

(non) Profitability in Healthcare

THE JOURNAL 2023

Begoña San José

From For-Profit to For-Value: A Journey to a Sustainable Healthcare Model

Louise Knight, Esmee Peters, Frederik Vos, Steven Borobia

The Power of Healthcare Procurement – Its Relevance, Use and Impact for Better Affordability, Quality, and Innovativeness in Healthcare

Donna Prosser

Sustaining Innovative Change

Arthur Ajwang, Shujia Hao, Tielo Jongmans

Multi-Cancer Early Diagnosis Availability for Patients in Low- and Middle-Income Countries

Michael Ramsay

Cost Savings Through Zero Preventable Deaths

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Editorial



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Editor-in-Chief, Cardiology | Head of the Cardiology Department and Heart and Vascular Department | Santa Maria University Hospital | Lisbon, Portugal

(non)Profitability in Healthcare

The goal of healthcare is to promote and maintain the well-being of individuals and communities by preventing, diagnosing, treating, and managing diseases, injuries, and other health conditions. Healthcare aims to improve patient's quality of life, enhance their life expectancy, and ensure they can have access to the services and interventions needed to stay healthy. Achieving these goals requires an organised healthcare system, with the natural support of healthcare workers, adequate financial resources and commitment to quality.

In this issue, our contributors discuss **(non)Profitability in Healthcare** and how healthcare organisations can afford to provide care, balance costs and quality, continue to fund medical education and research and ensure access to care for all.

Begoña San José talks about a shift in the traditional mindset towards a for-value healthcare model, which could provide a more valuable and sustainable healthcare system. Louise Knight and co-authors discuss the power of healthcare procurement and how it can impact affordability, quality and innovativeness in healthcare.

Arthur Ajwang and co-authors talk about the disparities in healthcare between low-, middle, and high-income countries and how differences in wealth and income, lack of medical infrastructure and basic diagnostics affect early cancer diagnosis and patient outcomes.

Donna Prosser addresses the issue of patient safety and highlights the financial pressure for healthcare leaders and healthcare organisations and the importance of understanding the relationship between financial health, patient safety and quality of care. Michael Ramsay also highlights the high costs of medical errors and the importance of instituting patient safety practices and reaching zero harm by creating a safety culture in healthcare.

Hans Erik Henriksen discusses the challenge of an ageing population and an increase in chronic illness and how hospitals need to redefine their role as physical hospitals and embrace virtual hospital concepts to address

the increasing demand for healthcare services and rising costs. Alistair Fleming talks about the new era of healthcare and healthier at-home solutions that can deliver hospital care at home and help alleviate demand, improve health equity and increase patient quality of life. This is certainly an expanding area with more and more new devices and gadgets being introduced in the healthcare system.

Christian Kollman talks about the trustworthiness of Artificial Intelligence in ultrasound and the use of validation and regulatory procedures to ensure proper monitoring and improvement of AI algorithms while incorporating clinical expertise.

So-Yung Straga underlines the importance of the patient experience throughout the healthcare process and for healthcare systems to prioritise patient-centred care. Jeff Ernste talks about the complex web of healthcare regulations and how background checks and compliance play a critical role when handling patient information.

Tamara Biederman and co-authors discuss performance measurement in healthcare and using the Balanced Scorecard to analyse and organise data, make better decisions and improve strategic implementation. Attilio Tulumiero talks about the need for close collaboration and sharing among healthcare providers, medical device companies, tech startups, patients, payers, and regulatory bodies to drive innovation, integrated and patient-centric medical solutions.

We hope you will like and find this issue useful. As always, your feedback is more than welcome.

Enjoy your Reading!

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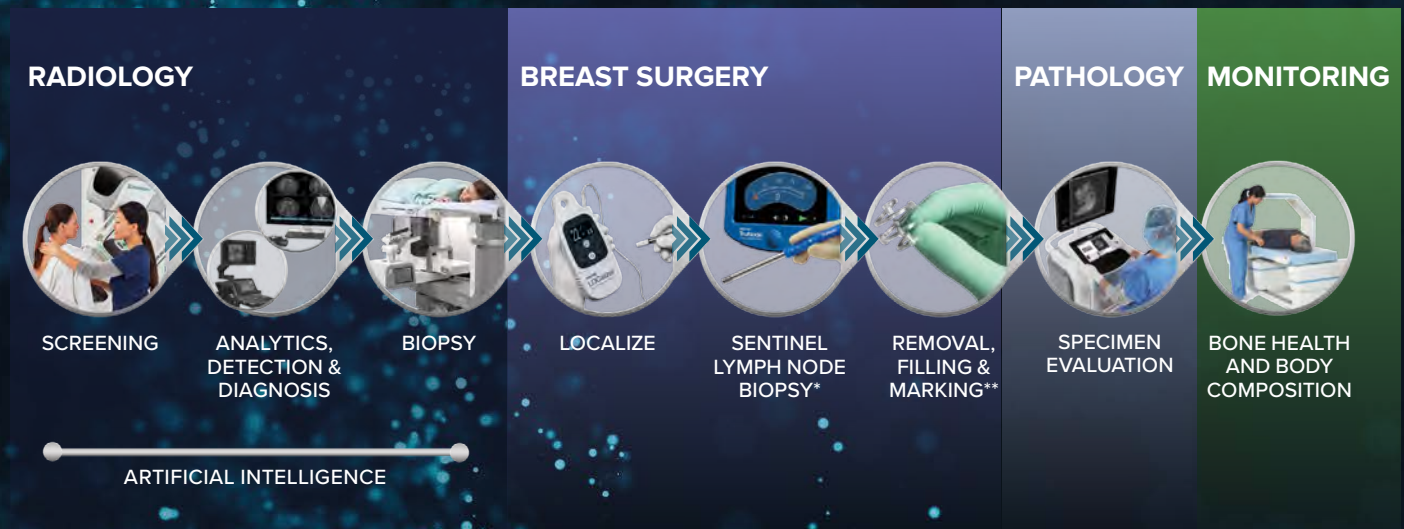
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Arthur Ajwang works as a medical doctor at the Kisumu Teaching and Referral Hospital and as a tutorial fellow at the Uzima University, School of Medicine. Arthur has a Bachelor's in Medicine and Surgery and a Diploma in Project Management. His primary interests are in innovative medical and surgical solutions, digitised/computer-aided medicine, epidemiology, haemato-oncology, clinical genetics and health advocacy.

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Tamara Biedermann, Spain



Tamara Biedermann, MD, at the National University of Asuncion, Paraguay, is a specialist in Physical Medicine and Rehabilitation from Vall d'Hebron Hospital in Barcelona and has a specialisation in Childhood Disability from the Complutense University in Madrid. Dr Biedermann also holds a Masters's degree in Management of Health Organisations from ESADE Law & Business School in Barcelona. She has over ten years of experience as a specialist doctor and project coordinator. She has held the position of CMO at Fundació Aspace Catalunya since October 2020.

In a Quest for a Better Assessment Tool in a High Growth Environment: BSC for Integrated Health Care and Social Organisation

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Guy Blomfield, Affidea



Guy Blomfield is the CEO and Chairman for Affidea. He has over 25 years of experience in healthcare, spanning a broad range of medical sectors, including diagnostics, hospitals and dentistry. He brings a people-centred approach, where outcomes that matter to patients sit at the core of every clinical and operational decision. Guy holds a degree in Accounting and Finance and has an MSc in Corporate Finance.

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Steven Borobia, Netherlands



Steven Borobia is a PhD candidate in public and public health procurement at the University of Twente, the Netherlands. His primary research explores innovative public procurement strategies that influence market dynamics. Of particular interest is the examination of cooperative efforts among various actors within an interconnected market ecosystem. Steven's research emphasises the pivotal role of public buyers in reshaping and nurturing their environment to foster a healthier, more competitive, and dynamic market landscape.

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Jeff Ernste, USA



Jeff Ernste is Chief Sales and Marketing Officer with Minneapolis-based Orange Tree Employment Screening. For more than 30 years, Orange Tree has provided technology-enabled background screening, drug testing, and occupational health services for clients nationwide.

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Alistair Fleming, UK



Alistair Fleming has extensive experience in engineering development and commercial strategy. He has over 25 years of experience in the field of MedTech. He has helped develop solutions for lung cancer, orthopaedics, general surgery, urology, gynaecology and diabetes in the US, UK, Germany and Japan. He works with the world's top medical technology companies and is passionate about bringing innovation to life through the exploration, definition and delivery of novel products and services.

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Shujia Hao is the CFO & co-founder of SeekIn Inc. She has been engaged in corporate financial management for 16 years. She has a deep understanding and rich experience in financial management, financing, market development and capital operation in biotech. She is also a member of BayHelix, a non-profit professional organisation of business leaders with a mission to shape the growth of the healthcare industry. She holds a Bachelor of Management degree from Wuhan University of Technology and an MBA from Peking University.

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Hans Erik Henriksen, Denmark



Hans Erik Henriksen is CEO of Epital Health, delivering patient-centred digital health solutions and services which help society and healthcare authorities manage chronic patients to improve their quality of life. Until 2021, Hans was CEO of Healthcare DENMARK, a public-private partnership organisation, with a national mandate to promote Danish healthcare solutions and competencies abroad. He has a solid healthcare background from different executive positions during the last 20 years.

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Aaron Hill, UK



Aaron Hill is an analyst and Head of Education at FP Markets. He obtained the CMT Charter (Chartered Market Technician) and was awarded the CFTe (Certified Financial Technician). Aaron remains a passionate student of the markets. In addition to his technical knowledge, he is pursuing a bachelor's degree in Economics.

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Tielo Jongmans, Netherlands



Tielo Jongmans is a patient advocate and Chairman at Inspire2Live. He serves with fellow patient advocates to mobilise as many resources as science, economic power, and social fabric can provide to give back the patient their life and happiness. His work as a patient advocate concentrates on communication and bundling skills and energy in projects. He identifies opportunities to enhance the exchange of insight and experience between the laboratory and the clinic, increase the available data for the researcher, and speed up the actual improvements in reaching the patient.

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Louise Knight, Netherlands



Louise Knight is a Professor of Public Sector and Healthcare Procurement at the University of Twente (NL) and co-Director of EL-IPS (European Lab for Innovative Purchasing and Supply). Prof Knight leads and delivers education and research in procurement, focusing on procurement's strategic and policy roles in promoting innovation and supporting sustainability transitions. She is Project Coordinator for the HEU-funded PROCEDIN and is currently researching procurement of innovation, resilience and rivalry in procurement systems, and market stewarding by buying organisations.

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Christian Kollmann, Austria



Christian Kollmann is an assistant professor at the Medical University of Vienna. He has been a member of the EFSUMB safety committee since 2006, a member of the Austrian Society of Ultrasound in Medicine (ÖGUM) since 1995, and Chair of the European Quality Control Group in Ultrasound of EFSUMB 2010-2012. He is also a national expert of the IEC committee TC87, responsible for developing international ultrasound standards.

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Esmee Peters, Netherlands



Esmee Peters is a PhD candidate in public and healthcare procurement at the University of Twente, the Netherlands. Her research interest lies in understanding (healthcare) procurement as an interconnected system through multidisciplinary research. Esmee is especially focusing on how the procurement system can become more resilient.

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Donna Prosser, USA



Donna Prosser is an accomplished leader with more than 35 years of experience in healthcare. She has a strong background in healthcare consulting, hospital operations, performance improvement, professional development, and clinical informatics. She is passionate about reducing the risk of patient harm through the application of high-reliability principles and ensuring efficient, equitable access across the continuum of care.

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Josep M Picas, Spain



Josep Picas, MD, at the University of Barcelona, earned his diploma from the ESADE Law & Business School of Barcelona. He is currently a member of the Board of Fundació Aspace Catalunya and the President of Saluscoop. Previously he has been the Medical Director of PAMEM (Municipal Mutuality of the Barcelona City Council), Director of the Primary Care of Barcelona City at the Catalan Healthcare System and CIO at the Hospital de St. Pau in Barcelona, and CEO and Founder of Adaptive HS.

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Elena Puigdevall i Grau is the current General Director at Fundació Aspace Catalunya. Between 1999 to 2004, she worked in the Acute Psychiatric Hospitalisation and community mental health areas at the Consorci Parc de Salut Mar. She worked in the Primary Care Management of Barcelona's Mental Health Area from 2004 to 2007. She has over ten years of experience in planning, contracting, and evaluating public health services at the Catalan Health Service. In 2017 she joined Fundació Aspace Catalunya as Healthcare Director and became promoted to General Director in 2020.

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Fausto Pinto, Portugal



Prof Fausto Pinto is the Editor-in-Chief, Cardiology at HealthManagement.org. He is the President of the World Heart Federation (WHF) and the Head of the Heart and Vascular Department, Santa Maria University Hospital, Lisbon, Portugal. Prof Pinto's main areas of interest are ischaemic heart disease, anticoagulation, and cardiovascular imaging.

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Michael Ramsay, USA



Michael Ramsay created the first sedation scale for ICU patients, The Ramsay Sedation Scale. He became a consultant anaesthetist at The London. In 1986 he was appointed Chair of Anaesthesiology and President of the Baylor Research Institute in 2000. Prof Ramsay was an invited member of the Board of Trustees of Baylor University Medical Center from 1999 until 2022. He held professorships at the University of Texas Southwestern Medical School and Texas A & M University College of Medicine. In 2021 he was appointed CEO of the Patient Safety Movement Foundation.

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Begoña San José, Austria



Begoña San José is a clinical psychologist with a PhD in Health Services Research from Erasmus University in The Netherlands. She developed her professional career with large multinational insurance companies and specialised in healthcare provider management, digital health and health innovation. In 2018 she established her own firm, Beandgo, and dedicates her time and effort to making high-quality mental health and well-being support accessible and affordable. She actively engages with corporations, insurance companies and healthcare providers to provide customised solutions in the mental health space.

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So-Yung Straga, Belgium



So-Yung Straga is fully committed to the patient experience as a consultant and speaker. After her first professional career as an operating room nurse, she put her Master's in Public Health into practice by coaching many teams in different hospitals. For three years, she also held the first position of Director of Patient Experience in a Brussels hospital. Today, she devotes all her time to the patient experience in all its forms, with a particular focus on considering the patient perspective.

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Attilio Tulimiero, Italy



Attilio Tulimiero has over twenty years of experience in the healthcare sector. From 2020 to 2022, he served as General Manager and CEO of CISA Production s.r.l., a company controlled by the Faper Group and specialised in the infection control sector. During his tenure at Siemens Healthineers from 2016 to 2020, he held positions such as Regional Sales Manager for Western Europe and Western Africa, Head of Government Affairs and Policy for Italy, and Strategic Account Manager. Prior to that, he gained extensive experience in the Fresenius Vamed Group.

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Spotlight



Global Medical Health: Advancing Diagnostic Excellence

Global Medical Health, a top-tier diagnostic clinic in Bucharest, has recently acquired next-generation United Imaging Healthcare equipment to provide high-quality diagnostics to patients suffering from various diseases.



Located on the outskirts of the capital city of Bucharest, Global Medical Health is a top-tier diagnostic clinic offering a full range of medical services. Established to provide the highest level of care, it is a state-of-the-art facility that brings together leading Romanian and foreign specialists who have made significant contributions in their respective fields. Working in collaboration, they are committed to providing exceptional medical care of the highest quality.

With the aim of providing state-of-the-art medical examinations in the private sector, Global Medical Health has recently acquired next-generation United Imaging Healthcare equipment: the uDR 592h, uMR 588, uCT 760, and uMammo 890i systems. This unique combination of powerful diagnostic technologies will enable Global Medical Health to provide high-quality diagnostics to patients suffering from various diseases.

key points

- Global Medical Health is a state-of-the-art facility that brings together leading Romanian and foreign specialists.
- Global Medical Health has recently acquired next-generation United Imaging Healthcare equipment: the uDR 592h, uMR 588, uCT 760, and uMammo 890i systems.
- This unique combination of powerful diagnostic technologies will facilitate more informed decisions about appropriate treatment options for patients.
- Global Medical Health's diagnostic clinic will be able to set new diagnostic excellence standards by leveraging the innovative solutions featured in the four installed United Imaging Healthcare systems



As a result, healthcare professionals will be able to obtain detailed diagnostic information, allowing them to make more informed decisions about the most appropriate treatment options for their patients.

Leveraging innovative technology, the uDR 592h is a value-based digital X-ray imaging system that provides accurate and consistent high-quality images while serving large numbers of patients. With its human-centred design, the uDR 592h accommodates a wide range of positioning needs, ensuring patient comfort and precise imaging. Additionally, the uExceed operating system is a significant advancement as its intelligent pop-up display allows healthcare providers to easily access relevant information and settings during the imaging process, while its comprehensive post-processing functions facilitate advanced image analysis, helping radiologists to obtain detailed diagnostic information. All these unique features make the uDR 592h a state-of-the-art digital X-ray system, ensuring seamless workflow and tremendous diagnostic capabilities.

With its innovative features, the uCT 760 is at the forefront of computed tomography technology. Fully integrating the Z-Detector and a powerful imaging chain, this 128-slice CT guarantees high-quality images at low doses with significant noise reduction, offering an unprecedented clinical user experience as a result. The system is designed to enable comprehensive and reliable cardiac diagnostics based on an integrated wireless ECG monitoring system, multi-phase cardiac imaging, and intelligent adaptive phase selection.

The uMammo 890i represents a breakthrough in low-dose, high-resolution breast imaging. Its groundbreaking design, including the CMOS Starlight imaging platform equipped with dual-angle 3D breast imaging and the U-View synthetic 2D technology, enables a significant increase in breast cancer detection rates at an early stage while reducing radiation dose by up to 41%. By prioritising patient safety and providing unparalleled image quality, the uMammo 890i sets a new standard for mammography.

United Imaging is proud that such an impressive facility as Global Medical Health has recognised the company's commitment to pushing the boundaries of diagnostic imaging technology

Based on an innovative digital platform, the uMR® 580 is a smart 1.5 T MR scanner representing significant advancements in several areas. The shimming technology developed in-house ensures excellent magnetic field uniformity, while the intelligent eddy current compensation technology makes it possible to achieve a powerful gradient. In addition, the introduction of intelligent acceleration provides high-speed imaging of the entire anatomy, offering a considerable reduction in scanning time. This acceleration directly translates into improved scan efficiency, allowing patient throughput to be significantly increased. To minimise system downtime, the uMR® 580 uses real-time component monitoring and trending analysis to provide early warning of abnormalities. Finally, to reduce power consumption, United Imaging has developed an intelligent wake-up solution that automatically puts the system into standby mode between exams.

United Imaging is proud that such an impressive facility as Global Medical Health has recognised the company's commitment to pushing the boundaries of diagnostic imaging technology. Every aspect of UIH equipment design reflects the expectations and needs of radiologists and physicians. UIH's cutting-edge technologies provide medical practitioners with stable system performance, faster and more accurate imaging, and ensure ease of use. This collaboration between United Imaging and Global Medical Health reflects our shared goal of advancing diagnostic imaging technology and delivering exceptional healthcare services. We believe that Global Medical Health's diagnostic clinic will be able to set new diagnostic excellence standards by leveraging the innovative solutions featured in the four installed United Imaging Healthcare systems.



Cover Story

From For-Profit to For-Value: A Journey to a Sustainable Healthcare Model

Modern healthcare requires a profound shift: from profit-driven models to patient-centred, value-based care, where compassion, empowerment, and holistic well-being take centre stage. To achieve this transformation, understanding patients' values is essential, ensuring tailored, empathetic care that empowers them in decision-making. Embracing change requires courage and shared responsibility, regardless of immediate profits. Ultimately, however, this transformative journey leads to a more valuable and sustainable healthcare system.

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key points

- A healthcare system that measures profit may manage profits. A healthcare system that measures value may manage value.
- Patients, as they are the ones receiving care, should be the ones defining value. They value being listened to, honest communication, and being treated with kindness, respect, and empathy. They value that their individual needs, preferences, and values are taken into consideration. They value being involved in decisions about their care. They value a comprehensive and holistic approach to their needs.
- Value and profit in healthcare can fit together, but it requires a shift in the traditional mindset and courageous decisions and consequent actions.
- A shift towards a for-value healthcare model is a shared responsibility that would result in a more valuable and sustainable healthcare system.

Introduction

“What gets measured gets managed” - Peter Drucker.

Tell me what you measure, and I will tell you what matters to you. If you measure profits, you can manage profits: If you measure margin, revenue, expenses, losses, gross profit, net profit, taxes, interests, return on investment, efficiency, net income, and effectiveness, you can manage profitability.

If you measure value, you can manage value. To effectively manage the aspects of healthcare that matter most to patients, it is crucial to truly measure value from their perspective. While conventional KPIs are essential, incorporating patient-centred metrics, such as healthcare experience, satisfaction, symptom improvement,

complication and medical error reduction, nosocomial infection prevention, increased use of electronic health records, evidence-based care, better access to healthcare services and appointments, improved health outcomes, and quality-adjusted life year (QALY) gained, offers invaluable insights into patients' actual healthcare experiences.

By aligning with patients' personal goals and quality of life and empowering them to manage their own health, we can genuinely deliver patient-centric, value-based care. Embracing these subjective, patient-driven KPIs paves the way for a healthcare system that prioritises patients' values and well-being at its core.

Actions speak louder than words.



When focusing on value rather than profits, healthcare providers can make changes to their approach to care, focusing on delivering high-quality patient-centred care that improves outcomes. When focusing on value, healthcare providers aim at reducing the demand for redundant or unnecessary healthcare services, they focus on prevention, on supporting patients to stay healthy, and living and maintaining healthy lifestyles. When focusing on value, healthcare providers provide patients with tools and resources to manage their health. When focused on value, healthcare providers engage in continued quality improvement initiatives, conducting regular checks and audits, and monitoring several qualitative dimensions of patient care.

Characteristics of For-Value Healthcare

Patients value being listened to and being involved in decisions about their care; they value clear, timely, and honest communication with and among healthcare providers; they value affordable care that is cost-effective yet not wasteful; they value being treated with kindness, respect, and empathy by healthcare providers who show genuine concern for their well-being, who prioritise their safety and confidentiality. Patients value healthcare providers who take a personalised approach to their care and consider their individual needs, preferences, and values. If you measure these aspects of healthcare, you will manage value.

informed decisions, for which they need to know the treatment options and what to expect, among others.

Inadequate patient education and engagement lead to poor understanding of what ails them and their treatment options, their non-adherence to treatment plans, unnecessary setting transitions and ultimately, poor outcomes. Thus, when healthcare is truly patient-centric, and patients are engaged in their own health and healthcare, outcomes are improved.

For-Value Healthcare is Comprehensive, Multidisciplinary and Coordinated

Patients are not defined by their diseases or their symptoms. Patients are their organs and their souls, their habits and their thoughts. Patients value comprehensive, patient-centred care that addresses their unique needs and goals, which is consistently optimal care over time, with healthcare providers who know their medical history and are familiar with their care needs. This includes having care plans that are tailored to the unique characteristics and circumstances, being empowered in shared decision-making, and having the tools and resources to manage their health. This cannot be achieved without a truly multidisciplinary team, and let me emphasise those words: truly, multidisciplinary, and team.

Care fragmentation, which occurs as patients receive care from multiple providers who do not communicate

Shifting from a for-profit to a for-value healthcare model requires courage and shared responsibility, regardless of immediate profits

For-Value Healthcare is Patient-Centric

Each stakeholder in this process plays a unique role in achieving this goal, and collaboration and coordination among stakeholders is, therefore, key to success.

As patients are the main clients of the healthcare system, the ones who receive care, their outcomes and satisfaction are the ultimate measures of success. Providing patient-centred care means considering the patient's preferences, needs, and values.

Patient engagement or patient activation enables them to take an active role in their own healthcare to make

or coordinate effectively, will lead to poor outcomes, increased costs, and reduced patient satisfaction. This approach may increase profit but compromises or even destroys value.

Besides physicians, such as primary care doctors and specialists, and nurses that may provide direct patient care, administer medications, monitor vital signs, and provide education and support to patients and their families, there are other healthcare providers caring for the patients' well-being through their very special user-customer journey.

1. Pharmacists are experts in medication management and ensure that patients receive the most appropriate information regarding their pharmacological treatment and the interactions between the different medications different professionals may have prescribed.
2. Physical and occupational therapists help patients improve their mobility and support patients in regaining their ability to perform daily activities after an illness, injury, or surgery.
3. Social workers support patients and their families in navigating the healthcare system and accessing community resources (some of which, by the way, are de facto, not-for-profit).
4. Nutritionists and dietitians provide education and support to patients who need to make dietary changes to manage their health conditions or to uptake and maintain healthy diets.

holds and, how their diagnosis will impact their life, about the effectiveness of their treatment. They may feel deep sadness and may grieve the loss of their previous life or the one they had hoped for; they may feel frustrated or angry, especially if they feel that it is unfair or that they have been robbed of their health. They often feel shame and isolation if their significant others, friends, relatives, colleagues, or former colleagues do not understand their condition or what they are going through.

Addressing these aspects of health is an important part of providing for-value healthcare that improves the overall health and well-being of patients and places them in the centre, and focuses on providing value to them.

Patients appreciate having a health team who are working together to address their health needs and who communicate effectively with each other. A multidisciplinary team can streamline care delivery,

Integrating mental and social health with physical health paves the way for a more valuable and sustainable healthcare system

5. Other professionals, such as speech-language pathologists, help patients with difficulty communicating, such as those who have had a stroke or a neurological condition.
6. Psychologists, trained to assess and treat mental health conditions, such as depression, anxiety, and post-traumatic stress disorder, can provide support, counselling and comfort to patients and to their relatives who are dealing with chronic illness, pain, or other medical conditions, thus adding value to the healthcare experience. They can work closely with physicians and nurses to develop treatment plans that address both physical and mental health needs or work with nurses to provide education and help them cope with the emotional and psychological challenges that can arise from managing health issues, addressing both their physical and mental health needs. Faced with diagnoses of conditions such as cancer, diabetes, rare diseases or mental diseases, patients experience shock and are sometimes overwhelmed or unable to process the news. They may feel anxious about what the future

reducing the need for duplicate tests and procedures and minimising delays in treatment with fewer gaps in care and better transitions between care settings.

Besides the positive impact on patients and patient care, healthcare providers also benefit from working in a multidisciplinary team that can learn from and support each other, expanding their knowledge and skills and improving the quality of care they provide.

A Journey to a Sustainable Healthcare Model

Value and profit in healthcare can fit together, but it requires a shift in the traditional mindset of focusing solely on profits. In a for-value healthcare system, providers prioritise the needs of patients and focus on delivering high-quality care that improves outcomes, reduces costs, and enhances the patient experience. This approach can lead to sustained profits by reducing waste and inefficiencies, improving patient satisfaction and loyalty, leading to increased patient retention and referrals and, therefore, attracting new patients. Such an approach recognises that providing high-quality care can

lead to better patient outcomes and can ultimately lead to reduced healthcare costs over time.

“You are what you do, not what you say you’ll do”.

Managing the Transition

Providing value in healthcare does not always guarantee profits, and the transition from a for-profit to a for-value healthcare system requires courage from its stakeholders.

The Role of Multidisciplinary Healthcare Teams

Shifting towards a for-value system may require significant changes to the way organisations typically operate, which may include re-organising staff, changing business practices and investing in new technology and training.

Healthcare providers should strive to increase their empathy and kindness towards patients. This can help build stronger relationships with patients by being attentive to the needs and values of their patients and being willing to adjust their approach to care accordingly.

Additionally, since a value-based approach requires collaboration and communication among healthcare providers, multidisciplinary healthcare teams should break down potentially existing silos and work together to provide coordinated care that meets the needs of patients. They should also emphasise prevention -primary and secondary- and wellness rather than just treating illness and should work to promote healthy lifestyles.

This may require investment and training in soft skills, including effective communication, how to demonstrate empathy and compassion towards patients, how to use non-judgmental language, how to show concern and interest in patients’ lives, and being responsive to their emotional needs, understanding and respecting cultural, religious, or other differences, teamwork and collaboration to work more effectively with others to achieve common goals.

As healthcare providers get involved in measuring, tracking and using patient feedback to improve the quality of care, they also contribute to the identification of areas for improvement and implementing changes to improve outcomes and patient satisfaction. The use of information technology, such as electronic health records, to track outcomes and performance metrics and

support collaboration between care team members and stakeholders is key to this transition.

Overall, multidisciplinary healthcare providers have an important role to play in shifting from a for-profit to a value-based approach. By collaborating and communicating, focusing on outcomes and patient satisfaction, continuously improving quality, emphasising prevention and wellness, investing in technology and training, and advocating for change, multidisciplinary healthcare providers can help drive the transition to high-value care.

The Role of Patients

Patients can also gradually take an active role in managing their own health and well-being. This may involve making healthy lifestyle choices, adhering to treatment plans, and asking questions about their care. They should work collaboratively with their healthcare providers to make informed decisions about their care based on their individual needs, preferences, and values and provide constructive feedback about their experiences, including what aspects of care are most important to them by sharing their experiences with others and raising awareness about the importance of patient-centred care.

The Role of Providers’ Management Teams

The management team plays a crucial role in shifting from a for-profit to a value-based approach. By creating a clear vision, establishing performance metrics, fostering collaboration, investing in staff development, engaging with stakeholders, and using data and technology, the management team can help drive the transition to high-value care.

The management team needs to create a clear vision for the organisation that emphasises the importance of providing high-value care to patients. They need to establish and implement performance metrics that measure the value of care provided to patients. These metrics should be aligned with the organisation’s strategic objectives and should be regularly reviewed and updated.

Since a value-based approach requires collaboration and teamwork among healthcare providers, the management team bears the responsibility to foster a culture of collaboration that encourages physicians, nurses, paramedics, management teams and administrative staff to work together.

Additionally, they should invest in the development of staff in areas such as teamwork, communication, quality improvement, and patient-centred care, but also in information technology and the appropriate use of data. As illustrated above, they should support the delivery of value since the use of electronic health records and telemedicine can improve communication, reduce errors, and enhance the overall patient experience. Using data analytics can identify areas for improvement and monitor progress in a continuous quality improvement mode, which is constantly adapting to the changing needs of the patients.

Lastly, the management team should engage with payers and other stakeholders to align incentives and create a shared vision for high-value care. This includes working with payers to develop alternative payment models that reward providers for delivering high-value care.

The Role of Payers

Payers, such as insurance companies, in turn, also have a role to play in the transformation towards a for-value model. Payers traditionally engage with healthcare providers through price negotiations, managing utilisation, and also through network design and management initiatives.

Payers can prioritise providers with a strong focus on quality, encourage care coordination across different providers and incentivise the implication of other professionals that add value to the healthcare experience of patients. Encouraging patients to maintain their health through prevention initiatives and lifestyle interventions, not just expensive treatments can be prevented down the line but can result in improved quality of life of patients and communities.

Providing value in healthcare does not always guarantee profits, and the transition from a for-profit to a for-value healthcare system requires courage from its stakeholders. This shift towards a for-value healthcare model is a shared responsibility that could result in a more valuable and sustainable healthcare system.

In the midst of challenges facing healthcare systems, there is a pressing need to shift the focus from profit-driven models to patient-centred, value-based care.

While it is important to acknowledge the systemic issues that contribute to the pressure for profits, it is equally crucial to highlight the exceptional healthcare providers and teams who are already implementing the principles of value-based care. Their dedication, compassion, and commitment to improving patient outcomes serve as beacons of hope and inspiration.

Fortunately, there are numerous stories that showcase providers and professionals who are leading the way in delivering value-based care. These individuals and teams exemplify the inherent purpose and empathy that drive people to work in healthcare. Their unwavering dedication to patients is a testament to the values that should guide the healthcare industry. They and their stories can inspire others and foster a cultural shift in healthcare.

These exceptional providers prioritise patient outcomes, foster effective communication, and actively engage patients in their care. They focus on improving patient satisfaction, promoting preventive care, and ensuring care coordination across specialties and settings. These professionals exemplify the true essence of patient-centred care, and by sharing their successes, we can create a ripple effect that encourages the adoption of value-based practices across the industry.

However, it is crucial to recognise that some of these professionals suffer from moral dissonance or misalignment within the healthcare value system, which can contribute to feelings of powerlessness and, eventually, even burnout.

Conclusion

In conclusion, the shift towards a value-based healthcare system necessitates recognising the challenges faced by healthcare providers and the broader healthcare system. While highlighting the exceptional individuals and teams who deliver value-based care, it is essential to address the moral dissonance and powerlessness experienced by some professionals. By acknowledging these issues and taking collective action, we can work towards a future where patient-centred care and the well-being of healthcare professionals are at the forefront.

Conflict of Interest

None. ■

The Power of Healthcare Procurement – Its Relevance, Use and Impact for Better Affordability, Quality, and Innovativeness in Healthcare

Procurement plays a crucial role in achieving affordability and profitability in the healthcare sector. With ever-rising healthcare expenditures, the focus on procuring products and services efficiently and effectively is essential.

Collaboration between healthcare providers as buyers and with their suppliers is vital. By embracing a broader notion of responsible procurement, healthcare providers can promote innovation, sustainability, and better healthcare outcomes for all.

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key points

- Procurement is a crucial lever for achieving affordability and profitability in the healthcare industry.
- Collaboration on many fronts is essential.
- Dealing with the systemic challenges highlighted during the COVID-19 pandemic requires systemic change.
- This, in turn requires a new market- (not just supplier-) oriented perspective on responsible procurement

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Healthcare Procurement – An Important Lever for Affordability

Healthcare expenditure is high, ever-rising, and playing an ever-greater part in the economy (Figure 1). Typically, after payroll, the second largest expense for healthcare providers is product acquisition and services, at some 30-50% of annual budgets. So, we cannot discuss

affordability and profitability in healthcare without paying close attention to the suppliers of products and services and procurement effectiveness. Procurement strategies and practices directly influence costs and consequently quality and innovativeness of care. Even the smallest changes in how and what products and services are bought by healthcare providers can significantly impact the healthcare system and its affordability.

The bar is rising for procurement teams in healthcare. Pressures are increasing, driven by multiple factors, including outsourcing of services, rising supplier prices (a function of costs and profits) and changing patterns of care enabled by the adoption of new technologies. It's worth noting that procurement in healthcare has tended to lag behind that of other sectors (e.g., the automotive industry) in mobilising suppliers. Leading manufacturers invest in procurement because it plays a vital role in delivering the firm's innovation strategy and long-term competitive advantage. A similar logic applies even where profit is not the buying organisation's primary motive. Rather than gaining an advantage over competitors, the 'advantage' being sought relates to delivering better health outcomes for the wider communities served.

Recent systemic shocks, such as COVID-19, have provided new insights into long-running, deep-rooted procurement and supply chain management (PSCM) challenges. Based on our own recent research and insights from research in other sectors, in this article, we argue that buyers need to cooperate with others in the supply chain, collaborating in various ways both with other buyers and suppliers. We review some more conventional approaches to securing affordability and

value with and from suppliers and advocate some less well-established approaches.

The Basics of Collaboration—Levels and Axes of Collaboration (and Rivalry)

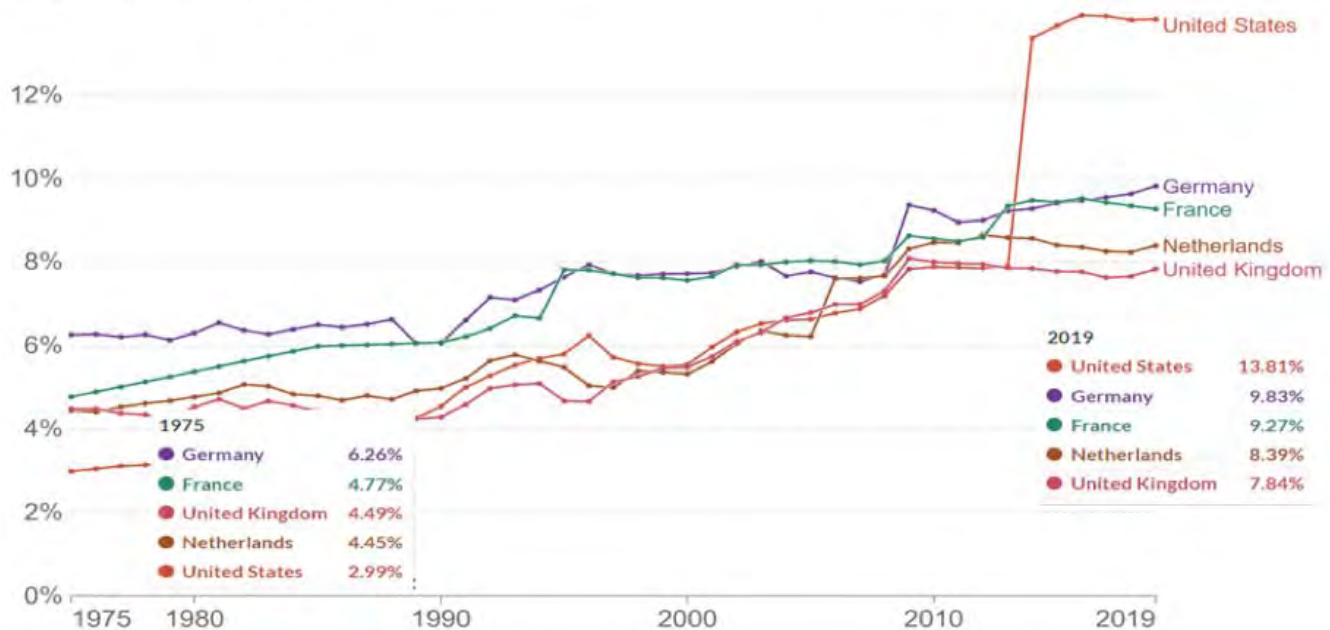
The value of group purchasing organisations (GPOs) is widely recognised. Better prices and lower transaction costs are primary motivations for joint buying, but there are also significant risks and drawbacks at various levels in the system (Table 1). Some of the concerns are the long-term, market-level consequence of decisions which – at the level of the individual care provider – yield short-term price benefits.

Learning from Crises— The Collective Influence of Buyers on Markets

The COVID-19 crisis led to a great many lessons in PSCM. Research provides insights into the 5Rs (refuse, reduce, reuse, repurpose, recycle) and better ways of working in times of resource scarcity. Figure 2 summarises various strategies that stakeholders followed during the pandemic to ensure the security of supply and demonstrates the key role played by procurement in improving resource access. Dysfunctional allocation of resources was found at

Government health expenditure as a share of GDP, 1975 to 2019

This metric captures spending on government funded health care systems and social health insurance, as well as compulsory health insurance.



Source: Our World In Data based on Lindert (1994), OECD (1993), OECD Stat

OurWorldInData.org/financing-healthcare • CC BY

Note: Health spending includes final consumption of health care goods and services (i.e. current health expenditure). This excludes spending on capital investments.

Figure 1: Rising health expenditure as a share of GDP, 1975 to 2019. Source: Our World in Data

several hospitals studied, with individual departments stockpiling supplies, at the expense of other departments experiencing scarcity. The intervention of procurement professionals at the intra- and inter-hospital level resolved helped distribute the product fairly within the system. At the interorganisational level, price-gouging and counterfeiting by suppliers, governments ‘hijacking’ of supplies, unchecked rivalry between buyers and inventory hoarding were just some of the problems encountered by healthcare institutions. There were multiple points of system failure.

Contracting for personal protective equipment and vaccines brought PSCM, as well as buyers’ successes and failures and companies’ (anti)competitive practices, to the public’s attention. That attention continues today due to rising inflation and Russia’s invasion of Ukraine. More questions are being asked about suppliers’ pricing strategies and profit levels, especially given evidence that in some sectors, rising profit levels are associated

with rising dividends (and, conversely, falling wages and salaries) rather than rising R&D spending.

In combination with compelling evidence of rising market concentration in many sectors, this implies healthcare leaders need to take account of trends in supply market competitiveness, profit levels and value appropriation when looking at the (un)affordability of healthcare in the long term.

These factors are not just matters for regulators, but also for healthcare providers collectively, as the buyers in the market. It is in buyers’ common interest to act today in ways which promote healthy markets in the future – that is, markets in which sufficient suppliers compete effectively and consistently to reliably deliver high-quality products at a reasonable cost with fair profits and with an acceptable rate of innovation. Suppliers’ market barriers to entry and exit, and buyers’ switching costs, should be low enough to sustain market diversity and dynamism without leading to chaotic churn.

Buying Together at the Individual Member Level		
Advantages <ul style="list-style-type: none"> Reduction of purchasing-related costs (namely, acquisition, transaction and administrative costs). Human resources savings, since some purchasing effort is transferred to the group. Increased information on supply markets. Increased focus on core operational activities. 	Disadvantages <ul style="list-style-type: none"> Standardisation decreases the ability to fulfil the needs of decentralised users. Lower innovation capabilities (at contract and product/service levels) due to compromise, standardisation, and reduction of direct contacts with suppliers. Lower responsiveness, e.g., in case of a small-scale emergency situation. 	Doubts/ Concerns <ul style="list-style-type: none"> Prices negotiated by purchasing groups may be higher than those negotiated directly with vendors.
Buying Together at the Group/ Supply Chain Level		
Advantages <ul style="list-style-type: none"> Consolidation of purchase volumes enables the negotiation of more favourable terms with suppliers. Reduction of duplicated purchasing efforts, namely, through reduction of the number of transactions. Development of purchasing expertise. Rationalised choice through better-informed selection and standardisation. Standardisation and consolidation of purchasing volumes increase economies of scale (e.g., at the supplier level), lowering unit costs for the whole supply chain. Improved ability to respond to large-scale emergency situations due to increased flexibility of inventories, coordination and resource pooling. 	Disadvantages <ul style="list-style-type: none"> Coordination costs, mainly when GPO size increases. 	
Buying Together at the Macro/Political Level		
Advantages <ul style="list-style-type: none"> Reduction of overall supply chain costs, which, in the public sector, implies that the amount paid by taxpayers decreases in the public sector, prevention/reduction of corruption. 	Disadvantages <ul style="list-style-type: none"> Consolidation of sales volumes may inhibit SMEs from participating in the tenders and may be a barrier to innovation because GPOs tend to favour suppliers with broad product lines rather than a single innovative product. 	Doubts/Concerns <ul style="list-style-type: none"> Risk of a negative effect on market dynamics due to excessive buyer concentration. Risk of a negative effect on market dynamics due to the introduction of an additional intermediary in the case of third-party GPOs. Depending on the market at stake, an increase in the concentration of the buyers (demand side) may counterbalance the excess concentration on the supply side, improving competition conditions.

Table 1: Group purchasing advantages and disadvantages. Source: Rego N, Claro J & de Sousa J P (2014)

A key role for procurement could be what we call ‘market stewarding’ by buyers: first, recognising that today’s (individual) buying decisions create tomorrow’s markets and then actively anticipating how buying decisions and practices may shape those markets in the longer term. Only then is it possible to identify options for action which can influence the development trajectory of the market towards a more competitive, healthy, and dynamic ecosystem for the long-term advantage of all buyers in the market (and most suppliers, though not those which would seek to unfairly exploit their

sectors, including – and some would say especially – in healthcare. For example, recent media has highlighted excessive profits, particularly concerning vaccines (Buchholz 2021) and energy (King 2023).

A study focusing on leading pharmaceutical companies revealed that their earnings as a fraction of revenue were almost double those of other S&P 500 Index companies (Buchholz 2021). Additionally, the largest MedTech firms enjoy profit margins ranging from 20-30% and impose widely varying prices for identical products in different countries. And yet, discussions

We cannot talk about affordability and profitability in healthcare without also paying close attention to the suppliers of products and services, and procurement effectiveness

market dominance). Joint market consultations to promote innovation would be one such option, though market stewarding is also relevant to many other supply situations. Market stewarding is very much future-focused and concerned with promoting positive developments. It also relates to tackling problems in the market, as outlined next.

Tackling Excessive Profits and Unacceptable Practices

Procurement also has a role to play in directly addressing market failures, unfair value distribution and questionable practices. These are rife in many

about the impact of profit levels in markets and value distribution in supply chains on healthcare affordability and environmental impact are not common. In contrast, the need to protect companies’ margins to incentivise R&D and secure innovation is often emphasised (see example in Figure 3).

During the pandemic, extensive media coverage highlighted corruption and incompetence in healthcare PSCM, both on the buying and supplying side. When facing supply challenges such as personal protective equipment, chips, vaccines, and energy, governments often intervene, leveraging their political influence

Purpose of Action	Domain of Action	
	Internal	External
Improve Resource Access	Internal Resource Enhancement <ul style="list-style-type: none"> • Monitor stocks and predict stock coverage. • Consult daily. • Shorten the purchasing process. • Reassemble (existing) products. 	Crafting the Resource Environment <ul style="list-style-type: none"> • Collaborate with suppliers from different industries. • Change specifications, search for alternative products. • Retrieve second-hand products. • Prevent price gouging. • Beware of the ‘cowboy’ market.
Reduce Resource Importance	Internal Resource Replacement <ul style="list-style-type: none"> • Change the specification or purpose of products. • Sterilise and reuse products. • Use older products. • Use products longer/change quality requirements. 	Managing Resource Demands <ul style="list-style-type: none"> • Anticipate changing healthcare demands by society. • Facilitate the potential of new technologies & digitisation.

Figure 2 – Hospital “crisis strategies” to manage scarce resources during the COVID pandemic. Based on: Tip B, Vos F G S, Peters E, & Delke V (2022)

and economies of scale to manage turbulent markets. Excessive prices and supply (in)security motivate these reactive measures. While there is plenty of advice on recognising and addressing anti-competitive practices (e.g. from the OECD [OECD]), they mostly remain an undiscussed theme when developing procurement or debating healthcare affordability. To name a few examples of questionable practices (Knight 2023):

- Prioritising wealth creation over health creation and care quality.
- Gaining price advantage by reducing costs through tax avoidance facilitated by complex ownership arrangements.
- Management strategies and financial practices which jeopardise basic services such as social care and core government services.

Healthcare leaders need to take account of trends in supply market competitiveness, profit levels and value appropriation when looking at the (un)affordability of healthcare in the long term

- Insisting buyers sign non-disclosure agreements, which prevents price benchmarking and facilitates price gouging.
- Buying up and then closing down innovative market entrants.
- Forcing customers to prematurely buy system upgrades and expensive staff training.
- Shielding profit increases behind talk of inflation.
- Realising increased profit through unethical marketing practices generates an ‘artificial’ demand for healthcare.
- Bid rigging.

Procurement experts have a significant role to play in taking collective action to identify, assess, and tackle these harmful strategies. This is not instead of regulation but rather complementing it to promote genuine competition among suppliers. Procurement experts are well-placed to identify procurement policies and contracting strategies for addressing market entry barriers and barriers to switching and establishing appropriate and aligned incentives. The challenge for health executives and procurement leaders lies in ensuring that the essential resources within the buying functions are available, motivated, and skilled for additional, novel roles.

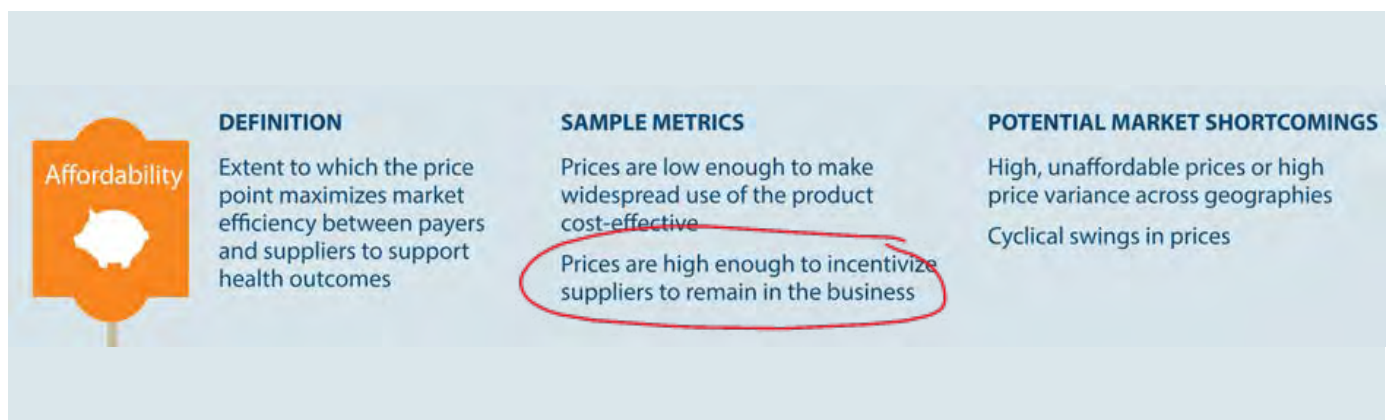


Figure 3: Example of protecting companies’ margins. Source: Healthy markets for global health: a market-shaping primer (2014), p21.

Conclusion

With ever-rising healthcare costs, we cannot talk about affordability and profitability in healthcare without talking about procurement and supply chain management. Recent crises have exposed multiple points of system failure, indicating the urgent need to rethink and reorganise how we manage (in) the system.

Based on government reviews and research, we argue that healthcare institutions can and should do more as buying organisations working together. Responsible procurement in healthcare can encompass more than improving social and environmental performance. It can also be about proactively addressing market-level issues, where these affect resource and value distribution, affordability, quality, sustainability, innovativeness, and, ultimately, healthcare outcomes.

Healthcare providers cannot combat the ever-rising healthcare expenditures by acting alone. By fostering an understanding of the challenges and aligning their efforts on strategic and structural solutions, they can more vigorously and effectively mobilise suppliers to adapt and develop to meet rising expectations, promote healthy markets, avoid the unchecked rivalry between buyers and tackle questionable practices by suppliers.

Post-script: At the European Lab for Innovative Purchasing and Supply (EL-IPS) at the University of Twente (NL), we are pursuing several lines of research

in healthcare procurement to better frame and develop these ‘business-not-as-usual’ roles for procurement and evaluate their potential impact. The link below takes you to an overview of our current projects and recent findings and recommended reading/sources we have drawn on in preparing this article. The quality and value of management research depend on excellent dialogues with policymakers and managers – we would be very pleased to hear from readers! See the link or scan the QR code for our contact details.



[The Power of Healthcare Procurement](#)

Conflict of Interest

None. ■

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For full references, please email edito@healthmanagement.org or visit <https://ii.hm/1lyk>



DSO Profitability Fueled by Data-Driven Insights

Learn how analyzing the right KPIs (key performance indicators) with the right tools can help DSOs to make informed decisions to maximize profitability despite variability among individual practices within the network.

JOERG
AUMUELLER



Vice President and Global Head of Enterprise Solutions | Straumann Group

key points

- While the process of acquiring new practices contributes to the profitability of DSOs, it also raises unique challenges.
- A significant percentage of DSOs today have limited visibility into the performance of their practices.
- Key performance indicators (KPIs) like surgical appointment times and treatment case acceptance rates can provide insight into the performance of individual practices and clinicians.
- DSOs can glean informed insights from data aggregated from the KPIs of all practices thanks to centralized platforms and artificial intelligence.
- As part of a comprehensive strategy to maximize profitability while achieving desirable clinical outcomes, a unified IT system can harmonize data collection and other operations across a network's practices.

The Unique Challenges to Profitability

Like other businesses in the healthcare industry, dental service organizations (DSOs) seek to increase their profitability while delivering high-quality treatments at price points that their customers can afford.

DSOs, however, face unique challenges to scaling profitably. The ongoing trend of acquisition has been a boon to the success of DSOs, and many DSO leaders agree that acquisition continues to play an essential role in profitability (Becker's Healthcare 2023). Paradoxically, the acquisition model also poses the greatest inherent challenge to profitability for DSOs.

With each new acquisition, a DSO adds more than a new revenue source to its platform. It also acquires an independent entity with a unique practice setup, distinct treatment workflows, and unique practice management software. This diversity in function makes it exceptionally

challenging for a DSO to compare the performance of the practices against each other and obtain a clear picture of their individual contributions to the organization's overall profitability.

According to a study conducted by the Boston Consulting Group, more than 40% of DSOs have no transparency into their average patient lifecycle value, 25% of DSOs don't know the percentage of their patients that have long-term treatment plans, and over half of DSOs do not have an advanced or optimized patient database.

DSOs are clearly in dire need of greater transparency into the performance of their multifaceted organizations. Without such insights, it is virtually impossible for corporate-level leadership to make fully informed decisions that move the organization towards greater profitability.



Insights Supplied by KPIs

Profitability is often measured by KPIs such as gross profit and net profit. Other KPIs, however, supply insights into the actual performance of practices within a DSO's network, and these KPIs are the ones that inform decisions that can drive increases in profitability.

Valuable KPIs that DSOs can regularly track and evaluate include:

- Active patient count
- Case acceptance rates
- Unscheduled treatment
- Surgical procedure times
- Patient no-show or cancellation rates
- New patient counts versus patient attrition rates

These KPIs can help DSOs harmonize clinical workflows, optimize administrative operations, ensure the strategic allocation of resources, recognize oral healthcare consumer trends, evaluate clinician performance, and identify opportunities for growth and even expansion into new markets, all of which contribute towards increased profitability.

With a wide array of unique practice holdings, it can be a time-consuming or even impossible task for a DSO to aggregate the data on such KPIs for each individual practice. If the data from all practices could be analyzed in one place, however, then the organization's leadership would have the vital information they need to make strategic decisions.

One DSO consisting of more than 400 practices successfully executed an innovative and holistic strategy that involved tracking KPIs related to single-unit implant treatments performed by several of the organization's clinicians. The strategy demonstrated a marked increase in the single-unit implant delivery capacity of individual clinicians by more than 30% per year (data on file with Straumann Group). This ability to evaluate clinician performance allowed the DSO to calculate forecasted increases in production and profitability.

Analytical Solutions to Aggregate Data and Track KPIs

A harmonized IT system is essential to integrating all practices in a group and consolidating data on one centralized platform. With the aid of powerful analytical tools such as advanced machine learning, digital dental technology, and artificial intelligence (AI) technology, DSOs can gain insights into all of their practices' workflows to obtain key metrics, identify bottlenecks in the system, highlight untapped opportunities, and then adapt their business strategy accordingly.

Here are a few steps DSOs can take to start experiencing the benefits of AI in data aggregation:

1. **Review.** Review current metrics like patient satisfaction, occupancy, appointments, treatments, and production.
2. **Analysis.** Identify the sources of variation among the data for evidence-based management.
3. **Forecast.** Understand ongoing trends to improve planning and risk stratification.
4. **Recommendations and performance management.** Seek expert advice on issues that are important for your DSO. Ask questions like: how can we improve treatment plan case acceptance rates? How do we guide patients from awareness to conversion? How can we strengthen our competitive advantage? Where can we get support for the digital manufacturing pathway?
5. **Strategic planning.** Explore new opportunities using AI-based data analytics to answer crucial questions like: what measures should be implemented to increase patient satisfaction? What are the weakest links in materials logistics and how can they be eliminated? What needs to be prioritized to enhance the ROI?

Learn more by reading the white paper "[Stability in the Face of Change.](#)" [Stability in the face of change – Download now \(straumann.com\)](#)

Many DSOs are sitting on veritable wellsprings of growth and profit potential, but they have not yet found



clear instructions on activating this potential. With the right tools for aggregating and analyzing their data, however, DSOs can be equipped to leverage the latent potential of their existing patient cohorts (see box: “How to Activate Your DSO’s Growth Potential”).

Conclusion

DSOs today face the challenge of increasing their profitability despite the variation in operations of a diverse range of acquired practices. To reduce the variables in performance and gain deeper insight into the profitability of the organization overall, DSOs can harness the power of unified IT systems, AI, and other digital tools that facilitate the collection and aggregation of data and supply informative KPIs. These KPIs, in turn, offer actionable insights that the organization can utilize in developing strategies to maximize profitability.

With a comprehensive strategy and expert support, DSOs will be empowered to activate their growth potential to experience increased profitability while sustaining their standard for clinical excellence and improving their operational efficiencies.

Visit Straumann Group’s [resources page for DSOs](#) to learn more.

How to Activate Your DSO’s Growth Potential

Use the checklist below to assess your organization’s potential and identify cost-efficient opportunities for experiencing further growth.

- Profile your organization’s established patient base and execute a segmentation strategy using software that aggregates, organizes, and analyzes data on existing patient cohorts to identify marketing opportunities and incomplete treatment plans.
- Develop strategic marketing endeavors and implement them to generate consumer demand across your network’s geography.
- Utilize digital technology like intraoral cameras and scanners to help consumers become more fully engaged with their recommended treatment plan by transforming the diagnostic process into a collaborative experience that fosters trust and encourages treatment plan acceptance.
- Build positive relationships with consumers that begin from the moment a potential patient interacts with the DSO’s brand through encounters with marketing messaging.
- Establish airtight lead generation and treatment conversion pathways.

Also see the white paper “The Elixir of Growth.” [The Elixir of Growth – Download now \(straumann.com\)](#)

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Sustaining Innovative Change

Healthcare is not a highly reliable industry, which may result in unacceptable harm to patients, visitors, and staff that is costly and unsustainable. Although we have made great strides in the past 20 years, there is still much work to be done to create reliable systems in healthcare. This requires a transformational mindset and the development of innovative solutions that have not been tried before.

**DONNA M
PROSSER**



Associate Principal | Reliability & Management Systems
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key points

- Although we have developed many innovative solutions to reduce harm in healthcare over the past 20 years, patient safety metrics are virtually unchanged.
- All healthcare organisations are challenged with sustaining change because we do not yet have reliable cultures, systems, and processes.
- In addition to reducing harm, high reliability in healthcare will improve financial health.
- To become highly reliable, organisations must transform the way they structure improvement.
- Five suggestions are outlined to help organisations to get started on an innovative, transformational journey.

The Future of Continuous Improvement in Healthcare

Healthcare workers and leaders are naturally innovative. When the Institute of Medicine (IOM) report, *To Err is Human*, became a catalyst for change in 1999 (IOM 2000), we began applying this skill set to quality and safety improvement. Since then, healthcare organisations have focused on many different initiatives, including:

- Evidenced-based, Clinical Practice Guidelines
- Cross-Organisational Collaboratives
- Shared Governance
- Disease-Specific Certifications
- Patient Experience
- Electronic Health Records (EHRs)
- Lean/Six Sigma and Continuous Improvement
- Culture of Safety, Just Culture
- Pay for Performance
- High-Reliability Organisations (HRO)

Over the past 20 years, in every sector of healthcare, intelligent and passionate people have worked tirelessly to improve the safety of their staff, patients, and visitors. While some organisations are further ahead than others, everyone has implemented several or all the initiatives listed above in some respect, especially since financial incentives are now frequently associated with quality and safety outcomes. So, why, then, did the National Academies of Medicine (NAM) report in 2021 that patient safety is at a standstill (NAM 2021) after we spent two decades innovating change?

Healthcare truly has transformed in many ways in the recent past, and we have come very far in these twenty years, but the industry has struggled to sustain improvements over time. This is because the cultures, systems, and processes that we have created only work well under certain conditions. Our hard-won efforts fall apart when uncontrollable stress is introduced into the system, stress that might come in the form of a leadership change, a staffing crisis, or a global pandemic. Regardless of the cause, at some point, something is going to happen that requires a shift in

priorities, and we need to create reliable systems that can tolerate that stress without breaking down.

High-reliability organisations (HROs) build their processes to withstand inevitable stress. They make it easy to do the right thing and hard to do the wrong thing. Sadly, no healthcare organisation in the world is highly reliable, and millions of people die or suffer permanent harm every year due to unintentional medical errors. Aviation, nuclear power, and other high-risk industries are far safer than healthcare, and would never tolerate the level of harm that patients, families, and staff experience daily.

Everyone agrees that healthcare safety is imperative, and nobody wants to see harm come to patients, visitors, or health workers. In addition, the relationship between financial health, patient safety, and care quality is clear: patients who receive good care experience lower complication rates and, thus, a lower cost (Slawomirski et al. 2017). With financial pressures at an all-time high for healthcare leaders, organisations can't afford not to become more highly reliable.

The Problem

To add to the above stated, all healthcare organisations today have some version of the same problems:

Reimbursement for healthcare services has increasingly become tied to specific outcome metrics, such as mortality, medication errors, central-line associated bloodstream infections (CLABSI), patient satisfaction scores, and many, many more. In response, organisations have created teams or committees to oversee the improvement of one specific metric. These teams spend countless hours working to move a single data point, and although they may be successful in the short-term, sustaining change becomes very difficult because they didn't address all care issues across the continuum for the patient with that specific problem. For example, teams focusing on reducing central line infections tend to emphasise the implementation of the evidence based CLABSI bundle but stop short of assessing all aspects of the care of the patient requiring an intravascular device.

- *Improvement teams roll out change inconsistently, making it difficult for the frontline to keep up*

In most organisations, because the teams described above do not communicate and collaborate well, the improvements they implement are introduced in a fragmented way. Perhaps one team revises a policy, another creates an order set, and yet another

Our hard-won efforts fall apart when uncontrollable stress is introduced into the system, stress that might come in the form of a leadership change, a staffing crisis, or a global pandemic

- *Improvement occurs in silos: the right hand doesn't know what the left hand is doing, thus creating a "patchwork quilt" of improvement*

Healthcare is complex, and leaders are challenged with many competing priorities. As a result, new teams and committees are constantly being created on top of the groups that have historically existed. These teams are often unaware of what the others are doing, resulting in duplication of efforts and costly inefficiencies.

- *Improvement teams are generally created to focus on a specific metric, resulting in gaps in care processes for related patient groups*

implements a new protocol that is not built into the Electronic Health Record (EHR) because it was not a priority for IT. This creates inconsistent processes for locating information for the frontline and makes an already complex environment even more difficult to navigate safely.

- *Leaders have too many competing priorities, preventing a laser focus on strategic goals*

Healthcare leaders are overwhelmed and are burning out just as fast as the clinical teams they manage. Siloed improvement efforts often result in additional complexity for them as much as their teams, with new audits, meetings, and inefficient administrative tasks continually added to their workload. Although

many organisations have created formal leadership development programmes and succession plans, the ability to fully embody leadership principles is overshadowed by the constant diversion of a leader's attention from one problem to another.

- *The improvement process itself has become incredibly complex and difficult to manage*

A continuous improvement mindset has become the norm, and healthcare organisations have generally adopted some framework for improvement, such as Plan-Do-Study-Act (PDSA) or Define-Measure-Analyze-Improve-Control (DMAIC). However, most have not applied that framework to the actual process of improvement. There is generally no one person, department, team, or committee who has oversight of all improvement work, leading back to the first problem identified above: the right hand doesn't know what the left hand is improving.

The past 20 years have brought great progress in performance improvement, but it is time to innovate further. Leaders must now continue their efforts to build strong safety cultures in their organisations but must also change the way they structure improvement. The ability of an organisation to innovate in this way is critical

solutions that have never been tried before, such as:

- *Eliminate the silos among improvement teams*
Organisations can begin this work by completing an assessment of the current state of improvement workflows. Consider creating an actual status map and outline how many committees and teams are presently meeting and define the purpose for each. Quantify the cost of this improvement work by including the number of members, their average hourly wage, and the total hours spent on this team or committee. Next, identify gaps in the process and examine where there is duplication or overlap, where there are organisational needs that are not being addressed by any team, and how many teams are just meeting because they always have, rather than for a specific purpose. This exercise will help senior leaders to combine, condense, or eliminate committees and teams as appropriate.
- *Create teams that focus on improving the care of a patient population, not an individual metric*
Measurement of outcomes is still critical but consider how many you can combine if you focus on patient populations instead. For example, a team focusing on "The Care of the Patient with Congestive Heart

To create reliable systems, healthcare organisations must be willing to fundamentally change their entire approach to improvement and be tenacious

to becoming highly reliable, which will result in the sustainment of change, improved financial health, and better patient outcomes.

Five Innovative Solutions

Innovation is hard and requires strong leaders who can set a vision for the future, encourage creative solutions, and design teams that foster ongoing collaboration. To create reliable systems, healthcare organisations must be willing to fundamentally change their entire approach to improvement and be tenacious - a transformation such as this takes time, patience, and persistence.

Luckily, healthcare workers are naturally innovative. If we are ever to reduce harm in healthcare, leaders must harness the power in their organisations and design new

Failure" across the continuum could analyse the proper utilisation of heart failure guidelines, readmission rates, mortality rates, health equity trends, and patient satisfaction scores all in the same team. Ensure that the right stakeholders are involved in this team to address care issues across the continuum, as experienced by the patient, rather than through the eyes of a particular clinician group.

- *Make it easy for the frontline to know what to do*
Leaders need to create systems and processes that are easy to follow in cultures that are supportive and helpful when changes occur. Start again with a current state assessment. For example, in the care of a patient with heart failure, examine how many documents and instructions are in place across all

care departments: are they easily retrievable and easy to follow? Do some departments have different expectations than others? Because there are so many policies, procedures, protocols, order sets, etc., in most organisations, getting a handle on this generally takes several years, but start with a handful of the patient populations discussed above.

- *Empower leaders to effectively manage innovative change*

Understanding the actual workload of leaders is difficult and will likely require shadowing to develop a clear picture of the current state. Identify where there are unreasonable expectations: creating workflows that only allow high performers to be successful will never result in the development of collaborative teams across the organisation, as 60% of any population are middle performers. In addition, examine your leadership development programmes and create opportunities to validate (not just teach) leadership skills and behaviours.

- *Establish a single visual process for the management of ongoing safety, quality and service improvement*

Many organisations have a difficult time differentiating between strategy and business as usual. Since the improvement of patient care workflows should always be continuous, it can't also then be strategic. Create a global calendar of improvement that is aligned with education, regulatory, and other programmes that allow for the review of the care of specific patient populations every one to three years. The design of this new structure to manage improvement work then becomes strategic and should be built into annual plans to ensure that the right resources are made available.

The suggestions listed above do not require significant investment in technology and are not cost-prohibitive.

However, this is transformative work that requires strong leaders with a long-term vision and a thorough understanding of change management principles. Identify the early adopters in your organisation and just begin to have a conversation: what of the above rings true? What are some innovative approaches that might work for you?

Conclusion

It will not be easy to create reliable care systems, but every healthcare organisation has what it takes: intelligent, hard-working people with the skills to innovate and lead collaborative change. It will be challenging work, but creating safer systems can no longer be optional in healthcare. And with today's financial pressures, we can't afford not to try.

Conflict of Interest

Donna Prosser is a full-time employee at Vizient, Inc. ■

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Multi-Cancer Early Diagnosis Availability for Patients in Low- and Middle-Income Countries

The scale of destruction wreaked on human life and happiness by cancer hardly needs any illustration. Significant disparities exist between countries, caused primarily by differences in national wealth and income. OncoSeek provides good accuracy in detection and diagnosis and will be a game-changing and life-saving multi-cancer early detection test.

ARTHUR
AJWANG



Medical Doctor | Kisumu Teaching and Referral Hospital | Tutorial Fellow | Uzima University School of Medicine | Kenya

key points

- 84% of the global population lives in low- and middle-income countries (LMICs) with a lack of medical infrastructure, personal financial resources and basic diagnostics out of reach.
- Cancer is often only recognised and diagnosed late in these regions.
- When diagnosed early, treatments like surgery and radiotherapy are still possible and available at a relatively low cost, whereas late-stage cancer requires more advanced and expensive treatments that are out of the question in a low- and middle-income setting.
- An AI-enhanced algorithm can help optimise accuracy. OncoSeek provides good accuracy even in early-stage detection and diagnosis.

Shujia Hao | CFO and Co-Founder | SeekIn Inc | China

Tielo Jongmans | Patient Advocate | Inspire2Live | Netherlands

The Patient's Experience

After being diagnosed with Stage 3 cancer of the cervix, Patient D.A.O communicated how unfair it was that, after spending five years visiting health facilities and spending everything she had on her national insurance (150,000 Ksh {Kenyan Shilling, at the time of writing 1USD was equivalent to approximately 140 KSh}), she finally learned that she had a late-stage cancer which cannot be cured because it was diagnosed too late. We had failed her.

A second patient, L.O.O., who was diagnosed with Stage 4 cancer of the oesophagus and needed to have

a stent fitted to continue eating after a late diagnosis, could not hold back his tears telling me how he had spent almost 3,000,000 Ksh over the past 3-4 years in different private hospitals seeking diagnosis, treatment and cure for the fact that he could no longer eat solids, and because he had never had insurance cover, he had to use all his savings and sell his parcels of land to receive a very late diagnosis, and an oesophageal stent for swallowing, as he waited for his death.

The third patient, M.S.O., was diagnosed with Stage 4 cancer of the prostate after spending 870,000 Ksh at various public health facilities, private clinics and

laboratories due to difficulty urinating. His children had to stop schooling because he could no longer pay their college fees, and he lost his job due to long-term sickness absence. His wife also left due to the difficult task of caring for him while sick and the loss of income, which meant a big change in his home life.

These stories were taken from the recent personal experience of Dr Arthur Ajwang, a General Practitioner at the Kisumu Teaching and Referral Hospital in Kenya.

Dr Ajwang characterises the situation as follows: “Late diagnosis of cancer in the low- and middle-income

- Mortality rates in sub-Saharan Africa now rank among the highest in the world (Sung et al. 2021).
- Low survival rates in sub-Saharan Africa are largely attributable to late-stage presentation (Sung et al. 2021).
- One study (McCormack et al. 2020) concludes that a projected 416,000 women will die from breast cancer in sub-Saharan Africa between 2020 to 2029, yet with downstaging (diagnosis at an earlier stage) and improved treatment at least a third of these deaths could be prevented.

Late-stage diagnosis results not only in vast numbers of unnecessary deaths but also in the devastation of the financial and social position of families and children

countries, especially in Africa, contributes to 70-80% of annual cancer mortality. There is also the issue of misdiagnosis at many levels of the healthcare system, e.g. when vague symptoms mean that healthcare workers do not have a high index of suspicion and go on to perform multiple diagnostic tests looking for other diagnoses, which can take years, not to mention thousands of shillings and a toll on the patients and their relatives before cancer is finally diagnosed in very late stages. Another handicap is that, despite several cancer screening techniques being available in clinical practice, the high cost of these methods and the need for specialised infrastructure and skilled technicians limit their application.”

Statistics and Patterns

These personal observations can be underpinned by the following statistical evidence:

- 84% of the global population lives in low- and middle-income countries (World Bank data for 2021).
- Cancer mortality after diagnosis in LMICs is much higher than in high-income countries (Sung et al. 2021).

Late-stage diagnosis results in vast numbers of unnecessary deaths and devastation of the financial and social position of families and children. Reasons for late diagnosis are many (Khama Rogo Lecture 2022), including:

- Low levels of cancer awareness and lack of knowledge.
- Lack of access to trained medical staff.
- Long distance from medical facilities.
- Fraudulent medical practices.
- Technical limitations.
- Lack of money.

Design Parameters for the Scientist

These are the factors that the scientist has to take into account to develop a useful diagnostic tool for this specific context (Luan et al. 2023). Their diagnostic method needs to meet the following basic criteria:

- High-accuracy diagnosis based on one single blood sample.
- Capacity to detect multiple cancers.

- Contribution to early detection and diagnosis.
- Universal, standardised and automatic technical laboratory platform.
- Technical laboratory platform within three days of postal delivery to maintain blood sample quality.
- Cost is low enough for broad application in LMICs.

Additional design choices include:

- Use of multiple protein assays and artificial intelligence to reduce false positives.
- Need to assist in finding tissue of origin.
- Need for upgradability to improve specificity, sensitivity and coverage of more cancer types.

The result is a diagnostic using a panel of seven Protein Tumour Markers (PTMs). The core of the diagnostic is an AI-enhanced algorithm called OncoSeek that has been trained and validated with 7,565 blood samples to calculate the Probability Of Cancer (POC) based on the quantities of the seven PTMs plus the age and sex of the person involved. The results were then

the present version, the sensitivity is 51.7% and in cases where the test result is positive, OncoSeek also delivers a first indication of the Tissue Of Origin (TOO) with an accuracy of 66.8%.

This performance makes OncoSeek suitable for diagnosing more types of cancer at earlier stages, thus improving the outcome for the patient by treating the disease when it is typically most responsive to therapy. In the early stages, surgery and radiotherapy are regularly successful, and they are also often available in low-income settings, as opposed to therapies for advanced-stage cancers, like complex chemotherapy, targeted therapy or immune therapy. The OncoSeek test requires a simple tube of blood which can be drawn by a nurse or a midwife and then sent by mail for analysis in a central laboratory with standard lab equipment. In many countries, one central laboratory will be sufficient because the test relies on protein quantities rather than Whole Genome Sequencing, which is more costly. The total cost of the test is the sum of the costs connected to taking the blood sample, mailing the sample to the central laboratory, operating standard lab equipment,

OncoSeek will save millions of lives in low- and middle-income countries by diagnosing multiple cancers at an earlier stage and starting at a low price

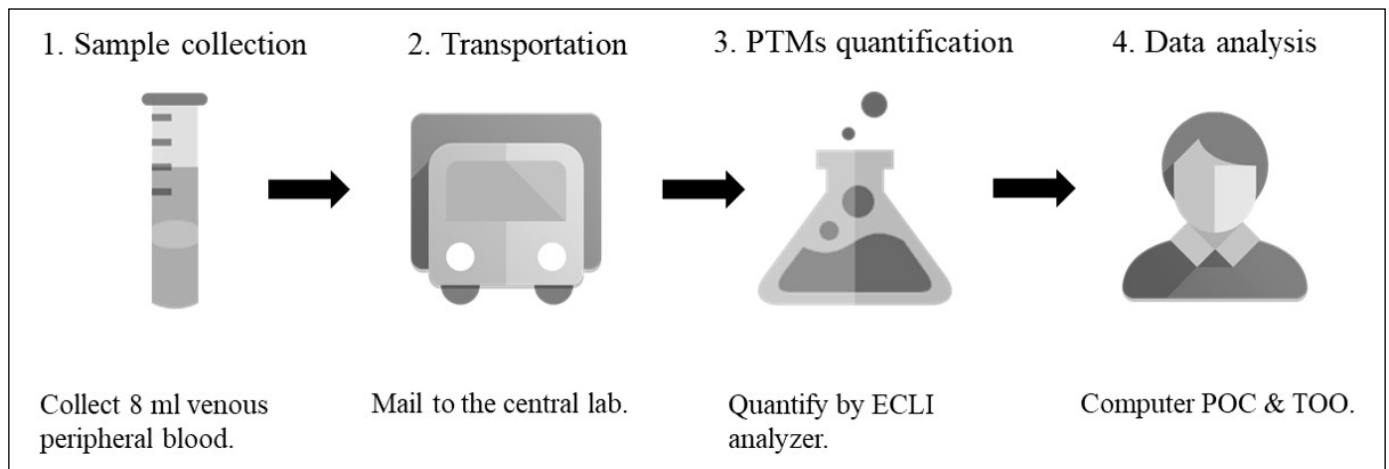
verified with the data from a second cohort (provided by Johns Hopkins University School of Medicine) of 1,817 samples.

Thanks to the AI algorithm, a very high specificity (probability of a negative result if the disease is not present) of 92.9% was obtained. This is desirable in any setting, but especially in LMICs because false positives cause the patient great anxiety and require extra cost for subsequent verification of the diagnosis by other means. High specificity means lower sensitivity (probability of a positive result if the disease is actually present), or in other words, more missed positives. In

processing the data and communicating the results, all of which are available and affordable for very many people in LMIC, showing that the diagnostic meets the design criteria and choices mentioned earlier.

Next Step

Until now, we have described the journey of the diagnostic from the patient to the clinical laboratory and scientific literature. Now this method needs to be made widely available to the medical community and to millions of patients in more than a hundred LMICs which will involve implementing the following workflow thousands of times every day:



In each country, it starts with gaining acceptance, often by means of a trial, followed by the implementation of an efficient and reliable process and quality guarantees. All process steps need to be designed and contracted with great reliability and at the lowest possible cost, and they also need to comply with national conventions and standard practices. [The Inspire2Live Foundation](#) is working closely with SeekIn (the biotech company behind OncoSeek) to find potential investors and coordinate the project implementation and management.

The road ahead is still long but let us take strength in the vision that Dr Ajwang and his patients expressed. “The stories I have heard from oncology patients in the clinic have been quite depressing and heart-wrenching. I shared with them about the innovation of the new multi-cancer screening test kit that we can diagnose multiple cancers early with just a small amount of blood drawn

from their veins, and they were happy about it. L.O.O. said that this would be a game changer and lifesaver for his children and relatives, and though he may be dead by the time it starts being used, he will rest peacefully knowing that it will save lives early”.

OncoSeek will save millions of lives in low- and middle-income countries by diagnosing multiple cancers at an earlier stage and starting at a low price expected to continue to fall every year, thus avoiding unnecessary mortalities and saving costs for the families. It will be a game-changing and life-saving multi-cancer early detection test in Kenya and across Africa.

Conflict of Interest

Tieolo Jongmans is an executive for Inspire2Live. Shujia Hao is the CFO for SeekIn Inc. ■

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The Shift From Gatekeeper to the Consumer in Healthcare Services

The traditional healthcare landscape across Europe is undergoing a marked shift towards a patient-centred approach. Patients are no longer passive recipients, but active participants who make informed choices when selecting their healthcare providers based on service criteria, such as proven quality, accessibility, proximity and value. This evolution reflects a consumer-oriented mindset, where ‘consumers’ are encouraged to demand choice and make informed healthcare decisions, reshaping and owning their medical journeys.

GUY
BLOMFIELD



CEO & Chairman | Affidea | The Netherlands

key points

- Consumer behaviour has changed dramatically, with significantly more engagement by consumers in wellness and healthcare services.
- Technology and new innovations are the driving forces behind this change and will continue to be pivotal in advancing medical care.
- A consumer-centric approach is core to Affidea’s business model, where patients actively ‘shop’ for their provider and make informed decisions based on quality, accessibility and proximity.
- Striving for brand loyalty, as with many other consumer sectors, is increasingly important.

There has been increased emphasis on patient-centric care in recent years, driven by consumer behaviours changing dramatically with significantly more consumer engagement in wellness and health. Consumer interest in healthcare impacts their choice of provider, location, access and even health insurance. The transformation is more than a trend; it is marked by intensified engagement and patients owning their ‘health journeys’.

Affidea has been closely monitoring these trends in healthcare consumerism, understanding the significance of these shifts and embracing its role in defining a more patient-centric delivery model. Our commitment to setting new standards in patient care and service spans the whole patient journey and is

underpinned by integrated technology and service innovation with the desire to enhance medical care and patient experience.

Central to this transformation is the role of IT, which increasingly enables a more personalised patient experience as well as enabling quicker diagnoses. At Affidea, we acknowledge that patients are no longer mere healthcare recipients of a ‘gatekeeper service’, but active participants seeking integrated, patient-centred care. The cultural barriers that once hindered access must be replaced by a seamless, high-quality care model that is effective, timely, and secure. This, being the case for all payor categories – Public, Insured and Self-Pay.



The consumer is now in search of service attributes in healthcare that are common in retail or other consumer services

A consumer-centric approach is the essence of Affidea's business, where we believe patients should be able to make an informed decision about their provider.

In the post-COVID-19 era, there is a new sense of urgency. Swift diagnosis and treatment access are, of course, priorities, but in many European markets, the doctor or provider organisation no longer holds sole decision-making power. Instead, an empowered model has emerged, where patients have transitioned into informed consumers, carefully selecting their healthcare partners. In many European healthcare systems, patients are increasingly encouraged to select

their community-based service provider – the public commissioning purse is increasingly following the patient!

At Affidea, we recognise the importance of viewing patients as intelligent consumers, each having legitimate expectations for both medical quality and exceptional experience. In this new landscape, the digital interface plays an important role in guiding patient choices, sometimes outweighing the initial provider recommendations from primary care physicians. To cater to this digital-savvy generation, information dissemination becomes paramount. Hence, as

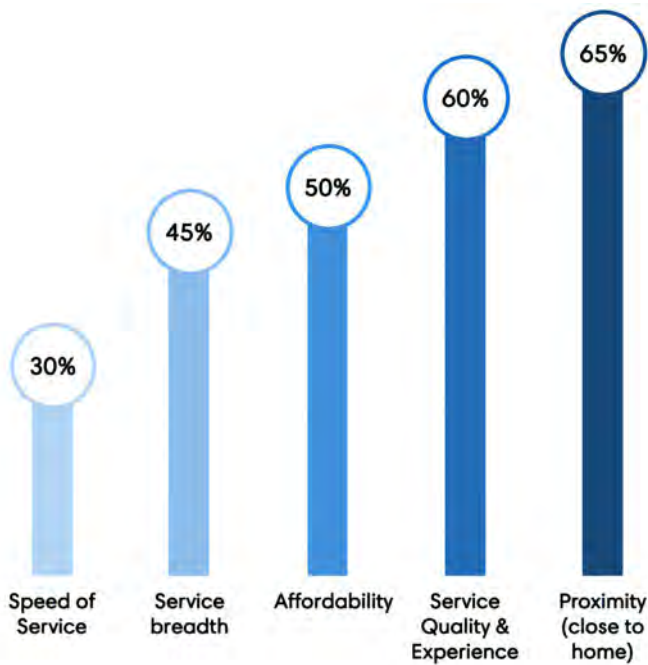


healthcare providers, we must provide patients with the relevant information they need to make decisions.

Furthermore, the shift to digital interfaces is material. Our analysis indicates that 60% of patients in our regions access healthcare services through smartphones or tablets. Post-pandemic, the rise of digital platforms for easy bookings has been exponential. An increasingly important factor in

What matters most to patients when selecting a provider

Proportion of surveyed patients who identified each factor as important



*Affidea Internal Sources

attracting patients now lies in accessibility, allowing them to conveniently schedule appointments with their desired specialists. As the industry continues to evolve, this digital interaction is set to accelerate.

The consumer is now searching for service attributes in healthcare that are common in retail or other consumer services. Ease of booking, informed choices, comprehensive understanding, and flexible appointment selection have all become integral facets of patient expectations. Timely appointments, accompanied by seamless access to their digital records across any of the facilities they want, are now integral to their patient journey.

Recognising the role of women in healthcare decisions cannot be underestimated. Tailored targeting becomes essential, with nearly 80% of 'family' healthcare choices influenced by women and over 50% of appointments attended by women companions. Location is also an essential factor. A large majority of patients search with the words "near me". Hence, proximity is key. Affordability is important, but falls much lower in the patient's list of priorities.

In the shift to a more patient-focused care delivery model, affordability, while still important, now shares its priority status with service attributes. Today's healthcare consumer seeks more than diagnosis and treatment. They demand high-quality services, digital and streamlined processes, convenient locations, swift access, and an in-depth understanding of their medical journey. The patient voice should and will get stronger.

At Affidea, we urge a future where patient-centric care is not just a concept but an everyday reality.

Cost Savings Through Zero Preventable Deaths

Instituting patient safety practices will save lives and healthcare dollars. We are proud of our healthcare experts; it is the system that needs to be fixed, and we can do that! We can create a system where safe, high-quality healthcare is delivered to every patient every time. Healthcare must become a high-reliability organisation, and this starts at the top by creating a culture of safety throughout the system. Other high-risk industries have done this, and we have the tools to do this in healthcare.

MICHAEL
RAMSAY



Chief Executive Officer | Patient Safety Movement
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key points

- Complications are very expensive as well as potentially lethal. Surgical errors alone are estimated to cost \$29 billion annually, and all medical errors may reach \$958 billion annually in the U.S. alone.
- We all must reach zero harm, and to do this, we must create a safety culture in our healthcare system.
- Actionable, evidence-based best practices need to be instituted and followed.
- Now technology can help to identify abnormal data, and then a clinical team reviews the data. This is leading to more accurate and timely data, and what is exciting is that harm that was thought to be not preventable is now becoming preventable because of the early alerts given by this technology.
- Reimbursement in healthcare should be based on quality of results, not quantity.
- An independent National Patient Safety Team should be considered to investigate incidents of serious patient harm and develop recommendations to prevent them from happening again.

Introduction

Twenty-three years ago, the Institute of Medicine published a report, “To Err is Human”, which determined that 44,000 to 98,000 patients died each year in U.S. hospitals of preventable harm (Institute of Medicine 2000). Seven years ago, Professor Martin Makary from Johns Hopkins University estimated that the number was much higher in the region of 250,000 patient deaths a year (Makary and Daniel 2016). This would make it the third leading cause of death in the U.S. after heart disease and cancer!

Last year the Office of the Inspector General of the Department of Health and Human Services published a report on the state of the Federal government supported health systems, including the Centers for Medicare and

Medicaid, that concluded that 25% of Medicare-funded patients had an adverse event during hospitalisation and 180,000 of these patients died (U.S. Department of Health and Human Services 2018). 43% of these adverse events were determined to be preventable, which calculates to 77,500 preventable deaths a year from hospitalised Medicare-funded patients.

Earlier this year, David Bates reviewed 11 hospitals in Massachusetts and found very similar results as were found in Medicare patients: adverse events were found in one in four admissions, approximately 22.7% of harm events were considered preventable, and 32.3% had a severity level of serious (Bates et al. 2023).

The U.S. has a dedicated team of well-trained healthcare workers, including clinicians, nurses, and

pharmacists, that we can be proud of, so why are mistakes so common?

Patient harm frustrates the healthcare team. They, too, want a safe process for their patients. It is likely then that the process is faulty, not only for the members of the team. Some hospitals have managed the process to improve safety and have reached prolonged periods of zero hospital-acquired infections, zero pressure ulcers, zero ventilator-acquired pneumonias, and zero wrong-site surgeries.

We all must reach zero harm, and to do this, we must create a safety culture in our healthcare system.

evidence-based best practice is deliberately omitted without good reason.

Complications are very expensive as well as potentially lethal. Surgical errors alone are estimated to cost \$29 billion annually, and all medical errors may reach \$958 billion annually in the U.S. alone (Acevdo and Kuo 2021; National Quality Forum 2023; Goodman et al. 2023).

A precise accounting study from Dartmouth Hitchcock Medical Center demonstrated that instituting continuous monitoring of all patients with pulse oximetry saved lives and money. They were able to show an annual cost savings of \$1,479,012 despite the cost of installing

We must make healthcare safer and save the millions of dollars that are spent on managing preventable complications

This comes from the top down, from the leadership of the country to the leadership in healthcare, to the hospital leadership, and then to every employee, every healthcare worker. Each must make a commitment to patient safety. We then need partnerships with patients, patient families, the med-tech industry, the legal system, other industry safety organisations, payors, and insurance companies. This will be a team effort, but we can do it.

Actionable, evidence-based best practices need to be instituted and followed (Patient Safety Movement 2023). These need to be “Living documents” so that new, proven improvements can be included.

Wrong-site surgery should be a “never event” Let’s borrow from the airline industry the appropriate checklists, marking the site with the patient co-operating, appropriate consents and scans checked. The whole operating room team is in agreement on all parts of the procedure. Empower members of the team to speak out without fear if they see a step being missed or potential harm about to occur. This is often done already through the so-called ‘time-out’, where all the aforementioned steps are reviewed, and all can comment.

Near misses must all be reported without fear so that we can all learn from them. Everyone must feel safe reporting mistakes so that they can be investigated and not repeated. However, members of the team also have to be accountable if a safety measure agreed on in the

the surveillance technology because of a reduction in transfers to the ICU and a reduction in ICU stay (Taenzer et al. 2010). This was published in 2010, so inflation might represent even larger savings today.

When COVID-19 was rampant, many patients were kept out of hospital and managed by remote monitoring at home. This saved money and allowed other patients to be cared for in the overcrowded hospitals. The new monitoring systems would rely on transmitting their data to the patient’s cell phone and the cell phone of the caregiver, and if a parameter such as oxygenation or pulse rate is aberrant, both cell phones would give an alert. This is an example of med tech companies working as a team with the healthcare force (Pronovost and Cole 2022).

Data should be very transparent, both to the healthcare team but also to the patient.

The healthcare team should all be apprised when wrong site surgery has occurred so that measures can be enforced to be sure it never happens again. Post-operative wound infections, central line infections, the incidence of pressure ulcers, urinary tract infections, diagnostic errors, medication errors, and the list goes on, but if we are going to prevent these complications and avoid patient harm and save the high cost of them, this would be progress. If we are all aware of when the error happens and the magnitude of the error, we will reach the solution much sooner. We are human, and we all are

competitive, and if my data is not as good as yours, I will try and do better.

Hospitals used to rely on the adage “See something, say something” or billing and claims data to find errors. Now technology can help using artificial intelligence, electronic medical records can be scanned using “evidence-based trigger tools” that identify abnormal data, and then a clinical team reviews these data. This is leading to more accurate and timely data that will allow harm that was thought to be not preventable to become preventable because of the early alerts provided by this

If evidence-based best practices were not followed and harm occurred, this should not be the payor’s responsibility. If they were followed and unpreventable harm occurred, there should be full reimbursement. Evidence-based best practices should become standard everywhere.

Finally, a national patient safety team should be established to investigate causes of patient and healthcare worker harm and come up with recommendations. This team should include patients and representatives from the medical field, safety

Transparency of healthcare outcomes data will rapidly bring improvement

technology (Classen et al. 2018).

Another reason patient harm events may not be disclosed is the fear of malpractice litigation. The patient has a right to know if harm has occurred, and there should be open discussion on what happened and what will be done. There must be accountability if an error occurs, but equally, if the evidence-based best practice was followed and this was an unintended consequence, then full disclosure should still occur, but no admission of error should be made. The Agency for Healthcare Research and Quality developed the Communication and Optimal Resolution – CANDOR – tool kit in 2016. This is a strategy intent on honesty, transparency, and accountability (Boothman 2016).

An injured patient is the clinical responsibility of the caregiver and not the risk manager or hospital attorney.

Another barrier to the transparency of data is loss of reputation, loss of referrals, and loss of income, but this transparency is the fastest way to make healthcare safer and more affordable. Reimbursement in healthcare should be based on quality of results, not quantity.

experts and lay experts.

We must make healthcare safer and save the millions of dollars spent on managing preventable complications. Excellence in healthcare is a result of good leadership.

Conflict of Interest

None. ■

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For full references, please email edito@healthmanagement.org or visit <https://jii.hm/1lqq>

Profitable Future Hospitals

Today's hospitals are challenged by increasing demands and needs for hospital treatment by an ageing population and a general increase in the number of chronic patients. New players in the healthcare arena who today offer digital health services (e.g. Amazon, Google and Apple) threaten to further disrupt the current hospital landscape with new organisations and services. Hospitals can react to these challenges by redefining their role as a physical hospital and by embracing opportunities to establish virtual hospital concepts.

HANS ERIK
HENRIKSEN



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key points

- With increasing demands for healthcare services and hospital treatment, it is not sustainable to just increase the number of hospitals and beds.
- Payers are facing the same challenges, and they react to rising costs by looking for alternatives to hospital treatment, focusing on prevention, outpatient treatment and Telehealth.
- Hospitals need to redefine their roles and services to become hospitals of the future and operate in a way where they can both respond to increasing demands and expectations while at the same time remaining profitable.

Introduction

Hospitals are facing a daunting challenge with the increasing demand for in-hospital treatment, driven by demographic shifts, an ageing population, and the rising incidence of chronic diseases. As a result, hospitals are grappling with a range of issues, including overcrowding and long waiting times. Staff shortages and lack of GPs add to this challenge where hospitals need to serve more patients with less staff.

At the same time, hospital provider executives are concerned about potential disruptions that can threaten their hospitals' very existence because new players are using technology and innovative approaches to transform healthcare.

Tech companies like Amazon, Google and Apple have the potential to transform healthcare in a disruptive way. Even though they originally entered the healthcare space offering digital solutions, more and more we read about these big tech companies acquiring healthcare

organisations to actually offer physical healthcare services. This may mean that tech companies sometime in the future might be able to offer a new generation of healthcare which is based on a combination of virtual services and clinic-based services.

Virtual hospitals represent a new model of healthcare delivery, one that leverages technology to provide patients with remote, telehealth-based access to medical care.

These are characterised by their ability to deliver medical care and support services to patients in their homes or in other non-traditional outpatient care settings. By harnessing the power of technology, virtually, they can provide high-quality care while reducing the burden on traditional hospitals.

Today's hospital has an opportunity to transform themselves into future hospitals, which are at the same time physical hospitals and virtual hospitals. Virtual Wards is such an approach that has actually been rolled out.



On Virtual Wards, patients are provided with a range of devices that can track their vital signs, such as blood pressure, heart rate, and oxygen saturation levels. Patients can also use these devices to report any symptoms or concerns they may have.

The data collected from these devices is sent to the Virtual Ward team, who can then monitor the patient's progress and intervene if necessary. For example, if a patient's vital signs start to deteriorate, the team can contact the patient and provide them with advice on how to manage their condition. Alternatively, if a patient reports a new symptom, the team can arrange for them to see a healthcare professional, either in person or virtually.

In the U.K., the NHS has launched an initiative to significantly increase the number of these Virtual Wards. The experience so far is that Virtual Wards offer several benefits for patients, healthcare providers, and the healthcare system.

The NHS Virtual Ward initiative is but one way to improve healthcare productivity and healthcare services. It is often pointed out that meeting the needs of the young “digital natives” generation, who expect advanced digital health, is an important factor for new and disruptive players in healthcare. For the NHS, Virtual Wards can both transform the healthcare system and, at the same time, help reduce the potentially disruptive effect of new players in healthcare.

What are the opportunities for hospitals in other countries to initiate a transformation to become Future Hospitals? And how can such a transformation improve their profitability?

The Epital Care Model is a research-based healthcare model designed to provide patient-centred care through a collaborative and multidisciplinary approach. It aims to optimise patient outcomes by considering the patient's medical history, lifestyle, and social factors. Thus, the Epital Care Model focuses on both home monitoring with

The hospital of the future is also a virtual hospital

Firstly, they can help to reduce hospital admissions, which can be particularly important for patients with chronic conditions who are at risk of frequent hospitalisations.

Secondly, by providing ongoing support in the community, Virtual Wards can help to prevent patients from becoming acutely unwell and needing to be admitted to a hospital.

Virtual Wards can, thirdly, help reduce waiting times and improve patient outcomes by providing more personalised care. By working closely with patients and their healthcare providers, Virtual Ward teams can develop care plans that are tailored to each patient's individual needs. This can lead to better health outcomes and a better quality of life for patients.

As more Virtual Wards are established, they become an increasingly important part of the healthcare system in the UK. They are helping to address some of the challenges facing the NHS, such as rising demand for healthcare services, an ageing population, and a shortage of hospital beds.

the same initiatives and elements as in Virtual Wards and – like Virtual Wards – the Epital Care Model also includes clinic or hospital-based physical treatment.

A few Danish research projects have been conducted to document the efficiency and budget savings potential of the Epital Care Model associated with chronic patients.

Two of the studies, the TEMOKAP project at a private clinic and the PreCare project in Region Zealand, ended up with very similar results, such as a more than 50% reduction of hospitalisation and further, in the TEMOKAP project, 57% outpatient visit reduction, 74% ER visit reduction and 81% GP visit reduction.

This means that hospitals, which choose to use the Epital Care Model to initiate their transformation journey to become a Future Hospital, have the potential to reduce their costs and use of HCPs associated with chronic patients by significant margins: more than 50%. The research projects did not assess early discharge to continue treatment in the patient's home, but it is likely that this holds a similar, very large potential for reducing bed days.

Chronic patients are typically elderly patients. Are they able to use advanced digital health solutions? How do we ensure that they are active and continue to use technology in their home? And how about those who are not able to use the technology – i.e. healthcare equality?

The Epital Care Model includes patient health literacy, IT literacy and patient engagement approaches which

In many countries, current payment models and incentives do not at all motivate hospitals to change because they are typically paid or reimbursed based on hospital bed days or in-hospital treatment procedures. With the approaches to home treatment, hospitals can achieve vast savings, both in terms of economy and staff and by taking the initiative to transform, they remain

Patient empowerment and outpatient treatment are key to future hospital profitability

make home treatment a reality for most elderly patients. Experience from these research projects indicates that less than 1% of relevant patients were excluded due to a lack of IT skills. These research projects also proved that it is possible to engage all the patients and keep them active in-home treatment for longer periods (>2 years and more). Some patients are, of course, excluded from home treatment, e.g. due to drug or alcohol abuse, other social problems or cognitive issues. To maintain and increase health equality, the strategy for implementation of home treatment should include a way to use some of the considerable savings to add new and traditional services to target those patients who are excluded from home treatment.

in control of their patients, even though much of the treatment will be delivered in the patient's home.

Provided that payment models and incentives can be changed to support future hospitals in an optimal way, there is a huge potential for hospitals to transform themselves and, at the same time, increase profitability and optimise their relevance as 'Virtual Hospitals' and hospitals of the future.

Conflict of Interest

None. ■



The Distinction Between Trading and Investing

An overview of the basics of the financial market, differences in trading and investing and risk management strategies.

AARON HILL



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key points

- The financial market can seem confusing and is often an unnerving space for the untrained eye.
- Two terms that are often used interchangeably are trading and investing, despite possessing different meanings.
- Investing involves holding (and maintaining) a portfolio of shares, bonds, commodities, currencies, and other alternative investments over the long term.
- Trading styles categorise trading strategies into scalping, day trading, swing trading and position trading.
- Whether one elects to trade or invest in the financial markets depends on their personal preferences, risk tolerance and personality.
- Risk management involves mitigating preventable negative price fluctuations in your trading and investing.

The financial market can seem confusing and is often an unnerving space for the untrained eye. Elaborate vocabulary and frequent misuse of this terminology, together with what appears to be an unending list of strategies designed to help identify opportunities, regularly lead to increased confusion.

Two terms that are often used interchangeably are trading and investing, despite possessing different meanings.

Investing

Investing typically involves holding (and maintaining) a portfolio of [shares](#), [bonds](#), [commodities](#), [currencies](#), and other alternative investments over the long term. Investors seek strong fundamentals, whether a solid macroeconomic landscape for currency investors, for example, or a sound business model with consistent earnings growth for stock investors.

Investing strategies can be categorised as passive or active and broken down into value or growth investing

styles, particularly for equities. Passive investing appeals to inexperienced investors with limited time, allocating funds to low-turnover investments, like [index funds](#) and [Exchange-Traded Funds \(ETFs\)](#). More experienced hands tend to opt for an active approach in which the investor has more of a direct role in selecting investments.

With a focal point on the bigger picture, an investor's objective is to create investment ideas and generate a risk-adjusted return over the long term. This is essentially a way of assessing the profit potential of an investment given the degree of risk involved (usually measured through standard deviation).

Trading

Trading styles categorise trading strategies into four types: scalping, day trading, swing trading and position trading. The first two trading styles appeal to those who desire an active, short-term approach with time to be at the screens. The remaining two trading styles focus on a



medium- to longer-term approach, suitable for those with less time to devote to trading.

The practice of trading involves executing frequent transactions across major asset classes, seldom holding positions open longer than a day or a few weeks. Traders primarily focus on short-term price movements, relying on a blend of [technical](#) and fundamental analysis to determine when to buy and sell, and often containing risk to a pre-determined percentage of one's account equity per trade.

approach identified as providing positive expectancy when deployed over a long enough period) is sufficient to generate consistent returns and achieve their objectives. This could not be further from the truth. While a well-executed approach is a necessary component to achieve consistent profitability, a lack of emotional understanding regarding a trader's or investor's decision-making process can be counterproductive to wealth accumulation. An entire field is devoted to this: behavioural finance. This is largely separated between cognitive and emotional biases.

Trading (or investing) requires a different mindset; it demands that we think differently

Should I Trade or Invest?

Ultimately, whether one elects to trade or invest in the financial markets is down to their personal preferences, risk tolerance, and personality.

Investing might be the better choice if you're looking to build long-term wealth and are comfortable with riding the ups and downs of market trends (volatility). But trading might be a better fit if you're looking for more short-term returns and are comfortable with the risks involved. While investing can be relatively straightforward (especially if you stick to low-cost index funds or ETFs), it does require some basic knowledge of how the markets work and how to evaluate different investment opportunities. Trading, on the other hand, can be more complex, requiring a deeper understanding of market dynamics, advanced analysis and risk management.

Emotional Influences

Newer entrants in the financial markets commonly believe trading or investing is undemanding. They believe a strategy that provides them with an edge (an

While humans may have adapted in many ways across the evolutionary timescale, our response to money and risk remains difficult to manage instinctively. For many, an active trade triggers a 'fight or flight' response; being wrong and losing money produces a number of emotional reactions. And it is for this reason, a trader or investor must not only emphasise the need for a finely tuned approach, but they must also understand that there is a strong underlying emotional connection at play. By way of an example, one component that a short-term trader must learn to become accustomed to is to think in probabilities. You will not win in all your trades; however, if you possess a trading strategy that produces winning trades 40% of the time and generates at least double the return on those winning trades, you will, assuming the risk is contained, generate a return over the long term.

The key point is that trading (or investing) requires a different mindset; it demands that we think differently. Consistent profitability commands a mindset capable of withstanding small, controlled losses and still functioning objectively.



No matter the trader or investor, we all have losing trades. How we respond to those (controlled) losses and manage the winning positions will ultimately determine our bottom line.

Risk Management

Identifying risk and return metrics in trading or investing should be at the forefront of the required knowledge for any market participant. Risk management involves mitigating preventable negative price fluctuations in your trading and investing.

However, risk is a term that can give rise to a few different meanings, depending on who is asked. An everyday investor may state that risk is simply the amount of money he or she could lose. Ask a finance professional, and they will likely state that risk is defined

as the standard deviation of periodic returns. The professional, therefore, does not classify risk as a dollar amount, but more as the volatility, or dispersion, around a central tendency.

As a trader or investor, the primary job is to manage risk. This could be as simple as employing a protective stop-loss order to help mitigate excessive adverse price moves against a position.

Void of risk management and a lack of understanding of the psychological influences, trading or investing can prove a frustrating endeavour. Consequently, devoting time to understanding what it takes to achieve a mindset capable of operating in the market successfully and developing a sound risk-management approach and a well-defined strategy is vital.

FP Markets

FP Markets was founded in 2005 in Sydney, Australia. FP Markets has since grown to become a group of entities registered around the world and is renowned for being one of the largest and most reputable brokerages in the industry. Our company vision is to create a Superior Trading Destination where traders and investors can access a full suite of tradeable products in the Global Markets. The convenience of trading CFDs across Forex, Shares, Indices, Commodities, Digital Currencies, Bonds and ETFs from one account is one of the key reasons traders and investors choose FP Markets.

Healthier at Home: The New Era of Healthcare

The global healthcare market is entering a new era of radical growth in preventative, personalised treatments that maximises positive health outcomes and system resilience. At the heart of this opportunity is shifting the site of care – often to home and community settings.

ALISTAIR
FLEMING



Healthcare and Life Sciences Expert | PA Consulting

Healthcare systems the world over face relentless pressure and increasingly complex health requirements. ‘Healthier at home’ solutions, whether stand-alone therapeutics, digital devices, or behavioural prompts, have the potential to alleviate demand, improve health equity, and increase patient quality of life. They also offer a huge economic opportunity. In 2022, \$44 billion was invested in global healthcare innovation – double that of the previous year. This upward trend is set to continue. [Our research](#) suggests that by 2030, the global market for solutions that shift the site of care will increase to \$390.4 billion.

We surveyed 550 leaders across the global healthcare, MedTech, and pharma landscape, discovering huge enthusiasm for new care pathways and solutions that keep people healthier at home. Global MedTech and pharma leaders will commercialise 25% more hospital-to-home solutions in 2027 than today, and 72% of global healthcare leaders are currently prioritising the development of at-home solutions. But, despite the enthusiasm, 65% of respondents cite MedTech and pharma’s lack of understanding of healthcare systems and pathways as a key barrier to change. Motivation is another core challenge – global healthcare leaders say that only one-third of clinicians are motivated to shift

key points

- ‘Healthier at home’ solutions include stand-alone therapeutics, digital devices, or behavioural prompts.
- These solutions have the potential to alleviate demand, improve health equity, and increase patient quality of life.
- Delivering hospital care in the home requires target groups to be engaged before design and throughout the iteration.
- Keeping people healthier at home drives value on both an economic and social scale, improves patient outcomes, reduces demand, and drives health equity.

the site of care, rising to just 40% in the next five years. Without clinician backing, the reality of adoption stands to fall short of ambition.

So, what needs to happen to bridge the gap between expectation and reality and create a world where people stay healthier at home?

Connect the Ecosystem

Global survey respondents recognise the importance of collaboration, with 70% predicting that MedTech and pharma companies will become trusted partners to healthcare in the delivery of connected solutions.

Successful collaboration starts with working out what change will impact who and how. When co-designing products and services, stakeholders should think beyond the product. Instead, the focus should be on people and processes and the right software wrappers and service propositions to guide behaviour.

For example, Argenti, our technology-enabled care solution, provides advanced, automated, 24-hour support to those in need, connecting care workers to service users for better, more efficient care. By focusing on outcomes and co-designing solutions based on people’s needs, we were able to use technology as a

safety net, helping people live normal lives and stepping in when they needed more support. Real-world data and evidence from pilots can help to build a compelling case for investment in future planning. From here, stakeholders can work together to define the desired endpoint and understand the consequences of each change. Getting this right gains buy-in from the clinical community, providing them with the evidential data to underpin risk-based decision support.

Deploy Digital With Intention

Digital solutions are increasingly central to at-home care. They can empower patients to understand and self-manage conditions, providing relevant information or connecting them to wider support networks. Digital solutions also gather invaluable data. For example, we partnered with Cumulus to support the treatment of long-term neuro-degenerative conditions like dementia, creating a medical-grade electroencephalogram (EEG) monitoring platform to record and analyse patients' brain

Many healthcare systems are shifting the emphasis to value-based care, an outcomes-based model that rewards the successful treatment of the patient

Differentiate Through Experience

Patients and professionals need their care experience to be as simple, safe, and positive as possible, tailored to individual needs. Patients are increasingly influential – their attitude towards solutions drives adoption. Delivering hospital care in the home requires target groups to be engaged before design and throughout the iteration. This is how the most appropriate and convenient solutions are created. Take Viscero, an ECG T-shirt that provides continuous, diagnostic-quality data for those with abnormal heartbeats, delivering insights to improve clinical outcomes. Users simply wear the T-shirt and go about their lives. This was developed specifically with patient experience in mind, with the intention of replacing the need to be wired to fixed equipment in a clinical environment.

To be successful, however, many other stakeholders must be accommodated. Clinicians might need solutions that provide timely, well-presented data, instilling confidence in less familiar approaches. Family members might be more supportive if they are intentionally involved in the flow of information. Hospitals will appreciate systems that integrate seamlessly without increasing complexity. The solution must work for everyone. It comes back to collaboration and understanding.

activity at home. These insights were then used for critical clinical trials.

However, while 65% of global respondents agree that increased real-world data availability is a significant advantage of shifting the site of care, there is tension between access and privacy. This is a practical challenge as well as one of perception. Carefully managing data in line with regulatory requirements and best practices can ease difficulties. Defining risk parameters and responsibilities is crucial and emphasises the importance of collaboration.

Meanwhile, not everyone wants to or is able to access digital-led solutions. It's important to focus on equity, not 'one-size-fits-all', and provide the right support, alternatives and infrastructures.

Unlock Whole System Value

Keeping people healthier at home drives value on both an economic and social scale. The majority of global respondents believe hospital-to-home solutions will positively affect society's health and well-being, vastly improve community health and happiness, and save patients time and money. To unlock whole system value, ecosystem stakeholders need a common understanding of value centred on health equity and shared incentives rather than cost alone.

Our research confirms the importance of prevention and early intervention, with 96% of respondents saying patients will be so focused on preventative care and early intervention that many hospital visits will be unnecessary. The proactive model is gaining traction, steadily replacing reactive care. Medtronic's diabetes monitoring system, for example, pre-empts hypoglycaemic attacks by assessing patients' biomarkers against wider data trends and population statistics.

Many healthcare systems are shifting the emphasis to value-based care, an outcomes-based model that rewards the successful treatment of the patient. This can be measured using various metrics, including Quality-Adjusted Life Years (QALY), re-admissions,

and population health management (PHM) data. These insights can be used to design proactive models of care and address health inequalities at the system and individual levels.

Keeping people healthier at home can improve patient outcomes, reduce demand, and drive health equity, benefiting patients and professionals while delivering a return on investment for MedTech and pharma providers. By focusing on these accelerators, ecosystem stakeholders can open up market opportunities and create a win-win model that delivers value for all.

Conflict of Interest

None. ■

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Medical Imaging



AI in Ultrasound: Can I Trust It?

Artificial intelligence (AI) has made significant advancements in various fields, including medical imaging, such as ultrasound (US). AI methods can be employed to enhance the analysis and interpretation of ultrasound images. The trustworthiness of AI in ultrasound depends on various factors and AI algorithms should undergo ongoing monitoring and improvement processes, and clinical expertise should always be incorporated.



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key points

- Artificial intelligence (AI) has made significant advancements in the field of ultrasound (US) and has the potential to greatly enhance medical imaging and diagnosis.
- There are several challenges associated with artificial intelligence procedures in US, even in cases where specific applications have received FDA approval.
- AI can contribute to advancements in image resolution and quality. However, it is necessary to balance these advancements with safety concerns.

Introduction

Artificial intelligence (AI) has made significant advancements in the field of ultrasound (US) and has the potential to greatly enhance medical imaging and diagnosis. AI algorithms can assist in various aspects of ultrasound imaging, including image segmentation, detection and classification of abnormalities or lesions, and prediction of outcomes such as benign or malignant as well as prognosis.

Safety of its use is critical when considering the use of AI, no less so in US.

Now, let's delve into the basics of how these methods work and the different network types.

In the realm of image segmentation, there are dedicated network structures designed for this purpose. Notably, convolutional neural networks and innovative generative adversarial networks can already produce an artificial US image that closely resembles real images, making it challenging to distinguish between the two.

One notable example from the field of cardiology is an artificial network that detects and performs precise measurements for the chamber view of the heart. One can illustrate the normal heart as well as hypoplastic hearts. The algorithm can segment all these structures in a very defined and exact way.

Regarding uterine examinations, after volume acquisition, AI-based methods can reconstruct the uterine anatomy and give a representation of the shape, indicating if it is normal or not.

There are several challenges associated with artificial intelligence procedures in US, even in cases where specific applications have received FDA approval. While FDA approval is an important validation before medical use, it's essential to recognise the specific conditions and limitations under which the approval is granted.

Companies or startups introducing AI-based ultrasound measurements face the challenge of establishing trust and credibility. It is essential for such companies to take responsibility for the products and services they offer. So, what are the FDA approval procedures for these artificial intelligence methods? The FDA has specific procedures for the approval and clearance of AI methods used in medical imaging. It is based on up-to-date classifications.

The FDA categorises medical devices into different classes based on their intended use and associated risks.

The normal pathway for medical device clearance (class I & II) follows a standard process to ensure safety and assess the technology used. Moreover, manufacturers are responsible for providing transparent



information about the safety and performance of their devices.

The market approval process is particularly stringent for high-risk applications, specifically class III devices. These applications carry significant potential risks, and it is crucial that the benefits of the device outweigh these risks.

However, there is an important consideration when it comes to the evolving nature of artificial intelligence (AI) methods. AI algorithms and software may require updates or enhancements over time to improve their performance and address emerging challenges. Currently, the regulatory processes primarily focus on the initial version of the AI method during the approval process. But a new review is needed for significant updates or performance changes over time.

different image storage formats, types of equipment, demographic information, disease prevalence, post-marketing surveillance, and sample size. These factors play crucial roles in the development, evaluation, and ongoing monitoring of medical AI devices.

Different clinics may also have their own protocols and practices for data acquisition or procedures. It is essential to account for these variations as variability can potentially influence the performance and accuracy of medical AI devices. Proper validation procedures are needed to extract transparent information; we need to consider how many experts have evaluated these kinds of procedures and the number of various equipment involved.

Clinical validation procedures are also essential because misuse by clinicians can happen. Clinicians

AI-based segmentation can be a valuable tool in medical imaging, assisting healthcare professionals

In some cases, certain devices or artificial intelligence procedures may have self-learning capabilities, allowing them to adapt and continue to be trained. These AI devices can be trained on new images and data collected by users. However, this is different from the approval procedure by the FDA because they believe the algorithms are locked and non-adaptive.

Properties of FDA-approved AI devices are mostly based on retrospective studies and often lack comparison with clinicians' performance. While companies may train these algorithms using different datasets, evaluation against routine clinical practice is often limited, as well as evaluation against diverse image assessments from different hospitals.

For medical devices incorporating AI algorithms, clinical validation studies are typically required. These studies aim to evaluate the device's performance in real-world settings and compare it to existing methods or the clinical judgment of healthcare professionals.

To further ensure the accuracy and effectiveness of medical AI devices, it is important for studies to have an adequate sample size that represents a diverse patient population as well. Moreover, high-risk devices should undergo comprehensive evaluations to ensure devices are safe and effective.

Several important factors can influence the reliability and performance of medical AI devices, including

may be provided with the tools, but without an introduction or familiarity with how to use it, there may be misuse of it.

If there is a concern for the safety of the patient, then we need to be more transparent. The responsibility for ensuring safe and effective results lies with multiple stakeholders. We need more transparent and stricter regular regulatory processes with more input from the manufacturers regarding the algorithms, training, validation procedures, and testing processes used in the development.

Regarding the ability of artificial intelligence methods to produce highly detailed, high-resolution and improved-quality images, AI can contribute to advancements in image resolution and quality.

However, it is necessary to balance these advancements with safety concerns. It is critical we ensure patient safety and the reliability of AI algorithms; thorough validation and testing procedures are necessary.

Different imaging modalities, such as MRI, CT, and US, have unique characteristics that can impact the results of AI-based medical procedures. Defining the requirements for AI-based medical procedures should involve a thorough understanding of the specific modality being used. This includes considering image quality, resolution, noise reduction, and artefact correction.



For US, the brightness of the images can be changed, as well as the frequency or contrast, among many other parameters. All these parameters can influence the result of AI models, and therefore it would be good to define these requirements so researchers and developers can tailor AI models to optimise their performance.

It is also important to consider how many training datasets are needed to get reliable results. Generally, a larger dataset can enhance the generalisation capability of AI models. However, we need a balance between dataset size and quality to prevent the underrepresentation of certain cases.

AI assistance in the segmentation process is very important as it can provide valuable insights to both experienced and inexperienced users. AI algorithms can

be trained to effectively segment and identify regions of interest, such as lesions, based on the contrast with neighbouring tissues. Users can still edit and make the final decision – supplementing the AI here. This approach acknowledges that the final decision should be made by the user who utilises their clinical information.

Overall, AI-based segmentation can be a valuable tool in medical imaging, assisting healthcare professionals and providing further insights. However, it is crucial that a balance is found between leveraging the capabilities of AI and embracing human expertise to attain optimal results.

Conflict of Interest

None. ■

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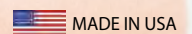
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Governance and Leadership

Shaping the Future of Healthcare: The Essential Role of Patient

This article underlines the importance of the patient experience throughout the healthcare process and the requirement for health systems to give patient-centred care first priority. It introduces the Shared Patient Experience (SPX) organisation and invites experts to take part in their next colloquium to share knowledge and help improve the patient experience in healthcare.

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key points

- The patient experience is a crucial aspect of healthcare journeys, directly influenced by the services provided by healthcare professionals.
- Value-Based Healthcare (VBHC) and Shared Decision-Making (SDM) play pivotal roles in improving the patient experience and enhancing healthcare outcomes.
- Health systems need to adapt their decision-making processes to actively involve patients and incorporate their preferences and goals for personalised care.

Unleashing the Power of Patient Perception

Did you know that behind every successful healthcare journey lies an unforgettable patient experience?

The patient experience is the culmination of all interactions, encounters, and relationships a patient has throughout their healthcare journey. It encompasses the value derived from the perceived outcomes by the patient and their surroundings, directly influenced by the services provided by healthcare professionals. This holistic view considers the patient's perception and emotions, which are shaped by the quality of care, communication, coordination, and overall experience during their medical treatment.

Just as customer experience strategies are transforming the business world, the patient experience is changing the way healthcare organisations relate to their patients, influencing the delivery of products and services. It focuses on understanding and improving the patient's perspective on the healthcare services they encounter, recognising the crucial role played by the relationships between healthcare professionals and patients.

When it comes to health services as compared to business customer experience, patients tend to adopt similar values, which need to be met by us, the health professionals. It is not a question of taking a commercial approach to health but of recognising the expectations and needs of the population and being attentive to the way in which people express them.

Let me tell you that the patient experience is not a fad. It's actually quite the opposite! The patient experience will make a significant contribution to the organisation of healthcare because people are truly its *raison d'être*.

Reimagining Healthcare: Health Systems' Responsibility for Better Patient Experience and Inclusive Decision-Making

In today's healthcare landscape, health systems have an obligation and responsibility to prioritise and create a better patient experience. This is driven by the recognition that patient-centred care is the key to exceptional care and leads to improved outcomes, better patient perception, and ultimately greater overall healthcare delivery.

The collective subconscious idea that results are only set by professionals must be abandoned. Today, if we want to achieve positive outcomes, we have to rely on good cohesion and good relations between both professionals and patients throughout their journey.

One approach that aligns with this goal and that can easily be implemented is Value-Based Healthcare

Patients also gain a better understanding of their conditions, potential treatment options, and the associated risks and benefits. They are encouraged to ask questions, express their concerns, and contribute to the decision-making process alongside their healthcare providers to ensure that the care provided aligns with the patient's goals and preferences.

'Each patient counts' means he/she matters and counts because it is also a dotation for the organisation

(VBHC). VBHC is a framework that emphasises maximising the value patients receive from healthcare services while minimising costs. It focuses on delivering high-quality care that is tailored to the individual patient needs and preferences, resulting in better health outcomes.

Value-Based Healthcare and the patient's experience are inherently linked and collaborate to improve healthcare delivery and outcomes. They need each other because they are mutually reinforcing. VBHC takes into account patient-reported outcomes, patients' feelings, and the overall patient perception and experience as key measures of value. It seeks to deliver value to patients by improving outcomes, reducing unnecessary costs, and enhancing the patient experience. The patient's experience, in turn, provides valuable insights into the quality and effectiveness of healthcare services.

In summary, Value-Based Healthcare and the Patient's experience are interdependent concepts. VBHC aims to deliver value to patients, and the Patient's experience serves as a vital indicator of that value.

Another approach to achieving a better patient experience could be that health systems adapt their decision-making processes to include active patient participation. Shared Decision-Making (SDM) is a crucial component in this regard. SDM involves healthcare professionals and patients working together to make informed decisions about treatment options. It recognises the patients as partners in their own care, considering their unique values, preferences, and goals when determining the most appropriate course of action. By incorporating SDM into the decision-making process, health systems empower, engage with, and genuinely listen to their patients, allowing them to actively participate in their healthcare journey.

In summary, health systems have a growing responsibility to create a better patient experience by adopting patient-centred approaches such as Value-Based Healthcare and integrating Shared Decision-Making into the decision-making process. By embracing these principles, health systems can ensure that patients are active participants in their own care, resulting in improved outcomes.

Shared Patient Experience (SPX): Who We Are and What We Do

Shared Patient Experience (SPX) is a non-profit organisation that aims to perceive the patient experience in all its forms, improve it and share it with as many professionals and institutions as possible. We motivate and work with healthcare institutions to include the patient experience in all strategic thinking and local management.

Our main objective is to always reach the patient's needs. To do so, SPX promotes any initiative that aims to improve the patient experience, contributes to increasing the patient experience skills of professionals and analyses, and contributes to any patient-centred care model.

In terms of our vision, we want SPX's portfolio of activities to be developed and organised around three areas of work: exchange and sharing of experience and its contribution to value creation, anchoring through learning, and on-site support.

Right now, our biggest challenge is to convince heads of institutions, clinical leaders, and management executives to include the real needs of patients as much as possible in healthcare provision. We are focusing on these three groups not only because they are the essential agents of change and are responsible for

implementing the strategy and building the vision but also because the patient experience requires us to change organisations and professional practices.

SPX positions itself as complementary to the other contributors and offers to deploy all its capabilities to its members to support them in the development of initiatives based on the sharing of experience,

If there's one word we hold dear and that is deeply ingrained in our organisation, it's sharing. Indeed, we believe that knowledge, information, and innovation hold true value when they are shared and imparted.

As you read this article, the opportunity to participate in our next conference is still open. At our conference, you will have the opportunity to connect and engage

Patient experience makes sense to the caregivers, more than well-being philosophy

the pooling of know-how, and peer support in the appropriation of and commitment to the patient experience.

If this has piqued your curiosity and you would like to get further information on what we do, or if you would



with the dynamic SPX community. It's an event where innovative ideas, ground-breaking research, and transformative experiences converge. We value your expertise and perspectives as they contribute to our collective knowledge and advances in patient



like to join us and become a member of SPX, please click on this [link](#).

Where to Find Us Next?

We are thrilled to announce and invite you to join our 4th Colloquium organised by the Shared Patient Experience (SPX) association. This year, our focus is on The Transformative Power of Patient Experience in Shaping Healthcare Services. The colloquium will take place on the 10th, 11th, and 12th of October at the Palais du Pharo in Marseille, France.

This international event is designed for professionals from all disciplines and healthcare models. We understand that the topics addressed resonate with managers across diverse healthcare structures, united in their goal to enhance the value delivered to patients.

experience. Whether you're an esteemed author keen to share your valuable insights or a visionary [start-up](#) looking to make your mark in the healthcare sector, we warmly invite you to participate! Please visit our website for further information regarding registration, price, and [programme](#).

Conflict of Interest

None. ■

How To Navigate Healthcare Background Checks and Compliance

Healthcare organisations need to navigate a complex web of federal and state regulations. This article explores the crucial role of background checks and compliance in the highly regulated healthcare industry.



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key points

- Both federal and state levels keep debarment lists against which healthcare operators need to screen staff continuously.
- Pre-screenings are beneficial as they thin out the number of people who need to be checked against debarment lists.
- Automation speeds up the process but does not take away the need to have cogent policies in place on what happens when somebody is found to be debarred from a federal or state list.

Think about a world where the personal information of patients lies in the hands of individuals with secrets to hide, and those you count on to provide care have a history of abuse. Such is not a far-fetched dystopian scenario but a genuine risk that healthcare operators in the U.S. and elsewhere must tirelessly strive to prevent. Here is just one telling number: no less than 1 in 10 patients are harmed while receiving care in a hospital, and nearly 50% of the adverse events that cause this harm are preventable ([American Bar Association](#)).

In this article, we explore the crucial role of background checks and compliance in the highly regulated American healthcare industry, as they serve as indispensable safeguards for residents' safety and the security of their sensitive information.

Focusing on the importance of getting background checks right and maintaining compliance with government debarment lists, we will discuss how non-compliance can result in severe consequences, such as losing critical Medicare or Medicaid funding. Additionally, we will highlight the challenges associated with background checks, the significance of federal and state debarment lists, and the benefits of pre-screening and ongoing monitoring. By providing a comprehensive understanding of these issues, we aim to equip

healthcare operators with the knowledge and tools necessary to ensure the utmost safety of their patients.

A Great Many Challenges

Background checks are a boon to healthcare organisations and their clients, but there are inherent challenges providers must be aware of. Some common background-checking mistakes include failing to obtain proper consent, getting outdated information, not following an adverse action process, or failing to comply with "Ban the Box" legislation (laws that prohibit employers from asking questions about somebody's criminal background).

All of these problems can be avoided by having human resources departments stay up to date on all applicable federal and state laws and using background screening services from third-party providers that follow regulations on consent and other FCRA rules. Healthcare operators must also remain vigilant to avoid employing workers who have violated state and federal laws. They can do this through continuous monitoring.

The regulatory requirements seem burdensome but make sense if one takes into account the sensitive, highly personal nature of work and the risk of personal injury and mishandling of patient information. Both of

these infractions are also highly actionable from a legal standpoint.

when they detect offences such as physical abuse that would almost automatically put a candidate on a debarred list.

The regulatory requirements seem burdensome but make sense if one takes into account the sensitive, highly personal nature of work and the risk of personal injury and mishandling of patient information

Navigating Debarment Lists

One of the significant risk factors that play into background checks for healthcare operators is the chance that an employee is identified by either the Office of Inspector General (OIG) or System for Award Management (SAM) as having committed an infraction that bars them from working in the healthcare sector. The high standards placed on providers and staff mean employers must stay aware of the processes used by these federal bodies and the state-level regulators where they operate. Moreover, the penalties for non-compliance can be severe, with eligibility for Medicare and Medicaid reimbursements potentially on the line.

At the federal level, The OIG maintains the List of Excluded Individuals/Entities (LEIE), a database of individuals and entities excluded from participation in Medicare and Medicaid. The LEIE includes individuals convicted of healthcare fraud, patient abuse, or neglect. Similarly, SAM maintains the Excluded Parties List System (EPLS), a database of individuals and entities excluded from receiving federal contracts, grants, and other forms of federal assistance. The EPLS includes individuals who have been debarred or suspended from participating in federal programmes for fraud and other criminal activities.

Finally, at the state level, there are various specific requirements and potential infractions, such as the practice in Minnesota where the background check “travels” with the employee via state-level monitoring rather than staying with whoever commissioned the screening in the first place.

Pre-Screening and Ongoing Compliance Benefits

Pre-screenings reduce the number of people who have to be checked against debarment lists and save considerable time. They can also be most effective

In addition, the ongoing need to screen for misconduct has made monthly checks the norm for detecting criminal violations in the healthcare industry. Although technology has made it easier to automate screenings, it does obviate the need for policies that define what happens if a candidate or employee is found to be debarred at the federal or state level.

Conclusion

In conclusion, the importance of background checks and compliance in the healthcare industry cannot be overstated, as they serve as vital measures to ensure patients’ safety and the security of their sensitive information. Throughout this article, we have elaborated on the challenges associated with background checks, the significance of navigating federal and state debarment lists, and the advantages of employing pre-screening and ongoing monitoring processes.

By reiterating the consequences of non-compliance, such as losing critical Medicare or Medicaid funding, we underscored the urgency of healthcare operators to remain vigilant in their efforts to hire and maintain reliable staff. Also, we have highlighted the broader implications of such diligence, including preventing personal injury, mishandling of patient information, and legal repercussions.

Ultimately, it is crucial for healthcare organisations that operate in the U.S. to invest in the necessary technology, education, and policies to streamline their background check processes while ensuring compliance with all applicable regulations. By doing so, they not only safeguard the well-being of their patients but assume a moral responsibility to protect the rights and integrity of vulnerable populations.

Conflict of Interest

None. ■



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In a Quest for a Better Assessment Tool in a High Growth Environment: BSC for Integrated Healthcare and Social Organisation

Fast growing integrated healthcare and social organisation present a challenge due to the increased complexity of its operations.

To manage the services at scale while remaining a patient-centred organisation, new tools need to be incorporated to assist members in their decision making and care quality measurement.

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key points

- Defining a strategic map enables a link between the strategic plan and the Balanced Score Card (BSC) and to be used as the common language to achieve the mission of the organisation.
- Using a bottom-up strategy when defining KPIs (Key Performance Indicator) for a BSC allows not only the involvement of all the internal stakeholders in the BSC design, but also to understand that is a communication tool more than a control mechanism.
- BSC use in healthcare institutions should give special importance to the patient dimension and the care quality indicators.
- A BSC should be a dynamic tool and adapt according to the organisation needs.

Josep M Picas | Medical Director | PAMEM | Director Primary Care | Barcelona City | CIO | Hospital de St. Pau
Barcelona | Founder, Partner and Head of Research SalusCoop | Barcelona, Spain

Elena Puigdevall | General Director | Fundació Aspace Catalunya | Barcelona, Spain

Introduction

Fundació Aspace Catalunya is a non-profit entity that is part of the Catalanian Health Public System and provides health, social, and educational services.

We give continuous care each year to more than 2000 people with cerebral palsy and neurodevelopmental disorders, with high complexity in terms of health, where 72% have co-morbidity with serious mental health pathologies.

The organisation has experienced an exponential growth in recent years and has ventured into new initiatives in the field of academic research, innovation, and partnerships with other entities to carry out joint projects.

This, combined with the increased level of complexity in both direct care and the different operational processes of the institution, adds difficulty to the already challenging task of monitoring the performance of the organisation and making strategic decisions guided by data.

The organisation is not only a complex agent of its own but it is also an active participant in a CAS (Complex Adaptive System). There is a close interconnection with other elements of the Catalonian Health Public System as well and we actively adapt our behaviour to influence them in a positive way and be influenced by these in a continuous feedback loop.

strategies. Their version of the BSC, presented in 1992, contains four different perspectives: financial, customer, internal processes, and learning and growth. These perspectives represent how the company is viewed by the most important stakeholders: shareholders, management, customers, and employees.

When measurement is done properly, it can motivate professionals to improve, illustrate the true performance of the system, and identify the impact of any changes in real-time

Therefore, it is necessary to add new tools so as to allow us to manage our services, not only in the quantity of care and work done, but also in the quality of what we offer in the different areas we cover.

Performance measurement has been defined as the process of “evaluating how well organisations are managed and the value they provide to customers/ patients and other stakeholders” (Kollberg 2003). It is important to take reliability into account when developing performance measures, how they will be perceived by professionals and users, and whether they add value to the services we offer.

When measurement is done properly, it can motivate professionals to improve, illustrate the true performance of the system, and identify the impact of any changes in real-time. However, when this is not done correctly, it can have an impact on the morale of the professionals and lead to a culture of blame in which personnel follow objectives at the expense of patient care” (Aidemark 2001).

Therefore, measuring performance in healthcare services is often perceived as a controversial initiative, although no less necessary. As is well known, it is easier to manage what we can measure.

To partly meet this challenge, the Balanced Scorecard (BSC) has been proposed as an instrument that allows us to analyse and organise data. It allows for the extraction of knowledge in order to make better decisions supported by data, and improve the organisation’s ability to implement its strategy.

Balanced Scorecard

According to Kaplan and Norton, the BSC is designed to support and fulfill the company’s vision and overall

Balanced scorecards applied to healthcare organisations have been used to address a variety of challenges ranging from improving the quality and safety of care, guiding public or private healthcare services administration, and supporting the profitability or competitiveness of healthcare companies in market systems.

BSC Design Process

Taking into account the particular characteristics of the Fundació Aspace Catalunya, the Kaplan and Norton BSC model has been used with some modifications, incorporating some of the contributions suggested by different examples.

In particular:

1. Develop a strategic map that serves as a link between the Strategic Plan and the scorecard.
2. Begin the process by providing sufficient context to the responsible professionals, so that they can understand the objective and importance of implementing a Healthcare Scorecard.
3. Give equal importance to all perspectives, but giving special importance to the patient dimension.
4. Take into account quality indicators.
5. Use a bottom-up approach, involving healthcare professionals in the design of the scorecard, as this is better suited to the entity’s work culture.
6. Use the scorecard as a common language to fulfill the entity’s mission.
7. Develop a Healthcare Scorecard with key perspectives and indicators in a first stage. In a second stage, identify the need to develop second level scorecards.

To achieve this, a scorecard development methodology was followed, consisting of the following phases:

1. State of the art study

Before embarking on the task of defining the BSC, it was important to conduct a thorough study of the available literature and the different BSC formulas used in healthcare organisations of countries with similar healthcare systems as ours.

2. Preparation

The next step was to prepare a presentation explaining what the BSC, Strategic Map, and KPIs (for professionals who were not familiar with these concepts) consisted of, along with the objectives we wanted to achieve by implementing this tool and the time we had available to do the work. At this point, we also developed the interviews and questionnaires to be used in meetings with the different department heads (middle management). These were the tools to determine what were the best indicators (KPIs) that would work and add the most value to their respective services. For this, a Strategic map was defined in order to describe the strategy and serve as a guide for professionals, to determine if the performance metrics chosen during the interviews were aligned with the institution's strategic plan.

3. Focus group interviews and workshops

Since the BSC followed a bottom-up approach, it was the professionals from the different levels who

determined the KPIs to be used in each service. This was achieved by conducting interviews with them and discussing what was the most important to measure in order to improve our processes and offer a better healthcare service to our patients.

4. Executive workshops for bottom-up KPI validation

Although the BSC design followed a bottom-up model, the KPIs defined by middle management were validated by the executive team. This was necessary to ensure that the measures were aligned with the organisational strategic plan.

5. Healthcare CMI design

Once the KPIs were formulated and validated by the executive team, the BSC could be designed to meet the needs and objectives of the organisation in the knowledge that the KPIs to be measured were defined by professionals who are closer to patients and thus aware of their needs.

6. Pilot testing of KPIs associated with a specific service

To adjust details about the design and future implementation of the BSC in Healthcare, we decided to conduct a pilot test.

7. Review by management

The last phase was to review with the management team both the Strategic Map and the BSC with the obtained KPIs. The resulting strategic map and their KPIs are shown in the following **Figure 1**.

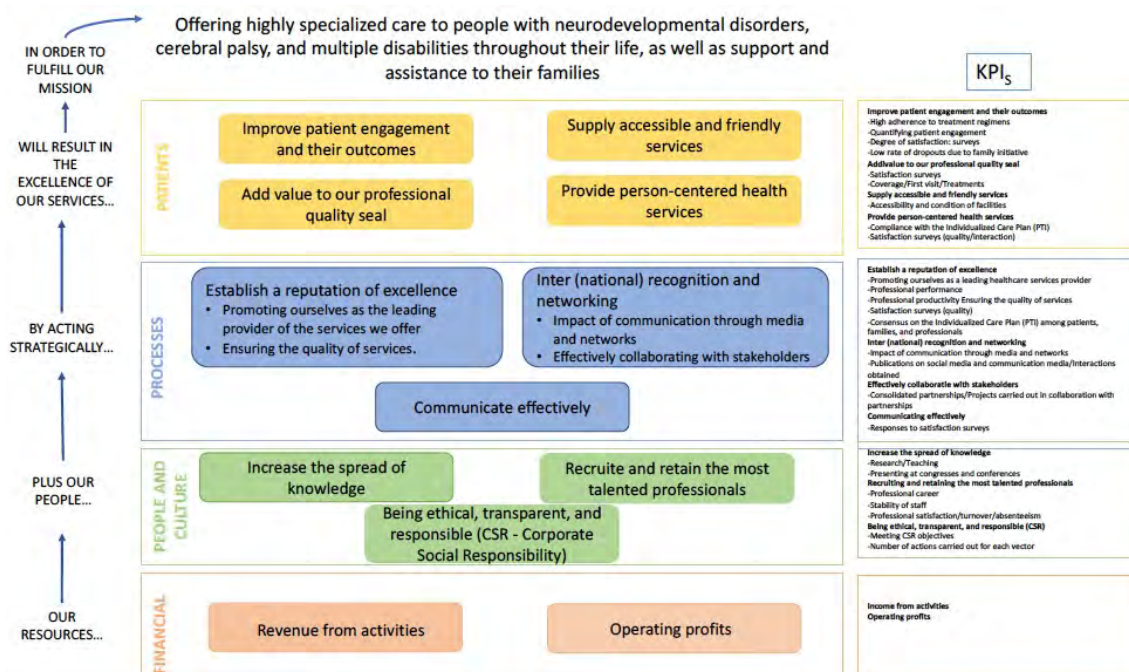


Figure 1. Strategic Map with KPIs

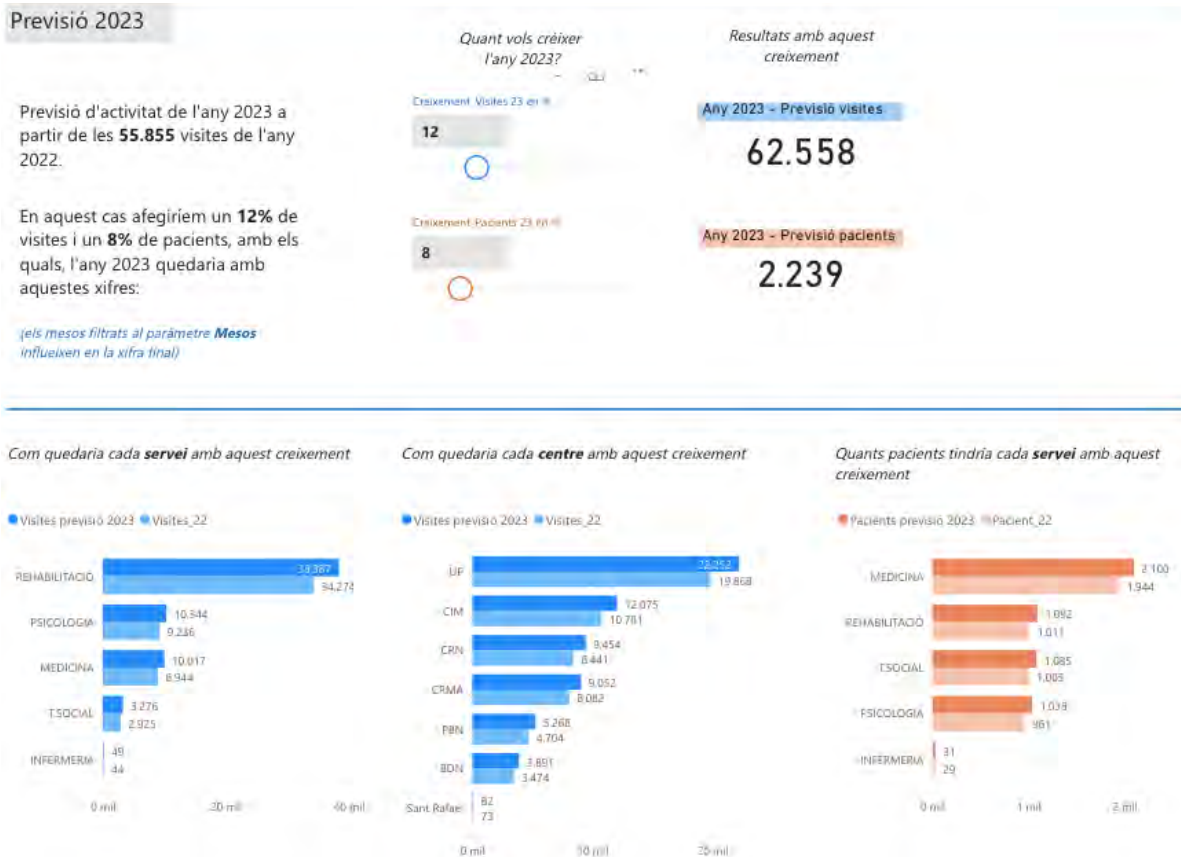


Figure 2. Example of a KPI in Power BI program.

As mentioned above, we have started the implementation of our BSC using a Business Intelligence (BI) software suite. This allows us to extract knowledge from the data and have predictive models that allows us to anticipate for changes and make data driven decisions. As an example, Figure 2 shows an estimation of how much the organisation will grow by using the historical data to interpolate the future value.

Conclusion

The development and subsequent implementation of the BSC represents a real and important need within the organisation, considering the growth it has experienced

in recent years, and is aligned with the new Strategic Plan for the next 5 years.

The purpose of creating and using the BSC in Health at the Aspace Catalunya organisation has been as a tool to properly and effectively implement the organisation's strategy. It is envisioned to be used more as a communication tool rather than a control tool.

We understand and are alert to the fact that our BSC should be dynamic and change according to the organisation needs.

Conflict of Interest

None. ■

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Digital Transformation

In the Age of CO-ERA: How Essential is the Human Role in the New AI World?

In a world where AI and robotics are reshaping the landscape of healthcare, the need for close collaboration and sharing among healthcare providers, medical device companies, tech startups, patients, payers, and regulatory bodies becomes paramount. By adopting a co-era healthcare approach, where collaboration and collective effort drive innovation, integrated and patient-centric medical solutions can be developed to make a real difference in healthcare delivery. In an interview with HealthManagement.org, Attilio talks about the essential role of humans in the new AI world.

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TULIMIERO



Executive Consultant | Milan, Italy

What are your top three scenarios where AI might be a better option and your top three where it may be a worse option in human intelligence healthcare?

As in any of the greatest discoveries, the benefits and advantages don't come alone and often bring together a darker scenario.

Talking about the positive aspects, AI has undoubtedly demonstrated its potential to revolutionise healthcare in several scenarios.

In terms of prevention strategies, by analysing large datasets and risk factors, AI can, in fact, immediately identify individuals who may be at higher risk for certain diseases. This allows healthcare providers to implement targeted preventive measures and interventions, potentially reducing the incidence of diseases and promoting population health.

Another key benefit is AI-driven diagnostics. AI can serve as a diagnostic aid, particularly in regions with a scarcity of specialised medical professionals. AI

algorithms can analyse medical images, lab results, and patient data to provide (preliminary) assessments and identify potential health issues, helping healthcare providers make informed decisions. In the near future, this could open doors to quality healthcare for a larger population.

Furthermore, AI has the potential to democratise the system by enabling the development of low-cost medical solutions. I strongly believe that AI can streamline healthcare workflows through automation and process optimisation, reducing operational costs and making healthcare services more accessible and affordable to a broader population. This is my fervent hope. And while we can take advantage of these immense opportunities, certain challenges need careful consideration.

Indeed, the rapid advancement in the digital world and AI technology can outstrip the development of necessary regulations and guidelines. Without proper oversight, there is a risk of creating an unregulated



ecosystem where AI applications in healthcare may lack transparency and accountability. Healthcare providers and regulatory bodies must keep up with the pace of AI innovation to ensure responsible and ethical use of AI in patient care.

Another concern I see is concerning the bias and the so-called black-box algorithms: AI algorithms rely on data for training, and if the data used for training is biased or unrepresentative, the AI system may produce biased or unfair outcomes. Additionally, some AI models, known as “black-box” algorithms, lack transparency in how they arrive at their decisions, making it difficult for the person who is reading them to understand or challenge their results.

Addressing bias and increasing transparency in AI algorithms is therefore essential to ensure that AI systems provide equitable and unbiased healthcare solutions we can rely on.

Lastly, I see a crucial issue around privacy and security and how we can safeguard them. The widespread use of AI in healthcare involves handling vast amounts of sensitive patient data, and ensuring the privacy and security of this data is of utmost importance. Data breaches or unauthorised access to patient information could have severe consequences, including compromised patient confidentiality and potential misuse of personal health information. Robust data privacy measures and cybersecurity protocols must be implemented to safeguard patient data and maintain trust in AI-driven healthcare.

How would we safeguard AI in healthcare? And how does the app ensure reliable safeguarding?

We live in an era of collaboration, where cooperation and shared communication are essential. In this sense, what I would call “the CO-ERA” approach will be fundamental in this process. By proactively addressing potential risks and implementing robust safeguarding measures, all stakeholders can collectively harness the full potential of AI in healthcare responsibly.

AI has indeed the capacity to enhance patient care, improve efficiency, and transform healthcare delivery, so all involved parties must navigate these challenges and seize the opportunities that AI presents.

In this context, within the applications realm, it would be essential to develop an AI governance. Establishing a precise agenda and governance ensures that all AI applications adhere to ethical guidelines and regulatory

requirements. This framework should define the roles, responsibilities, and accountability of all stakeholders involved in AI development and deployment. This would, though, not be enough if we do not also directly involve healthcare professionals, AI developers, regulatory bodies, and patients in the development process of AI applications. Collaboration and education are essential in refining AI algorithms, ensuring they align with clinical workflows, and addressing real-world healthcare challenges.

Finally, I want to emphasise the importance of investing in explainable AI, where AI algorithms can provide transparent explanations for their decisions. This helps build trust among healthcare professionals and patients, enabling them to understand how AI arrives at specific conclusions.

Do you envision the doctor-patient interaction to change? In what ways specifically through the incorporation of AI co-opting?

I think that the integration of AI through co-opting in healthcare has the potential to significantly improve the doctor-patient relationship and enhance patient trust. When doctors use AI as a supportive tool alongside their experience and expertise, it can lead to several positive outcomes.

A strong doctor-patient relationship is vital for effective healthcare delivery. AI is an impersonal technology. It cannot replicate the human connection and trust between patients and their healthcare providers. While AI can enhance medical processes, it cannot replace the human touch and bedside manner that contribute to patient satisfaction and compliance.

In this sense, it would be a big mistake to see AI as a replacement for human intelligence, but I consider it a powerful tool to augment and support healthcare professionals in delivering more efficient and patient-centred care. A collaborative approach that leverages the strengths of AI and human expertise is crucial for ensuring optimal healthcare outcomes.

How do you see this co-opting evolve with regard to human presence?

The co-opting of AI in healthcare, in line with the co-era healthcare concept, will involve a gradual evolution where AI becomes an integrated and supportive tool alongside human healthcare providers. This transformation will align with a global framework that



emphasises the responsible and ethical implementation of AI technologies in healthcare settings.

As AI technologies advance, healthcare professionals will witness a shift in their roles and responsibilities. Doctors and medical teams will take on more supervisory roles, overseeing AI-driven decisions and validating their alignment with patient needs and ethical guidelines established within the global framework. This shift allows healthcare providers to leverage AI-generated insights while maintaining the critical human element in clinical decision-making.

Interdisciplinary collaboration will play a crucial role in this evolution. Healthcare professionals will collaborate closely with experts in AI, data science, and computer engineering, adhering to the global framework's guidelines for data privacy, security, and patient safety. Together, they will co-create innovative AI solutions that address complex healthcare challenges, ensuring that AI applications remain patient-centric and ethically aligned.

What scenarios do you envision 'allowing' AI to be the final decision-maker? Or is that never going to happen?

The integration of AI in healthcare holds tremendous potential, demonstrating its ability to assist healthcare professionals, improve patient outcomes, and enhance the overall healthcare landscape. AI's data analysis and pattern recognition capabilities have proven valuable in diagnosing diseases, predicting treatment responses, and streamlining administrative tasks.

However, there are important risks and limitations associated with allowing AI to be the final decision-maker in critical healthcare scenarios. Ethical considerations, patient autonomy, and accountability become key factors when considering the role of AI in crucial medical decisions. AI systems lack human judgment, context, and the ability to consider non-medical factors, making them less suitable for complex and emotionally

sensitive situations. I see AI as a valid and very useful assistant, but I do not think AI should ever be the final decision-maker.

A more promising approach lies in what I highlighted above, a collaborative co-era healthcare concept where AI serves as a decision-support tool alongside human healthcare providers. By harnessing AI's data-driven insights, evidence-based recommendations, and efficiency, healthcare professionals can make more informed decisions and deliver personalised care. This model promotes a balance between the benefits of AI-driven efficiency, the preservation of the human touch and the ability to incorporate nuances in patient care.

Looking ahead, the future of AI in healthcare is likely to involve a hybrid model that combines the strengths of AI with the expertise of healthcare professionals. In this model, AI will continue to assist healthcare providers in diagnosis, treatment planning, and administrative tasks, empowering them to deliver high-quality, patient-centric care. This integration will be governed by robust regulatory frameworks that ensure patient safety, transparency, and accountability in AI applications. AI will not replace the clinician, but it will replace the clinician that does not use AI.

While AI's role in healthcare is undoubtedly transformative, embracing a responsible and human-centred approach is essential to maximise its potential and build patient trust. The co-era healthcare concept emphasises the collaborative and integrated nature of AI co-opting, making healthcare a shared effort between AI and human expertise. This way, we can navigate the challenges, harness the opportunities, and drive healthcare into a future that optimises the synergy between AI technologies and compassionate patient care.

Conflict of Interest

None. ■



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