Value-Based Supply:
How to improve health system sustainability

Swansea University
Prifysgol Abertawe

Authors: Hamish Laing and James McHale

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This is the third in a series of four white papers sponsored by Mölnlycke from the Value-Based Health and Care Academy at Swansea University. Please join in with the debate. Share your views online using #valuebasedsupply and join the <u>Value-Based Supply Group on LinkedIn</u>. Previous papers in the series are still available to <u>download</u> from the EU Alliance for Value in Health.

In our first white paper, *Value-Based Supply: Re-imagining Value from Within,* we identified eight critical success factors for MedTech companies to engage successfully with Value-Based Health Systems. In the second, *Value-Based Supply: Dynamic competencies and the power of digital transformation* we identified opportunities for MedTech companies to be a catalyst for Value-Based Health Care (VBHC) using digital technologies.

We now turn our attention to the existential threat for health care systems: sustainability and explore its relationship to Value-Based Supply. Undeniably sustainability is a critical challenge and an opportunity for Health Care, and the MedTech sector must lead the way. Whilst the current focus on more environmentally friendly manufacturing is understandable, it is too narrow, with insufficient attention paid by all system actors to a more holistic value-based perspective, which can deliver both long term environmental and economic sustainability for health care systems.

A sustainable healthcare system has been defined as "one that delivers high quality care without damaging the environment, is affordable now and in the future and delivers positive social impact" [1]. Value-Based Supply describes the actions that Med Tech companies should take to be ready to engage differently with their health system customers in the pursuit of better outcomes within the resources that payers have available, and by moving from outputs and volume to outcomes and value. This creates real opportunities for Med Tech to work with their customers, leverage value-based thinking and play a leadership role in improving the sustainability of the whole health care ecosystem.

Sustainable Healthcare and Personal Value

As innovative health providers and payers embrace Value-Based Health Care, they are placing greater importance on shared decision-making with patients and service users so that patient or user needs are understood better and are more likely to be met by any planned intervention.

This more personalised approach increases the likelihood of achieving the outcomes sought by the patient and reduces the high number of interventions that add little or no value. Not only do such activities consume significant financial and human resources unnecessarily, contributing to pressures in the system, but that resource consumption also creates an adverse environmental impact without any balancing gain for the patient or healthcare system.

This is particularly true for surgical procedures that do not achieve a patient's desired outcomes and would have been unlikely to do so, had their needs and expectations been explored properly at the outset [see box].

PRINCIPLES OF SUSTAINABLE CLINICAL PRACTICE

1. PREVENTION
Promoting health and preventing disease by tackling the cause of illnesses and inequalities

2. PATIENT SELF-CARE
Empowering patients to take a greater role in managing their own health and healthcare

3. INCREASED VALUE
Stop activities of low value and unwarranted variation. Improve efficiency

4. LOW CARBON ALTERNATIVES
Prioritising treatments and technologies with a lower environmental impact

Figure 1: Requirements for sustainability. *After* Mortimer [2] and the Centre for Sustainable Healthcare

Measuring the Value of Cataract Surgery

Cataract surgery is the most frequently undertaken surgical procedure in the UK; in the 2017-2018 year there were approximately 435,000 NHS cataract operations performed in England and Wales [3]. Cataract surgery also accounts for a significant proportion of the surgical waiting list backlog.

Patients with cataracts have visual difficulties which impact on quality of life and activities of daily living. Historically clinicians made decisions about surgery and reported surgical outcomes using Visual *Acuity* (VA), despite the poor correlations of VA with vision-related quality of life. National guidance recommends the use of Patient Reported Outcome Measures (PROMs) for Visual *Disability*.

Aneurin Bevan University Health Board in Wales introduced the CatQuest9 PROM alongside VA for patients being considered for and undergoing cataract surgery. They found that whilst 80% of patients had reduced visual disability after surgery, 3% were unchanged and 17% reported worse function after surgery. No patient whose CatQuest9 score was better than -0.5 had any improvement after surgery, suggesting this could be used to predict the patients who would not benefit from surgery in future. [4]

The healthcare sector is responsible for 4.4% of global greenhouse gas net emissions [5] and medical equipment accounts for an estimated 10% of the National Health Service's carbon footprint in England [6]. Operating theatres are associated with high usage of medical equipment, volatile gases and energy and so reducing unwarranted surgical procedures through better informed decisions and patient selection will have a beneficial impact on the environment, as well as helping to shorten waiting times for surgery for those that will actually benefit. Prioritising attention on those procedures with the most significant negative environmental impact would seem sensible and can be guided by research [7].

Med Tech companies must be able to articulate to health care professionals and procurers how their technologies and associated procedures should be deployed to meet the needs of the person seeking care and, just as importantly, when they will be unlikely to do so, ensuring that decisions made by patients with their clinicians are well informed and support sustainable healthcare.

Sustainable Healthcare and Allocative & Technical Value

Some products and services are designed by people who do not understand sufficiently the lives of the potential user and so the product is adopted primarily by people at low risk of the disease. Value is not created for them or the system, whilst those who might benefit most do not engage with the intervention.

We know that allocating resources to primary and secondary prevention of disease or illness is of very high value in almost all pathways of care and yet resources continue to be drawn into treatment, supportive and end of life care [Figure 1]. MedTech must continue to innovate in this area and should itself be allocating more resources toward developing preventative technologies and business models that facilitate getting these to market at scale. Such technologies must be designed with strong user experience to ensure that they are fit for purpose for the population intended to use them.

There is also an important educational role for MedTech in the appropriate and timely use of their products, tests and services. New technologies may be designed to be used in a very different way to legacy products; for example, to reduce overall pathway cost or to prolong the duration of use for a consumable product. These innovations can bring sustainability benefits, but these will not be realised if the clinician is unaware of the changes, creating increased cost and unwarranted product waste [see box].

Innovating for Sustainability in Wound Care: Granulox™

In 2017/18, 264 million wound dressings were applied to 3.8 million patients in the UK; an increase of 71% in just five years [8]. The number of wound dressings used increased by 104% and clinician attendances rose substantially. This has significant economic and environmental impact which MedTech innovation can address.

Granulox™ is an oxygenating haemoglobin spray that accelerates wound healing in chronic wounds, reducing the use and disposal of consumables and releasing community nursing time. Value is increased and environmental impact is reduced [9].

Sustainable Healthcare and Societal Value

There is now little doubt about a direct adverse impact of rising global greenhouse gas levels on the global climate, and therefore global population health.

The WHO estimate that between 2030-2050 global warming is expected to cause approximately 250,000 additional deaths globally every year from malnutrition, malaria, diarrhoea and heat stress alone [10], yet health systems contribute significantly to global green house gas emissions and are damaging the health of the very people whose health and well-being they strive to improve.

Medical products contribute to emissions and waste, so provide an opportunity to reduce the overall environmental impact of healthcare, alongside innovations in facilities and behaviour change.

Actions by MedTech that reduce emissions in scopes 1, 2 and 3 [Figure 2] will contribute to the increased societal value of the products and services supplied: something that is now expected or even being mandated [11].

Upstream supply chain	Manufacturing phase	Downstream supply chain
Raw materials, component supply and pre-processing →	Product production →	Distribution, Storage → Use → End-of-life →
Scope 3	Scope 1 and 2	Scope 3

Scope 1 and 2 emissions required by the corporate standard

Scope 3 emissions required by the Scope 3 standard

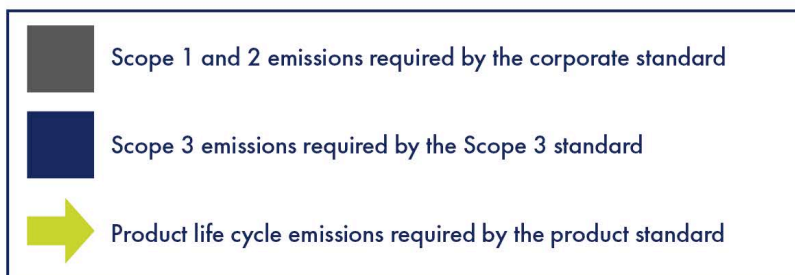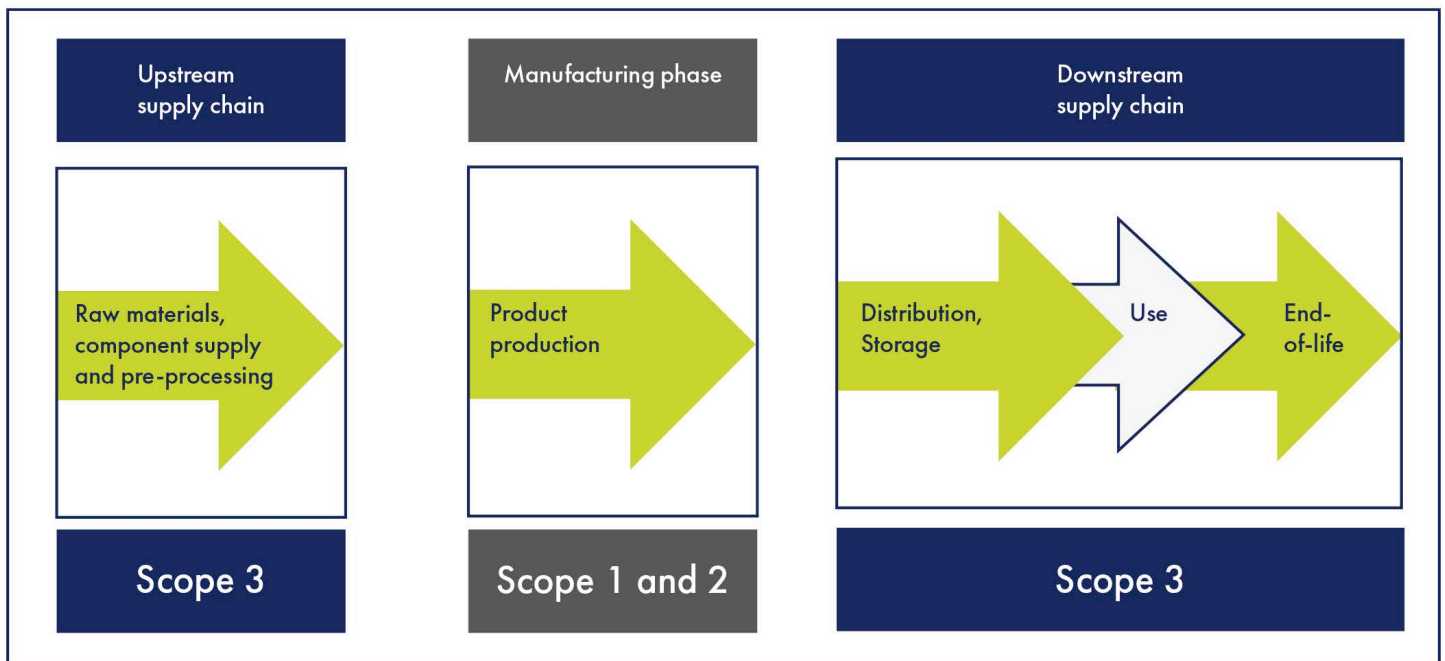Product life cycle emissions required by the product standard

Figure 2: Relationship between scope 3 Greenhouse gas (GHG) inventory and product GHG inventory in the manufacture of a MedTech device. From ghgprotocol.org [12]

What actions should MedTech be taking?

As we have described for other aspects of Value-Based Supply in this series of white papers, C-suite executives must articulate the importance that the company places on sustainability. They need to commit to completing a materiality assessment to identify their relevant sustainability aspects, set clear targets to improve their performance in those areas, and ensure that sustainability is incorporated into the company's culture and values to facilitate the achievement of those targets.

MedTech Boards should amplify their sustainability commitment through annual performance reports and investor briefings about their Environmental, Social and Governance (ESG) metrics [13]. Firstly, they need to navigate the complex space to understand a baseline and from there integrate ESG measures - relevant to this materiality assessment - into their business strategy, risk management and reporting [14]. By doing so, companies can build a competitive edge and enhance their long-term value creation potential [13].

Well established corporate actions such as reducing business travel and extending video-conferencing may be a useful first step. But to generate long term value, more significant business transformation is needed. These changes may include reducing the footprint of their built estate, sourcing renewable energy for offices and factories, and working with their full supply chains to reduce emissions.

A precautionary approach is needed to ensure transformation does not have unintended effects, for example renewable energy projects that impact biodiversity, or video-conferencing leading to exclusion of some of the workforce.

Sustainability transformation of MedTech organisations will include using resources for products and packaging as part of the circular economy, with a particular focus on plastics and electronics. It will also include service design, manufacturing infrastructure and supply chain network design [10]. Specific action areas should include:

Choice of materials and processes

MedTech companies should be choosing more sustainable materials throughout their value chain that are less harmful to the environment. For example, by using renewable materials or recycled plastics where these are permitted by the product regulations [15].

Adopting more sustainable manufacturing processes, such as using renewable energy sources or reducing water usage to mitigate some of the most significant impacts on the environment [16] and making this universal practice.

Product design

Products must be designed with environmental sustainability in mind from the outset. For example, MedTech should develop devices that consume less energy or have a longer lifespan and avoid premature redundancy (for example by extended support, patches and upgrades for digital systems within the product) [17]. This should be supported by life cycle assessments [7]. Some health systems now require these as part of their product and service procurement approach [18].

Packaging

Companies should work with their health system customers to reduce the amount of packaging they use through innovation and choose more sustainable materials for that packaging, reflecting the recycling and re-use options available in the region. [19]. A priority area is in operating theatres which typically produce 50-70% of the total waste in a hospital.

Circularity

The most sustainable solution for a product is to not use it at all, but this ignores the benefits from justified use and so MedTech must develop strategies for the end-of-life management of their products such as recycling or repurposing, even if this is not yet a regulatory requirement [19].

The circular economy offers a variety of methods to preserve the value of those devices through strategies that include reuse, remanufacture, and recycling. Partnerships with consumers, waste handling organisations and other stakeholders will be essential in the co-development of a future MedTech industry that participates in the circular economy [20].

What opportunities does sustainability offer MedTech?

We believe that MedTech companies that improve their ESG performance will become industry leaders for sustainability, build enterprise value [13] and demonstrate societal value. By incorporating sustainability into their business practices, companies can reduce production costs, increase efficiency and enhance their brand [21], creating competitive

advantage as procurement requirements tighten and improving the success of their go-to-market strategies. For example, reprocessing of medical devices will minimise medical waste and should driving enterprise growth for MedTech [13].

MedTech companies can also benefit from financial and technological enablers, including innovative payment and reimbursement models that reward reduced environmental impact, common standards around the integration of systems (interoperability) and the use and integration of data [22]. All of these contribute to product longevity and acceptance. Conversely, not tackling ESG issues will be reputationally damaging, risk regulatory fines and legal liabilities and be a red flag for future generations of employees [9]. We are also starting to see health care professionals making product choices based on environmental impact [23, 24].

What are the perceived barriers?

Some MedTech companies have found integrating sustainability into their business models and culture can be challenging because of:

Complex development cycles

Product development cycles are complex and often last many years [25] making the implementation of sustainability measures difficult. This may require companies to re-design their product development path so that sustainability can be "designed in" from the outset.

Cost

The need to redesign processes, change materials and identify new upstream suppliers will be more expensive, particularly in the short term if implementing more sustainable production approaches to existing products. These upfront costs can be mitigated by improved efficiency and reduced manufacturing costs in the longer-term drive for sustainable healthcare [26].

Resistance to change

Becoming a sustainability leader is a significant cultural change and, as with all change, there may be resistance and a lack of understanding. However, as sustainability becomes increasingly important to every external stakeholder -

investors, policy makers and regulators, customers, clinicians and patients - it will also benefit the company's own employees through improved inclusivity, better working conditions, a focus on employee wellbeing and talent acquisition. Alongside this, education must develop to support the journey.

SUMMARY

Whilst MedTech can reduce their own emissions and environmental impact there are many, further opportunities to engage in value-based partnerships with health care providers to improve system sustainability and value.
Internally, innovative products and solutions help reduce the environmental footprint of healthcare and bring economic and logistic benefits [27] which can support the delivery of better outcomes for reduced total cost of care.

Externally, every activity of no value in healthcare delivery, such as journeys for unnecessary consultations, procedures and treatments that do not meet a patient's need, investigations that are repeated unnecessarily and unwarranted variation in care processes are also wasting resources and creating an environmental impact on the local community and an adverse economic impact for the provider and payer.

It is vital that MedTech companies find ways of engaging with providers of care to improve the sustainability of their clinical pathways and optimise the choice and use of technologies to maximise allocative and personal value. Decisions to offer treatments that are of no value to patients, even if they are "cheap in cost" are not only a disservice to patients but often create cost elsewhere and are detrimental to the economic and environmental sustainability of the health care system.

There are real opportunities for MedTech companies that offer added value services such as pathway optimisation, mentoring and proctorship of clinicians in product selection and outcomes measurement to work alongside their customers to enhance sustainability for all partners in the ecosystem.

Please join with us in the debate and share your views online using #valuebasedsupply and join our Linkedin group Value-Based Supply.

You can download the other white papers in this series from EU Alliance for Value in Healthcare

ABOUT THE AUTHORS:

HAMISH LAING
After a career as an NHS surgeon, Medical Director and CIO, Hamish Laing is Professor of Enhanced Innovation, Engagement and Outcomes and Director of the Value-Based Health and Care Academy at Swansea University, Wales UK. He teaches about and researches the implementation of Value-Based Health Care, and the Academy provides consultancy to health systems and global life science companies.

JAMES MCHALE
James has over a decade working in the medical devices industry, obtaining a broad procurement, NHS and industry perspective through roles in the public and private sector. His journey has identified a passion for value and understanding what these means to health care providers and clinicians.

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