Erasmus School of
Health Policy
& Management

Purchasing tomorrow

Weaving planetary health into healthcare procurement

Prof. Erik van Raaij

Erasmus University Rotterdam
Making Minds Matter

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Inaugural lecture
Delivered on the occasion of accepting the post of professor of Sustainable Procurement in Health Care at Erasmus School of Health Policy & Management (ESHPM) and Rotterdam School of Management (RSM), Erasmus University Rotterdam, on Wednesday 4 June 2025.

Colophon

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Circulation
This document has only been published as PDF

Publisher
Marketing & Communicatie ESHPM

Design
PanArt creatie en communicatie

Rotterdam, May 2025
www.eur.nl/eshpm

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Samenvatting (Dutch summary)

Onze planeet wordt geconfronteerd met een “triple planetary crisis”—klimaatverandering, verlies van biodiversiteit en vervuiling—en uitputting van hulpbronnen kan daar nog als vierde aan worden toegevoegd. De zorgsector draagt aanzienlijk bij aan deze problemen door haar hoge verbruik van producten en materialen, energiegebruik en afvalproductie. Wereldwijd is de gezondheidszorg verantwoordelijk voor 4,5% van de uitstoot van broeikasgassen, waarbij de zorgsector in Nederland 7,3% van de uitstoot en 13% van de materiaalwinning voor zijn rekening neemt. Hierdoor ontstaat een paradox waarbij het verbeteren van de menselijke gezondheid de gezondheid van de planeet schaadt.

De zorg is zo’n grote verbruiker van natuurlijke bronnen vanwege de geavanceerde technologie, risicomijding en een focus op efficiëntie. Systeemveranderingen zijn nodig om goede gezondheidszorg opnieuw te definiëren als ecologisch duurzaam, waarbij een lagere impact wordt gebalanceerd met zorguitkomsten, veiligheid, kosten en werkdruk. Een ontwerpbenadering kan worden gebruikt om actie te ondernemen, te beginnen met het identificeren van organisaties of processen met een hoge impact, het pinpointen van ecologische “hotspots”, het ontwikkelen van interventies met tools zoals de R-ladder, het implementeren van interventies, en het meten van de effecten, waarna bevindingen wereldwijd worden gedeeld.

Inkoopbeslissingen beïnvloeden sterk de ecologische voetafdruk van een zorgorganisatie. Inkopers fungeren als adviseurs en facilitators, slaan een brug tussen leveranciersmarkten en interne vraag, en beïnvloeden beslissingen door middel van het stellen van kritische vragen, het ontwikkelen van beoordelingscriteria, innovatieve contracten en het “scouten” van duurzame oplossingen in de leveranciersmarkt. Samenwerking tussen inkoopprofessionals is cruciaal, aangezien leveranciers met uiteenlopende duurzaamheidsverzoeken worden geconfronteerd. Gecoördineerde inspanningen, zoals de Net Zero-strategie van de NHS, kunnen zorgketens in lijn brengen met gemeenschappelijke duurzaamheidsdoelen, mogelijk zelfs op Europees niveau.

Een toekomstig duurzaam ecosysteem in de zorg zou herbruikbare apparaten en instrumenten prioriteren, het gebruik van nieuwe niet-hernieuwbare materialen minimaliseren en nieuwe rollen en waardemodellen stimuleren die afstappen van eenrichtingsmateriaalstromen. Belangrijke veranderingen omvatten toewijding van eindgebruikers om meer herbruikbare producten te gebruiken, circulaire productstromen, stakeholders die nieuwe vaardigheden ontwikkelen, gegevensdeling, producttracking, ondersteunende regelgeving, “true costing”, meer ruimte voor preventie en “nature-based solutions”, en duurzame inkooppraktijken, waarbij ook verzekeraars duurzaamheid in beslissingen integreren en systeemtransities beïnvloeden.

1. Planet

All of us should be concerned about the health of our planet. Figure 1 shows four different graphs that each in a different way visualize the health status of our planet.

There are nine planetary boundaries; boundaries defined as limits to what our planet can sustain, and six of those boundaries we have already crossed (Richardson et al., 2023).

The global average temperature has increased by 1.5 degrees Celsius since measurement began in 1850 (NASA, 2025).

Earth overshoot day is expected to fall on 25 July this year. With the country overshoot day for The Netherlands on 5 May (Footprintnetwork, 2025).

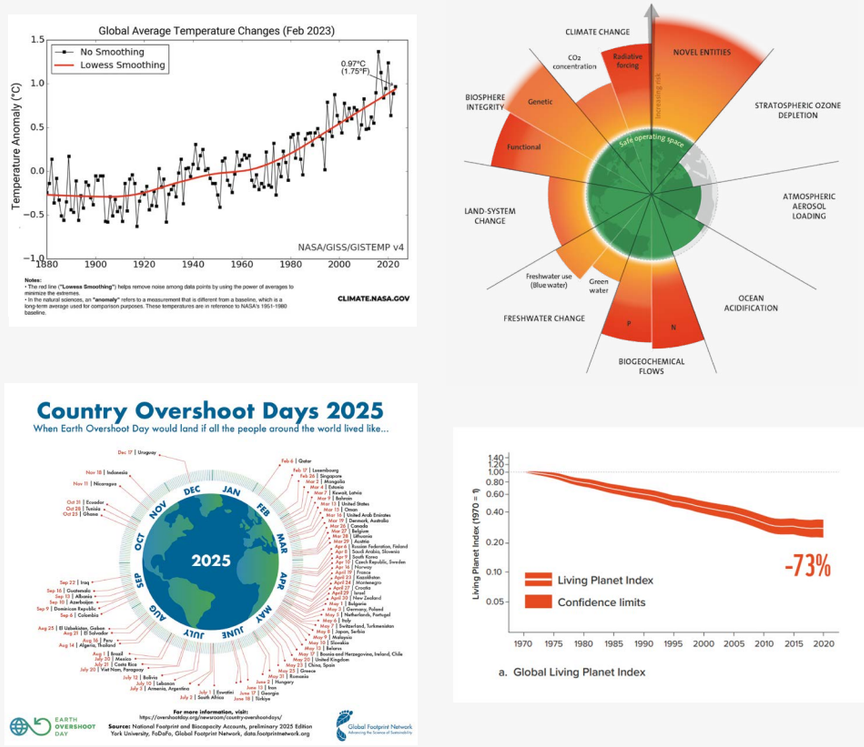
The Living Planet Index shows that we have lost three quarters of the size of wildlife populations since 1970 (WWF, 2024).

These crises call for an urgent focus on planetary health. "Planetary health is a solutions-oriented, transdisciplinary field and social movement focused on analyzing and addressing the impacts of human disruptions to Earth's natural systems on human health and all life on Earth" (PHA, 2025).

It is often said that we face a triple planetary crisis: we are facing climate change, biodiversity loss and pollution of our environment. A fourth crisis that is overlooked in this list, in my opinion, is resource depletion. We are consuming nonrenewable resources at an alarming rate (UNEP, 2024).

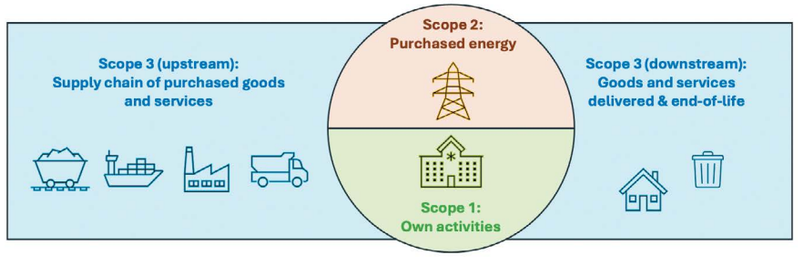
We, as consumers, are contributing to these crises with our travel, food consumption, consumerism and energy use. But many of us are probably not aware of the fact that health care, as a sector, also makes a significant contribution to climate change, biodiversity loss, pollution, and resource depletion. In this inaugural lecture, I will use the term environmental impact as shorthand for the impact on climate change, biodiversity loss, pollution, and resource depletion.

Figure 1. The planetary crisis in four graphs



(Stockholm Resilience Centre, 2023; NASA, 2023; Global Footprint Network, 2025; WWF, 2024)

Figure 2. Impact scopes 1, 2 and 3



With health care as a sector, I mean not only healthcare provision, such as the activities in public health, hospital care, GP care, pharmacy, and so on. But also energy generation for health care, and all mining, manufacturing, transportation, and waste management that takes place to make health care provision possible. In other words, all impact generated by what are called scope 1, 2, and 3 activities related to healthcare provision (see Figure 2).

More and more studies are coming out with a quantification of what the impact of health care is. Some numbers relate to greenhouse gases only and thus quantify health care's impact on global warming. Other studies also quantify other dimensions of impact, such as resource use and waste generation.

Globally, health care is responsible for 4.4% of greenhouse gas emissions (Lenzen et al., 2020), while for The Netherlands, the share of health care in total greenhouse gas emissions is 7.3%. The share of Dutch health care in material extraction of 13% is remarkably high (Steenmeijer et al., 2022).

These numbers show that impact on climate and environment means more than "only" greenhouse gas emissions and their impact on global warming and climate change. One model that attempts to chart such different dimensions of impact is the Impact 2002+ model (Jolliet et al., 2003). Different healthcare activities or different products used in health care have impacts in different dimensions. For example, pharmaceutical waste may have a big impact on water pollution, glove production uses a lot of fresh water, while some anesthetic gases have a high global warming potential.

The impact of health care activities on climate and environment creates a paradox. While we provide care to improve and sustain human health, we bring damage to the health of the planet. Hospital care is very energy intensive, the production of devices, instruments and consumables is very resource intensive, and the sector consumes a lot of plastics and chemicals.

Historically, sustainability has not been high on the agenda in health care, but this is changing. The term "sustainability" is not without critique, as it sometimes seems to be used in a very anthropocentric way, meaning that sustainability focuses only on the survival of the human species. In this lecture, I use sustainable activities, products or alternatives to mean activities, products or alternatives with a lower negative impact on climate and/or environment. The search for sustainability can thus be a part of our attempts to improve the health of all species and ecosystems on our planet.

Circularity represents a specific focus within the sustainability debate. Circularity focuses on a part of the total impact framework, namely that of resource use and resource depletion. Circularity aims to minimize the consumption of virgin non-renewable resources. In some specific cases, circularity can be at odds with other impact dimensions, and with other sustainability initiatives. For instance, a switch to reusable instruments in health care (to save on use of virgin metals and plastics) typically implies the use of energy, water, and chemicals for cleaning.

In conclusion: as a result of our activities to improve the health of people, we also indirectly contribute to global warming, pollution and damage to ecosystems. We contribute to heat stress, the incidence of new diseases, food insecurities, mental health issues and other forms of disease burden. Providing health care undoubtedly has a net positive impact on health, but the unnecessarily large negative impacts on the planet require our immediate attention.

2. Impact

Sometimes, the question is raised whether healthcare professionals should worry about the negative impacts of health care activities on climate and environment. Should they not focus only on providing the best possible care? A counter argument is often provided by quoting the Hippocratic Oath, in particular the phrase “primum non nocere”, or “first of all, do no harm”.

Providing health care should not harm the planet, but one could also read this as “whenever you want to reduce health care’s impact on climate and environment, this should not harm the patient”.

Is it the healthcare professional’s responsibility to take environmental impact into account and can we reduce the planetary impact without harming the quality of care?

As mentioned, health care is very resource intensive. Health care consumes a lot of energy, uses many products made of plastics, stainless steel, titanium (of which many are single use), is very packaging intensive, and uses a lot of chemicals and pharmaceuticals.

This resource intensity is fueled by a number of developments. First, health care is high tech. Magnetic resonance imaging, robotic surgery, artificial intelligence, 3D printed implants. Health care is so energy intensive that some large hospitals have their own dedicated power plants (and I don’t mean just as a backup to cover power outages). Energy is needed to operate high tech machinery, to manage controlled environments like operating theatres, and to store large amounts of health care data.

Second, health care is extremely risk averse. To avoid any contamination or infection risk, many products are single use disposables, health care workers wear personal protective equipment (also when not really necessary), and products are packaged in abundant layers of packaging. Expiration dates, safety stocks, sterility, protocols, regulations and directions for use err on the side of caution, leading to inefficient use of resources and energy. Fear of litigation adds to the issue of extreme risk avoidance.

Third, health care has seen a drive to be time efficient. Surgery packs contain instruments “just-in-case” but that are often discarded unused. Single use disposables are quick to grab and discard, without a need to think about cleaning or recycling.

Finally, the way in which health care is financed may be a factor too. Payment for health care is indirect, with those who waste resources often not feeling the pain in their own purse.

Any attempt to lower the negative impact of healthcare requires a change at the system level. A rethink of what good health care is. That good health care is also health care with low levels of emissions, less pollution, and less use of virgin non-renewable resources.

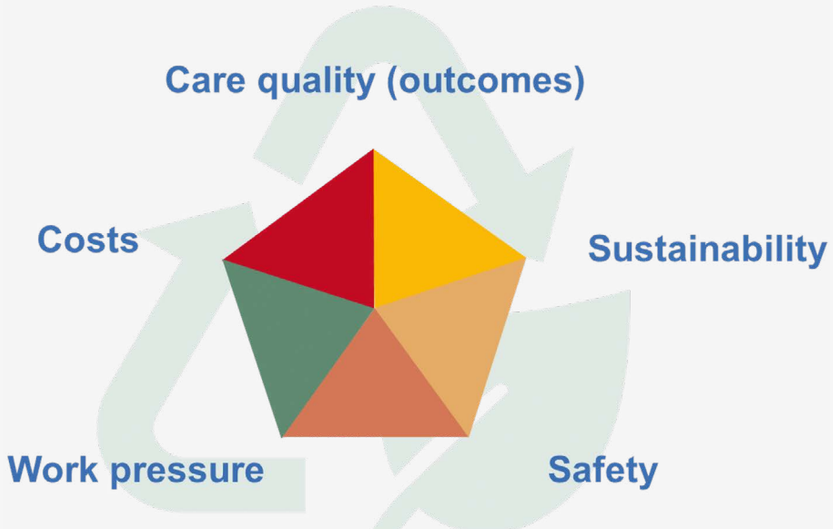
In the Netherlands, the Green Deal Duurzame Zorg 3.0 brings together healthcare providers, insurers, governmental agencies, industry and knowledge institutions around five pillars. More health promotion, higher awareness of the interplay between health care and the environment, reduction of CO2 emissions, increased circularity, and lower environmental impact of medicines. More than 500 organizations have pledged to contribute to one or more of these pillars. ESHPM is also a signatory of the Green Deal.

There are already many examples of how to reduce impact without hurting healthcare quality. Many of these examples are “backoffice” interventions, without the patient experiencing any difference in how care is delivered. Other interventions may be observable by the patient, but still do not negatively impact health outcomes. Some examples include more energy efficient settings for air quality control in operating theatres, switching from high emission anesthetic gases to low emission alternatives, switching from IV-administered paracetamol to tablets, and changing protocols such that less resources are wasted.

Many would accept only sustainable alternatives to current products or practices if these new products or practices have at least the same health outcomes for patients and carry no higher risks for patients or healthcare professionals. But in theory, one could even question the morality of healthcare practices that have extremely high impacts on climate or environment.

Apart from health outcomes and safety, I see at least two more performance dimensions that also need to be taken into account. The obvious one is cost. The good news is that a sustainable alternative that saves waste, means less waste kilos to pay for, and usually also less incoming materials to be procured. But not all sustainable alternatives save procurement or waste management costs, of course. A total cost perspective needs to be taken, as sustainable products may have a higher initial purchase price, but could still save costs in the long run. And even if it does not save costs, the savings on environmental impact may still be large enough to offset the financial cost increase.

Figure 3. Multi criteria decision-making



The temporality of costs may also be an issue to take into account. The fully reusable video laryngoscope is many times more expensive than the single use version. In order to replace all single use devices, a set amount of reusable devices need to be purchased. This is a considerable investment in one year. But it will save repeated purchases over many future years. Providers need to deal with such a shift of expenses over time. One solution would be to capture savings from sustainable interventions into a green fund and use such a fund to make one time investments in sustainable devices.

The other performance dimension we definitely also need to take into account is workload. It is quite easy to imagine that there are sustainable interventions that lead to additional workload for healthcare staff. Think of waste separation initiatives that would require staff to sort waste across an increasing number of bins. More reusables in a hospital imply more material logistics flows in a hospital and more work for the sterilization department. Sustainable alternatives do not always require more work, but they could.

I expect that tradeoffs in decision-making may be inevitable when it comes to choosing among different sustainable alternatives, or comparing current practice to a more sustainable practice (see Figure 3). Such decisions need to be made at various levels and in a variety of processes. Without trying to be complete, I expect that decision-making support will be welcome for procurement decisions, for green teams considering sustainable intervention, for hospital boards considering which interventions to prioritize, and perhaps also for insurers and policymakers at the national level. We have recently started a PhD project that is fully focused on developing multi-criteria decision-making support tools for sustainable care.

Although there is quite understandably a widespread opinion that sustainable care should never impede on the quality or accessibility of care, I am afraid that the rate at which we are mining and processing metals, minerals, and other non-renewable resources will inevitably restrict access to healthcare unless we take action to halt the wasting of valuable resources.

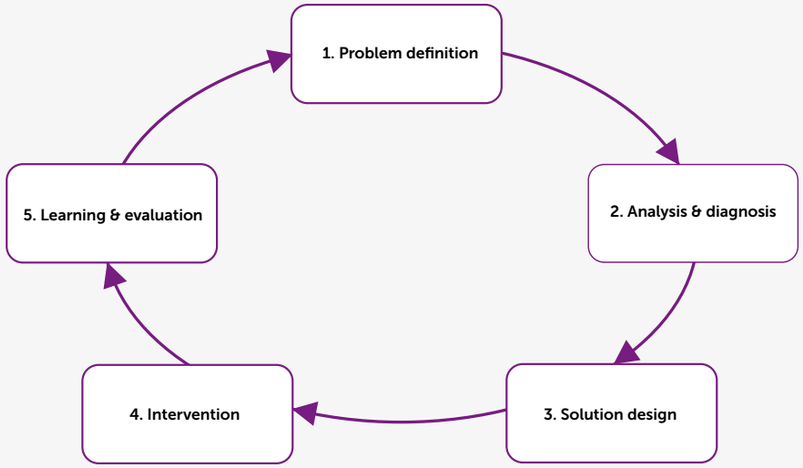
On top of the question whether the planet has sufficient resources to maintain or improve current levels of care, we should also take into account geopolitical uncertainties related to whether Europe will have continued access to certain resources, such as rare earth metals. For me personally, these risks and uncertainties, on top of the destruction of ecosystems, the impact on biodiversity, and the emissions and pollution related to the linear mine-make-use-and-burn economy, make resource consumption by the health care sector a top priority to work on.

3. Action

But how to take action in this complex reality of competing priorities?
How can we go about reducing the planetary impact of health care?
The answer may lie in taking a design approach.

The design cycle, or problem-solving cycle, as depicted by for instance Van Aken and Berends (2018), can be used as a backbone for a systematic approach to taking action (see Figure 4). With my honorary Medical Delta position at Industrial Design in Delft, I plan to develop such design-driven models further.

Figure 4. The problem-solving cycle (based on Van Aken & Berends, 2018)



In step 1, *problem definition*, organizations, departments, or processes are identified for which there is a suspicion or indication that the environmental impact of that unit is relatively high and/or there is clear room to reduce it. Or at least large enough to warrant further investigation. A literature review can help identify important impact dimensions as well as challenges that were faced in earlier studies.

In step 2, *analysis and diagnosis*, there are already quite a few available analysis methods that can be used to study the impact of the organization, department or process (see Figure 5).

Some methods are well-suited to look at large units of analysis, such as organizations or departments. Other methods are better suited to look at smaller units of analysis, such as a product.

The main objective of this step is to identify so-called "hotspots". Hotspots can be products or activities that have a remarkably high impact on one or more impact dimensions. For instance, a product of which we see a high number of units or a high total mass being used and/or disposed of. Or a process step that consumes

Figure 5. Methods for impact analysis and hotspot identification

Method	What level (typically)?
Life Cycle Assessment (LCA)	Product
Product journey analysis	Product
Material Flow Analysis (MFA)	Department, whole organization
Waste audit	Department, whole organization
Care pathway analysis	Care pathway
Patient journey analysis	Care pathway(s)
Footprint analysis	Whole organization

a lot of water or energy. Other hotspots could relate to a process step that generates a lot of pollution or emissions, or a product that comes with a striking amount of packaging. A hotspot could also relate to critical raw materials being incinerated instead of recovered.

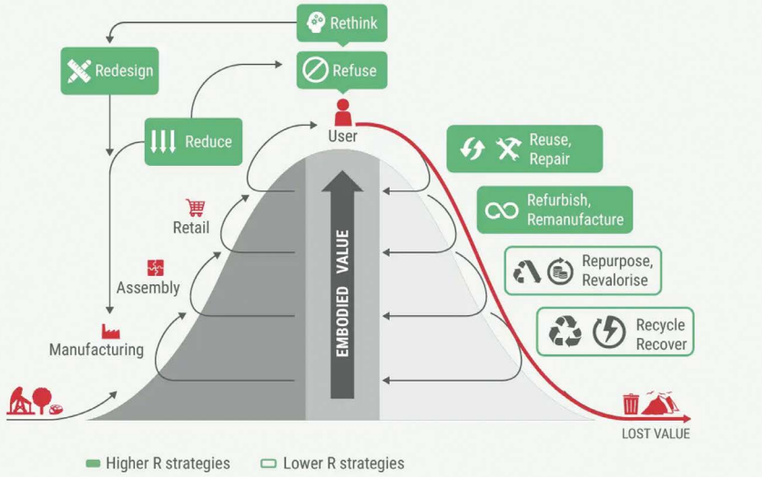
This step thrives on amazement. Hotspots come into view as stakeholders gaze at an analysis and say: "Wow! Why is this particular impact so high?"; "Why do we dispose of so many gloves?"; "Why does this machine consume so much energy when it is idle?".

With a combination of analyses, one or more hotspots usually come into view. Step 3 in the design cycle, *solution design*, is about generating alternative strategies to address hotspots and select which strategies to pursue.

A helpful tool to find inspiration on how to address a hotspot is the R-ladder, or one of its variants, like the value hill (see Figure 6).

Each R strategy suggests a possible course of action for reducing the impact related to a hotspot. Strategies higher on the ladder, or on the left of the value hill, should be prioritized. A confrontation between hotspots and potential R strategies leads to a list of possible courses of action.

Figure 6. The value hill (source: Metabolic)



These courses of action often relate to something that starts with the letter P: Switch to a different product or change the procurement; change a practice or a protocol; adapt a medical procedure or a pathway. Also think about packaging, prescriptions, and various other possible courses of action.

Each course of action should then be subjected to at least two analyses. One analysis compares all potential courses of action on feasibility and impact. A second analysis scores all courses of action on the tradeoff model to identify effects on sustainability, costs, quality, risks, and workload.

This approach is also used in the ESCH-R project. We analyze a selection of departments in two university hospitals. We identify and subsequently prioritize hotspots. And we define actions to address the hotspots.

Step 4 of the design cycle is the *intervention* step. The action that we propose to take to address a hotspot is what we call an intervention. Some hotspots are addressed with more than one intervention. Or, a hotspot is addressed with one intervention in the short run and another intervention in the long run. To give an example: the strikingly high use of gloves in the ICU (108 gloves per patient per day on average; Hunfeld et al., 2023) is addressed with a "No Risk, No Glove" awareness and education intervention to reduce the use of gloves when they are not necessary, while a search also started for suppliers that offer gloves with less environmental impact and less wasteful stacking in the box.

Step 5, *learning and evaluation*, relates to measurement of effects of the interventions and drawing up the learnings. The same analysis methods can be used after the implementation of the interventions to see if glove use indeed went down, and to learn what interventions are more or less effective. Learnings from the ESCH-R project, but also from other projects like ZEE, will be shared as much as possible via principles of open science, such that many providers across the globe can make use of what works to reduce the environmental impact of health care.

One final thought about taking action is on benchmarking. We see that there are various initiatives to benchmark sustainability performance among departments or specialties. We see initiatives around operating theatres, intensive care units and endoscopy departments. Performance is rated either in terms of environmental impacts or which interventions have been implemented. Departments can use such benchmarks to find inspiration what to address and what to implement in their own practices.

You will not be surprised, given my background, that I want to zoom in on one specific type of intervention: Using procurement to lower the environmental impact of a healthcare organization.

4. Procurement

From various empirical studies, we know that the upstream scope 3 impact of a healthcare provider accounts for 50 to 75% of the total impact (Lau et al., 2024; Pichler et al., 2019).

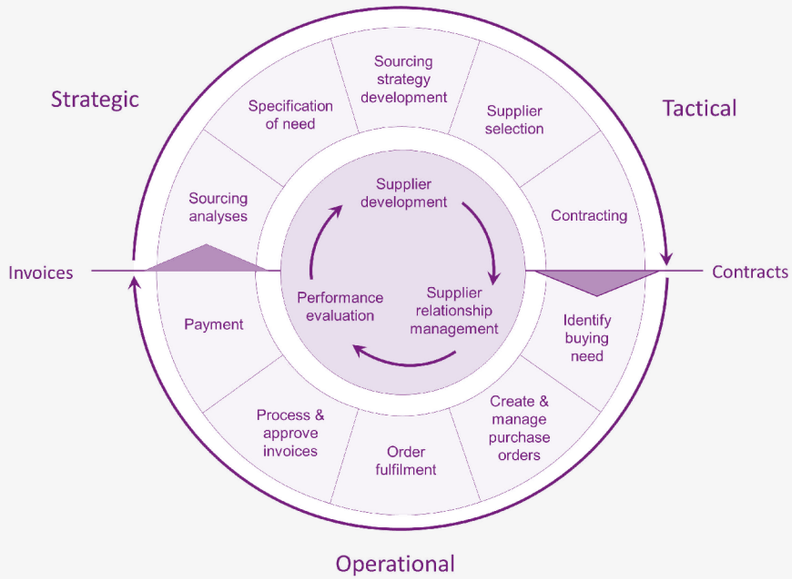
This upstream scope 3 impact includes emissions, pollution, and other impacts related to mining and manufacturing. But also impact related to transportation. Supply chains are global, and healthcare supply chains are no exception. By means of illustration, a recent study traced the supply chain of the drug Clonazepam and discovered that the pills travel between Asia and Europe twice before they are packaged and transported to their final destination.

The choices a healthcare provider makes for which products to procure and from whom, have a big influence on the total environmental impact of that provider. Not only in upstream scope 3 by the way. Product choices may also influence scope 2, looking at differences in energy use between products. It may also influence downstream scope 3, when differences in disposal and waste treatment are considered, related to recyclability and reusability. And such choices may influence scope 1, with reusable products that have to be cleaned and sterilized, actually leading to a slight increase in scope 1 and scope 2 impact.

I want to explicitly say that we are talking about the impact of procurement decisions. The procurement department and procurers have a role in procurement decision making, but for many products, they are not the decision maker. Procurement follows a process in which many stakeholders have a role (see Figure 7). Internal users are involved in specifying their need. For larger projects, technical specialists may be involved to ensure a fit with other systems in the organization. End users could again have a role in user tests for new products and in supplier selection. Finance and legal may be involved to ensure all conditions are met.

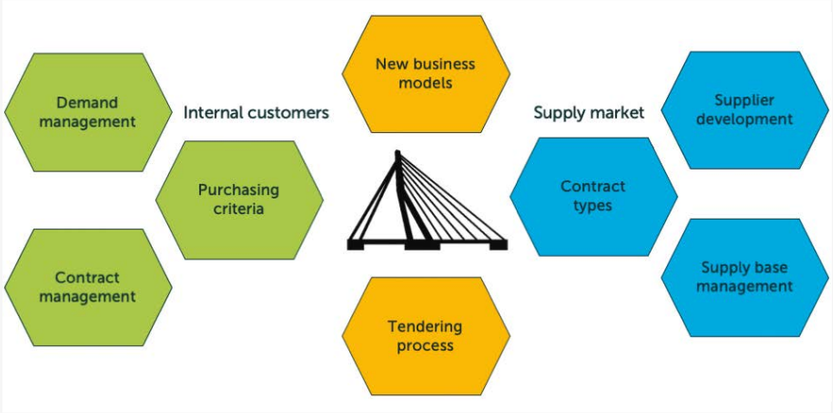
There is always a budget holder who is responsible for the procurement decision and this is often a department manager. If we want to make procurement decisions that drive down the impact on climate and environment, we need all members of the procurement decision making unit to understand what planetary health means, what the key impact areas of a certain product are, and how to compare different products on quality, total cost, sustainability, safety/risks and workload.

Figure 7. The purchasing wheel (Van Raaij, 2016)



Procurers act as advisers and process facilitators in procurement processes. Procurement traverses the bridge between the supply market and internal demand. As such, they can take a key role in greening health care. They are in the position to ask the right questions during the specification of need. As a variant on the R-ladder, the following mantra currently goes around in procurement circles: Buy less, buy better, don't buy at all.

Figure 8. Eight levers for procurement



Moreover, procurers can help in drafting the assessment criteria and the weights for the different criteria in tenders. And influence which sustainability criteria are included and what their relative wight is vis-à-vis price. Procurers can also suggest innovative contract types and stimulate suppliers to use new business models. Procurers can actively scout for more sustainable solutions and identify sustainable startups. I see at least eight different ways in which procurement practices can influence the environmental impact of health care (see Figure 8). We have started a PhD project last year under the ESCH-R project, which is fully focused on identifying and designing the different ways in which procurement can drive and support the greening of health care.

In this drive, I see a big role for collaboration between procurement professionals. Suppliers receive many requests related to sustainability from healthcare providers. Requests for information in general, or specific questions as part of a tender. According to suppliers, buyers ask very different questions and have very different information needs when it comes to sustainability. This makes it very challenging for suppliers to know what to focus on and what data to have at their fingertips. Differences may be related to for instance what impact categories are deemed most important (greenhouse gas emissions, resource use), and differences in how buyers want suppliers to report on impact and sustainability.

In order to make real impact on the whole supply chain, it could be helpful if healthcare providers and group purchasing organizations in health care coordinate more what they ask from suppliers. As an example, the NHS with their Net Zero strategy has made a clear choice for carbon as the impact category they focus on. A focus on carbon reduction could be at odds with a focus on circularity, but as the NHS sees waste reduction as a specific part of their Net Zero strategy, initiatives that stimulate circularity can also contribute to the procurement strategy of the NHS. Such a nationwide coordination of sustainable procurement in health care can orient the healthcare supply chain to a common goal. And one could go even further, trying to coordinate sustainable procurement in health care at the European level for instance.

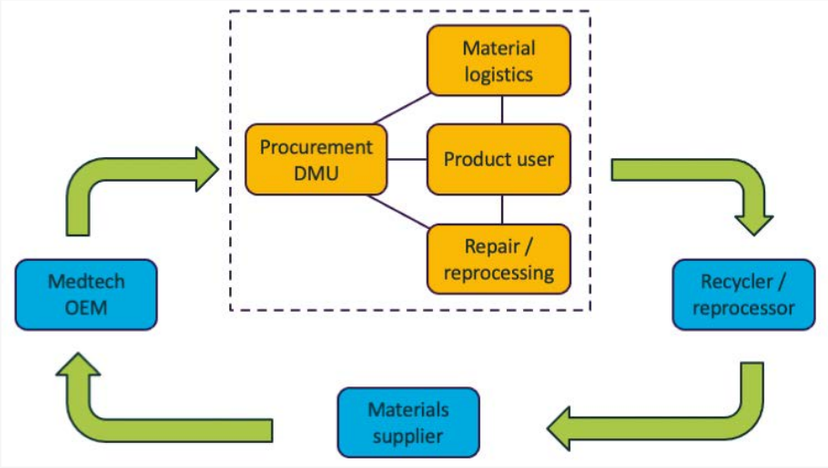
5. Transition

In the end, what we need to achieve is a transition to a healthcare ecosystem with significantly lower impact on the planet. If we imagine a future ecosystem with many more reusable devices and instruments and far less use of virgin non-renewable materials, we need to imagine a future ecosystem with new players, different tasks for current players and a new equilibrium of value creation and value appropriation. To give one example: value creation cannot be based on selling as many products as possible, on one-way material logistics, and processing tons of waste to landfill or incineration.

I don't want to say too much about how to manage transitions in health care, as there are others who have this particular expertise and with whom I hope to collaborate as we make sustainable impact on the sector. I will take the liberty here to sketch some paths that we may need to travel.

Looking at the ecosystem and the actors in the ecosystem with their roles, I foresee the following important changes.

Figure 9. Some key actors in a circular healthcare ecosystem



Imagining a future with more renewable and recyclable materials, and with more reusable products, end users need to be committed to work with different devices and instruments. Around that end user, new roles will emerge (see Figure 9). Circular product flows need to be organized and enabled, widening the responsibilities of material logistics. Before reusables can enter the primary process again, they need to be cleaned, sterilized, and perhaps repaired. This could be done by external third parties, but it could also require a significantly extended internal department for cleaning and sterilization.

In the ESCH-R project, we are imagining this future in our co-creation sessions, and some important findings are that many stakeholders need a new skill set, that there is a strong need for data sharing among stakeholders (about materials, about reprocessing protocols), and that tracking and tracing of products is crucial to make this imagined future possible.

I will roughly sketch a few other elements of that envisioned future circular and sustainable healthcare ecosystem. But I will not go into too much detail.

First, the ecosystem should be supported by regulation that does not disincentivize the use of reusable products, and enables the safe application of circular strategies.

Second, "true costing" would be a strong enabler for making sustainable decisions. True costing includes costs to the planet in the total cost approach and enables a fairer comparison between alternatives.

Third, there should be more room in the healthcare system for prevention, health promotion, and for nature-based solutions. We have recently started a PhD project on nature-based solutions for mental health issues.

Finally, and to make a link with my earlier focus on purchasing of care, healthcare payers also need to make sustainability an integral part of their purchasing practices. Purchasing of care has the power to shape healthcare systems and the decisions of payers on how to allocate their budgets should be such that it supports the transition to a sustainable healthcare system.

Studying such transitions in healthcare is a field of itself, requiring a more transdisciplinary skillset than my focus on sustainable procurement in health care.

6. Conclusion

In this inaugural lecture, I have only touched upon environmental impact or the "greening" of health care. A focus on social sustainability, on ethical procurement, and more generally on responsible procurement is also needed. Creating a future proof healthcare system also implies that the system should be financially sustainable and addresses the issue of sustainable workforce. Luckily, I have excellent colleagues at ESHPM focusing on those topics.

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Erik van Raaij (6 Feb 1971) obtained his PhD from University of Twente in 2001. Following lecturer and assistant professor positions in London and TU Eindhoven, he joined Rotterdam School of Management (RSM), Erasmus University, in 2006. He achieved tenure and promotion to associate professor in 2012. In 2016, he was appointed as endowed professor of Purchasing and Supply Management in Healthcare (supported by Nevi) at RSM and Erasmus School of Health Policy & Management (ESHPM). In 2024, he was appointed as theme lead Planetary Health and was installed as professor of Sustainable Procurement in Health Care at ESHPM and RSM. In 2025, he received an honorary Medical Delta professorship at Industrial Design Engineering at TU Delft.

Our planet is facing a triple planetary crisis—climate change, biodiversity loss, and pollution—and resource depletion can be added as a fourth significant concern. The healthcare sector significantly contributes to these issues through its use of products, materials, energy, and waste production. Globally, healthcare accounts for 4.5% of greenhouse gas emissions, with the healthcare sector in the Netherlands accounting for 7.3% of emissions and 13% of material extraction, creating a paradox where improving human health harms planetary health.

Healthcare is resource-intensive due to high-tech demands, risk aversion, and a focus on efficiency. System-level changes are needed to redefine good healthcare as environmentally sustainable, balancing lower impact with health outcomes, safety, cost, and workload. A design approach can be used to take action, starting with identifying high-impact organizations or processes, pinpointing environmental "hotspots", developing interventions using tools like the R-ladder, implementing such interventions, and measuring their effects while sharing findings globally.

Procurement decisions greatly influence a healthcare organization's environmental impact. Procurers act as advisers and facilitators, bridging supply markets and internal demand, influencing decisions through questions, assessment criteria, innovative contracts, and scouting sustainable solutions in the supply market. Collaboration among procurement professionals is crucial, as suppliers face varied sustainability requests. Coordinated efforts, such as the NHS's Net Zero strategy, can align healthcare supply chains towards common sustainability goals, potentially extending to a European level.

A future sustainable healthcare ecosystem would prioritize reusable devices and instruments, minimize the use of virgin non-renewable materials, and foster new roles and value creation models that move away from one-way material logistics. Key changes include end user commitment to use more reusable devices, circular product flows, stakeholders developing new skills, data sharing, product tracking, supportive regulations, true costing, more prevention and nature-based solutions, and sustainable purchasing practices, where healthcare payers integrate sustainability into decisions, influencing a system-wide transition to sustainable health care.

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