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Evaluating organisational implementation of patient and public involvement and engagement in research: lessons from a four-year hospital-wide strategy

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Evaluating organisational implementation of patient and public involvement and engagement in research: lessons from a four-year hospital-wide strategy

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The authors would like to dedicate this article to former director at Odense University Hospital and professor at the Clinical Institute at University of Southern Denmark Kim Brixen. He was truly a pioneer in driving the patient's voice and perspective in all aspects of the health care system and especially locally as the initiator of patient involvement at the hospital. He passed away suddenly in late 2024 before the results of this article were known. Blessed be his memory.

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Evaluating organisational implementation of patient and public involvement and engagement in research: lessons from a four-year hospital-wide strategy

Abstract

Background: Patient and public involvement and engagement (PPIE) is increasingly promoted as a marker of high-quality health research. Although many research organisations have adopted institutional strategies to stimulate PPIE, little evidence exists on how such strategies influence research practice over time and how their impact should be evaluated.

Objective: To evaluate the implementation of a hospital-wide PPIE strategy and to explore what four years of monitoring can reveal about organisational change and the challenges of evaluating institutional PPIE initiatives.

Methods: Annual surveys were distributed to research leaders across approximately 50 research units at a Danish university hospital between 2021 and 2024. Survey data included closed-response indicators of PPIE activities and open-ended questions about experiences, barriers and perceived value. Descriptive statistical analyses and qualitative content analysis were conducted.

Results: Substantial organisational infrastructure was established, including a dedicated centre for user involvement, institutional support activities and ongoing monitoring. However, activity-based indicators of PPIE remained largely stable across the study period. Involvement continued to be concentrated in early phases of research and strategic targets were only partially achieved. In contrast, qualitative responses suggested evolving understandings of PPIE, increasing specificity in collaboration practices and growing recognition of the value of patient involvement. These findings indicate that organisational adaptation may occur before measurable changes become visible through conventional indicators.

Conclusions: Four years of institutional investment in PPIE resulted in organisational infrastructure and indications of learning but limited measurable change in reported activities. The findings suggest that

evaluations of organisational PPIE strategies should move beyond activity counts and consider whether existing evaluation approaches adequately capture processes of learning, adaptation and culture change.

Plain English Summary

Involving patients and the public in health research can help make research more relevant to the people it ultimately should benefit. Many hospitals and research organizations have introduced strategies to encourage this involvement, but we don't know much about whether these strategies work or how they change research practices over time on an institutional level.

This study examined the introduction of a Danish university hospital strategy to involve patients and relatives in all parts of research. Between 2021 and 2024, research leaders from approximately 50 research units completed annual surveys about their involvement activities, experiences and challenges.

During these four years, the hospital established new support structures and initiatives to encourage involvement activities. However, the number and types of involvement activities remained largely unchanged, and patients and relatives were mainly involved in the early stages of research, as suggested in the strategy itself.

At the same time, researchers' written responses suggested that they were gradually learning how to work with patients and relatives, trying different approaches and developing a better understanding of possibilities and contributions. This important finding suggests that introducing involvement across an organization takes time. Changes in researchers' understanding and everyday practices may occur before increases in involvement activities become visible.

For hospitals and policymakers, this means that evaluating patient involvement should not focus only on number of activities. It should also examine how researchers learn, adapt their practices and develop ways of working with patients and relatives.

Keywords: *Patient and Public Involvement and Engagement, research strategy, evaluation, culture change, research organisation*

Background

Over the past two decades, the inclusion of patients and the public in health research has become a normative expectation across many health systems and health research funders (1). The literature frequently highlights a range of positive impacts of patient and public involvement and engagement (PPIE), including improved research relevance, enhanced recruitment, and greater ethical accountability (2, 3). However, despite these reported benefits, the integration of PPIE into the everyday practice of medical research remains difficult, particularly within hospital-based academic research environments (4, 5). While much of the existing literature reports on specific case studies or individual projects demonstrating the value of PPIE, far less is known about how to achieve a system-wide, transformative overhaul that results in a research culture where collaborative research practices become business as usual instead of stand-alone initiatives (6, 7). Policy incentives, especially those initiated at institutional or national levels, have been identified as potential leverage for promoting such cultural transformation, yet evaluations of these approaches remain scarce (8).

In this article, we report on the process of implementation, adoption, and early outcomes of a hospital-wide policy introduced at a major university hospital in Denmark to increase the involvement of patients and publics in health research. The aim was not only to encourage PPIE, but also to normalize and institutionalize these practices across a variety of research departments. The policy implementation was monitored with annual surveys distributed to all research units, reporting whether and how they had involved patients and publics in their projects.

By reflecting on the implementation process and analysing four years of reported data (2021-2024) from approx. 50 heads of research, we offer insights into both the uptake and character of PPIE across the hospital and explore the challenges and enablers of shifting research culture from within. In doing so, this study contributes new evidence to ongoing debates about how to make PPIE a structural, rather than sporadic, element of medical research.

Methods

We report on the introduction, execution and monitoring of a research strategy at Odense University Hospital – Svendborg Hospital (OUH) and the Department of Clinical Research, University of Southern Denmark (SDU). OUH is the largest of five hospitals in the region of Southern Denmark with around 800 beds and 1 million patient contacts annually (9). At OUH, PPIE was mentioned as a point of attention in the 2016-2020 OUH-SDU research strategy, whilst the 2021-2025 OUH-SDU research strategy positioned PPIE as one of the five strategic pillars (10). The strategy was ambitious, calling on staff "to actively involve patients and relatives in all parts of the research process" (pg. 5). The research strategy was developed by a diverse working group with several patient and relatives' representatives. After publication of the strategy in early 2021, five strategic working groups were established – one for each strategic pillar in the strategy.

Roll-out of the strategy

The five working groups planned and initiated necessary steps to reach the pre-established targets for each goal in the research strategy. The key goals for PPIE were: "the establishment of a centre for patient and relative involvement in research" and "the proportion of research projects in which patients and relatives are actively involved is calculated, made visible, and increased significantly in all research units during the strategy period" (10). Members of the working group (7 representatives from various research departments at OUH (including authors AJ, AWK, MBA) and two patient representatives (authors AKS, AFO) met bimonthly from mid-2021 until the end of 2025, when the strategy expired. The working group for PPIE developed an action plan for the implementation of the strategic aims and the initiation of the planned actions (see Table 1 for an overview of activities at the OUH and Table 2 for actions and final status of the strategic working group). Not all actions were made public to the research units but served as an internal action plan for the working group. One action was to give input to the annual PPIE surveys presented in this article, and therefore the questions partially reflect the actions of the working group. The group also created a survey for patient and relative representatives connected to research units at the hospital.

Data and analysis

Several types of data are included in this analysis of implementation of the strategic PPIE requirement. Annual surveys and documents such as meeting agendas, minutes and action charts from a strategic working group (established to support the implementation of all strategic goals) form the data basis for this study's analysis of implementation of PPIE.

Between 2021 and 2024, surveys were distributed annually via the OUH management and were mandatory for heads of research to complete. Answers were a mix of dropdown menus including closed yes/no options, Likert-scale options and open answer options to elaborate on certain topics - all centred around PPIE activities and impact in individual research units. The survey questions differed slightly from year to year following feedback from staff and changes in the set actions for the PPIE strategic goal. The goal 'increasing PPIE activities' was specified in the latter two years of the survey: All units must start at least one project with active PPIE annually and have representatives in their research councils.

All data was entered into IBM SPSS Statistics version 28 for descriptive statistical analysis and Excel was used for organizing the qualitative descriptive analysis of open-ended questions. No a priori theoretical analytical approach was used. Survey questions are available in additional file 1.

Research ethics and reporting

The project adheres to the SQuIRE framework (11) for reporting new knowledge about how to improve healthcare, and to GRIPP2 reporting checklist for patient and public involvement (12) – see additional file 2. The two patient and relative representatives in the strategic advisory group were invited to take part in the research analysis and scope of the article and were given access to all anonymized data.

Ethics: The project is registered on the record of research data in Region of Southern Denmark, (Acadre n. 24/50552). Research leaders all gave informed consent to analyze and report on the data; complying with Danish GDPR law. Data are securely stored in OPEN Patient Data Explorative Network available to researchers in the Region of Southern Denmark (13).

Results

Meeting predetermined targets

January 2022, the Center for Research in Partnership with Patients and Relatives (in Danish, Center for Forskning med Patienter og Pårørende (ForSa-P), currently known as the Centre for User Involvement in Research (CBF), was established, supported by a five-year financial investment of the hospital. The research center embodied co-productive values: 1) patients and relatives had an integral role in the center, with the center initially being headed by an academic and patient lead; and 2) all types of knowledge are valued, used and produced (14). With the launch of the center, the first aim of the strategy was achieved. The center's aim was to support patients, relatives, and researchers in working together throughout the research cycle. The center's head of research (AJ) had extensive experience in PPIE in health research from working in different research environments abroad. The center's initial activities included: setting up a database for interested patients and relatives, conducting information meetings about PPIE and research for patients, relatives, and researchers, advice and support PPIE in individual research projects, and research of PPIE processes.

Table 1: Timeline and overview of major strategic PPIE activities at OUH

YEAR	ACTIVITIES FACING PATIENTS, RELATIVES AND RESEARCHERS
2016	• PPI mentioned as a focus point in the 2016-2020 Research Strategy
2018	• Inspirational trip for OUH management to the UK to learn about PPIE • Patients and relatives invited to join several strategic boards at the hospital (i.e. the research council, the PhD council etc.)
2020	• AJ, three patient and relatives representatives and a member of the management support staff, had three meetings to work with early drafts of the research strategy. • Launch of OUH-SDU 2021-2025 research strategy; PPIE is the first goal
2021	• The creation of a Code of Conduct for PPIE with patients, relatives and researchers (funded by OUH) (Karlsson et al., 2022) • Commission of the strategic working group • Co-financing 3 PhD studies on PPIE with the University of Southern Denmark (one complete, one ongoing and one expected to be commenced in 2026) • Establishment of Centre for Research with Patients and Relatives (launch Jan' 22) • PPIE becomes the first goal in the new Research Strategy (2021-2025)
2022	• Five speed dates events (loosely based on LEAN tools) attended by six to eight departments and a fixed reflection team (OUH management, experts in PPIE, and patients) for cross-functional dialogue and rapid shared learning • PPIE theme for annual research week at OUH
2023	• Hospital theme day on PPIE in research (both researchers and patients/relatives participated)
2024	• Workshops with patients and relatives for generating research ideas (19 patients/relatives) • ForSa-P merges with the existing regional research support unit OPEN • National conference on PPIE hosted by OUH and the University of Southern Denmark (127 researchers/ decision makers/ stakeholders and 30 patients/relatives participated)
2025	• Initiation of a yearly new year's event inviting patients and relatives to comment on future plans for ForSa-P (19 patients/relatives participated) • Creation of the 2026-2030 research strategy with representation from researchers, patients and relatives.

Survey results

Between 47 and 50 research leaders responded annually (variation reflecting changes in the number of research units). Unit size ranged from fewer than five to more than 25 researchers, with an average of 11–15 researchers.

In each survey year, between 38 and 44% of units reported having affiliated patient or relative representatives. A non-significant positive association with unit size was observed, as units with more than 11 researchers were more likely to report regular representation (avg 60%) compared with smaller units (avg 37%).

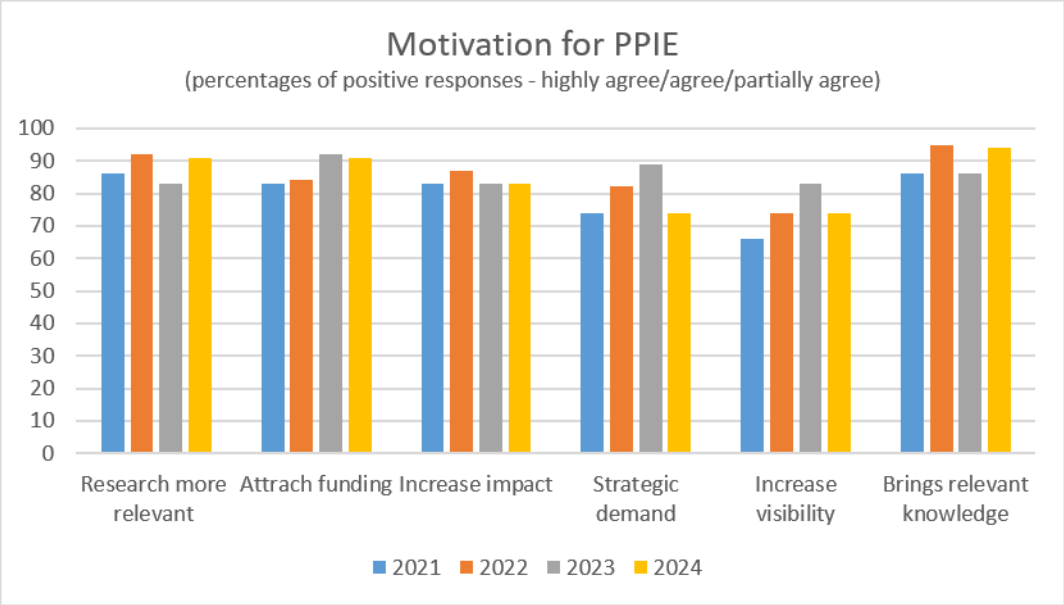
Open-ended responses illustrated changes in research leaders' descriptions of PPIE arrangements over time. In the first two years (2021–2022), several units reported that initiatives such as councils and advisory groups were still being developed (e.g. "User council under construction" and "As of our next research meeting, we will have representatives") hinting that research units had to start from scratch. Responses showed that there were different interpretations of patient involvement as they described work with PRO data and multidisciplinary conferences as examples of PPIE, despite the absence of direct collaboration with patients or relatives as stated in the OUH strategy.

In contrast, responses from 2023 and 2024 demonstrated more concrete and differentiated descriptions of different forms of collaboration. Examples included statements such as "We have a catalogue of patient and relative representatives whom we can contact" and "We have a citizen representative and a relative representative involved in a specific project. They are part of the project group and are equally involved in making decisions about the project as the researchers." Some units also reported pragmatic solutions to challenges of finding patients and relatives. For example, one department without direct patient contact reported collaborating with another clinical department to access their patient representatives when needed.

Motivation to work with representatives

The survey asked about motivating factors for and perceived benefits of PPIE via multiple choice. Averages of 84% responded positively (highly agree/agree/partially agree) it would increase impact, 88% that it made research more relevant for patients and helped to attract funding, and 90 % believed it brought relevant knowledge into the research process. 74% believed that collaboration would help their research become more visible (see figure 1). These positive motivations where not enough for researchers to start on their own however, as 80% agreed that they started collaborations with patients and relatives because it was a strategic goal.

Figure 1: Motivation for PPIE



Open text answers described additional motivations for involvement: *"We have a moral obligation to allow those whose lives we affect to participate in our research activities,"* and *"assistance in solving specific tasks*." Over the years between 22,5-25,5 % of research leaders did not answer survey questions about motivation and overall impact; these data have been excluded to avoid skewing of results.

Finding representatives

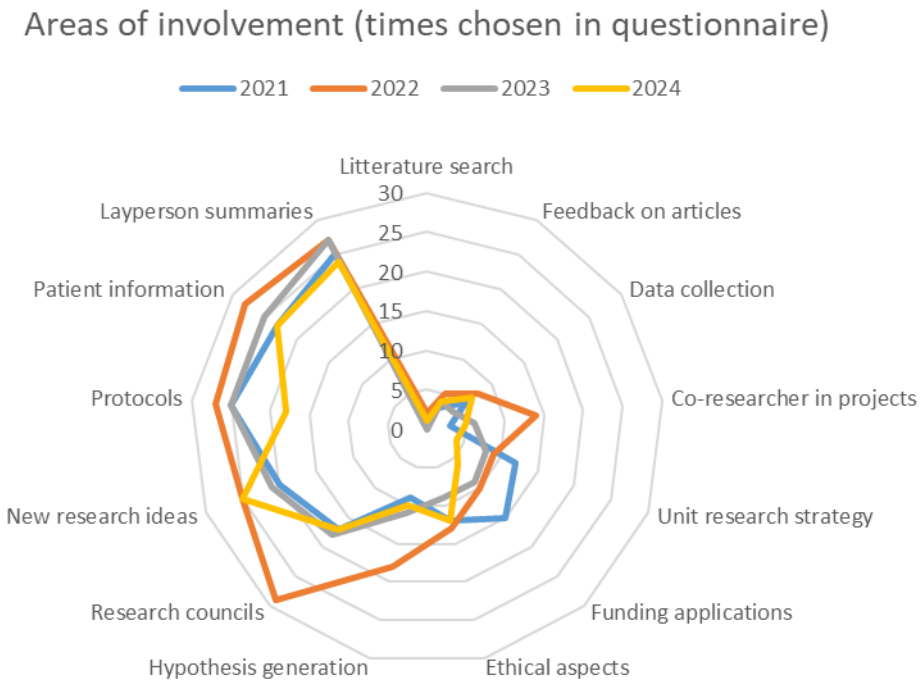
The preferred method for finding patients to collaborate with was via patients connected to the unit's clinical department (32-43%), via announcements in the department (13-17%), through relevant patient's associations (9-20%), inviting representatives from other projects (9-14%) and open-ended answers also showed connecting via social media (Facebook and LinkedIn). There was no significant change or pattern in preferred recruitment methods over the years.

Areas of involvement

The most common research phases to collaborate with representatives were reported as: development of the project description (10-13%), discussing new research ideas (11-14%), production of participant information and development of lay persons summaries (12-14%), and participation in unit councils (8-10%). PPIE was infrequently reported in literature searching (0-1%), reading and providing feedback on

articles (2%), funding applications, and data collection (2-4%) (see Figure 2). No significant change or trend was seen over the years.

Figure 2 Areas of involvement chosen (multiple answers allowed)



Barriers

Patients' and research units' know-how of PPIE and resources spent were most often reported as barriers, whilst most respondents experienced no or few barriers throughout the years with only small variations in numbers. The most pronounced change was in relation to recruitment barriers which increased from 23 % in 2021 to 38 % reporting more or several barriers in 2024 and indicates that recruitment of representatives is increasingly perceived as a challenge.

In open-ended answers respondents reported other barriers that those stated in the multiple-choice section: lack of time (for both researchers and representatives), commitment over time, and guaranteeing representativeness (rather than one voice).

Value of PPIE

Respondents were given two suggested positive effects of PPIE and both increased during the period. Agreement that involvement contributed positively to research increased from 83 % (2021) to 94% (2024). Perceptions of PPIE as a source of new ideas and input to research projects increased from 57% in 2021 to 76% in 2024.

Open-ended responses mentioned other perceived effects of PPIE, including contributions to dissemination strategies, improved use of accessible and inclusive language, and challenges to researchers' assumptions. Respondents also reported changes to established research routines and described shifts in how they approached research questions and communication: "It *shifts our way of thinking as researchers*".

Despite generally positive evaluations, some respondents expressed uncertainty about the tangible impact of PPIE, particularly in earlier survey years. In 2021, one respondent noted that "*in very few projects [the representatives] have actually made a difference to the project, for example in which outcomes the project measures."* Similarly, in 2023, a respondent stated that *"we need evidence on what user involvement is useful for*." These responses indicate continued ambivalence among some research leaders regarding the added value of PPIE.

Other respondents shared more reflected impacts of involvement with one research leader describing how involving patients and relatives required research questions and procedures to be formulated in lay language, thereby clarifying research processes and broadening perspectives: "*the patients have a different take on the research questions than the researchers and therefore the research questions become more well-rounded".*

Several responses also reflected a shift from strategy-driven collaboration towards experiencing PPIE being valuable in itself. In 2023, one research leader reported that *"we definitely started with having a representative because it was part of the research strategy, but we have had such benefit from working with the person… they ask really good questions which make us clearer in our messages and results."* In 2024, another respondent highlighted an educative effect on researchers, particularly junior staff: *"to be*

able to relate their research to actual people and hear what they think and how they experience the research… gives us all a lot to think about."

Discussion

Across the four-year period, research leaders shared positive attitudes towards PPIE. No substantial changes were observed in reported PPIE activities, areas of involvement, or stated motivations. However, open-ended responses revealed increasingly detailed accounts of learning, experimentation, and iterative adjustments to PPIE practices over time. Progress was reflected more in the depth and specificity of PPIE practices than in the volume of activities.

From policy to practice – measuring change

If only taking numerical results into account, minimal actions were taken to live up to the strategy; mainly limited to protocol input, idea development, and patient-facing materials (all mentioned as examples of PPIE in the strategy document). Eighty percent of research leaders indicated that there was a strong strategic motivation behind their efforts show the potential of a strategic focus. As another article in the same setting quoted: *"There are many things, we have to live up to as researchers, this does not have the highest priority"* (4). Majid et al. (15) identified five prerequisites for successful implementation of hospital PPIE strategies: communication of goals, alignment between strategic documents and organisational processes, provision of resources, availability of support structures, and staff motivation. In the present context, both the strategic demand, availability of support structures and activities (Tables 1 and 2), and communication of goals have been present. Alignment between strategic documents (as there was five goals competing for attention), provision of resources (no funding or seeding money were provided), and motivation of staff may have been hindering factors (4). Motivation of staff could be related to incentives such as; tenure/promotion criteria (value and acknowledge this new skill & approach to research); grant requirements (financial support); role models & leadership (in addition to one general manager of the hospital); training and education (of new generation of academics) (16).

Our qualitative results hint at changes, as input changed from basic comments to reflective statements of trial, errors, and learnings. One researcher shared that it changed the way researchers think. That is a significant but unmeasurabel impact. The question remains whether forms of change (such as learning, negotiation, and reorientation of practice) can – or should – be captured using the kinds of outcome indicators typically used. At the same time, it illustrates a broader tension in PPIE evaluation between instrumental outputs (e.g., number of projects or representatives) and process-oriented dimensions (e.g., learning, reflexivity, and changing researcher attitudes).

Expectations regarding the pace of organisational change may be unrealistic

The findings raise questions about what institutions should reasonably expect from four years of strategic investment. Building infrastructure appears achievable within such a timeframe. Changing routine research practices may require substantially longer periods, particularly when new expectations are introduced without corresponding changes in incentives, funding requirements, promotion criteria or professional norms. Mogensen et al., 2025 describe in their review a ripple effect where initial activities lead to new ones, and that learnings were incorporated and led to new initiatives within the organizations (17). We did not see this effect in our measures, nor did the questions pertain to wider organisational impact, but from later interactions in the CBF support function, we do see that researchers are developing a language for PPIE and a naturality for considering it in their projects. Mogensen et al.'s work further develop a culture change measuring tool, arguing that culture change should be evaluated via user socialization procceses (partners and researchers negotiate accepted ways of thinking, behaving and speaking), organisational commitment (embeddedness of PPIE in structural and procedural processes), and regulatory assumptions (broader societal and institutional assumptions and perceptions of PPIE) which all dynamically interact with each other and develop over time. In our case, organisational processes started the process by OUH initiating several actitivties to support its new strategy; opening a center for pratical and administrative support, working groups; monitoring; several events with focus on PPIE. These initiatives strengthened the organisational capacity for PPIE by providing guidance, infrastructure, and visibility as have been noted to

be of importance by others (18), yet they did not lead to a marked increase in reported PPIE activities at unit level. See table 2 for a status for the planned organisational structures and processes.

PPIE was new at OUH when the strategy was launched, and in Denmark in general, which meant less external factors. When introducing PPIE as a new concept and new organisation of research in a institution and setting which tend to have strong methodological traditions - it can be challenging (7). Therefore, our study highlight that organisational commitment alone and even personal agency may be insufficient for changing research practice and culture. This aligns with existing debates on the role of strategic mandates in initiating or sustaining PPIE (19-21) and how setting and (national) context influence researchers' motivation (19, 22). Mogensen et al. agree and argue that these regulatory assumptions are dynamic parts in integrating PPIE in research cultures (17) and this may have not been a motivating factor in our setting.

Table 2: Status of implementation of strategic PPIE activities at OUH

Domain	Objective	Observed implementation (2021–2025)
Infrastructure	Establish a centre to support and coordinate PPIE.	The Centre for User Involvement in Research and a strategic working group were successfully established, providing organisational and practical support, coordination, and visibility for PPIE activities.
Communication and dissemination	Disseminate research results to patients and relatives via multiple platforms.	Reported as an outcome of PPIE activities in qualitative responses, particularly through improved attention to communication and outreach, though not systematically measured.
	Develop lay summaries of scientific results.	Briefly described in open-ended responses as part of practice development, with increased attention to accessible language, but only found infrequently on unit websites.
Research processes	Involve patients and relatives throughout the research process.	PPIE remained primarily concentrated in early research phases (e.g. idea development, protocol input), with limited evidence of sustained involvement across later stages.
Research funding	Integrate PPIE into funding applications across all research units.	PPIE mentioned in protocol development and in 2024, 70% of units reported initiating projects with PPIE, but it is unknown if PPIE were stated in the funding applications.
Visibility	Ensure visibility of projects involving patients and relatives.	The annual survey results and working group activities increased visibility of PPIE at OUH, but individual units did not publicly display activities, nor was a communal platform established.

An important lesson from this evaluation is that the absence of measurable growth in PPIE activities does not necessarily imply the absence of change. The findings suggest that implementation processes may initially manifest through experimentation, learning and adaptation rather than through immediate behavioural change. We also suggest that PPIE implementation is dynamic on several interacting levels and require long term commitment – both from organization, people, and regulatory maturation. Future evaluations should therefore distinguish between infrastructure development, behavioural outcomes and longer-term cultural transformation.

Strengths and limitations

Organisational-level evaluations of PPIE initiatives remain limited (23), and combining repeated surveys with qualitative responses enabled examination of both reported activities and changing understandings of PPIE among research leaders.

Several limitations should be noted. First, the absence of baseline data limits interpretation of change due to the introduction of the PPIE strategy. However, Danish research indicates that systematic PPIE was limited before national and institutional strategies were introduced (24).

Second, because adherence to the strategy was mandated and responses not anonymous to hospital management, positive reporting bias is possible. Non-responses or “not applicable” answers to questions regarding motivation and impact (22.5–25%) could indicate such bias.

Third, modifications to the survey instrument over time reduced strict comparability across years, although these reflected evolving organisational priorities and experience with PPIE.

Fourth, survey results reflect research leaders’ perspectives and may underestimate PPIE activities at project level, particularly where responsibility rested with individual researchers (4).

Finally, all authors have current affiliations with OUH. While this enabled in-depth contextual understanding, it carries a risk of interpretive bias which we have tried to mitigate by mutual reflexion throughout the process of developing this article.

Conclusions

This evaluation found limited evidence that a hospital-wide PPIE strategy led to measurable increases in involvement activities over a four-year period. However, substantial organisational infrastructure was established and respondents described processes of learning, experimentation and adaptation. The study highlights a broader challenge facing healthcare organisations: while institutional strategies can be implemented relatively quickly, their impact on research culture and routine practice is considerably harder to demonstrate. Others suggest that measuring a change on culture and activities are dynamic and connected to both people's interactions, organisational processes and societal attitudes towards PPIE. Future evaluations should develop approaches capable of capturing intermediate forms of change, including shifts in attitudes, legitimacy, learning and organisational readiness as well as taking broader societal and regulatory effects into account.

List of abbreviations (alphabetical)

CBF: Center for Brugerinvolvering I Forskning (Center for User Involvement in Research – the current name for the support center for involvement at OUH, name changed in Nov 2025)

ForSa-P: Center for Forskning Sammen med Patienter og Pårørende (Center for Research with Patients and Relatives - the initial Danish name for the support center for involvement at OUH established in Jan 2022)

GRIPP2: Guidance for Reporting Involvement of Patients and the Public – short form

OUH: Odense University Hospital

PPIE: Patient and Public Involvement and Engagement

SDU: University of Southern Denmark

Declarations

Consent for publication:

All survey respondents have given their written consent for anonymized publication of the survey results

Availability of data and materials:

The datasets generated and/or analysed during the current study are not publicly available due to a compromise of individual privacy of respondents but are available from the corresponding author on reasonable request.

Competing interests:

All authors report on the relationship with Odense University Hospital where this study took place. All authors are employed at Odense University Hospital or are patient representatives at the hospital. The hospital has had no influence or say on the contents of this article, it is not commissioned by the hospital, nor have any other hospital employees read the article draft before submission. The article's basis, conception and development are solely the interest of the authors.

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Authors' contributions:

All authors conceptualized the study including methodology. AWK, MA, KWN and LBB conducted the data collection and data curation. AWK, KWN, AFO and LBB conducted formal data analysis with contributions from AKS, ASN, and AJ. AWK, KWN and AJ drafted this article. ASN, AJ, AKS and AFO provided supervision. All authors have contributed to critical revision of the manuscript and have seen and approved the final version.

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