BMJ Open

Learning from positively deviant wards to improve patient safety: an observational study protocol.

Journal:	*BMJ Open*
Manuscript ID:	bmjopen-2015-009650
Article Type:	Protocol
Date Submitted by the Author:	06-Aug-2015
Complete List of Authors:	Baxter, Ruth; University of Leeds, School of Psychology; Bradford Institute for Health Research, Yorkshire Quality and Safety Research Group Taylor, Natalie; Australian Institute of Health Innovation, Centre for Healthcare Resilience and Implementation Science ; Bradford Institute for Health Reserach, Yorkshire Quality and Safety Research Group Kellar, Ian; University of Leeds, School of Psychology; Bradford Institute for Health Reserach, Yorkshire Quality and Safety Research Group Lawton, Rebecca; University of Leeds, School of Psychology; Bradford Institute for Health Research, Quality and Safety Research
Primary Subject Heading:	Health services research
Secondary Subject Heading:	Geriatric medicine, Nursing, Research methods
Keywords:	Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Positive deviance, QUALITATIVE RESEARCH, GERIATRIC MEDICINE, Improvement Science, Change management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

SCHOLARONE™
Manuscripts

For peer review only

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

LEARNING FROM POSITIVELY DEVIANT WARDS TO IMPROVE PATIENT SAFETY: AN OBSERVATIONAL STUDY PROTOCOL.

Ruth Baxter* [1,2] ,Natalie Taylor,[2,3] Ian Kellar, [1,2] Rebecca Lawton, [1,2]

[1] School of Psychology, University of Leeds, Leeds, LS29JT, UK

[2] Quality and Safety Research Group, Bradford Institute for Health Research, Bradford, BD9 6RJ, UK

[3] Centre for Healthcare Resilience and Implementation Science, Australian Institute of Health Innovation, Macquarie University, New South Wales, Australia

*Corresponding author

Word count: abstract – 300; main text – 3584.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

For peer review only

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

ABSTRACT

Introduction

Positive deviance is an asset based approach to improvement which has recently been adopted to improve quality and safety within healthcare. The approach assumes that solutions to problems already exist within communities. Certain groups or individuals identify these solutions and succeed despite having the same resources as others. Within healthcare, positive deviance has previously been applied at individual or organisational levels to improve specific clinical outcomes or processes of care. This study explores whether the positive deviance approach can be applied to multidisciplinary ward teams to address the broad issue of patient safety amongst elderly patients.

Methods and analysis

Preliminary work analysed NHS Safety Thermometer data from 34 elderly medical wards to identify five 'positively deviant' and five matched 'comparison' wards. Researchers are blinded to ward status. This protocol describes a multi-method, observational study which will a) assess the concurrent validity of identifying positively deviant elderly medical wards using NHS Safety Thermometer data, and b) generate hypotheses about how positively deviant wards succeed.

Patient and staff perceptions of safety will be assessed on each ward using validated surveys. Correlation and ranking analyses will explore whether this survey data aligns with the routinely collected NHS Safety Thermometer data.

Staff focus groups and researcher fieldwork diaries will be completed and qualitative thematic content analysis will be used to generate hypotheses about the strategies, behaviours, team cultures and dynamics that facilitate the delivery of safe

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

patient care. The acceptability and sustainability of strategies identified will also be explored.

Ethics and dissemination:

The South East Scotland Research Ethics Committee 01 approved this study (reference: 14/SS/1085) and NHS Permissions were granted from all trusts. Findings will be published in peer-reviewed, scientific journals, and presented at academic conferences.

Registration details:

This study is registered on the UK Clinical Research Network Study Portfolio (reference number – 18050).

STRENGTHS AND LIMITATIONS OF THIS STUDY

- This is the first known study to apply the positive deviance approach within the UK's National Health Service (NHS). Triangulating routinely collected safety data with staff and patient perceptions of safety will facilitate assessment of whether positively deviant wards have been correctly identified (concurrent validity). A theoretically underpinned framework will be used to guide qualitative data collection.
- The study will be conducted within one region of the United Kingdom and so quantitative analyses are limited in power and the positively deviant elderly medical wards identified may not demonstrate exceptional performance on a national scale.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

INTRODUCTION

Within healthcare, safety is currently defined as the absence of harmful incidents or events.[1, 2] Healthcare organisations therefore focus on identifying the causes of these events and eliminating them. This reactive, deficit based approach, commonly known as Safety I, does not typically explain why and how safe patient care is delivered.[1, 2] An alternative approach, known as Safety II, proposes that healthcare organisations should also focus on ensuring that 'as many things as possible go right'.[1, 2] It is argued that safe care is delivered routinely because clinicians continually adjust their behaviours to the different situations they face. Based on this approach, human factors are considered essential to providing flexibility and resilience rather than being potential sources of error.[2]

Traditionally, methods used to improve patient safety address Safety I. For example, incident reporting, clinical auditing, and quality improvement approaches such Statistical Process Control all identify, and aim to resolve, 'defects' or unacceptable variation in processes.[3, 4] Despite extensive efforts to improve, there is little evidence that patient care is becoming any safer.[5, 6] In contrast, asset based approaches draw upon strengths and resources which exist within communities. 'Positive deviance' adheres to the principles of Safety II and provides an asset based approach to quality improvement. The approach is increasingly being used within healthcare organisations to improve quality and safety outcomes however limited guidance and evidence exists to support its application.[7]

The positive deviance approach

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

The positive deviance approach originated within international public health literature[8] and has been used to address a number of intractable problems such as female genital mutilation and infection avoidance in drug users.[9, 10] Most famously positive deviance was used in Vietnam during the 1990s to sustain a 74% reduction in severe childhood malnutrition over 3 years.[11, 12]

The positive deviance approach identifies and learns from those who demonstrate exceptional performance. It is built on the premise that solutions to enduring problems already exist within communities. Positively deviant individuals or groups are assumed to demonstrate uncommon behaviours and strategies which enable them to overcome problems and succeed. They do so despite facing the same constraints as others in the community.[11, 13, 14]

Bradley et al.[14] propose a four stage process to implement the approach within healthcare organisations (figure 1). Positively deviant individuals or groups are identified using routinely collected and validated data (stage 1). Qualitative methods are used to generate hypotheses about how these positive deviants succeed (stage 2). The hypotheses are tested in larger, representative samples to assess whether they improve the desired outcome (stage 3). Finally, the positively deviant behaviours are disseminated (stage 4).

Positive deviance can be distinguished from alternative quality improvement approaches in a number of ways. Its ‘bottom up’ philosophy ensures staff and patient involvement is integral throughout the process and, as a result, solutions to problems are internally driven rather than externally imposed. Positively deviant behaviours and strategies already facilitate exceptional performance, therefore, they should be feasible and sustainable within current resources, and acceptable to others. Consequently the positive deviance approach has potential to address some of the

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

challenges faced within quality improvement projects such as convincing staff of the problem and that the chosen solution is effective, reducing unintended consequences, and sustaining results over time.[15]

Despite Bradley et al.'s four stage process,[14] the quality of positive deviance studies within healthcare organisations is poor and limited guidance exists on how to conduct each stage.[13] Whilst previous healthcare applications focus on specific outcomes or processes of care,[7] such as reducing healthcare associated infections,[16, 17] and increasing guideline adherence for the treatment of acute myocardial infarction,[14] few studies look more broadly at a range of safety issues. Positive deviants also tend to be identified at individual and organisational levels.[7] Although safety is influenced at these levels,[18] multi-disciplinary ward teams are well-recognised microsystems, or clinical units, with their own processes, outcomes and cultures.[19] If we are able to identify positively deviant wards that demonstrate success across a range of safety indicators, then we may be able to understand the latent or underlying factors associated with those teams.

Aim, objectives, and research questions

To our knowledge the positive deviance approach is yet to be applied within the UK's National Health Service (NHS). The approach is also rarely applied at a ward level to address broad issues such as patient safety.[7] This observational study addresses the first two stages of the positive deviance process[14] in order to a) assess the concurrent validity of identifying positively deviant wards using routinely collected safety data, and b) generate hypotheses about how positively deviant wards deliver exceptionally safe patient care. Guidance to support the

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

implementation of the positive deviance approach within healthcare organisations will also be generated.

Elderly medical wards will be the focus of this study as these patients are particularly vulnerable to safety incidents.[20, 21] We endeavour to identify positively deviant multi-disciplinary ward teams who deliver safe patient care under particularly challenging circumstances.

Routinely collected and valid measures should be used to identify positive deviants.[14] Although many routine measures of safety exist, few are available at ward level (e.g. mortality statistics and the NHS staff survey[22, 23]). The NHS Safety Thermometer (ST) is published on the Health and Social Care Information Centre (HSCIC) at trust (organisation), speciality, and ward level.[24] Data are collected monthly on all acute wards for four common patient harms: falls, pressure ulcers, venous thromboembolism (VTEs), and urinary infections in catheterised patients (UTIs). These are combined to create a composite measure of 'harm-free care'. Whilst concerns exist about the reliability and validity of ST data,[25] this is the only routinely collected measure of overall safety, available at ward level, from all NHS trusts. Furthermore the measures included are particularly pertinent to our elderly patient population.

The following primary research questions will be addressed:

1. Can NHS Safety Thermometer data be used for the valid and reliable identification of positively deviant elderly medical wards?
2. What strategies and behaviours do multi-disciplinary teams use to deliver exceptionally safe patient care on elderly medical wards?

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

3. How do team dynamics and culture differ between elderly medical wards that deliver exceptionally safe and averagely safe patient care?

The following secondary research question will be addressed:

4. To what extent do organisational, situational and individual factors help or hinder the delivery of safe patient care on exceptional and averagely performing elderly medical wards?

Prior to addressing these research questions, preliminary work outlined below was conducted to identify a sample of positively deviant and comparison elderly medical wards [with exceptional (potentially positively deviant) and slightly-above-average safety performances]. Results of this analysis will be reported fully in a separate publication.

PRELIMINARY WORK – IDENTIFYING POSITIVELY DEVIANT WARDS

This study is being conducted in a region of northern England containing 13 acute NHS trusts. Clinical leads in each trust were contacted to identify, and provide basic information about, each of their elderly medical wards (bed numbers, patient gender, and approximate patient age). Thirty seven wards were identified across the region, all of which fulfilled the inclusion criteria in table 1.

Table 1: Inclusion criteria for 'elderly medical' wards

• Dedicated care for patients over the age of 65 years
• Provision of 24 hour, acute, medical care
• Typical patient stay exceeds 48 hours (excluding assessment units)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

• Dedicated medical care (excluding speciality wards, e.g., stroke or rehabilitation)
• Dedicated multi-disciplinary ward team

ST data were extracted at ward and trust level from the HSCIC for the period August 2013 to July 2014 (the most recent 12 months). The trust level datasets accounted for patients being over the age of 70 years and cared for in acute settings. Data were available for 36 wards and 13 trusts. Two wards, with less than 6 months of data, were excluded.

Cross sectional and temporal analyses were conducted to identify positively deviant elderly medical wards with exceptional safety performances. For the 12 month period an average performance for 'harm-free care' was calculated and wards were ranked to identify the 'best' within the region. Given that wards are the unit of analysis, it was necessary to limit the extent to which organisational and speciality/directorate level factors facilitate safety. A scatterplot therefore compared ward and trust level data to ensure ward performance was not just a function of their respective trusts' exceptional safety record.

To assess performance over time run charts compared the monthly performance of each ward with the average monthly performance across the region. Run charts were visually assessed to identify wards that consistently outperformed the regional average over the 12 month period.

Wards with slightly-above-average harm-free care performance were selected as a comparison group. Our aim was to explore how positive deviants excel from the majority of the population (from the average) rather than to explore how they differ from those who perform poorly. Comparison wards were matched to the positively

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

deviant wards using three variables: trust status, patient gender, and a measure of deprivation, to ensure that safe patient care was not purely a function of caring for affluent populations (Index of Multiple Deprivation[26]). Five positively deviant and five matched comparison wards were identified and invited to participate in the study. One ward was unable to participate therefore the final sample includes nine wards.

PRIMARY DATA COLLECTION: METHODS AND ANALYSES

Study design and setting

The preliminary work above identified a sample of 'positively deviant' and 'comparison' elderly medical wards based on ST performance. RB (the primary researcher) and staff in our participating wards will be blind to whether the wards are in the positively deviant or comparison groups throughout the course of the study described below.

An observational, multi-methods study will be conducted on nine elderly medical wards. It will be conducted in two simultaneous phases. During the quantitative phase data will be collected using validated staff and patient surveys to provide two different perspectives of safety on each ward. These data will be analysed alongside the ST data to explore whether the ST has concurrent validity, i.e. whether it correlates with the other validated measures (research question 1). The qualitative phase explores how positively deviant wards deliver exceptionally safe patient care. Multi-disciplinary team focus groups will be conducted and researchers will keep fieldwork diaries to capture the strategies, behaviours, team dynamics, and cultures that facilitate delivery of safe patient care (research questions 2 and 3). Data from

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

the staff surveys will be used to assess how organisational, situational, and individual factors influence the delivery of safe care (research question 4).

QUANTITATIVE PHASE: ASSESSING THE SAFETY THERMOMETER'S CONCURRENT VALIDITY

Participants: eligibility and recruitment

Patients

Patients who have capacity and are physically well enough will be invited to participate in a survey. They must be over 65 years of age and have received care on the ward for more than four hours. Opportunity sampling will be used to recruit up to 20 patients per ward and eligibility will be determined by ward sisters and/or nurses on shift. Researchers will discuss the study verbally, provide patients with a written information sheet, and give them the opportunity to consider the information and ask questions. Participating patients must provide informed consent.

Multi-disciplinary staff

Multidisciplinary ward staff, from all job roles and professional grades, will be invited to participate in the staff surveys. Opportunity sampling will be used to recruit up to 50% of the team per ward. Staff will be provided with a letter about the research and posters will be displayed in staff areas on the ward.

Data collection: measures, tools, and procedures

The majority of data collection will be undertaken by RB, with support from two additional researchers (CR, AH).

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

For peer review only

Patient surveys

Patients will complete The Patient Measure of Safety (PMOS) which gathers feedback from hospitalised patients about the safety of their care and assesses perceptions about factors contributing to safety.[27] The survey includes 44 items measuring nine domains: communication and team working, organisation and care planning, access to resources, ward type and layout, information flow, staff roles and responsibilities, staff training, equipment (design and functioning), and delays. A stand-alone item measures dignity and respect. Patients respond using 5-point Likert scales ranging from 'strongly disagree' to 'strongly agree'. 'Not applicable' and 'prefer not to answer' options are available and comments can be added to provide context.[28] The PMOS is valid, reliable and acceptable to patients.[27, 28]

Depending on their preference, patients will complete surveys either with the researcher's support or independently. Surveys are expected to take approximately 20 minutes and can be completed electronically or using paper and pen. A 'thank you' card will be given on completion.

Staff surveys

Staff will complete the Patient Safety Grade (PSG) which is one of four outcomes within the Hospital Survey on Patient Safety Culture (HSOPSC).[29] The single item question asks staff to grade their ward on overall patient safety using a 5-point Likert scale ranging from 'excellent' to 'failing'. The HSOPSC has been extensively validated and guidance suggests that outcomes which are not required can be removed.[30, 31, 29] In a recent study the PMOS and HSOPSC demonstrated strong correlations with the ST measure of 'harm-free care'.[32] Of all HSOPSC outcomes the PSG correlated most strongly.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Multidisciplinary staff will receive a letter informing them about the study. This letter will enclose a copy of the survey, an information sheet, and return envelope. Participating staff will place completed surveys within a secure 'drop box'. The survey takes approximately ten minutes and will be incentivised by a £20 prize draw on each ward.

NHS Safety Thermometer

Data collection will start several months after the identification of elderly medical wards due to the time delay imposed by the process of gaining NHS ethical approvals. Ward level ST data will therefore be extracted from the HSCIC for the same time period as primary data collection to explore whether wards retain their exceptional or slightly-above-average performance levels.

Average patient age data

During preliminary work accurate average patient age data was not available for all 36 wards. To exclude the possibility that positively deviant wards provide safer care because they treat a comparatively younger group of patients, average patient age data for the period of 1st August 2013 to 31st July 2014 will be collected.

Quantitative analysis

Blinding will be removed prior to analysis. Descriptive statistics will summarise the data and assess whether the assumptions of parametric tests are fulfilled. All individual data will be aggregated to ward level for analyses. PMOS items will be averaged to create scores for the overall survey and each domain. Average ward level scores for the PSG will also be calculated.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

PMOS, PSG, and ST data (for both time periods) will be correlated to assess the concurrent validity of the ST data; whether the ST can confidently be used as a measure for identifying positively deviant elderly medical wards. Scatterplots will explore whether relationships between variables are linear. Wards will also be ranked to assess whether positively deviant wards generally perform better than comparison wards across all measures. An independent samples t-test will explore whether average patient age significantly differs between the two groups.

QUALITITATIVE PHASE: EXPLORING HOW POSITIVE DEVIANTS SUCCEED

Participants: eligibility and recruitment

Multidisciplinary ward staff from all roles and professional grades will be invited to participate in focus groups. Opportunity and purposive sampling will be used to recruit approximately eight members of staff on each ward and recruitment will be supported by ward sisters. Staff will provide written informed consent to participate in focus groups.

Data collection: measures, tools, and procedures

Staff focus groups

One focus group, lasting up to 60 minutes, will be conducted on each ward. Suitable times and locations will be arranged with ward sisters, and staff will be given written and verbal explanations of the study. Following an opportunity to ask questions written informed consent will be gained.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Simply asking staff to discuss how they deliver 'safe care' may not lead to in-depth conversations, therefore, an adapted version of the Manchester Patient Safety Framework (MaPSaF) will be used to help structure focus group discussions. The MaPSaF is a tool to qualitatively explore safety culture within the NHS[33] which is theoretically underpinned by Westrum's Model of Organisational Development.[34, 35] Following advice from the developer, Dianne Parker, this tool was adapted and shortened to contain five dimensions of safety culture: commitment to overall continuous improvement; priority given to safety; recording, evaluating and learning from incidents and best practice; communication about safety issues; and team-working (additional file 1).

Staff will be given approximately ten minutes to read the framework and rate their ward on each domain. They will identify which domains they think their ward particularly excels at. The primary researcher (RB) will use a semi-structured discussion guide, based on the MaPSaF (additional file 3), to facilitate further discussion about the domains identified. The discussion aims to help staff identify the specific strategies and behaviours they use to successfully deliver safe patient care. Focus groups will be audio recorded. Refreshments and a £30 gift voucher will incentivise attendance.

Researcher fieldwork diaries

Fieldwork diaries will be completed by the chief investigator (RB) following ward visits and interactions with staff. Guidance for fieldwork diaries will be used to promote consistent observations across wards (additional file 2). Where possible, five recognised behavioural constructs of team performance will be observed: communication, coordination, cooperation and backup, leadership, and monitoring and situational awareness.[36] Researchers will also observe staff and patient

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

interactions, staffing levels and workload, patient case mix, and ward engagement with the research.

The Yorkshire Contributory Factors framework

The Yorkshire Contributory Factors framework (YCF) contains 19 organisational, situational, and individual factors known to contribute to patient safety incidents.[18] Through the quantitative staff surveys staff will rate the extent to which each factor helps or hinders the delivery of safe care using 5-point Likert scales ranging from 'extremely helps' to 'extremely hinders'.

Feedback meetings

Following analysis, informal feedback meetings will be scheduled on each ward to discuss the positively deviant strategies identified. Researchers will gain feedback from staff about their validity, acceptability and sustainability.

Qualitative analysis

Audio recordings of focus groups will be transcribed verbatim, anonymised, and then analysed using qualitative thematic content analysis.[37, 38] Content analysis has recently evolved to include interpretations of latent content in addition to the traditional quantitative descriptions of data. It can be conducted to various levels of abstraction by focusing on the manifest (explicit data) or latent content (abstract data requiring deeper interpretation).[37, 38] This study aims to a) identify the concrete strategies and behaviours used to deliver safe patient care, and b) identify the abstract factors that facilitate success such as team culture and dynamics. Qualitative thematic content analysis facilitates interpretation at these two different levels.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Qualitative thematic content analysis is conducted in three stages.[38] 'Preparation' involves immersion in the data. During the 'organising' stage data is analysed to create codes which are combined to form higher order categories and subcategories. The final 'reporting' stage refers to the presentation of analyses and results.

To ensure rigour, decisions made during the analysis will be documented in a reflexive diary. A proportion of transcripts will be independently analysed to assess inter-coder reliability, and researchers will meet regularly to discuss and resolve coding problems.

ETHICS AND DISSEMINATION

The following permissions have been obtained for this study:

- NHS Ethics – approval granted by the South East Scotland Research Ethics Committee 01 (reference: 14/SS/1085)
- NHS Permissions were granted by all trusts involved
- This study is registered on the UK Clinical Research Network Study Portfolio (reference – 18050).

Informed consent will be gained from patients and all staff attending focus groups. Informed consent will be assumed for staff who return surveys. Confidentiality and anonymity will be strictly maintained. Data will be anonymised and aggregated to ward level and participants will not be identified through any data, transcripts, or publications.

During the planning phase, stakeholder meetings were held with patient and staff representatives, both of whom perceived the word 'deviance' negatively. More

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

positive terminology, such as successful and/or exceptional wards, will therefore be used instead of the term 'positive deviance'.

This study forms part of the primary researcher's PhD whose thesis will be assessed by the University of Leeds. Findings will be shared with the wards involved and disseminated widely through peer reviewed, scientific journals, and at national and international conferences.

STUDY STATUS

Data collection started in February 2015 and is expected to last 5-6 months. Feedback meetings will be scheduled between September and October 2015.

DISCUSSION

This protocol extends current literature to assess positive deviance at a ward level in relation to the broad, complex problem of patient safety. It is the first known application of positive deviance within a NHS setting. The majority of previous studies within healthcare have been conducted in the United States to address specific outcomes or processes of care, at individual or organisational levels.[7] Although further research is required to test hypotheses before disseminating them more widely (stages 3 and 4 of the positive deviance process), we expect the wards involved will benefit and learn from each other to improve safety even further.

More broadly, we aim to develop additional guidance to help others implement positive deviance within healthcare settings. Our findings will clarify: what routinely collected data can be used to identify positively deviant wards and how it can be

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

analysed; the timescales positive deviants can be identified over; and the methods that can be used explore how they succeed.

Whilst planning this study we have grappled with fundamental questions surrounding the approach. These include: what constitutes positively *deviant* behaviour?; how is positive deviance different to high performance?; how confident must we be that positive deviants have been correctly identified?; and who should positive deviants be compared to?. It is essential that studies like this are conducted to address these fundamental questions. Until we can evaluate the effectiveness of the approach within healthcare organisations, we are unable to conclude whether positive deviance is an improvement method worth investing in.

AUTHORS' CONTRIBUTIONS

RB, NT, IK, and RL substantially contributed to the conception and design of this study. All authors critically assessed and approved the final study design. RB was primarily responsible for setting up the study, gaining ethical approvals, and commencing data collection. RB drafted the initial manuscript. NT, IK, and RL assessed the manuscript critically for intellectual content. All authors approved the final manuscript.

COMPETING INTERESTS

The authors have no competing interests to declare.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

FUNDING STATEMENT

The Health Foundation funded the PhD studentship through which this study is being completed. The funders have no role in the study design, data collection or preparation of this manuscript.

DATA SHARING STATEMENT

This manuscript describes a study protocol. Currently there is no additional data available.

ACKNOWLEDGEMENTS

The authors would like to thank Professor Mohammed Mohammed and Ms Victoria Pye who supported the preliminary work to identify a sample of positively deviant and comparison wards. The authors would also like to recognise the following people for their support designing, setting up and conducting this research: Professor Diane Parker, Ms Caroline Reynolds, Ms Alex Howat and Ms Liz Thorp.

RB, IK and RL are part of the Evidence Based Transformation Theme of the NIHR CLAHRC Yorkshire and Humber. This paper presents independent research by the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care Yorkshire and Humber (NIHR CLAHRC YH). www.clahrc-yh.nir.ac.uk. The views and opinions expressed are those of the authors, and not necessarily those of the NHS, the NIHR or the Department of Health.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

REFERENCES

1. Hollnagel E, Braithwaite J, Wears RL. Resilient health care. UK: Ashgate; 2013.

2. Hollnagel E, Leonhardt J, Licu T, Shorrock S. From Safety-I to Safety-II: a white paper. Brussels: European Organisation for the Safety of Air Navigation (EUROCONTROL) 2013.

3. Power M, Stewart K, Brotherton A. What is the NHS Safety Thermometer? Clinical risk. 2012;18(5):163-9. doi:10.1258/cr.2012.012038.

4. The Health Foundation. Quality improvement made simple. London, UK: The Health Foundation; 2013.

5. Vincent C, Aylin P, Franklin BD, Holmes A, Iskander S, Jacklin A et al. Is health care getting safer? British Medical Journal. 2008;337:1205-7.

6. Landrigan CP, Parry GJ, Bones CB, Hackbarth AD, Goldmann DA, Sharek PJ. Temporal trends in rates of patient harm resulting from medical care. New England Journal of Medicine. 2010;363(22):2124-34.

7. Baxter R, Kellar I, Taylor N, Lawton R. How is the positive deviance approach applied within healthcare organizations? A systematic review of methods used. BMC Health Services Research: Evidence-based practice; 1-3 July 2014; UK, London: BMC Health Services Research; 2014. p. 7.

8. Wishik SM, Van Der Vynckt S. The use of nutritional 'Positive Deviants' to identify approaches for modification of dietary practices. American Journal of Public Health. 1976;66:38-42.

9. Friedman SR, Mateu-Gelabert P, Sandoval M, Hagan H, Jarlais DCD. Positive deviance control-case life history: A method to develop grounded hypotheses about successful long-term avoidance of infection. BMC Public Health. 2008;8(94). doi:10.1186/1471-2458-8-94.

10. Masterson JM, Swanson JH. Female genital cutting: breaking the silence enabling change. Washington, DC: International Center for Research on Women (ICWR) and the Center for Development and Population Activities (CEDPA). 2000.

11. Marsh DR, Schroeder DG, Dearden KA, Sternin J, Sternin M. The power of positive deviance. British Medical Journal. 2004;329(7475):1177-9. doi:10.1136/bmj.329.7475.1177.

12. Mackintosh UAT, Marsh DR, Schroeder DG. Sustained positive deviant child care practices and their effects on child growth in Vietnam. Food Nutr Bull. 2002;23(4, Supplement):16-25.

13. Lawton R, Taylor N, Clay-Williams R, Braithwaite J. Positive deviance: a different approach to achieving patient safety. BMJ Quality and Safety 2014;0:1-4. doi:10.1136/bmjqs-2014-003115.

14. Bradley EH, Curry LA, Ramanadhan S, Rowe L, Nembhard IM, Krumholz HM. Research in action: using positive deviance to improve quality of health care. Implementation Science. 2009;4:25.

15. Dixon-Woods M, McNicol S, Martin G. Ten challenges in improving quality in healthcare: lessons from the Health Foundation's programme evaluations and relevant literature. BMJ quality & safety. 2012;21(10):876-84. doi:10.1136/bmjqs-2011-000760.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

16. Marra AR, Guastelli LR, De Araujo CMP, Dos Santos JLS, Lamblet LCR, Silva Jr M et al. Positive deviance: A new strategy for improving hand hygiene compliance. Infection Control and Hospital Epidemiology. 2010;31(1):12-20.

17. Marra AR, Guastelli LR, Pereira de Araujo CM, Saraiva dos Santos JL, O Filho MA, Silva CV et al. Positive deviance: A program for sustained improvement in hand hygiene compliance. American Journal of Infection Control. 2011;39(1):1-5.

18. Lawton R, McEachan RR, Giles SJ, Sirriyeh R, Watt IS, Wright J. Development of an evidence-based framework of factors contributing to patient safety incidents in hospital settings: a systematic review. BMJ quality & safety. 2012;21(5):369-80. doi:10.1136/bmjqs-2011-000443.

19. Nelson EC, Batalden PB, Huber TP, Mohr JJ, Godfrey MM, Headrick LA et al. Microsystems in health care: Part 1. Learning from high-performing front-line clinical units. Jt Comm J Qual Improv. 2002;28(9):472-93.

20. Sari AB, Cracknell A, Sheldon TA. Incidence, preventability and consequences of adverse events in older people: Results of a retrospective case-note review. Age and ageing. 2008;37(3):265-9. doi:10.1093/ageing/afn043.

21. Thomas EJ, Brennan TA. Incidence and types of preventable adverse events in elderly patients: population based review of medical records. British Medical Journal 2000;320(7237):741-4.

22. Health and Social Care Information Centre. Summary Hospital-level Mortality Indicator. http://www.hscic.gov.uk/SHMI. 2015. Accessed 31st July 2015.

23. Picker Institute Europe. NHS Staff Survey. http://www.nhsstaffsurveys.com/Page/1010/Home/Staff-Survey-2014/. 2015. Accessed 31st July 2015.

24. Health and Social Care Information Centre. NHS Safety Thermometer. 2014. http://www.hscic.gov.uk/thermometer. Accessed 29th April 2014.

25. Power M, Fogarty M, Madsen J, Fenton K, Stewart K, Brotherton A et al. Learning from the design and development of the NHS Safety Thermometer. International Journal for Quality in Health Care. 2014;26(3):287–97.

26. Office of the Deputy Prime Minister. The English Indices of Deprivation 2004: Summary (revised). UK: Office of the Deputy Prime Minister; 2004.

27. Giles SJ, Lawton RJ, Din I, McEachan RRC. Developing a patient measure of safety (PMOS). BMJ Quality and Safety. 2013;22. doi:10.1136/bmjqs2012-000843.

28. McEachan RRC, Lawton RJ, O'Hara JK, Armitage G, Giles S, Parveen S et al. Developing a reliable and valid patient measure of safety in hospitals (PMOS): a validation study. BMJ Quality and Safety. 2014;0:1-9. doi:10.1136/bmjqs2013-002312.

29. Sorra J, Nieva V. Hospital survey on patient safety culture. USA, Rockville: AHRQ Publication No. 04-00412004.

30. Sarac C, Flin R, Mearns K, Jackson J. Hospital survey on patient safety culture: psychometric analysis on a Scottish sample. BMJ Quality and Safety. 2011;20(10):842-8. doi:10.1136/bmjqs.2010.047720.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

31. Sorra J, Dyer N. Multilevel psychometric properties of the AHRQ hospital survey on patient safety culture. BMC health services research. 2010;10:199. doi:10.1186/1472-6963-10-199.

32. Lawton R, O'Hara JK, Sheard L, Reynolds C, Cocks K, Armitage G et al. Can staff and patient perspectives on hospital safety predict harm-free care? An analysis of staff and patient survey data and routinely collected outcomes. BMJ Quality and Safety 2015;24(6):369-76. doi:10.1136/bmjqs-2014-003691.

33. National Patient Safety Agency. Manchester Patient Safety Framework (MaPSaF). 2006. http://www.nrls.npsa.nhs.uk/resources/?entryid45=59796. Accessed 7th August 2014.

34. Parker D. Managing risk in healthcare: understanding your safety culture using the Manchester Patient Safety Framework (MaPSaF). Journal of nursing management. 2009;17(2):218-22. doi:10.1111/j.1365-2834.2009.00993.x.

35. Westrum R. A typology of organisational cultures. Quality and Safety in Health Care. 2004;13(suppl_2):ii22-ii7. doi:10.1136/qshc.2003.009522.

36. Undre S, Healey AN, Darzi A, Vincent CA. Observational assessment of surgical teamwork: a feasibility study. World journal of surgery. 2006;30(10):1774-83. doi:10.1007/s00268-005-0488-9.

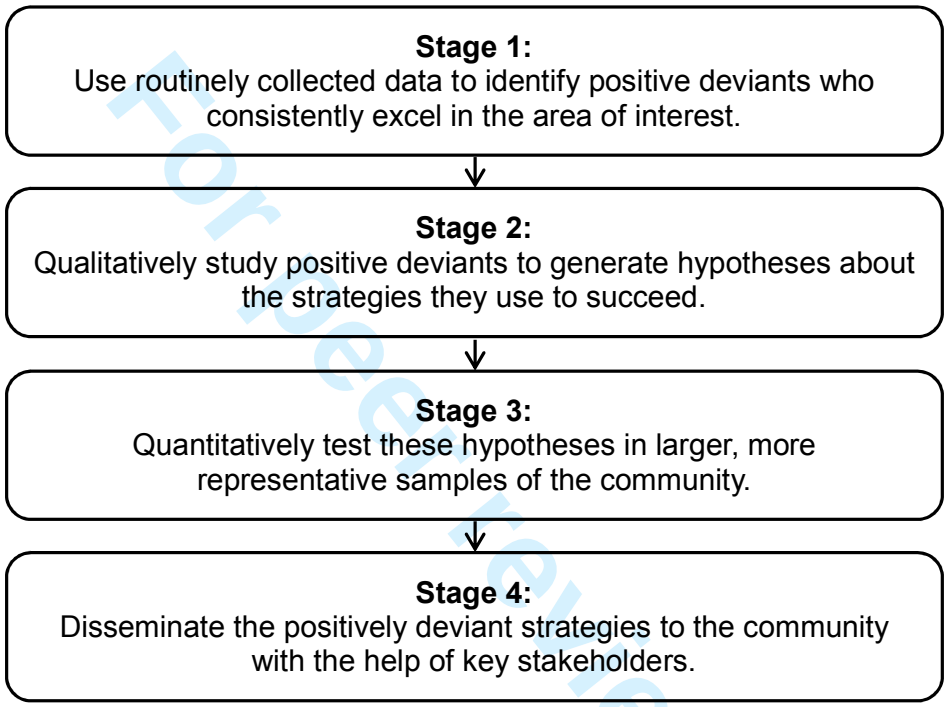
37. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Education Today. 2004;24:105-12. doi:10.1016/j.nedt.2003.10.001/c.

38. Vaismoradi M, Turunen H, Bondas T. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. Nursing & health sciences. 2013;15(3):398-405. doi:10.1111/nhs.12048.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Figure 1 – The positive deviance process for healthcare organisations (adapted from Bradley et al. 2009 [14])



For peer review only

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

An adaptation of the Manchester Patient Safety Framework (MaPSaF)

Increasing Maturity

Domain	A	B	C	D	E
1 Commitment to overall continuous improvement	No resources are invested in the identification of problems or areas of good practice. If any auditing occurs it lacks structure and there is no response to what is discovered. Whatever protocols or policies exist are there to meet statutory requirements and are not used, reviewed or updated. Poor quality care is tolerated or ignored. This attitude is evident at Board level and throughout individual healthcare teams.	A continuous improvement framework is developed in response to specific directives or an imminent inspection visit. Auditing only occurs in response to specific incidents and national directives and does not reflect local needs. Little attempt is made to respond to any audit findings. The bare minimum of protocols and policies exist and these tend to be out-of-date and unused unless an incident occurs that triggers their review. Development of new protocols and policies occurs in response to incidents and complaints.	Frontline staff are not engaged in the improvement process and they see it as a management activity that is externally driven. Lots of auditing occurs but lacks an overall strategy linking with organisational or ward needs. Staff are overloaded with protocols and policies (which are regularly reviewed and updated) that are rarely implemented. Patients and the public may be involved in quality issues but this is lip service rather than real engagement.	There is a genuine desire and enthusiasm for continuous improvement. It is recognised that continuous improvement is everyone's responsibility and that the whole ward / organisation, including patients and the public need to be involved. The aim is to be a centre of excellence and compare performance against that of others. Clinicians are involved in, and have ownership of, the auditing process which leads to continuous improvement. Protocols and policies are developed and reviewed by staff and are used as the basis for care and service provision. Patients and the public are formally involved in internal decisions – making it a patient centred service.	A culture of continuous improvement is embedded and is integral to decision making at all levels. The ward / organisation is a centre of excellence, continually assessing and comparing its performance against others both within and outside the health service. Teams design and conduct their own outcome focused audit programme, in collaboration with patients and the public. Staff are alert to potential safety risks. This means that over time the need for protocols and policies is reduced as evidence-based practice is second nature and patient safety is constantly on everyone's mind. Patients and the public are involved in a routine, meaningful way with ongoing contribution and feedback.
2 Priority given to safety	A low priority is given to safety. There are some risk management systems in place, such as strategies and committees, but nothing is actually delivered. The ward / organisation is unaware of their risks, believing that if a patient safety incident occurs, insurance schemes can be used to bail them out.	Safety becomes a priority once an incident occurs, but the rest of the time only lip service is paid to the issue apart from meeting legal requirements. There is little evidence of any implementation of a risk management strategy. Safety is only discussed by the Board in relation to specific incidents. Any measures that are taken are aimed at self-protection and not patient protection. In order to meet financial constraints or government set targets, risks are taken.	Safety has a fairly high priority and there are numerous systems (including those integrating the patient perspective) in place to protect it. However, these systems are not widely disseminated to staff or reviewed. They also tend to lack the flexibility to respond to unforeseen events and fail to capture the complexity of the issues involved. Responsibility for risk management is invested in a single individual who does not integrate it within the wider organisation. It is an imposed culture.	Safety is promoted and staff are actively involved in all safety issues and processes. Patients, the public and other organisations are also involved in risk management systems and their review. Measures taken are aimed at patient protection and not self-protection. Risks are proactively identified, using prospective risk assessments, and action is taken to manage them. There are clear accountability lines and while one individual takes the lead for patient safety in the organisation, it is a key part of all managers' roles.	Safety is the top priority, and responsibility for safety is seen as part of everyone's role including patients and the public. Staff constantly assess risks and look for potential improvements. Patient safety is a high profile issue and is embedded in the activities of all staff, from the Board/senior managers through to healthcare teams who have day-to-day contact with patients, including support staff. Patient involvement in, and review of, patient safety issues is well established.
3 Recording, evaluating and learning from incidents and best practice	Ad hoc incident reporting systems are in place but largely there is 'blissful ignorance' unless serious incidents occur or solicitors' letters are received. There is a high blame culture, with individuals subjected to victimisation and disciplinary action. Incidents and complaints are superficially investigated with the aim of 'closing the book'. Information from investigations is stored but little action is taken, apart from disciplinary action. There is little recognition of good safe practice. No attempts are made to learn from incidents unless imposed by external bodies such as public enquiries. Change is only directed at those individuals involved in an incident.	There is an embryonic incident reporting system, although staff are not encouraged to report incidents. Minimal data on the incidents is collected but not analysed. There is a blame culture, so staff are reluctant to report incidents. There is no attempt to support those involved. Investigations are cursory and focus on a specific event and the actions of an individual. Quick-fix solutions are proposed, but may not be instigated once the 'heat is off'. Little, if any, learning occurs. All learning is specific to the particular incident. Any changes instigated are not sustainable as they are knee-jerk reactions to perceived individual errors. Change is devised and imposed by senior managers. Similar incidents tend to recur.	A centralised anonymous reporting system is in place with emphasis on form completion. Staff and patients are encouraged to report incidents and near misses, although they do not feel safe or comfortable doing so. Other information is considered alongside incident reports (e.g. complaints and audits). Senior managers are involved in investigations, which focus on the individuals and systems surrounding the incident. Investigations involve multiple forms – they are conducted for their own sake and to placate patients rather than to examine root causes and support those involved. Some systems facilitate learning but it is not disseminated. Enforced local changes relating directly to specific incidents are made. Committees / managers decide on changes and a lack of staff involvement means they are not integrated. Patients and public are only involved to prove commitment to regulators.	Incident reporting is encouraged. Accessible, 'staff and patient friendly' reporting methods are used, allowing trends to be readily examined. Staff feel safe reporting incidents, including those that were prevented. Staff and patients are supported from the moment of reporting. The ward / organisation is open to inquiry and welcomes external involvement to gain an independent perspective. Staff are involved in investigations to identify root causes and issues. Patients are also involved. The aim is to learn from incidents and disseminate the findings widely. Data from incident reports are used to analyse trends, identify 'hot spots' and examine training implications. There is a learning culture and processes exist to share learning, e.g. reflection and sharing patient perceptions. Management support investigations and changes instigated address underlying causes. Staff are actively involved and there is a real commitment to sustainable change and learning from others' experience.	It is second nature for staff to report patient safety incidents (including those prevented or with no harm). They have confidence in the investigation process and understand its value. Patients are actively encouraged to report incidents. Robust systems exist to record best practice and compliments. Internal and external independent investigations are conducted that include the staff and patients involved. Investigations are learning opportunities and include patient recommendations. The ward / organisation learns from internal and external information, experience and best practice. It is committed to sharing this learning both within and outside the organisation. Patient safety incidents are discussed openly and staff are empowered to contribute. Improvements occur without the trigger of an incident. Patients play a key role in learning and they contribute to change.
4 Communication about safety issues	Communication in general is poor; it comes from the top down and staff are only able to speak to their managers about risk. Events are kept in-house and not talked about. The ward / organisation is essentially closed. What communication there is, is negative, with a focus on blame. Patients are only given information which must be legally provided and only after exerting a lot of pressure to give them access.	Communication in general is directive with managers issuing instructions. Staff are only able to speak to their managers after something has gone wrong. Communication is ad hoc and restricted to those involved in a specific incident. The patient is given the information the organisation feels is appropriate in a one-way communication.	There is a communication strategy. Policies and procedures are in place and lots of records are kept. There is a lot of information collected from staff, patients and other organisations but it is not effectively utilised. This leads to an information overload meaning that little is actually done with the information received by staff. A risk communication system is in place, but no-one checks whether it is working.	The communications system and record keeping are fully audited. There is communication across organisations facilitating meaningful benchmarking. All levels of staff are involved, and there are robust mechanisms for them to feedback. Information is shared, there are regular briefing sessions where staff are encouraged to set the agenda. Effective communication regarding safety issues is made with patient and public involvement groups.	Everybody communicates safety issues and learns from the experiences of others (good and bad). It is a transparent ward / organisation and includes patient participation in risk management policy development. Innovative ideas are encouraged and staff are empowered to implement them. Good practice is communicated both externally and internally.
5 Team working	Individuals mainly work in isolation but where there are teams they are uni-disciplinary and dysfunctional. There are tensions between the team members and a rigid hierarchical structure. They are more like a collection of people brought together under the direction of a nominal leader. Information is not shared between team members. The team operates secretively.	People only work as a team following a negative event and to respond to external demands. Individuals are not actually committed to the team. There is a clear hierarchy corresponding to the hierarchy of the organisation as a whole. There are multidisciplinary teams, but they have been told to work together, and only pay lip service to the ideals of team working. Information is cascaded to team members following an incident. The team operates defensively and newcomers are not welcomed.	Multidisciplinary teams are put together to respond to government policies, but there is no way of measuring how effective they are. Teamwork is seen by lower grades of staff as paying lip service to the idea of empowerment. Teams are given lots of written information about how they should function. There are official mechanisms for the sharing of ideas or information within and across teams but these are not used effectively. Teams operate behind the scenes and generally within a single organisation.	Teams are multidisciplinary and time and resources are devoted to team development processes. Team structure is fluid, with people taking up the role most appropriate for them at the time. There is evaluation of how effective the team is and changes are made when necessary. Teams are collaborative and adaptable. Teams are open and may involve members external to the organisation.	Regular and evaluated team resource management training is offered to fully integrated multidisciplinary teams. Team membership is flexible with a horizontal structure. Different people make equally valued contributions when appropriate. Teams are about shared understanding and vision rather than geographical proximity. Team working is the accepted way. Teams are totally open, involving members from diverse organisations, locally, nationally and even internationally.

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA 4
Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Additional File 2:
Field work diary guidance

Aim:

The concrete strategies and behaviours that teams use to deliver safe patient care (e.g. a specific handover process) will be identified by staff through the focus groups. Field work diaries aim to build a qualitative picture of each ward. They will be used to identify some of the more abstract and contextual nuances of how team dynamics and ward culture contribute to the successful delivery of safe patient care.

Procedure:

Field work diaries are to be completed following each visit or interaction with a ward (e.g. telephone correspondence). Whilst collecting surveys on each ward you will have an opportunity to observe how patient care is delivered and how the team interacts and communicates with each other, patients, visitors and the research team. At the end of each visit or interaction with the ward, please document your observations specifically in relation to the headings below. Field work diaries should also be completed after each focus group. Each record should be identified with the ward name and the date / time of the visit. An entry does not have to be written for every heading – please just document observations which appear most important.

Focus for observations:

Focus	Description
Communication	The quality and quantity of information exchanged by team members
Coordination	The management and timing of activities and tasks
Cooperation and backup	The assistance provided among members of the team, supporting others and correcting errors
Leadership	The provision of direction, assertiveness and support among team members
Monitoring and situational awareness	Team observation and awareness of ongoing processes
Staff - patient interactions	Staff responses to patients' feelings and needs (empathy). The degree of coherence in the interaction / conversation, verbal and non-verbal expression. Treatment of patients with dignity and respect.
Staffing levels and workload	Staffing levels on the ward, team composition, influences of hierarchy, stress levels and workload
Patient case mix	Patient case mix including frailty and dependence on staff
Engagement with the research	The ward team's awareness of the study and their interactions with the research team

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Additional File 3:

Focus group discussion guide

Materials:

Participant information sheets
Consent forms
Adapted MaPSaF
Flipchart paper and pens
Blue-tack
Field work diary
Audio recorder
Participant vouchers
Food and drink

Discussion guide	Time / Materials
Introduction 1. Introduce myself and explain the purpose of the research Name, job and where I'm from. Name of the research study. Aim of focus group: to identify how your multi-disciplinary team successfully delivers safe patient care on the ward. What will happen: Individually you will each complete a safety culture assessment. As a group we will get consensus about which safety culture domains your ward performs the best on. We will then have a discussion to identify how, as a team, you manage to achieve this success. Rather than identifying vague, abstract things such as 'we communicate well at handovers' I'm going to really probe you to identify the specific concrete behaviours that you use. For example 'we follow a set process at handover where the nurse in charge does xxx and then the doctors contribute with yyy and the rest of the ward team do zzz'. If everyone is agreeable I will audio record the session. This is to help me transcribe and then analyse the data. No one other than myself and the research team will have access to this recording. Everything you say in this room is confidential and will be anonymised. The only circumstance under which I might have to break confidentiality is if I feel that there is an immediate threat to the safety of patients or others. But seeing as the focus of the conversation will be on how your team succeeds this should not be a problem! 2. Are there any questions? 3. Sign the consent forms 4. Icebreaker – Please can everyone introduce themselves: their name and role	10 mins Information sheets Consent forms
MaPSaF 5. Introduce MaPSaF We are now going to use an adapted version of the Manchester Patient Safety Framework. It is a well-established safety culture assessment developed for and used within the NHS. A safety culture is where staff have constant and active awareness of the potential for things to go wrong. It is open	15 minutes MaPSaF

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

and fair and encourages staff to speak up about mistakes. For the purpose of this study we have reduced the number of domains that are included at as we don't have very much time. Show the group the framework and point out the different domains, levels and descriptions. I would like each of you now to read through the framework thinking about patient safety on your ward. On the framework make a mark for each domain which level you think your ward sits within. You have just over 10 minutes to do this. 6. Gain consensus for each MaPSaF domain. Going round the group ask people to say which level they have classed their ward as for each domain. Get consensus as to which domains the wards succeeds the most on. Overall it looks as though your ward preforms the best on the xxx domain. It doesn't matter if you disagree with this or rated it at a different level – the reasons you chose each level is what we want to try and discuss.	Flipchart paper and pens
Discussion questions Choose questions / expand on staff comments using the generic selection below. Choose questions which are focused on a specific domain of interest. 7. Introduction / general questions What made you choose this level instead of the one above or below it? How does your team achieve this / this level? What examples can you give me? What does that look like in practice? Can you describe how the team would do xxx? What role does each of the team members play in xxx? What does xx do to help achieve that? What helps you achieve xxx? What hinders you? How does the team overcome that? A year ago would you have scored any of the domains differently? What has changed since then? What do you do differently now? What does this team do differently from other wards / places that you have worked? Tell me about staffing levels on the ward. Tell me about opportunities for training and education. 8. Commitment to overall continuous improvement What auditing occurs on your ward? When do they occur? Who / what is involved? What are the outcomes? What role do protocols and policies have on your ward? When / how are they used? Who are they used by? How are they created? Tell me about some improvement work that has been conducted on your ward recently. How did it	

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

occur? Who was involved? What initiated the need for improvement? 9. Priority given to safety What priority does safety have on your ward? Can you give me examples of this? How are risks to patient safety identified? Who is involved in this? When is patient safety promoted and discussed on the ward? 10. Recording, evaluating and learning from incidents and best practice What happens when patient safety incidents occur? Can you tell me about your incident reporting system? How are incidents investigated and who is involved? What is the outcome of incident reporting? What types of incidents are reported? What happens to staff who are involved in incidents? What learning occurs after incidents have occurred? 11. Communication about safety issues In relation to patient safety what communication systems are in place? What safety information is communicated between team members? Who is involved in communicating it? How is patient risk information communicated between team members? (verbal and written) How are patients involved in communicating safety information? 12. Team working How is information shared between different members of the team? When does this work best? What facilitates team working on the ward? How does team work contribute to safe patient care on the ward? How are different professional groups involved in the delivery of care on the ward? (Pharmacy, Physio, SALT, OT, Dieticians). Day to day how do they interact with the core ward team? How do community services interact with the ward / hospital teams? Social Services, community / District Nursing, General Practice etc. 13. Ending Questions From everything that we have discussed which single strategy or behaviour that your team uses to deliver safe patient care would you pin point as most important?	
Ending Thank the participants for their time and contribution. Ask if anyone has any questions. Distribute vouchers.	Vouchers

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

BMJ Open

Learning from positively deviant wards to improve patient safety: an observational study protocol.

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2015-009650.R1
Article Type:	Protocol
Date Submitted by the Author:	06-Oct-2015
Complete List of Authors:	Baxter, Ruth; University of Leeds, School of Psychology; Bradford Institute for Health Research, Yorkshire Quality and Safety Research Group Taylor, Natalie; Australian Institute of Health Innovation, Macquarie University, Centre for Healthcare Resilience and Implementation Science (CHRIS); Bradford Institute for Health Reserach, Yorkshire Quality and Safety Research Group Kellar, Ian; University of Leeds, School of Psychology; Bradford Institute for Health Reserach, Yorkshire Quality and Safety Research Group Lawton, Rebecca; University of Leeds, School of Psychology; Bradford Institute for Health Research, Quality and Safety Research
Primary Subject Heading:	Health services research
Secondary Subject Heading:	Geriatric medicine, Nursing, Research methods
Keywords:	Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Positive deviance, QUALITATIVE RESEARCH, GERIATRIC MEDICINE, Improvement Science, Change management < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

SCHOLARONE™
Manuscripts

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

LEARNING FROM POSITIVELY DEVIANT WARDS TO IMPROVE PATIENT SAFETY: AN OBSERVATIONAL STUDY PROTOCOL.

Ruth Baxter, [1,2*] Natalie Taylor,[2,3] Ian Kellar, [1,2] Rebecca Lawton, [1,2]

[1] School of Psychology, University of Leeds, Leeds, LS29JT, UK

[2] Quality and Safety Research Group, Bradford Institute for Health Research, Bradford, BD9 6RJ, UK

[3] Centre for Healthcare Resilience and Implementation Science, Australian Institute of Health Innovation, Macquarie University, New South Wales, Australia

*Corresponding author

For peer review only

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Word count: abstract – 300; main text – 3683.

For peer review only

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

ABSTRACT

Introduction

Positive deviance is an asset based approach to improvement which has recently been adopted to improve quality and safety within healthcare. The approach assumes that solutions to problems already exist within communities. Certain groups or individuals identify these solutions and succeed despite having the same resources as others. Within healthcare, positive deviance has previously been applied at individual or organisational levels to improve specific clinical outcomes or processes of care. This study explores whether the positive deviance approach can be applied to multidisciplinary ward teams to address the broad issue of patient safety amongst elderly patients.

Methods and analysis

Preliminary work analysed NHS Safety Thermometer data from 34 elderly medical wards to identify five 'positively deviant' and five matched 'comparison' wards. Researchers are blinded to ward status. This protocol describes a multi-method, observational study which will a) assess the concurrent validity of identifying positively deviant elderly medical wards using NHS Safety Thermometer data, and b) generate hypotheses about how positively deviant wards succeed.

Patient and staff perceptions of safety will be assessed on each ward using validated surveys. Correlation and ranking analyses will explore whether this survey data aligns with the routinely collected NHS Safety Thermometer data.

Staff focus groups and researcher fieldwork diaries will be completed and qualitative thematic content analysis will be used to generate hypotheses about the strategies, behaviours, team cultures and dynamics that facilitate the delivery of safe

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

patient care. The acceptability and sustainability of strategies identified will also be explored.

Ethics and dissemination:

The South East Scotland Research Ethics Committee 01 approved this study (reference: 14/SS/1085) and NHS Permissions were granted from all trusts. Findings will be published in peer-reviewed, scientific journals, and presented at academic conferences.

Registration details:

This study is registered on the UK Clinical Research Network Study Portfolio (reference number – 18050).

STRENGTHS AND LIMITATIONS OF THIS STUDY

- This is the first known study to apply the positive deviance approach within the UK's National Health Service (NHS). Triangulating routinely collected safety data with staff and patient perceptions of safety will facilitate assessment of whether positively deviant wards have been correctly identified (concurrent validity). A theoretically underpinned framework will be used to guide qualitative data collection.
- The study will be conducted within one region of the United Kingdom and so quantitative analyses are limited in power and the positively deviant elderly medical wards identified may not demonstrate exceptional performance on a national scale.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

INTRODUCTION

Within healthcare, safety is currently defined as the absence of harmful incidents or events.[1, 2] Healthcare organisations therefore focus on identifying the causes of these events and eliminating them. This reactive, deficit based approach, commonly known as Safety I, does not typically explain why and how safe patient care is delivered.[1, 2] An alternative approach, known as Safety II, proposes that healthcare organisations should also focus on ensuring that 'as many things as possible go right'.[1, 2] It is argued that safe care is delivered routinely because clinicians continually adjust their behaviours to the different situations they face. Based on this approach, human factors are considered essential to providing flexibility and resilience rather than being potential sources of error.[2]

Traditionally, methods used to improve patient safety address Safety I. For example, incident reporting, clinical auditing, and quality improvement approaches such Statistical Process Control all identify, and aim to resolve, 'defects' or unacceptable variation in processes.[3, 4] Despite extensive efforts to improve, there is little evidence that patient care is becoming any safer.[5, 6] In contrast, asset based approaches draw upon strengths and resources which exist within communities. 'Positive deviance' adheres to the principles of Safety II and provides an asset based approach to quality improvement. The approach is increasingly being used within healthcare organisations to improve quality and safety outcomes however limited guidance and evidence exists to support its application.[7]

The positive deviance approach

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

The positive deviance approach originated within international public health literature[8] and has been used to address a number of intractable problems such as female genital mutilation and infection avoidance in drug users.[9, 10] Most famously positive deviance was used in Vietnam during the 1990s to sustain a 74% reduction in severe childhood malnutrition over 3 years.[11, 12]

The positive deviance approach identifies and learns from those who demonstrate exceptional performance. It is built on the premise that solutions to enduring problems already exist within communities. Positively deviant individuals or groups are assumed to demonstrate uncommon behaviours and strategies which enable them to overcome problems and succeed. They do so despite facing the same constraints as others in the community.[11, 13, 14]

Bradley et al.[14] propose a four stage process to implement the approach within healthcare organisations (figure 1). Positively deviant individuals or groups are identified using routinely collected and validated data (stage 1). Qualitative methods are used to generate hypotheses about how these positive deviants succeed (stage 2). The hypotheses are tested in larger, representative samples to assess whether they improve the desired outcome (stage 3). Finally, the positively deviant behaviours are disseminated (stage 4).

Positive deviance can be distinguished from alternative quality improvement approaches in a number of ways. Its 'bottom up' philosophy ensures staff and patient involvement is integral throughout the process and, as a result, solutions to problems are internally driven rather than externally imposed. Positively deviant behaviours and strategies already facilitate exceptional performance, therefore, they should be feasible and sustainable within current resources, and acceptable to others. Consequently the positive deviance approach has potential to address some of the

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

challenges faced within quality improvement projects such as convincing staff of the problem and that the chosen solution is effective, reducing unintended consequences, and sustaining results over time.[15]

Despite Bradley et al.'s four stage process,[14] the quality of positive deviance studies within healthcare organisations is poor and limited guidance exists on how to conduct each stage.[13] Whilst previous healthcare applications focus on specific outcomes or processes of care,[7] such as reducing healthcare associated infections,[16, 17] and increasing guideline adherence for the treatment of acute myocardial infarction,[14] few studies look more broadly at a range of safety issues. Positive deviants also tend to be identified at individual and organisational levels.[7] Although safety is influenced at these levels,[18] multi-disciplinary ward teams are well-recognised microsystems, or clinical units, with their own processes, outcomes and cultures.[19] If we are able to identify positively deviant wards that demonstrate success across a range of safety indicators, then we may be able to understand the latent or underlying factors associated with those teams.

Aim, objectives, and research questions

To our knowledge the positive deviance approach is yet to be applied within the UK's National Health Service (NHS). The approach is also rarely applied at a ward level to address broad issues such as patient safety.[7] This observational study addresses the first two stages of the positive deviance process[14] in order to a) assess the concurrent validity of identifying positively deviant wards using routinely collected safety data, and b) generate hypotheses about how positively deviant wards deliver exceptionally safe patient care. Guidance to support the

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

implementation of the positive deviance approach within healthcare organisations will also be generated.

Elderly medical wards will be the focus of this study as these patients are particularly vulnerable to safety incidents.[20, 21] We endeavour to identify positively deviant multi-disciplinary ward teams who deliver safe patient care under particularly challenging circumstances.

Routinely collected and valid measures should be used to identify positive deviants.[14] Although many routine measures of safety exist, few are available at ward level (e.g. mortality statistics and the NHS staff survey[22, 23]). The NHS Safety Thermometer (ST) is published on the Health and Social Care Information Centre (HSCIC) at trust (organisation), speciality, and ward level.[24] Data are collected monthly on all acute wards for four common patient harms: falls, pressure ulcers, venous thromboembolism (VTEs), and urinary infections in catheterised patients (UTIs). These are combined to create a composite measure of 'harm-free care'. Whilst concerns exist about the reliability and validity of ST data,[25] this is the only routinely collected measure of overall safety, available at ward level, from all NHS trusts. Furthermore the measures included are particularly pertinent to our elderly patient population.

The following primary research questions will be addressed:

1. Can NHS Safety Thermometer data be used for the valid and reliable identification of positively deviant elderly medical wards?
2. What strategies and behaviours do multi-disciplinary teams use to deliver exceptionally safe patient care on elderly medical wards?

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

3. How do team dynamics and culture differ between elderly medical wards that deliver exceptionally safe and averagely safe patient care?

The following secondary research question will be addressed:

4. To what extent do organisational, situational and individual factors help or hinder the delivery of safe patient care on exceptional and averagely performing elderly medical wards?

Prior to addressing these research questions, preliminary work outlined below was conducted to identify a sample of positively deviant and comparison elderly medical wards [with exceptional (potentially positively deviant) and slightly-above-average safety performances]. Results of this analysis will be reported fully in a separate publication.

PRELIMINARY WORK – IDENTIFYING POSITIVELY DEVIANT WARDS

This study is being conducted in a region of northern England containing 13 acute NHS trusts. Clinical leads in each trust were contacted to identify, and provide basic information about, each of their elderly medical wards (bed numbers, patient gender, and approximate patient age). Thirty seven wards were identified across the region, all of which fulfilled the inclusion criteria in table 1.

Table 1: Inclusion criteria for 'elderly medical' wards

• Dedicated care for patients over the age of 65 years
• Provision of 24 hour, acute, medical care
• Typical patient stay exceeds 48 hours (excluding assessment units)

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

• Dedicated medical care (excluding speciality wards, e.g., stroke or rehabilitation)
• Dedicated multi-disciplinary ward team

ST data were extracted at ward and trust level from the HSCIC for the period August 2013 to July 2014 (the most recent 12 months). The trust level datasets accounted for patients being over the age of 70 years and cared for in acute settings. Data were available for 36 wards and 13 trusts. Two wards, with less than 6 months of data, were excluded.

Cross sectional and temporal analyses were conducted to identify positively deviant elderly medical wards with exceptional safety performances. For the 12 month period an average performance for 'harm-free care' was calculated and wards were ranked to identify the 'best' within the region. Given that wards are the unit of analysis, it was necessary to limit the extent to which organisational and speciality/directorate level factors facilitate safety. A scatterplot therefore compared ward and trust level data to ensure ward performance was not just a function of their respective trusts' exceptional safety record.

To assess performance over time run charts compared the monthly performance of each ward with the average monthly performance across the region. Run charts were visually assessed to identify wards that consistently outperformed the regional average over the 12 month period.

Wards with slightly-above-average harm-free care performance were selected as a comparison group. Our aim was to explore how positive deviants excel from the majority of the population (from the average) rather than to explore how they differ from those who perform poorly. Comparison wards were matched to the positively

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

deviant wards using three variables: trust status, patient gender, and a measure of deprivation, to ensure that safe patient care was not purely a function of caring for affluent populations (Index of Multiple Deprivation[26]). Five positively deviant and five matched comparison wards were identified and invited to participate in the study. One ward was unable to participate therefore the final sample includes nine wards.

PRIMARY DATA COLLECTION: METHODS AND ANALYSES

Study design and setting

The preliminary work above identified a sample of 'positively deviant' and 'comparison' elderly medical wards based on ST performance. RB (the primary researcher) and staff in our participating wards will be blind to whether the wards are in the positively deviant or comparison groups throughout the course of the study described below.

An observational, multi-methods study will be conducted on nine elderly medical wards. It will be conducted in two simultaneous phases. During the quantitative phase data will be collected using validated staff and patient surveys to provide two different perspectives of safety on each ward. These data will be analysed alongside the ST data to explore whether the ST has concurrent validity, i.e. whether it correlates with the other validated measures (research question 1). The qualitative phase explores how positively deviant wards deliver exceptionally safe patient care. Multi-disciplinary team focus groups will be conducted and researchers will keep fieldwork diaries to capture the strategies, behaviours, team dynamics, and cultures that facilitate delivery of safe patient care (research questions 2 and 3). Data from

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

the staff surveys will be used to assess how organisational, situational, and individual factors influence the delivery of safe care (research question 4).

QUANTITATIVE PHASE: ASSESSING THE SAFETY THERMOMETER'S CONCURRENT VALIDITY

Participants: eligibility and recruitment

Patients

Patients who have capacity and are physically well enough will be invited to participate in a survey. They must be over 65 years of age and have received care on the ward for more than four hours. Opportunity sampling will be used to recruit up to 20 patients per ward and eligibility will be determined by ward sisters and/or nurses on shift. Researchers will discuss the study verbally, provide patients with a written information sheet, and give them the opportunity to consider the information and ask questions. Participating patients must provide informed consent.

Multi-disciplinary staff

Multidisciplinary ward staff, from all job roles and professional grades, will be invited to participate in the staff surveys. Opportunity sampling will be used to recruit up to 50% of the team per ward. Staff will be provided with a letter about the research and posters will be displayed in staff areas on the ward.

Data collection: measures, tools, and procedures

The majority of data collection will be undertaken by RB, with support from two additional researchers (CR, AH).

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Patient surveys

Patients will complete The Patient Measure of Safety (PMOS) which gathers feedback from hospitalised patients about the safety of their care and assesses perceptions about factors contributing to safety.[27] The survey (additional file 1) includes 44 items measuring nine domains: communication and team working, organisation and care planning, access to resources, ward type and layout, information flow, staff roles and responsibilities, staff training, equipment (design and functioning), and delays. Two stand-alone items measure 'dignity and respect' and 'The Friends and Family Test' (FFT; a measure of patient experience used nationally within the UK[28]). Patients respond to each question using 5-point Likert scales ranging from 'strongly disagree' to 'strongly agree'. 'Not applicable' and 'prefer not to answer' options are available and comments can be added to each answer to provide context.[29] The PMOS is valid, reliable and acceptable to patients.[27, 29]

Depending on their preference patients will complete the survey either with the researcher's support (the researcher will read the questions and record their answers) or independently. This flexibility will help researchers overcome some of the challenges associated with collecting data within elderly populations.[30, 31] Surveys are expected to take approximately 20 minutes and can be completed electronically or using paper and pen. A 'thank you' card will be given on completion.

Staff surveys

Staff will complete the Patient Safety Grade (PSG) which is one of four outcomes within the Hospital Survey on Patient Safety Culture (HSOPSC).[32] The single item question asks staff to grade their ward on overall patient safety using a 5-point Likert scale ranging from 'excellent' to 'failing'. The HSOPSC has been extensively

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

validated and guidance suggests that outcomes which are not required can be removed.[33, 34, 32] In a recent study the PMOS and HSOPSC demonstrated strong correlations with the ST measure of 'harm-free care'.[35] Of all HSOPSC outcomes the PSG correlated most strongly.

Multidisciplinary staff will receive a letter informing them about the study. This letter will enclose a copy of the survey, an information sheet, and return envelope. Participating staff will place completed surveys within a secure 'drop box' on the ward. The survey takes approximately ten minutes and will be incentivised by a £20 prize draw on each ward. Additional survey content is described under the Yorkshire Contributory Factors framework heading, and the full survey can be viewed in additional file 2.

NHS Safety Thermometer

Data collection will start several months after the identification of elderly medical wards due to the time delay imposed by the process of gaining NHS ethical approvals. Ward level ST data will therefore be extracted from the HSCIC for the same time period as primary data collection to explore whether wards retain their exceptional or slightly-above-average performance levels.

Average patient age data

During preliminary work accurate average patient age data was not available for all 36 wards. To exclude the possibility that positively deviant wards provide safer care because they treat a comparatively younger group of patients, average patient age data for the annual period of 1st August 2013 to 31st July 2014 will be collected from each ward.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Quantitative analysis

Blinding will be removed prior to analysis. Descriptive statistics will summarise the data and assess whether the assumptions of parametric tests are fulfilled. All individual data will be aggregated to ward level for analyses. PMOS items will be averaged to create scores for the overall survey and each domain. Average ward level scores for the PSG will also be calculated.

PMOS, PSG, and ST data (for both time periods) will be correlated to assess the concurrent validity of the ST data; whether the ST can confidently be used as a measure for identifying positively deviant elderly medical wards. Scatterplots will explore whether relationships between variables are linear. Wards will also be ranked to assess whether positively deviant wards generally perform better than comparison wards across all measures. An independent samples t-test will explore whether average patient age significantly differs between the two groups.

QUALITITATIVE PHASE: EXPLORING HOW POSITIVE DEVIANTS SUCCEED

Participants: eligibility and recruitment

Multidisciplinary ward staff from all roles and professional grades will be invited to participate in focus groups. Opportunity and purposive sampling will be used to recruit approximately eight members of staff on each ward and recruitment will be supported by ward sisters. Staff will provide written informed consent to participate in focus groups.

Data collection: measures, tools, and procedures

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Staff focus groups

One focus group, lasting up to 60 minutes, will be conducted on each ward. Suitable times and locations will be arranged with ward sisters, and staff will be given written and verbal explanations of the study. Following an opportunity to ask questions written informed consent will be gained.

Simply asking staff to discuss how they deliver 'safe care' may not lead to in-depth conversations, therefore, an adapted version of the Manchester Patient Safety Framework (MaPSaF) will be used to help structure focus group discussions. The MaPSaF is a tool to qualitatively explore safety culture within the NHS[36] which is theoretically underpinned by Westrum's Model of Organisational Development.[37, 38] Following advice from the developer, Dianne Parker, this tool was adapted and shortened to contain five dimensions of safety culture: commitment to overall continuous improvement; priority given to safety; recording, evaluating and learning from incidents and best practice; communication about safety issues; and team-working (additional file 3).

Staff will be given approximately ten minutes to read the framework and rate their ward on each domain. They will identify which domains they think their ward particularly excels at. The primary researcher (RB) will use a semi-structured discussion guide, based on the MaPSaF (additional file 4), to facilitate further discussion about the domains they identify. The discussion will aim to help staff identify the specific strategies and behaviours they use to successfully deliver safe patient care. Focus groups will be audio recorded. Refreshments and a £30 gift voucher will incentivise attendance.

Researcher fieldwork diaries

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Fieldwork diaries will be completed by the chief investigator (RB) following ward visits and interactions with staff. Guidance for fieldwork diaries will be used to promote consistent observations across wards (additional file 5). Where possible, five recognised behavioural constructs of team performance will be observed: communication, coordination, cooperation and backup, leadership, and monitoring and situational awareness.[39] Researchers will also observe staff and patient interactions, staffing levels and workload, patient case mix, and ward engagement with the research.

The Yorkshire Contributory Factors framework

The Yorkshire Contributory Factors framework (YCF) contains 19 organisational, situational, and individual factors known to contribute to patient safety incidents.[18] Questions addressing each of these factors have been included in the quantitative staff survey (additional file 2). Staff will rate the extent to which each factor helps or hinders the delivery of safe care using 5-point Likert scales ranging from 'extremely helps' to 'extremely hinders'.

Feedback meetings

Following analysis, informal feedback meetings will be scheduled on each ward to discuss the positively deviant strategies identified. Researchers will gain feedback from staff about their validity, acceptability and sustainability.

Qualitative analysis

Audio recordings of focus groups will be transcribed verbatim, anonymised, and then analysed using qualitative thematic content analysis.[40, 41] Content analysis has recently evolved to include interpretations of latent content in addition to the

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

traditional quantitative descriptions of data. It can be conducted to various levels of abstraction by focusing on the manifest (explicit data) or latent content (abstract data requiring deeper interpretation).[40, 41] This study aims to a) identify the concrete strategies and behaviours used to deliver safe patient care, and b) identify the abstract factors that facilitate success such as team culture and dynamics. Qualitative thematic content analysis facilitates interpretation at these two different levels.

Qualitative thematic content analysis is conducted in three stages.[41] 'Preparation' involves immersion in the data. During the 'organising' stage data is analysed to create codes which are combined to form higher order categories and subcategories. The final 'reporting' stage refers to the presentation of analyses and results.

To ensure rigour, decisions made during the analysis will be documented in a reflexive diary. A proportion of transcripts will be independently analysed to assess inter-coder reliability, and researchers will meet regularly to discuss and resolve coding problems.

ETHICS AND DISSEMINATION

The following permissions have been obtained for this study:

- NHS Ethics – approval granted by the South East Scotland Research Ethics Committee 01 (reference: 14/SS/1085)
- NHS Permissions were granted by all trusts involved
- This study is registered on the UK Clinical Research Network Study Portfolio (reference – 18050).

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Informed consent will be gained from patients and all staff attending focus groups. Informed consent will be assumed for staff who return surveys. Confidentiality and anonymity will be strictly maintained. Data will be anonymised and aggregated to ward level and participants will not be identified through any data, transcripts, or publications.

During the planning phase, stakeholder meetings were held with patient and staff representatives, both of whom perceived the word 'deviance' negatively. More positive terminology, such as successful and/or exceptional wards, will therefore be used instead of the term 'positive deviance'.

This study forms part of the primary researcher's PhD whose thesis will be assessed by the University of Leeds. Findings will be shared with the wards involved and disseminated widely through peer reviewed, scientific journals, and at national and international conferences.

STUDY STATUS

Data collection started in February 2015 and is expected to last 5-6 months. Feedback meetings will be scheduled between September and October 2015.

DISCUSSION

This protocol extends current literature to assess positive deviance at a ward level in relation to the broad, complex problem of patient safety. It is the first known application of positive deviance within a NHS setting. The majority of previous studies within healthcare have been conducted in the United States to address specific outcomes or processes of care, at individual or organisational levels.[7]

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Although further research is required to test hypotheses before disseminating them more widely (stages 3 and 4 of the positive deviance process), we expect the wards involved will benefit and learn from each other to improve safety even further.

More broadly, we aim to develop additional guidance to help others implement positive deviance within healthcare settings. Our findings will clarify: what routinely collected data can be used to identify positively deviant wards and how it can be analysed; the timescales positive deviants can be identified over; and the methods that can be used explore how they succeed.

Whilst planning this study we have grappled with fundamental questions surrounding the approach. These include: what constitutes positively *deviant* behaviour?; how is positive deviance different to high performance?; how confident must we be that positive deviants have been correctly identified?; and who should positive deviants be compared to? It is essential that studies like this are conducted to address these fundamental questions. Until we can evaluate the effectiveness of the approach within healthcare organisations, we are unable to conclude whether positive deviance is an improvement method worth investing in.

AUTHORS' CONTRIBUTIONS

RB, NT, IK, and RL substantially contributed to the conception and design of this study. All authors critically assessed and approved the final study design. RB was primarily responsible for setting up the study, gaining ethical approvals, and commencing data collection. RB drafted the initial manuscript. NT, IK, and RL

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

assessed the manuscript critically for intellectual content. All authors approved the final manuscript.

COMPETING INTERESTS

The authors have no competing interests to declare.

FUNDING STATEMENT

The Health Foundation funded the PhD studentship through which this study is being completed. The funders have no role in the study design, data collection or preparation of this manuscript.

DATA SHARING STATEMENT

This manuscript describes a study protocol. Currently there is no additional data available.

ACKNOWLEDGEMENTS

The authors would like to thank Professor Mohammed Mohammed and Ms Victoria Pye who supported the preliminary work to identify a sample of positively deviant and comparison wards. The authors would also like to recognise the following people for their support designing, setting up and conducting this research: Professor Diane Parker, Ms Caroline Reynolds, Ms Alex Howat and Ms Liz Thorp.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

RB, IK and RL are part of the Evidence Based Transformation Theme of the NIHR CLAHRC Yorkshire and Humber. This paper presents independent research by the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care Yorkshire and Humber (NIHR CLAHRC YH). www.clahrc-yh.nir.ac.uk. The views and opinions expressed are those of the authors, and not necessarily those of the NHS, the NIHR or the Department of Health.

REFERENCES

1. Hollnagel E, Braithwaite J, Wears RL. Resilient health care. UK: Ashgate; 2013.

2. Hollnagel E, Leonhardt J, Licu T, Shorrock S. From Safety-I to Safety-II: a white paper. Brussels: European Organisation for the Safety of Air Navigation (EUROCONTROL) 2013.

3. Power M, Stewart K, Brotherton A. What is the NHS Safety Thermometer? Clinical risk. 2012;18(5):163-9. doi:10.1258/cr.2012.012038.

4. The Health Foundation. Quality improvement made simple. London, UK: The Health Foundation; 2013.

5. Vincent C, Aylin P, Franklin BD, Holmes A, Iskander S, Jacklin A et al. Is health care getting safer? British Medical Journal. 2008;337:1205-7.

6. Landrigan CP, Parry GJ, Bones CB, Hackbarth AD, Goldmann DA, Sharek PJ. Temporal trends in rates of patient harm resulting from medical care. New England Journal of Medicine. 2010;363(22):2124-34.

7. Baxter R, Kellar I, Taylor N, Lawton R. How is the positive deviance approach applied within healthcare organizations? A systematic review of methods used. BMC Health Services Research: Evidence-based practice; 1-3 July 2014; UK, London: BMC Health Services Research; 2014. p. 7.

8. Wishik SM, Van Der Vynckt S. The use of nutritional 'Positive Deviants' to identify approaches for modification of dietary practices. American Journal of Public Health. 1976;66:38-42.

9. Friedman SR, Mateu-Gelabert P, Sandoval M, Hagan H, Jarlais DCD. Positive deviance control-case life history: A method to develop grounded hypotheses about successful long-term avoidance of infection. BMC Public Health. 2008;8(94). doi:10.1186/1471-2458-8-94.

10. Masterson JM, Swanson JH. Female genital cutting: breaking the silence enabling change. Washington, DC: International Center for Research on Women (ICWR) and the Center for Development and Population Activities (CEDPA). 2000.

11. Marsh DR, Schroeder DG, Dearden KA, Sternin J, Sternin M. The power of positive deviance. British Medical Journal. 2004;329(7475):1177-9. doi:10.1136/bmj.329.7475.1177.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

12. Mackintosh UAT, Marsh DR, Schroeder DG. Sustained positive deviant child care practices and their effects on child growth in Vietnam. Food Nutr Bull. 2002;23(4, Supplement):16-25.

13. Lawton R, Taylor N, Clay-Williams R, Braithwaite J. Positive deviance: a different approach to achieving patient safety. BMJ Quality and Safety 2014;0:1-4. doi:10.1136/bmjqs-2014-003115.

14. Bradley EH, Curry LA, Ramanadhan S, Rowe L, Nembhard IM, Krumholz HM. Research in action: using positive deviance to improve quality of health care. Implementation Science. 2009;4:25.

15. Dixon-Woods M, McNicol S, Martin G. Ten challenges in improving quality in healthcare: lessons from the Health Foundation's programme evaluations and relevant literature. BMJ quality & safety. 2012;21(10):876-84. doi:10.1136/bmjqs-2011-000760.

16. Marra AR, Guastelli LR, De Araujo CMP, Dos Santos JLS, Lamblet LCR, Silva Jr M et al. Positive deviance: A new strategy for improving hand hygiene compliance. Infection Control and Hospital Epidemiology. 2010;31(1):12-20.

17. Marra AR, Guastelli LR, Pereira de Araujo CM, Saraiva dos Santos JL, O Filho MA, Silva CV et al. Positive deviance: A program for sustained improvement in hand hygiene compliance. American Journal of Infection Control. 2011;39(1):1-5.

18. Lawton R, McEachan RR, Giles SJ, Sirriyeh R, Watt IS, Wright J. Development of an evidence-based framework of factors contributing to patient safety incidents in hospital settings: a systematic review. BMJ quality & safety. 2012;21(5):369-80. doi:10.1136/bmjqs-2011-000443.

19. Nelson EC, Batalden PB, Huber TP, Mohr JJ, Godfrey MM, Headrick LA et al. Microsystems in health care: Part 1. Learning from high-performing front-line clinical units. Jt Comm J Qual Improv. 2002;28(9):472-93.

20. Sari AB, Cracknell A, Sheldon TA. Incidence, preventability and consequences of adverse events in older people: Results of a retrospective case-note review. Age and ageing. 2008;37(3):265-9. doi:10.1093/ageing/afn043.

21. Thomas EJ, Brennan TA. Incidence and types of preventable adverse events in elderly patients: population based review of medical records. British Medical Journal 2000;320(7237):741-4.

22. Health and Social Care Information Centre. Summary Hospital-level Mortality Indicator. http://www.hscic.gov.uk/SHMI. 2015. Accessed 31st July 2015.

23. Picker Institute Europe. NHS Staff Survey. http://www.nhsstaffsurveys.com/Page/1010/Home/Staff-Survey-2014/. 2015. Accessed 31st July 2015.

24. Health and Social Care Information Centre. NHS Safety Thermometer. 2014. http://www.hscic.gov.uk/thermometer. Accessed 29th April 2014.

25. Power M, Fogarty M, Madsen J, Fenton K, Stewart K, Brotherton A et al. Learning from the design and development of the NHS Safety Thermometer. International Journal for Quality in Health Care. 2014;26(3):287–97.

26. Office of the Deputy Prime Minister. The English Indices of Deprivation 2004: Summary (revised). UK: Office of the Deputy Prime Minister; 2004.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

27. Giles SJ, Lawton RJ, Din I, McEachan RRC. Developing a patient measure of safety (PMOS). BMJ Quality and Safety. 2013;22. doi:10.1136/bmjqs2012-000843.

28. NHS England. Friends and family test. 2014. http://www.england.nhs.uk/statistics/statistical-work-areas/friends-and-family-test/. Accessed 29th April 2014.

29. McEachan RRC, Lawton RJ, O'Hara JK, Armitage G, Giles S, Parveen S et al. Developing a reliable and valid patient measure of safety in hospitals (PMOS): a validation study. BMJ Quality and Safety. 2014;0:1-9. doi:10.1136/bmjqs2013-002312.

30. Uman GC, Urman HN. The challenges of conducting clinical nursing research with elderly populations. AORN Journal. 1990;52(2):400-6. doi:10.1016/s0001-2092(07)68173-3.

31. Hall S, Longhurst S, Higginson IJ. Challenges to conducting research with older people living in nursing homes. BMC geriatrics. 2009;9:38. doi:10.1186/1471-2318-9-38.

32. Sorra J, Nieva V. Hospital survey on patient safety culture. USA, Rockville: AHRQ Publication No. 04-00412004.

33. Sarac C, Flin R, Mearns K, Jackson J. Hospital survey on patient safety culture: psychometric analysis on a Scottish sample. BMJ Quality and Safety. 2011;20(10):842-8. doi:10.1136/bmjqs.2010.047720.

34. Sorra J, Dyer N. Multilevel psychometric properties of the AHRQ hospital survey on patient safety culture. BMC health services research. 2010;10:199. doi:10.1186/1472-6963-10-199.

35. Lawton R, O'Hara JK, Sheard L, Reynolds C, Cocks K, Armitage G et al. Can staff and patient perspectives on hospital safety predict harm-free care? An analysis of staff and patient survey data and routinely collected outcomes. BMJ Quality and Safety 2015;24(6):369-76. doi:10.1136/bmjqs-2014-003691.

36. National Patient Safety Agency. Manchester Patient Safety Framework (MaPSaF). 2006. http://www.nrls.npsa.nhs.uk/resources/?entryid45=59796. Accessed 7th August 2014.

37. Parker D. Managing risk in healthcare: understanding your safety culture using the Manchester Patient Safety Framework (MaPSaF). Journal of nursing management. 2009;17(2):218-22. doi:10.1111/j.1365-2834.2009.00993.x.

38. Westrum R. A typology of organisational cultures. Quality and Safety in Health Care. 2004;13(suppl_2):ii22-ii7. doi:10.1136/qshc.2003.009522.

39. Undre S, Healey AN, Darzi A, Vincent CA. Observational assessment of surgical teamwork: a feasibility study. World journal of surgery. 2006;30(10):1774-83. doi:10.1007/s00268-005-0488-9.

40. Graneheim UH, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Education Today. 2004;24:105-12. doi:10.1016/j.nedt.2003.10.001/c.

41. Vaismoradi M, Turunen H, Bondas T. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. Nursing & health sciences. 2013;15(3):398-405. doi:10.1111/nhs.12048.

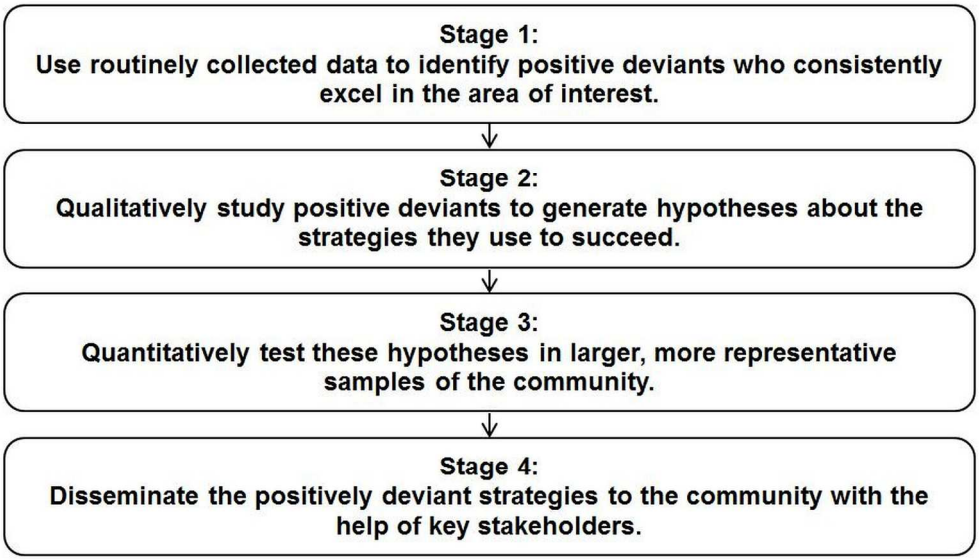
For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

For peer review only

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Figure 1 – The positive deviance process for healthcare organisations (adapted from Bradley et al. 2009 [14])



The positive deviance process for healthcare organisations (adapted from Bradley et al. 2009 [14])
248x171mm (300 x 300 DPI)

view only

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Erasmushogeschool . Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

UNIVERSITY OF LEEDS

INSERT NHS TRUST LOGO

ADDITIONAL FILE 1:

Learning from successful wards to improve patient safety

PATIENT SURVEY

Ward:

Participant Identification Number:

Patient Measure of Organisational Safety (PMOS)

What is the survey about?

This survey aims to help us understand about patient safety from the patients' perspective and to identify areas of strengths and weakness within hospitals. It contains factors that have been identified by patients that may affect their **safety** whilst using NHS services.

Completing the survey

Please read each statement carefully, keeping in mind **your current** stay in hospital and circle **one** option for each question. If you have had **no experience** of, or **do not know** the answer to a statement, please circle N/A, "not applicable". This will take you around 15-20 minutes to complete.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Erasmushogeschool .

Background Information

We would be grateful if you could provide us with some anonymous background information:

1. What is your date of birth? _____

2. Are you: ☐ Male ☐ Female (please tick one box)

3. How would you describe your ethnic group? (please tick one box)

White: ☐ British ☐ Irish ☐ Other background

Black or Black British: ☐ African ☐ Caribbean ☐ Other background

Asian or Asian British: ☐ Indian ☐ Pakistani ☐ Bangladeshi ☐ Other background

Chinese: ☐ Chinese

Mixed: ☐ White & Asian ☐ White & Black African ☐ White & Black Caribbean ☐ Other mixed background

Other: ☐ Other ethnic background - Please specify _____

☐ Don't know / Don't want to answer

4. What is your first language? _____

5. When were you admitted to hospital? _____

6. How many times have you been an inpatient at hospitals within the last 5 years?

_____

7. Are you receiving on-going treatment elsewhere in the hospital?

☐ Yes ☐ No (please tick one box)

Please turn over.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
Erasmushogeschool .

1. How likely are you to recommend this ward to your friends and family if they needed similar care or treatment?

☐	☐	☐	☐	☐
Extremely likely	**Likely**	**Neither likely or unlikely**	**Unlikely**	**Extremely unlikely**

Please indicate your level of agreement with the following statements.

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree	Not Applicable	I prefer not to answer	Additional Comments
2. I was always treated with dignity and respect	1	2	3	4	5	N/A		
3. I knew who to go to if I needed to ask a question	1	2	3	4	5	N/A		
4. The drugs I have been prescribed were always available in hospital	1	2	3	4	5	N/A		
5. I got answers to all the questions I had about my care	1	2	3	4	5	N/A		
6. Staff were always able to get advice from other teams about my care if needed	1	2	3	4	5	N/A		
7. A doctor changed my plan of care and other staff didn't know about it	1	2	3	4	5	N/A		
8. After a shift change staff did not appear to know important information about my care	1	2	3	4	5	N/A		

For peer review only

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Erasmushogeschool

Please turn over.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree	Not Applicable	I prefer not to answer	Additional Comments
9. I knew what the different roles of the people caring for me were	1	2	3	4	5	N/A		
10. On at least one occasion a member of staff was not able to use the necessary equipment	1	2	3	4	5	N/A		
11. My treatment/ procedure/ operation did not always happen on time	1	2	3	4	5	N/A		
The following aspects of the ward made it difficult for **staff** to do their jobs:								
12. Position of nurses' station	1	2	3	4	5	N/A		
13. Lighting levels	1	2	3	4	5	N/A		
14. Clutter & untidiness	1	2	3	4	5	N/A		
15. Lack of space	1	2	3	4	5	N/A		
16. I was on a ward that was not able to deal with my treatment needs	1	2	3	4	5	N/A		
17. Staff were prompt in answering my buzzer	1	2	3	4	5	N/A		

For peer review

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
Erasmushogeschool .

Please turn over.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree	Not Applicable	I prefer not to answer	Additional Comments
18. It was clear who was in charge of the staff	1	2	3	4	5	N/A		
19. Sometimes there was no-one available to deal with aspects of my care	1	2	3	4	5	N/A		
20. On at least one occasion a member of staff was not able to carry out a task that they should have been able to do	1	2	3	4	5	N/A		
The following aspects of the ward made it uncomfortable for me:								
21. Noise levels	1	2	3	4	5	N/A		
22. Lighting levels	1	2	3	4	5	N/A		
23. Temperature	1	2	3	4	5	N/A		
24. Poor cleanliness	1	2	3	4	5	N/A		
25. Lack of space	1	2	3	4	5	N/A		
26. Other - Please specify								
27. I felt that the attitude of staff towards me was poor	1	2	3	4	5	N/A		
28. I knew which consultant was in charge of my care	1	2	3	4	5	N/A		
29. Staff always seemed to know what they were meant to be doing	1	2	3	4	5	N/A		

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree	Not Applicable	I prefer not to answer	Additional Comments
30. There were enough staff on the ward to get things done on time	1	2	3	4	5	N/A		
31. Staff gave me different information about my care	1	2	3	4	5	N/A		
32. Staff/patients waited a long time for porters to arrive	1	2	3	4	5	N/A		
33. Staff did not work together as a team here	1	2	3	4	5	N/A		
34. There was equipment that staff found difficult to use (e.g. monitoring equipment, beds, hoists)	1	2	3	4	5	N/A		
35. I have needed treatment and there has been no-one available who was trained to do it	1	2	3	4	5	N/A		
36. Staff were kept waiting for my test results	1	2	3	4	5	N/A		
37. Nurses were always able to get help from other staff when they asked for it	1	2	3	4	5	N/A		

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree	Not Applicable	I prefer not to answer	Additional Comments
38. Equipment needed for my care was always working properly	1	2	3	4	5	N/A		
39. I always knew which nurse was responsible for my care	1	2	3	4	5	N/A		
40. Equipment and supplies were not always available when needed (e.g. hoists, bed pans, drugs)	1	2	3	4	5	N/A		
41. Staff always agreed about my treatment/care	1	2	3	4	5	N/A		
42. I always felt staff listened to me about my concerns	1	2	3	4	5	N/A		
43. Staff seemed to struggle to get help when they needed it	1	2	3	4	5	N/A		
44. When staff talked about my care with others the information they shared was correct	1	2	3	4	5	N/A		

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
Erasmushogeschool .

	Strongly Disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree	Not Applicable	I prefer not to answer	Additional Comments
45. Information about me that my health care team needed was always available (e.g. drug charts, medical notes, test results)	1	2	3	4	5	N/A		

46. Were you involved as much as you wanted to be in decisions about your care and treatment?

☐ Yes, definitely ☐ Yes, to some extent ☐ No

47. Did you find someone on the hospital staff to talk to about your worries and fears?

☐ Yes, definitely ☐ Yes, to some extent ☐ No ☐ I had no worries or fears

48. Were you given enough privacy when discussing your condition or treatment?

☐ Yes, always ☐ Yes, sometimes ☐ No

Thank you very much for participating!

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

peer review only

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Erasmushogeschool .

UNIVERSITY OF LEEDS

INSERT TRUST LOGO

ADDITIONAL FILE 2

Learning from successful wards to improve patient safety

STAFF SURVEY

What is the survey about?

This survey aims to help us understand whether we can use routinely collected data to identify elderly medical wards that deliver exceptionally safe patient care. It also assesses the extent to which a number of different factors help or hinder your team to deliver safe patient care. We are asking staff and patients to complete surveys on patient safety for each ward.

Completing the survey

Please read each statement carefully, keeping in mind **your experience** of delivering patient care on this ward. Tick **one** option for each question. This survey is expected to take 10 minutes to complete.

Prize Draw

If you would like to be entered into the prize draw to win a £20 voucher please provide some contact details below. I will be in contact with you if you win!

This survey is anonymous therefore please provide details that you can be contacted directly on. The contact details you provide will be stored separately from the anonymised answers you provide within the survey.

Name:

Email address:

Direct telephone number:

Please turn over.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Erasmushogeschool .

Page intentionally left blank to allow the survey data to be separated from the prize draw contact details.

For peer review only

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
Erasmushogeschool .

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

STAFF SURVEY

Ward:

Job role:

Memorable date: _ _ / _ _ / _ _

(Please enter a unique identifier which will be used if you wish to withdraw from the study.)

Part 1: Patient Safety Grade

Please give your ward in this hospital an overall grade on patient safety.

☐	☐	☐	☐	☐
Excellent	Very Good	Acceptable	Poor	Failing

Part 2: Factors contributing to patient safety

Below are 19 different factors that are known to contribute to patient safety incidents within hospitals. Read the description for each factor and rate the extent to which it helps or hinders **your team** to deliver safe patient care on the ward.

1. **Communication systems:** The effectiveness of process and systems for exchanging and sharing information between staff, patients, groups, departments and services. This includes both written (e.g. documentation) and verbal (e.g. handover) communication systems.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

Please turn over.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Erasmushogeschool .

2. **Equipment and supplies:** The availability and functioning of equipment and supplies.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

3. **External policy context:** Nationally driven policies / directives that impact the level and quality of resources available to hospitals.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

4. **Design of equipment of supplies:** The design of equipment and supplies to overcome physical and performance issues.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

5. **Individual factors:** Characteristics of the person delivering care that may contribute in some way to errors. Examples of such factors include inexperience, stress, personality, attitudes.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

6. **Lines of responsibility:** Existence of clear lines of responsibility, clarifying accountability of staff members and defining the job role.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

Please turn over.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Erasmushogeschool .

7. **Management of staff and staffing levels:** The appropriate management and allocation of staff to ensure adequate skill mix and staffing levels for the volume of work.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

8. **Patient factors:** Features of the patient that make caring for them more difficult and therefore more prone to error. These might include abnormal physiology, language difficulties, personality characteristics (e.g. aggressiveness).

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

9. **Physical environment:** Features of the physical environment that help or hinder safe practice. This refers to the layout of the unit, the fixtures and fittings and the level of noise, lighting, temperature etc.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

10. **Policy and procedures:** The existence of formal and written guidance for the appropriate conduct of work tasks and processes. This can also include situations where procedures are available but contradictory, incomprehensible or of otherwise poor quality.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

11. **Safety culture:** Organisational values, beliefs and practices surrounding the management of safety and learning from error.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

Please turn over.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Erasmushogeschool .

12. **Scheduling and bed management:** Adequate scheduling to manage patient throughput minimising delays and excessive workload.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

13. **Staff workload:** Level of activity and pressures on time during a shift.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

14. **Supervision and leadership:** The availability and quality of direct and local supervision and leadership.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

15. **Support from central functions:** Availability and adequacy of central services to support the functioning of wards. This might include support from Information Technology and Human Resources, portering services, estates or clinically related services such as radiology, phlebotomy, pharmacy.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

16. **Task characteristics:** Factors related to specific patient related tasks which may make individuals vulnerable to error.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

Please turn over.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Erasmushogeschool .

17. **Team factors:** The working of different professionals within a group which could be changed to improve patient safety.

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

18. **Training and education:** Access to correct, timely and appropriate training, both specific (e.g. task relates) and general (e.g. organisation related).

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Extremely **helps** delivery of safe care		Neither helps nor hinders		Extremely **hinders** delivery of safe care

Thank you for completing this survey.

For peer review only

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
Erasmushogeschool .

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

An adaptation of the Manchester Patient Safety Framework (MaPSaF)

Increasing Maturity

Domain	A	B	C	D	E
1 Commitment to overall continuous improvement	No resources are invested in the identification of problems or areas of good practice. If any auditing occurs it lacks structure and there is no response to what is discovered. Whatever protocols or policies exist are there to meet statutory requirements and are not used, reviewed or updated. Poor quality care is tolerated or ignored. This attitude is evident at Board level and throughout individual healthcare teams.	A continuous improvement framework is developed in response to specific directives or an imminent inspection visit. Auditing only occurs in response to specific incidents and national directives and does not reflect local needs. Little attempt is made to respond to any audit findings. The bare minimum of protocols and policies exist and these tend to be out-of-date and unused unless an incident occurs that triggers their review. Development of new protocols and policies occurs in response to incidents and complaints.	Frontline staff are not engaged in the improvement process and they see it as a management activity that is externally driven. Lots of auditing occurs but lacks an overall strategy linking with organisational or ward needs. Staff are overloaded with protocols and policies (which are regularly reviewed and updated) that are rarely implemented. Patients and the public may be involved in quality issues but this is lip service rather than real engagement.	There is a genuine desire and enthusiasm for continuous improvement. It is recognised that continuous improvement is everyone's responsibility and that the whole ward / organisation, including patients and the public need to be involved. The aim is to be a centre of excellence and compare performance against that of others. Clinicians are involved in, and have ownership of, the auditing process which leads to continuous improvement. Protocols and policies are developed and reviewed by staff and are used as the basis for care and service provision. Patients and the public are formally involved in internal decisions – making it a patient centred service.	A culture of continuous improvement is embedded and is integral to decision making at all levels. The ward / organisation is a centre of excellence, continually assessing and comparing its performance against others both within and outside the health service. Teams design and conduct their own outcome focused audit programme, in collaboration with patients and the public. Staff are alert to potential safety risks. This means that over time the need for protocols and policies is reduced as evidence-based practice is second nature and patient safety is constantly on everyone's mind. Patients and the public are involved in a routine, meaningful way with ongoing contribution and feedback.
2 Priority given to safety	A low priority is given to safety. There are some risk management systems in place, such as strategies and committees, but nothing is actually delivered. The ward / organisation is unaware of their risks, believing that if a patient safety incident occurs, insurance schemes can be used to bail them out.	Safety becomes a priority once an incident occurs, but the rest of the time only lip service is paid to the issue apart from meeting legal requirements. There is little evidence of any implementation of a risk management strategy. Safety is only discussed by the Board in relation to specific incidents. Any measures that are taken are aimed at self-protection and not patient protection. In order to meet financial constraints or government set targets, risks are taken.	Safety has a fairly high priority and there are numerous systems (including those integrating the patient perspective) in place to protect it. However, these systems are not widely disseminated to staff or reviewed. They also tend to lack the flexibility to respond to unforeseen events and fail to capture the complexity of the issues involved. Responsibility for risk management is invested in a single individual who does not integrate it within the wider organisation. It is an imposed culture.	Safety is promoted and staff are actively involved in all safety issues and processes. Patients, the public and other organisations are also involved in risk management systems and their review. Measures taken are aimed at patient protection and not self-protection. Risks are proactively identified, using prospective risk assessments, and action is taken to manage them. There are clear accountability lines and while one individual takes the lead for patient safety in the organisation, it is a key part of all managers' roles.	Safety is the top priority, and responsibility for safety is seen as part of everyone's role including patients and the public. Staff constantly assess risks and look for potential improvements. Patient safety is a high profile issue and is embedded in the activities of all staff, from the Board/senior managers through to healthcare teams who have day-to-day contact with patients, including support staff. Patient involvement in, and review of, patient safety issues is well established.
3 Recording, evaluating and learning from incidents and best practice	Ad hoc incident reporting systems are in place but largely there is 'blissful ignorance' unless serious incidents occur or solicitors' letters are received. There is a high blame culture, with individuals subjected to victimisation and disciplinary action. Incidents and complaints are superficially investigated with the aim of 'closing the book'. Information from investigations is stored but little action is taken, apart from disciplinary action. There is little recognition of good safe practice. No attempts are made to learn from incidents unless imposed by external bodies such as public enquiries. Change is only directed at those individuals involved in an incident.	There is an embryonic incident reporting system, although staff are not encouraged to report incidents. Minimal data on the incidents is collected but not analysed. There is a blame culture, so staff are reluctant to report incidents. There is no attempt to support those involved. Investigations are cursory and focus on a specific event and the actions of an individual. Quick-fix solutions are proposed, but may not be instigated once the 'heat is off'. Little, if any, learning occurs. All learning is specific to the particular incident. Any changes instigated are not sustainable as they are knee-jerk reactions to perceived individual errors. Change is devised and imposed by senior managers. Similar incidents tend to recur.	A centralised anonymous reporting system is in place with emphasis on form completion. Staff and patients are encouraged to report incidents and near misses, although they do not feel safe or comfortable doing so. Other information is considered alongside incident reports (e.g. complaints and audits). Senior managers are involved in investigations, which focus on the individuals and systems surrounding the incident. Investigations involve multiple forms – they are conducted for their own sake and to placate patients rather than to examine root causes and support those involved. Some systems facilitate learning but it is not disseminated. Enforced local changes relating directly to specific incidents are made. Committees / managers decide on changes and a lack of staff involvement means they are not integrated. Patients and public are only involved to improve commitment to regulators.	Incident reporting is encouraged. Accessible, 'staff and patient friendly' reporting methods are used, allowing trends to be readily examined. Staff feel safe reporting incidents, including those that were prevented. Staff and patients are supported from the moment of reporting. The ward / organisation is open to inquiry and welcomes external involvement to gain an independent perspective. Staff are involved in investigations to identify root causes and issues. Patients are also involved. The aim is to learn from incidents and disseminate the findings widely. Data from incident reports are used to analyse trends, identify 'hot spots' and examine training implications. There is a learning culture and processes exist to share learning, e.g. reflection and sharing patient perceptions. Management support investigations and changes instigated address underlying causes. Staff are actively involved and there is a real commitment to sustainable change and learning from others' experience.	It is second nature for staff to report patient safety incidents (including those prevented or with no harm). They have confidence in the investigation process and understand its value. Patients are actively encouraged to report incidents. Robust systems exist to record best practice and compliments. Internal and external independent investigations are conducted that include the staff and patients involved. Investigations are learning opportunities and include patient recommendations. The ward / organisation learns from internal and external information, experience and best practice. It is committed to sharing this learning both within and outside the organisation. Patient safety incidents are discussed openly and staff are empowered to contribute. Improvements occur without the trigger of an incident. Patients play a key role in learning and they contribute to change.
4 Communication about safety issues	Communication in general is poor; it comes from the top down and staff are not able to speak to their managers about risk. Events are kept in-house and not talked about. The ward / organisation is essentially closed. What communication there is, is negative, with a focus on blame. Patients are only given information which must be legally provided and only after exerting a lot of pressure to give them access.	Communication in general is directive with managers issuing instructions. Staff are only able to speak to their managers after something has gone wrong. Communication is ad hoc and restricted to those involved in a specific incident. The patient is given the information the organisation feels is appropriate in a one-way communication.	There is a communication strategy. Policies and procedures are in place, and lots of records are kept. There is a lot of information collected from staff, patients and other organisations but it is not effectively utilised. This leads to an information overload meaning that little is actually done with the information received by staff. A risk communication system is in place, but no-one checks whether it is working.	The communications system and record keeping are fully audited. There is communication across organisations facilitating meaningful benchmarking. All levels of staff are involved, and there are robust mechanisms for them to feedback. Information is shared, there are regular briefing sessions where staff are encouraged to set the agenda. Effective communication regarding safety issues is made with patient and public involvement groups.	Everybody communicates safety issues and learns from the experiences of others (good and bad). It is a transparent ward / organisation and includes patient participation in risk management policy development. Innovative ideas are encouraged and staff are empowered to implement them. Good practice is communicated both externally and internally.
5 Team working	Individuals mainly work in isolation but where there are teams they are uni-disciplinary and dysfunctional. There are tensions between the team members and a rigid hierarchical structure. They are more like a collection of people brought together under the direction of a nominal leader. Information is not shared between team members. The team operates secretively.	People only work as a team following a negative event and to respond to external demands. Individuals are not actually committed to the team. There is a clear hierarchy corresponding to the hierarchy of the organisation as a whole. There are multidisciplinary teams, but they have been told to work together, and only pay lip service to the ideals of team working. Information is cascaded to team members following an incident. The team operates defensively and newcomers are not welcomed.	Multidisciplinary teams are put together to respond to government policies, but there is no way of measuring how effective they are. Teamwork is seen by lower grades of staff as paying lip service to the idea of empowerment. Teams are given lots of written information about how they should function. There are official mechanisms for the sharing of ideas or information within and across teams but these are not used effectively. Teams operate behind the scenes and generally within a single organisation.	Teams are multidisciplinary and time and resources are devoted to team development processes. Team structure is fluid, with people taking up the role most appropriate for them at the time. There is evaluation of how effective the team is and changes are made when necessary. Teams are collaborative and adaptable. Teams are open and may involve members external to the organisation.	Regular and evaluated team resource management training is offered to fully integrated multidisciplinary teams. Team membership is flexible with a horizontal structure. Different people make equally valued contributions when appropriate. Teams are about shared understanding and vision rather than geographical proximity. Team working is the accepted way. Teams are totally open, involving members from diverse organisations, locally, nationally and even internationally.

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

BMJ Open: first published as 10.1136/bmjopen-2015-009650 on 11 December 2015. Downloaded from http://bmjopen.bmj.com/ on May 2, 2025 at Department GEZ-LTA Bibliotheek Geneeskunde. Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

Additional File 4:

Focus group discussion guide

Materials:

Participant information sheets
Consent forms
Adapted MaPSaF
Flipchart paper and pens
Blue-tack
Field work diary
Audio recorder
Participant vouchers
Food and drink

Discussion guide	Time / Materials
Introduction 1. Introduce myself and explain the purpose of the research Name, job and where I'm from. Name of the research study. Aim of focus group: to identify how your multi-disciplinary team successfully delivers safe patient care on the ward. What will happen: Individually you will each complete a safety culture assessment. As a group we will get consensus about which safety culture domains your ward performs the best on. We will then have a discussion to identify how, as a team, you manage to achieve this success. Rather than identifying vague, abstract things such as 'we communicate well at handovers' I'm going to really probe you to identify the specific concrete behaviours that you use. For example 'we follow a set process at handover where the nurse in charge does xxx and then the doctors contribute with yyy and the rest of the ward team do zzz'. If everyone is agreeable I will audio record the session. This is to help me transcribe and then analyse the data. No one other than myself and the research team will have access to this recording. Everything you say in this room is confidential and will be anonymised. The only circumstance under which I might have to break confidentiality is if I feel that there is an immediate threat to the safety of patients or others. But seeing as the focus of the conversation will be on how your team succeeds this should not be a problem! 2. Are there any questions? 3. Sign the consent forms 4. Icebreaker – Please can everyone introduce themselves: their name and role	10 mins Information sheets Consent forms
MaPSaF 5. Introduce MaPSaF We are now going to use an adapted version of the Manchester Patient Safety Framework. It is a well-established safety culture assessment developed for and used within the NHS. A safety culture is where staff have constant and active awareness of the potential for things to go wrong. It is open	15 minutes MaPSaF

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
Erasmushogeschool .

and fair and encourages staff to speak up about mistakes. For the purpose of this study we have reduced the number of domains that are included at as we don't have very much time. Show the group the framework and point out the different domains, levels and descriptions. I would like each of you now to read through the framework thinking about patient safety on your ward. On the framework make a mark for each domain which level you think your ward sits within. You have just over 10 minutes to do this. 6. Gain consensus for each MaPSaF domain. Going round the group ask people to say which level they have classed their ward as for each domain. Get consensus as to which domains the wards succeeds the most on. Overall it looks as though your ward preforms the best on the xxx domain. It doesn't matter if you disagree with this or rated it at a different level – the reasons you chose each level is what we want to try and discuss.	Flipchart paper and pens
Discussion questions Choose questions / expand on staff comments using the generic selection below. Choose questions which are focused on a specific domain of interest. 7. Introduction / general questions What made you choose this level instead of the one above or below it? How does your team achieve this / this level? What examples can you give me? What does that look like in practice? Can you describe how the team would do xxx? What role does each of the team members play in xxx? What does xx do to help achieve that? What helps you achieve xxx? What hinders you? How does the team overcome that? A year ago would you have scored any of the domains differently? What has changed since then? What do you do differently now? What does this team do differently from other wards / places that you have worked? Tell me about staffing levels on the ward. Tell me about opportunities for training and education. 8. Commitment to overall continuous improvement What auditing occurs on your ward? When do they occur? Who / what is involved? What are the outcomes? What role do protocols and policies have on your ward? When / how are they used? Who are they used by? How are they created? Tell me about some improvement work that has been conducted on your ward recently. How did it	

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
Erasmushogeschool .

occur? Who was involved? What initiated the need for improvement? 9. Priority given to safety What priority does safety have on your ward? Can you give me examples of this? How are risks to patient safety identified? Who is involved in this? When is patient safety promoted and discussed on the ward? 10. Recording, evaluating and learning from incidents and best practice What happens when patient safety incidents occur? Can you tell me about your incident reporting system? How are incidents investigated and who is involved? What is the outcome of incident reporting? What types of incidents are reported? What happens to staff who are involved in incidents? What learning occurs after incidents have occurred? 11. Communication about safety issues In relation to patient safety what communication systems are in place? What safety information is communicated between team members? Who is involved in communicating it? How is patient risk information communicated between team members? (verbal and written) How are patients involved in communicating safety information? 12. Team working How is information shared between different members of the team? When does this work best? What facilitates team working on the ward? How does team work contribute to safe patient care on the ward? How are different professional groups involved in the delivery of care on the ward? (Pharmacy, Physio, SALT, OT, Dieticians). Day to day how do they interact with the core ward team? How do community services interact with the ward / hospital teams? Social Services, community / District Nursing, General Practice etc. 13. Ending Questions From everything that we have discussed which single strategy or behaviour that your team uses to deliver safe patient care would you pin point as most important?	
Ending Thank the participants for their time and contribution. Ask if anyone has any questions. Distribute vouchers.	Vouchers

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
Erasmushogeschool .

Additional File 5:
Field work diary guidance

Aim:

The concrete strategies and behaviours that teams use to deliver safe patient care (e.g. a specific handover process) will be identified by staff through the focus groups. Field work diaries aim to build a qualitative picture of each ward. They will be used to identify some of the more abstract and contextual nuances of how team dynamics and ward culture contribute to the successful delivery of safe patient care.

Procedure:

Field work diaries are to be completed following each visit or interaction with a ward (e.g. telephone correspondence). Whilst collecting surveys on each ward you will have an opportunity to observe how patient care is delivered and how the team interacts and communicates with each other, patients, visitors and the research team. At the end of each visit or interaction with the ward, please document your observations specifically in relation to the headings below. Field work diaries should also be completed after each focus group. Each record should be identified with the ward name and the date / time of the visit. An entry does not have to be written for every heading – please just document observations which appear most important.

Focus for observations:

Focus	Description
Communication	The quality and quantity of information exchanged by team members
Coordination	The management and timing of activities and tasks
Cooperation and backup	The assistance provided among members of the team, supporting others and correcting errors
Leadership	The provision of direction, assertiveness and support among team members
Monitoring and situational awareness	Team observation and awareness of ongoing processes
Staff - patient interactions	Staff responses to patients' feelings and needs (empathy). The degree of coherence in the interaction / conversation, verbal and non-verbal expression. Treatment of patients with dignity and respect.
Staffing levels and workload	Staffing levels on the ward, team composition, influences of hierarchy, stress levels and workload
Patient case mix	Patient case mix including frailty and dependence on staff
Engagement with the research	The ward team's awareness of the study and their interactions with the research team

For peer review only - http://bmjopen.bmj.com/site/about/guidelines.xhtml

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.
Erasmushogeschool .