Unlocking the Power of Health Data: Why Quality Is the Key to Digital Innovation

WHAT ARE WE TALKING ABOUT?

A recent academic paper describing the results of an European survey, revealed a striking reality: 87,5% of stakeholders across the health data ecosystem, ranging from healthcare providers to data engineers, data scientists, and researchers, reported encountering data quality errors in their daily work[1].

These errors are not limited to one specific stakeholder group or one data provider. Whether at the bedside of patients, in the data warehouse, or in research, stakeholders face challenges such as missing or inconsistent information, delayed updates, and a lack of data standardisation. Importantly, more than 84% of respondents in the study stated data quality is critical to their decision-making, emphasising the breadth of the problem: poor data quality undermines research, effective health policy making and even safe patient care.

WHY DOES HEALTH DATA QUALITY MATTER?

The value of health data depends on quality across the entire data lifecycle, from the moment it is captured at the bedside or through a medical device or even an app, to how it is stored, standardised, and reused for care, research, or policy.

Today, there is strong emphasis on the secondary use of health data: powering artificial intelligence, enabling real-world evidence (RWE) research, informing public health reporting, and guiding policy decisions. These applications hold immense promise[2]. Yet they all share a common dependency: if the underlying data is of poor quality, the insights and innovations built on it will be flawed.

That is why data quality must be tackled at the source, where it is first registered and governed. Incomplete, inconsistent, or siloed records cannot be 'fixed later' at scale. Without upscaling the maturity of data sources and embedding quality into everyday data practices, secondary use applications will never reach their full potential. A recent report by the Flemish Government stated that 43% of residential care centres do not always correctly register the medication that was administered[3], which directly impacts patient safety and care, but also secondary use applications when this data is being reused.

In short, the future of digital health innovation depends on getting the basics right today: accurate, consistent, and well-structured data from the ground up.

HOW TO ACHIEVE DATA QUALITY?

The previous example on medication incompleteness in residential care centres illustrates an even more important item on data quality. That data quality issues are rarely caused by one single factor or attributed to only a "human error". The article noted that mistakes in medication registration were not only due to human error, but also linked to poor interoperability of software systems, understaffing, and a lack of awareness of the importance of accurate registration. This underscores a key point: data quality is systemic. To truly address data quality, health organisations must strengthen the maturity to their data sources across three aspects: people, culture, and process.

People are at the core, and clear roles and training are needed to ensure that everyone, from clinicians to IT staff, understands their responsibility and collaborates effectively. This is reinforced by culture, where management commitment, open communication, and staff empowerment turn data quality into a shared value rather than a burden. Processes provide structure, frameworks, standards, and continuous monitoring that make quality measurable, transparent, and sustainable. Together, these three elements form an interdependent system: without skilled people, processes fail. Without supportive culture, staff disengages. And without robust processes, even motivated people cannot deliver sustainable improvements.

1   https://zenodo.org/records/14863489
2   See also the other articles of the health data talk series outlying the value of data and innovation.
3   https://www.vrt.be/vrtnws/nl/2024/10/23/woonzorgcentra-scoren-opnieuw-slechter-voor-registratie-van-medi/

THE HIDDEN CHALLENGE: LEVERAGE AT C-LEVEL

Solving the data quality is complex, but not impossible. Research and practice already show that the puzzle pieces are there: proven frameworks, technical standards, monitoring tools, and committed professionals who understand the issue and are eager to address it. Across health organisations, there is no shortage of passionate data scientists, clinicians, and IT staff who see the gaps and want to act. What they need are the right conditions: investment in tools and processes, structured education, and sometimes simply more people to share the workload.

The real bottleneck is leverage. Despite rising awareness, data quality is not yet a boardroom priority. Too often, it is framed only in medical terms, how better data can improve patient care or health outcomes. These are essential and our main priority, but they do not automatically mobilise hospital managers whose daily concerns also include budgets, efficiency, and strategic positioning. To break through, we must also make it a business case for data quality: fewer errors mean reduced costs, streamlined processes mean more efficient use of staff and facilities, and better data unlocks more efficient healthcare, less administration and competitive advantages in research and partnerships.

CONCLUSION: FROM SILENT CHALLENGE TO STRATEGIC ASSET

Until data quality is seen not only as a clinical necessity but as a driver of hospital performance and sustainability, progress will remain slow. The opportunity is real: to evaluate data quality from a silent problem to a strategic asset that speaks both to patient care and to the business of healthcare and research.

Nicky Van der Vekens (Maria Middelares VZW),
Jens Declerck (UGent, The European Institute for Innovation through Health Data (i~HD)),
Bart Vannieuwenhuyse (Neodoma)

Signed by the Health Data Talk Series group

Hendrik De Rocker
(APB)

Inge Van de Velde
Stefan Gijssels
(Patient Expert Center)

Isabelle Huys
(KULeuven)

Katleen Janssens
(Health Data Agency)

Karen Crabbé
(pharma.be)

Nick Marly
(Cabinet public health)

Stefanie Devos
(beMedTech)

Sofie Bekaert
(King Baudouin Foundation)

Sofie De Broe
Wannes Van Hoof
(Sciensano)

Teodora Lalova-Spinks
(Ghent University, KULeuven)