatory	63	60	61	71	47	55
Total Programmed	2.460	1.748	1.975	1.899	1.641	1.867
Total emergency	1.101	782	884	849	777	794
Total surgeries	**3.561**	**2.530**	**2.859**	**2.748**	**2.418**	**2.661**

Obstetric services

	2010	2011	2012	2013	2014	2015
Deliveries	1.096	2.277	1.397	1.267	1.324	1.277
Caesarean sections	112	131	159	210	198	206
% caesarean sections	10,2%	5,8%	11,4%	16,6%	15,0%	16,1%

Outpatient consultations

	2010	2011	2012	2013	2014	2015
Number of consultations	29.701	17.636	15.778	15.964	14.269	18.702

Hospital committees

Name	Members	Accountable to...
Managing Committee	Manager, medical director, financial director	Board of directors
Medical Council	Medical director and heads of departments	Managing Committee
Ethics Council	Three doctors, two nurses, one legal officer	Ministry of Health

Procedures in place (no details provided)

Procedures in place	
To provide information to patients and their families	
	Medical procedure for patient's access to FOCG (i.e. observatory sheet)
	Medical procedure for patient's access to results of investigations and medical procedures
	Operational procedure for delivery of information on rights and obligations to patients and relatives
To support patient's & families' rights during care	
	Operational procedure for assurance of confidentiality
	Medical procedure for refusal of treatment
	Medical procedure for elaboration of medical documents
	Operational procedure for access to and use of patient data
	Medical procedure for the type or level of patient information that may be disclosed telephonically
	Medical procedure for treatment of terminally ill patients
To manage patient's & families' complaints	
	Does not exist
To measure the perception of the care provided	
	Operational procedure for implementation of satisfaction questionnaires, monitoring and assessment of results

To provide cleaning services	
	4 operational procedures
To provide maintenance services	
	5 operational procedures.
To provide catering services	
	16 operational procedures
To provide laundry services	
	18 operational procedures
To provide security services	
	5 operational procedures

Selected hospital managers' KPIs for 2016 (no target data provided)

Performance indicator category	Name of the performance indicator attributable to the hospital's management
A. HR management	Average number of patients discharged per doctor
	Average number of ambulatory consultations per doctor
	Average number of ER consultations per doctor
	Percentage of doctors out of total staff
B. Service use	Total discharges
	ALOS
	Bed occupancy rate
	ICM
C. Financial	Budget execution compared to approved expenditures budgets
	Staff costs out of total hospital costs
	Drug-related costs out of total hospital costs
	Cost per hospitalization day, per department
D. Quality	Intra-hospital mortality rate
	Nosocomial infection rate
	Re-admitted patients rate within 30-day after discharge
	Total number of patient complaints per year

Quality indicators

Intra hospital mortality	2010	2011	2012	2013	2014	2015
Internal medicine	1,32	1,54	0,92	1,41	1,36	1,87
Nephrology compartment	1,18	0,93	1,98	2,56	4,11	0,00
Gastroenterology compartment	2,21	3,27	2,50	1,75	2,60	2,09
Cardiology compartment	2,96	2,82	3,81	3,58	4,17	4,82
Sugar diabetes compartment	1,05	1,64	0,48	0,00	0,80	1,01
General surgery	2,05	1,77	2,05	2,62	2,37	2,87
ENT compartment	0,00	0,00	0,95	0,00	0,00	0,00
ICU	0,52	0,37	1,67	0,91	1,73	0,53
Orthopaedics compartment	0,00	0,00	0,00	0,00	0,00	0,00
Obstetrics - gynaecology	0,00	0,00	0,00	0,00	0,00	0,00
Neonatology compartment	0,37	0,00	0,20	0,00	0,57	0,00
Urology compartment	0,23	0,55	0,52	0,00	0,66	0,70
Infectious diseases compartment	0,19	0,32	0,66	0,73	1,17	1,00
Paediatrics	0,00	0,00	0,00	0,00	0,00	0,12
Neurology compartment	0,89	0,16	0,66	0,55	1,69	1,30
Psychiatry - acute patients	0,61	0,46	0,62	0,31	1,03	1,14
Psychiatry - chronic patients	0,68	0,00	0,73	0,00	1,37	0,00
Pneumology	1,70	2,29	3,15	3,65	2,94	3,42
TB compartment	5,63	3,85	2,38	0,93	1,94	2,88
Palliative care compartment	24,24	30,71	29,81	38,80	35,94	38,93
Total hospital	**1,59**	**1,65**	**1,69**	**2,09**	**2,28**	**2,58**

Most frequent post-operative hospital mortality cause	
2010	Digestive tract diseases
2011	Digestive tract diseases
2012	Malign tumors
2013	Digestive tract diseases
2014	Digestive tract diseases
2015	Digestive tract diseases

30-day standardised mortality - AMI	2010	2011	2012	2013	2014	2015
Women	7,32	5,76	4,17	7,14	17,39	6,25
Men	7,31	5,77	12,49	7,14	13,04	18,75
All	**14,63**	**11,53**	**16,66**	**14,28**	**30,43**	**25,00**

30-day standardised mortality - Stroke	2010	2011	2012	2013	2014	2015
Women	1,33	1,06	1,37	0,00	1,11	1,33
Men	0,00	0,70	1,38	0,51	1,48	0,45
All	**1,33**	**1,76**	**2,75**	**0,51**	**2,59**	**1,78**

Sepsis rates / surgical interventions					
2010	2011	2012	2013	2014	2015
0,00	0,00	0,06	0,07	0,03	0,04

Rate of trauma at birth (out of total births)					
2010	2011	2012	2013	2014	2015
1,85	1,22	0,79	0,37	1,53	1,17

Cases of nosocomial infections	2010	2011	2012	2013	2014	2015
Infectious diseases			3	5	5	10
General surgery		1			2	2
Internal medicine	4	3				
Obstetrics - gynaecology			1			
Orthopedics and traumatology		1				1
Pneumology	1			1		
Urology		1	2		1	
Psychiatry - Chronic patients					1	
Pneumology - TBC		1				
Total hospital	**5**	**7**	**6**	**6**	**9**	**13**

Emergency readmissions rate within 28 days after discharge					
2010	2011	2012	2013	2014	2015
10,53	9,71	8,40	7,85	9,44	9,96

Access to and Utilization of Services

Emergency admissions	2010	2011	2012	2013	2014	2015
Patients recorded in CPU	15.830	16.508	18.964	19.036	18.9055	20.804
Patients admitted through CPU	6.699	6.061	6.845	5.692	4.482	4.257
Percentage of emergency admissions	42,32%	36,90%	36,09%	29,90%	23,71%	19,98%

Efficiency

Pre-surgery ALOS
2015

Pre-surgery ALOS
24 h

Delivery-related ALOS					
2010	2011	2012	2013	2014	2015
4,84	4,88	4,85	4,76	3,82	3,66

Operating room utilization index (hours per day)					
2010	2011	2012	2013	2014	2015
5,22	3,74	4,25	4,09	3,61	3,94

Responsiveness - Patient centeredness

Percentage of patients…	2015
…who declared having received clear information after discharge	100%
…who declared having been explained actions needed to complete treatments	100%

Percentage of survey approval/satisfied response …	2015
…after discharge	100%
…with availability of equipment, drugs and consumables	100%

Total number of complaints received					
2010	2011	2012	2013	2014	2015
0	8	6	4	1	0

Complaints	2015
Percentage of complaints satisfactorily solved	100%
Average time for answering to complaints	30 days

Summary of structural efficiency rates (not adjusted by severity)

	No. of doctors	No. of nurses	No. of beds	No. of OR	A&E attendances	No. Of admissions	Surgical interventions	Total expenditure
Lugoj	52	174	368	4	20.804	10.036	2.661	22.172.076

	Doctors per bed	Nurses per bed	A&E attendances per doctor	A&E attendances per nurse	Admissions per doctor	Admissions per nurse
Lugoj	0,1	0,5	554	166	193	58

	Surgeries per OR	Surgeries per doctor	Surgeries per nurse	Expenditure/ per admission	Expenditure per bed	Expenditure per surgery
Lugoj	665	51	15	2.209	60.250	8.332

Hospital 8: County Emergency Hospital 'Ploiesti – Ploiesti, Prahova County, Romania

County Emergency Hospital of Ploiesti:
100 Gageni Street, Ploiesti, Prahova County

Level III emergency hospital. Publicly owned and run/governed by the Prahova County Council

Governance structure

Governance structure	Members
Manager	Appointed by and accountable to the County Council of Prahova
Managing Committee	Hospital manager; Medical director; Financial accounting director
Board of Directors	5 members (2 appointed by the Prahova Public Health Authority, 2 by Prahova County Council and 1 by the President of the County Council) plus three guests (1 each by the territorial structure of the Romanian College of Physicians, the territorial structure of the Order of Nursers, Midwives and Medical Assistants in Romania and the Legal trade union affiliated to the trade federals signing the collective labour agreement at sanitary level -constant guest). The hospital manager also participates in the meetings, but without voting rights

Catchment Population

Population from Ploiesti and surrounding areas (800.000 inhabitants, approx.)

Details of the physical assets

Five different locations in Ploeisti municipality (2-3 km far each other):
(a) North Location: 100, Gageni Street, Ploiești, Prahova County: Emergency Admission Unit (UPU) plus continuous and day hospitalization and ambulatory services
(b) Boldescu Location: 3, Boldescu Street, Ploiești, Prahova County: Continuous and day hospitalization and ambulatory services
(c) Buna-Vestire Location: 1-3, Buna Vestire Street, Ploiești, Prahova County: Continuous and day hospitalization and ambulatory services
(d) Obor Location: 2, Oborului Street, Ploiești, Prahova County: Continuous and day hospitalization and ambulatory services
(e) Infectious Diseases Location: 271, Republicii Blvd., Ploiești, Prahova County: Continuous and day hospitalization and ambulatory services

Building structure	Year	Area
North	1974	3.542 m^2
UPU	2008	1.250 m^2
Buna Vestire	1925	3.158 m^2
TB	1937	640 m^2
Boldescu	1948	2.519 m^2
SML	2002	273 m^2
Sport Dispensary	2002	280 m^2
Total		**11.662 m^2**

Reported infrastructure

A&E (Accident & Emergency - UPU - SMURD)	Beds	Stretchers
Major emergency area		7
Hypobaric room	1	
Minor emergency observer	8	
Resuscitation room		3
Insulator	2	
Minor emergency area		10
Specific consultation area		1
Ecographer room	1	
	12	**21**

Beds in 100, Gageni str. Building		
General surgery I		90
	Obstetrics-gynaecology	7
	Neonatology	2
	Other	81
General surgery II		80
Vascular surgery		10
Plastic surgery, microsurgery, burns		33
	AICU	5
	Other	28
Internal medicine I		80
Nephrology		26
	Peritoneal dialysis	4
	Other	22
Diabetes, nutrition and metabolic diseases		32
Orthopaedics and traumatology		40
Cardiology		90
	Coronary intensive therapy	10
	Interventional cardiology	10
	Other	70
Neurosurgery		30
AICU		30
	Toxicology	4
	Other	26
Neurology		95
Paediatrics 10		
Total Gageni str. Building		646

Beds in 3, Buldescu str. Building	
Urology	45
ENT	45
Oral and maxillofacial surgery	20
Ophtalmology	25
AICU	10
Total Buldescu str. Building	**145**

Beds in 1-3, Buna Vestire str. Building		
Gastroenterology		25
Internal medicine II		81
	Haematology	10
	Endocrinology	6
	Other	65
Psychiatry		93
Dermovenereology		20
Total Buna Vestire str. Building		**219**

Beds in 2, Oborului str. Building		
Pneumology		70
	TB	40
	Other	30
Total Oborului str. Building		**70**

Beds in 271, Bd. Republicii Building	
Adult infectious diseases	50
Children infectious diseases	30
Total Bd. Republicii Building	**80**

Summary of beds in wards	
100 Gageni str. Building	646
3 Buldescu str. Building	145
1-3 Buna Vestire Building	219
2 Oboruli str. Building	70
271 Bd. Republicii Building	80
Total hospital	**1.160**

Summary of day hospitalization beds	
Day hospitalization	19
Day hospitalization - infectious diseases	10
Day hospitalization - HIV / AIDS	10
Total hospital	**39**

Summary of intensive care beds(*)		
Gageni Str. Building		45
	AICU department	30
	Coronary intensive therapy	10
	AIC burned centre	5
Buldescu Str. Building		10
	AIC Ward	10
Total Gageni str. Building		**55**

(*) Already considered as beds in wards in tables above

Surgical block	
Operating theatre from North premises	1
Operating theatre from Buldescu premises	1
Operating theatre from Buna Vestire premises	1

Hemodialysis
Station machines

Other facilities
Blood transfusion
Sterilisation
Endoscopy
Medical oncology cabinet
Sports medicine cabinet
Family planning cabinet
Adult mental health center

Consultation rooms
Internal medicine
Cardiology
ENT
Ophthalmology
General surgery
Gastroenterology
Neurology
Orthopaedics traumatology

Consultation rooms
Dermatovenereology
Endocrinology
Urology
Plastics surgery reconstructive microsurgery
Psychiatry
Nephrology
Haematology
Neurosurgery
Occupational medicine
Oral and maxillofacial surgery
Pneumology
Vascular surgery
Obstetrics- gynaecology
Paediatrics
Infectious diseases (HIV/AIDS)
Infectious diseases(anti-rabies)

Labs	
Medical analysis	1
Radiology and medical imaging	1
Angiography and interventional cardiology	1
Functional explorations	1

Equipment

Imaging diagnostic Equipment		
Computed tomography	AQUILION 16 SLICE	1
Computed tomography	ALEXION - 16 SLICE	1
Mammography	SENOGRAPHE	1
Conventional radiology equipment:		8
X Ray with fully digital detector	OPTIX COMFORT	1
Mercury radiology equipment	MERCURY 332	1
Radiology equipment with c arm	TCA 5S	1
Digital radiology device	PRS 500 E	1
Rontgen ELTEX device	ELTEX 400	2
Rontgen 500 device	KLIMOGRAPH 4-2	1
Radiology equipment	NEODIAGNOMAX	1
Portable radiology equipments:		2
Mobile radiology device	TCA 6S - BRAT MOBIL C	1
Mobile radiology device	JOLLY 15 R	1
Echography devices:		10

Imaging diagnostic Equipment		
Echography	HITACHI F37	1
Echography	ACUSON	1
Echography	ADARA	1
Echography	EDAN	1
Echography with cardiac probe	ALOCA	2
Colour Doppler	SAMSUNG	1
Colour Doppler	UF-850 XTD-C TELLUS	3
Encelopgrah:		**2**
Electroencelopgrah	GALILEO HALLAY	1
Encelopgrah	NIHON - COHADEN	1
Fixed instrumentation angiography	AXIOM ARTIS DFA	1

Analysis Lab Equipment	
Analyzer	1
Haematology analyzer	4
Biochemistry analyzer	8
Blood gas analyzer	5
Laboratory analyzer	1
Ion analyzer	1
(URILUX) Urine strips analyzer	1
Automatic analyzer	1
Electrolytes analyzer	1
Analyzer	1

Therapeutic Equipment		
Kit for abdominal laparoscopy	OLYMPUS	1
Kit laparofibroscope	OLYMPUS	1
Surgery system for laparoscopy	STORTZ	1
Laparoscopy kit	STORTZ	1
Laparoscopy kit	OLYMPUS FS-L260ID	1
Video system for endoscopy	OLYMPUS	1
Video kit video endoscopy digital with accessories	OLYMPUS	1
HDTU videoendoscopy kit with accessories	OLYMPUS	1
Videogastroscope	OLYMPUS	2
Videocolonoscope CF-Q 165	CF-Q 165	3
Laringoscope kit with blade det	OPTIMA XL	5
Laryngo-faringoscope FK	TEMCO	1
Fakoemulsificator	ALCON	1
Electrocauter	ZEUS 400 ZERONE	3

Staff

2501 approved positions, with 2137 occupied posts (meaning 85.45% occupancy degree), out of which:

214 doctors and other medical personnel with university degree	(10.01%)
1032 medical personnel without university degree	(48.29%)
644 auxiliary medical personnel	(30.14%)
69 TESA personnel	(3.23%)
178 workers	(8.33%)

	Occupied	Vacant
Doctors	168	98
Anaesthetists	8	26
Medical nurses	942	46
Pharmacists	6	3
Lab and diagnostic technicians	58	8
Other	436	87
Total clinical staff	*1.618*	*268*
Codifiers and clinical recorders	35	6
Economists/accountants	30	3
IT technicians/Communication	3	0
Lawyers	1	2
HR specialists	5	0
Administrative personnel	23	5
Engineers / maintenance personnel	31	2
Cleaning and laundry	240	53
Catering	42	0
Others	109	25
Total non-clinical staff	519	95
Total hospital staff	**2137**	**364**

Finances

Time series	2010	2011	2012	2013	2014	2015
Revenues by source						
Government	**25.920.359**	**19.665.757**	**26.918.932**	**25.126.827**	**19.767.360**	**17.870.609**
Insurance schemes	**98.220.841**	**83.003.250**	**83.377.080**	**91.715.643**	**116.912.926**	**114.416.667**
Patient fees	**NA**	**NA**	**NA**	**43.110**	**41.180**	**41.180**
Other(*)	**49.136**	**35.624**	**49.183**	**NA**	**67.261**	**64.321**
Total Income	**124.190.336**	**102.704.631**	**110.345.195**	**116.885.580**	**136.788.727**	**132.392.777**

Expenditures by categories						
Personnel & Benefits	71.979.834	62.250.283	66.095.101	72.461.303	72.292.608	80.697.368
Drugs	10.205.535	11.786.765	12.719.023	13.519.944	13.538.513	18.687.093
Medical and Non-Medical supplies	9.766.469	12.232.585	11.596.374	10.968.230	12.225.909	13.571.483
Maintenance	626.202	664.979	2.577.653	380.673	1.240.670	818.314

Expenditures by categories						
Outsourced services	1.129.742	1.576.512	1.606.769	1.831.061	634.776	382.182
Capital / new infrastructure & equipment	6.657.539	6.238.264	7.576.174	5.594.016	3.986.448	3.640.435
Other	10.938.829	12.538.703	13.064.313	13.294.333	24.299.243	18.657.277
Total expenditures	**111.304.150**	**107.288.091**	**115.235.407**	**118.049.560**	**128.218.167**	**136.454.152**
Surplus/Debt	12.886.186	(4.583.460)	(4.890.212)	(1.163.980)	8.570.560	(4.061.375)
Admissions				51.093 (**)	45.007 (**)	**48.007**
Case-mix index	**1,0435 - 0,9854**	**1,0097 - 1,0005**	**1,0871**	**1,0849 - 1,1252**	**1,1888 - 1,2017**	**1,1913 - N.A.**

(*) Subsidies from public authorities, sponsorship, concessions and rent

Hospital	Last recorded arrears[59]	Magnitude of last recorded arrears[60]
Ploiesti	Jul 2016	<0,5%

Hospital committees

Medical council
Ethical council
Quality core
Health committee and safety at work
Pharmacovigilance and drug prescription commission
Commission of disciplinary research
Commission for the organization and process of competitions/exams for employment promotion
Dispute resolution commission
Commission of medical ethics for drug clinical study
In-hospital deaths analysing Commission
Commission of social dialogue
Commission of patients' classification according to their diagnosis (DRG)
Transfusion and hemovigilance Commission
Commission for declaring the brain death
Internal Certification Commission for research projects
Commission of Supervision and Control of Nosocomial Infections
Quality management Service

Main procedures in place

Procedure
Operational procedure for conducting paraclinical tests
Operational procedure for planning the admission of chronic patients
Operational procedure for registering, monitoring and processing the information on patient admission – POMD 10

[59] Data up to August 2016 from the MoH Budget department

[60] This figure is calculated as per the period expenditure in the year concerned; that is, % of latest arrears from that year, taking into account the date of the table, Aug '16. For example, if a hospital last recorded arrears in October 2015, the magnitude is calculated as % of arrears (October 2015) from the budget execution until October 2015

Procedure
Operational procedure for announcing the patient's hospital discharge.
Operational procedure on the management of patient data and his access to personal data
Operational procedure on the procurement of the informed consent of the patient/carer
Operational procedure on how to provide healthcare services to the patient in ambulatory at the hospital

Hospitalization activity

	2015
Admissions	48.007
ALOS	7,0
Bed-days	337.876
Occupancy rate	80,1%
% admitted emergencies	25,14%
Case-mix index	

2015 data	Admissions	ALOS	Occupancy
General surgery 1	3.597	4,4	75,5%
Obstetrics and gynaecology	40	4,4	10,0%
General surgery 2	3.017	4,6	72,6%
Vascular surgery	376	5,4	75,3%
Plastic surgery and microsurgery rec and burned	1.309	4,0	71,2%
Internal medicine 1	3.733	5,2	73,2%
Nephrology	1.153	6,1	99,2%
Diabetes mellitus , nutrition and metabolic diseases	1.275	6,1	71,0%
Orthopedics and traumatology	2.056	5,3	94,6%
Cardiology	6.732	3,4	119,5%
Neurosurgery	1.397	4,7	96,1%
Neurology	3.850	6,7	80,8%
Pediatrics – older children	35	1,8	1,7%
Gastroenterology	1.479	5,9	105,1%
Internal medicine 2	2.690	7,0	81,2%
Haematology	394	7,4	92,5%
Endocrinology	243	4,1	47,1%
Ophtalmology	1.449	3,1	50,3%
Psychiatry	3.966	8,3	99,3%
Dermatovenerology	664	7,6	73,1%
Urology	2.613	3,9	100,3%
ENT	2.018	5,6	80,9%
Oral and maxillofacial surgery	713	4,4	52,0%
Pneumology	1.021	9,0	89,6%
TB department	230	37,5	65,0%
Adult infectious diseases	1.098	7,7	51,0%

2015 data	Admissions	ALOS	Occupancy
Children infectious diseases	859	5,3	42,3%
Total hospitals	**48.007**	**7,0**	**80,1%**

Emergency (UPU) attendances

	2015
UPU records	91.965
Solved without admission	71,91%
Referred to another facility	2,81%
Leading to admission	**25,14%**

Diagnostic activity

	2015
CTs	20.753
Mammograms	231
Echographies	4.806
MRIs	**887**

Surgery

	2015
Programmed in-patient	19.977
Programmed ambulatory	0
Total emergency	6.020
Total surgeries	**25.997**

Selected surgeries	In-patient	Ambulatory
Cataracts	703	(100%)
Inguinal hernia	396	(100%)
Arthroscopies	450	(100%)
Amygdalectomies	23	(100%)

Obstetric services

	2015
Deliveries	0

Outpatient consultations

	2015

	2015
Number of consultations	89.739

Quality indicators

	2010	2011	2012	2013	2014	2015
Intra hospital death rates	2,7%	2,8%	3,1%	3,0%	4,1%	3,7%
Number of nosocomial infections	18	14	15	10	210	330
Rate of nosocomial infections	0,03%	0,03%	0,03%	0,02%	0,46%	0,69%

Hospital 9: County Emergency Hospital 'Slatina' – Olt County, Romania

County Emergency Hospital of Slatina:
9-11 Crisan Street, Slatina, Olt

Level III emergency hospital. Publicly owned and run/governed by the Olt County Council (since 2012)

Selected hospital manager's KPIs in contract for 2016

Performance indicator category	Name of the performance indicator attributable to the hospital's management	2016 proposal
A. HR management	Average number of patients discharged per doctor	250 per year
	Average number of ambulatory consultations per doctor	1.400 consultations
	Average number of ER consultations per doctor	216 consultations
	Percentage of doctors out of total staff	15%
B. Service use	Number of discharged patients	43.476 patients
	Average length of stay	6,12 days
	Bed occupancy rate	79,99 %
	Percentage of services delivered in day care regime	52%
C. Financial	Actual versus approved budget	95%
	Staff costs out of total hospital costs	63%
	Drug-related costs out of total hospital costs	15%
	Range of costs per hospitalization day	1.031 (AIC)-150 (chronic diseases)
D. Quality	Intra-hospital mortality rate	1,21
	Nosocomial infection rate	0,33
	Re-admitted patients rate within 30-day after discharge	14%
	Total number of patient complaints per year	75

Details of the physical assets:

Three different locations:
(a) Main facility at 9-11 Crisan Street, Slatina, Olt. Central pavilion plus the main hospital departments (medical and surgery units, maternity, infectious diseases...), with 90% of total hospital beds (937 of 1153 beds[61]).

Building	Year
Central pavilion	1970
Maternity and Infant pavilion	1987
Medical unit	1976
Infectious diseases unit	1940
Food unit	2005
Prosecture	1995

[61] The hospital has an approval of 1.161 beds, out of which 8 beds are temporarily unavailable

(b) Pavilion for long term conditions at 31, Draganesti Street, Slatina (3 km away from the central pavilion) in 5 units: "psychiatry", "child neuromotor children recovery", "child neuropsychiatry", "dermatovenereology" and" compartment for chronic patients"...

Building	Year
Main pavilion	1978

(c) Pneumology pavilion at 21, Muncii Blvd. Scornicesti (35 km far away from the central pavilion)

Building	Year
Pneumology	1977

Reported infrastructure (beds and facilities)

A&E (Accident & Emergency) - UPU (Emergency Acceptance Unit)	
Short stay beds	12
Stretcher-beds	17

Day care posts	
Beds for *day hospitalization*	13
Haemodialysis	9

Beds at main facility's wards	
Internal medicine Ward	75
Gastroenterology Ward	25
Diabetes mellitus, nutrition and metabolic diseases Ward	25
Medical oncology Ward	45
Cardiology Ward	80
Recovery, physical medicine and balneology Ward	50
Neurology Ward	60
Thoracic surgery compartment	5
Surgery and infant orthopaedics Ward	25
Orthopaedics and traumatology Ward	35
General surgery Ward	70
Plastic surgery, reconstructive microsurgery Ward	20
Urology Ward	25
Ophthalmology Ward	25
ENT Ward	35
ATI Ward	38
Nephrology Ward	29
Neonatology Ward	40
Obstetrics-gynaecology I Ward	60
Obstetrics-gynaecology II Ward	60
Paediatrics Ward	60
Infectious diseases Ward	50

Beds at main facility's wards	
Number of beds at the main facility	**937**

Beds at Long-term (Draganesti) wards	
Psychiatry Ward	75
Infantile neuropsychiatry compartment	15
Neuro-motor children recovery compartment	15
Dermato-venereology compartment	14
Chronic diseases compartment	22
Total beds at Draganesti	**141**

Beds /Pneumology at Scornicesti wards	
Pulmunology ward	75
Total beds at Scornicesti	**75**

Total operational beds in wards	
Main facility	937
Draganesti's facility	141
Scornicesti's facility	75
Total	**1.153**

Surgical block	
Operating theatres	11
Post surgical recovery beds	10

Obstetric block	
Total delivery rooms	3

Labs[62]	
Medical analysis lab	2
Radiology and medical imaging	2
Computerized tomography compartment	1
Recovery, physical medicine and balneology lab	1
Functional investigations lab	2

[62] The second medical analysis, radiology and medical imaging and functional investigation labs are all reported as "secondary facilities" and are located in Scornicesti

Equipment

Analytical and diagnostic equipment		
Automated high capacity analyzer[63]		
	Immunology analyzer	1
	Blood Group Type analyzer	1
	Antibiogram device	1
CTs		
	Computed tomography devices[64]	2
MRIs		
	Magnetic resonance imaging devices[65]	1
Imaging diagnostic devices		
	Echographers	21
Other major equipment		
	Litotriptor	1
	Endoscopic line	1

Therapeutic equipment		
Laparoscopies		
	Gynaecology	1
	Explorations	1
	Surgery	2
Catheterization equipment		
	Dialysis	1

Staff

Staff category	Full-time	Half-time
Doctors (out of which 50 residents)	231	5
Anesthesiologists (out of which 6 residents)	13	
Nurses	845	
Midwives	2	
Pharmacists	4	
Other	448	
Epidemiologists	1	1
Codifiers & clinical records archivists	2	
Health economists & accountants	18	
Lawyers	4	
HR specialists	11	
Administrative staff	56	1

[63] Connected with IT system in the hospital, with bi-directional communication
[64] Available for sale to private patients
[65] Installed at the end of 2016. Not open for sale to private patients

Staff category	Full-time	Half-time
Engineers/maintenance staff	56	
Other	10	
Total hospital staff	**1701**	**7**

Vacant posts	
Doctors	174
Other high sanitary personnel	32
Sanitary personnel	290
Orderlies	136
Janitors	72
Stretcher porters	86
TESA	11
Workers	15
Total vacant posts	**816**

Finances

Time series	2010	2011	2012	2013	2014	2015
Revenues by source						
Government sources						
MoH/other state budgets	10.194.458	9.799.051	12.052.614	18.393.056	32.928.475	29.390.494
Total from Government sources	10.194.458	9.799.051	12.052.614	18.393.056	32.928.475	29.390.494
Insurance plans (national house)						
Health Insurance House	112.320.265	98.428.530	92.113.058	96.517.998	92.460.208	88.489.957
Total from insurance plans	112.320.265	98.428.530	92.113.058	96.517.998	92.460.208	88.489.957
Services delivered by the hospital						
Patients fees	339.910	160.452	396.725	499.825	376.473	653.165
Total from patients fees	339.910	160.452	396.725	499.825	376.473	653.165
Other revenues						
Donations and sponsorships	2.741.929	2.166.465	311	215	384	773
Incomes from provisions			159	2.178.922	1,224,648	491
Other	957.788	1.791.900	1.960.475	1.645.043	3028088	2.846.287
Total from other revenues	3.699.717	3.958.365	1.960.945	3.824.180	3.028.472	2.847.551
Total revenues	**126.554.350**	**112.346.390**	**106.523.342**	**119.235.059**	**128.793.628**	**121.381.167**

Time series	2010	2011	2012	2013	2014	2015	01-09 2016
Expenditures by sources							
Personnel and benefits	72.021.103	58.035.170	60.977.773	72.676.726	71.363.573	77.675.192	70.121.742
Drugs	16.332.824	17.613.101	18.749.466	16.887.546	17.589.421	19.264.210	14.522.756
Med. and non-med consumables	7.044.058	8.840.818	9.209.672	9.474.274	9.349.497	9.749.895	7.777.832
Maintenance	3.993.329	3.975.915	4.518.610	4.729.223	5.435.082	4.702.904	3.539.422
Outsourced							

Time series	2010	2011	2012	2013	2014	2015	01-09 2016
services, of which:							
Elcomex - food (2010- 2011)	4.148.010	3.889.912	0	0	0	0	0
Laundry (July 2013- present)	0	0	0	342.472	757.171	848.888	564.811
Security (Oct 2010 - present)	92.259	388.059	684.845	759.168	692.580	872.965	552.844
Total outsourced services	4.240.269	4.277.971	684.845	1.101.640	1.449.751	1.721.853	1.117.655
Amortization of equipment	2.879.719	354.651	2.952.438	2.656.597	6.811.353	1.878.023	2.031.998
Other expenditures	3.750.648	3.344.937	7.223.698	9.826.697	7.507.913	8.491.947	4.956.753
Total expenditures	**110.261.950**	**96.442.563**	**104.316.502**	**117.352.703**	**119.506.590**	**123.484.024**	**104.068.158**

Details on 2011 donations and sponsorships	Amount	Comments
A.G. Med. SRL	1.366	Drugs
Antibiotice SA	67.783	Drugs
Public Health Direction	3	Drugs
Europharm Holding	4.328	Drugs
Lundbeck Export	2	Drugs
Mediplus Exim SRL	39.326	Drugs
Novo Nordisk Farma	7.454	Drugs
Romastru Trading S.R.L.	8.655	Drugs
S.C. Alcafarm SRL	65.500	Drugs
SC Nycomed Pharma SRL	4.813	Drugs
Servier-Pharma	458	Drugs
Ultramed SRL	38.928	Drugs
Pharmacy 2	45.132	Drugs
Dutchmed Sibiu	146.230	Consumables
Rotest Bucuresti	21.864	Consumables
Sanprodmed Bucuresti	17.387	Consumables
Altur SA	3.297	Fixed assets
District Council	135.000	Fixed assets
ERD Magic SRL	6.241	Fixed assets
Ministry of Health - B.M.	714.748	Fixed assets
Altex Impex Slatina	2.000	Inventory items
Erd Magic SRL	2.335	Inventory items
Sanprodmed Bucuresti	314	Inventory items
Clinical Hospital Niguarda Italy	30.200	Inventory items
Ministry of Health - B.M.	7.626	Inventory items
Various	795.475	Mistaken records
Total 2011 donations and sponsorships	**2.166.465**	

Surplus / Debt	2010	2011	2012	2013	2014	2015
Revenues	126.554.350	112.346.398	106.523.342	119.235.059	128.793.628	121.381.167
Expenditures	110.261.950	96.442.563	104.316.502	117.352.703	119.506.590	123.484.024
Surplus/Debt	16.322.278	15.896.050	484.832	1.882.356	9.287.038	(2.102.856)

Hospital	Last recorded arrears[66]	Magnitude of last recorded arrears[67]
Slatina	May 2016	<0.9%

List of committees (all of them reporting to the Managing Committee)

Name of the committee	Chairperson	Members
Medical Council	Yes	46
Drugs commission	N/A	11
Deaths Commission	Yes	7
Discipline Commission	Yes	4
Occupational Safety and Health Committee	Yes	9
Ethics Council	No	5
Committee for Emergency Situations	Yes	8
Hemovigilence Commission	Yes	4
Transfusion Commission	Yes	7
Management of wastes generated from medical activities	No	2
Commission for involuntary hospitalizations and review thereof	No	3
Commission for employee activity control	Yes	3
Commission for analysis of cases requested for revalidation	No	5
Food Commission	Yes	11
Environment protection supervisor	No	1
Implementation of legal provisions	No	2
Warning and intervention protocols	No	3
Fire prevention	No	4
Career advisor for new employees	No	3
Internal preventive financial control	No	2
Verification of consumption of materials	Yes	6
Spokesman and coordinator of the public relations team	No	1
Blood transfusion unit	No	1
Commission for inventory of assets	Yes	4
Forensic-psychiatry expertise commission	Yes	8
Surgical intervention for children without legal guardianship	No	5
Commission for defense issues	Yes	4
Supervisor of coagulation analyzer	No	1

[66] Data up to August 2016 from the MoH Budget department

[67] Calculated as per the period expenditure in the year concerned; that is, % of latest annual arrears from that year, taking into account the date of the table, Aug ’16 -e.g. if a hospital recorded arrears in October 2015 for the last time, the magnitude is calculated as % of arrears (October 2015) from the budget execution until October 2015

Name of the committee	Chairperson	Members
Relations with College of Physicians	No	1
Relation with O.A.M.G.M.A.M.R[68]	No	1
"Be a volunteer for peer health"	No	N/A
Ethics commission	No	4
Pharmacy inventory management	No	N/A
Operational and work system procedures	No	6
Engagement, settlement, ordering of expenditures	No	N/A
Cell for Emergency Situations	Yes	9
Development of the managerial control system	Yes	9
The risk management team	Yes	10
Integrated management system	No	2
Protection and prevention of occupational risks	No	2
Hazardous chemicals and preparations	No	8
Emergency plans	No	6
Zonal environment supervisor	No	N/A
Inventory items and fixed assets	Yes	1
Security Officer to accomplish specific attributions	No	1

Hospitalization activity

	2010	2011	2012	2013	2014	2015
Admissions	N.A.	N.A.	N.A.	N.A.	N.A.	42.782
Discharges	54.585	51.273	50.409	47.612	43.986	42.899
ALOS	6,43	6,42	7,47	7,87	7,66	7,63
Bed-days	N.A.	N.A.	N.A.	N.A.	N.A.	330.116
Occupancy rate	89,8	85,4	92,3	89,5	80,5	78,4
% admitted emergencies	61,1	64,4	59,9	N.A.	N.A.	N.A.
Case-mix index	1,10	1,06	1,04	1,14	1,12	1,12

Department	Beds	Discharges	Occupancy rate	ALOS
Infectious diseases	44	1.632	75,68	6,31
HIV/AIDS	6	106	36,62	7,10
Cardiology	80	3.546	91,34	3,73
General Surgery	70	2.365	78,58	5,85
Plastic Surgery	10	515	117,07	7,59
Burns	10	117	38,08	10,53
Infant Surgery	25	584	29,48	4,41
Chest Surgery	5	212	80,66	5,76

[68] O.A.M.G.M.A.M.R stands for Order of Nurses, Midwives and Medical Assistants in Romania

Department	Beds	Discharges	Occupancy rate	ALOS
Dermato-venerology	14	471	71,57	7,67
Diabetes	20	902	87,25	6,65
Endocrinology	5	97	33,42	6,22
Gastroenterology	25	1145	74,98	4,71
Internal Medicine	65	2.136	71,30	6,92
Hematology	10	324	56,11	5,87
Nephrology	25	1194	92,85	6,06
Peritoneal dialysis	4	17	12,47	9,10
Neurology	55	2.444	95,11	4,13
Infant neuropsychiatry	15	426	47,40	6,08
Neonatology	30	1.357	96,31	5,86
Obstetrics-gynaecology I	60	3.000	77,72	4,64
Obstetrics-gynaecology II	60	2.815	72,95	4,73
ENT	25	1153	86,44	6,38
Child ENT	5	205	68,16	5,92
ATI	38	N.A.	N.A.	N.A.
Surgery BMF	5	143	43,67	4,43
Ophthalmology	23	675	44,09	5,46
Child ophthalmology	2	35	23,15	4,57
Oncology	45	2388	74,49	4,97
Orthopedics	35	961	67,95	7,58
Paediatrics	60	4386	112,35	3,68
Psychiatry	75	1857	70,37	9,98
Urology	25	918	55,47	4,93
Pneumology	30	1161	106,37	9,52
Medical recovery	50	2015	109,37	9,87
Child neuro-motor recovery	15	204	334,00	17,59
Chronic patients	22	743	97,25	10,47
Adult neurological recovery	5	197	115,01	9,45
Premature neonatology	10	129	20,88	3,28
TB	40	309	70,53	30,65
TB – MDR	5	15	41,70	50,73
Overall hospital	**1.153**	**42.899**	**78,44**	**7,63**

Emergency (UPU) attendances

UPU attendances	Number	% of the total attendances
Solved without admission	35.898	(68,24% of the total attendances)
Discharged without admission	35.445	(67,38% of the total attendances)
Referred to another facility	453	(0,86% of the total attendances)
Leading to admission	16.711	(31,76% of the total attendances)
Total emergency cases	**52.609**	

Diagnostic activity

CTs performed	19.048
Mammographies performed	332
Ecographies performed	12.364
MRI performed[69]	0
Blood tests performed	871.098
Biopsies performed	6.769
Microbiological tests performed	11.452
Cytologies performed	1.267

Surgery

Programmed surgeries	1.286	(78,5% of the total surgeries)
Emergency surgeries	353	(21,5% of the total surgeries)
Total surgical interventions performed	**1.639**	
In-patient surgeries	1.639	(100% of the total surgeries)
Ambulatory surgeries	0	(0% of the total surgeries)
Total surgical interventions performed	**1.639**	

Obstetric services

Physiological births	556	(37,2% of the total deliveries)
Caesarean sections	940	(62,8% of the total deliveries)
Total deliveries	**1.496**	

Outpatient consultations

First visits	43.157
Periodical visits	4.024
Checks	48.559
Unscheduled visits	14.657
Total visits	**110.397**

[69] Started to work in 2016

Summary of structural efficiency rates (not adjusted by severity)

	No. of doctors	No. of nurses	No. of beds	No. of OR	A&E attendances	No. Of admissions	Surgical interventions	Total expenditure
Slatina	236	845	1.153	11	52.609	42.782	1.639	123.484.024

	Doctors per bed	Nurses per bed	A&E attendances per doctor	A&E attendances per nurse	Admissions per doctor	Admissions per nurse
Slatina	0,2	0,7	223	62	181	51

	Surgeries per OR	Surgeries per doctor	Surgeries per nurse	Expenditure/ per admission	Expenditure per bed	Expenditure per surgery
Slatina	149	7	2	2.886	107.098	75.341

Procedures in place

Area of work	No. of procedures
Patient informed consent (WP-DM01)	3
Patient admission (WP-DM02)	9
Discharge of patients (WP-DM03)	10
Transfer of patients (WP-DM04)	8
Activity in departments with beds (WP-DM05)	18
Clin. Obs. Form (FOCG9 / Day Hosp. Sheet (FSZ) management (WP-DM06)	12
Maintenance of confidentiality (WP-DM07)	8
Interdisciplinary consultation (WP-DM08)	4
Clinical study (WP-DM09)	8
Counselling (WP-DM10)	2
Pre- and post- surgery (WP-DM11)	7
Assessment of patient opinion (WP-DM12)	5
Hospital circuits (WP-DM13)	15
Use of antibiotics (WP-DM14)	4
Medical emergency (WP-DM15)	6
Food (WP-DM16)	8
Patient care in special situations (WP-DM17)	6
Organization of shifts (WP-DM18)	2
Organization of on-duty personnel (WP-DM19)	3
Consultation, diagnostic and treatment (WP-DM19)	5
Specialized ambulatory (WP-DM21)	4
Treatment administration (WP-DM22)	8
Assessment and self-assessment of medical activity (WP-DM23)	3
Sample collection (WP-DM24)	8
Sterilization (WP-STER01)	5

Area of work	No. of procedures
Pathological anatomy (WP-AP01)	2
Extemporaneous anatomopathological examination (WP-AP02)	1
Hygiene in pharmacy (WP-FARM01)	2
Organization and supply of pharmacy (WP-FARM02)	3
Release of drugs (WP-FARM03)	9
Prescription of highly addictive drugs (WP-FARM04)	3
Pharmacovigilance reports (WP-FARM05)	3
Withdrawal of expired drugs (WP-FARM06)	3
Disposal of hazardous wastes from pharmacy (WP-FARM07)	3
Hygiene and cleanliness (WP-A¡IAMM01)	10
Universal precautions)WP-IAMM02)	1
Infections associated to medical activity (WP-IAMM03)	1
Bed linen and laundry (WP-IAMM04)	1
Patient hygiene (WP-IAMM05)	1
Risk activities and risk spaces (WP-IAMM06)	1
Epidemiology reports (WP-IAMM07)	1
Hemovigilance (WP-UTS01)	1
Transfusion of blood or other chemical (WP-UTS02)	1
Adverse reactions (WP-UTS03)	1
Blood management (WP-UTS04)	1
Disposal of waste blood (WP-UTS06)	1
Code of conduct (WP-RUNOS01)	1
Employee satisfaction assessment (WP-RUNOS02)	1
Assessment of patient complaints (WP-RUNOS03)	1
Document circuit (WP-FC01)	1
Reimbursement of patient expenditures (WP-FC02)	1
Operations concerning patient reimbursement (WP-FC03)	1
Total	**227**

Quality management

Issues systematically reported as monitored
No. of therapy errors
No. of delays in determination of diagnosis
No. of patients who refused treatment
No. of patients discharged on request
No. of patients with infectious risks
No. of patients discharged without prescription and medical advice
No. of confusions on patient identity
No. of patients receiving recommendations to purchase drugs during hospitalization
No. of emergency cases during on-duty shift in department

Issues systematically reported as monitored
No. of patients with anesthesia risks
No. of patients with anesthesia or post-anesthesia complications
No. of patients with surgery risks
No. of intra-surgery incidents
No. of patients with post-surgery complications
No. of women with complications after child delivery
No. of patients with surgical re-intervention
No. of accidents in administration of blood and blood products
No. of serious allergic reactions to treatment
No. of severe adverse reactions to treatment or medication
No. of patients refusing admission
No. of patients refusing surgical intervention or other interventions
No. of nosocomial infections
No. of surgical interventions per doctor and per department

Quality indicators	2010	2011	2012	2013	2014	2015
Inpatient mortality rate	0,65	0,68	0,74	0,85	0,94	1,22
% patients deaths within 24 hours after admission	0,01	0,13	0,17	0,20	0,19	0,29
% patients deaths within 48 hours after surgical intervention	0,06	0,20	0,02	0,02	0,02	0,04
% patient deaths at 28 days after admission-Male		0,29				0,19
% patient deaths at 28 days after admission-Female						0,19
Nosocomial infections rate	0,04	0,07	0,04	0,03	0,19	0,31
Agreement between diagnosis at admission and at discharge	0,78	0,74	0,73	0,75	0,76	0,96
% of patients discharged and transferred to other hospital	0,28	0,43	0,46	0,69	0,80	0,89
30-day standardised mortality after admission for AMI-Male	0	1	0	0	0	1
30-day standardised mortality after admission for AMI-Female	0	0	0	0	0	1
30-day standardised mortality after admission for Stroke-Male	0	0	0	0	0	0
30-day standardised mortality after admission for Stroke-Female	0	0	0	0	0	0
TIA patients treated within the following 24 h of occurrence	33	15	34	43	71	52

Safety indicators	2015
Post-operative pulmonary embolism or deep vein thrombosis	0
Post-operative sepsis / complications rate	Not monitored
Birth trauma (cases)	52
Birth trauma (% out of total deliveries)	3,49%

Nosocomial infections (number per hospital departments/units)

Hospital Department / Unit	2010	2011	2012	2013	2014	2015
Infectious diseases					13	24
HIV/AIDS						
Cardiology					1	2
General surgery		16	18		24	37
Plastic Surgery	6	15	3		2	
Burns						
Infant surgery						5
Chest surgery						
Dermato-venereal						
Sugar diabetes					2	1
Endocrinology						
Gastroenterology					10	13
Internal medicine					3	2
Hematology						
Nephrology					1	18
Peritoneal dialysis					12	
Neurology						15
Neuro-psychiatry					10	
Neonatology	1					
Obstetrics gynaecology 1	2	1				3
Obstetrics gynaecology 2	3	1				
ENT						
Child ENT						
Surgery BMF						
Ophthalmology						
Child ophthalmology						
Oncology						2
Orthopaedics	5		1			6
Paediatrics					2	
Psychiatry					2	
Urology						4
Medical recovery		1			2	
Child neuro-motor recovery					3	3
Chronic patients department						
Neurological recovery - adults						
Premature neonatology						3
Total	**17**	**34**	**22**		**87**	**138**

Adverse events

	2010	2011	2012	2013	2014	2015
Transfusion / Drug use reactions[70]						1
Cases of pressure ulcers/bedsores	44	47	47	44	77	67
Pressure ulcers/bedsores per 1000 beds	41	44	44	38	66	58
In-patient hip fractures per 1000 beds	Not monitored					
Foreign body left in during procedure	0	0	0	0	0	0
Unplanned return to operating theatre	Not monitored					
Emergency readmissions 28-day (cases)	4.383	3.774	3.712	3.376	3.259	3.452
Emergency readmissions 28-day (%)	7,99	7,37	7,35	7,10	7,40	8,06

Waiting times and waiting lists

	2010	2011	2012	2013	2014	2015
To be attended at A&E (min.)	19,3	18,9	19,5	18,7	19,6	19,2
Patients on waiting lists	1.248	1.105	568	899	1.465	2.036

Patient satisfaction[71]

	2014	2015
% received clear information upon discharge	88,2%	82,4%
% been explained actions to complete treatments	88,6%	94,3%
% approval/satisfied responses	85,8%	91,1%
Complaints submitted to the Ethics Council		4

[70] Only monitored after 2014
[71] Questionnaires are only applied starting 2014

Hospital 10: Dr Victor Babes Infectious Disease and Pneumoftiziology Hospital 'Timisoara' – Timisoara, Romania

Dr Victor Babes Infectious Disease and Pneumoftiziology Hospital of Timisoara:
13 Georghe Adam Street, Timisoara, Romania

Level II M Mono-specialty hospital. Publicly owned and run/governed by the local council of Timisoara

Governance structure

Governance structure	Members
Manager	Appointment by the Mayor of Timisoara after a selection contest
Managing Committee	Hospital manager; Medical director; Financial accounting director
Board of Directors	7 members, 1 appointed by the Public Health Direction - Timis County, 2 by the Local Council of Timisoara, 1 by the Mayor of Timisoara, 1 representative of the medicine university or faculty, plus 2 guest (1 of the territorial unit of the Romanian College of Physicians and 1 of the Order of Nurses, Midwives and Medical Assistants in Romania)

Catchment Population

Patients from Timisoara city and Timis County, plus referrals (mostly TB patients) from other counties. Some sort of seasonal demand observed (lower occupancy rates during summertime). Data from 2015:

	Discharged patients
Timis	5.452
Other counties	1.628
Total	**7.080**

Selected hospital managers' KPIs for 2015

Performance indicator category	Name of the performance indicator attributable to the hospital's management	2015 values
A. HR management	Average number of patients discharged per doctor	623 per year
	Average number of ambulatory consultations per doctor	378 consultations
	Average number of ER consultations per doctor	1083 consultations
	Percentage of doctors out of total staff	13%
B. Services utilisation	Total discharges	7.080
	ALOS	10,65
	Bed occupancy rate	70%
	ICM	1,5030
C. Financial indicators	Budget execution versus approved expenditures budgets	96,86%
	Staff costs out of total hospital costs	51,34%
	Drug-related costs out of total hospital costs	28,16%
	Own incomes out of the total hospital income	34%
D. Quality indicators	Intra-hospital mortality rate	4,27%
	Nosocomial infection rate	0,25%

Performance indicator category	Name of the performance indicator attributable to the hospital's management	2015 values
	Re-admitted patients rate within 30-day after discharge	8%
	Total number of patient complaints per year	0

Last recorded arrears and magnitude of last recorded arrears

Hospital	Last recorded arrears[72]	Magnitude of last recorded arrears[73]
Timisoara	Aug 2016	8.7%

Details of physical assets:

Building	Year	Area
Infectious Diseases Building	1933	2.455 m^2
Infectious Diseases Building	1974	2.328 m^2
Pulmonology Building	1942	2.634 m^2
Laboratory Building	1977	726 m^2
Administrative Building - Kitchen	1933	1.280 m^2
Pulmonary Diseases Recovery Center Building	1935	417 m^2
Tuberculosis Dispensary Building	2008	676 m^2
Central heating, Laundry, Pharmacy Building	1933	665 m^2
Smoking Cessation Center Building	2002	100 m^2
Oxygen station and compressors Building	1975	202 m^2
Morgue Building	1975	35 m^2

[72] Data up to August 2016 from the MoH Budget department

[73] Calculated as per the period expenditure in the year concerned; that is, % of latest arrears from that year, as per date of the table, Aug '16 -e.g., if a hospital last recorded arrears in October 2015, the magnitude is calculated as % of arrears (October 2015) from the budget execution until October 2015

Reported infrastructure

Beds per department		2015
Pneumoptiziology 1		**75**
	Pneumology - TB	52
	Other	23
Pneumoptiziology 2		**75**
	Pneumology - TB	42
	Other	33
Infectious Diseases 1		**60**
	HIV / AIDS:	8
	Other	52
Infectious Diseases 2		**60**
	HIV / AIDS:	10
	Other	50
Infectious diseases intensive care compartment		**5**
Thoracic surgery		**10**
ICU		**4**
Medical Recovery		**6**
Total beds in wards		**295**

Day hospitalization beds	2015
HIV / AIDS	**12**
Infectious diseases	**12**
Pneumology	**6**
Total day hospitalization beds	**30**
Total beds (beds per department and day hospitalization beds)	**325**

Surgical block	
Operating theatres[74]	1
Postsurgical thoraco-pulmonary beds	10

Labs	
Medical analysis lab	1
Radiology and medical imaging	1
Functional explorations	1
Pathological anatomy	1

Intensive Care	
ICU units	2
Beds at ICUs	9

[74] Only thoracic surgery interventions are performed in the hospital

Equipment

Analysis lab equipment
Device for reading lymphocites for monitoring HIV/AIDS patients
Centrifuge serological machine
Elisa automatic analyzer
Vertical autoclave
Vitalograph spirometer
Microgel electrophoresis

Imaging diagnostic equipment		
CTs		Outsourced
MRIs		Outsourced
Echographers		3
(Conventional) X-Ray machines		
	Mercurii 332-1 pc	1
	Temco GRX-01-1 pc	1
	Axiom Iconos MD-1 pc	1
(Portable) X-ray machines		1

Staff

Clinical staff	Occupied		Vacant
	Full-time	Part-time	
Doctors	31	12	5,5
Anesthesiologists[75]	2		
Nurses	114		9
Nursing auxiliary	39		3
Pharmacists		1	
Physiotherapists	2		
Biologists	4		
Chemists	3		
Psychologists	1		
Social workers	1		
Medical registers	17	1	1
Autopsy examiner	1		
Stretcher	3		

[75] Intensive care medical services on hospital headquarters outsourced

Non-clinical staff	Occupied		Vacant
	Full-time	Part-time	
Manager	1		
Medical Director	1		
Store keeper	1		
Computer operators	3		
Reviewers	1		
Secretary-typists	1		1
Priests	1		
Epidemiologists		1	
Hygiene assistant	1		
Codifiers and Clinical records archivists[76]	1		
Health economists	3		2
Accountants	1		
IT technicians	1		
Lawyers	2		
Human resources specialists	3		
Engineers	3		1
Maintenance workers	14		1
Green space careers	2		
Cleaning	34		
Laundry	6		
Catering	7		
Security[77]			

Staff turnover	
Annual turnover (=number of employees who left / average number of employees x 100)	11%

Finances

Time series	2011	2012	2013	2014	2015
Revenues by source					
Government	2.325.000	2.697.000	7.019.000	10.908.000	10.840.000
Insurance schemes	20.965.300	23.651.830	22.917.900	23.866.000	19.582.290
Patient fees	122.610	216.100	223.500	216.470	157.010
Other(*)	246.760	331.830	6.996.470	2.706.340	4.260.990
Total revenues	**23.659.670**	**26.896.760**	**37.156.870**	**37.696.810**	**34.840.290**

(*) Including extra funds/ cover of arrears by some public authority

[76] DRG codify service is outsourced
[77] Outsourced

Time series	2011	2012	2013	2014	2015
Expenditures by source					
Personnel and benefits	12.681.420	14.161.560	15.643.270	16.194.320	18.060.520
Drugs	7.580.250	9.420.140	10.128.870	10.893.280	11.205.890
Med. and non-med. supplies	455.490	397.640	459.830	460.840	528.420
Maintenance	1.209.070	1.330.520	1.493.300	1.442.100	1.440.510
Outsourced services (*)	127.730	132.450	157.140	147.630	147.730
Capital & equipment	668.820	843.580	849.780	786.120	713.020
Other	1.917.640	3.016.400	3.217.850	3.559.640	3.461.300
Total expenditures	**24.640.420**	**29.302.290**	**31.950.040**	**33.483.930**	**35.557.390**

(*) Including security services; pest control services; as well as on duty services for ICU

Time series	2011	2012	2013	2014	2015
Surplus / Debt	(980.750)	(2.405.530)	5.206.830	4.212.880	(717.100)

Hospitalization activity

	2010	2011	2012	2013	2014	2015
Admissions	6.150	6.690	6.791	7.194	7.595	7.080
ALOS	11,8	11,9	11,1	11,3	11,2	10,9
Bed-days	72.263	79.812	75.244	80.933	85.368	77.314
Occupancy rate	71,2	74,2	69,9	75,2	75,8	70,0
% admitted emergencies						27,2%
Case-mix index						1,5030

Admissions per department	2010	2011	2012	2013	2014	2015
Pneumoftiziology 1	1.109	1.050	1.093	1.414	1.564	1.450
Pneumoftiziology 2	1.752	1.762	1.789	1.918	1.923	1.731
Infectious Diseases 1	1.403	1.526	1.687	1.620	1.753	1.638
Infectious Diseases 2	1.552	2.001	1.900	1.878	1.971	1.854
Thoracical surgery	239	233	175	213	177	198
Medical Recovery	95	118	147	151	197	209
Hospital	**6.150**	**6.690**	**6.791**	**7.194**	**7.595**	**7.080**

ALOS per department	2010	2011	2012	2013	2014	2015
Pneumoftiziology 1	18,5	18,9	16,8	15,6	15,5	15,6
Pneumoftiziology 2	14,3	14,2	13,5	13,0	13,6	12,7
Infectious Diseases 1	8,0	8,3	7,3	8,1	8,3	8,2
Infectious Diseases 2	8,3	8,2	7,5	7,4	7,6	7,5
Thoracical surgery	11,2	9,6	8,7	9,4	10,9	13,3
Medical Recovery	20,7	20,7	19,7	20,0	17,2	13,5
Hospital	**11,8**	**11,9**	**11,1**	**11,3**	**11,2**	**10,9**

Bed occupancy per department	2010	2011	2012	2013	2014	2015
Pneumoftiziology 1	78,1	72,4	67,0	80,7	82,8	79,2
Pneumoftiziology 2	94,0	91,3	88,2	90,9	86,6	75,7
Infectious Diseases 1	51,3	57,7	56,1	59,9	63,3	58,7
Infectious Diseases 2	59,8	74,5	65,1	63,4	64,9	59,4
Thoracical surgery	69,8	60,9	41,6	55,0	45,2	61,2
Medical Recovery	92,7	111,6	13,6	138,1	148,7	125,4
Hospital	**71,2**	**74,2**	**69,9**	**75,2**	**75,8**	**70,0**

Emergency attendances[78]

	2015
Attendances	26.039
Solved without admission	59,95%
Referred to another facility	4,51%
Leading to admission	27,18%
Refusals to be admitted	8,36%

Diagnostic activity

	2010	2011	2012	2013	2014	2015
CTs	N.A.	N.A.	298	414	598	826
Ecographies	4.150	3.098	4.417	4.213	3.674	3.080
MRIs			43	33	31	47
Blood tests	610	654	733	674	746	214.051
Biopsies	83	78	69	181	143	328
Microbiological tests	33.715	19.554	16.497	26.481	21.443	45.582
Cytologies	1.411	792	5.292	689	1.316	1.564

Surgery

	2010	2011	2012	2013	2014	2015

[78] The A&E records in the hospital refer to the ambulance attendances.

	2010	2011	2012	2013	2014	2015
Programmed in-patient	173	189	136	175	114	179
Programmed ambulatory/day	0	0	0	0	0	
Total Programmed	173	189	136	175	114	179
Total emergency	0	0	0	0	0	0
Total surgeries[79]	**173**	**189**	**136**	**175**	**114**	**179**
% surgical interventions as ambulatory	0	0	0	0	0	0

Outpatient consultations

	2015
First visits	Not monitored
First/Follow up rate	Not monitored
Failed appointments	Not monitored
Total visits	**10.228**

Hospital Committees

Name	Type	Reporting to...
Medical council	Clinical	Managing Committee/BoD
Ethics council	Non-clinical	Manager
Nosocomial infections	Clinical	Manager/ Managing Committee
Discipline committee	Non-clinical	Manager
Occupational safety and health	Non-clinical	Manager
Emergency situations	Non-clinical	Manager
Drugs commission	Clinical	Manager/ Managing Committee
Fire prevention	Non-clinical	Manager
Quality commission	Clinical	Managing Committee
Central inventory commission	Non-clinical	Manager/City Hall
Tender commission	Non-clinical	Manager
Commission for involuntary admission	Clinical	Manager
Commission for deaths investigation	Clinical	Manager
Commission for food and diet	Clinical	Managing Committee
Arbitration commission	Clinical	Manager/ Managing Committee
narcotic or psychotropic drugs	Clinical	Managing Committee
Pharmacovigilance-therapeutic strategy	Clinical	Managing Committee
Commission for DRG analysis	Non-clinical	Managing Committee

Main procedures in place

[79] Only in-patient surgery is reported in the thoracic department

To provide information to patients and relatives	PS15 Internal and external communications
	POIS04 Patient information and consent
	POIS14 Notification of companions on the discharge date
To manage patients' and families' complaints	POCJ01 Settlement of documents received by hospital
To measure the perception of the care provided	Collection and monitoring of patients satisfaction surveys
Operational procedures to provide general services	A complete set of rules and procedures related to cleaning, disinfection, laundry, maintenance, catering, safety and security, etc.

Quality indicators

Effectiveness	2010	2011	2012	2013	2014	2015
Intra-hospital mortality rate	1,09	1,58	3,06	3,59	3,49	4,27
5 most frequent post-operative mortality causes	See below					
Age-sex 30-day standardised mortality AMI	Not available					
Age-sex 30-day standardised mortality Stroke	Not available					
% high risk TIA treated within 24 h occurrence	Not available					

Diagnosis for intra-hospital mortality cases

Diagnosis for intra-hospital mortality cases		
2010	I21.0	Acute myocardial infarction (5 deaths)
	A15.0	Pulmonary Tuberculosis (5 deaths)
	J85.1	Lung abscess with pneumonitis
	C34.9	Bronchus and lung malignant tumor (3 deaths)
	J18.0	Bronchopneumonia (3 deaths)
2011	A15.0	Pulmonary tuberculosis (14 deaths)
	A41.9	Sepsis (9 deaths)
	B23.8	Disease by HIV associated with other conditions (6 deaths)
	J44.0	COPD (5 deaths)
	J18.0	Bronchopneumonia (5 deaths)
2012	J18.0	Bronchopneumonia (25 deaths)
	A41.9	Sepsis (24 deaths)
	B23.8	Disease by HIV associated with other conditions (10 deaths)
	I21.0	Acute myocardial infarction (9 deaths)
	A15.0	Pulmonary Tuberculosis (8 deaths)
2013	A41.9	Sepsis (37 deaths)
	J18.0	Bronchopneumonia (31 deaths)
	I46.9	Heart attack (16 deaths)
	A15.0	Pulmonary Tuberculosis (13 deaths)
	J44.1	COPD with acute exacerbation -(10 deaths)

Diagnosis for intra-hospital mortality cases		
2014	A41.9	Sepsis (50 deaths)
	J18.0	Bronchopneumonia (39 deaths)
	I46.9	Heart attack (17 deaths)
	A41.8	Other types of sepsis (17 deaths)
	J44.1	COPD with acute exacerbation (13 deaths)
2015	A41.9	Sepsis (57 deaths)
	J18.0	Bronchopneumonia (45 deaths)
	B23.8	Disease by HIV associated with other conditions (14 deaths)
	A41.8	Other types of sepsis (14 deaths)
	J15.9	Bacterial pneumonia (12 deaths)

Safety indicators

	2010	2011	2012	2013	2014	2015
% post-operative PE / DVT	Not available					
% post-operative sepsis / complications rates						4

Patient adverse events

	2010	2011	2012	2013	2014	2015
No. of nosocomial infections rate	0,37	0,27	0,22	0,10	0,18	0,25
In-hospital transfusion reactions or use of drugs	0	0	0	0	0	0
No. of pressure ulcers / bedsores per 1000 beds	Not available					
No. of in-patient hip fractures per 1000 beds	Not available					
Foreign bodies left in per 10000 surgeries	0	0	0	0	0	0

Re-admissions

	2010	2011	2012	2013	2014	2015
Rate of unplanned return to operating theatres						0
Emergency re-admissions 28 days discharge					5,75	8,56

Access to health services / Barriers to utilization

	2015

	2015
Emergency contacts	26.039
Admissions after CPU contacts	7.080
Rate of emergency admissions out of total emergency contacts(*)	**27,18%**

(*) Not available information about the main reasons for hospitalization refusal

Waiting times

	2015
Maximum waiting time to be attended at CPU	15 min
Average and maximum waiting time to receive surgical services	N/A

Efficiency

	2010	2011	2012	2013	2014	2015
ALOS	11,8	11,9	11,1	11,3	11,2	10,9
Pre-surgery ALOS	Not available					
Operating room utilization index	72,4	81,1	77,7	82,2	64,4	73,7
Use of non-inpatient surgery	Not available					

Summary of structural efficiency rates (not adjusted by severity)

	No. of doctors	No. of nurses	No. of beds	No. of OR	A&E attendances	No. Of admissions	Surgical interventions	Total expenditure
Timisoara	42	114	315	1	26.039	7.080	179	35.557.390

	Doctors per bed	Nurses per bed	A&E attendances per doctor	A&E attendances per nurse	Admissions per doctor	Admissions per nurse
Timisoara	0,1	0,4	620	228	169	62

	Surgeries per OR	Surgeries per doctor	Surgeries per nurse	Expenditure/ per admission	Expenditure per bed	Expenditure per surgery
Timisoara	179	4,3	1,6	5.022	112.881	198.645

Responsiveness

Evaluation of patients questionnaires		For a 6 months period in 2015
Percentages of patients interviewed who declared to be pleased and very	...the quality of medical sanitary services received in the hospital	94,35%
	...the way their rights were respected	94,35%
	...the way they were examined by the attending	97,06%

pleased with…..	physician	
	...the treatment received	97,06%
	...the waiting time until they were examined for the first time	95,98%
	...the medical examination, treatment administration, intervention risk	<90%
	...the hospital conditions (cleanliness, toilet rooms, accommodation)	<90%
Percentages of patients interviewed who declared to be informed on…..	...the amount spent for hospitalization through expenditure settlement	24.49%
Percentages of patients interviewed who declared to be aware of…..	...the existence of the Ethic Council	79.17%

Annex C Financial audit reports

Financial audit reports for the following hospitals are submitted as stand-alone documents:

Hospital 1: Floreasca

Hospital 2: Foișor

Hospital 3: Marius Nasta

Hospital 4: Pantelimon

Hospital 5: Rosiori

Hospital 6: Buhusi

Hospital 7: Lugoj

Hospital 8: Ploiesti

Hospital 9: Slatina

Hospital 10: Timisoara