EuHPN European Health Property Network

EUROPEAN HEALTH PROPERTY NETWORK 2017 WORKSHOP

Torino, Italy: 20-22 November

Futureproofing Health System Infrastructure

Design, technology and innovation to ensure a fit for purpose healthcare estate

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European Health Property Network
2017 Workshop
20-22 November, Torino

Future Proofing Health System Infrastructure

Design, technology and innovation to ensure a fit for purpose healthcare estate

The future for health and social care systems across Europe is more difficult to predict than ever, due to very rapid changes in care models, organisational restructuring and emerging technologies, as well as macro-factors such as climate change and migration patterns. These doubts multiply when it comes to considering the future for the physical infrastructure of healthcare. As never before, we need evidence and knowledge about what will drive changes in capital investment policy and practice, which technologies are going to be influential and how infrastructure planning can take account of these changes.

To provide some answers to these and other, associated questions, the 2017 European Health Property Network (EuHPN) Workshop will focus on how we can ensure that current and future healthcare infrastructure can remain relevant and fit for purpose over the coming years.

As in recent years, the EuHPN workshop 2017 will bring together an eclectic mix of health estates and facilities professionals, health system planners and policy makers, clinicians with an interest in the built environment, hospital directors and capital investment experts. We will be welcoming speakers and participants from the public and private sectors, from more than a dozen different European countries, to listen to the latest developments and to take part in lively discussions.

The EuHPN workshop provides ample opportunity to learn from peers and to network extensively with colleagues from around Europe and beyond.

Workshop Programme

Monday, 20th November

10.00 – 12.00	**European Health Property Network Board and Member meeting**	
13.00 – 14.00	**Welcome buffet lunch – all participants welcome**	
Session 1	**Welcome; introduction; health system context in Turin and Piedmont**	
14.00 – 15.00	Introduction to the workshop theme	Jonathan Erskine, Executive Director of EuHPN; Honorary Fellow, Durham University; Non Executive Director of North Tees and Hartlepool NHS Foundation Trust (UK)
	Healthcare infrastructure and health system policy in Turing and Piedmont	Dott Valerio Fabio Alberti, General Director of the Citta di Torino Azienda Sanitaria Locale (ASL; Local Health Authority)
Session 2	**Mega-trends, new technologies and managing change: drivers of future healthcare infrastructure**	
15.00 – 15.30	Big data and cognitive computing in clinical decision making	Professor Erik Fosse, Head of Department, The Intervention Centre, Oslo University Hospital, Rikshospitalet, Norway
15.30 – 16.00	Horizon scanning in practice: building a future academic hospital in Lund, Sweden	Dr Peter Lanbeck, Skane University Hospital, Skane region, Sweden
16.00 – 16.30	Coffee break	
16.30 – 17.00	The technologies underpinning Ireland's new National Paediatric Hospital	Eilish Hardiman, CEO, Children's Hospital Group, Ireland
17.00 – 17.30	Horizon scanning the technology of care: implications for the healthcare built environment	Professor James Barlow, Imperial College, London, UK
17.30 – 18.00	Digitize your capital projects	Paul Vogels, Managing Director, Primaned
18.00 – 18.30	Panel and audience discussion	Facilitated by Jonathan Erskine, Executive Director of EuHPN
18.30 – 19.30	EuHPN drinks reception	

Tuesday, 21st November

Session 3	**Climate change and the energy challenge for healthcare infrastructure**	
09.00 – 09.30	Break through thinking: the healthcare sector and climate change	Simona Agger, EuHPN Chair and SIAIS board member
09.30 – 10.00	The STREAMER project: the realities of transforming energy use in hospitals	Maurits Algra, dJGA Architects, Netherlands
10.30 – 11.00	Optimising patient flow in emergency departments: saving time, energy and resources	Dr Gianluca Ghiselli, Emergency Room Medical Director Asti Hospital, Piedmont Region
10.30 – 11.00	Coffee break	
Session 4	**Future technologies and the impact on health systems and infrastructure**	
11.00 – 11.30	Artificial Intelligence for health system planning	Pentti Itkonen, CEO, Eksote (Finland) EuHPN Board Member on behalf of the Finnish Association of Local Government
11.30 – 12.00	RFID technology to optimize use of space and equipment	Tom Steele, Director, Health Facilities Scotland
12.00 – 12.30	Personalised medicine: Renal care in home settings: implications for hospital facility management	Paola Boscolo, Imperial College, London, UK
12.30 – 13.00	New Technological Solutions for Electrical Safety in Group 2 Medical Rooms in accordance to HD 60364-7-710:2012 and CEI 64 -8;V2:2015-08;	Danilo Martinucci, Business Development Manager, Bender Italia srl
13.00 – 14.15	Lunch	
Session 5	**Building the future now: design, engineering and financing for sustainability**	
14.15 – 14.45	The effects patient-centered health system design on the built environment	Dr Daniela Pedrini, Sant'Orsola Malpighi University Teaching Hospital, Bologna; President of the Italian Society for Healthcare Engineering and Architecture; President of the International Federation of Healthcare Engineers Europe
14.45 – 15.15	Future hospital architecture / Sensing the hospital environment	Abraham Jiménez, Pinearq, Spain
15.15 – 15.45	Coffee break	
15.45 – 16.15	Design for sustainable, patient-friendly small hospitals	Martjan den Hoed, dJGA Architects, Netherlands

16.15 – 16.45	Targeting capital investment for sustainability and patient benefit: evidence from 18 jurisdictions around the world.	Rhonda Kerr, Health Economist, Clinical Services Planner Hames Sharley, Ph.D. Candidate in Health Economics, Curtin University; Director, Economics, Health Services and Planning, Guidelines and Economists Network International (GENI)

Workshop dinner

18.00	Coach departure from the Starhotel Majestic for workshop dinner at the National Automobile Museum
18.30	Tour of the National Automobile Museum
19.30	Drinks reception
20.00 - 22.30	EuHPN Workshop dinner
22.30	Coach return to city centre

Wednesday, 22nd November

Session 5	**Research, evidence, evaluation**	
09.00 – 09.15	Legionella risk: disinfection of the water system	Angelo Ermidi, Key Account Manager, EMEC
09.15 – 11.00	Symposium on the future of health infrastructure research: building a pan-European evidence base to ensure high quality, fit for purpose healthcare buildings *Audience engagement and participation will be very welcome in this session.*	Jonathan Erskine, Executive Director, European Health Property Network; Honorary Fellow, Durham University, UK Carole Crane and Paul Mercer, Architects for Health, UK Saga Karlsson, White Arkitekter, Sweden Liesbeth van Heel, Programme Director and Senior Policy Advisor, Erasmus MC, Netherlands Menno Hinkema, TNO, Netherlands
11.00 – 11.30	Coffee break	
11.30 – 12.30	Future health: perspectives from inside and outside Europe	Stefan Wunderlich, Life Sciences and Health, European Investment Bank Luis Gonzalez-Sterling, Árgola Arquitectos, Director of Healthcare Architecture, Spain
12.30 – 13.00	Reflections on the workshop theme and concluding remarks	Dr Luigi Bertinato, Prof. Simona Agger and Jonathan Erskine
13.00 – 14.00	Lunch and departures	
14.00 – 17.00	Study tour, hosted by the ASL Citta di Torino	Ospedale Maria Vittoria and Ospedale San Gionvanni Bosco

Speakers and abstracts

Jonathan Erskine, Executive Director, European Health Property Network; Honorary Research Fellow, Durham University, UK

Jonathan has worked in various roles for the European Health Property Network for over 10 years, and has combined this with a career in health policy research at Durham University (2004 – 2016) and now as an independent academic researcher. He is also a Non Executive Director of North Tees and Hartlepool NHS Foundations Trust, a hospital and community services organization which serves the populations of Stockton-on-Tees, Hartlepool and surrounding areas in the north east of England. Prior to this role, he was a Non Executive Director of the Stockton-on-Tees Primary Care Trust (2006 – 2011). Before he began working in the health field, Jonathan was variously an IT director for a company in Lisbon, Portugal, a technical author for computer companies in the UK and Italy, and an occasional arts journalist.

Jonathan's research interests are in large-scale, transformational change in health systems, and in the links between the strategic planning, design and financing of the healthcare built environment. He has published and edited research articles, book chapters and reports in this fields, and has collaborated extensively with academic, practitioner and policy colleagues in many different institutions and countries.

Abstract

Why focus on future proofing, and what will help us to do this?

In one sense, the pace of change in health systems, and in the possible infrastructures which underpin and support accompanying models of care, is breathtaking. Surgical procedures are now available which were the stuff of science fiction only 15 to 20 years ago; medical advances mean that truly personalized treatments are now becoming possible; harvesting and analyzing 'big data' may lead to leaps forward in public health and the future direction of pharma research. And yet … there is also a sense in which we seem to stumble forward, not quite sure if we are really pursuing the technologies and methods which will meet future need. This may be particularly so in the case of healthcare buildings. Have we really become better at planning the health facilities of the future? We talk a lot about using evidence and evaluation loops to get ahead of the curve, but do we really do all that much in practice?

This year's EuHPN workshop spans all these issues (and others, besides), and I will attempt to provide some context and – I hope – some provocative thoughts on day 1, and then introduce some expert contributors on day 3 to address the issue of how we can improve on our use of available research and evidence.

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Professor Erik Fosse, MD, PhD. The The Intervention Centre, Oslo University hospital, Norway

Erik Fosse is a board certified specialist in general surgery and cardiothoracic surgery. He is professor of surgery at the University of Oslo and director of the Intervention Centre, a research and development department at Oslo University hospital www.ivs.no.

The centre is a toolbox for the development of new advanced medical procedures. Erik Fosse is also general director of NORWAC, a humanitarian organization, www.norwac.no and previous chair of the Human factors and medicine panel of the Science and technology organization in NATO. Fosse is also founder and CEO of the company Cardiaccs as, developing motion sensors for cardiac monitoring

Abstract

Big data and cognitive computing in clinical decision making.

Advances in imaging technology and genomics have during the last decades revolutionized diagnostics, as we today have access to an increasing amount of data for each patient allowing more precise treatment than ever before in human history. Since the 1980ies imaging guidance has revolutionized treatment. Video-assisted surgery has developed from the first laparoscopic gall bladder operation in 1987 to liver and pancreatic resections. In 2000 robotics were introduced as a more intuitive form for laparoscopy. Radiology guided intervention has substituted coronary surgery and several open-heart procedures. These new image guided procedures allow treatment with a minimal burden for the patient.

To utilize advanced imaging equipment for complicated surgical procedures the equipment has been gradually moved from the radiology departments in to the operation theatres. Hybrid suites where advanced imaging equipment that angiographic x-ray, CT scanners and MRI are integrated in large operation theatres are now common in many hospitals.

Since the 1990ies most patient information in the hospital has been digitalized. Today all radiology images, the patient records, the laboratory tests are all stored in digital format. The digital format makes it easier to share and access the data on a computer screen. This will gradually change the communication between the different levels of health care and between the patient and the health care system.

The digital format allows automated analysis and the combination of different types of information. In radiology, computer assisted diagnostics – programs that can perform analysis of specific radiologic information like mammography or CT of the lung, have been available for many years, but have so far not gained general acceptance. However, the rapid development or computer tools may make automated radiologic imaging analysis a common tool in the near future. The same is expected in histopathologic diagnostics. By coupling a high resolution digital camera to the microscope, all slices may be analysed digitally by pattern recognition program. The computer can also put together the biopsy slices and create a three-dimensional model of the specimen.

The development of machine learning and artificial intelligence is moving fast forward. Machines with artificial intelligence that can increase their own knowledge and analytic skills are entering the medical arena.

Deep learning is based on three pillars: Data for training the machine, computer power and algorithms. The patient records and other digital storages of the hospitals contain large amounts of data. Given that this information is available, machines can be trained. High powered computers are now in an affordable range, thus the basic requirements for developing algorithms for image analysis, interpretation of genomic information and patient record unstructured information are now met.

At the Intervention Centre at Oslo University hospital we have several programs involving big data and machine learning. To increase accuracy in laparoscopic liver resection, we perform

segmentation of the liver vasculature in CT images before surgery. In a research program the Hololense technology by Sopra Steria is used to demonstrate the segmented images holographically for planning a surgical intervention.

The segmented images can also be demonstrated during surgery either on a separate screen or integrated with the video images during laparoscopic surgery, creating an augmented reality for the surgeon.

The developments in diagnostic and therapeutic tools have radically changed the way we manage the patients. Traditionally, medical practices have been limited by our inability to obtain sufficient amounts of information for each patient, and a lack of treatment options. This picture is changing as focus shifts from generating relevant data to the challenge of ensuring that all relevant data is available, interpreted and analysed in a timely manner. Emerging and novel high throughput technologies can provide large amounts of relevant data and detailed molecular characterization of each patient. Today decisions on diagnostics and treatment involve cross-disciplinary teams that have to consider a large amount of data. This process will be completely transformed by a computing system enabled for structuring, linking and opening for cross-sectional analysis of all available information.

In 2017 we launched a project called the Big Data Medical solution-BIGMED. The aim of BIGMED is to lay the foundation for an ICT platform that addresses the analytic bottlenecks for the implementation of precision medicine and paves the way for novel big data analytics. The solutions will provide the patients with an optimized care which takes their unique individual characteristics into proper consideration.

This will be achieved by developing a novel big data solution that integrates patients' records information, genomics data, image data, and lab data, as well as all scientific publications. By using three disease groups (monogenic disorders, sudden cardiac death, and colon cancer with liver metastases) as problem identifiers, the project seeks to develop and demonstrate ICT tools that have generic relevance also for other disease groups. The main goals are: - Identify the requirements for precision medicine from the needs defined by the selected patient groups. - Develop bioinformatics tools that will speed up the robust and scalable inclusion of genomic diagnostics into mainstream healthcare. -Develop novel, beyond state of the art tools to extract actionable medical information from multiple unstructured and structured sources of medical data. -Develop novel analytical ICT tools for integrative analysis of patient data from electronic health records, genomic datasets and phenotype data to inform clinical decisions. The challenges to achieve this is not only technological. There are serious legal restraints in sharing genomic data, that is necessary for accurate interpretation. It is also a challenge to acquire data from patient records for training the machines. We are thus in a situation where legal and ethical borders are challenged by the utilization of artificial intelligence in medical decision making.

Dr Peter Lanbeck, Skane University Hospital, Skane region, Sweden

MD Lund University 1986. PhD 2003.
Specialist in infectious diseases 1993.
Consultant at Department of Infectious Diseases, Malmö University Hospital 1993-2008. Head of Department, Department of Infectious Diseases, Malmö University Hospital and from 2010 Skane University Hospital 2008-2016.

2005-2010 main responsible user representative when a new facility for infectious diseases was built in Malmö, Published experiences of this in HERD (Hospital Environment Research and Design) 2012. 2016- Director of program office for new hospital, Skane University Hospital.

Abstract

Horizon scanning in practice: building a future academic hospital in Lund, Sweden

New facilities for Skane University Hospital in the south of Sweden is in an early planning phase. The hospital is located on two sites, Malmö and Lund. The main facility in Lund is from the sixties and can't take any more reconstruction. The scope of this talk is to describe the early planning process and to describe how choices are an will be made. The talk will also cover issues that are more or less certain and part of the mission for the hospital but focus and problematise on issues that are not so certain, i.g. outcome of digitalization, demographic challenges and changes in care for elderly, integration with Lund Univerity etc.

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Eilísh Hardiman, Group Chief Executive of the Children's Hospital Group, Ireland

Eilísh Hardiman is Group Chief Executive of the Children's Hospital Group, appointed in November 2013. This Hospital Group consists of Our Lady's Children's Hospital, Crumlin; Temple Street Children's University Hospital and the National Children's Hospital at Tallaght Hospital, in partnership with all academic institutions in Ireland providing paediatric healthcare education and research. The remits of the Children's Hospital Group Board is to oversee the integration the three existing children's hospitals into a new single legal entity well before transitioning to the new Paediatric Outpatients and Urgent Care Centres at Connolly and Tallaght Hospitals and the new children's hospital at St. James's Hospital, developing an effective corporate and clinical governance structures for the Hospital Group, developing a services integration/reconfiguration plan for paediatric services in the Greater Dublin Area and to act as client for the new children's hospital capital project, the largest capital investment in healthcare. The new children's hospital is also planned as the first Digital Hospital in Ireland.

Eilísh has over 25 years acute academic teaching hospital experience, 15 of which at senior corporate management level, including CEO of Tallaght Hospital, both Deputy CEO and Director of Nursing of St James's Hospital, as well as, CEO to the National Paediatric Hospital Development Board.

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Professor James Barlow, Imperial College, London, UK

James is a Professor of Technology and Innovation Management at Imperial College Business School. He was educated at the London School of Economics and Political Science. His work focuses on aspects of innovation in healthcare, from creation to adoption.

He is particularly interested in the complex relationship between innovation in health technologies, services and infrastructure. James has led or been involved in many research projects around the world and has extensive experience advising and consulting for government and industry.

His current roles include Associate Director of Research for Imperial College Health Partners and President of the International Academy for Design and Health. James' latest book is Managing Innovation in Healthcare, published in January 2017 by World Scientific.

Abstract

Horizon scanning the technology of care: implications for the healthcare built environment

Prof. Barlow will discuss the areas where innovation is most needed to deliver affordable and high quality care in the next 15 years, and the role played by technological and infrastructure innovation.

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Paul Vogels, Managing Director, Primaned

Paul Vogels is the managing director of Primaned, a boutique consulting firm in Project Controls. He is a dedicated ambassador in raising awareness on Project Controls. With an education in Business Administration and Informatics, he bridges the gap between the business value and the digitalization for the organisations they are advising.

As a real Xennial his motto is to motivate the generation X to let go of the past and go digital!

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Professor Simona Agger, EuHPN Chair and SIAIS board member

Simona Agger is an architect and urban planner who began her career teaching at the University of Venice and then at universities in the US, Canada and lectured in various Universities in Europe. She has conducted studies about the challenges of Venice's urban situation for Unesco and for the Italian Research Ministry, and she has worked as an expert for the Italian Senate in the preparation of the first "special law" for Venice. In 1979 she published a major book "Urban self management – Planning for a new society" (M.E. Sharpe).

From 1998 to 2005 Simona worked as a consultant with the Company Europrogetti & Finanza, specialized in the promotion and evaluation of development projects for the Regions of the South of Italy co-financed by the European Commission and the Italian Government. In 2002 she was appointed as one of the experts for the Italian Ministry of Health's 'Evaluation of Health Investments' team for evaluation of investments programmes of the 20 Italian Regions and of the major new hospitals financed with National Government funds. As part of a subgroup of 5 experts, she has contributed to a methodology for the ex-ante evaluation of regional health infrastructures strategic planning, now known as 'MexA', which has been used to help Italian regions to reduce health service costs without cutting services.

Simona has collaborated with the Sant'Orsola University Hospital of Bologna in the project EcoQUIP, a collaborative, pro-innovation procurement programme which involves six hospitals in Italy, Netherlands, UK, Hungary and Poland. For the Ministry of Health she has participated in several European projects involving many EU Countries and also new member states such as Bulgaria and Slovakia. She has been project manager of the European project IPHEC, of the program "Community Action in the Field of Health" under the DG SANCO and she has been the project manager of "RES-Hospitals- towards zero carbon hospitals with Renewable Energy Systems", which involved partners from eight EU countries. She also has extensive international working experience having worked as an Architect and Planner in Algeria, Gabon and Senegal, and in the US she has been involved in research for the renewable energy with the Oakridge National Laboratory and at the present time she develops projects concerning energy saving and use of renewable sources for hospitals and health facilities.

Recently she has been appointed for SIAIS as member of the General Council of the International Federation of Health Engineering IFHE.

She has been nominated for the second time Chairman of the Board of EuHPN. On the EuHPN board Simona represents SIAIS, the Italian Society of Architecture and Engineering in Healthcare

Her email contact address is simona.agger@gmail.com.

Abstract

Break through thinking: the healthcare sector and climate change

Climate change is increasing the frequency and magnitude of extreme weather events and it constitutes what has been defined "the big health threat of the 21st Century", "constituting a growing health emergency".

The destructions of entire communities have not spared hospitals, as there is evidence, and this aggravates the impact of the calamitous events.

It is recognized that mitigation can be only the result of improving the resilience of the communities. The need for hospital resilience is only partially considered, and it is not regarded as a high priority, due to the lack of understanding of the importance of the role of the healthcare facilities in case of calamities, or probably as consequence of the assumption that hospitals are resilient.

That determines a real urgency to approach the matter from a more pragmatic point of view: healthcare facilities need to be confronted with the climate change risks and envisage appropriate strategies to make them resilient.

What do we have at the present time in terms of guidance tools to understand, evaluate, improve the resilience of hospitals?

The presentation will highlight some of the most important contributions in terms of general community resilience and the specific case of health facilities, starting from a definition of resilience applied to health facilities.

From what is now available it is already possible to envisage the priorities that need to be set and the new strategies to be elaborated.

From here we can examine the steps necessary to create a cultural framework that can impact on the decisions of policy makers, as well as the planning and design of new health infrastructures and use of the best existing technologies and those in development.

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Maurits Algra, dJGA Architects, Netherlands

Mr. Maurits Algra, MSc. Is Board Architect. He has studied Structural Engineer-ing at the Delft University of Technology and Architecture at the Academy of Ar-chitecture and Urban Design. He has more than 17 years of experience as a structural engineer and architect. He is the leading architect of the UZ University Hospital Leuven, the Princess Elisabeth Hospital in Ghent and the Maas en Kempen Hospital in Maaseik.

He was also the leading architect of a number of hospital projects, a psychiatric centre, of various schools, offices and nursing homes in the Netherlands as well as abroad. He is currently one of the leading architects of projects in Slovenia and Iceland. Maurits is active as coach for young professionals in entrepreneurship.

Besides being a member of the Coun-cil of Members BNA he is also a registered architect by the SBA and the Order of Architects in Belgium.

Abstract

STREAMER

Hospitals are among the buildings with the highest energy consumption – in av-erage a hospital consumes 2.5 times more energy than an office. This is mainly due to the complexity of the building and utility systems in a hospital in order to accommodate energy-intensive medical equipment and processes.

The STREAMER project focuses on the design phase of hospitals, because design decisions evidently have a large impact on the energy efficiency of the newly constructed or refurbished hospital buildings. STREAMER has generated meth-odologies and tools which assist interdisciplinary design teams to analyse and select the most energy-efficient design solutions. STREAMER methodologies and tools are innovative for their applicability in the early design phase where traditional design methods falls short in term of semantic and holistic insight.

In a STREAMER - supported design process, more design options are kept open and they can all easily be evaluated in terms of energy, cost and quality.

This enables design teams to choose the best alternative. Optimal choices can be made for room placement and selection of HVAC equipment, in relation to choices for facade technologies. As an example: a poorly designed ventilation system has been seen to account for 40% of the total hospital's energy bill – that is just for moving air, not even including heating or cooling!

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Dr Gianluca Ghiselli, Emergency Room Medical Director Asti Hospital, Piedmont Region

Dr Ghiselli has a long career in trauma and emergency medicine, based in a range of acute hospitals in Italy. In addition, he has worked extensively in international settings: as a consultant for the WHO in Kosovo, for the Italian Ministry of Health in Bulgaria, as Medical Director for the International Trauma Life Support (Italian Chapter) and as a Fellow in trauma and emergency medicine at the Huntsville Hospital, Alabama, USA. He has regularly made use of his clinical skills to support and direct other, health-related projects. Recently he was a consultant emergency room restructuring project at the Versilia Hospital, Tuscany; he has also undertaken roles in projects linked to health system resilience and patient safety. He was professor at the university of Pisa (1994 – 2013) and emergency medicine professor at Torino University (2010 – 2014).

Abstract

A MULTI APPROACH TO DESIGN NEW EMERGENCY DEPARTMENT

Report from a real experience; a unique occasion for physicians and nurses.

Gianluca Ghiselli MD*, Grazia Luchini MD°, Federica Franchi RN°°, Stefano Maestrelli Eng.°°°

*Emergency Room Medical Director Asti Hospital, Piemont Region
° Medical Director, Versilia Hospital, Tuscany Region
°° Emergency Room Head Nurse, Versilia Hospital, Tuscany Region
°°° Engineer in Chief, Versilia Hospital, Tuscany Region

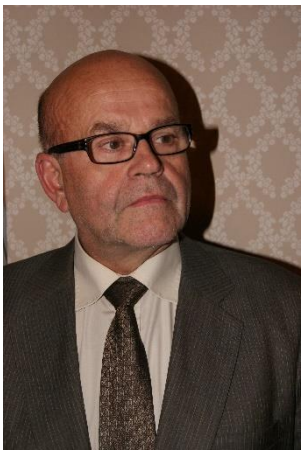
The authors report their experience during the restructuring phase of the Emergency Room at Versilia Hospital Tuscany, Italy.

Often Emergency Departments need renovation; they are too small for volume or other unsatisfactory design features. So far the concept for the emergency room visit bay was related to enclosed rooms; by one hand this approach give a sense of more privacy but on the other hand enclosed room demonstrate lack of flexibility especially in mass casualty situations. Emergency department design is not only a medical topic, however it is essential that those who provide emergency care become an active part of the design process. To do so, doctors and nurses have to learn the language, concepts and process to design.

From September 2014 to September 2015 a group of people (doctors, nurses, architects, engineers) worked together to design and build a new emergency room at Versilia Hospital in Tuscany. At that time the hospital had a series of problems in the emergency room that seemed related to a "not efficient" patient flow trough the emergency room and in particular long waiting time for first medical contact. A two period of time was consider to complete the project: the first 5 months to analyzed patients flow related to doctors and nurses approach to clinical problem in relation with the structural aspect of the E.R. at that time. After the first 5 month a 7 months building phase for the new structure was conducted. The new E.R. was opened on August 4th 2015.

The results were an increased number of examination bays, a significant reduction in waiting time for the patient etc. This new concept implied also a renovation in clinical approach for doctors and nurse to the patient care.

Pentti Itkonen, CEO, Eksote (Finland) EuHPN Board Member on behalf of the Finnish Association of Local Government



In his capacity as the Chief Executive Officer of The South Karelia Social and Health Care District in Finland, Dr. Itkonen leads a community-wide integrated organisation that employs over 5,000 people. He manages acute care, primary care, social well-being services and services for elderly people in the district.

Earlier in his career, Dr. Itkonen was the former Development Manager in the Ministry of Social Affairs and Health in Finland. He played a pivotal role in facilitating structural and managerial changes at the national level, following the flow of information and communication technologies into social and healthcare organisations. He was the responsible director to develop the e-prescribing and e- archieving system in Finland. His portfolio also includes directing the North Karelia Hospital District in Finland and managing specialised healthcare in the region.

Mr Itkonen received his degrees from the University of Tampere and the University of Kuopio in Finland. In addition, he has written several articles on structural changes of healthcare in the society

Abstract

Artificial Intelligence for health system planning

This abstract will cover the integrated social and healthcare organization in South Karelia region in Finland from the use of artificial intelligence in data analyzing point of view. South Karelia Social and Healthcare District, Eksote was established on the voluntary bases in 2008. All nine municipalities in the regions made a political decision to hand over their social- and healthcare services to one joint municipal federation called Eksote. Eksote is vertically and horizontally totally integrated social- and healthcare organization from the acute care to whole way to the homecare. The number of inhabitants is 132.000 in the region and the number of employees is about 5000. The annual budget 460 M€ covers the daily costs.

In social and healthcare organizations the artificial intelligence (AI) could have many different roles. AI-driven social- and healthcare services can help curate, advise and orchestrate lifestyle and care for people. In this abstract the main focus is in Information packs on health and social services which can form a new managing tool for the counties

Information packs on health and social services are a new way to produce information about the activities and finances in healthcare and social welfare. In Finland they will be launched at national level in 2019, but the preparations are already well underway. South Karelia Social and Healthcare District is the region where the testing has been possible to carry out from all different perspectives.

The information packs on health and social services are primarily intended as a tool for service organizers (counties) to help them get information by client group about the costs, quality and effectiveness of both individual service providers and all service providers. Even operators responsible for service provision can use them. They are a tool for monitoring, benchmarking, and decision making in healthcare and social welfare.

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Tom Steele, Director of Facilities, Health Facilities Scotland

Tom is a Fellow of the Royal Institute of Chartered Surveyors and a Corporate Member of the Chartered Institute of Building and has over 31 years of experience within the NHS. He is a passionate advocate of learning, development and optimising capability for staff and has personally taken advantage of access to academic learning.

His career started with NHS Ayrshire and Arran where he worked in various roles across the primary, acute and mental health sectors. For the last eight years, Tom was Director of Estates and Facilities with NHS Forth Valley where initially he had primary responsibility for the procurement and commissioning of Forth Valley Royal Hospital.

Since joining Health Facilities Scotland in May 2017, Tom has been focused on ensuring that HFS continue to play a key role in supporting and enabling Health Boards to deliver safe and effective care whilst also looking at how estates and facilities services can strategically engage with Regional service planning colleagues and the Scottish Government to deliver the intent of the National Clinical strategy and the Health and Social Care Delivery Plan.

Abstract

RFID technology to optimize use of space and equipment

Since June 2014, NHS Forth Valley has pioneered the use of active Radio Frequency Identification (RFID) tracking of medical devices in Scotland. Forth Valley Royal Hospital (FVRH) now has the largest number of fixed readers in the UK.

In March 2016, a mobile trolley (with one portable RFID reader, three antennas and one active reader) and a label printer were purchased with Scottish Government and local NHS Forth Valley funding respectively. To date 10,000 of the 14,000 mobile medical devices used in FVRH have been labelled with passive tags.

A total investment of around £200k in both passive and active RFID tracking has resulted in £360k of cost avoidance and an anticipated further saving of £200k in the next financial year. Further, similar savings are expected in subsequent years. Compliance with CEL 35 (2010) has been improved markedly and clinical staff have reported a high rate of satisfaction with how quickly they can locate equipment when required.

In a short space of time this innovative work has demonstrated that utilising RFID technology can improve the management of medical equipment and have a positive impact on patient care, safety and team working. It requires a relatively small upfront investment that can be recovered quickly and reinvested to expand the range of devices tracked and areas covered. This technology could be readily rolled out across Scotland to help achieve the ambitions of the Healthcare Science National Delivery Plan.

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Danilo Martinucci, Business Development Manager from Bender Italia srl, Milan, Italy

Danilo Martinucci is M.Sc. graduated in Management Engineering, Major Projects Management and Finance Course, at "Politecnico di Milano" University, Milan, Italy.

He has been working in roles relevant to Management of New Business Development & Planning, International Sales & Distribution and Marketing, since about 14 years.

In Bender Italia he is currently the national Manager for Medical Business Development in the Italian market being in-charge of all aspects relevant to Marketing & Promotion, Strategy Planning & Sales. He is specialized in Systems for Electrical Safety in Healthcare Facilities and in particular in Medical IT Systems for power supply of Group 2 Medical Rooms (operating theaters and intensive care units).

Before to join Bender Group, he has worked in Hyundai Group as Business Development Sales Manager with focus on equipment for Power & Grid Sector, medium-low voltage electrical equipment for Industry and Energy Sectors, Robotics Systems & Robots for Automotive and Industry Sectors.

Previously, his first job experience has been the role of Account Manager and Assistant of Project Manager at K&MA, an Italian company working on advice services and international trading for Green Energy and Industrial Sectors.

Abstract

New Technological Solutions for Electrical Safety in Group 2 Medical Rooms in accordance to HD 60364-7-710:2012 and CEI 64 -8;V2:2015-08

Nowadays it is ever more usual to focus the attention on management processes and organizing models of healthcare facilities to improve reliability, efficiency and quality of the clinical service offered. That is usually gotten by a systemic reduction of the clinical risk thanks to specific measures ranging from implementation of a higher level of efficiency of material & human resource management to a better patient management.

Unfortunately, in most of cases only those abstract clinical risk factors are object of improvement programs, omitting most material clinical risk factors, such as reliability and safety of equipment and plants used in healthcare structures. In particular, one of the most important topic is surely the electrical safety and dependability of power systems in the hospitals.

In this regard, Bender developed, in close cooperation with the TÜV-Sued, ATICS-ISO®, the first automatic changeover device in the World that has gotten the SIL 2 (Safety Integrity Level 2) certification (in accordance to IEC 61508) and that integrates 3 different functions into just one single device:

A. Totally automatic and intelligent supply line changing over from the main line to the emergency line in any case of default, short-circuits, etc., evaluated and managed case by case in accordance to the specific default circumstances to guarantee the "safe separation", as

required by the international standard HD 60364-7-710:2012 (and the Italian CEI 64-8;V2:2015-08, section 710.536);

B. Permanent and automatic Insulation Monitoring of the medical IT system (supply network with floating neutral from the earthing system, required for all group 2 medical rooms, as defined in HD 60364-7-710:2012 and CEI 64-8;V2:2015-08, section 710.413.1.5), through the ISOMETER® technology acc. to IEC 61557-8:2014 annex A integrated;

C. Predisposition for the automatic Insulation Fault Location in medical IT systems through the ISOSCAN® technology integrated, that for example makes possible to exactly identify which socket of which bedhead panel in an intensive care unit is causing the fault, in less than 8 seconds.

The SIL 2 certificate allows to state that in case of first default (internally to ATICS® itself or into the system in which ATICS® is integrated), ATICS® must always and in any case guarantee the uninterrupted power supply to loads of the medical IT system, where the word "always" indicates an average frequency of only one dangerous failure of the safety functions in a time frame with duration ranging between 107 and 108 hours (10-7 hours < PFHD < 10-6 hours), that is more than 1.000 years!

Bender integrates ATICS® into its own IPS (Isolated Power Supply) Switchgears, made in Germany.

Bender IPS Switchgears belong to MEDICS®, an integrated solution that includes also Remote Signaling, Test and Control Panels (MK, TM, TCP and SCP-TCP series) for communication towards group 2 medical rooms of all alarms and advises deriving from the medical IT network Electrical Safety System, BENDER device remote testing as well as all a series of functions and pieces of information, that are normally used and needed in an operating theatre room or an intensive care unit, such as lighting system & surgery light dimming controlling, HVAC system signaling and controlling, Medical gas alarm signaling, Clock & Timer for elapsed time indication, UCV System controlling and fault indication, UPS alarm signaling, Over door display sign controlling, etc..

Bender Control Panels represent the sole interface and reference point for medical personnel in medical rooms, making much easier their interaction with equipment and facilities, without risk of distraction from the clinical activities; besides these Panels facilitate design and O&M of plants and medical rooms.

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Daniela Pedrini, Sant'Orsola Malpighi University Teaching Hospital, Bologna; President of the Italian Society for Healthcare Engineering and Architecture; President of the International Federation of Healthcare Engineers Europe

Daniela Pedrini, Graduated in Engineering, has a long career in managing the technical elements of Hospitals in important cities of the Emilia-Romagna Region, such as Parma, and in the last years in Bologna. She has covered progressively more important roles in the management of technical and organisational aspects of the hospital organisation and development planning. She has directed the programming and the supervision of all the preliminary phases of a multimillion PFI contract for the total renovation of the energy production of the university hospital Sant'Orsola in Bologna.

She has also been nominated the lead public technician responsible for all the construction phases and has been instrumental in guaranteeing the quality of the work and the complete respect of the work's time schedule for this CCHP project, one of largest PFI intervention made in a health facility in Italy and maybe in Europe. In addition to her professional activity, Eng. Pedrini has been the co-founder of the "Italian Association of Architects and Engineers for Healthcare"(SIAIS), member of EuHPN, that supports the culture of sustainability for health facilities and dissemination of technical knowledge, also through annual courses for hospital technical staff. She has been elected recently President of International Federation of Health Engineering – Europe (IFHE – EU).

She gives yearly presentations to several congresses and seminars and has been called in many occasions to contribute in the preparation of new laws, rules etc. concerning technical aspects of the performance of hospitals, including safety and fire protection measures. Her department is in charge of collaborating for the programme "Io spengo lo spreco" ("I shut of the waste") launched by the Region Emilia-Romagna in 2008 for all the hospitals of the Region. Recently the Hospital Sant'Orsola, of which she is Director of the Technical, Planning and Investment Department, has received a special national price for energy efficiency for the high quality of the renewal of the energy production plant. She has been recently honored with a medal of the *Italian Republic Order of Merit*.

Engineer. She has a long career in health, with important roles in the management of technical aspects of the hospital. Hospital-University Authority of Bologna –S.Orsola Policlinic. Has directed the a multimillion PFI contract for the total renovation of the hospital's energy production. She has been co-founder and present President of "Italian Association of Architects and Engineers for Healthcare"(SIAIS)

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Abraham Jimenez, Head of Service Innovation, Pinearq SLP.

Abraham Jiménez is an architect (ITESM, México, 2000) and urban designer (Architectural Association, UK, 2007) currently leading the R&D initiatives at Pinearq.

His experience combines a mix of architectural design, territorial planning and, research on new technologies applied to the built environment for projects in Latin-America, Europe, Asia and Africa.

Pinearq is a Barcelona based consultancy/architecture studio with a solid international experience in planning, designing and building specialized healthcare infrastructure in more than 20 countries. The company's project list comprises hospitals, biomedical research centers, pharmaceutical production plants, educational buildings and residential daycare centers. Abraham's role in the company is to coordinate the research and implementation of new technologies to provide enhanced services in the design, construction and management stages of these critical infrastructures.

Abstract:

Future hospital architecture / Sensing the hospital environment

International statistics confirm people live more and enjoy a better quality of life. This change in health patterns is made possible by new models of sanitary assistance focused on prevention; ICT advancements that allow for in-depth knowledge of the hospital's performance and provide new means for diagnosis, distant monitoring and telemedicine; the advancement in genome research and; increased coordination in responding to emergencies and natural disasters.

The presentation is divided in two parts: first, a conceptual approach of how hospital buildings can develop the capacity to react to these changing trends, and two, our ongoing collaboration with a Hospital in Barcelona to integrate sensor data to better understand the hospital 'environment'.

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Martjan den Hoed, dJGA Architects, Netherlands

Mr. Martjan den Hoed studied at the University of Rotterdam and at Delft Uni-versity of Technology and he represents one of the first Building Information Modelling (BIM) experts in the Dutch architectural industry. He also plays an ad-visory role to various clients concerning the implementation of BIM.

From 1999 until now he has been working at several renowned architectural offices on sev-eral complex projects at all scales. As operations director he is responsible for the internal resources/projects schedule, Quality (ISO 9001) and Environmental (ISO 14001) management systems of the office and responsible for the strategi-cal internal and external business-ICT ambitions.

He is member of the board of the RevitGG, the Dutch usergroup of Revit and Chairman Supervisory Board of the Revit Standards foundation which have international influence. Martjan is a registered architect by the SBA.

Abstract

Maas en Kempen Hospital

The Maas en Kempen hospital arose from the merger of the Maaseik hospital and the Bree hospital. The new hospital is located on the periphery of Maaseik, along the Dienstersteenweg and the Schuurstraat.

The hospital is not a world on its own. Revealing the green surroundings inside the hospital was basic to the design. Affording views of the environment from any place where patients, visitors and staff find themselves, enhances orienta-tion and tranquillity.

Furthermore, the concept is characterized by breaking up the program into five separate buildings, interlinked by corridors and sky bridges, thus emphasizing the small scale of the hospital.

This concept originates from approaching the project from a real estate perspec-tive. Each building type is optimized in terms of construction method, installation technique and measurements (floor-to-floor height and grid). The 'individual-building-model' provides flexibility and allows extensibility or shrinkage per build-ing and reduced building costs for the total. The concept subsequently express-es itself in different designs for each building to make them recognisable. This model offers obvious orientation for patient, visitors and professionals. The land-scape is designed around and between the buildings and merges with the interi-or, thus providing pleasant views.

The hospital functions are thus divided over the five buildings:

1. In-patient wards in the 'Hotel building'

2. Operation theatres, ICU, Emergency department and Radiotherapy in the 'Hotfloor'

3. Out-patient departments, Administration and Management in the 'Office build-ing'

4. Support services from cleaning services to laboratory in the 'Factory'

5. Entrance, restaurant, helpdesks etc. in the 'Entrance building'.

Information packs on health and social services give more accurate and real-time information about the use and costs of health and social services. So far it has not been possible to produce information by client group that combines data about different sources of financing with data about service providers. The nationally uniform structure of services will for the first time allow comparisons of service packages by region. This information can then be utilised in decision making even at national level.

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Rhonda Kerr, Director Economics, Health Services and Planning, GENI; Managing Director, Recovery~Inn Pty Ltd; Director, Rhonda Kerr and Associates, Health Planning. Principal Health Planner, Hames Sharley Architects and Planners.

B.A (Economics) ANU; GAICD 2009; Doctor of Philosophy (Ph.D.) Curtin University Candidate – expected completion 2018

Rhonda Kerr has more than 35 years' experience in the fields of health economics, health capacity planning and health service planning. She has worked in senior roles with Australian Commonwealth, State and Territory Governments in health planning, financing and health economics positions. She has also advised public and private health care organisations in Australia and overseas in the development of efficient health services. Rhonda was appointed the Director, Economics, Health Services and Planning for GENI in April 2016.

Rhonda has been involved in over 40 hospital and health service development projects applying health economic principles to health service evaluation, policy and facility planning in every Australian jurisdiction and internationally. Her work has been referenced in major national hospital reviews including the Productivity Commission, parliamentary reports and the National Health and Hospitals Review Commission. Currently she is researching the capital requirements of DRG's and evaluating capital allocation in Australia and 18 OECD systems comparing them for efficiency, fiscal and environmental sustainability, effective facilitation of contemporary standards of patient care, capacity for innovation, responsiveness to evidence-based clinical improvements and changes in patient demand.

She is committed to building better hospitals by progressing funding systems that facilitate patient access to efficient care and reducing the investment impediments to best-practice clinical care.

Abstract

Evolving capital investment for financial sustainability and patient benefit: evidence from 18 jurisdictions around the world.

Change in clinical service delivery is becoming more frequent. We suspect that acute health services will be configured and delivered differently over the next two to three decades. So how do you plan and build hospitals for constantly changing services? As the poet Antoine de Saint-Exupéry wrote "Pour ce qui est de l'avenir, il ne s'agit pas de le prévoir, mais de le rendre possible." ["As for the future, your task is not to foresee it, but to make it possible."]

To make healthcare change possible requires an agile health capital funding system that is fit-for-purpose. Assuming the function of capital expenditure is to facilitate the delivery of effective and efficient acute healthcare, how is this best achieved? This objective has resulted in the development of a system for estimating the cost of capital consumed by each patient by their diagnosis related group, based on prevailing Australian standards, rather than the depreciated value of old systems and technologies.

This presentation considers financial sustainability of capital investment in terms of fostering the most efficient use of recurrent and capital resources and then tests how this shapes the patient-centred hospital. My study has examined systems for funding patient access to efficient hospitals by comparing the capital funding systems of 18 nations in terms of efficiency and patient access to care. Major medical equipment has also been considered in the context of the funding systems based on OECD metrics. To answer the question - What is the appropriate

amount per patient to invest in contemporary patients? - I will discuss a guidelines-based system to estimate the cost of capital require per patient episode. The results for the most common diagnosis-related groups have proven to be different to the published estimates of the cost of capital consumed.

***

Angelo Ermidi, Key Account Manager, EMEC

For over 35 years in this field, Angelino Ermini is Key Account Manager of EMEC, which he has been a part of since its establishment.

Angelo will speak about techniques and strategies for water system disinfection and prevention of Legionellosis.

***

Carole Crane, Dip Arch RIBA

Carole graduated in 1970 and following employment with Lambeth Borough Council became a sole practitioner. She then worked for 26 years in the private practice healthcare sector, first with Watkins Gray International, during which time she was a resident site architect on some interesting and complex London hospital new build and refurbishment developments.

She then moved to HLM Architects gaining experience with PFI projects both during the bid process and again on site. She became very interested in the briefing process and the use of the Guidance Notes and ADB (Activity Data Base) as well as mentoring younger members of the design team.

During her time with HLM she entered into partnership with a clinical health planner to form Archealth, a Healthcare Planning consultancy. She has worked for the NHS on a full revamp of ADB, room types and equipping, and has also reviewed several Health Building Notes. Archealth developed a briefing tool for the client team which was used in early P21 schemes.

She retired from full time employment in 2009 but continues with the Healthcare Planning consultancy and with her long-time membership of AfH where she now sits on the Executive, advising on guidance and as membership secretary.

Paul Mercer BA(Hons), BArch(Hons) RIBA FIHEEM

Paul has worked for the past 30 years in healthcare estates management and architecture, both in the NHS – becoming Director of Estates at Board Level – and latterly as a Director of Tangram Architects Ltd.

He has served on the NHS Design Review Panel and as Co-chair of the Home Office DRP and was Secretary of Architects for Health for ten years; he now sits on the Executive of that group, advising on guidance and procurement. He is also a member of the RICS Expert Panel on Primary Care.

As an Accredited Facilitator of Design Quality Indicators, Paul has run and managed assessments for projects across the country for both healthcare and custodial sectors. He was awarded the IHEEM Northcroft Medal in 2016 for his paper on DQIs in healthcare.

Paul is a Fellow of IHEEM and a member of the Architecture and the Built Environment Technical Platform; he is a chartered architect and member of the RIBA. His interests include the importance of excellent briefing and stakeholder engagement, and the value of good design.

Abstract

The fall and (tentative) rise of the NHS Guidance programme in England- Carol Crane and Paul Mercer.

The English National Health Service has a long and distinguished history of reorganising itself on a very regular basis. Many successive governments have restructured responsibilities and roles across the NHS and one very stark outcome in recent years has been the dramatic reduction in the number of skilled property and estates professionals within the NHS and Department of Health.

This atrophy began in 1990 when the incumbent government led by Margaret Thatcher, disbanded much of the experienced and skilled in-house estates and property departments across the whole NHS: from that point, such services were to be provided predominantly by the private sector.

Thus a vast body of knowledge and experience was lost. In that climate, a small band of former NHS architects and others got together and decided to keep the spirit of excellence and mutual knowledge alight and they formed Architects for Health (AfH). This network has grown in the past 27 years as the level of internal expertise within the NHS remained and continues to be lamentably poor. There are some pockets of highly skilled and positively minded professionals but they are by far the exception.

Department of Health NHS estates and facilities guidance is highly regarded across the world. In its heyday, a significant amount of resource and skill was lavished on the guidance programme and new documents were issued regularly and to great acclaim. This guidance was broadly set out in two sets of documents: Health Building Notes (HBNs) and Health Technical Memoranda (HTMs). HBNs are concerned with operational, planning and ergonomic factors with an emphasis on best clinical practice and patient experiences. HTMs are predominantly concerned with engineering in healthcare and best practice installation, design and maintenance.

However, the programme has steadily slowed to a trickle and the content of recent guidance has been variable. HBNs in particular have suffered from this malaise: HTMs have continued to be produced and updated steadily but not as fervently as previously.

About two years ago, Architects for Health spearheaded an initiative to consult across the healthcare design and construction industry, including academics and NHS colleagues, with the aim of establishing a way forward in the knowledge that there was little resource to progress this at DH or within the NHS.

However, HBNs and HTMS are the backbone of many design and construction projects. Designers refer to them, clients often rely on them, constructors have come to adopt them and financiers (erroneously) often insist on them. So in that context, AfH approached over 100 individuals across the industry and issued invitations to a Round Table workshop which was held in Leeds almost exactly one year ago.

A lengthy report set out the discussions from that session and the key recommendations have been widely circulated. The two key points are that future guidance should be produced by industry-wide consensus (not by a small self-appointed and unaccountable group) and that significant emphasis should be placed on post occupancy evaluative data and feedback.

At the time of writing, there begins to be some stirrings at the top of the NHS in starting a new phase of guidance production. But in the vacuum of the past few years, various disparate initiatives have begun to emerge and one significant task will be to bring these together.

***

Saga Karlsson, White Arkitekter, Sweden

Saga Karlsson, Architect SAR/MSA is a healthcare architect at White Arkitekter and has worked with both Swedish and international healthcare building projects. Her latest work, carried out at White, concerns a mother and baby unit in Kongo Kinshasa.

Saga is also a PhD candidate at CVA (Centre for Healthcare Architecture) at the department of Architecture and Civil Engineering at Chalmers University of Technology, Gothenburg, Sweden where she both investigates the concept of ‘‘future proofing approaches in healthcare buildings’’ and teaches in the master studio ‘‘future vision of healthcare buildings’’.

Abstract

At the border: between research and practice

During the 80’s Sweden went from a normative planning model (national guidelines, standards and recommendations) for healthcare buildings to a more dynamic planning model with project specific solutions. Healthcare buildings designed and built between the 80’s and 00’ were designed with little exchange of knowledge between projects. Today when Sweden is facing the biggest healthcare building boom since the 60’s and 70’s new approaches are made to collect and systemize common knowledge for healthcare planning and design. Centre for healthcare architecture, CVA, at Chalmers University of Technology is one main actor in this process.

Saga Karlsson, Architect SAR/MSA at White Architects and PhD candidate at Chalmers/CVA will show an example how one of CVA's concept programs have supported design of healthcare buildings based on the latest research. She will also speak about her own PhD research, at CVA, where she investigates the concept of "future proofing approaches in healthcare buildings" by analysing the choices practitioners does when designing healthcare buildings for the unknown future.

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Liesbeth van Heel, Programme Director and Senior Policy Advisor, Erasmus MC, Netherlands

Liesbeth van Heel (1964) was trained in Facility Management and Business Economics, before entering Erasmus University Medical Center in Rotterdam, the Netherlands as a management trainee.

In 1998 she became part of the team developing the mew Erasmus MC hospital building. With experience as an university hospital real estate professional, well equipped to translate the organization's vision into ambitions and requirements for 'tomorrow's building',

Liesbeth's focus has shifted in 2014 towards the coordinating effort to align the various strategic programs within Erasmus MC toward a safe transition to the new hospital building in May 2018, with fitting work processes, logistics and IT-support. Her special attention remains with patient's needs, creating a 'healing environment', using (inter)nationally acquired evidence and experience based design knowledge.

She is actively seeking to sharing knowledge from the 'once in a lifetime' Erasmus MC project and aims to build a network for 'better informed clients' for Dutch hospital organizations. Since 2017 Liesbeth is also co-coordinating the scientific Program for Evaluating Our New Erasmus MC (PE-ONE), with focus on infection prevention, experience with wards with 100% single rooms and ownership of change an innovation. On this last subject she will start a PhD candidacy next year.

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Menno Hinkema MA

Menno Hinkema is a senior research scientist at TNO (Netherlands). Originally trained as a linguist, Menno has over 15 years senior level experience in health systems and strategic health property planning.

Menno works internationally to help public authorities, hospital boards and developers design resilient infrastructure responses to changing health demand and system conditions. His current work in hospital planning and design focuses on the development of Virtual Hospital simulation instruments for early decision making support and design options exploration, as well as on the development (with de Jong Gortemaker Algra architects) of new concepts for activity-stimulating inpatient ward designs. Menno's other interests include strategic planning support in long-term care.

As a coordinating member of the EIP AHA's Action Group on Age-friendly Environments, he is active in fostering collaborative research and innovation for supportive, inclusive physical and social living environments.

Stefan Wunderlich, Life Sciences and Health, European Investment Bank

Stefan Wunderlich. Degree of Architecture in 1993.
From 1993 until 1996 working as an designer on various projects including Hospitals.

From 1997 until 1999 Member of Project Management Team for a new tertiary Hospital.

From 1999 until 2005 Project Manager for private Hospital provider in Germany.

Since 2005 Senior Technical Advisor on Healthcare projects for the European Investment Bank in Luxembourg.

Abstract

Future health: perspectives from inside and outside Europe

A rough comparison of Construction Costs and procurement strategies for various Hospital Projects throughout Europe.

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Luis González Sterling, Árgola Arquitectos, Director of Healthcare Architecture, Spain

Luis González Sterling is a qualified architect with over 40 years' experience working for the Spanish National Health Service (INSALUD) and co-founder and CEO of ARGOLA ARQUITECTOS, a firm established in 1990 specializing in healthcare architecture.

Board member of national and international associations AEIH & FHIA, his earned reputation has granted him the possibility to participate in several Master´s Degree programs concerning Healthcare Architecture, and to give lectures and participate in forums in different countries.

He has developed great number of major healthcare buildings both in Spain and abroad, and has extensive experience as a senior consultant and healthcare architecture expert.

Abstract

Future of health: perspectives from outside Europe

This presentation will be divided in five different parts

A description of Argola Arquitects, our expertise in different countries and the company's promotion procedures around the world.

Our activity is focused primarily in Healthcare in Spain and Europe, but lately we have expanded into Turkey and South America.

The second part of the presentation will study some of the Projects in which we are or were involved recently to offer a perspective of what is happening outside Europe.

We will follow with a description of the trends and the tendencies that are influencing the designs in these countries, such as size, evidence based design and environment among others.

Then we will analyse the issues showing how the new management models have had an influence on the design and how these influence the client.

We will conclude with what we consider to be in the near future the Threats and Paradigms of the Healthcare System and the changes which will influence the design of facilities.

The 2017 Sponsors of the EuHPN Annual Workshop

This year we are delighted to welcome three important sponsors to the annual workshop. As a not-for-profit network, EuHPN is extremely grateful to partners who can offer some sponsorship assistance: this allows us to plan our workshop activities in advance, and to offer a number of networking and social opportunities to all participants. Our thanks, therefore to Primaned, based in the Netherlands, and to EMEC and Bender from Italy.

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Primaned offers a broad range of solutions within our domain of expertise, divided in four categories:

- Our **Project Controls consultants** assist our clients to reach the next maturity level on project controls by implementing best practice processes and solutions.
- In the **Primaned Academy** we offer a broad range of trainings that can turn your project team into real project controls professionals.
- Our **Planning & Control staffing department** employs over 50 highly-skilled planning engineers who are hired on project basis by our clients to boost their project scheduling practices.
- As a firm we only trust on the best tools available in the market. Primaned has evaluated a broad range of **tools and solutions** and selected a few in our portfolio. Primaned is for example the European Reseller and Implementation partner for **PMWeb**. We also sell, implement and support other solutions of project controls tools. Good examples can be found in scheduling-, & risk management tools. For visualisation and business intelligence dashboards we also have a wide range of tooling available.

We believe that our passion and our creativity can ensure our customers to **deliver project insight**.

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Any engagement we make is an engagement between **Primaned** and the customer. Our employees are ambassadors of Primaned and work under the responsibility of Primaned management. Our management guarantees that our deliverables always comply with the **Primaned quality standards**.

Any engagement we make is seen as a **team effort** from our side. Our people can always fall back on an entire team of more than 85 Project Controls Professionals with a multitude of expertise areas and experiences within project controls.

Primaned guarantees continuity to its clients by adopting a standardized approach. Our "*the right man on the right place*" principle makes it very well possible that Primaned will suggest a change at a certain time during an assignment because the content of the assignment has changed. Primaned; **delivering project insight.**

Primaned and **PMWeb** thank you for the opportunity to present you the NHS case and give you some insides in our vision on digitalising **Capital Projects**.

EMEC has been part of Italian and global technological innovation for more than 35 years. We design, program and manufacture high quality systems for water treatment and chemical dosing, including a wide range of solenoid driven, motor driven and air compressed driven metering pumps, advanced chlorine dioxide disinfection systems, control instruments, pulse emitting water meters, probes and accessories. Our best dosing pumps are equipped with display and electronic multifunction control.

EMEC also assembles special all-in-one solutions for any specific application in swimming pools and for cooling towers, as well as customized solutions to meet any costumers' need. EMEC most advanced systems can be remotely controlled with our exclusive web solution ERMES. By offering reliable instruments constantly up to date, our production meets a wide range of needs and several application fields, like swimming pools, Legionella prevention, food and beverage industry, animal farming, aquariums, hotels, spas, oil and chemical industry, industrial water treatment, potable water treatment, hospitals, cooling towers, fertigation and car wash.

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EMEC è parte dell'innovazione tecnologica italiana e globale da più di 35 anni. Progettiamo, programmiamo e realizziamo sistemi di alta qualità per il trattamento delle acque e per il dosaggio dei prodotti chimici, tra cui una vasta gamma di pompe dosatrici elettromagnetiche, a motore e ad aria compressa, sistemi di disinfezione avanzati a biossido di cloro, strumenti di controllo, contatori d'acqua lancia impulsi, sonde e accessori. Le nostre migliori pompe dosatrici sono dotate di display e di controllo elettronico multifunzione.

EMEC assembla inoltre speciali soluzioni all-in-one per ogni specifica applicazione nelle piscine e per le torri di raffreddamento, oltre a soluzioni personalizzate per soddisfare ogni particolare esigenza del cliente. I sistemi EMEC più avanzati possono essere controllati da remoto grazie al nostro esclusivo sistema web ERMES. Offrendo strumenti affidabili e costantemente aggiornati, la nostra produzione risponde a una vasta gamma di esigenze e a diversi ambiti di applicazione, come piscine, prevenzione della Legionella, industria alimentare e delle bevande, allevamenti animali, acquari, hotel, spa, industria petrolifera e chimica, trattamento delle acque industriali, trattamento dell'acqua potabile, ospedali, torri di raffreddamento, fertirrigazione e autolavaggi.

More than a solution provider. We are partners.

Bender Group is a globally active medium-sized family company and leading provider of top-class electrical safety products and solutions.

The range covers applications in the field of mobility for electric or hybrid vehicles, energy generation and distribution, regenerative energy extraction and applications in building technology and various other industrial areas. The development and production of components for the sensitive medical sector is one of the key focus areas for products.

Bender is represented in more than 70 countries around the world, with its own companies in 14 countries. It currently employs about 720 people around the world and records an annual turnover of 110 million euros (2016). More than 15 percent of the employees work in research and development. Production is at two sites in Germany. Bender products and solutions are available around the globe.

Bender Group is 100 percent in family ownership. The company is actively run by its third generation and has its headquarters and innovation center in Grünberg, Hesse - Germany.