

Sustainability reporting by Dutch hospitals: important themes are addressed, but metrics are lacking

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Abstract

Purpose – The purpose of this paper is to give insight into the extent to which Dutch hospitals report on sustainability, what the purposes of reporting are and whether these align with reporting practices.

Design/methodology/approach – A mixed-methods approach was used. Annual reports of all 69 Dutch hospital organizations were analyzed on ESG reporting. Survey research was conducted to discover which ESG themes were considered relevant by hospitals. Focus group discussions were organized to deepen the understanding of the findings.

Findings – Hospitals report on many ESG themes that are considered important in the sector. Sustainability reporting seems to be related to institutional and accountability factors. However, performance indicators are used to a minor extent, while they are considered important.

Practical implications – Hospitals are encouraged to use a learning perspective in sustainability reporting, in which information and indicators should be reported for that purpose. Aligning reporting themes with healthcare sector policy in consultation with stakeholders can benefit usefulness of sustainability reporting.

Originality/value – This paper highlights the current state of sustainability reporting by hospitals. It gives insight into relevant reporting themes for this sector.

Keywords Sustainability reporting, ESG reporting, CSRD, Public sector, Hospitals

Paper type Research article

1. Introduction

Social and environmental impacts of organizations are gaining more attention because of concerns regarding climate change. Organizations are expected to operate more sustainably, and sustainability reporting is considered to incentivize this. It enhances transparency on sustainable initiatives toward society and helps organizations to assess and improve their sustainability (Guthrie *et al.*, 2010). Sustainability reporting is defined by the Global Reporting Initiative as: “the practice of measuring, disclosing, and being accountable to internal and external stakeholders for organizational performance towards the goal of sustainable development” (GRI, 2005).

Nyberg and Wright (2022) stress the importance of management research on the climate crisis to maintain relevance and help enable societies to undertake climate change mitigation. Research on sustainability reporting has mostly focused on the private sector, but attention for the public sector is growing (Bryan, 2022; Mol *et al.*, 2025). There are concerns about the adequacy of both sectors in addressing climate change, and the public sector has been urged to improve on this matter, for example through wider partnerships (Buso and Stenger, 2018). The public sector can have a large impact because of its economic significance, e.g. its



expenditures were 32% of worldwide gross domestic product in 2022 (IMF, 2024). It also has a pivotal role in society which comes with stakeholder pressure (Almqvist, 2013). The pressure to operate sustainably is growing and the public sector is seen as a role model that should take the lead in sustainability reporting. Climate-related performance and disclosure can be used to show accountability to stakeholders and meet their expectations (Haque and Deegan, 2010).

Therefore, it could be expected of the public sector to operate sustainably and be transparent about this to stakeholders and society. The Public Sector Accounting Standard Board (IPSASB) emphasizes the importance of research on climate-related disclosures (IPSASB, 2022). Research on sustainability reporting in the public sector has mostly focused on higher education institutes, local governments and state-owned enterprises, while the healthcare sector lags behind (Manes-Rossi *et al.*, 2020). This is interesting since sustainability and public health correlate, while the healthcare sector is a significant polluter. Hospitals pollute the environment which has a negative effect on human health and operating more sustainable can contribute to improving human health (Ab Manan *et al.*, 2018). Therefore, hospitals have a responsibility to operate more sustainably for human and planetary health. Since sustainability reporting is used as a tool to stimulate sustainable operations, and it can enhance transparency, hospital reporting practices are an interesting field of research. Research into sustainability reporting by hospitals is limited (Bisogno *et al.*, 2025). Andrades *et al.* (2024) analyzed Spanish public hospitals' reports and found that sustainability reporting was not an institutionalized practice. Giancotti *et al.* (2022) observed a scarce dissemination of social reports in Italian public hospitals when assessing trends in social reporting. Garzoni *et al.* (2024) studied determinants of sustainability disclosures by the best international hospitals and highlight a low level of dissemination of sustainability information.

This paper focuses on sustainability reporting by Dutch hospitals. In the Netherlands, the healthcare sector is responsible for 7% of greenhouse gas emissions of the country and can therefore make a significant contribution to reduction of pollution (Steenmeijer *et al.*, 2022). Whereas no mandatory guidelines exist about sustainability reporting, the importance of sustainability is evident in the sector. Many healthcare organizations signed the Green Deal Sustainable Care agreement committing themselves to improve sustainability in the sector. The hospitals operate in a public domain in which private values, such as market competition, have been introduced, adding efficiency as an important value in the system which can be hard to align with public values such as solidarity (van der Pennen *et al.*, 2010). Because of this complex governance structure and explicit commitment to sustainability, the Netherlands is an interesting context for research on sustainability reporting practices by hospitals.

This study analyzes the extent to which Dutch hospitals report on sustainability issues, and how they align with the topics that are considered important in Dutch hospitals. It aims to add to the literature on sustainability reporting by hospitals, by using both institutional and accountability theory to explain these reporting practices. As Mol *et al.* (2025) show these are common theories in sustainability reporting research that are also used in combination. Moreover, whereas most studies in this research field use qualitative methods (see Mol *et al.*, 2025), this study uses a mixed-methods approach.

The following four research questions guide this exploratory study:

- RQ1. What sustainability themes do Dutch hospitals report on and to what extent?
- RQ2. What themes are considered important in Dutch hospitals on sustainability reporting and how do they align with reporting practices?
- RQ3. To what extent are current reporting practices related to institutional factors, specifically pressure from the Green Deal and Integral Care Agreement?
- RQ4. To what extent are current reporting practices related to accountability factors?

2. Background

2.1 *The Dutch healthcare sector*

There are 69 hospital organizations in the Netherlands that can be divided into three types. Seven are academic hospitals which are associated with a university. These hospitals provide complex care and have more resources for research. 27 are top clinical hospitals, which means they are members of a collaboration network of these hospitals and they are specialized in certain care areas. The remaining 35 are general hospitals, which are usually smaller than the other types and provide care for patients from a smaller region.

Many Dutch hospitals have already committed to operate more sustainably by signing the Green Deal Sustainable Care agreement. In this agreement, published in 2015, healthcare institutions agree to make the sector more sustainable. It includes themes that healthcare providers can focus on regarding sustainability such as reducing greenhouse gas emissions (Rijksoverheid, 2023). In 2022, the third version of the Green Deal (3.0) was published adding quantitative goals to the themes such as 55% less CO₂ emissions by 2030. In addition, the importance of sustainability is mentioned in the Integral Care Agreement, which is an agreement made between the Dutch ministry of public health, well-being and sports and a large number of stakeholders in healthcare, in order to maintain quality, accessibility and affordability of care. This agreement sets out important themes that the sector wants to focus on to maintain quality and accessibility. Sustainability is mentioned as an important theme that should be considered as part of all other transitions in healthcare (Ministerie van Volksgezondheid, Welzijn en Sport, 2025a). Many hospitals have appointed sustainability officers to manage and improve sustainability in the hospital (Milieuplatform zorg, n.d.).

In the Green Deal, five pillars of sustainability are distinguished that the signing parties want to work on. First, they focus on improving health of clients and staff regarding food, lifestyle and a healthy environment. Second, they commit to creating more awareness and knowledge on the impact of the healthcare sector on the environment, and the impact of the environment on healthcare. Third, they agree to become climate neutral regarding greenhouse gas emissions in 2050. Fourth, they want to reduce the use of materials and waste. Fifth, they focus on reducing the impact of medication (use) on the environment. Important themes in the Integral Care Agreement are appropriate care, the labor market and the need for more (1) collaboration in acute care and across domains, (2) focus on health and prevention and (3) digitalization. Sustainability is mentioned as important to include as part of all other themes. Since these agreements are signed by Dutch hospitals they have to commit to working on these themes. Therefore, they can be considered institutional norms that could influence reporting practices, so they are important in this study.

2.2 *Sustainability reporting guidelines*

The importance of accountability regarding sustainability is apparent from the development of multiple sustainability reporting standards. For the public sector, the International Public Sector Accounting Standards Board (IPSASB) is developing sustainability reporting standards. A draft with principles on how to include risks and opportunities related to climate change in financial reports was published in October 2024 for accountability and decision-making purposes (IPSASB, 2024). It was finalized and published in 2026, and stresses the importance of the use of metrics and targets in sustainability reporting as such disclosures are important for primary users of financial reports to gain insight into the progress of an organization toward climate-related targets (IPSASB, 2026). The use of performance measurement systems in the public sector has increased since it can contribute to higher efficiency and effectiveness (Pollitt and Bouckaert, 2011). Research on the use of these systems in hospitals shows that they can benefit outcomes such as operational performance and collective work culture, but the way in which performance measurement is used is important in this regard (van Elten *et al.*, 2021). To remain meaningful, it is important to use the learning opportunities of performance management instead of it becoming a formality

(Argento *et al.*, 2025). Therefore, the use of performance indicators is considered in this research as part of accountability relating to sustainability reporting.

For the private sector, the Corporate Sustainability Reporting Directive (CSRD) published the first set of European Sustainability Reporting Standards (ESRS) in 2023 (European Commission, 2023). The European Commission planned to make these mandatory in 2024 for companies under the CSRD scope. However, implementation was delayed because of the Omnibus Simplification Package that amended the regulation and reduced the number of companies affected. This was done to make sustainability reporting more proportional. Despite this simplification, ESRS remain relevant for many companies including banks and insurance companies. The ESRS are divided into cross-cutting standards (ESRS 1 and 2) and topical standards (ESRS E, S and G). ESRS 1 sets general requirements for sustainability reporting and guidance on preparing and presenting information. ESRS 2 specifies disclosure requirements on governance, strategy, impact, risk and opportunity management, and metrics and targets. The topical standards give reporting guidelines on environment, social and governance aspects, structured into topics, sub-topics and sub-sub-topics. CSRD also encourages organizations to add specific disclosures on relevant topics that are not included in ESRS. Even though CSRD is developed for the private sector, these guidelines are used voluntarily by many Dutch hospitals to report on sustainability (BDO, 2025).

3. Theory

Previous literature has shown that different theories and combinations of theories are used to study sustainability reporting in the public sector (Mol *et al.*, 2025). Bisogno *et al.* (2025) found that studies in this field emphasize the empirical and practical implications. We use institutional theory and accountability theory to look further into the purposes of sustainability reporting to understand why and how hospitals report about sustainability issues. Furthermore, we use the ESRS as an analytical framework.

3.1 Institutional theory

According to institutional theory, behavior of organizations is influenced by rules and norms. Complying with those helps organizations gain legitimacy and resources (Meyer and Rowan, 1977). Therefore, organizations cannot be seen in isolation but respond to their context by conforming to norms and social influences, making them more similar according to three isomorphic pressures. Coercive isomorphism happens when organizations are obliged to conform to outside pressures, both formal and informal. This could be laws or regulations that have to be followed, but also cultural expectations for example. Mimetic isomorphism occurs when organizations imitate other successful practices. When organizations experience uncertainty, they might model themselves on a similar, successful organization. Normative isomorphism occurs when organizations follow shared professional standards in their field. These are established by professional networks and education and legitimation in a certain field (DiMaggio and Powell, 1983).

Institutional theory is often used to explain sustainability reporting (Mol *et al.*, 2025). Higgins and Larrinaga (2014) state that all types of isomorphism can account for sustainability reporting. Coercion as a response to regulation, mimetic isomorphism when it is taken for granted in certain fields and organizations follow, and normative mechanisms because of social responsibility in a certain profession. They argue that sustainability reporting is likely a result of a mixture of all three, with their weight depending on the field and context.

In this context, we consider agreements such as the Green Deal and the Integral Care agreement as coercive and normative pressures that stimulate sustainability reporting by hospitals. Complying with the Green Deal and Integral Care Agreement is voluntary. Hospitals can choose to sign these agreements that state themes specifically relevant in the healthcare sector, but when they sign, they are expected to act upon these agreements. Moreover, when

signing the Green Deal, hospitals are expected to reach environmental norms that are given, such as reducing greenhouse gas emissions by 55% by 2030. The agreements do not have any formal reporting requirements, but in order to monitor progress on these themes, sustainability information is needed from hospitals. Therefore, signing these agreements can stimulate sustainability reporting practices. This can act as coercive pressure since these agreements are established in collaboration with the government and after signing, hospitals have to conform to reaching the goals in these agreements. In addition, normative pressures are important which can be indicated by following values of what is considered desirable and socially acceptable to pursue (Andrades *et al.*, 2025). Since sustainability is increasingly seen as a social responsibility in this sector, this creates normative pressure. This responsibility is felt because the sector aims to improve health while contributing to polluting our environment. Therefore, many hospitals hired sustainability officers and started working with green teams to improve the sustainability of care. As such, sustainability is becoming a standard in the healthcare sector. Sustainability reporting is then used for the actions and progress in this field. In 2022, 54 out of 69 hospital organizations had signed the Green Deal. The Integral Care Agreement is not signed by hospitals individually but was established by the Dutch Association of Hospitals and the Dutch Federation of University Medical Centers among others, meaning it applies to all Dutch hospitals.

3.2 Accountability theory

Bovens (2007) distinguishes three perspectives that highlight different functions of accountability which are democratic, constitutional and learning. The greater goal in the different perspectives combined is maintaining legitimacy of an organization.

According to the democratic perspective, accountability is considered important to judge the conduct of the government, including the effectiveness of the spending of huge amounts of taxpayers' money. To do so, society needs input from disclosures that are of reliable quality. This perspective matches with principal-agent theory and offers democratic legitimacy. Since the climate crisis greatly affects our societies, citizens and their political representatives should be able to hold organizations accountable for their climate change mitigation strategies or lack thereof.

Following the constitutional perspective, accountability serves as a tool to counter power concentration. Transparent disclosure can withhold organizations from abusing power or corruption since they can be held accountable by the public. Disclosure gives the opportunity for checks and balances to monitor people in a position of power. In the ESRS framework attention is given to this perspective since corruption and bribery is an explicit theme in the framework.

Through the learning perspective, accountability is seen as a tool in being effective and keeping promises. Accountability offers a mechanism to confront people with information about their own functioning and forces them to reflect on the successes and failures of their past policy. Learning and improving is stimulated by being transparent to society. Disclosures can also be used as an example by similar organizations to improve their operations and reporting. As McCornack (1992) indicates, effective communication should be as informative as required, and not more informative, given the demands of a situation. However, it is considered difficult to indicate a specific number of words for texts that meet these criteria, among other things because the complexity of issues varies. Therefore, we developed a rule of thumb. We argue that at least two sentences are needed in order to use disclosures for learning purposes; one to state the ambitions and one to state the results and reflect on possible improvements. Given that the average sentence length in the Dutch language is 13 words (Daretoo, 2018), 26 words about a theme would be needed at a minimum to use the information for learning purposes. Examples of such disclosures taken from the annual reports are: *"We have set ourselves a higher ambition: energy neutral in 2030 (gas and electricity). This means we will generate all needed electricity, warmth and cooling from sustainable sources."* and *"In 2022*

our hospital set up a sustainably procurement policy and accompanying commission. Here we look at what products we can make sustainable, with the focus on the switch from single use to reusable.”.

4. Method

Following multiple authors (e.g. [Birnberg et al., 1990](#); [Malina et al., 2011](#)) who advocate the use of a mixed-methods approach, document analysis is combined with survey and focus group research in this study. This combination helps extend the findings from the separate methods and increase confidence by being able to confirm findings ([Grafton et al., 2011](#)). The survey and focus groups were used to validate and deepen the understanding of the findings from the document analysis. The ESRS is used as a thematic lens to analyze the extent of sustainability reporting by Dutch hospitals. These standards are used for the private sector, so hospitals do not fall under the scope. However, the standards could still be relevant for Dutch hospitals to use. First of all, because an important aspect of the ESRS is reporting about activities in the value chain of a company. As hospitals are an important part of the value chain of health insurance companies, which still fall under the CSRD scope, they may be required to provide ESG information to health insurers. Second, several hospitals in the Netherlands are already preparing to use the ESRS framework. Some of these hospitals have a corporate structure of a limited company, meaning they were in the CSRD scope before the Omnibus regulation and started preparing to follow the guidelines. Other hospitals began doing so voluntarily because they want to report on their sustainability and ESRS are a common framework for this, chosen by many hospitals. In addition to these reasons why ESRS are a relevant framework in the Netherlands, it is useful because it covers a broad range of themes considering ESG. This is a common logic to define areas of interest for healthcare organizations to operate and define themselves as more responsible ([Bosco et al., 2024](#)). Therefore, we have chosen this framework to analyze whether these themes were already addressed by Dutch hospitals from their own motivation, before the themes were published in 2023. Our use of the ESRS should therefore be considered as an analytical lens rather than a normative framework.

In order to analyze the extent to which Dutch hospitals report on sustainability, the annual reports of 2022 of the 69 Dutch hospital organizations were gathered, 67 of them were obtained from the reporting website of the Dutch Ministry of Public Health, Well-being and Sport ([Ministerie van Volksgezondheid, Welzijn en Sport, 2025b](#)) and two were requested by email. All annual reports were coded through document analysis by two researchers individually using the ESRS framework in Atlas.ti 23. The framework consists of three levels: themes, sub-themes and sub-subthemes. The smallest level possible was used to code text fragments in the annual reports that applied to that theme. When a text fragment in the annual report was about a certain (sub-sub) theme such as “work–life balance”, the fragment was allocated to that (sub-sub) theme. Some text fragments related to sustainability but could not be allocated to a theme in the ESRS, for example on using digital tools in order to work more efficiently and reduce travels. Therefore, we added themes to the framework such as “digital/data driven care”. Inconsistencies between researchers were discussed to reach consensus on the codes and to check the accuracy of the assigned codes. For all coded fragments, the number of words was counted as an indicator for how much attention was given to this theme in reporting. Since it was not feasible to assess and compare the content of the text fragments, the length was used as a measure for attention given to this theme. In addition, codes were added if the hospital reported a quantitative indicator related to the theme to see if they actually measure and keep track of that theme.

In addition to our document analysis, we used two other research methods. To start with, and in order to supplement our data from the document analysis, a survey on sustainability reporting and the ESRS framework was distributed ([Supplementary file 1](#)). The members of the board of directors responsible for finances of the 69 Dutch hospital organizations were

invited to participate in the survey by email in March 2025. One reminder for participation was sent. 28 responses to the survey were collected, leading to a satisfactory 40.6% response rate. In most hospitals, the survey was internally forwarded, and because of that 17 responses came from sustainability officers and five from facility managers. Sustainability officers manage sustainability in the hospital and translate policy to concrete actions in collaboration with the board of directors ([Milieuplatform zorg, n.d.](#)). In six cases, the responses came from the board of directors. Therefore, all responses are considered to represent the views of well-informed people. The survey consisted of some general questions related to the importance of sustainability reporting and we asked respondents to rate all sub-themes of the ESRS framework. This was done with a Likert scale ranging from strongly disagree to strongly agree with the statement “I think it is important that a hospital should report on this theme”. The responses were translated into numerical scores from 1 to 5 and the mean score per theme was calculated. These scores were interpreted as an importance score per theme, since it reflects the extent to which stakeholders in the hospital think this theme should be reported on. In the CSRD approach, a double materiality analysis is performed in which the inside out and outside in materiality of themes is determined. In this study, we do not follow this approach but attempt to give a first indication of the importance of themes for Dutch hospitals.

Second, two focus groups with board members and sustainability officers from Dutch hospitals were organized in order to reflect on the findings and gain more insight into the purposes of reporting practices. There were 18 participants of which three board members, 13 sustainability officers, one facility director and one concern controller. The focus groups were held in August 2025 and took 1.5 h in which statements on sustainability reporting were discussed and research results were reflected upon. For the statements, we asked participants to rate on a Likert scale ranging from strongly disagree to strongly agree of which the responses were translated to a numerical score from 1 to 5 and mean scores were calculated. One focus group was an online session and the other one an in-person meeting. Both sessions were audio recorded, and transcripts were made for analysis.

5. Results

5.1 Themes in sustainability reporting

[Figure 1](#) shows the ESRS framework and how many hospitals report on the main ESG themes. All hospitals report on business conduct, the only governance theme. Of the four social themes, all hospitals address own workforce. All but two report on consumers and end-users, in this

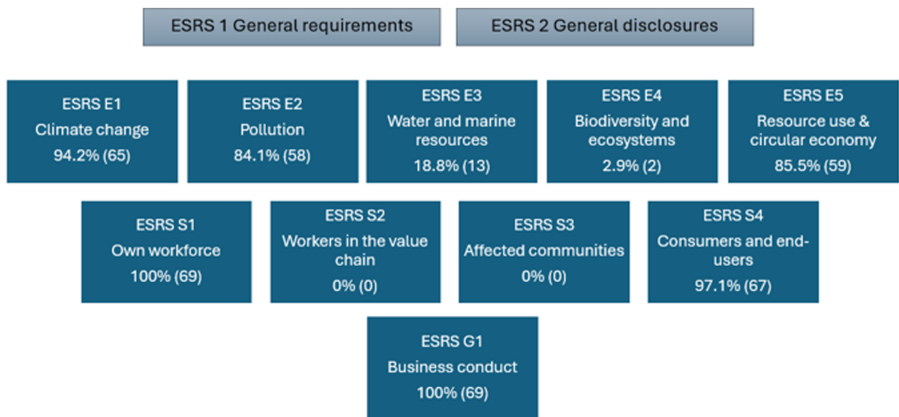


Figure 1. ESRS themes with the number of hospitals that report on that theme. Source: Authors’ own work

case mainly patients and their families. No hospitals report on workers in the value chain or affected communities. During the focus groups, participants explained that it is difficult for them to define their value chain and figure out to what extent they need to report on issues outside of the hospital. One participant noticed the international character of the ESRS themes and mentioned the sub-themes under affected communities are not very relevant in the Netherlands. Of the five environmental themes, most hospitals address climate change, circular economy and pollution, but only a few mention water and marine resources, or biodiversity and ecosystems. Focus group participants noted the first three themes are part of the Green Deal and are therefore more current in the hospital; however, they do think water and biodiversity are also important themes that should be reported about.

Table 1 shows how many hospitals report on sub-themes which go into the ESG aspects more specifically. Themes that were added by the researchers are underlined in this table. Only the sub-theme working conditions is addressed by all hospitals. Other social sub-themes, both regarding own workforce and consumers and end users, are widely addressed. Governance sub-themes also score high, including corporate culture, collaboration and digital or data-driven care. The latter two themes are not originally in the ESRS framework but were added by the researchers because these themes were prominent in the annual reports and relate to sustainability. Collaboration between hospitals and other healthcare providers, general practitioners, other hospitals, but also municipalities for example, can prevent double care actions and make the care process more efficient to save resources. Digital care can prevent travel emissions and also make the process more efficient. Since these themes were widely reported on, hospitals seem to understand their importance in current developments. To indicate whether themes relate to the shared policy agreements of the hospital sector, ESRS themes that are also present in the Green Deal or Integral Care Agreement are marked with GD and ICA respectively in the table (Supplementary file 2). Regarding environmental aspects, hospitals mostly report on climate change mitigation. In these passages, they mostly talk about how they want to operate more sustainably and combat climate change in general. They report mostly on pollution of air and energy as concrete aspects of how they can contribute to the mitigation. Some hospitals report more generally on what they do in terms of saving energy for instance, but others are very specific and use quantitative indicators to keep track of their energy consumption. Much less is reported about pollution of water, which is interesting for hospitals since they contribute to this pollution through medicine residues.

5.2 Importance of themes

Table 1 also includes the mean as well as the standard deviation of the importance score given by the hospitals on the survey questions. We observe that the range of scores is between 2.1 and 4.5. The correlation between the importance score of a theme and the number of hospitals that report on that theme is apparent, with a Spearman correlation coefficient of 0.80 ($p < 0.01$). This can be seen in the data as most sub-themes that many hospitals report about score around four on importance. For the sub-themes that none of the hospitals mention in their reports, we see that the importance scores are lower in most cases.

Table 2 highlights outliers in which the number of hospitals that address a theme deviates from the expectation based on the importance score. The expected number of hospitals that report on a theme is calculated by taking the average number of hospitals that report on the themes with a certain importance score and subtracting and adding the standard deviation. There are no themes that received an importance score between 1.0 and 2.0 and above 4.5. For the third category, there are no outliers. For the fourth category, two hospitals report on direct impact drivers of biodiversity loss, while only one (i.e. the mean value of 0.3 plus the standard deviation of 0.7) was expected to. For the fifth category, resource outflows related to products and services is an outlier since 34 hospitals report on this theme which is more than expected (15.3). For the sixth category, none of the hospitals report on substances of very high concern, which are “substances that may have serious and often irreversible effects on human health and

Table 1. Percentage of hospitals that reports on a sub-theme

ESRS theme*	Sub-theme**	% (number)****	Importance score mean (SD)†
Own Workforce (S1)	Working conditions (GD)	100.0 (69)	4.3 (1.0)
Own Workforce (S1)	Equal treatment and opportunities for all	97.1 (67)	4.2 (1.1)
Business conduct (G1)	<i>Collaboration</i> (ICA)	97.1 (67)	4.1 (0.8)
Consumers and end-users (S4)	Information related impacts for consumers and/or end users	94.2 (65)	3.6 (0.9)
Business conduct (G1)	<i>Digital/data driven care</i> (ICA)	92.8 (64)	4.2 (0.6)
Business conduct (G1)	Corporate culture	91.3 (63)	4.3 (0.7)
Climate change (E1)	Climate change mitigation (GD)	88.4 (61)	3.8 (1.2)
Consumers and end-users (S4)	Personal safety of consumers and/or end-users	87.0 (60)	4.1 (0.8)
Consumers and end-users (S4)	Social inclusion of consumers and/or end-users	84.1 (58)	3.6 (0.9)
Circular Economy (E5)	Waste (GD)	79.7 (55)	4.5 (0.9)
Pollution (E2)	Pollution of air (GD)	76.8 (53)	3.6 (1.1)
Climate change (E1)	Energy	73.9 (51)	4.4 (0.8)
Circular Economy (E5)	Resources inflows, including resource use (GD)	63.8 (44)	3.8 (1.1)
Own Workforce (S1)	Other work-related rights	52.2 (36)	3.7 (1.1)
Business conduct (G1)	<i>Fraud and integrity</i>	52.2 (36)	3.8 (0.8)
Circular economy (E5)	Resources outflows related to products and services	49.3 (34)	3.5 (1.1)
Business conduct (G1)	Protection of whistle-blowers	43.5 (30)	4.4 (0.6)
Pollution (E2)	Pollution of water (GD)	27.5 (19)	4.1 (0.1)
Water and marine resources (E3)	Water consumption	18.8 (13)	3.8 (0.9)
Business conduct (G1)	Management of relationships with suppliers including payment practices	13.0 (9)	3.8 (0.6)
Business conduct (G1)	Corruption and bribery	5.8 (4)	3.5 (1.0)
Pollution (E2)	Substances of concern	4.3 (3)	3.4 (1.2)
Climate change (E1)	Climate change adaptation	2.9 (2)	3.5 (1.1)
Biodiversity and ecosystems (E4)	Direct impact drivers of biodiversity loss	2.9 (2)	2.5 (1.0)
Pollution (E2)	Pollution of soil	1.4 (1)	3.3 (1.0)
Pollution (E2)	Pollution of living organisms and food resources	0 (0)	3.1 (1.13)
	Substances of very high concern	0 (0)	3.7 (1.20)
Water and marine resources (E3)	Water withdrawals	0 (0)	3.2 (0.85)
	Water use	0 (0)	3.8 (0.85)
	Water discharges in water bodies and in the oceans	0 (0)	2.9 (1.05)
	Habitat degradation and intensity of pressure on marine resources	0 (0)	2.1 (1.07)
Biodiversity and ecosystems (E4)	Impacts on the state of species	0 (0)	2.3 (0.92)
	Impacts on the extent and condition of ecosystems	0 (0)	2.6 (1.08)
	Impacts and dependencies on ecosystem services	0 (0)	2.5 (0.91)
Workers in the value chain (S2)	Working conditions	0 (0)	3.3 (0.99)
	Equal treatment and opportunities for all	0 (0)	3.0 (1.05)
	Other work-related rights	0 (0)	2.9 (0.90)
Affected communities (S3)	Communities' economic, social, and cultural rights	0 (0)	2.6 (0.94)
	Communities' civil and political rights	0 (0)	2.4 (0.99)
	Particular rights of indigenous communities	0 (0)	2.3 (0.99)
Business conduct (G1)	Animal welfare	0 (0)	2.7 (1.28)
	Political engagement and lobbying activities	0 (0)	2.9 (1.04)

Note(s): *E = environment, S = social, G = governance; **GD = Green Deal, ICA = Integral Care Agreement; ****% (number) relates to the number of the 69 hospitals that report on a theme; †The mean of the importance score is based on the 28 survey respondents

Source(s): Authors' own work

Table 2. Outlier themes based on the importance score

Importance score	Av. No. (SD)	Outliers
1.00–1.50	–	
1.51–2.00	–	
2.01–2.50	0 (0)	
2.51–3.00	0.3 (0.7)	Direct impact drivers of biodiversity loss (+*)
3.01–3.50	4.9 (10.4)	Resource outflows related to products and services (+)
3.51–4.00	34.1 (23.6)	Substances of very high concern (–) Water use (–) Management of relationships with suppliers including payment practices (–) Climate change mitigation (+) Information related impacts for consumers and/or end users (+)
4.01–4.50	54.4 (17.0)	Protection of whistle-blowers (–) Pollution of water (–)
4.51–5.00	–	

Note(s): * (+) indicates more hospitals than expected report on this theme, (–) indicates less hospitals than expected report on this theme

Source(s): Authors' own work

the environment” (ECHA, 2024). Also no hospitals report on water use, and only nine on management of relationships with suppliers which is expected to be more given their score. On the other hand, 61 hospitals report on climate change mitigation and 65 on information-related impacts for consumers, which is more than expected given the importance. For the seventh category, only 19 hospitals report on pollution of water and 30 on protection of whistle-blowers, while these score high on importance and therefore more would be expected.

Table 3 shows how many hospitals report on a sub-sub-theme, the average number of words used in reporting on the subject, and how many hospitals used a quantitative indicator to inform on this theme. Regarding governance, the hospitals report extensively on collaboration, both across domains and with other hospitals, and on digital and data-driven care, as well as corporate culture. For environment, climate change mitigation is addressed by most hospitals and receives most words. Regarding social aspects, hospitals are most elaborate on health and safety both for the own workforce and consumers or end-users, freedom of expression for end-users, and training and skills development for the own workforce.

The use of quantitative indicators is limited. Regarding governance aspects, one hospital used an indicator for digital/data-driven care. For social themes, two hospitals used an indicator for diversity. 20 hospitals reported an indicator on gender equality and six of those also reported a norm they strive for. Most indicators were applied to environmental themes, in contrast to the number of words. 23 hospitals reported an indicator to outline their energy use, only one also reported a norm they wanted to achieve and confronted their use with the norm. 23 hospitals reported an indicator for pollution of air, 20 reported a norm and seven confronted the two. Regarding resource inflows, nine hospitals reported a norm, of which seven used the norm that is mentioned in the Green Deal. Only one hospital employed an indicator to report on their realization. Three hospitals employed an indicator to measure resource outflows. Nine hospitals measured their water consumption. 19 hospitals measured their waste and six of those also set a norm to reach. This shows that not many indicators are employed regarding sustainability, while most respondents in our survey and focus groups indicated that it is considered important to use quantitative performance indicators in sustainability reporting (average score of 4.2, SD of 0.62 in survey; average 4.1, SD 0.42 in focus groups).

Figure 2 shows the share of ESG in the number of words used to report on sustainability. Most attention is given to the social themes in the annual reports, namely 137.351 words which

Table 3. Percentage of hospitals that reports on a sub-sub-theme and extensiveness

ESRS sub-theme*	Sub-sub-theme**	% (number)***	Average number of words (sd)†	Number of hospitals that used a quantitative indicator
<i>Collaboration</i> (G1)	<i>Across domains</i> (ICA)	95.7% (66)	373 (384.4)	0
<i>Digital/data driven care</i> (G1) (ICA)		92.8% (64)	355 (366.9)	1
Corporate culture (G1)		91.3% (63)	258 (174.3)	0
Climate change mitigation (E1) (GD)		88.4% (61)	204 (157.9)	0
Equal treatment and opportunities for all (S1)	Training and skills development	88.4% (61)	179 (197.8)	0
Working conditions (S1)	Health and safety	88.4% (61)	200 (226.8)	0
Personal safety of consumers and/or end-users (S4)	Health and safety and prevention (GD/ICA)	87.0% (60)	182 (171.8)	0
Information related impacts for consumers and/or end users (S4)	Freedom of expression	85.5% (59)	263 (296.7)	0
Waste (E5) (GD)		79.7% (55)	89 (109.5)	19
Pollution of air (E2) (GD)		76.8% (53)	103 (183.9)	23
Working conditions (S1)	Work–life balance	75.4% (52)	129 (121.1)	
Energy (E1)		73.9% (51)	137 (161.2)	23
Social inclusion of consumers and/or end-users (S4)	<i>Self-determination</i>	68.1% (47)	150 (161.6)	0
Working conditions (S1)	<i>Social safety</i>	66.7% (46)	177 (177.9)	0
<i>Collaboration</i> (G1)	<i>With other hospitals</i> (ICA)	65.2% (45)	207 (258.7)	0
Working conditions (S1)	Freedom of association, the existence of works councils and the information consultation and participation rights of workers	65.2% (45)	160 (174.5)	0
Resources inflows, including resource use (E5) (GD)		63.8% (44)	69 (137.1)	9
Information-related impacts for consumers and/or end users (S4)	Privacy	56.5% (39)	144 (140.9)	0
Social inclusion of consumers and/or end-users (S4)	Access to products and services	55.1% (38)	116 (104.9)	0
<i>Fraud and integrity</i> (G1)		52.2% (36)	170 (122.8)	0
Other work-related rights (S1)	Privacy	52.2% (36)	146 (137.7)	0

(continued)

Table 3. Continued

ESRS sub-theme*	Sub-sub-theme**	% (number)***	Average number of words (sd) [†]	Number of hospitals that used a quantitative indicator
Equal treatment and opportunities for all (S1)	Measures against violence and harassment in the workplace	49.3% (34)	114 (123.5)	0
Resources outflows related to products and services (E5)		49.3% (34)	60 (68.1)	3
Protection of whistle-blowers (G1)		43.5% (30)	32 (66.0)	0
Working conditions (S1)	Collective bargaining, including rate of workers covered by collective agreements	42.0% (29)	59 (45.9)	0
Equal treatment and opportunities for all (S1)	Gender equality and equal pay for work of equal value	36.2% (25)	93 (150.8)	20
Information related impacts for consumers and/or end users (S4)	Access to (quality) information	30.4% (21)	132 (118.7)	0
Pollution of water (E2) (GD)		27.5% (19)	33 (41.9)	0
Equal treatment and opportunities for all (S1)	Diversity	26.1% (18)	161 (172.1)	2
Water consumption (E3)		18.8% (13)	14 (12.2)	9
Working conditions (S1)	Social dialogue	14.5% (10)	125 (83.9)	0
Management of relationships with suppliers including payment practices (G1)		13.0% (9)	54 (30.2)	0
Equal treatment and opportunities for all (S1)	Employment and inclusion of persons with disabilities	10.1% (7)	34 (20.9)	0
Working conditions (S1)	Secure employment	8.7% (6)	123 (133.5)	0
Social inclusion of consumers and/or end-users (S4)	Non-discrimination	5.8% (4)	24 (16.5)	0
Corruption and bribery (G1)	Prevention and detection including training	4.3% (3)	116 (91.7)	0
Working conditions (S1)	Adequate wages	4.3% (3)	65 (52.5)	0
Substances of concern (E2)		4.3% (3)	41 (13.9)	0
Corruption and bribery (G1)	Incidents	1.4% (1)	104 (0)	0
Climate change adaptation (E1)		2.9% (2)	41 (27.5)	0
Pollution of soil (E2)		1.4% (1)	18 (0)	0
Working conditions (S1)	Working time	1.4% (1)	29 (0)	0
Direct impact drivers of biodiversity loss (E4)	Others	1.4% (1)	8 (0)	0
Direct impact drivers of biodiversity loss (E4)	Climate change	1.4% (1)	1 (0)	0

Note(s): * E = environment, S = social, G = governance; ** GD = Green Deal, ICA = Integral Care Agreement; ***% (number) relates to the number of the 69 hospitals that report on a theme; [†] The average number of words is calculated by taking the total number of words used to report on a theme by all hospitals divided by 69 hospitals

Source(s): Authors' own work

is 48% of the total amount of words used for sustainability reporting. Collectively, the hospitals wrote 104.184 words on governance-related themes (36%), and the least words were used for environmental themes (46.634 words, 18% of the total).

5.3 Institutional purposes

To study the influence of institutional pressures on hospitals, we look at reporting practices on the themes that were agreed upon in the Green Deal and the Integral Care Agreement. These are agreements signed by the hospitals that have coercive and normative power since they have committed to these policies and would have to report on their progress. Signs of mimetic pressures were not observed in the annual reports. Reporting practices were specific to the hospital and not similar to reports of other organizations.

First, we look at how the themes from the agreements relate to the ESRS. The five ambitions from the Green Deal are improving health, improving knowledge on the impact of the healthcare sector on the environment and the other way around, reducing greenhouse gas emissions, reducing material use and waste and reducing the impacts of medication on the environment. ESRS themes can be related to all these ambitions. The ESRS theme health and safety relates to the first Green Deal pillar improving health. Since improving health of patients is the core business/main goal of hospitals, we extend the theme to health, safety and prevention, to distinguish when hospitals reported on improving health in a broader sense through prevention. The ESRS theme climate change mitigation can be related to the second pillar improving knowledge and awareness of the impact of the healthcare sector on the environment, since we determined that hospitals reported on the relationship between the healthcare sector and the environment, and the importance of this theme under climate change mitigation. ESRS theme pollution of air is directly related to the third pillar reducing greenhouse gas emissions. ESRS themes resource inflows and waste are directly linked to pillar 4 reducing material use and waste. ESRS theme pollution of water is related to pillar 5 the impacts of medication on the environment, since this is mainly about medication residue that pollutes the water.

Main themes from the Integral Care Agreement are appropriate care, shortages on the labor market, collaboration both in acute care and across domains, focus on health and prevention and digitalization. Again, in health, safety and prevention from the ESRS, the theme health and prevention is included. There is no explicit theme in the ESRS on shortages on the labor market, but working conditions of the own workforce, and workers in the value chain are sub-themes that much attention is given to with sub-sub-themes such as work–life balance and secure employment. The ESRS does not explicitly mention collaboration and digitalization. We found that these were very prominent themes in the annual reports of the hospitals, and they

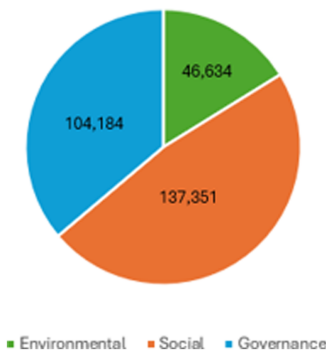


Figure 2. Number of words per ESG category. Source: Authors' own work

relate to sustainability. Therefore, we added digital/data-driven care, and collaboration between hospitals, and across domains, as themes in the framework.

The Green Deal aims to stimulate hospitals to operate sustainably and gives five sustainability pillars to focus on. From the 28 survey respondents, 22 indicated that their hospital participates in the Green Deal, with the starting year differing between 2018 and 2025. In the survey we asked about the importance of sustainability reporting. The responses to these questions on a Likert scale were translated to a score between 1 and 5 in which 1 means the respondents strongly disagree with the statement and 5 means they strongly agree. The respondents attribute a mean score of 3.9 (SD = 0.62) to the statement that sustainability reporting is an important theme in their hospital, a 3.7 (SD = 1.06) to the statement that their hospital should do more regarding sustainability reporting, and a 3.0 (SD = 1.22) to the statement that the CSRD should become applicable in the healthcare sector.

In the focus group discussions participants gave an average of 3.9 (SD = 0.85) to the statement: “The Green Deal has played an important role in our sustainability reporting practices”. Some participants seem to perceive the Green Deal as a coercive pressure as one sustainability officer stated: *“I think it is important that when you have committed to the Green Deal, well that is not without obligation, you need to report as evidence that you are seriously working on the goals and that there is progress”*. Another sustainability officer mentioned that it helped to establish sustainability as a topic: *“A few years ago sustainability was not really a topic, so especially by taking part in the Green Deal it has come alive more and the topic has grown. So it has meant a lot for us and helped to establish sustainability”*. When reflecting on the theme collaboration which is discussed elaborately in the annual reports, a member of the board of directors of a hospital immediately stated: *“Yes that is mentioned a lot, but that is because it is a theme in the Integral Care Agreement”*. About the Green Deal this participant said: *“For us it is a big stick, because we signed it and have committed so it helps to motivate everybody in the hospital to take action”*.

5.4 Accountability purposes

All functions of accountability are seen as important by stakeholders in the hospital. Participants found sustainability reporting most important for being accountable to society with an average score of 4.1 (SD = 0.91). A sustainability officer said about this: *“I think that as a hospital we have a social position and function, so we are responsible for reporting on sustainability. Especially because of the paradox that we contribute to better care, but the process contributes to deteriorating health”*. However, there were also two participants that did not completely agree with the statement: *“I think it is important to report to society, but not the most important function of reporting. I do not know if you have to report to everybody”*. The importance of reporting from the constitutional perspective was scored 3.8 (SD = 0.85). Most participants thought it was important to monitor the organization and to help start discussions in the organization. One sustainability officer mentioned: *“What I struggle with is the amount of energy you have to put into reporting. I do agree it is helpful, but how much time and energy do we have to put into it?”*. The learning perspective was also seen as moderately important by participants (mean = 3.6, SD = 0.76). They stated that there might be a difference between monitoring and reporting when they want to use information to learn from: *“I think there is a difference between monitoring and reporting, and I do not know if reporting information is used for learning and improving. I feel like monitoring is more internal and reporting is more external, and monitoring is used internally to improve”*. Another sustainability officer added: *“I do think reporting can be useful to learn from each other. You do not necessarily want to compare organizations but make sure the information is used to learn from each other”*. In this monitoring process, the participants stressed the importance of performance indicators as one sustainability officer mentioned: *“We have a working group on monitoring and we have agreed upon the importance of performance indicators because then everyone reports in the same way, which helps to compare different organizations”*.

We argued that at least 26 words are needed to use sustainability information for learning purposes. For 89% of the sub-sub-themes that are reported on at least 26 words on average were used. This means that disclosures on most of the themes can be used for learning purposes, but there is room for improvement on the other themes. The themes that seem to have too little information for learning purposes are equally distributed over E, S and G. Notably, the themes with fewer than 26 words on average are also the ones that fewer hospitals report on, so it could be possible that these are less current for hospitals and therefore do not need to be used in learning processes.

6. Discussion and conclusion

In this study, we analyzed the extent to which Dutch hospitals report on ESG aspects and the influence of institutional and accountability factors. Our findings show that hospitals report extensively on governance themes, while environmental themes relatively receive the least attention as much fewer words are used to inform about these themes. This is remarkable since the sector is a significant polluter and the Green Deal agreement focuses on environmental themes. The IPSASB also focuses on climate-related disclosures, highlighting their importance for accountability and decision making in the public sector (IPSASB, 2026). This indicates a possible misalignment between institutional priorities and reporting practices.

Comparing reported information to importance scores assigned by stakeholders in the hospital, we found that the number of hospitals that report on a theme is highly correlated with the importance score, indicating that sustainability disclosures are aligned with their perceived importance. However, certain themes such as substances of very high concern and management of relationships with suppliers are reported on less than expected. Conversely, climate change mitigation, resource outflows and information-related impacts for consumers are reported on more frequently than expected. This may indicate that hospitals prioritize themes that are easier to communicate externally. Haque and Irvine (2018) found that disclosures of Australian NGOs on their commitment to mitigate climate change were higher than their disclosures on their performance in doing so. In addition, Dolcini *et al.* (2025) found substantially more reporting on climate strategies than on measurable indicators in healthcare facilities. This is in line with our finding that hospitals report the most on “Climate change mitigation” and less on the more concrete aspects such as “Energy”, “Waste” and “Pollution”.

Considering an institutional perspective, our results show that normative and coercive pressures such as the Green Deal and the Integral Care Agreement influence reporting practices. Almost all hospitals report on collaboration and digital/data-driven care, indicating the influence of the Integral Care Agreement. Many hospitals also report on the themes from the Green Deal, with the exception of pollution of water, which only 27.5% of hospitals report on. These findings show that sustainability reporting themes are in line with institutional pressures, which was confirmed during the focus groups as participants feel like they have to comply with these agreements and report on these themes. Previous research also found that normative pressures play an important role in public universities in adopting sustainability commitments and related disclosures (Andrades *et al.*, 2025). We found that 70% of hospitals address the Green Deal in their annual report, consistent with previous research showing that organizations often emphasize commitment to sustainability codes over actual performance (Haque and Irvine, 2018).

From an accountability perspective, we found that the democratic, constitutional and learning perspective are all important motivations for reporting in that order of importance. While most hospitals provide enough information suitable for learning purposes on most themes, the use of quantitative indicators is minimal even though these are considered important to compare organizations and track progress by stakeholders in the hospital. This is in line with the IPSASB (2026) which emphasizes the importance of metrics to track progress in sustainability. This lack of the use of indicators could be because relevant metrics and underlying data still need to be developed and standardized. Respondents stated they have

working groups on monitoring sustainability but this is still in the early stages. The limited use of indicators suggests that hospitals are missing an important device that they could use in learning, benchmarking and steering on the realization of their sustainability strategy, reflecting broader challenges in the public sector to operationalize sustainability commitments into measurable outcomes (Messmann *et al.*, 2024; Haque and Irvine, 2018).

There are some limitations to this study. The annual reports of 2022 were analyzed, and hospitals might have taken steps in sustainability reporting since then, so it would be interesting to repeat this analysis on later years and see if attention for certain themes has changed. Hospitals could also report on sustainability in documents other than their annual reports. However, the CSRD emphasizes integration in the annual report, which is why we chose to only include those. Document analysis introduces potential subjectivity. However, reports were independently coded by two researchers using the ESRS framework and discussed to reach consensus which increases reliability. The ESRS were chosen as an analytical framework, but these standards became a topic of discussion and the Omnibus regulation reduced the CSRD. In our survey 61% of respondents attributed a score of 3 or higher to the statement that the CSRD should become applicable in the healthcare sector (mean = 3; SD = 1.22). This indicates it is still seen as relatively suitable, but with some variation in responses which shows that there is no consensus yet on these standards. In addition, the importance analysis was conducted through a survey in which response bias could have occurred if respondents that took the survey especially value sustainability. There was a limited number of respondents for our survey ($N = 28$) and focus groups ($N = 18$), notwithstanding that there are 69 hospital organizations in total and the responses were additional data in our mixed-methods approach. Finally, we used a rule of thumb of 26 words to determine if information was suitable for learning purposes. Future research can give more insight into when sustainability information can be used for learning purposes.

Our research raises some calls for future research. Both CSRD and IPSASB standards stimulate the use of quantitative indicators, targets and metrics. Our research shows that in practice only a few hospitals use quantitative data to inform on sustainability. Future research on the benefits and feasibility of using performance indicators for sustainability reporting by hospitals is recommended. In addition, research could look further into the learning perspective of sustainability information and whether these reports are actually used for this purpose.

Some practical recommendations follow from our research. First, we recommend hospitals to use a learning perspective in their sustainability reporting. They can improve the use of quantitative indicators, but should be aware of the usefulness of indicators. The possibility to learn from indicators and their relationship with strategy should be kept in mind so that indicators do not become a formality (Argento *et al.*, 2025). Currently, reporting to society and monitoring for learning purposes are seen as separate practices in the hospital while these could be integrated. Consequently, reviewing whether current sustainability information can be used for learning purposes could help to make improvements in the reports. ESG disclosures should be extensive enough to be able to use this information for learning purposes. Second, we recommend hospitals to jointly perform a materiality analysis which can help them determine on what themes improvements in reporting are necessary. Our analysis showed that some themes score high on importance, but not many hospitals currently report on them. This shows that more reporting on certain themes might be necessary. We suggest stakeholder engagement through the Green Deal and Integral Care Agreement networks for doing a materiality analysis, hereby collectively determining a way forward. Including and engaging with stakeholders regarding sustainability reporting is crucial, especially in the public sector (Lodhia, 2025). Finally, we found that institutional pressures from the Green Deal and Integral Care Agreement are important to stakeholders in the hospital and relate to reported themes, while these agreements now only serve as guidelines. We urge policy-makers to use the power of these agreements to take sustainability reporting in hospitals further, for example by

Supplementary material

The supplementary material for this article can be found online.

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