

**Center for Research
in Healthcare
Innovation
Management**



Hospital of the Future

A New Role for Leading Hospitals in Europe

Abridged version

Jaume Ribera / Gabriel Antoja / Magda Rosenmöller / Pablo Borrás

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**A study by IESE Center for Research in
Healthcare Innovation Management
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sponsored by Accenture**

In collaboration with



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Preface

The Center for Research in Healthcare Innovation Management (CRHIM), of IESE Business School, has as its mission increasing the knowledge of healthcare managers and decision makers on managing innovation including health technology, healthcare services, organization and strategy.

The Hospital of the Future study was initiated in 2013, based on collaboration between CRHIM and Accenture.

Over the past few years, the future of hospitals has attracted a lot of attention in many journals and publications, which have often described fascinating high-tech scenarios where technology seems to be the central characteristic of and the leading force for disruption in healthcare. The approach of this study is to **give a voice to hospital managers and clinicians** about the challenges and the new role of leading public hospitals in a changing healthcare ecosystem.

This document is an abridged version of the complete Hospital of the Future study, available for download from the IESE CRHIM website.

This version contains an introduction to the study and its purpose, a brief description of the two hospitals participating in the study, a selection of the study conclusions (mainly the 14 key messages that encapsulate the new role of leading public hospitals by 2030), and a list of final recommendations oriented to hospital leaders and health system policy makers.

We hope these messages and recommendations will inspire you to take action and prepare for the coming scenarios.

Acknowledgments

We would like to thank Karolinska University Hospital and Hospital Clínic of Barcelona for their kind participation in this study.

In particular, we wish to thank Dr. Josep Maria Piqué and Dr. David Font for their continuous support and initial ideas for this study and also for facilitating access to and the participation of Hospital Clínic managers and clinical leaders.

Also, this study would not have been possible without the passionate involvement of the Karolinska Innovation and Communication departments. We especially give thanks to Prof. Johan Permert and Anne-Charlotte Knutsson and to Prof. Jörgen Larsson and Anna Sahlström for their constant interest in and support of this study.

Thanks to Accenture for sponsoring this study, and for its keen interest in promoting hospital management research. Special thanks to Pablo Borrás, managing director at Accenture and CRHIM founding member, who participated with great care and dedication in all of the design phase, interviews and workshops, providing healthcare industry expertise and perspectives.

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Introduction

For many decades, public hospitals in Europe have functioned as **the centerpiece of many European healthcare models**, frequently in the archetypal form of a general university hospital.

Public general hospitals have also been the main driver for the progress of medicine and health technologies, and clear examples of such evolution can be seen in many fields such as surgery, imaging and laboratory work.

Today, hospitals still absorb an important part of total healthcare expenditure in most European countries, and they have become a core element in strategic transformation plans in many healthcare systems.

Moreover, many healthcare publications and health system strategic plans repeatedly point to **a new role for public hospitals**, where the hospitals' functions would be aligned much more with other providers in the continuum of care.

Although general hospitals are commonly large and quite complex organizations, they have proven to be **in a state of constant change**, successfully dealing with challenges such as adapting hospital capabilities to provide new services or to perform new clinical techniques.

However, the challenges and opportunities that public hospitals are facing are unprecedented and come from multiple domains, not only economic but also related to advances in healthcare and information technologies and the expectations of healthcare professionals and the public.

Indeed, publications on hospital management describe the current importance or forecast the potential impact

of topics such as: transformation in a digital society, the evolution of demographics, potential changes in political and social values, new leadership and management models in healthcare, declining (or, at least, stagnant) public healthcare expenditure, and the impact of new technologies on knowledge management.

At the same time, the evolution of medicine implies a transformation of the current paradigms of many diseases, with an increasing focus on prediction and prevention, personalized medicine and improving the patient experience.

Undoubtedly, healthcare system leaders and hospital managers are paying careful attention to any information and publications that may help them prepare in the future to deliver the best quality of healthcare services and to improve efficiency.

Yet the perspective of hospital managers and leading clinicians on these issues is scarcely to be found in any publications, especially when it comes to estimating the likelihood of any potential changes and the expected impact on hospitals.

What is more, the question remains as to whether hospitals are preparing for the challenges featured most often in publications or, alternatively, whether they consider other issues more relevant for the future of hospitals.

In conclusion, there is interest in grasping how public general hospitals understand current and future scenarios and also how they are getting ready for changing paradigms in healthcare.

Purpose of This Study

The main purpose of studying the Hospital of the Future is to identify and understand potential changes that may impact public hospitals in Europe.

This study considers a time frame of approximately 15 years and tries to capture not only the forthcoming changes that are on hospital managers' agendas but also underlying factors and drivers that may arise in the next decade.

This study has focused on two leading public hospitals in Europe: **Karolinska University Hospital** in Stockholm, and **Hospital Clínic of Barcelona**.

The approach of this study is to present the views of hospital decision makers, such as C-level hospital managers, heads of department and leading clinicians.

Participants also included executives from organizations related to these two hospitals, such as health system policy makers, healthcare technology research executives and entrepreneurs.

At the start of this study, a considerable number of articles and reports about the future of healthcare and hospitals were available. Hence the approach of this study has been very much directed at gathering and comparing ideas from different participants using a structured methodology.

Taking part in the study were 45 professionals from Karolinska University Hospital and Hospital Clínic of Barcelona. These participants were selected to strike a balance between management perspectives and clinical views, so as to get a good understanding of the current situation, and to create a space for thinking beyond existing models, strategies and initiatives.

Approach and Methodology

This study is based on a qualitative research methodology that includes individual and group interviews and online surveys.

The tools and techniques used during the study aimed to identify, classify and understand the drivers, challenges and initiatives that will define the model of European public university hospitals in the next 15 years.

This study was conducted in six phases:

1. An **initial literature review** included searching in grey literature for all terms related to current and future challenges to hospitals, and classifying all topics found into the five dimensions of the conceptual framework.
2. Onsite **individual interviews** were performed to ask about selected concepts from the literature review, in flexible conversations that were open to new contributions by participants.
3. A list of **preliminary findings** was produced after analyzing, mapping and connecting ideas from interviews, and then filtering and classifying them into the five dimensions of the conceptual framework.
4. A **validation and ranking of findings** were performed with previous interviewees and also new participants from both hospitals using online questionnaire tools.
5. **Discussion workshops** were held in each hospital to present and confirm findings and validate the relevance, impact and likelihood of each finding.
6. A summary of **key messages** was produced, encapsulating the findings and topics from the literature review. Finally, a list of **recommendations for hospital managers** and policy makers was drawn up to help them deal with the most relevant challenges and develop the necessary capabilities.

Participating Hospitals

Karolinska University Hospital and **Hospital Clínic of Barcelona** were selected for two main reasons: a) they are leading hospitals that can help significantly when studying challenges and initiatives in a territory, and b) they are hospitals that have distinct yet comparable health system scenarios.

With regard to the first reason, for the findings to be significant the participating hospitals needed to be considered leading hospitals in their territories. The concept of a **leading hospital** was defined for the purpose of this study and only when clarification was required with participants to distinguish between points of view in relation to other hospitals in the territory.

A leading hospital is considered a high-performance organization in healthcare with the following characteristics:

- Excellence in results: leading hospitals have a proven record of results in safety and quality of service, outperforming their peer group over an extended period.
- Range and complexity of services: leading hospitals provide highly specialized acute treatments, by highly specialized professionals, using high tech equipment.
- Reference and support role: leading hospitals provide services for specific patients or types of treatment as required by other healthcare organizations in the community, region or state.
- Innovation and adaptation: leading hospitals adapt well to change and react quickly.
- Industry recognition: for the abovementioned reasons and others, other healthcare institutions give special recognition to these hospitals and their professionals.

The second criterion for selecting the participating hospitals was a combination of comparability and diversity.

Although the participating hospitals differed in budget and configuration, the study aimed to gain insight by comparing two organizations that had an existing relationship and could therefore analyze differences in initiatives and approaches.

Involving two leading hospitals allowed the study to approach questions in some depth and also to compare the visions of both organizations.

A study of one hospital's vision and initiatives, while illuminating in itself, might gain in significance when considered in parallel with the insights of a similar institution.

In this regard, Karolinska University Hospital and Hospital Clínic of Barcelona had collaborated recently on various European projects. These projects allowed them to share experiences and knowledge at different levels of the organization, from managerial to frontline projects and experiences.

This collaboration has been very useful to the study, making it easier for some participants to recognize and explain differences and also similarities during interviews.

Karolinska University Hospital

Karolinska University Hospital is a national and international medical center of reference and one of the largest hospitals in Europe. Karolinska Solna opened in 1940 in the Solna district of Stockholm. In 2004, Karolinska merged with Huddinge University Hospital to form Karolinska University Hospital. The Huddinge hospital facilities, 20 km south of the Solna hospital, belong to the municipality of Huddinge in Stockholm County, with a population of more than two million citizens.

Karolinska's mandate is to be Stockholm County Council's university hospital, with responsibility for specialized and highly specialized healthcare. This assignment involves having the main responsibility for the county council's research and student education in partnership with Karolinska Institutet and other universities and colleges.

In 2014, Karolinska had a budget of over €1.7 billion and employed more than 15,000 people. Its yearly activity included 220,000 emergency visits, 1.7 million ambulatory visits and 109,000 hospitalizations. It had 1,700 hospital beds and was heavily involved in tertiary activity, with 6,000 admissions of patients from other counties or countries.

Karolinska is a European reference for medical research, publishing 2,200 scientific articles per year (together with Karolinska Institutet). It employs 2,500 researchers and has a budget of €130 million for external R&D.

In 2012, Karolinska was also given the task of planning the business content of Karolinska University Hospital and the deployment of the New Karolinska Solna University Hospital, the first new hospital of its size in Sweden in 40 years. New

Karolinska Solna uses the most advanced healthcare technologies and interventions. It is the first hospital in Sweden to be delivered through a public-private partnership (PPP) and is a major driver in the development of a world-class life science cluster in Sweden.

The construction of New Karolinska Solna is estimated to cost €1.53 billion, not including the cost of medical technology equipment. The hospital is expected to open and begin its first medical care operations in 2016.

Karolinska's mission is encapsulated in the strategic mission statements "The patient always comes first," "We deliver safe and high-quality care," "We are accessible, efficient and give our patients personalized care," and "We are a model in research, development and education."

Hospital Clínic of Barcelona

Hospital Clínic of Barcelona is a university hospital founded in 1906. It provides public healthcare services, contracted by the public health insurer of the Department of Health of Catalonia, a region of Spain with a population of seven million.

Hospital Clínic serves as the local community hospital for a population of 300,000 inhabitants in a catchment area corresponding to the west of the city of Barcelona. Hospital Clínic also serves as a tertiary hospital for highly complex cases, and treats patients referred from other areas in Catalonia and also from all over Spain and even abroad. Hospital Clínic belongs to a trust that also manages three primary care centers in the same catchment area of Barcelona, and it has strong alliances with mental health and social care centers in Barcelona.

In 2010, Hospital Clínic's budget was €450 million, and the hospital had 4,500 employees. Hospital Clínic's yearly activity included 124,000 emergency visits, 113,000 new ambulatory episodes (first outpatient visits) and 46,000 hospitalizations, and it had 850 beds.

Hospital Clínic's teaching activity covers 1,800 students of the school of medicine, and more than 1,500 students of different postgraduate master's degrees and other courses.

Hospital Clínic has a long tradition of research and innovation that make it a benchmark institution. It operates through the organizations IDIBAPS (August Pi i Sunyer Biomedical Research Institute) and ISGlobal (Barcelona Institute for Global Health). IDIBAPS is a public research center dedicated to translational research in the field of biomedicine. In 2013, IDIBAPS funding totalled more than €24 million,

it had 460 principal investigators, and its researchers published 1,005 original articles in high-impact scientific journals. ISGlobal provides a hub of excellence dedicated to scientific research and the provision of healthcare. The institute originated as a joint initiative of Hospital Clínic of Barcelona and the University of Barcelona, and it has amassed over 30 years of experience in the field of global health.

Hospital Clínic's goals include becoming more patient- and process-oriented and ensuring services and resources are organized to best meet patients' needs. With a vocation for excellence in patient centered care, Hospital Clínic is implementing new multidisciplinary units centered on or related to pathologies. It is developing information systems to support and improve clinical decisions, and works to ensure that decisions are made according to evidence and the evaluation of health outcomes.

Finally, Hospital Clínic relies on the wide participation of hospital professionals, ensuring they are involved in the hospital's management and governance, creating accountability mechanisms and communicating in a transparent way to all stakeholders, both internal and external, and especially to healthcare professionals and the Department of Health.

Conceptual Framework

In order to bring managers and clinician leaders into this discussion, a conceptual framework was developed to represent the diverse topics of significance, extracted from an initial literature review, and covering the hospital context, strategy, leadership, resources, processes, results, risks and opportunities.

Conceptual frameworks are analytical tools used to make conceptual distinctions and organize ideas. This study's conceptual framework served to facilitate the validation and discussion of issues, and also as an opportunity to introduce and debate the relationships between ideas at the individual and group level, and to help discern the nature of changes, which might be clinical, technological, social, political or simply economic.

This conceptual framework builds upon the previous InnPact report by CRHIM¹ and defines five main dimensions for classifying the study findings:

1. **Context:** including political, financial, social, demographical, technological, legal, and social drivers.
2. **Strategy and Leadership:** including strategic initiatives for success, such as clinicians' leadership, innovation, strategies for mergers and alliances.
3. **Resources and Capabilities:** including management of key resources (human resources, ICT, facilities, healthcare technologies and financial resources) and capabilities.
4. **Processes:** including topics such as clinical processes, integrated care, HR processes, support processes, process improvement and learning and decision support.
5. **Results:** including topics such as patient results, personnel results, social results, financial results and value propositions for each stakeholder.



¹ The InnPact study is available at <http://www.iese.edu/en/faculty-research/research-centers/crhim/publications/>

Conclusions

The Hospital of the Future study has been a journey of exploration and foresight in the company of leading managers and expert clinicians.

Following initial deliberations on the impact of new healthcare technologies and management practices on hospitals, this journey soon gave way to the professionals' perspective, which included lively discussions on the current initiatives and problems of the hospitals, and possible near-future scenarios.

As this journey into a more realistic perspective advanced, and diverse participants from various departments were given a voice, the theme of the hospital's new role emerged naturally and with great force.

This perception of **a new role for leading public hospitals** encapsulated many ideas for a potential revolution in healthcare, which tend to erase current hospital boundaries and aim to define new patterns of relationships between the hospital and other healthcare and non-healthcare institutions.

This abridged version of the study presents **14 key messages** that summarize and describe the main findings relating to the challenges and characteristics of the new role of the leading public hospital in Europe by 2030.

These 14 key messages link and combine various study findings, assembling, in an easy-to-read scheme, the most relevant ideas as well as some quotes from participants that support or connect with the main key message.

The unabridged version of this study contains, in their entirety, all **76 findings**, as presented to participants and discussed in workshops, and classified into the five

dimensions of the Hospital of the Future conceptual framework developed for this study. The study findings identify and describe drivers that are shaping and pushing change in hospitals, and illustrate the **likelihood** of these changes happening as well as the **potential impact** of these changes on the hospital and the readiness of hospitals to adapt to these changes.

It is not yet clear whether hospitals will be able to continue leading the healthcare service chain in this new role or whether they will become supporting-role players in a system led by other institutions. We believe that hospitals that are able to take on board the recommendations provided herein will have a greater chance of maintaining their leading role.

To encourage and promote action, the study includes a list of **15 recommendations**, addressed to different healthcare stakeholders.

This list is merely a proposal of initiatives and decisions that would promote positive change, or mitigate potential harm or the emergence of a difficult scenario.

Recommendations include ideas and initiatives proposed by study participants during the workshops held at both hospitals or inferred during the analysis of future scenarios.

Although participants from each hospital have responded to different events occurring in distinct healthcare contexts, the two organizations seem to share many analogous challenges. Therefore, there is a single list of recommendations, and initiatives should be adapted when considered in the context of each hospital.

Finally, the list of recommendations is rounded out with a proposition for leading hospitals in search of **operational excellence** in the management of **knowledge, processes and services**.

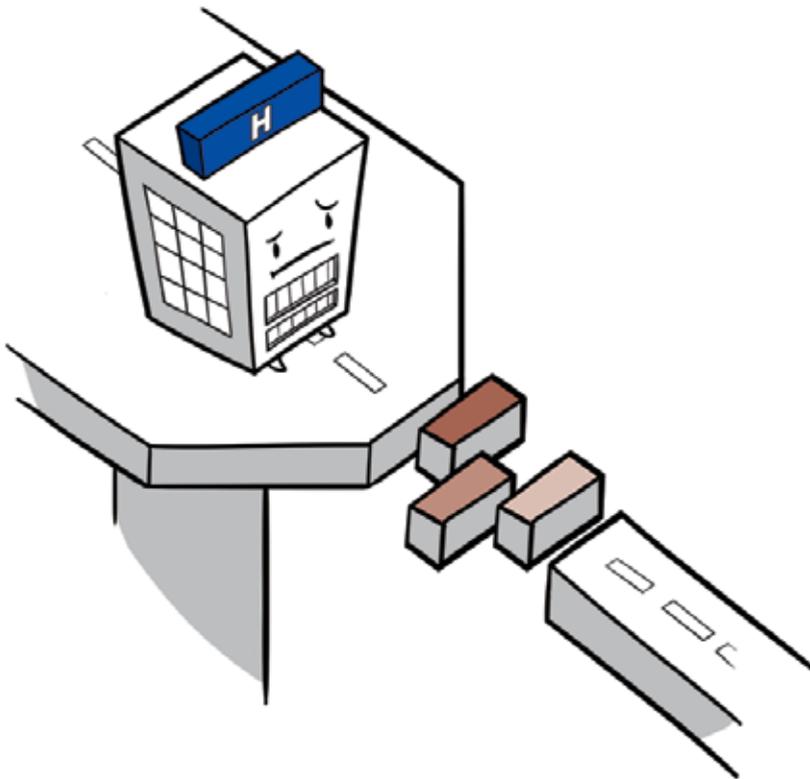
KEY MESSAGE 1: A TRIPLE-CHALLENGE CONTEXT FOR HOSPITALS

Leading hospitals will strive in a challenging context with a combination of an increase in healthcare needs, a decrease in resources, and changing social values.

Leading hospitals will have to find new ways to keep providing efficient and high-quality services in a challenging context. Over the past decades, life expectancy in Europe has grown, thanks to improvements in living conditions, public health interventions and the progress of medicine.

As the public demands more and better healthcare services, growth in healthcare expenditure – as a percentage of gross domestic product – will probably continue to decline, thus creating a challenging context for hospitals and also the rest of the healthcare system's stakeholders.

The need to prioritize public resources will bring back some of the debates about society's values such as solidarity, individual responsibility, and limits on free and universal access to healthcare services.



Current trends in sociodemographics may result in extreme scenarios of health services, especially for some patient groups with high needs, and public health systems are providing good outcomes but are very rigid and slow to implement changes.

In the next 15 years, there will be important changes in the health system with important social and economic implications.

KEY MESSAGE 2: SMALLER AND MORE COMPLEX HOSPITALS

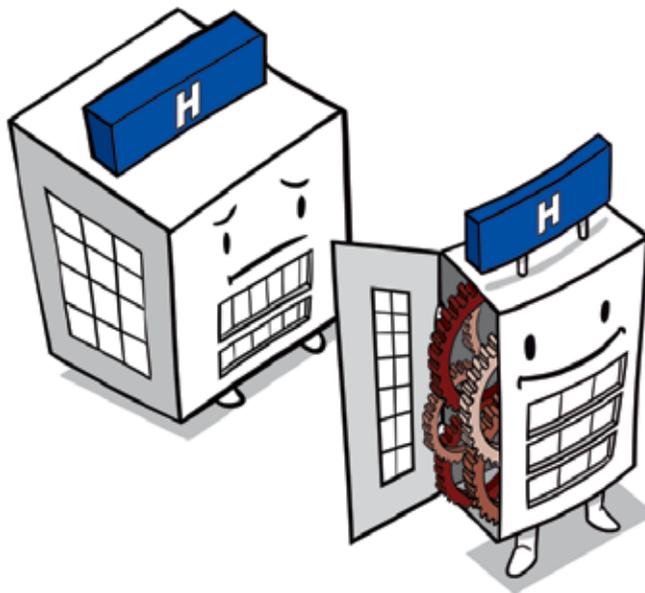
Leading hospitals will be expected to focus on high-value and highly complex services and to become highly efficient organizations, without requiring high activity volumes.

Europe's leading hospitals will be under great pressure over hospital financials, and will be required to deliver as planned and meet budgets, not only improving efficiency but also reducing investment and activity, with programs for demand control, service reconfiguration and resource reallocation.

High-value services will be complex services that require specialist knowledge or technologies or both, and that require a minimum number of cases or patients to achieve quality, safety and efficiency per unit of service provided.

Noncomplex services will be shifted from leading hospitals to other healthcare providers (district and community hospital or clinics), which should provide these routine care interventions at lower costs with a workforce mix and technologies that represent a lower average cost than at leading hospitals.

Leading hospitals will become less capacity-based and more results-oriented as organizations, implementing process improvement to reduce waste and increase value to patients and payers. They will share results and best practices, generating benchmarks for other healthcare providers.



The hospital will be smaller, with less volume, and more complex. Shifting some current hospital services will mean an improvement in hospital efficiency.

The payer will be purchasing outcomes and the value provided, and that means evaluating health status and considering the whole process of care and not just the cost of some interventions.

KEY MESSAGE 3: NEW SCOPE OF SERVICES

Leading hospitals will embrace new services such as personalized medicine and genome-based diagnosis, with a broader scope of services, which may include chronic care management.

Leading hospitals will deliver new and highly complex healthcare services, such as genome-based and personalized medicine based on new health technologies that require expert skills.

Genome-based services will move hospitals forward in prevention services, and hospital professionals will support decisions on prediction tests and treatments for potential health problems and not only on confirmed diagnoses.

Leading hospitals will also embark on a broader scope of services such as population health management and chronic care management. These services will be based on a per capita and subscription model and will include a wide range of activities, from prevention, diagnosis, monitoring, intervention and remote management of patients to coordination and collaborative care planning with other healthcare providers.



Leading hospitals have the obligation to take a step forward and help the community with chronic care management, putting the hospital's talent and knowledge at the service of the community.

New chronic care management services must be led jointly by the hospital and other providers of care.

KEY MESSAGE 4: DUAL ORIENTATION: TERTIARY AND TERRITORIAL

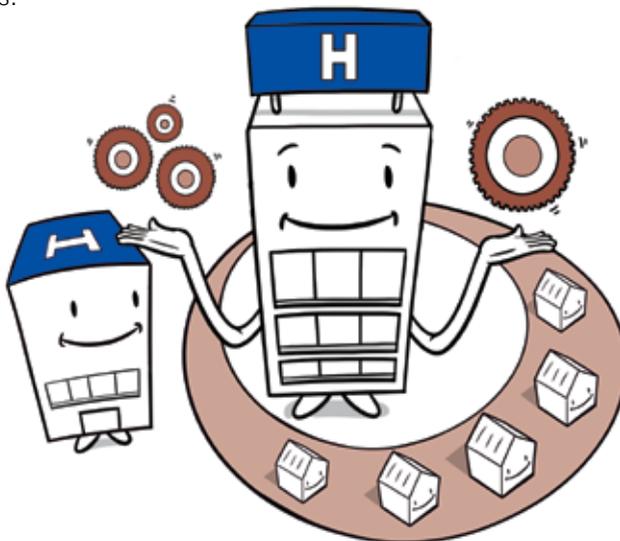
Leading hospitals will provide complex services to referred patients and also manage the provision of acute services in a catchment area.

First of all, leading hospitals will continue to provide excellent diagnosis and treatment services aimed at patients referred from other centers that cannot provide the same services with an adequate level of quality or at the same cost.

Moreover, leading hospitals will provide acute services for a catchment area in the community, and also supervise or manage other services such as prevention, primary care and mental health for this population. Managing or providing care for this catchment area will imply establishing strong links with the other stakeholders in the local network such as primary care centers, social care community services and local hospitals.

This dual role allows a leading hospital to maintain the necessary volume of activity and, as a consequence, the resources and professionals required to maintain excellence in service quality and innovate in complex treatments and also in disease management.

NOTE: At first, there appeared to be some inconsistency in this message with the focus on highly complex interventions. However, although a hospital may move toward becoming the reference hospital for a catchment area, this does not necessarily imply that this hospital must perform all required activities for this population. Rather, it means that the hospital takes on responsibility for organizing and managing the provision of healthcare for a catchment area, probably focusing on highly complex interventions and supervising and managing the provision of other less complex interventions, while being fully aware of and responsible for the territory's needs for services and processes.



The hospital infrastructure will be smaller, with equipment and professionals oriented to provide the most complex services and, at the same time, it will perform efficiently as a community hospital.

The current hospital is very inefficient because it tries to solve different problems with one structure and organization.

KEY MESSAGE 5: KNOWLEDGE-DRIVEN REDESIGN OF SERVICES

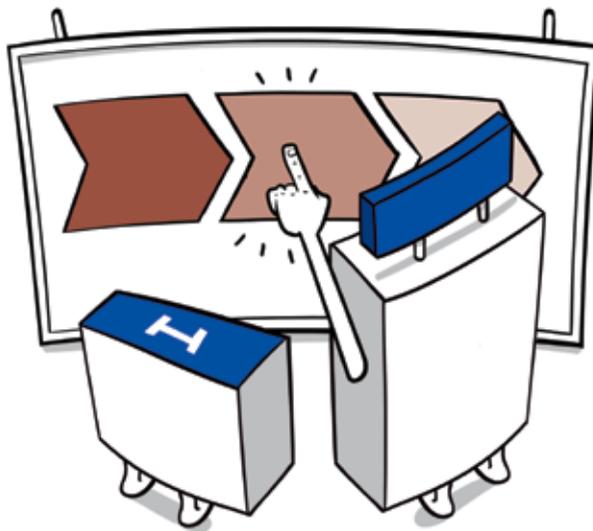
Leading hospitals' knowledge will play a central role in the knowledge-driven redesign and planning of healthcare services.

Public health systems will carry out a reconfiguration of services geared toward efficiency and quality, which must be evidence-based and driven by knowledge. The required knowledge for this redesign could be based at leading hospitals where professionals treat and interact with patients.

At the same time, leading hospitals will have a critical role to play in achieving the triple aim in public healthcare systems: improving the patient experience of care – including quality and satisfaction – as well as improving the health of populations and reducing the per capita cost of healthcare.

In order to improve the quality and efficiency of the health system, both for private and public services, leading hospitals will be expected to participate in healthcare service innovation such as the development of new services and implementation of new healthcare technologies.

Hospital physicians and managers will consider the whole healthcare provision network as their area of influence and will develop an active role for knowledge development, care management and improvement, not only within the hospital but also for other providers in the network.



There is an opportunity to redesign healthcare using clinical knowledge accumulated at hospitals.

The hospital might have a new role to design, plan and manage healthcare services.

Process redesign starts within the hospital, but is not limited to the hospital walls. We must analyze what hospital activities and knowledge contribute to healthcare processes as a whole.

KEY MESSAGE 6: OPEN AND DISTRIBUTED ORGANIZATIONS

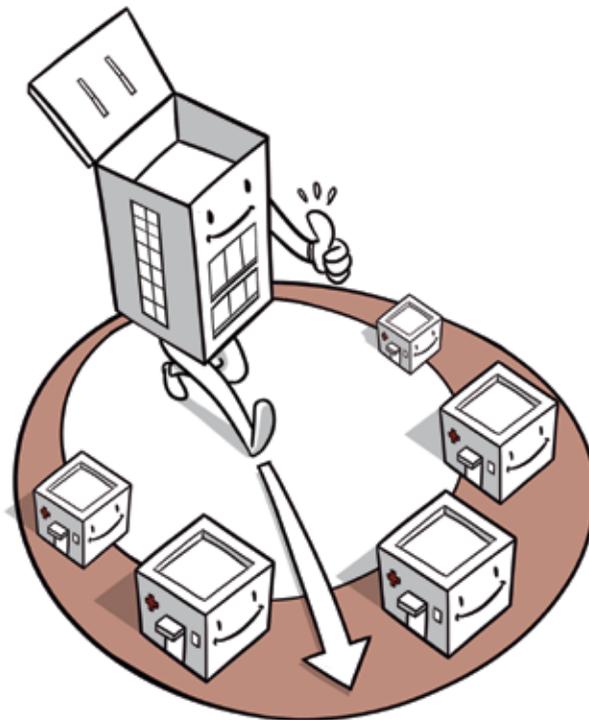
Leading hospitals will not be defined by the physical structures and will be organized so they deliver services at different locations.

Leading hospitals will adjust to become smaller in terms of physical resources, due to fewer inpatient processes, smaller equipment and fewer patients on-site.

Leading hospitals will reduce their physical resources on the main site, such as ward areas, and will use distributed facilities to get closer geographically to patients, with processes covering not only on-site activities but also home care and providing services at facilities shared with other levels of care.

The size of wards, rehabilitation areas and A&E departments will be adapted to new flows of patients, and resources will be more flexible (suitable for different uses) rather than for a fixed purpose or specialty.

In combination, the leading hospital will deliver care at different locations with virtual and flexible, multidisciplinary and process-oriented teams.



Hospital units with a focus on specific pathologies will break the current boundaries of medical departments.

Some hospital equipment will be moved to local centers, with easier access to patients, and professionals will work at different hospital locations.

KEY MESSAGE 7: INNOVATION CENTERS OF TECHNOLOGY AND SERVICES

Leading hospitals will be reference centers for process and technology innovation and healthcare service design.

In order to improve the quality and efficiency of the health system, leading hospitals will be expected to participate in the detection, adoption and dissemination of healthcare service innovations in specialist services, playing an orchestrating role in innovation in the catchment area.

Healthcare process innovation should include clinical processes and patient flow processes inside the hospital and also in the care continuum (including coordination with other stakeholders), based on the application of lean methods to improve the value and efficiency of healthcare services.

The hospital-based health technology assessment (HTA) units will have a growing role within leading hospitals to improve decisions on service development and healthcare technology innovation and management.

Leading hospitals' innovative contributions to the health system should be evaluated and compensated accordingly, as they represent an important line of income on leading hospitals' balance sheets.

Leading hospitals will play an important role in the healthcare system as reference points for the improvement and transparency of public health service safety, by providing benchmarks for and evidence to other healthcare providers, the administration and society.

Leading hospitals will build links at European level for innovation but at the same time create and foster an environment for innovation at local and regional levels.



Nowadays, innovation in practical care is driven by hospital strategy and goals, whereas technology innovation is driven by knowledge and research, but we will see a combination of these innovation processes in the near future.

The final goal of hospital innovation is to create a good environment for innovation, so the hospital will seek to find solutions to support the other providers in the system, and approach them with a nonprescriptive message.

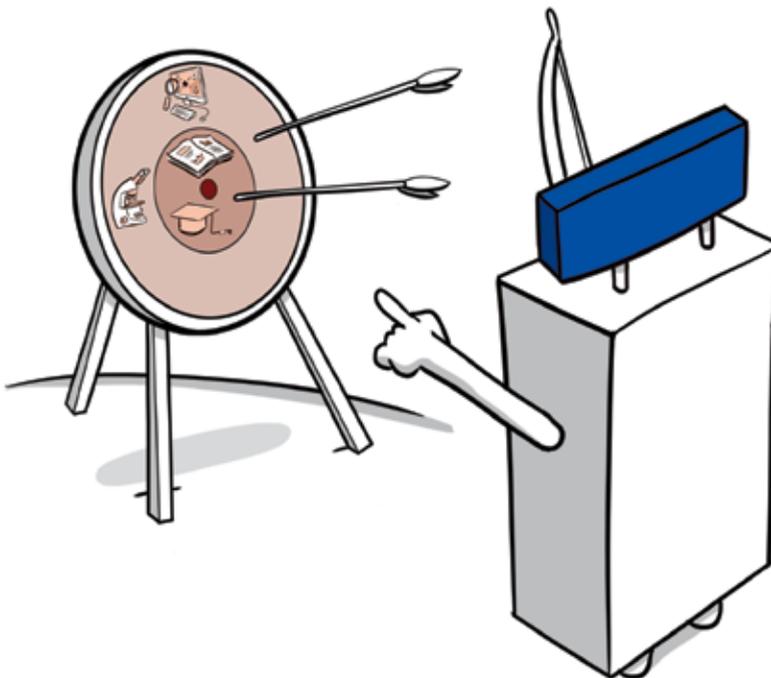
KEY MESSAGE 8: RESEARCH AND EDUCATION AS KEY RESULTS

Leading hospitals will continue to be the main centers for research and for the education of new professionals, which means generating knowledge and capabilities.

Leading hospitals will develop networks with other healthcare providers in order to create research networks at a local, regional, national and international level. Leading hospitals should develop partnerships, knowledge and activity that serve as the basis for clinical and translational research activities.

Research will be linked to cost control initiatives, where research can be understood as a source for generating resources, with an understanding that most research will be clinical (translational) research and not basic research and will be linked to innovation activities.

Leading hospitals will be interconnected with other healthcare providers and other industry companies at different levels and with different roles, combining competition and collaboration.



The hospital must be open so the flow of patients in the system can be seen and not only within the hospital walls.

Clinical research and process innovation can (and should) be done by all hospitals... However, translational research should be concentrated in a few leading hospitals.

KEY MESSAGE 9: RISK-SHARING MODELS WITH ALL STAKEHOLDERS

Leading hospitals will develop new risk-sharing models with insurers, industry and/or other providers.

The coming years will see the progressive introduction of new methods of payment for treatment – such as payment by results – that will require hospitals to reconsider their revenue models and structures.

Two other drivers for hospitals to explore and adopt new revenue models are the decline of healthcare expenditure on hospital curative services and new opportunities for services that only public or private high-tech hospitals can provide.

The decrease in healthcare expenditure on curative services is related to the relative increase in expenditure on preventive services. Hospital services will be reduced as a percentage of total expenditure, so there will be a need for efficiency gains in hospital services (curative services) to reduce costs, and new revenues from other services will be required.

The framework of the relationship with hospital providers will change and introduce risk-sharing models – for example, in the provision of pharmaceutical products.



The framework of the relationship with hospital providers will change and introduce risk-sharing models.

Somehow, there is already a kind of risk sharing in the development of new technologies in the hospital – companies bring money and other assets and the professionals put in their time and reputation.

KEY MESSAGE 10: PROFESSIONALS IN HOSPITAL GOVERNANCE

Hospital professionals will actively participate in the strategy and leadership of the organization.

Hospitals' leading professionals will develop an active role in care management and improvement, not only within the hospital but also in the network of provision. As leading hospitals become an open organization, these leaders will drive the collaboration between the hospital-based healthcare professionals and the community-based healthcare professionals.

Healthcare professionals will be incorporated into the leading hospitals' management and considered as individual entrepreneurs managing their firms under a general umbrella, participating in all committees, in order to align and create synergies between hospital goals and professionals' goals.

Clinicians and other healthcare professionals will participate in strategy design and implementation, with management responsibilities in different units, and their opinions will be very influential on the governance boards.

Decisions on management positions, such as the head of department, and hospital organization will not depend on politicians' decisions but will carefully include the views of all stakeholders in the community, and especially those of healthcare professionals.

Hospital professionals will advance in nontechnical competencies, such as team management, conflict management, patient communication and other soft skills and management skills.



Hospitals currently have a massive challenge. For real change to occur, the authorities – especially politicians – should let leading physicians play an active role in the redesign of the health system.

In the following years, for positive changes in hospital governance, it is necessary to have clarification of the roles and responsibilities of all healthcare institutions around the hospital.

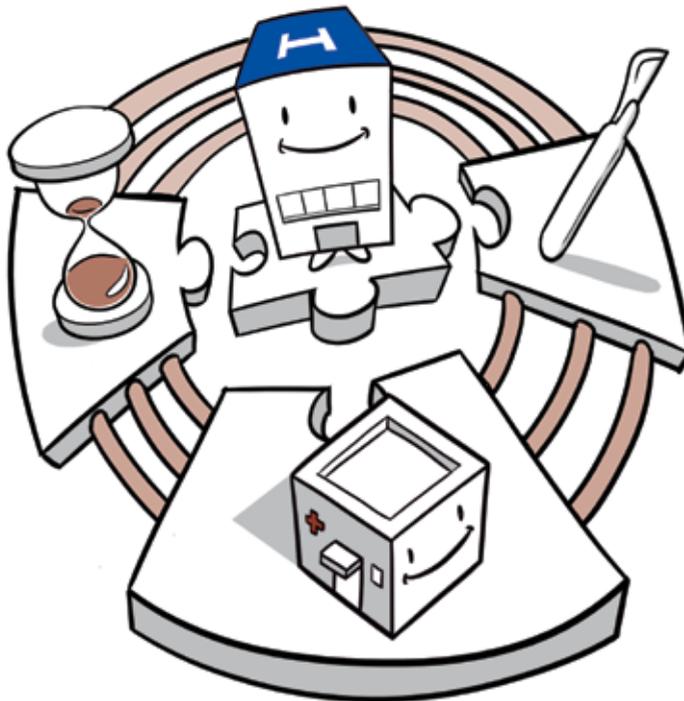
KEY MESSAGE 11: INTEGRATED CARE AND PROCESS-ORIENTED TEAMS

Leading hospitals will be organized into process-oriented teams and seek to create integrated care models (either virtually or merging companies).

The design of the hospital organization will consider the whole network of provision, structuring disease or process-oriented teams, the scope of which extends beyond the hospital facilities. The hospital's role will be not only coordinating but orchestrating services. In order to do that, hospital professionals will share clinical knowledge with other levels of care and providers in the network.

Hospital physicians and managers will consider the whole healthcare provision network as their area of influence and will develop an active role for care management and improvement, not only within the hospital but also for other providers in the network.

In order to manage this healthcare network efficiently, leading hospitals will push forward integrated care models to create either a single integrated care organization (merging entities) or a virtual integrated care organization (a multiple entity organization with a joint governance body).



Process units represent progress in adapting the structure to the patients' real needs, yet they do not fully represent the complexity of clinical care.

Process units may evolve into structures oriented to population tracks, like a geriatric acute care unit.

KEY MESSAGE 12: CONNECTED HOSPITAL

Improvement of the patient experience will lead to connected hospitals where case managers will reach out to coordinate care for patients at home.

In the next 15 years, patients will spend less time at hospital and on healthcare premises. Improving the patient experience will demand the introduction of new modes of interaction between patients and hospital professionals.

Information technologies will be used to predict needs, personalize healthcare processes and treatments and follow up and connect with patients wherever they are, using virtual consultation, not only one-to-one but also between a team and patient. Hospital professionals will also become mediators of relevant and personalized information to patients.

As remote health management services will become widespread, citizens will use mobile apps, sensors and medical devices to monitor and improve their health and well-being. There will be a wide range of such devices and apps, covering different age and socioeconomic groups in the population almost equally, though there will be different levels of adoption depending on each patient's willingness to communicate remotely and receive directions, support and monitoring.

These changes will lead to patients taking a more active role in the design of hospital services and participating in activities to redesign care processes so patients' needs and views are considered.



Some groups of chronic patients are very proactive and will influence the health system in some respects.

Patient communities will have an impact on the health system so the perceived quality is taken into account.

KEY MESSAGE 13: NEW PROFESSIONAL ROLES

Leading hospitals will need health coaches, genetic counsellors, disease specific case managers, information management experts and “med-engineers.”

Leading hospitals will need new professional roles, for disease-specific case management, healthcare service personalization, team coordination, and follow-up for patients that will also act as the first levels of contact for patients in specific disease groups.

Professionals will work in multidisciplinary and process-oriented teams, blurring the existing discipline boundaries between physicians, nurses and other healthcare professionals.

Health coaches will focus on patient tracks in a proactive manner, and will be either hospital or primary care-based but with strong links to hospitals’ knowledge and professionals.

Disease-specific case managers will help patients access the knowledge experts when needed and will contact and follow up patients every day.

Genetic counsellors will team up in all hospital areas to help personalize care, acting as the interface for genomics advances, promoting the fast and safe introduction of genomics into patient care and helping to address the challenges associated with genetic information and technology.

The med-engineer will be a new role combining engineering and medical education to facilitate initiatives for process improvement and service excellence.

The info-enabler will be the expert on the analysis and evaluation of information, who teams up with healthcare professionals to obtain outcomes, costs, value and benefits for new processes and technologies frequently.



The case manager will become the central figure who connects the patient with the rest of the healthcare team and the health system.

In high-technology hospitals... someone will help establish a bridge between technology and the hospitals’ professionals.

KEY MESSAGE 14: PATIENT-CENTERED INNOVATION

Leading hospitals will systematically redesign the service experience with innovation to become really patient centered.

Hospital services will need to evolve along with clinical knowledge and also with patients' expectations, systematically evaluating and improving patients' experience and quality of services.

Leading hospitals' innovation will promote the establishment of collaborations with other healthcare providers and industry to discover, ideate and prototype new services and new ways of providing services to patients.

Patients' involvement in the redesign of healthcare services will be promoted and their perceptions of health services will be consistently evaluated for quality improvement.

Innovation activities will not be limited to a small group of practitioners but will extend to most healthcare professionals, and skills and competencies in innovation will be included in the curriculum of different professional career plans.



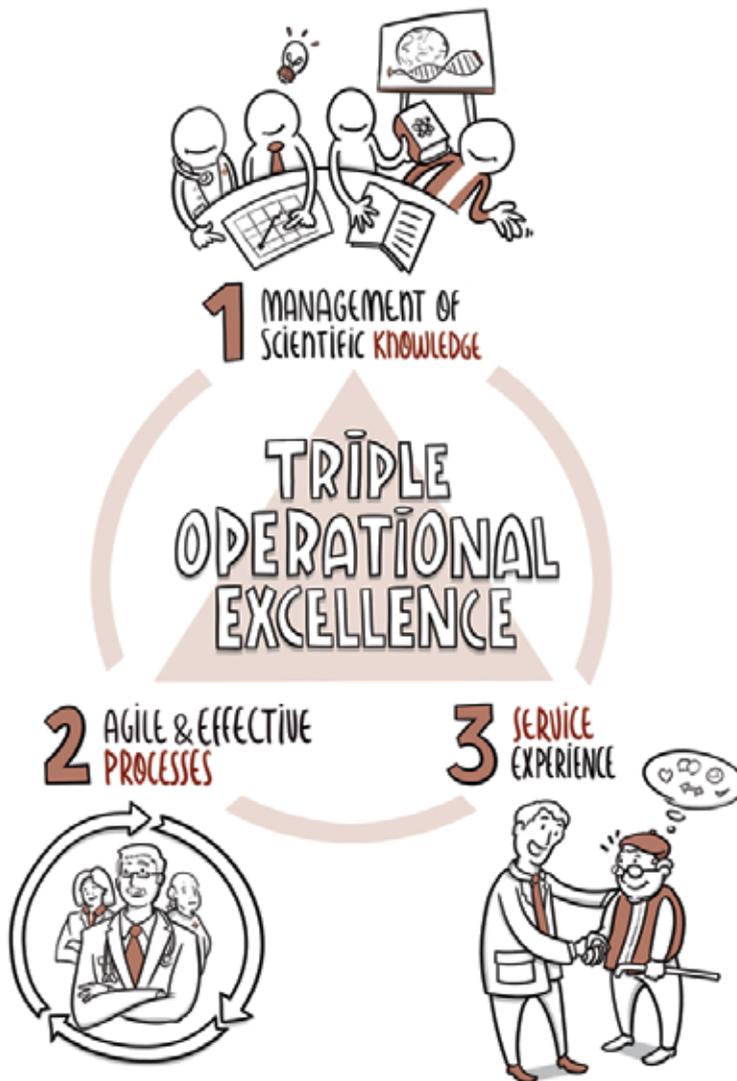
Perceived quality of healthcare services will be systematically evaluated and considered for innovation.

Communities of patients will have an impact on the redesign of specific healthcare services (and processes).

THE TRIPLE OPERATIONAL EXCELLENCE CHALLENGE

Public hospitals in Europe are becoming a critical piece in the new healthcare puzzle for achieving excellence. For the past few decades, hospitals have been concentrating highly skilled professionals, healthcare technologies, and volumes of activity. Hospitals have also become essential for clinical basic and translational research and for education and training.

Public hospitals share with other healthcare and nonhealthcare organizations worldwide the challenges of the triple operational excellence aim: (1) the management of scientific knowledge, (2) the need to implement agile and effective processes, and (3) the provision of excellent service, as perceived by the hospital stakeholders, primarily patients and their families.



1) Management of Scientific Knowledge

There is no doubt that knowledge in health has exploded, with tens of thousands of articles making their way into Medline every month. It is impossible for a single professional to keep up with this tsunami of knowledge, which needs to be filtered and incorporated into practice. Furthermore, proper practice inside a health institution generates knowledge that also needs to be collected, systematized and disseminated for internal and external use. This management of knowledge, the use and generation of evidence, cannot be left to individual improvisation but requires leading hospitals to play an active role in the creation of processes to generate the knowledge, analyze it, store it and disseminate it. This is particularly difficult as it must be achieved in an environment with many inherent impediments to learning, such as cross-disciplinary work, a culture of solving problems internally, reluctance to show failure, professionals with a strong desire to “get it right,” status differences between professionals, powerful individuals, etc.

2) Agile and Effective Processes

The explosive development of knowledge has driven a culture of super-specialization and therefore strong efforts are required to integrate this fragmented organization to provide care for patients with diseases that do not fall neatly into a unique specialty. Furthermore, hospital processes cover the whole spectrum of knowledge, as described by Amy C. Edmondson, from very routine processes where there should be no room for uncertainty and variability and improvisation should be minimized, to innovation processes, on the border of the state of the art in medicine, where the goal

of care for specific patients is combined with the goal of advancing knowledge, experimenting with new diagnostics and treatments, generating new possibilities, and with tasks that are defined, assigned and improvised on the go.

Between these two extremes (routine and innovative processes) lie most hospital processes, which are highly complex and where old and new tasks interact and where perpetual problem solving is a way of life. This ample spectrum of processes makes two forms of execution coexist – execution as efficiency (where leaders are expected to provide answers and employees to follow directives, where optimal processes can be designed and set up in advance, and where problem solving is rarely required) and execution as learning (where leaders set directions but employees discover the answers, where tentative work processes are set up as a starting point and keep developing in a continuous way, and where fear cripples the learning process).

3) Excellent Service Experience

Patients have evolved from playing a passive to a much more active role, from users to customers who expect to be empowered and able to choose providers. And healthcare institutions have to react to these changes by better understanding the expectations and perceptions of patients and their families, mapping their journeys through the processes, the interactions with different providers, the moments of truth and pain points, and manage them in a continuously improved way. The inclusion of design thinking techniques in the improvement of service operations is already a growing area of interest in hospitals.

And obviously the personnel side of the equation is equally important, although it is not always taken into consideration. Talent is scarce and leading hospitals must provide a satisfactory environment for professionals to develop their careers. This factor involves, among other aspects, processes for personnel recruitment, continuous training, assessment, and rewards. The same techniques that are used to identify and improve patients' pain points can be applied equally to identify and resolve the employees' pain points in the process.

Recommendations

These recommendations are intended mainly as discussion points that hospital leaders and health policy makers need to consider when drafting future plans for their institutions.

Recommendation 1: Leading hospitals should play an active role in helping public administration and society deal with the healthcare economics challenge, bringing vision and knowledge to the debate on the configuration of the future healthcare system. In playing this active role, they could establish (or defend) their key position in the healthcare value chain. Independently of the ongoing discussion to develop primary healthcare further where it is not available, and the need for the primary care physician to be the usual entry point in the system, hospitals should maintain their prominent role in many other facets, such as clinical knowledge development and archiving, overall health chain system design, etc.

Recommendation 2: Leading hospital managers and health system policy makers should seek to protect “synergic” hospital services, which could otherwise be shifted to other providers. However, if kept within the control of the leading hospital these services will be more effective in generating knowledge or capabilities that can be shared and transferred to other services.

Recommendation 3: Leading hospital managers should foster trusting relationships with other providers at different levels – local, regional, national and international – to build efficient healthcare value-creation networks, involving alternative sites of care or new roles for caregivers, creating new care processes, and enabling technologies.

Recommendation 4: Hospital professionals should play an active role in leading service redesign and the implementation of new services. In doing so they may need to develop new soft skills. Leading hospitals will incorporate new professionals coming from other disciplines (med-engineers, service designers, anthropologists, etc.) and will have to work together with the hospital’s professionals (physicians, nurses, technicians, etc.) in the innovation and development of new services.

Recommendation 5: Healthcare payers and hospital managers should create controlled scenarios for testing new contracting models and new healthcare services. Leading hospitals may – in a proactive role – contribute to these scenarios with the hospitals’ knowledge, facilities and systems to pilot innovative contracting agreements with health authorities and other payers in the system. Participating in these controlled scenarios would help hospitals to prepare for dramatic changes in the revenue models of public hospitals that may alter the traditional operational model.

Recommendation 6: Healthcare policy makers should consider including hospital clinical leaders when designing disease management strategies and plans, and consider including hospital managers when planning healthcare services in order to assign suitable catchment areas to hospitals.

Recommendation 7: Hospitals should develop programs and capabilities for health technology innovation and performance improvement at deeper levels in the hospital and also in the network of provision. They will need to search continuously for operational excellence, ensuring the efficient and effective use of the available resources, eliminating all types of waste (including duplicated activities, process waiting periods, defective processes, overprocessing and underprocessing of patients, hospital-generated infections, and lack of continuity of care in the transfer of patients between services or providers). Leading hospitals should aim to achieve a swift even flow of patients, and learn how to match the existing capacity with demand better, controlling as much as possible the variability in the processes and redirecting the flow of patients in a dynamic way to the facilities where suitable resources may be available.

Recommendation 8: Leading hospitals' managers should prepare different environments and partnership models that will help establish closer collaboration among different stakeholders in research and education. Leading hospitals should play the main role in developing educational programs for the clinical education of physicians inside the hospitals and in other care provider settings, as well as in supporting new channels for educating patients and community care personnel.

Recommendation 9: Hospitals should strengthen links with primary care, mental and social care providers, to build efficient care networks and work with healthcare authorities to create integrated care organizations. As is the case in other industries, one of the players in the value chain will take a coordinating role in the

design and operation of integrated care networks. Leading hospitals are well positioned to take on this role.

Recommendation 10: Hospital managers should create new capabilities and ICT services for healthcare professionals in order to improve connectivity with other players in the extended integrated healthcare network and with patients. The portfolio of services available for the professionals may include e health enabling services for virtual consultation, collaboration tools with other healthcare professionals, remote monitoring systems, as well as new health information analysis solutions.

Recommendation 11: Healthcare authorities should develop programs for patient experience improvement, including patient involvement through patient advisory councils for the redesign of healthcare services. Further, the idea of patient experience satisfaction should be extended to cover the institutions' other stakeholders, such as patients' families, and clinical and nonclinical staff, ensuring that their experience in dealing with the institution is also considered and improvement opportunities are continuously studied.

Recommendation 12: Health system policy makers should consider and evaluate the possibility of allowing public hospitals to offer private services, for instance, those not covered by the national health system where the hospital has the knowledge and technologies to deliver these services. In doing so they must ensure that the proper rules of competition with private providers are in place and that the extra revenues are used to improve research and the care provided to public patients.

Recommendation 13: Leading hospitals should ensure there are professional development plans for clinicians that include not only clinical skills but also leadership, management and communication competencies, which will help achieve the greater impact that the system requires. The prospects for care redesign and performance improvement in health systems depend on clinician leadership in units, wards, clinics and practices. These clinical microsystems are composed of and controlled by clinicians whose primary work is patient care but who also need other management and leadership skills.

Recommendation 14: Policy makers should design new hospital governance models that allow decisions to be made closer to the level where problems arise, with more actions at the technical level and only a few at the political level. The hospital governance model should allow healthcare authorities and politicians to ensure that citizens' interests are considered in hospital decision making. Also the nature of healthcare systems implies that some changes may require years to be implemented and to achieve the expected results, so hospital managers should be allowed to execute suitable plans in the medium and, especially, long term.

Recommendation 15: Leading hospitals, being very active in care delivery, teaching and research, should develop systems to keep up to date with the development of clinical knowledge in the different specialties, and ensure that new knowledge is spread rapidly throughout the health system to which they belong (in connection with primary care, ambulatory services, social care, etc.). Leading hospitals will also provide training to develop the skills necessary to apply the new medical technologies in an environment that guarantees patient safety, and they will also design internal systems to ensure that the knowledge and evidence generated during the hospital activities are collected, analyzed and, when they prove valuable, incorporated into the medical body of knowledge and made available to other experts.

Study Limitations

We hope that this study contributes to the ongoing debate on the role of hospitals by providing some answers and raising valuable questions for current and future healthcare managers, professionals and policy makers.

This study has focused on the hospital perspective and hospitals' interaction with other institutions (universities, city councils, start-up companies, etc.). However, it would be interesting to continue this work and understand how potential changes may be perceived by other healthcare stakeholders such as primary care centers, those involved in long-term care, healthcare suppliers, patients' associations, healthcare insurers, industries, and other stakeholders. This may be the focus of a future study by IESE CRHIM.

The encapsulation and combination of ideas from the two hospitals might be interpreted as discrepancies for some readers, whereas other readers might find all the findings to be very consistent.

Is it possible for a hospital to focus on complex services and, at the same time, become a community hospital? Could conditions change in such a way that this contradiction will become feasible in the next 15 years? This study leaves open room for debate on this issue.

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