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Cash Cow

- EDITORIAL, *C. MAROLT*
- MEASURING HEALTHCARE OUTCOMES TO DELIVER VALUE AND LOWER COSTS, *R. S. KAPLAN & M. E. PORTER*
- REVENUE CYCLE MANAGEMENT, *B. STEWART*
- USE PATIENT SAFETY TO IMPROVE YOUR BOTTOM LINE, *D. B. MAYER*
- DELIVERING HIGH-VALUE IMAGING: A PARADIGM SHIFT FROM EFFICIENCY TO EFFECTIVENESS, *Y. ANZAI*
- PUBLIC-PRIVATE PARTNERSHIPS: A WIN-WIN FOR DANISH HEALTHCARE AND FOR THE INDUSTRY, *H. E. HENRIKSEN*
- DISRUPTION IS COMING TO HEALTHCARE, *R. PEARL*
- HEALTHCARE DATA: CREATING A LEARNING HEALTHCARE ECOSYSTEM, *E. STUPKA*
- DIGITAL TRANSFORMATION FOR MORE EFFECTIVE HEALTHCARE: INSPIRING VBHC INITIATIVES, *F.V. EENENNAAM ET. AL.*

NEW HEALTHMANAGEMENT.ORG EXEC EDITOR-IN-CHIEF, *A. LOURENÇO*

LEADING BREAST RADIOLOGIST WINS 2019 RSNA ACCOLADE, *F. GILBERT*

THE FUTURE OF CARDIOVASCULAR MEDICINE – TECHNOLOGY, GENDER BIAS AND TREATMENT STRATEGIES, *M. A. MAMAS*

2020: ANOTHER YEAR OF RADICAL CHANGE IN HEALTHCARE, *L. DONOSO-BACH ET AL.*

CREATING THE DREAM TEAM IN RADIOLOGY, *L. MARTÍ-BONMATÍ*

HOW TO INTEGRATE AI INTO RADIOLOGY WORKFLOW, *B. V. GINNEKEN*

BRIDGING THE RADIOLOGIST STAFFING GAP WITH NEW TRAINING INITIATIVE, *C. RUBIN*

CULTIVATING INNOVATION CULTURES IN HEALTHCARE, *D. MICHAELIDES*

THE IMPORTANCE OF BODY LANGUAGE, A. NOOTEBOOM

MEASURING THE NATION'S HEALTH, *H. DUNSFORD & C. NORRIS*

RESILIENCE: THE AIRBAG FOR NURSES AND OTHER HEALTHCARE PROFESSIONS, *I. MEYENBURG-ALTWARG*

MEDICAL IMAGE EXCHANGE IN THE CLOUD: A MORE EFFICIENT WAY, *M. CABRER*

THE ROLE OF EIT HEALTH IN TRAINING THE EUROPEAN FUTURE WORKFORCE, *A. DUCHER & U. MÜHLE*

THE ABC OF PATIENT ENGAGEMENT: TIME TO BREATHE NEW LIFE INTO OLD STORIES, *E. SUTCLIFFE*

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Digital Transformation for More Effective Healthcare: Inspiring VBHC Initiatives

Summary: By combining digital transformation with the core VBHC initiatives, we can provide effective, patient-centred care for the future.

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The way the healthcare sector is currently organised is not financially sustainable. To provide qualitative, patient-centred and effective care in the future, a different mindset on valuing health outcomes is required. Usage of the right software in combination with Value-Based Healthcare (VBHC) implementation offers great opportunities to provide more effective care. Many examples of VBHC initiatives with superior results through digital transformation are now available.

Imagine being a patient suffering from chronic kidney disease. Lately, you have been experiencing some abnormal symptoms and your General Practitioner doesn't have the tools or knowledge to help you properly. Tomorrow an appointment with your nephrologist is planned, the day after with your dietitian and in a week, you will be seeing your cardiologist. Now imagine you don't need any of these visits because your institute effectively uses digital tools. This would allow you to measure your vital signs from home. Hospital smart scheduling software could schedule the appointments on the same day, you could have one or more meetings digitally from home or work, and smart data sharing between care providers makes it so that you don't have to tell the same story over and over again explaining your situation.

This example shows how digital transformation can have a huge positive impact on the quality of healthcare experienced by the patient, while at the same time save costs by minimising under- and overuse of care. Without a doubt, if we do not start using the opportunities of digital tools within healthcare, the problem of costs rising exponentially worldwide cannot be tackled. Also, we need to systematically change the way the healthcare system is organised by focusing on creating better health outcomes for patients to reduce costs, according to Michael Porter's VBHC model (Porter 2010). Luckily, we now have wonderful software available to support VBHC implementations, all for a low price per patient. Using these technologies, which can all be linked to one of the VBHC principles (Table 1), will be necessary to financially sustain a healthcare sector that is working in an effective, efficient and ethical way.

Usage of Smart Tools for Real-Time Measurement

Measuring the number of consultations between a patient and doctor is easy, yet measuring the value of each of these consultations for the patient is a lot harder. Porter's equation – where patient value is defined as the health outcomes per money spent over the full cycle of care – provides a common definition of value for all stakeholders in healthcare. The number of digital tools to make outcome measurement and costs measurement easier is rapidly increasing, for both clinical outcome measures and Patient-Reported Outcome Measures (PROMs).

NightWatch is a great example of this in the field of epilepsy care. The unpredictability associated with having a seizure is one of the main factors impacting the quality of life for many epilepsy patients and their caretakers. To reduce the experience of constant fear, an interdisciplinary team created NightWatch: using video and audio algorithms, the bracelet can be worn by epilepsy patients and warns for potentially dangerous nocturnal seizures. This allows caretakers to take action at an earlier stage of the seizure leading to a reduction in the long-term negative impact on the patient's body. Besides the physical benefits,

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The Four Principles of VBHC	Possibilities with Digital Transformation
I. Measuring patient value with patient-relevant outcomes and costs	A. Smart tools allow real-time measurement of health outcomes and costs
II. Patients & families and doctors & teams create value	B. Patients can now be digitally connected to the best healthcare providers 24 /7
III. Healthcare delivery is a team sport. Organisational arrangements must be adopted so that doctors can drive patient centricity	C. Data collected throughout the whole care pathway can be used to increase shared decision making
IV. All patients benefit from protocols but no protocol fits any patient perfectly	D. Personalised digital patient environments can provide personalised pathways and protocols for patients

Table 1. The Four Principles of VBHC, by VBHC Center Europe, Linked to the Possibilities of Digital Transformation

one can imagine that improving this will also have a positive impact on the mental health of both the patients and their caretakers.

Instead of paying for each episode of care, the principle of bundled payments creates a fee for a clearly defined 'total package' of care for certain medical conditions. To implement this successfully, a tool is needed which can exchange the information on health outcomes and costs of the whole patient pathway. **Edifecs** is a real front-runner when it comes to adopting IT solutions to track and process health information. This American company wants to get rid of data silos and separate systems. By exchanging administrative and clinical data in a better way, it can connect and enhance interactions to increase data quality and compliance.

24/7 Support System

Being connected 24/7 as a doctor and patient can bring a lot of benefits when it comes to improving health outcomes. Moreover, continuous monitoring of data can bring great opportunities to prevent both over- and underuse of care.

HartWacht, winner of the Collaboration Award during the VBHC Prize 2019, is a great example of the use of technology in health outcomes measurement (Figure 1). HartWacht consists of home measurement devices connected with applications on the smartphone or tablet. Patients suffering from heart failure, hypertension or arrhythmia can measure their blood pressure, weight and/or heartbeat and put their data in the application. The data is integrated into the electronic patient file and interpreted by a team of nurses and cardiologists, supported by smart algorithms. Patients are then contacted when their measures are abnormal. This approach can minimise unnecessary appointments, detect deficiencies early on, and can adequately handle the early stages of the disease. The use of HartWacht has resulted in fewer outpatient visits and fewer visits to emergency departments.

The Right Data for the Right Decisions

In data we trust. This accounts for most sectors, but when it comes to the health sector it is especially essential. Useful data collection and data exchange between healthcare providers are now more important than ever. Since the digitalisation of health records, it has become easier to track a patient's pathway within a certain health institution. However, when a patient goes to a different healthcare provider, the right data is often unavailable. Exchanging Electronic Health Records (EHRs) between different providers is crucial in improving a patient's care path, especially in the long run. The technology to do so is out there, the question is: "How can we implement this in a way that all players can benefit from it?"

Awell Health uses technology in a way that it is made for: to connect. They have created a platform that helps to collect data throughout care pathways, via the patients' channel of choice. Awell Health integrates the data with the EHR and uses algorithms to predict the risks of relapses and readmissions. By making this platform useable for care teams and patients, better-informed decisions can be made from both sides. Moreover, doctors can be more productive and reduce emergency room admissions for patients in their pathway, which has shown positive results.

A great example of the implementation of Awell Health's software is the lung cancer project in collaboration with the **AZ Delta hospital** in Belgium.

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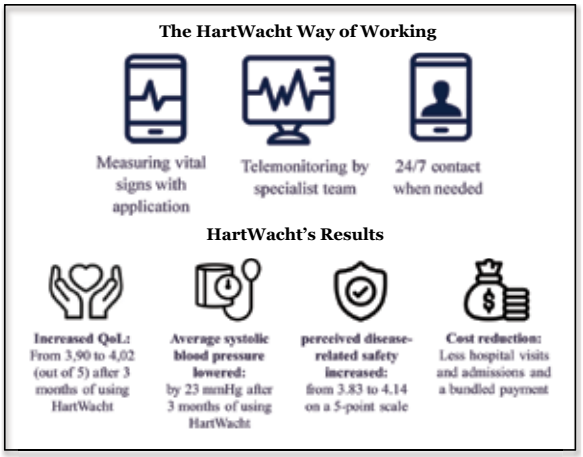

Figure 1. The HartWacht Way of Working and Results

The lung cancer team at AZ Delta has provided integrated care and designed their 'ideal care pathway.' However, implementing, monitoring and continuous improvement of this pathway turned out to be very time-consuming. After implementing the Awell Health platform the pathways could be executed more quickly and linked to the EHRs. The digital care pathway helped the team to further engage patients and general practitioners in the care pathway, to gain more insights into health outcomes and to become more productive. This has already led to a decrease in ER admissions.

Personalised Digital Care Pathways and Protocols

Imagine a random sample of twenty children with a broken arm and twenty children who were just diagnosed with having diabetes. For those with a broken arm, similar protocols and decision trees can be used to provide similar care. On the contrary, for those with diabetes, there is more variance in the needs of the patient. For more complex, especially chronic, diseases a different approach of applying protocols is needed.

Diabeter is doing this in a tremendous way. Patient pathways are very flexible, adapting to the patient's personalised needs. By organising the care around the patient, all support needed can be found in one place. Moreover, they have their own digital system where all patient data is stored both by the health professional, patient, and family. This allows its medical team to provide 'real-time' care from a distance, based on the personalised needs of the patient. Decreased haemoglobin (HbA1c) levels, fewer hospital admissions and increased patient satisfaction has shown successful implementation of the technology in different areas of the patient pathway.

Next to providing care, the institute uses easily accessible data to ethically conduct research with the aim of improving diabetes care as a whole.

Moving Forward

All of these initiatives show how thinking differently from the traditional, systematic way of providing healthcare can drastically improve patient value and efficiency of care. To have a long-lasting impact, the way we look at innovation in healthcare should receive more attention, so technology can be used to its fullest potential. Digitalisation on its own will not be sufficient to provide patient-centred, qualitative and financially sustainable healthcare. Therefore, it is essential to integrate it properly with an organisational model that focuses on creating patient value. Let's use these – and other VBHC initiatives – as a source of inspiration to move forward and improve the delivery system in healthcare. ■

Want to see more examples of successful VBHC implementation? Visit the VBHC Prize website (vbhcprize.com).

Become a VBHC Green Belt and learn more about VBHC (thedecisioninstitute.nl).

Find the answers to the rest of your questions about VBHC and become a member of VBHC Center Europe. Where you can gain unlimited access to breakthrough VBHC articles in the VBHC Knowledge Bank (vbhc.nl/membership).

KEY POINTS

- Digital transformation can improve quality of healthcare while also saving costs and minimising under- and overuse of care.
- By linking new technology to the VBHC principles accounts for efficient and ethical development in the healthcare sector.
- Digital tools are now available which record the outcome and costs measurements for the benefit of clinicians and patients.
- Continuous monitoring of data can bring great opportunities to prevent the over- and underuse of care.
- Digitalisation of health records has made it easier to track a patient's care pathway.
- Digital systems can be adapted to a patient's specific pathway and personalised needs.

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