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Translating concerns into action: a detailed qualitative evaluation of an interdisciplinary intervention on medical wards

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3 **Translating concerns into action: a detailed qualitative evaluation of an**
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5 **interdisciplinary intervention on medical wards**
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ABSTRACT*Objectives*

To understand how frontline reports of day-to-day care failings might be better translated into improvement.

Design

Qualitative evaluation of an interdisciplinary team intervention to capitalise on the frontline experience of care delivery. Prospective clinical team surveillance (PCTS) involved structured interdisciplinary briefings to capture challenges in care delivery, facilitated organisational escalation of the issues they identified, and feedback. 18 months of ethnography and two focus groups were conducted with staff taking part in a trial of PCTS.

Results

PCTS fostered psychological safety – a confidence that the team would not embarrass or punish those who speak up. This was complemented by a hard edge of accountability, whereby team members would regulate their own behaviour in anticipation of future briefings. Frontline concerns were triaged to managers, or resolved autonomously by ward teams, reversing what had been well-established normalisations of deviance. Junior clinicians found a degree of catharsis in airing their concerns, and their teams became more proactive in addressing improvement opportunities. PCTS generated tangible organisational changes, and enabled managers to make a convincing case for investment. Briefings were constrained by the need to preserve professional credibility, and the relative comfort afforded by the avoidance of accountability. At higher organisational levels, frontline concerns were subject to competition with other priorities, and their resolution was limited by the scale of the challenges they described.

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5 *Conclusions*
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7 Prospective safety strategies relying on staff-volunteered data do approximate the realities of
8
9 frontline care, but still produce acceptable, negotiated accounts, subject to the many
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11 interdisciplinary tensions that characterise ward work. Nonetheless, they give managers access to
12
13 these accounts, and support frontline staff to make incremental changes in their daily work. These
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15 are goals for learning healthcare organisations.
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20 *Trial registration*
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22 ISRCTN 34806867
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27 **STRENGTHS AND LIMITATIONS OF THIS STUDY**
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29 Qualitative evaluations of complex interventions are recommended by the Medical Research
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31 Council.
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36 This study identified the mechanisms to be replicated if further PCTS implementation efforts are to
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38 prove successful.
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42 The evaluation highlighted tensions within efforts to capitalise on the frontline experience of care
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44 delivery; previous reports had characterised frontline data collection as a more objective exercise.
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48 Selection bias may reduce the internal validity of our findings: there was disproportionate access to
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50 staff who engaged with the intervention.
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55 As a single-site study, the generalisability of the results may be limited.
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INTRODUCTION

Patient safety – the absence of preventable harm to a patient during the process of healthcare – is now considered a serious global public health issue.¹ Around 10% of in-patients are still affected by preventable harms.^{2,3} Many of those harms are the result of persistent organisational failings, either deliberately ignored, or to which the organisation has become blind.⁴ This study seeks to understand how healthcare organisations can better identify and resolve problems in the delivery of care. It does so through a detailed qualitative evaluation of an interdisciplinary intervention, which captured and disseminated the daily challenges of frontline staff as they provided care.

Frontline staff have a particular insight into the reality of failings in day-to-day care, which are not necessarily captured in high-level aggregated organisational metrics.⁵ Frontline views differ to those in senior leadership positions, and are valuable for that:⁶ they may challenge longstanding assumptions about organisational performance. Accessing and interpreting these frontline views, to go beyond conventional metrics, represents ‘soft intelligence’ – revealing discomfiting, potentially important, institutional fallibilities.⁷ Senior healthcare leaders readily acknowledge the importance of soft data,⁸ and those that produce soft intelligence may generate more holistic improvement strategies as a result.⁷ Yet those same leaders are wary of expending effort and resources in pursuing concerns that might ultimately prove to be trivial, and look for ways to validate frontline reports before putting them to use.⁸ How this paradox can be managed best has not yet been investigated.

A separate literature has focused on the other end of the leadership hierarchy, examining how frontline teams identify and manage safety and quality concerns in the course of their normal work. That they do so is relatively clear.⁹⁻¹² Yet frontline staff do not typically volunteer information about the problems they encounter: from an organisational viewpoint, the problems remain hidden. Whilst operational issues are commonplace, the vast majority are immediately addressed at the

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2
3 frontline, the staff member finding a way to compensate and complete the task that had been
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5 blocked or interrupted. This has been described as *first-order problem solving*, i.e., generating short-
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7 term remedies that are adequate in that moment but do nothing to prevent the problem's
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9 recurrence.¹³ This first-order problem solving is encouraged by professional pride,¹⁴ an
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11 organisational emphasis on individual vigilance, and by the premium that managers place on
12
13 frontline troubleshooting.^{13,15} *Second-order problem solving* – which is much rarer – requires
14
15 additional escalation, communication or follow-up to address the underlying causes of the problem,
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17 and facilitates organisational improvement.¹³ To date, neither local managers nor national safety
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19 campaigns have focused on this frontline-driven improvement,^{16,17} despite calls from senior figures
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21 for it to be prioritised.^{18,19}

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27 Here, we focus on the translation of frontline concerns into tangible system improvement, in the
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29 setting of general medical ward care. Medical wards deliver the majority of acute inpatient care in
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31 health systems worldwide, and care for a particularly heterogeneous group of patients, facing a
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33 combination of challenges not shared by other clinical microsystems.²⁰ These wards contribute
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35 disproportionately to preventable hospital deaths,²¹ but still labour to attract organisational
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37 attention and resources.¹⁶ As a result, medical ward staff balance competing risks to patient safety,
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39 juggling priorities but also cutting corners.¹⁰ In doing so, they are careful to protect their professional
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41 identities and credibility,²² externalising blame if and when things do go wrong. Problems are
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43 frequently explained with reference to a lack of staffing and resources; the alternative – calling
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45 attention to individual failings – would breach important social norms.¹⁰ Barriers to medical ward
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47 improvement therefore include the nature of the work, relationships with organisational leaders,
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49 team structures and norms, and individual priorities.

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55 A novel intervention, prospective clinical team surveillance (PCTS), aimed to address these barriers
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57 and capitalise on medical ward teams' daily experiences. PCTS combines structured interdisciplinary
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3 briefings to capture frontline clinical and administrative challenges, with facilitated organisational
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5 escalation of the issues they identified, and feedback. The structured briefings reviewed the events
6
7 of the previous shift, identifying systemic problems and patients who had deteriorated, and
8
9 concluded with a team plan to resolve or escalate those concerns. After a short period of
10
11 supervision, ward teams led their own briefings autonomously. A single facilitator helped teams
12
13 advance the issues raised in the briefings, and provided follow-up and feedback to stakeholders
14
15 throughout the organisation. Briefings were known locally as 'HEADS-UP briefings'. The intervention
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17 is described in more detail in the published protocol.²³ Implemented alongside existing incident
18
19 reporting systems between 2013 and 2015, PCTS was evaluated in a pragmatic, stepped wedge,
20
21 cluster controlled trial, involving seven medical ward teams from two London (UK) hospitals.
22
23 Compared to usual care, high fidelity PCTS reduced excess length of stay, and improved teamwork
24
25 and safety climates, and incident reporting.²⁴
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31 In this study, we seek to understand the effects of PCTS on frontline staff and managers, through the
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33 application of complementary qualitative methodologies, namely ethnography and focus groups.
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35 Our aim was to describe the intervention's effects as understood and enacted by these staff –
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37 individually, as teams, and in their relationships with professionals outside the immediate team.
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42 **METHODS**

43 *Process evaluation*

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45 The Medical Research Council (MRC) has emphasised the need for process evaluations of complex
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47 interventions like PCTS, to articulate the causal mechanisms by which the intervention produced
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49 change. The study was grounded in the recent iteration of the MRC framework.²⁵ Qualitative
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51 methods help to better identify complex causal pathways and unexpected mechanisms of impact;
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53 detailed understanding of these is vital, if successful quality improvement initiatives are to be
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3 replicated elsewhere. Ethnography and focus groups are recommended as key tools for this type of
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5 investigation.²⁶
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8 9 *Embedded research and auto-ethnography*

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11 The programme lead was an embedded researcher at the institution contributing six of the seven
12
13 study wards. This position is defined as 'work[ing] inside [a] host organisation as [a] member of staff,
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15 while also maintaining an affiliation with an academic institution... collaborating with teams within
16
17 the organisation to... conduct research studies... which respond to the needs of the organisation, and
18
19 accord with its unique context and culture'.²⁷ Relationships between staff and the researcher are
20
21 important, as the researcher is seen both to be part of the team and contributing to the research
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23 capacity of the host organisation.²⁸ Fieldnotes, typed contemporaneously as soon as was practicable,
24
25 recorded personal exchanges and emails with staff, changes arising from PCTS, governance
26
27 proceedings, reflections on the broader context, and other implementation challenges. These 'auto-
28
29 ethnographic' insights have been widely used in organisational case study research, providing broad
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31 accounts of culture and practice.²⁹⁻³¹
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37 *Focus groups*

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39 Semi-structured focus groups were undertaken in July 2015. Focus groups were appropriate as the
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41 topics of interest were specific attitudes, feelings and beliefs that would best be revealed through
42
43 social interactions between group participants.³² The topic guide explored PCTS as a tool, as well as
44
45 the implementation process that introduced it. Participants were asked to discuss existing systems
46
47 for identifying team concerns and improving patient care, to orientate themselves to the topic. They
48
49 then reflected on their experiences of using PCTS. Questions and follow-up probes scrutinised team-
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51 wide involvement in PCTS; whether it affected perceptions of the ward's safety and quality; how it
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53 was used in staff interactions; and whether changes had been made as a result. Topic guide
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55 questions were reviewed and piloted within the research team, and with researchers in healthcare
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3 quality and safety who had not been involved with the study previously. The focus groups were
4
5 advertised in clinical areas, by email, and in person; all ward staff were invited to attend. Certain
6
7 staff groups were purposively targeted to ensure that key stakeholders in generating and processing
8
9 the frontline briefing data (junior doctors, senior nurses, and service managers) were represented.
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11 Focus groups lasted approximately two hours, each facilitated by two experienced qualitative
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13 researchers, using the topic guide flexibly in view of the different roles and experiences within the
14
15 two groups. Focus group discussions were digitally recorded, and then professionally transcribed.
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20 Focus group transcripts and fieldnotes were managed with NVivo software (QSR International,
21
22 Doncaster, Australia). Two researchers read and re-read the source material, adopting an inductive
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24 (theory-generating) approach.³³ Each researcher coded transcripts individually, generating an initial
25
26 coding frame, which was then discussed and refined. The transcripts were coded again, before a
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28 group of higher order themes was agreed. Field notes were searched for evidence to support or
29
30 contradict the evidence from the focus groups, and for themes not covered independently by focus
31
32 group discussions. Themes were inspected against the broader literature to inform their
33
34 interpretation. The study was approved by research and development authorities at participating
35
36 institutions as a quality improvement programme. Focus group participants gave their signed
37
38 consent. The primary study was registered with the ISRCTN registry (ISRCTN34806867).
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44 RESULTS

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46 **The two semi-structured focus groups included** 15 staff: three junior doctors (foundation doctors, in
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48 their first two years of medical practice), eight senior ward nurses and four non-clinical managers.
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50 Focus group data were supplemented by 44 pages of auto-ethnographic fieldnotes, documenting an
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52 18-month period in which links were established with clinicians; hybrid managers with clinical and
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54 managerial workloads;^{34,35} middle managers, who reported to the executive team; and senior
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56 hospital leaders.
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5 Our findings are organised around four themes. First, we describe the shared team beliefs and ethos
6 established by PCTS. Second, we discuss how teams used the programme to triage ward problems
7 more effectively. Third, we identify how individuals' practice changed as a result of their
8 participation. Finally, we note how PCTS altered team and organisational approaches to
9 improvement, and the tangible changes that came about as a result.
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15 16 17 18 **1. PCTS established psychological safety, with a hard edge of accountability** 19

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22 The briefings were the first structured tool the study teams had used for their routine
23 interdisciplinary work. Still, by the end of the study period, all staff groups had participated in – and
24 indeed led – the briefings:
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31 '[Consultants] contribute as much as anyone else [...] so their voice is being heard, because
32 they suffer from the same frustrations as all of us.' (*Service manager*)
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36
37 'The physio[therapists] or the OTs [occupational therapists] are also flagging things up, that's
38 how we found it useful. [...] The discharges that did not happen, anyone [who] deteriorated,
39 they flag it up and then we all learn from what went wrong.' (*Senior nurse*)
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46 Perhaps because the different staff groups were perceived as partners in them, the HEADS-UP
47 briefings formed a psychologically safe environment in which problems could be discussed openly,
48 without fear of retribution. Team psychological safety does not imply undue permissiveness or
49 unrelenting cheeriness, but a confidence that the team will not embarrass or punish someone for
50 speaking up (Edmondson, 1999; Tucker, 2007):
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3 'It was more of a constructive exercise, where everyone is then wanting the same outcome,
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5 so it wasn't like, "Oh this didn't happen, I am angry at you", it was more like we are all
6
7 actually in the same team and we all want the same thing to happen... You all have the same
8
9 end point and I think that is why it is quite safe to bring it up, because it is not
10
11 confrontational, and it is not personal against someone, it is just what needs to be done.'

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13
14 *(Foundation doctor)*

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18 The style and timeliness of PCTS feedback also contributed to a sense that this was a non-
19
20 judgemental forum for team learning:

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24 'There were a few teaching sessions where things were raised, we went through things like
25
26 ECGS [electrocardiographs] that were missed, and then you had a collective opportunity to
27
28 think. [...] It was a very good plot for learning, saying this happened and let's do some
29
30 learning and try and prevent it happening again. That is quite helpful.' *(Foundation doctor)*

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35 This psychological safety was not limitless: there were still boundaries around what could be
36
37 discussed. Although the briefings did prompt teams to consider positive notes from the previous
38
39 shift, they rarely did so. When they did record something positive, their reflections often concerned
40
41 the overall management of patient flow, rather than specific actions or diagnostic processes that
42
43 others could emulate:

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48 'Maybe it's just I am also still learning to flag up what went well the day before, because we
49
50 are all good with, "Ah, this was frustrating yesterday..."' *(Senior nurse)*

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55 This reflected a reluctance to delve too deeply into any one team member's performance.
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57 Professional identities were protected by assigning problems to other departments, acknowledging
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3 procedural complications as foreseeable, or linking delays to under-staffing. Thus, perceived threats
4
5 to professional identity were largely deflected by a projection of blame onto other groups, or
6
7 attributed to circumstances beyond the team's control.^{36,37} More introspective teams, with senior
8
9 support and increasing psychological safety, did record issues like diagnostic errors, in which they
10
11 had played a more overt role. However, even in those teams – where the briefings were
12
13 implemented with greatest fidelity – there could be disputes as to whether certain problems were
14
15 really problems at all:
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20 [The senior nurse] disagrees with medical teams' perceptions that the site moves [moving
21
22 patients from one ward to another] were inappropriate. She thinks doctors expect patients
23
24 to remain on the acute medical unit even when they are stable... She felt an inadequate
25
26 handover perpetuated their concerns.' (*Fieldnotes*)
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31 Thus, whilst psychological safety was an important factor in helping staff speak up about their
32
33 concerns, certain topics remained off-limits, and psychological safety did not guarantee agreement
34
35 about what were reasonable concerns. These are important limitations.
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40 The briefings also maintained a 'hard edge' for their effectiveness.³⁸ Team members regulated their
41
42 own behaviour, knowing that their actions (or inactions) might be flagged up at the next briefing, or
43
44 in feedback. Internalising discipline in this way (panopticism) plays an important part in quality and
45
46 safety governance in English hospitals.³⁹ Junior doctors and nurses were conscious of this
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48 panopticism, acknowledging how it changed their own behaviour and how they could use it to their
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50 advantage:
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3 'The group was more aware that if you perhaps missed something like that, it may be
4 brought up later at a HEADS-UP meeting. [...] It made you more accountable.' (*Foundation*
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6
7 *doctor*)
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10
11 'It certainly works for the VTEs [venous thromboembolism assessments, completed by junior
12 doctors, often at the behest of nursing staff]. There are days that we will have eight or 10
13 VTEs [to do], so if I [...] give the list to the doctor, the following day [...] there will be one or
14 two, because they know [...] it will be mentioned again, with the consultant.' (*Senior nurse*)
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21 Although the briefings emphasised accountability, the teams did not always explicitly agree exactly
22 what would be done, and by when, as seen previously in interdisciplinary initiatives.⁴⁰ This supports
23 the idea that teams may actually find comfort in systems that allow them to avoid accountability.¹⁰
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27 Shift patterns that lacked continuity exacerbated this problem, if briefing leaders neglected to
28 confirm whether any issues were still outstanding:
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35 'I think it's more [than] just raising the issue. [...] Give me a more detailed timeframe,
36 resolution, how do you resolve it? Are you going to get back to me because it's important?
37
38 And what will I expect?' (*Senior nurse*)
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44 Others had more positive experiences where, held to account, their colleagues confirmed the
45 outcomes of previous briefings:
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50 'You get more feedback, so you raise concern[s], and then maybe the next day the same
51 issue would crop up, and you actually then get feedback on what they are doing about it, or
52 who they have escalated to.' (*Foundation doctor*)
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3 As we will now describe, airing and recording concerns in this environment helped triage those
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5 problems, directing them back to frontline teams or onwards to their managers.
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9 **2. Rapid resolution and meaningful managerial follow-up**

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13 To explain their perceptions of PCTS, focus group participants drew comparisons with the existing
14
15 processes for identifying and resolving ward-level problems. The hospital's online incident reporting
16
17 system was considered the formal mechanism by which problems were recorded. The system was
18
19 not easy to use for this purpose, and there were few attempts to persistently report recurrent
20
21 problems. As a result, commonplace issues were no longer even considered abnormal – a
22
23 materialisation of normalised deviance, where staff become so desensitised to deviant practice that
24
25 it no longer feels wrong:⁴¹
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31 'Some things staff have got so used to that they don't [report] it. So it's just become
32
33 common practice.' (*Clinical risk manager*)
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37 Managers too were frustrated by the online incident reporting system, which they had little time for,
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39 and did not find useful:
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44 'You could go down there [to the ward] and you could see people working very, very hard
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46 and you could also sense a lot of frustrations [...] but you weren't getting to what those
47
48 frustrations were, and what those issues were.' (*Service manager*)
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53 Long delays in processing incident reports meant that even relatively simple problems were not
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55 reviewed for many weeks. Even a broken piece of equipment could take '*weeks on end*'. As a result,
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3 reports that described patient harm were prioritised; where no harm had occurred, little was done.

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5 Service managers were aware that they paid attention to only the most serious incidents:
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10 'It has got to that point of being a SI [serious incident, an adverse event with particularly
11 grave consequences] before it is then addressed and taught and learnt from.' (*Service
12 manager*)
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18 In contrast, PCTS helped identify a route for more rapid resolution of practical problems. It provided
19 an acceptable mechanism for staff to log issues into which they had immediate insight:
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24 '[PCTS] highlighted little things, that could be sorted out quite quickly. It made sure that
25 somebody was allocated to deal with that on the day – or did you follow that through, did
26 that get sorted out? So everything benefits, rather than just going on and on and on [...]
27 Things get sorted out quicker.' (*Senior nurse*)
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35 This was a materialisation of second-order problem solving, staff finding a way to bring about a more
36 lasting solution to each issue they encountered. Where issues could not be resolved within the ward
37 team, managers were presented with clear, actionable topics to address. They were then better
38 prepared to handle incipient risks to service quality:
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46 'What I like about it is [that] it is instant and it is thematic very quickly, you understand what
47 the issues are [...] Here is an opportunity to dump them [your daily issues] and suddenly a
48 picture forms out of it [...] And not just here, but there, there, there and there [...] And it
49 hasn't yet created a significant incident, but clearly there is risk associated with it.' (*Service
50 manager*)
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3 Not all managers were equally enthused. Where PCTS had not provided data that appeared directly
4 useful for them, middle managers did less to hold their service areas accountable for briefing
5 implementation. Still, the combination of increased frontline efficiency and managerial involvement
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10 (at least in some areas) led to a more general sense that things had changed for the better:

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14 '[PCTS] would make it clear what was actually deficient. And then I think things did start to
15 change, and you did see the feedback coming through [...] So you could definitely see the
16 evolution of it.' (*Foundation doctor*)
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21
22 'There is also the kind of day-to-day things within the team that start running better, and I
23 think you do start seeing those, but it is harder to put a specific, "This was raised, this was
24 done, there was an outcome." It is a more [...] general change as part of [PCTS].' (*Foundation*
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doctor)

33 With a structure in place to coordinate frontline teams and their managers, individual staff found
34 their own practice changing, with unexpected personal benefits. These will now be discussed in
35 more detail.
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3. Changing individuals: reversing normalised deviance, and catharsis

46 PCTS prompted staff to proactively address issues they may have previously ignored. This was, in
47 effect, a reversal of the normalised deviance that had become so ingrained:
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52 'You wouldn't have identified that [issue] necessarily, because it is just part of your daily [...]
53 life in the NHS, but when it is put like this [with PCTS], it is highlighted, you have got an
54 opportunity to really do something about it.' (*Service manager*)
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5 'This particular patient [has been] awaiting echo[cardiography] for the last three days [...] [I]
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7 would now question why is it still not done [...] When I wasn't doing [the briefings], I wasn't
8
9 seeing the importance [...] [Now] I tell the Matron, or I tell my Bed Manager [...] or I go there
10
11 myself [...] I go to the department and ask them, "This is what's happening, this is what I
12
13 need.'" (Senior nurse)
14
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17
18 Having made those problems visible once again, the information shared in the HEADS-UP briefings
19
20 would be used to actively coordinate plans and decisions for the next shift. Aware of pressures on
21
22 their colleagues, and cognisant that problems were occurring repeatedly, individuals would change
23
24 their routines:
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26

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28
29 'I tell the physio[therapist] and the OT [occupational therapist]: "These are your priorities for
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31 today, these are your priorities for tomorrow." So they already have a plan [...] Like I said, it
32
33 gives you the structure that you need.' (Senior nurse)
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35

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38 'The group as a whole became more "present" to [what] happens maybe a couple of times
39
40 in a week [...] For example if the nursing staff are short [...] just having that in your mind and
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42 thinking "No, we need to get all these blood tests done now", you would appreciate how the
43
44 service could be best run. I think that made it more efficient.' (Foundation doctor)
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48 The improved information sharing, interdisciplinary coordination, and efforts to evenly distribute
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50 workload produced a more supportive team climate. In this atmosphere, the briefings could become
51
52 unexpectedly cathartic, giving a voice to junior clinicians to air their personal worries, as well as their
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54 clinical concerns:
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3 'You felt like you had got a lot of your chest by doing it, and if you had a bad day and nothing
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5 seemed to be going right because of so many errors that you came across, it all felt a bit
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7 chaotic and scatty, the next day you could say, "These are the things that went wrong
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9 yesterday", and now I can clear that and start again.' (*Foundation doctor*)
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14 '[It] makes you feel more heard, because otherwise you are just venting your concern, but
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16 you don't know if it has been actioned in any way. And then you can provide the objective
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18 evidence to move forward, to change something.' (*Foundation doctor*)
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22 The combination of changes in team ethos, triage, and individual practice ultimately provoked a new
23
24 approach to improvement, and a degree of organisational development.
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27 28 29 **4. Changing teams and the organisation** 30 31

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33 Contrary to some leaders' fears, PCTS did not reduce the volume of formal incident reports. Rather,
34
35 it provoked new reports, and altered how those reports were addressed. The quantitative analysis
36
37 had shown how high fidelity implementation affected the patterns of incident reporting:²⁴ here too,
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39 staff recognised that some of the events discussed in the briefings needed to be logged as formal
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41 incidents. However, the translation of briefing-recorded incidents into online reports was imperfect,
42
43 not least because the department had no agreed list of high priority events to be recorded, a
44
45 common problem:^{42,43}
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50 'Post-intervention antibiotics had not been given [...] The junior doctors had not seen the
51
52 procedure report specifying they were needed. No incident report was done, even though
53
54 [the registrar] specifically asked if one should be completed.' (*Fieldnotes*)
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3 When incidents were reported, the briefings allowed incident investigators to start to collect
4 relevant information. The problems that had provoked the incident were typically captured by the
5 briefing, giving the investigator (often the nurse in charge) a head start in understanding what had
6 happened:
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14 ‘The people involved are already there, they are already able to explain to you, “This is what
15 actually happened from our end.” [...] It’s easier for you to do your incident [investigation]
16 report already because as the investigator you don’t have to call everyone.’ *(Senior nurse)*
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22 The emphasis on clinical teams’ accountability also led to a subtler change in incident management.
23 Teams took responsibility for issues that were actually within their power to change, rather than
24 awaiting permission or hoping that the problems would be resolved elsewhere:
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31 ‘Very often before it gets to me, it has been dealt with and sorted out by the teams
32 themselves [...] With [briefings] and [incident reporting] together, there is a different
33 approach: [...] “We have discussed it, we have taken on the responsibility of this, we have
34 done as much of this as we can, but here is the point where it has to be escalated and we
35 want to make sure something is done about it, and this is our methodology for doing it.”
36 That is how it feels to me, anyway.’ *(Service manager)*
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46 At multiple levels within the organisation, it was clear that this programme had revealed hidden
47 gaps in practice. PCTS proved useful even on wards where teams were already thought to be
48 functioning well:
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55 ‘There is definitely time to do it, there is definitely a need to do it, but [...] you only know
56 that once you have done it.’ *(Service manager)*
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5 'I don't think we would have known, unless we had done it, that there was a gap there.'

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8 *(Senior nurse)*
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11 Similarly, PCTS revealed service provision opportunities that had not previously reached the board's
12 attention. In safety and governance meetings, PCTS findings highlighted new areas for improvement,
13 many of which had not been addressed in incident reports or top-down initiatives. Those findings
14 then enabled managers to make a convincing case for investment:
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22 'It empowers me then as manager for that area to go forward with a business case with the
23 evidence to say we need additional resource, this is the implications of it [...] And it works, so
24 we have an additional [cardiac] sonographer [...] I think we saw very quickly a reduction in
25 delays once that was sorted.' *(Service manager)*
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33 A number of other specific, tangible changes were driven by PCTS during the study period [box 1].
34 These changes were described as 'quick wins' by senior managers, with clinicians agreeing that they
35 were at least a relatively rapid organisational response. However, internal investment was not
36 necessarily targeted specifically to participating teams. For example, expansion of the phlebotomy
37 service (identified through PCTS as no longer meeting patient needs) primarily benefited non-
38 participant wards, which were deemed by senior management to be more in need of support. Nor
39 was progress guaranteed by repeated ward-level reporting. Changes to structures or processes were
40 more likely when there was an associated financial target; another organisational incentive aligning
41 with the proposed improvement; and when clinicians and managers agreed the need for change.⁴⁴
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52 Additionally, some of the concerns raised by frontline staff simply could not be addressed by middle
53 managers, general managers or even board members. Poor staffing levels, for example, were felt
54 keenly, but reflected a broader national challenge. Creative workarounds and mitigation plans could
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3 only go so far in addressing a fundamental shortfall in staff. This was frustrating for the teams
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5 completing the briefings: the full scope of the challenges facing local improvement initiatives is often
6
7 underestimated.⁴⁵
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10 11 **DISCUSSION**

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13 We found that PCTS established a basis of team psychological safety, married with a hard edge of
14
15 accountability, which in turn was generated by teams' own panopticism. Ward teams were able to
16
17 triage recurrent problems to their managers, or to resolve them autonomously. In either case, PCTS
18
19 – in making those challenges organisationally visible – fulfilled Tucker and Edmondson's criteria for
20
21 second-order problem solving.¹³ Through non-judgemental facilitation and feedback, ward teams
22
23 reversed what had been well-established normalised deviance. Junior clinicians found a degree of
24
25 catharsis, and teams became more proactive in addressing improvement opportunities. The soft
26
27 intelligence provided through PCTS proved effective in generating tangible organisational change –
28
29 albeit unpredictably, dependent on the hospital's other priorities and incentives. At the ward level,
30
31 briefings were limited by the need to preserve professional credibility, a lack of interdisciplinary
32
33 consensus about the nature of the problems they were seeing, and the relative comfort afforded by
34
35 the avoidance of accountability. At higher organisational levels, frontline concerns were subject to
36
37 competition with other priorities, and resolution was limited by the full scale of the challenges they
38
39 described.
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46 To our knowledge, this trial was the first controlled study of an interdisciplinary intervention to
47
48 translate frontline experiences into organisational change. In turn, this report is the first qualitative
49
50 analysis of how this type of interdisciplinary intervention might generate improved outcomes.
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53 Previous observational studies had shown how observers could work with ward staff to identify
54
55 potential adverse events, building detailed assessments of ward performance in near-real time.^{3,46,47}
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58 In these studies, frontline staff were the relatively passive objects of data collection: how they might
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3 actively shape, frame, and mitigate reported safety concerns was not considered. Our current study
4
5 therefore offers two novel contributions. First, it identifies the mechanisms that need to be
6
7 replicated if other PCTS implementation efforts are to prove successful. Second, it highlights the
8
9 innate tensions within these efforts to capitalise on the frontline experience of care delivery.
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14 Frictions in organisational learning have been described previously. In reporting their concerns, staff
15
16 portray 'others' as threatening patient safety, rather than jeopardising their own credibility.^{22,48}

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18 Disputes about responsibility and appropriate care can stem from very real interdisciplinary
19
20 disagreements about what the right course of action *should* have been,^{49,50} and from divergent
21
22 understandings of patient safety.⁵¹ As concerns are escalated through an organisation, these
23
24 important distinctions are often lost: rich narratives about patient safety events are repeatedly
25
26 'washed' of their context to better meet managerial assumptions.⁴⁸ The construction and escalation
27
28 of a concern, therefore, remains a fundamentally subjective process. We found that our efforts to
29
30 directly engage frontline teams in identifying their concerns did not eliminate these tensions.
31

32
33 Indeed, frontline challenges are particularly likely to arise from informal rules, tacit agreements and
34
35 intergroup conflicts,⁵⁰ and will remain disputed and contentious. Whilst junior clinicians are likely to
36
37 embrace more flexible, engaging safety systems,⁵² they may not anticipate these practical problems.
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40 Future efforts to involve frontline staff in prospective safety monitoring - whether through
41
42 facilitated team self-report, as here, or with the help of embedded observers - should be mindful of
43
44 these limitations.
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48 Yet for all those complexities, staff described clear mechanisms by which PCTS improved team
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50 function and clinician-manager coordination, and generated organisational action. Frontline
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52 prospective surveillance strategies have been used in Canada^{3,46} and the USA:⁴⁷ we have described a
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54 strategy that might be appropriate for the UK context. In demonstrating that their experiences have
55
56 real organisational value, PCTS offers a route by which frontline staff (particularly junior staff) can be
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3 'powerful agents for change',¹⁸ and for leaders to obtain 'first-hand knowledge of the system at the
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frontline'.¹⁹ We found that PCTS engaged transient, rotating, junior staff, whose views may be particularly insightful: they are not bound by the organisation's institutional narrative in the same way as their senior colleagues, who are more acclimatised to its norms.

Limitations of this study include our disproportionate access to the teams and individuals who engaged with PCTS, as opposed to those who declined to participate meaningfully. This was the case both for auto-ethnography and attendance at the focus groups. These enthusiasts may have had a more positive view of the programme than the wider group of eligible clinicians and managers. Selection bias has hampered mixed methods evaluations of other quality improvement interventions.⁵³ The high uptake of these interventions by teams that are already performing well, with less to improve, has also been noted previously.⁵⁴ We attempted to counteract any selection bias by ensuring the researchers leading the focus groups had not previously been directly involved in delivering the PCTS programme. We also conducted a deliberate search for conflicting opinions in the group transcripts and fieldnotes. In addition, our two methods were complementary. Any social desirability bias in the focus groups – participants giving the acceptable 'right' answers rather than revealing their true thoughts – was countered by the extensive ethnographic access to staff on the wards, in meetings with their peers, and in unguarded conversation. Our detailed evaluation may not generalise fully to other settings – although many of our findings built upon the existing understanding of frontline safety engagement.⁴³ Strengths of the study include the novel, theoretically-informed, qualitative analysis of a safety surveillance strategy that had previously been seen as purely objective. The embedded research model produced good access to managers as well as frontline staff; often, there is a trade-off between the two. The dual methodologies allowed the themes emerging from each data set to be triangulated, producing a more robust analysis than either one could in isolation. Importantly, the study identifies mechanisms by which frontline

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3 concerns can be used productively, rather than disappearing into an organisational 'black hole'¹⁴
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5 from which they generate no change or learning.
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8 9 **CONCLUSIONS**

10 PCTS, escalating frontline clinical and administrative challenges with facilitation and feedback,
11
12 improved clinical outcomes through distinct mechanisms acting at the individual, team, and
13
14 organisational levels. These mechanisms need to be replicated if other PCTS implementations are to
15
16 improve outcomes in a similar fashion. Moreover, this detailed study demonstrates that prospective
17
18 clinical surveillance strategies are not merely novel measurement tools, as they have been
19
20 described^{46,47,55} – even if they do get closer to the realities of frontline care than other safety
21
22 systems. They still produce negotiated, acceptable accounts, subject to the many interdisciplinary
23
24 tensions that characterise ward work. Glossing over these complexities may reduce staff
25
26 engagement with these systems, if they are unable to recognise themselves or their practice in how
27
28 the systems are implemented and managed.⁵⁶ Nonetheless, these prospective surveillance
29
30 strategies – through which system flaws are mitigated as they become apparent – suggest a viable
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32 route to continuous safety improvement. They foster improvement not only by making soft data
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34 intelligible to healthcare managers, but by supporting frontline staff to make incremental changes in
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36 their daily work – a goal for learning healthcare organisations.
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Box 1: Examples of service investment and organisational change arising from PCTS

Cost-neutral re-alignment of porter provision for radiology, doubling the in-patient flow for X-rays;

Re-evaluation of phlebotomy service provision, ultimately generating a £20,000 investment in an expanded support service;

Additional phlebotomy training for healthcare assistants, delivered internally;

Additional sonographer in echocardiography;

Relocation of intravenous infusion and nasogastric feeding pumps to a central equipment library;

Development of electronic referrals and electronic reporting for medical specialty consultations, using existing electronic health record;

£5,000 investment in ketone meters for management of diabetic ketoacidosis.

Contributions:

Study design: SP, SA, TA, NS, SJL, IB. Study implementation and data collection: SA, SP, SJL, IB.

Analysis: SA, SP, NS. All authors contributed to, read and approved the final manuscript. Dr Pannick had full access to all of the data in the study and takes responsibility for the integrity of the data.

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2
3 management, analysis or interpretation of the data; or preparation, review or approval of the
4 manuscript. The views expressed are those of the authors and not necessarily those of the NHS, the
5 NIHR or the Department of Health.
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10 *Data sharing:*

11 The qualitative data cannot be shared without identifying participants.
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Translating concerns into action: a detailed qualitative evaluation of an interdisciplinary intervention on medical wards

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3 **Translating concerns into action: a detailed qualitative evaluation of an**
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5 **interdisciplinary intervention on medical wards**
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ABSTRACT*Objectives*

To understand how frontline reports of day-to-day care failings might be better translated into improvement.

Design

Qualitative evaluation of an interdisciplinary team intervention to capitalise on the frontline experience of care delivery. Prospective clinical team surveillance (PCTS) involved structured interdisciplinary briefings to capture challenges in care delivery, facilitated organisational escalation of the issues they identified, and feedback. Eighteen months of ethnography and two focus groups were conducted with staff taking part in a trial of PCTS.

Results

PCTS fostered psychological safety – a confidence that the team would not embarrass or punish those who speak up. This was complemented by a hard edge of accountability, whereby team members would regulate their own behaviour in anticipation of future briefings. Frontline concerns were triaged to managers, or resolved autonomously by ward teams, reversing what had been well-established normalisations of deviance. Junior clinicians found a degree of catharsis in airing their concerns, and their teams became more proactive in addressing improvement opportunities. PCTS generated tangible organisational changes, and enabled managers to make a convincing case for investment. However, briefings were constrained by the need to preserve professional credibility, and the relative comfort afforded by the avoidance of accountability. At higher organisational levels, frontline concerns were subject to competition with other priorities, and their resolution was limited by the scale of the challenges they described.

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5 *Conclusions*
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7 Prospective safety strategies relying on staff-volunteered data do approximate the realities of
8
9 frontline care, but still produce acceptable, negotiated accounts, subject to the many
10
11 interdisciplinary tensions that characterise ward work. Nonetheless, they give managers access to
12
13 these accounts, and support frontline staff to make incremental changes in their daily work. These
14
15 are goals for learning healthcare organisations.
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20 *Trial registration*
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22 ISRCTN 34806867
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27 **STRENGTHS AND LIMITATIONS OF THIS STUDY**
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29 Qualitative evaluations of complex interventions are recommended by the Medical Research
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31 Council.
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36 This study identified the mechanisms to be replicated if further PCTS implementation efforts are to
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38 prove successful.
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42 The evaluation highlighted tensions within efforts to capitalise on the frontline experience of care
43
44 delivery; previous reports had characterised frontline data collection as a more objective exercise.
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48 Selection bias may reduce the internal validity of our findings: there was disproportionate access to
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50 staff who engaged with the intervention.
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55 As a single-site study, the generalisability of the results may be limited.
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INTRODUCTION

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5 Around 10% of hospitalised patients suffer preventable harms.^{1,2} Many are the result of persistent
6
7 organisational failings, either deliberately ignored, or to which the organisation has become blind.³
8
9 Frontline staff have a unique insight into the reality of failings in day-to-day care, identifying safety
10
11 and quality concerns in the course of their routine work.⁴⁻⁷ Their concerns – revealing uncomfortable
12
13 institutional fallibilities – are not reflected in high-level organisational metrics. Rather, frontline
14
15 insights into everyday processes are ‘soft data’, adding a nuanced understanding that can build more
16
17 holistic improvement strategies.⁸
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21
22 Senior healthcare leaders acknowledge the importance of this frontline knowledge – yet those same
23
24 leaders are loath to spend time and resources pursuing staff concerns that might ultimately prove to
25
26 be trivial.⁹ Few safety campaigns focus on the tribulations of frontline workers.^{10,11} Instead, staff
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28 typically devise their own workarounds for operational problems, producing temporary fixes. This
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30 ‘first-order’ problem solving is effective in the moment – but it does little to prevent each problem’s
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32 recurrence, and organisational processes go unchanged.¹²⁻¹⁴
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38 ‘Prospective clinical surveillance’ is one mechanism for improving care delivery from a frontline
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40 perspective. Embedded observers (or visiting facilitators) work with frontline staff to record their
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42 experiences of care delivery and its consequences, with a structure to support data capture.^{2,15,16}
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44 Documenting potentially flawed care processes and adverse events, prospective clinical surveillance
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46 can produce detailed, unit-level performance assessments in near-real time.¹⁷ It is ‘prospective’ in
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48 two respects. First, it proactively seeks out staff concerns, rather than waiting for staff to volunteer
49
50 them. Second, it can identify care deficiencies that have not yet led to patient harm. However, its
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52 effectiveness as an improvement strategy is unclear. Whether prospective clinical surveillance
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54 translates staff concerns into tangible action, and how exactly it might do so, have not previously
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56 been explored.
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5 Here, we investigate the qualitative impact of prospective clinical *team* surveillance (PCTS), a novel
6 extension of this technique. PCTS had three components: (i) structured interdisciplinary briefings to
7 capture frontline clinical and administrative challenges; (ii) facilitated organisational escalation of
8 the issues they identified; and (iii) feedback. PCTS was evaluated in a cluster controlled trial on
9 medical wards, involving seven interdisciplinary teams from two London (UK) hospitals.¹⁸ High
10 fidelity PCTS reduced excess length of stay; it also improved teamwork and safety climates, and
11 incident reporting.¹⁹ In this study, we seek to describe the intervention's effects as understood and
12 enacted by participating staff.
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24 **METHODS**

25 *Intervention*

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27 The intervention is described in detail in the published protocol.¹⁸ In brief, structured briefings
28 reviewed the events of the previous shift, identifying clinical and administrative challenges, and
29 concluding with a plan to resolve or escalate those concerns. A structured pro forma (HEADS-UP;
30 Hospital Event Analysis Describing Significant Unanticipated Problems) focused on the problems
31 most commonly identified on medical wards.²⁰ After a short period of supervision, ward teams led
32 their own briefings autonomously. A single facilitator helped teams advance the issues raised in their
33 briefings, and provided follow-up and feedback to stakeholders throughout the organisation.
34 Briefings were known locally as 'HEADS-UP briefings'. The autonomous team briefings were
35 intended to be a sustainable local alternative to the facilitator-led data capture described in previous
36 reports.^{2,16}
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53 *Process evaluation*

54 This study was grounded in the Medical Research Council framework for process evaluations of
55 complex interventions.²¹ Qualitative methods identify the complex causal pathways and unexpected
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3 mechanisms of impact by which these interventions produce change. Ethnography and focus groups
4
5 are recommended for this type of investigation:²² they are used here to evaluate the intervention at
6
7 the hospital site most heavily involved in the primary study.
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10 11 *Embedded research and auto-ethnography*

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13 The programme lead was an embedded researcher at the institution contributing six of the seven
14
15 study wards. This position is defined as 'work[ing] inside [a] host organisation as [a] member of staff,
16
17 while also maintaining an affiliation with an academic institution... conduct[ing] research studies...
18
19 which respond to the needs of the organisation, and accord with its unique context and culture'.²³
20
21 Relationships between staff and the researcher are important: the researcher is seen both to be part
22
23 of the team and contributing to the research capacity of the host organisation.²⁴ Fieldnotes, typed
24
25 contemporaneously as soon as was practicable, recorded personal exchanges with staff, changes
26
27 arising from PCTS, governance proceedings, and reflections on the broader context. These 'auto-
28
29 ethnographic' insights have been widely used in organisational case study research, providing broad
30
31 accounts of culture and practice.²⁵⁻²⁷
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37 *Focus groups*

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39 Semi-structured focus groups were undertaken in July 2015. The topics of interest were specific
40
41 attitudes, feelings and beliefs that would best be revealed through social interactions between
42
43 group participants.²⁸ The topic guide explored PCTS as a tool, as well as the implementation process
44
45 that introduced it. To orientate them, participants were asked to discuss existing systems for
46
47 identifying team concerns and improving patient care. They then reflected on their experiences of
48
49 using PCTS. Questions and follow-up probes scrutinised team-wide involvement in PCTS; whether it
50
51 affected perceptions of the ward's safety and quality; how it was used in staff interactions; and
52
53 whether changes had been made as a result. Topic guide questions were reviewed and piloted
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55 within the research team, and with researchers in healthcare quality and safety who had not been
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3 involved with the study previously. The focus groups were advertised in clinical areas, by email, and
4
5 in person; all ward staff were invited to attend. Certain staff groups were purposively targeted to
6
7 ensure that key stakeholders (junior doctors, senior nurses, and service managers) were
8
9 represented. Focus groups lasted approximately two hours, facilitated by experienced qualitative
10
11 researchers (N.S., M.J.J, S.A.; also Dr Louise Hull [Research Fellow] and Ms Tayana Soukup [Research
12
13 Assistant]), using the topic guide flexibly in view of the different roles and experiences within the
14
15 two groups. Focus group discussions were digitally recorded in the hospital's medical education
16
17 centre, and then professionally transcribed.
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21
22 Focus group transcripts and fieldnotes were managed with NVivo software (QSR International,
23
24 Doncaster, Australia). Two researchers (S.P., S.A.) read and re-read the source material, adopting an
25
26 inductive (theory-generating) approach.²⁹ This type of analysis is a flexible research tool, generating
27
28 a rich and detailed account of a complex data set. It can be applied to focus groups as well as other
29
30 qualitative data,³⁰⁻³² allowing thematic integration in a single analysis. Each researcher coded
31
32 transcripts individually, generating an initial coding frame, which was then discussed and refined.
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34 The transcripts were coded again, before a group of higher order themes was agreed. Field notes
35
36 were searched for evidence to support or contradict the evidence from the focus groups, and for
37
38 themes not covered independently by focus group discussions. Themes were inspected against the
39
40 broader literature to inform their interpretation. The study was approved by research and
41
42 development authorities at participating institutions as a quality improvement programme. Focus
43
44 group participants gave their signed consent. The primary study was registered with the ISRCTN
45
46 registry (ISRCTN34806867).
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51 52 53 **RESULTS**

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55 Fifteen staff participated in the focus groups: three junior doctors (foundation doctors, in their first
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57 two years of medical practice), eight senior ward nurses, and four non-clinical managers.
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3 Participants represented each of the clinical divisions that had taken part in the study at this hospital
4
5 (care of the elderly, acute medicine, respiratory medicine, and gastroenterology). Focus group data
6
7 were supplemented by 44 pages of auto-ethnographic fieldnotes, documenting the 18-month period
8
9 in which links were established with clinicians; clinical and non-clinical managers; and senior hospital
10
11 leaders.
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15 Our findings are organised around four themes. First, we describe the shared team beliefs and ethos
16
17 established by PCTS. Second, we discuss how teams used the programme to triage ward problems
18
19 more effectively. Third, we identify how individuals' practice changed as a result of their
20
21 participation. Finally, we note how PCTS altered team and organisational approaches to
22
23 improvement, and the tangible changes that came about.
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28 29 **1. PCTS established psychological safety, with a hard edge of accountability**

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33 By the end of the study period, all staff groups had participated in – and led – HEADS-UP briefings:
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38 '[Consultants] contribute as much as anyone else [...] so their voice is being heard, because
39
40 they suffer from the same frustrations as all of us.' (*Service manager*)
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44 'The physio[therapists] or the OTs [occupational therapists] are also flagging things up, that's
45
46 how we found it useful. [...] The discharges that did not happen, anyone [who] deteriorated
47
48 [...] we all learn from what went wrong.' (*Senior nurse*)
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53 Perhaps because different staff groups were perceived as partners in them, the briefings formed a
54
55 psychologically safe environment in which problems could be discussed openly, without fear of
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3 retribution. Team psychological safety does not imply undue permissiveness or unrelenting
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5 cheeriness, but a confidence that the team will not embarrass or punish someone for speaking up:
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10 'It was more of a constructive exercise, where everyone is then wanting the same outcome,
11
12 so it wasn't like, "Oh this didn't happen, I am angry at you", it was more like we are all
13
14 actually in the same team [...] You all have the same end point and I think that is why it is
15
16 quite safe to bring it up, because it is not confrontational, and it is not personal against
17
18 someone, it is just what needs to be done.' (*Foundation doctor*)
19

20
21
22 The style and timeliness of PCTS feedback also contributed to a sense that this was a non-
23
24 judgemental forum for team learning:
25
26

27
28
29 'There were a few teaching sessions where [...] we went through things like ECGs
30
31 [electrocardiographs] that were missed, and then you had a collective opportunity to think
32
33 [...] It was a very good plot for learning, saying this happened and let's do some learning and
34
35 try and prevent it happening again. That is quite helpful.' (*Foundation doctor*)
36
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40 This psychological safety was not limitless: there were still boundaries around what could be
41
42 discussed. Although the briefings did prompt teams to consider positive notes from the previous
43
44 shift, they rarely did so. Reflections often highlighted the overall management of patient flow, rather
45
46 than specific actions or diagnostic processes that others could emulate. This reflected a reluctance
47
48 to delve too deeply into any one team member's performance. Professional identities were
49
50 protected by assigning problems to other departments, acknowledging procedural complications as
51
52 foreseeable, or linking delays to under-staffing. In this way, perceived threats to professional
53
54 identity were largely deflected by a projection of blame onto other groups, or attributed to
55
56 circumstances beyond the team's control.
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5 More introspective teams, with senior support and increasing psychological safety, did record issues
6
7 like diagnostic errors, in which they had played a more overt role. However, even in those teams –
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9 where the briefings were implemented with greatest fidelity – there could be disputes as to whether
10
11 certain problems were really problems at all:
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15
16 ‘The senior nurse disagrees with medical teams’ perceptions that the site moves [moving
17
18 patients from one ward to another] were inappropriate. She thinks doctors expect patients
19
20 to remain on the acute medical unit even when they are stable... She felt an inadequate
21
22 handover perpetuated their concerns.’ (*Fieldnotes*)
23
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26
27 Thus, whilst psychological safety was an important factor in helping staff speak up about their
28
29 concerns, certain topics remained off-limits, and psychological safety did not guarantee agreement
30
31 about what were reasonable concerns. These are important limitations:
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33

34
35 ‘I think it’s more [than] just raising the issue. [...] Give me a more detailed timeframe,
36
37 resolution, how do you resolve it? Are you going to get back to me because it’s important?
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39 And what will I expect?’ (*Senior nurse*)
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44 Where they were most effective, the briefings maintained a ‘hard edge’: team members regulated
45
46 their own behaviour, knowing that their actions (or inactions) might be flagged up at the next
47
48 briefing, or in feedback. Junior doctors and nurses were conscious of this internalised discipline
49
50 (panopticism), acknowledging how it changed their own behaviour and how they could use it to
51
52 their advantage. A self-reinforcing virtuous cycle emerged, with participation, accountability, and
53
54 feedback:
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3 'The group was more aware that if you perhaps missed something like that, it may be
4 brought up later at a HEADS-UP meeting. [...] It made you more accountable.' (*Foundation*
5
6
7 *doctor*)
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10
11 'It certainly works for the VTEs [venous thromboembolism assessments, completed by junior
12 doctors, often at the behest of nursing staff]. There are days that we will have eight or 10
13 VTEs [to do], so if I [...] give the list to the doctor, the following day [...] there will be one or
14 two, because they know [...] it will be mentioned again, with the consultant.' (*Senior nurse*)
15
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20
21 'You get more feedback, so you raise concern[s], and then maybe the next day the same
22 issue would crop up, and you actually then get feedback on what they are doing about it, or
23 who they have escalated to.' (*Foundation doctor*)
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31 As we will now describe, airing and recording concerns in this environment helped triage those
32 problems, directing them back to frontline teams or onwards to their managers.
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35 36 37 38 **2. Rapid resolution and meaningful managerial follow-up** 39

40
41 To explain their perceptions of PCTS, focus group participants drew comparisons with the existing
42 processes for identifying and resolving ward-level problems. The hospital's online incident reporting
43 system was considered the formal mechanism by which problems were recorded. The system was
44 not easy to use for this purpose, and there were few attempts to persistently report recurrent
45 problems. As a result, commonplace issues were no longer even considered abnormal – a
46 materialisation of normalised deviance, where staff become so desensitised to deviant practice that
47 it no longer feels wrong:
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3 'Some things staff have got so used to that they don't [report] it. So it's just become
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5 common practice.' (*Clinical risk manager*)
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9 Managers too were frustrated by the incident reporting system. Reports did not necessarily
10
11 illuminate what was happening at the frontline. Moreover, long delays in processing those incident
12
13 reports meant that even relatively simple problems were not reviewed for many weeks. As a result,
14
15 reports that described patient harm were prioritised: where no harm had occurred, little was done.
16
17 Service managers were aware that they paid attention to only the most serious incidents:
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21
22 'You could go down there [to the ward] and you could see people working very, very hard
23
24 and you could also sense a lot of frustrations [...] but you weren't getting to what those
25
26 frustrations were, and what those issues were.' (*Service manager*)
27
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31 'It has got to that point of being a SI [serious incident, an adverse event with particularly
32
33 grave consequences] before it is then addressed and taught and learnt from.' (*Service*
34
35 *manager*)
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37

38
39 In contrast, PCTS helped identify a route for more rapid resolution of practical problems. It provided
40
41 an acceptable mechanism for staff to log issues into which they had immediate insight. This was a
42
43 materialisation of second-order problem solving, staff finding a way to bring about a more lasting
44
45 solution to each issue they encountered. Where issues could not be resolved within the ward team,
46
47 managers were presented with clear, actionable topics to address. Those managers were then
48
49 better prepared to handle incipient risks to service quality:
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54 '[PCTS] highlighted little things, that could be sorted out quite quickly. It made sure that
55
56 somebody was allocated to deal with that on the day – or did you follow that through, did
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3 that get sorted out? So everything benefits, rather than just going on and on and on [...]

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5 Things get sorted out quicker.' (*Senior nurse*)
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10 'What I like about it is [that] it is instant and it is thematic very quickly, you understand what
11 the issues are [...] Here is an opportunity to dump them [your daily issues] and suddenly a
12 picture forms out of it [...] And not just here, but there, there, there and there [...] And it
13 hasn't yet created a significant incident, but clearly there is risk associated with it.' (*Service*
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manager)

PCTS therefore brought about faster resolution of safety and quality issues through a combination of mechanisms. First, increasing self-monitoring within ward teams helped anticipate and mitigate potential problems. Second, senior ward staff at the daily briefings were more quickly aware of issues they could resolve, without having to trawl through a backlog of outstanding incident reports. Third, facilitation drew out thematic problems across departments, bringing them to the attention of middle managers who had struggled to understand the difficulties experienced by their staff. Fourth, the clinical impact of these problems was made clearer to senior executives, who were motivated by these novel frontline narratives to pursue change:

'PCTS findings informed the discussion in the Trust morbidity and mortality meeting, chaired by the chief executive, highlighting areas which needed faster examination and transformation, and bringing genuinely new information... Many of these concerns had not been formally addressed either in incident reports or top-down initiatives... It also highlighted new targets for improvement.' (*Fieldnotes*)

However, not all managers were equally enthused. Where PCTS had not provided data that appeared directly useful for them, middle managers did less to hold their service areas accountable

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3 for briefing implementation. Board members questioned how best to detect a meaningful signal
4
5 amongst the noise of staff reporting (whether through formal incident reports or PCTS). At times,
6
7 managers seemed nihilistic about the possibility of improvement, or questioned whether their
8
9 frontline teams truly understood the problems they had reported:
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13
14 'We have two chances of getting [this issue resolved] – fat chance and no chance! We are
15
16 monitoring [this] on a daily basis but [...] the situation is far from ideal and we have
17
18 escalated up the chain – not that it has helped.' (*Support service manager – Fieldnotes*)
19

20
21
22 'I would like to get some feedback on [these issues] first [...] Currently they are only
23
24 perception[s], and following investigation it may be that the risk changes, or the issue is
25
26 solely around communication of processes already in place.' (*General manager – Fieldnotes*)
27
28

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31 Still, the combination of increased frontline efficiency and managerial involvement (at least in some
32
33 areas) led to a more general sense that things had changed for the better:
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38 '[PCTS] would make it clear what was actually deficient. And then I think things did start to
39
40 change, and you did see the feedback coming through [...] So you could definitely see the
41
42 evolution of it.' (*Foundation doctor*)
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45
46 'There [are] also the [...] day-to-day things within the team that start running better, and I
47
48 think you do start seeing those, but it is harder to put a specific, "This was raised, this was
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50 done, there was an outcome." It is a more [...] general change as part of [PCTS].' (*Foundation*
51
52 *doctor*)
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3 With a structure in place to coordinate frontline teams and their managers, individual staff found
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5 their own practice changing, with unexpected personal benefits. These will now be discussed in
6
7 more detail.
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10 11 **3. Changing individuals: reversing normalised deviance, and catharsis** 12

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16 PCTS prompted staff to proactively address issues they may have previously ignored. This was, in
17
18 effect, a reversal of the normalised deviance that had become so ingrained:
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22 ‘You wouldn’t have identified that [issue] necessarily, because it is just part of your daily [...] *For Peer Review Only*
23
24 life in the NHS, but when it is put like this [with PCTS], it is highlighted, you have got an
25
26 opportunity to really do something about it.’ *(Service manager)*
27
28

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30
31 ‘This particular patient [has been] awaiting echo[cardiography] for the last three days [...] [I]
32
33 would now question why is it still not done [...] When I wasn’t doing [the briefings], I wasn’t
34
35 seeing the importance [...] [Now] I tell the Matron, or I tell my Bed Manager [...] or I go there
36
37 myself [...] I go to the department and ask them, “This is what’s happening, this is what I
38
39 need.”’ *(Senior nurse)*
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43
44 Having made those problems visible once again, the information shared in the HEADS-UP briefings
45
46 would be used to actively coordinate plans and decisions for the next shift. Aware of pressures on
47
48 their colleagues, and cognisant that problems were occurring repeatedly, individuals would change
49
50 their routines:
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3 'I tell the physio[therapist] and the OT [occupational therapist]: "These are your priorities for
4 today, these are your priorities for tomorrow." So they already have a plan [...] Like I said, it
5 gives you the structure that you need.' (*Senior nurse*)
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11 'The group as a whole became more "present" to [what] happens maybe a couple of times
12 in a week [...] For example if the nursing staff are short [...] just having that in your mind and
13 thinking "No, we need to get all these blood tests done now", you would appreciate how the
14 service could be best run. I think that made it more efficient.' (*Foundation doctor*)
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22 The improved information sharing, interdisciplinary coordination, and efforts to evenly distribute
23 workload produced a more supportive team climate. In this atmosphere, the briefings could become
24 unexpectedly cathartic, giving a voice to junior clinicians to air their personal worries, as well as their
25 clinical concerns:
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33 'You felt like you had got a lot of your chest by doing it [...] The next day you could say,
34 "These are the things that went wrong yesterday", and now I can clear that and start again.'
35
36
37 (*Foundation doctor*)
38
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40
41 '[It] makes you feel more heard, because otherwise you are just venting your concern, but
42 you don't know if it has been actioned in any way. And then you can provide the objective
43 evidence to move forward, to change something.' (*Foundation doctor*)
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51 The combination of changes in team ethos, triage, and individual practice ultimately provoked a new
52 approach to improvement, and a degree of organisational development.
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4. Changing teams and the organisation

Contrary to some leaders' fears, PCTS did not reduce the volume of formal incident reports. Rather, it provoked new reports, and altered how those reports were addressed. Yet the translation of briefing-recorded incidents into online reports was imperfect, not least because there was no agreed list of high priority events to be recorded:

'Antibiotics had not been given [...] The junior doctors had not seen the procedure report specifying they were needed. No incident report was done, even though [the registrar] specifically asked if one should be completed.' (*Fieldnotes*)

When incidents were reported, PCTS briefings allowed incident investigators to start to collect relevant information. The problems that had provoked the incident were typically captured by the briefing, giving the investigator (often the nurse in charge) a head start in understanding what had happened:

'The people involved are already there, they are already able to explain to you, "This is what actually happened from our end." [...] It's easier for you to do your incident [investigation] report already because as the investigator you don't have to call everyone.' (*Senior nurse*)

The emphasis on clinical teams' accountability also led to a subtler change in incident management. Teams took responsibility for issues that were actually within their power to change, rather than awaiting permission or hoping that the problems would be resolved elsewhere:

'Very often before it gets to me, it has been dealt with and sorted out by the teams themselves [...] With HEADS-UP and [incident reporting] together, there is a different

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3 approach: [...] “We have discussed it, we have taken on the responsibility of this, we have
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5 done as much of this as we can, but here is the point where it has to be escalated and we
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7 want to make sure something is done about it, and this is our methodology for doing it.”
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10 That is how it feels to me, anyway.’ (*Service manager*)
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14 At multiple levels within the organisation, it was clear that this programme had revealed hidden
15
16 gaps in practice. PCTS proved useful even on wards where teams were already thought to be
17
18 functioning well:
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22 ‘There is definitely time to do it, there is definitely a need to do it, but [...] you only know
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24 that once you have done it.’ (*Service manager*)
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29 ‘I don’t think we would have known, unless we had done it, that there was a gap there.’
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31 (*Senior nurse*)
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35 Similarly, in safety and governance meetings, PCTS findings highlighted new areas for improvement,
36
37 many of which had not been addressed in incident reports or top-down initiatives. Those findings
38
39 enabled managers to make a convincing case for investment, with numerous specific, tangible
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41 changes driven by PCTS during the study period [box 1]. These changes were described as ‘quick
42
43 wins’ by senior managers, with clinicians agreeing that they were at least a relatively rapid
44
45 organisational response:
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51 ‘It empowers me then as manager for that area to go forward with a business case with the
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53 evidence to say we need additional resource, this is the implications of it [...] And it works, so
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55 we have an additional [cardiac] sonographer [...] I think we saw very quickly a reduction in
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57 delays once that was sorted.’ (*Service manager*)
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5 However, internal investment was not necessarily targeted specifically to participating teams. For
6
7 example, expansion of the phlebotomy service (identified through PCTS as no longer meeting
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9 patient needs) primarily benefited non-participant wards, which were deemed by senior
10
11 management to be more in need of support. Nor was progress guaranteed by repeated ward-level
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13 reporting. Changes to structures or processes were more likely when there was an associated
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15 financial target; another organisational incentive aligning with the proposed improvement; and
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17 when clinicians and managers agreed the need for change.
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22 Additionally, some of the concerns raised by frontline staff simply could not be addressed within the
23
24 organisation. Poor staffing levels, for example, were felt keenly, but reflected a broader national
25
26 challenge. Creative workarounds and mitigation plans could only go so far in addressing a
27
28 fundamental shortfall in staff numbers. This was frustrating for the teams completing the briefings.
29
30 PCTS also identified issues like unsafe inter-hospital transfers, whose resolution would have required
31
32 close collaboration within a network of hospitals. With many other competing priorities, a local
33
34 improvement effort was no guarantor of the necessary cooperative drive for change.
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40 **DISCUSSION**

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42 PCTS established a basis of team psychological safety, married with a hard edge of accountability.
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44 Ward teams triaged recurrent problems to their managers, or resolved them autonomously,
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46 reversing normalised deviance through non-judgemental facilitation and feedback. Junior clinicians
47
48 found a degree of catharsis, and teams became more proactive in addressing improvement
49
50 opportunities. The soft intelligence provided through PCTS proved effective in generating tangible
51
52 organisational change – albeit unpredictably, dependent on the hospital's other priorities and
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54 incentives. At the ward level, briefings were limited by the need to preserve professional credibility,
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56 a lack of interdisciplinary consensus about the nature of the problems they were seeing, and the
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3 relative comfort afforded by the avoidance of accountability. At higher organisational levels,
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5 frontline concerns were subject to competition with other priorities, and resolution was limited by
6
7 the full scale of the challenges they described.
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11 To our knowledge, this report is the first qualitative analysis of how this type of interdisciplinary
12
13 intervention might generate improved outcomes. Previous observational studies of prospective
14
15 clinical surveillance had portrayed staff as objective data recorders: how they might actively shape,
16
17 frame, and mitigate safety concerns was not considered. Our current study therefore offers two
18
19 novel contributions. First, it identifies the mechanisms to be replicated if other PCTS implementation
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21 efforts are to prove successful. Second, it highlights the innate tensions within these efforts to
22
23 capitalise on the frontline experience of care delivery.
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29 There are multiple sources of friction in organisational learning. For example, when reporting their
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31 concerns, staff portray 'others' as threatening patient safety, rather than jeopardising their own
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33 credibility.^{33,34} Disputes about appropriate care are common, not least because there are multiple
34
35 interpretations of what the right course of action *should* have been.^{35,36} These distinctions are lost as
36
37 concerns are escalated through an organisation: rich narratives about patient safety events are
38
39 progressively sanitised of their context.³⁴ Thus, whilst senior executives are encouraged to obtain
40
41 'first-hand knowledge of the system',³⁷ there is no single unproblematic version of the reality of
42
43 frontline care – however we seek to understand it. One study of executive walkrounds (visits to the
44
45 'shop floor') suggested that these visits, whether announced or unexpected, necessarily revealed
46
47 partial, biased accounts of what was going on.³⁸ Here too, we found that our structured programme
48
49 to characterise frontline care was subject to interdisciplinary (and clinico-managerial) disputes and
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51 tensions. Prospective clinical surveillance has been described as 'the future of measuring patient
52
53 safety'.¹⁷ We would now argue that these systems are as value-laden and subjective as any other
54
55 attempt to understand frontline care delivery.
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5 Limitations of this study include our disproportionate access to the teams and individuals who
6
7 engaged with PCTS. These enthusiasts may have had a more positive view of the programme than
8
9 the wider group of eligible clinicians and managers. Selection bias has hampered mixed methods
10
11 evaluations of other quality improvement interventions.³⁹ We attempted to counteract this bias with
12
13 focus group facilitators who had not been directly involved in delivering the PCTS programme, and
14
15 searched for conflicting opinions in the group transcripts and fieldnotes. Our results may also have
16
17 been influenced by social desirability bias – participants giving the acceptable ‘right’ answers rather
18
19 than revealing their true thoughts – and may not generalise fully to other settings. Nonetheless, our
20
21 findings are consistent with, and build on, the existing understanding of frontline safety
22
23 engagement.⁴⁰ Strengths of the study include the theoretically-informed analysis of an emergent
24
25 safety surveillance strategy, and dual methods allowing themes to be integrated. The embedded
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27 research model produced good access to managers as well as frontline staff: often, there is a trade-
28
29 off between the two. Importantly, the study identified mechanisms by which frontline concerns can
30
31 be used productively, rather than disappearing into an organisational ‘black hole’¹³ from which they
32
33 generate no change or learning.
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39 CONCLUSIONS

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41 Healthcare systems can only improve with a detailed operational understanding of how care actually
42
43 takes place.⁴¹ Prospective clinical surveillance strategies offer a route to this understanding. These
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45 strategies are not merely novel measurement tools, as they have been described¹⁵⁻¹⁷ – even if they
46
47 do get closer to the realities of frontline care than other safety systems. They still produce
48
49 negotiated, acceptable accounts, subject to the many interdisciplinary tensions that characterise
50
51 ward work. Nonetheless, prospective surveillance strategies – through which system flaws are
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53 mitigated as they become apparent – facilitate continuous safety improvement. They foster
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55 improvement not only by making soft data intelligible to healthcare managers, but by supporting
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3 frontline staff to make incremental changes in their daily work – a goal for learning healthcare
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5 organisations.
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10 *Box 1: Examples of service investment and organisational change arising from PCTS*

11 Cost-neutral re-alignment of porter provision for radiology, doubling the in-patient flow for X-rays;

12
13 Re-evaluation of phlebotomy service provision, ultimately generating a £20,000 investment in an
14 expanded support service;

15
16 Additional phlebotomy training for healthcare assistants, delivered internally;

17
18 Additional sonographer in echocardiography;

19
20 Relocation of intravenous infusion and nasogastric feeding pumps to a central equipment library;

21
22 Development of electronic referrals and electronic reporting for medical specialty consultations, using
23 existing electronic health record;

24
25 £5,000 investment in ketone meters for management of diabetic ketoacidosis.
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36 *Contributions:*

37 Study design: SP, SA, MJJ, TA, NS, SJL, IB. Study implementation and data collection: SA, SP, MJJ, SJL,
38 IB. Analysis: SA, SP, NS. All authors contributed to, read and approved the final manuscript. Dr
39 Pannick had full access to all of the data in the study and takes responsibility for the integrity of the
40 data.
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49

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13 NIHR or the Department of Health.
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23 *Data sharing:*

24 The qualitative data cannot be shared without identifying participants.
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3 Coreq checklist
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5 1. Personal characteristics:
6

7 Interviewer / facilitator – page 7
8

9 Credentials – page 1

10 Occupation – pages 1, 7

11 Gender – page 1, 7

12 Experience – pages 1, 7
13

14 2. Relationship with participants:
15

16 Relationship – pages 6, 21

17 Participant knowledge – page 7

18 Interviewer characteristics – page 6
19

20 3. Theoretical framework:
21

22 Methodological orientation – page 7
23

24 4. Participant selection:
25

26 Sampling – page 7

27 Method of approach – page 7

28 Sample size – page 7

29 Non-participation – N/A
30

31 5. Setting
32

33 Data collection – page 7

34 Non-participants – N/A

35 Sample description – pages 7,8
36

37 6. Data collection
38

39 Interview guide – page 6

40 Repeat interviews – N/A

41 Audio recording – page 7

42 Field notes – page 6

43 Duration – page 7

44 Data saturation – N/A

45 Transcripts – N/A
46

47 7. Analysis
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49 Data coders – page 7

50 Coding tree – N/A
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Derivation of themes – page 7
Software – page 7
Participant checking – N/A

8. Reporting

Quotations presented – pages 8-19
Data and findings – pages 8-19
Clarity of major themes – pages 8-19
Clarity of minor themes – pages 8-19

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