

WHY DOES IT MATTER?

Data dashboards can support public health decision-making by enabling real-time monitoring and surveillance, recognition of trends, aggregating diverse data sources and facilitating communication of health information with policy-makers, clinicians, health service planners and the public. However, many healthcare dashboards do not reach their potential due to poor usability and ineffective data visualisations.

Multiple Irish health strategies (e.g. *eHealth Strategy for Ireland*, *Sláintecare Action Plan*, *HSE Digital Transformation Strategy*) highlight the need for clear, accessible data. Yet, none provide explicit guidance on *how* best to present data. Our project aims to fill this gap by identifying international best practices and tailoring them to the Irish context.

METHODS

- **Databases searched:** PubMed, EMBASE, SCOPUS, IEEE Xplore.
- **Search terms included:** Data Visualisation, Dashboards, Healthcare Management, Public Health Infrastructure, Good Practice, Decision-making, Health Communication, etc.
- **Results:** The search initially returned 1,679 records (including citation searches). After reviewing abstracts, 186 articles remained. Following application of exclusion criteria, 18 papers were selected for further analysis.
- **Analysis:** Guidelines and practices from these papers were coded using Reflexive Thematic Analysis, ultimately clustered into four main themes (**Pillars**).

Key terms

Data Visualisation: Transforming complex data into meaningful visuals - such as charts, graphs, or maps - that allow users to quickly spot patterns, trends, and insights.

Dashboards: A consolidated display of multiple visualisations and key metrics in a single interface, enabling rapid comprehension and decision-making - especially critical in time-sensitive healthcare settings.

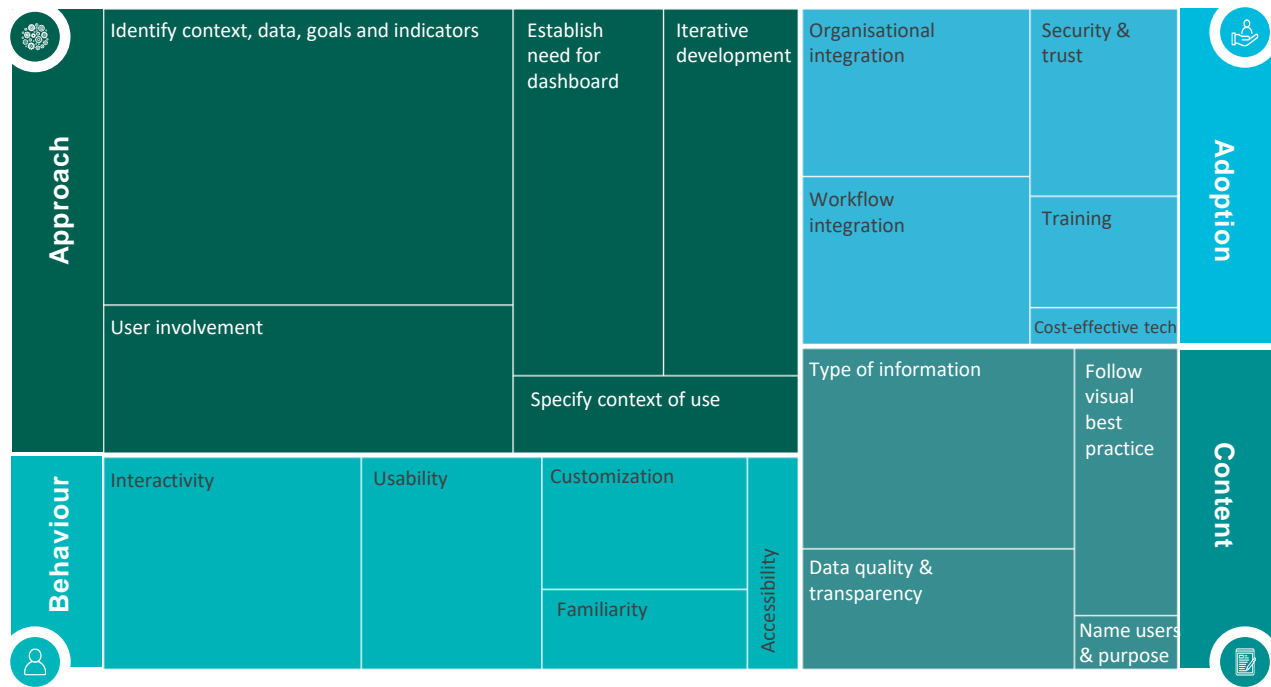
FINDINGS

Our review highlights a significant gap in healthcare data dashboards: **the lack of a standardised approach**. While dashboards are widely acknowledged as vital tools for improving decision-making, communication, and efficiency, most research focuses on *building healthcare dashboards* rather than establishing robust guidelines to underpin their design and implementation. Through our analysis of best practices synthesised from the selected papers, we identified: **Four Pillars of Healthcare Dashboard Design** — **Approach**, **Content**, **Behaviour**, and **Adoption**.



THE FOUR PILLARS

The **Four Pillars** highlight the importance of properly planning the approach, content and behaviour of the dashboard and how a dashboard should be integrated into the organisation. This visual shows the key terms mentioned most often in the papers and grouped into the four pillars.



CONCLUSION

- This review serves as an essential first step in understanding the global landscape of healthcare dashboards, laying the groundwork for adapting these insights to the Irish healthcare system. While dashboards are widely acknowledged as vital tools and multiple Irish health strategies highlight the need for clear, accessible data, there is insufficient guidance on how to present that data effectively. Drawing on our findings, we have defined four core pillars with associated key practices, offering a clear pathway to address this gap.
- Our next step is to bring the insights from this review of international practice to Irish stakeholders and - through a process of consensus-building and iterative testing - build guidelines to inform the creation of healthcare dashboards and best-practice data visualisation principles tailored to the Irish context. From there, we will develop in-depth guidelines to inform the creation of healthcare dashboards, empowering public health and other leaders in Ireland to make informed, timely, and effective decisions.

QUESTION

- We are looking to gather data visualisation and dashboards from the healthcare sector. Do you have examples? Please send them to us!

THE FOUR PILLARS (further explanations)

	Key term	What we mean
Approach	Identify context, data, goals, and indicators	Understanding the setting where the dashboard will be used, what data it will show, what it aims to achieve, and how success will be measured.
	Iterative development	Building the dashboard step by step, testing and improving it over time instead of making it all at once.
	Establish need for dashboard	Confirming that a dashboard is necessary by identifying the problems it will solve or improvements it will bring.
	User involvement	Engaging the people who will use the dashboard in its design and development to make sure it meets their needs.
	Specify context of use	Defining when, where, and how the dashboard will be used to ensure it is designed appropriately.
Content	Type of information	Deciding what kind of data the dashboard will display, such as patient records, hospital performance, or disease trends.
	Follow visual best practice	Designing the dashboard so that information is clear, easy to read, and visually organized.
	Data quality & transparency	Ensuring the data shown is accurate, reliable, and clearly sourced so users can trust it.
	Name users & purpose	Identifying who will use the dashboard and what they will use it for.
Behaviour	Interactivity	Allowing users to click, filter, or adjust the dashboard to explore the data in different ways.
	Usability	Making the dashboard simple and intuitive so users can navigate it easily.
	Customization	Allowing users to personalize the dashboard to fit their specific needs and preferences.
	Familiarity	Designing the dashboard in a way that feels familiar to users, making it easier to understand and use.
	Accessibility	Ensuring that all users, including those with disabilities, can access and use the dashboard.
Adoption	Organisational integration	Making sure the dashboard fits well with existing systems and processes in the organization.
	Workflow integration	Ensuring the dashboard supports and fits smoothly into the daily tasks and routines of users.
	Security & trust	Protecting the data from unauthorized access and making users feel confident that their information is safe.
	Training	Providing guidance or lessons to help users learn how to use the dashboard effectively.
	Cost-effective technology	Choosing affordable and efficient technology to build and maintain the dashboard without overspending.