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Institutional use of National Clinical Audits by healthcare providers

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Abstract

Rationale, aims, and objectives: Healthcare systems worldwide devote significant resources towards collecting data to support care quality assurance and improvement. In the United Kingdom, National Clinical Audits are intended to contribute to these objectives by providing public reports of data on healthcare treatment and outcomes, but their potential for quality improvement in particular is not realized fully among healthcare providers. Here, we aim to explore this outcome from the perspective of hospital boards and their quality committees: an under-studied area, given the emphasis in previous research on the audits' use by clinical teams.

Methods: We carried out semi-structured, qualitative interviews with 54 staff in different clinical and management settings in five English National Health Service hospitals about their use of NCA data, and the circumstances that supported or constrained such use. We used Framework Analysis to identify themes within their responses.

Results: We found that members and officers of hospitals' governing bodies perceived an imbalance between the benefits to their institutions from National Clinical Audits and the substantial resources consumed by participating in them. This led some to question the audits' legitimacy, which could limit scope for improvements based on audit data, proposed by clinical teams.

Conclusions: Measures to enhance the audits' perceived legitimacy could help address these limitations. These include audit suppliers moving from an emphasis on cumulative, retrospective reports to real-time reporting, clearly presenting the "headline" outcomes important to institutional bodies and staff. Measures may also include further negotiation between hospitals, suppliers and their commissioners about the nature and volume of data the latter are expected to collect; wider use by hospitals of routine clinical data to populate audit data fields; and further development of interactive digital technologies to help staff explore and report audit data in meaningful ways.

KEYWORDS

clinical audit, clinical governance, clinical safety, health services research

1 | INTRODUCTION

Healthcare systems worldwide devote significant resources towards collecting data to support care quality assurance (QA) and improvement (QI). Mechanisms include disease and device registries, such as the National Cardiovascular Data Registry's ACTION Registry-Get With The Guidelines in the United States, which provides hospitals with detailed data to improve care for patients with acute myocardial infarction,[1] and national and regional benchmarking systems, like Hospital Compare in the United States,[2] which provides hospital ratings based on measures such as mortality, safety of care and patient experience. In the United Kingdom, healthcare providers within the National Health Service (NHS) participate in over 50 National Clinical Audits (NCAs). NCAs were first established in the 1990s by organizations such as professional bodies and healthcare charities, to minimize variation in the quality of care and promote improvement. They carry out these functions by providing national, public reports of data about patient treatments and outcomes in distinct clinical specialities or conditions. The Myocardial Ischaemia National Audit Project (MINAP), for example, was established in 1998 to enable hospitals to assess and improve their performance in meeting the requirements of the National Service Framework for Coronary Heart Disease.[3] More recently, the NHS contracted an independent charity, the Healthcare Quality Improvement Partnership (HQIP), to commission and manage a number of audits - currently 30 - through the National Clinical Audit and Patient Outcomes Programme (NCAPOP). Hospitals' participation in NCAPOP audits is a condition of the NHS Standard Contract. Whilst the NHS, HQIP and suppliers attempt to ensure that NCAs represent value for money and that only essential audits with the potential for significant impact are undertaken (by, for example, suppliers consulting with clinical advisory groups), NCAs nevertheless consume many resources.[4] Hospitals not only pay a proportion of NCAPOP running costs, but must also meet the substantial costs to themselves of participating in the audits (associated, for example, with data entry and validation) from within their existing budgets.

NCAs, then, are designed to facilitate measurement of care quality to support both QA and QI. As others have noted,[5,6] there are important differences between these processes. Quality assurance involves the use of quality monitoring and reporting, informed by national standards, guidelines and targets, to ensure that minimum standards are met and poor performance is addressed. Thus, it focuses on providing reassurance about current care quality. By contrast, QI involves the use of systematic methods and tools to improve outcomes for patients continuously. Here, data are used to identify areas for improvement and inform how care could be improved. Whilst there is evidence for both QA and QI associated with NCAs and other such systems worldwide,[7-11] there are reports of variation in how hospitals engage with them, particularly for QI, and consequently their potential to support systematic improvement in patient care and safety is not realized.[4,12-14]

Against this background, this paper suggests ways in which national audit data might be used more fully, focusing on their use for QI by the bodies and staff that govern hospitals, and the consequences for clinical users. Given the focus on clinical teams in previous research, this perspective is not well understood, despite the significance of senior managerial and board involvement in QI, identified in key reports such as that of the Francis Inquiry.[15]

2 | METHODS

2.1 | Study design

The data in this paper were collected as part of a wider qualitative study that explored how and for what purpose NCAs are used across hospitals, to inform the development of a web-based, interactive NCA quality dashboard. The study involved carrying out semi-structured interviews with participants, and the use of Framework Analysis[16] to identify themes within their responses. Here, we focus on use of NCA data by members and supporting officers of hospital boards and their quality committees (who, owing to the institution-wide nature of their roles, are referred to as *institutional staff*); what factors constrain such use; and consequent effects on QI. This involves examining relationships between institutional and clinical data users.

2.2 | Sample

Our sampling strategy aimed to capture variation in hospitals, NCAs and user groups. Data were collected across five English NHS

TABLE 1 Participant roles

Institutional and managerial roles	Number
Hospital board/quality committee members	5
Institutional quality managers	3
Institutional information managers	3
Divisional and departmental managers	5
Total	16
Clinical Team Roles	
Doctors	13
Nurses	15
Non-clinical support staff	4
Total	32
Others	6
Grand Total	54

hospitals, including three large teaching hospitals and two smaller district general hospitals. Many of the staff we interviewed (especially institutional staff) worked with multiple NCAs, but to obtain a more detailed picture of audit use, we focused on two NCAPOP audits: MINAP and the Paediatric Intensive Care Audit Network (PICANet), which are delivered by different suppliers, involve different clinical specialities and professional groups, and incorporate multiple measures. To extend our understanding of NCAs with different characteristics, we also explored use of independently-funded audits such as the National Audit of Cardiac Rehabilitation (NACR), and audits that provide individual operator feedback, like the audits of the British Association of Urological Surgeons (BAUS).

Using purposive and snowball methods, we recruited 54 participants across institutional areas and clinical units within the hospitals (see Table 1). We started by interviewing lead NCA contacts, often senior clinicians, and asked them to identify others involved with the audits, including 32 clinicians and 16 managers (11 of whom who worked institutionally as members or supporting officers of hospital boards and their quality sub-committees).

2.3 | Data collection and analysis

Semi-structured qualitative interviews took place with participants between November 30, 2017 and June 6, 2018, using a schedule developed by the research team. The schedule was reviewed by the study Lay Advisory Group and revised, in light of their feedback, to ensure that the interviews covered topics relevant to patients. The interviews were carried out by NA, LM and RR, and ranged from 33 to 89 minutes, with a median length of 57 minutes. They included a discussion of participants' backgrounds and roles, their use of NCA data, and the circumstances that supported or constrained such use. Audio-recordings of the interviews were transcribed verbatim and anonymised.

Interview data were analysed using Framework Analysis,[16] an approach developed for use with qualitative data in applied policy research, which involves familiarizing oneself with the data through repeated reading of transcripts, before developing a thematic framework and indexing. Our thematic framework was developed by the research team, who agreed initial codes for indexing the data and then indexed five transcripts to test the applicability of codes and assess agreement. Codes were refined and definitions clarified where there was variation, and refined codes were applied to all transcripts, using *NVivo 11*. Subsequently, themes were mapped and interpreted: a process that enabled practice to be examined within and across cases, and convergence and divergence in participants' responses to be identified and explored.

2.4 | Ethics

The University of Leeds School of Healthcare Research Ethics Committee gave ethical approval for the study (approval number: HREC16-044). All participants received an information sheet explaining the study's aims, how their input would be used and confidentiality assured, to which they gave their written, informed consent. Where face-to-face interviews could not be arranged and telephone interviews took place instead, verbal consent was recorded.

3 | FINDINGS

3.1 | How NCA data are used institutionally in hospitals

English NHS hospitals are governed by boards, which have a remit to build public and stakeholder confidence in the quality, safety, responsiveness and value of the healthcare they provide.[17] In all five hospitals in the study they discharged this responsibility by monitoring a wide range of performance metrics associated with local and national agendas. Often, such monitoring was informed by dashboards that displayed performance levels for various metrics, and sought to align them.

In general, the detailed information about treatment and outcomes provided by NCAs did not feature among these core metrics, except in the case of NCA measures deemed by boards to be publicly and politically sensitive, such as mortality or waiting times. In maintaining oversight of such "headline" measures, institutional staff focused their attention on the cumulative (often annual) public reports provided by NCA suppliers, which include national data summaries. Institutional staff were motivated to monitor their hospital's performance in these reports because of their public nature, and the risk to their reputations for safe and effective care if they appeared as "negative outliers" in the reports, performing below acceptable levels:

> Because it's such a public issue is the mortality data, not only in the public but also in the sort of the management of the Trust, they've always got an eye on the real headline values from each of the national audits

> that apply to the whole Trust (Paediatric intensive care consultant).

Public NCA reports were also of interest institutionally because they facilitate benchmarking against comparator organizations, with which hospitals may be competing for patients and resources, and because the reports demonstrate achievement of certain standards of care associated with financial incentives. For example, timely provision of angiography for cardiac patients, included in the MINAP report, is associated with Best Practice Tariff funding. In such cases, institutional staff monitored their hospital's performance in the reports to protect or enhance their incomes.

Boards did not receive NCA reports themselves, however. Instead, they oversaw an assurance framework, within which responsibility for reviewing reports in detail was delegated to clinicians, who, typically, provided summaries of issues raised in reports and action plans to address any concerns, including recommendations for QI. These summaries were often widely circulated to clinical, divisional and institutional staff, but institutional committees discussed them by exception only, when particular risks had been identified and they were involved in approving (or rejecting) the associated financial and strategic implications.

Finally, every year boards received and published quality accounts, which included a summary of those NCAs hospitals participated in, and information about improvements made in response to their report recommendations. Boards are advised by NHS England to refer within these accounts to audits included in an annually-published list, which includes both NCAPOP and other audits. Inclusion on the list varies from year-to-year and is determined by a number of criteria: for example, whether public reports are published within 12 months of completion of the most recent clinical event. Not all NCAPOP audits are included. MINAP, for example, was not included on the latest list, despite being mandatory, whereas some non-NCAPOP audits are included, such as the NACR and BAUS audits we studied.

3.1.1 | Using NCAs for QA and QI

The above findings point to a focus on institutional committees using NCA data to *assure* care quality, rather than directly *improve* it. Improvement, stimulated or informed by the data, tended to be driven, "bottom-up," by clinical areas. This emphasis reflected managers' belief that clinicians were best placed to improve care quality, given their intimate understanding of clinical data. Institutional bodies' role in QI tended, instead, to be *indirect*, in that improvement often costs money, and approval of significant resource or strategic implications was at these bodies' discretion. To this end, clinicians submitted business cases for QI projects, based on NCA data, to divisional and then institutional committees, as a consultant paediatrician explained:

> We use [NCA data] to make business cases that go initially through the children's hospital management, which then gets, well in the current financial climate it then has to go to board-level to get approved, if there's a major change in structure.

3.2 | Constraints on institutional use of NCA data

3.2.1 | Retrospective reporting

The retrospective nature of data within public NCA reports limited their usefulness for institutional staff: for example, data in the September 2019 MINAP report were at least 18 months old on publication. The time lag was regarded as unhelpful, given the need to respond rapidly to problems with care quality and for business cases to be evidenced using recent information. This limitation could generate additional work for committees and staff, leading to frustration and disengagement with the audits. A quality committee member, for example, described problems associated with being unable to access recent NCA data, when the committee sought to monitor the effect of action taken by a clinical area with outlying mortality rates. In this case, NCA data were only available from the supplier every 6 months:

> I haven't got six months. I can't do something and fingers crossed and hoping six months later that it's got better. We're talking about mortality: that's not reasonable. So I have to actually put in additional metrics to make sure that we're monitoring things month-on-month as a minimum to make sure that we aren't putting patients at risk. (Quality committee member).

We found differences between NCAs, however, in terms of the contemporaneity of the data they made available. Some not only provided retrospective public reports, but also offered real-time access to data via their websites, recalibrated each time hospitals submitted new information. The National Hip Fracture Database was given as an example of such good practice:

> Every time you put a patient on that database, the key performance indicators are actually flagged and re-based. So we know, after every patient that we put in, what our compliance is […]. If any of them dip below the appropriate compliance, then that supports a review, potential investigation and audit. (Institutional clinical audit manager).

The participant went onto explain that "seeing it visually, real time, as we submit our data, makes a significant difference in how quickly we can react to a potential drop in performance or compliance with standards," linking timely provision of national data to institutional capacity for effective QA and QI.

3.2.2 | Heterogeneous reporting

The heterogeneous presentation of NCA public reports presented problems for institutional committee members, tasked with reviewing complex provision across organizations in limited timeframes, because it made it difficult to summarize or compare them efficiently:

> They all get published at different times. They all use different presentations of the data. They all do their risk adjustment individually. They all do their metrics all different. Some for very good reasons […] But if your job is to summarise […] 20 of them, you can't do it in a sort of automated way. It's all very manual. (Institutional information manager)

Managers complained about the number and length of reports, which often extend to well over 30 pages of A4 text, plus long data tables. Committee members were also frustrated by reports that did not unambiguously highlight the "headline" metrics and other information they considered important, such as benchmarking data, or which did not make clear recommendations for institutional action. There was a need for "tools that can help point us in the right direction rather than having to work it out for ourselves" (Institutional quality manager) and it was suggested that dashboards could fulfil this function in institutional committees, because they present data clearly and concisely.

3.2.3 | Unrealistic and changing metrics

As well as expressing concern about the presentation of NCA reports, institutional staff noted that some audits included measures they regarded as unrealistic and unaffordable:

> Some of them are a bit gold-plated and […] have come out of a group of enthusiastic clinicians […] coming up with standards that were like: design me the very best system you could think of. But, unfortunately we probably can't afford those. The other thing about them is, that there often isn't the workforce, even if you could afford them, there aren't the people out there to employ to be able to deliver it. (Board member)

They talked about audits that lacked coherence or asked for too much data, without due regard to the resource implications for hospitals or the utility of those data for either institutional or clinical users. Managers were particularly frustrated by NCA suppliers changing or adding to their metrics significantly, which generated a need for corresponding changes to local and third party data storage systems. This could have unwelcome financial implications: third party suppliers, for example, might charge hospitals to upgrade their software to reflect the changes, and additional staffing might be needed for data input:

> You need to resource both the system to do it and the people to enter it. It isn't necessarily a by-product of the care you're delivering, it can be an overhead, a burden on top of the care […] So, you know, they're mandated, we're expected to do them […] but it's not as if the audit comes with everything that's required to do it. (Institutional information manager)

3.3 | Institutional perspectives on NCAs and the impact on QI

Although institutional staff recognized the benefits of NCAs as repositories of valuable local and national data, the constraints identified above led some to call for more co-ordination of NCAs nationally and more consultation with hospitals about their resource implications. Given the complexity and multiplicity of the demands on them, they talked about a need to focus on institutional priorities, which, one board member explained, included prioritizing responses to regulatory bodies with the power to impose sanctions, like the Care Quality Commission (CQC):

> There are more and more pressures on us, and CQC are top gun at the moment, so if CQC say: "Jump," we'll say: "How high?" kind of thing, because they have regulatory powers over us. (Board member)

Whereas, the board member concluded: "these others"—NCAs included—"we'll say we can't just yet." In other words, given the constraints under which they were working, some institutional staff questioned NCA legitimacy:

> It seems like, to us, anybody can set up a NCA, send it to us, and because they've managed to get the NCA title to it, we have to just do it. (Board member)

> An organisation such as ourselves, I think we participated in over 50 audits last year and submitted a huge amount of data to some of them and […] it's a lot of work for us. But the pay-off for that is that the national organisation then analyses that data and in the report actually gives us back something that's useful for us, maybe in benchmarking ourselves against our peers or in another form. If the reports don't do that, then it raises the question of the value of that audit to this organisation. (Institutional quality governance manager)

This could limit institutional support for QI initiatives, when clinicians made business cases for additional expenditure to address issues flagged in NCA reports, which were *not* regarded as priorities by institutional bodies. Clinicians expressed frustration about this state of affairs:

> If you present [the board] with a problem I think they just think let's not look at that because it might cost us some money. And they won't look at it unless someone from NHS England comes to the Trust and says: "You're a really badly performing Trust [...] and we're going to financially penalise you" and then suddenly they want to do something. Whereas when it's a clinician going: "We're supposed to perform at *this* level and we're currently at *this* level and we need to do something about it," they're like: "Meh, tell me another one, I hear that all the time." (Consultant cardiologist)

Consequently, some clinicians in our study saw little point in seeking institutional resource approval for QI arising from NCAs, causing them to question the value of audit participation altogether, as another doctor put it:

> You make the recommendations, and then next year you do the same again. And nothing happens, at all. Absolutely nothing, nothing changes. Why collect the data? (Consultant cardiologist)

4 | DISCUSSION

The literature on use of NCAs and other national and international audit and benchmarking systems paints a picture of varying engagement and missed potential for QI, sometimes associated with insufficient institutional support.[4,12,13] Our study highlights factors that may generate outcomes like these, relating particularly to the way in which managers, boards, and quality committees regard and use the audits, and the effects on their relationships with clinical teams. Such findings are important, given the significance accorded to organizational and board oversight of QI,[5,15,18,19] as well as the substantial healthcare resources consumed by data collection and validation for NCAs in the United Kindom[4,20] and comparable systems worldwide that aim to support quality improvement.[21]

In our study, institutional and clinical staff members' differing perceptions of NCA legitimacy appear to be key to this outcome, when they limit their responses to clinicians requesting action and expenditure for QI, based on audit data. These differing perceptions were encapsulated succinctly by the consultant cardiologist quoted above, who contrasted clinicians' trust in NCA data—"We're supposed to perform at *this* level and we're currently at *this* level and we need to do something about it"—with managerial doubts—"Meh, tell me another one, I hear that all the time."

Institutional theory emphasizes the importance of legitimacy as a motivating factor for organizations and their managers, encouraging them to respond to demands.[22-24] We found this to be the case with boards and their quality committees, which engaged with those NCAs for which participation was mandated by NHS England; when they appeared in public NCA reports not to be providing safe and effective care; and when NCA performance was associated with financial or reputational gain or penalties. However, when legitimacy or economic gains are perceived to be low organizations are more likely to resist demands, especially when working under pressure and responding to multiple, conflicting constituencies.[24] Dixon-Woods et al[6] note that such factors combine to create "priority thickets" (p. 109) which limit boards' scope to develop unifying visions for patient safety and quality, and tend to generate a focus on compliance (QA) rather than improvement (QI), as reflected in our study.

NCAs, then, may be regarded as another institutional demand among very many. Managers' responses to these demands are shaped by their explicit and implicit assessments of audit legitimacy, causing some to prioritize work to avoid penalties and achieve incentives, whilst giving less priority to other areas, such as QI expenditure based on NCA data, requested by clinicians. This caused frustration in some clinical teams, for whom NCAs were more of a priority, and a sense that there was little point recommending QI based on their data. Ultimately, this factor generated disengagement with NCAs for clinicians and managers alike.

We suggest that addressing the constraints identified in our study may enable reassessment of the audits' legitimacy by institutional staff, thereby extending and enriching their use in QI both institutionally and clinically. This might be achieved if more suppliers move from an emphasis on cumulative, retrospective reports to frequent, ideally real-time, reporting, learning from best practice by bodies like the National Hip Fracture Database, which, as well as providing live data to hospitals on how they are meeting key performance indicators, also provides interactive online charts, dashboards and benchmarking summaries. It may also involve presenting audit results briefly and unambiguously, showing clearly the "headline" outcomes important to institutional bodies and staff, and consulting with them about how they would like to see them displayed. HQIP and the CQC have begun to address this concern through the National Clinical Audit Benchmarking (NCAB) project (https://ncab.hqip.org.uk/), which offers concise synopses of performance in some key NCA metrics in a standard format, using data from cumulative reports (for 24 NCAs, March 2020).

Given institutional concerns about discrepancies between the benefits and costs of audit participation, such work is also likely to involve reducing the amount of resource hospitals need to devote to NCA data collection and validation, which is significant, often involving clinicians and support staff gathering data laboriously from hard-copy case notes. This may require further negotiation between hospitals, HQIP and NCA suppliers about the nature and volume of data the former are expected to provide; making more use of routinely-collected data to populate NCA fields; and more use of interactive technologies to explore and report data. Our own study focuses on the latter area. We are developing a web-based dashboard—called "QualDash"—which can be used by hospitals to explore their own NCA data in depth (currently the dashboard displays only MINAP or PICANet data, but focus groups will be held to explore its suitability for a range of other NCAs). QualDash users can interrogate metrics from the audits through interactive "qualcards," to answer key questions about service performance. They can also examine related data

FIGURE 1 Prototype of PICANet dashboard (using simulated data)

in a number of sub-views, contextualized through a "history sub-view," which summarizes data over a 3 year period. Both raw data and the qualcard charts can be downloaded and used, for example, to present recent data at meetings or in business cases. Figure 1 shows PICANet qualcards from the prototype dashboard, using simulated data.

Finally, whilst this paper has focused on national audit systems in the UK, it has implications for users of audit and benchmarking healthcare data in other countries that aim to make fuller and more efficient use of those data for QA and QI. For example, it speaks to the need to streamline data collection and minimize duplication, identified within Sweden's quality registries,[25] and can contribute, too, to international moves towards more fully digital healthcare systems.[26]

5 | STRENGTHS AND LIMITATIONS

Research into NCAs has tended to focus on their use by clinicians. We consider a strength of this study to be its dual focus on both clinical and institutional involvement with NCAs, enabling us to understand more fully the nuanced social and operational factors that underpin previous findings. These understandings emerged from detailed discussions with participants in qualitative interviews, which we regard as another strength of the research, while acknowledging their emergent and situated nature. We present these findings tentatively, then, and aim to test and refine them in later phases of our study, when we introduce QualDash to the five participating hospitals and evaluate its impact through ethnographic observations.

We acknowledge too that our approach to sampling had limitations. We focused particularly on two audits, MINAP and PICANet, which afforded rich information about how NCAs with different characteristics are used in different clinical areas. However, including an audit at the forefront of live data reporting, like the National Hip Fracture Database, would have enabled us to explore more fully new approaches to promoting NCA use (although PICANet, for example, is also working on making data available in novel ways, through its recent initiative to report risk-adjusted resetting probability ratio test plots to PICUs quarterly, to assist staff in monitoring standardized mortality ratios). This limitation might be addressed in future research by including an audit specifically on the basis of reporting innovation.

In addition, our sample was small, with only 11 participants working directly in institutional areas, which enabled us to explore their responses in detail, but limits the generalisability of our findings. We used a snowball approach, recruiting participants recommended to us because of their existing involvement with NCAs, which could have over-emphasized the views of people who were disproportionately engaged with the audits, compared to other staff, or, conversely, of those who were particularly *dis*engaged with the audits and were concerned to express that disengagement. Either way, in future research, it may be advisable to interview some staff who have no particular allegiance to NCAs, to obtain more general insights into how they are viewed.

6 | CONCLUSION

NCAs' potential to assure and, critically, improve care quality may be realized more fully from an institutional perspective by enhancing hospital board and quality committee members' perceptions of the audits' legitimacy. This is likely to require a rebalancing of the benefits and costs to healthcare providers of participation in NCAs, involving further negotiation about the nature and volume of data hospitals are expected to collect and the timeliness and format of public reports provided by suppliers, as well as wider use in hospitals of routine clinical data and less manual data entry. In addition, further use of interactive digital technologies, like the quality dashboard we are developing, should help institutional and clinical staff to explore and report the data in ways that are meaningful to them.

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CONFLICT OF INTEREST

We have the following competing interests to disclose: Chris Gale is a member of the Myocardial Infarction National Audit Programme (MINAP) Academic and Steering Groups, Patrick Doherty is Director of the British Heart Foundation National Audit of Cardiac Rehabilitation (NACR), and Richard Feltbower is co-PI for the Paediatric Intensive Care Audit Network (PICANet).

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