HS&DR 13/07/39 study protocol:

An evaluation of a real-time survey for improving patients' experiences of the relational aspects of care

Picker Institute Europe, Buxton Court, 3 West Way, Oxford, OX2 0JB

University of Oxford, Nuffield Department of Population Health, Rosemary Rue Building, Old Road Campus, OX3 7LF

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Summary

Objective

The overall aim of this research is to evaluate the effectiveness of real-time data collection for driving improvement in patients' experiences of the relational aspects of care. The aim is to provide evidence about how NHS staff should communicate and use real-time data to improve the care that they provide.

Rationale

The Francis Inquiry revealed serious deficiencies in the 'relational' aspects of hospital care, such as treating people with respect, dignity and compassion; offering emotional support and making sure that people are involved as much as they want to be in decisions about their care and treatment. The Inquiry also highlighted evidence of neglect and poor care in emergency departments and a lack of compassion and respect in the care provided to vulnerable older patients. In light of this, the real-time survey will be carried out with older people in hospital and patients attending A&E departments although we would expect the findings to be generalisable to other patient groups. Despite a growing emphasis on using real-time methods for gathering patient feedback, there is very little evidence on the effectiveness of these approaches for driving service improvement.

Methodology

The study will be conducted in six NHS trusts. We will follow a purposive sampling strategy to identify sites. The study will be conducted in six NHS trusts that differ in terms of their patients' reported experiences of the relational aspects of care and their local geography and population demographics. Both quantitative and qualitative methods will be used in the selection of the case study organisations. An exploratory factor analysis of national patient survey data will be conducted initially to identify the patterns and number of underlying dimensions of patient experience in the data. This information will be reviewed in light of findings from a focus group and interviews with patients to identify potential domains that represent distinct aspects of care. These domains will then be refined to provide composite indicators; three trusts with high scores and three with significantly lower scores will then be identified as case studies for the research.

In each of the six trusts a comprehensive staff engagement strategy leading to the implementation of a real-time survey of patient experience will be carried out. Semi-structured interviews will be conducted with staff representing a range of roles to help inform the design of a set of participatory workshops; factors which appear to promote or limit the use of patient feedback in driving service improvements will be explored. An online staff survey will be conducted before the introduction of the real-time survey which will be repeated at the end of the data collection to help evaluate the effectiveness of the survey for improving patients' experiences of care. The staff survey will assess awareness of approaches used to collect feedback on patient experience and the factors perceived to promote and/or limit the use of data for making changes to bring about improvement in patient experience. The real-time survey implemented in each case study trust will be developed from a review of existing instruments, the patient focus group, interviews and factor analysis carried out at the start of the project. The survey will be administered by trained volunteers at the point of care over a period of ten months in inpatient wards (focused on caring for older people) and A&E departments. Findings from the survey will be made

available to staff on a monthly basis and a fuller report and discussion of the results will take place with staff after three and ten months of data collection.

Impact and Evaluation

After the first three months of data collection, a participatory and multidisciplinary workshop will be held with staff working in the selected wards at each site. The aim of the workshop is to identify 'what needs to change, and how' for the real-time survey to drive improvement in patients' reported experiences of care. After a further two to three months of data collection, a meeting will be held with key members of staff, such as the ward manager and service lead, to ensure the continued engagement of staff in the study and for the research team to provide any necessary guidance to staff on making use of the data. A networking event will also be held to allow the case study organisations to share their experiences and learn from each other. A second participatory workshop and in-depth interviews with staff and volunteers will be conducted at the end of the data collection period to evaluate the inputs, processes and impact of implementing a real-time survey to improve patients' experiences of the relational aspects of care. In undertaking the overall evaluation of the survey, the data collected from each step of the project, from the semi-structured interviews to the patient survey results, will be reviewed.

Reporting

The study will provide evidence-based recommendations to support other NHS organisations in the implementation of a real-time feedback approach for improving patients' experiences. The research findings, recommendations and resources will provide much needed evidence about how the NHS can ensure that the patient voice is heard, understood and used to improve frontline care.

Background and rationale

The importance of measuring patient experience for understanding the quality of care in an organisation is indisputable. Whilst a wide range of approaches are being used by organisations to gather feedback from patients, there is a lack of evidence on the effectiveness of the various initiatives employed and relatively little use is made of the data collected to improve the quality of care (Robert and Cornwell 2011). Despite a growing emphasis on using real-time methods for gathering patient feedback, the effectiveness of these approaches for driving service improvement is under-researched (Nicholls 2012, Brown, Davidson and Ellins 2009). This proposed study will provide evidence to assess how effective real-time data collection is for driving service improvement. The focus will be on measuring the relational aspects of patient care (e.g. compassion, dignity and emotional support) as previous measures have tended to focus on the functional/transactional measures (e.g. access, waiting, and cleanliness). The Francis Inquiry revealed deficiencies in these 'softer' aspects of care and evidence suggests that they are important for determining overall patient experience (Robert and Cornwell 2011, Bridges et al. 2010). The NHS National Quality Board in 2011 agreed upon the NHS Patient Experience Framework as the guide to measurement of patient experience across the NHS; respect for patient-centred values and emotional support are both key domains in this framework.

A real-time approach to collecting data is regarded to increase the chance of feedback being put to effective use as staff have a greater sense of ownership of the results; the data is more recent and has the potential to be more granular (Nicholls 2012, Robert and Cornwell 2011, Brown, Davidson and Ellins 2009). There is some evidence that surveys administered at the point of care produce more positive results than traditional based surveys (Gribble and Haupt 2005). For instance, a survey of hospital trusts on hospital acquired infections showed that the responses from the real time data collection were significantly more positive than those from the paper-based survey (Healthcare Commission 2005). Another commonly cited limitation of the quality of real-time data is due to the result of potential sampling bias; respondents choose to take part rather than being selected through a formal sampling strategy (Brown, Davidson and Ellins 2009, Nicholls 2012). However, it has been argued by Nicholls (2012) that the aims of real-time data collection are different and rather than trying to accurately measure the views of all patients its purpose is to feedback data quickly to staff so that the necessary changes can be identified and acted upon. There is evidence to suggest that using real-time patient feedback approaches can drive improvement in the quality of care provided to patients. Research carried out at the Royal Devon and Exeter NHS Foundation Trust, which collected feedback from patients on a daily basis, revealed a number of advantages of implementing the real-time data collection including better teamwork, fewer complaints, better communication between staff and patients, and improved service delivery (Larsen, 2011). Other studies that have used a real-time survey using hand-held electronic devices have shown improvement in patient experience following changes implemented as a result of the real-time data (Lomas 2009 and Simpson 2013).

It is widely accepted that the success of any survey approach for generating improvements in patient experience requires staff engagement and their involvement in interpreting and using the results for quality improvement (Robert and Cornwell 2011, Larsen 2011, Lomas 2009, Nicholls 2012, Reeves et al. 2013). As argued by Nicholls (2013), "real-time data will only deliver service improvement if organisations know what to do with it." The potential barriers to using patient feedback data for bringing about service improvement may be caused by a lack of knowledge and understanding amongst

staff of the change planned, defensiveness, professional autonomy and limited time and resources (Larsen 2011, Nicholls 2012). The importance of explaining the benefits of the study to staff and dealing openly with issues of scepticism and resistance to change will increase the project's success (Larsen 2011, Reeves et al 2013). This proposed research will use a participatory action research approach to engage staff in the process of implementing the real-time survey and to identify the factors that promote and limit effective use of data, such as the information, support and development needs of frontline staff and service leads. The research conducted by Royal Devon and Exeter NHS Foundation Trust, mentioned above, illustrates the advantages of properly engaging staff in the implementation of a real-time patient feedback approach; the study used a cyclical change management approach (the 'plan, do, study, act' model) which led to raised staff morale and improved care (Larsen 2011). There is growing evidence that the experiences of NHS staff and patients are closely linked; improving staff experience will improve the patients' experiences of care (Tzeng et al. 2002, Peltier et al. 2009, Borrill et al. 2003, Department of Health 2010). For example one study undertaken showed that patients were more satisfied when they received treatment and support from teams that had good team processes, such as teams who communicated effectively and whose members gave support for ideas that would lead to improved patient care (Borrill et al. 2003).

Our proposed approach to working with staff and patients to identify what needs to change reflects the fundamental principles of organisational change theory. The 'emergent approach' to organisational change fits well with the context and aims of this study. This approach sees change as a process of learning as the organisation responds to internal and external factors (Barnard and Stoll, 2010). In their literature review of organisational change management, Barnard and Stoll (2010) state that proponents of the emergent school, such as Kotter (1996), Kanter et al. (1992) and Luecke (2003), have suggested a sequence of actions that organisations should take to increase the chances of change being successful, including that a set of suggested actions are shared, establishing a sense of urgency, creating strong leadership and empowering employees.

Although it is not the aim of this research to use a tool to measure and assess 'organisational cultures', the study will draw on findings from research undertaken to better understand the nature of organisational culture, how it can be assessed and measured, and how such assessments can be integrated into beneficial programmes of change (Mannion et el. 2005, Mannion et al. 2008). The work carried out by Mannion and colleagues will be important for providing insight for the planning and delivery of the participatory workshops and evaluation interviews with NHS staff. Of particular relevance are the findings of the research undertaken by Mannion et al. (2008) on the needs and interests of key NHS stakeholders with regards to understanding, assessing and shaping organisational cultures.

The work by Mannion and colleagues (2008) has also shown what users and patients consider to be the most important cultural attributes for high quality care. These were 'patient centeredness', senior management commitment, a quality focus, clear governance/accountability and safety awareness. Patient centeredness was considered to be a key component of high quality organisations for the following reasons: it was believed to lead to better process and clinical outcomes; it challenges cultures that are not aligned with the interest of patients; and by putting the patient at the centre of decision making leads to a health service that is more accountable to them (Mannion et al. 2008). This study will build on these research findings and will ensure that patient representatives, such as the patient

collaborators at the case-study sites, are involved in the participatory workshops (which will be addressing what changes are needed), in reviewing the findings from the real-time data collection and in developing the resources to be used by organisations for driving quality improvement measures that improve the relational aspects of care.

Why this research is needed

All NHS organisations are expected to respond to the Francis Inquiry report and to take action to strengthen patient voice, improve front-line care and change organisational culture. The health and social care quality regulator (the Care Quality Commission) has subsequently published strategic and business plans that place strong emphasis on the importance of patient voice. For NHS organisations, assuring and demonstrating the quality of care that they provide is a priority as never before; there is a window of opportunity for developing and disseminating an evidence-base that will support NHS quality assurance and improvement initiatives pertaining to Francis.

There is no one 'best' method for capturing data about patients' experiences of care – each method has its strengths and limitations. However, real-time feedback is now (April 2013) mandated for adult inpatients and A&E patients via a national policy directive (the Friends and Family Test), which will include maternity service users from October 2013 and is expected to be rolled out to a wide range of services and settings from 2014. The Francis Inquiry report recommends that "results and analysis of patient feedback including qualitative information needs to be made available to all stakeholders in as near-real time as possible, even if later adjustments have to be made." Similarly, in the Review into the quality of care and treatment provided by 14 hospital trusts in England, published July 2013, Sir Bruce Keogh also called for real-time patient feedback, stating that "Real-time patient feedback and comment must become a normal part of provider organisations' customer service and reach well beyond the Friends and Family Test." There is therefore an urgent need for research that evaluates the introduction and impact of real-time feedback approaches in the NHS in order to establish best practice and to ensure that data collection, presentation and communication supports frontline staff, service leads and managers in improving services (Nicholls 2012).

The Francis Inquiry and the published literature alike (e.g. Tadd 2011) highlight on-going concerns about the quality and consistency of care that older people receive in hospital. Similarly, the Francis Inquiry raises concerns about neglect and poor care in A&E, and government has launched a review of urgent and emergency services. By focusing on older people's wards and emergency departments, this proposed evaluation of the introduction of real-time feedback is directly relevant to current and near future priorities for NHS staff, service leads and managers.

Aims and objectives

The overall aim is to develop and disseminate evidence-based recommendations to support the implementation of real-time data collection about patient experience in the NHS. The main objective is to evaluate the impact of a real-time feedback survey for driving improvements in patients' experiences of the relational aspects of care.

The research will use a mix of quantitative, qualitative and participatory research approaches in evaluating the collection, communication and use of real time data about patients' experiences of the 'softer' aspects of care. The aim is to explore and understand the inputs, processes and impacts of real-

time data collection, as reflected in patient experience data and as understood by NHS frontline staff, service leads and managers. Our key research questions are:

1. Can near-real time feedback be used to **measure** relational aspects of care?
2. Can near-real time feedback be used to **improve** relational aspects of care?
3. What factors influence whether NHS staff can use near-real time feedback to improve relational aspects of care? Specifically, what are the **barriers and enablers**?
4. What should be considered **best practice** in the use of near-real time feedback in the NHS?

A set of key objectives and activities will enable us to answer these questions and they are seen in the table below:

Research question	Activity
1. Can near-real time feedback be used to measure relational aspects of care?	Identify, approach and recruit six NHS case-study trusts that differ in terms of their national patient survey results (relational aspects of care) and other key characteristics (geography and local population demographics)
	Identify a set of questions that measure the relational aspects of care considered most important to patients.
	Develop a real-time survey tool to be administered by trained volunteers at the point of care in selected wards and A&E departments in the case study organisations
2. Can near-real time feedback be used to improve relational aspects of care?	Evaluate the processes and impact of real-time data collection for improving patients' experiences of the relational aspects of care by drawing on the findings from:
	i) the patient experience data collected from the real-time survey over a ten month period; ii) the participatory workshops with staff and patient collaborators; iii) an online staff survey conducted before and after the introduction of the real-time data collection; iv) a specific survey of staff previously interviewed to measure any change since the inception of the real time data collection; and v) in-depth interviews with key staff members and patient representatives at the end of the study to evaluate the process of administering a real-time survey and the impacts on staff behaviour and organisational change

Research question	Activity
3. **What factors influence whether NHS staff can use near-real time feedback to improve relational aspects of care? Specifically, what are the barriers and enablers?**	Conduct qualitative and quantitative research methods (interviews with staff and an online staff survey) to understand how patient feedback is reported and used by NHS staff in the six trusts to improve frontline care
4. **What should be considered best practice in the use of near-real time feedback in the NHS?**	Develop and disseminate evidence-based recommendations to support the implementation of real-time data collection about patient experience with the wider NHS

Research plan & methodology

Focus group and interviews

One focus group and eight one-to-one interviews will be conducted at the start of the project to explore patients' understanding of what comprises the 'softer' aspects of care and to identify which components are the most important to their overall experience. At the end of the discussion and conversations, participants will be asked to carry out a card-sort exercise to identify which relational aspects of care they consider to be the most important. Participants will each be given a set of cards which have a different statement written on them (e.g. 'Being treated with kindness', 'Being involved in decisions about my care' and 'Being able to talk to a member of staff about my worries') and they will be asked to sort them into three piles according to their perceived importance (most important, quite important and least important). The statements will be sourced from questions focused on the relational aspects of care included in existing survey tools (e.g. national A&E department and inpatient surveys, PEECH survey), and input from the patient representatives of the advisory group. Additional cards will be created by the researcher attending the groups (not the facilitator) to include any additional items/issues which have arisen during the course of the discussion and conversations; which statements are included can be agreed by the group. These additional statements can be hand-written on to blank cards by the researcher towards the end of the discussion. The results of the card-sort exercise will only be used to supplement the main qualitative analysis; it is considered a useful tool for summarising which aspects of care patients consider to be most important (by simply summing the number of patients that ranked those items as being 'most important'). This will be helpful in deciding which items to include in the questionnaire. The findings from these focus groups will be important for helping to guide which of the relational questions from the national patient surveys should be used in the subsequent factor analysis. The findings will also be important for ensuring the questionnaire is focused on what patients regard to be the most important relational aspects of care, and thus forms part of the content validation of the instrument. This in turn should encourage participation and ensure the survey can identify what NHS trusts need to do in order to make a positive difference to patient experience

Between 6 and 8 patients (plus carers if necessary) will be recruited to the focus group via an advert in a local paper; this has proved a successful approach to recruiting patients in previous research projects. The focus group will be held with adults that have attended A&E in the previous 3 months. Eight patients will also be recruited to participate in one-to-one interviews with the researcher. Interviews will include people aged 75 and over, who have stayed in hospital for at least one night in the previous 6 to twelve months. The interviews are made available as older adults have repeatedly expressed, in previous research recruitment efforts, their apprehensiveness about speaking in groups and their desire to participate in research from within their own homes due to limited mobility or fear of getting lost. We increased the number of interviews to eight to ensure that the level of detail and breadth of information is comparable to what can be obtained through the element of discussion in the focus group. The aim will be to get a mix of participants with regard to age, sex and ethnic origin. It is recognised that a limitation of carrying out focus groups with patients that have been discharged from hospital is that their views and experiences of the relational aspects of care may differ to those of patients who are in hospital (i.e. the participants of the survey). However, it would not be appropriate or feasible to run focus groups at the point of care with current inpatients or people attending A&E.

Each participant will be given an information sheet before the discussion or interview to ensure they are fully informed about the study, and will be asked to sign a consent form. Participants will be given a £35 voucher for focus group participation or a £25 voucher for interview participation to thank them for their time and to cover expenses incurred. The focus group will be held at the Picker Institute office and will be facilitated by Dr Susanne Käsbauer (Picker Institute Europe) and attended by Laura Kelly (University of Oxford) who will make observational notes. Interviews will be held in participants' homes or at Picker Institute Europe and will be conducted by Dr Susanne Käsbauer. The focus group and interviews will be audio recorded and transcribed to aid the analysis and interpretation of the findings.

The transcribed data from the focus group and interviews will be analysed separately to identify themes arising from the discussion and conversations. A thematic analysis approach will be used to identify, analyse and report patterns (themes) within the data. The findings from the research will then be drawn together to identify the key themes and common issues to arise from all conversations. Areas indicating disagreement or = different issues/priorities will be important to highlight how the questionnaire will need to be tailored to the different service settings (i.e. A&E departments and inpatient wards). Data from the card-sort exercise will also be analysed by summing the numbers of each type of 'relational care' that fall within the different levels of importance categories. This will help to identify the relational aspects of care which patients consider to be the most and least important to their overall experience in both A&E and inpatient wards caring for older people.

Factor analysis

A secondary analysis of data from the national inpatient and A&E department surveys will be undertaken to identify higher and lower performing trusts with regard to the relational aspects of care. A patient-level factor analysis (i.e. not hospital-level) will be carried out to create composite indicators from responses to questions that focus on the relational aspects of care (specialist hospital trusts will not be included in this analysis because these generally show a different pattern of performance and because their patient populations tend to be very different from those of general hospitals). Before undertaking the factor analysis the findings from the focus group and interviews with patients will be taken into account to help guide the choice of questions that will be used in the analysis.

The data will be pre-screened to remove any items that are not answered by a sufficient number of respondents. We would also avoid including items where all or nearly all respondents give the same answer, as these do not contribute to scale discrimination and could bias further analyses. Questions will be screened for trust-level discrimination, which will be assessed using the intraclass correlation, and items that show low discrimination will be avoided. Given that varying patterns of non-response across questions can affect the robustness of factor analysis, we would (i) analyse a pairwise correlation matrix and (ii) use multiple imputation to fill in the missing data; using these two approaches will allow us to assess whether they give consistent or discrepant results.

For interpretability, indicators will be constructed so as to be essentially unidimensional (to measure one construct). An initial exploratory factor analysis will give a preliminary assessment of which items are most closely related and the likely number of underlying dimensions to the data. Depending on the pattern of results, it may be appropriate to carry out further factor analysis in order to clarify the structure of the data. For example, where most items load onto a general factor, it can be helpful to apply a bifactor model to identify distinctive subsets of items. This information will then be reviewed in

the light of qualitative findings to form potential domains that represent distinct aspects of care. These will then be analysed to ensure that they have appropriate measurement properties, which can be achieved by examining patterns of factor loadings and item information (McDonald, 1999). Where necessary, items would be deleted in order to improve internal consistency. However this purely statistical approach would be tempered by the need to ensure appropriate domain coverage.

Each trust will be scored on the resulting composite indicators and six trusts will be identified as case studies for the next stage of the research; three trusts will have high composite scores and three will have significantly lower scores. In addition to selecting trusts that differ with regard to their patients' reported experiences of the relational aspects of care, the aim will be to achieve a mix of trusts in terms of their geography (rural/urban) and populations served (using the Department for Communities and Local Government Indices of Deprivation, 2010). It is expected that some trusts initially selected from this analysis will not wish to participate in the research. However, we anticipate that re-selection will not be difficult as the analysis will identify the top performing 10% of trusts and the lowest performing 10% of trusts with regard to the composite indicators (or the top and bottom 20% of trusts if a greater number of trusts was required for the case study selection). Furthermore, trusts are likely to be keen to be involved in a study that will enable them to gather feedback from their patients without needing to fund the data collection, analysis or reporting; for instance, trusts may be keen to test the effectiveness of a real-time survey using an electronic hand-held device if this approach has not already been used by the organisation for obtaining data on patients' experiences. Evidence from the Friends and Family Test on the mode of data collection used in A&E shows that only 32 out of 143 trusts used 'electronic tablets/kiosks' as of December 2013 (http://www.england.nhs.uk/statistics/statistical-work-areas/friends-and-family-test/friends-and-family-test-data/) This suggests that the majority of trusts do not have electronic equipment that is used for near real time data collections. Furthermore, even if a trust is using a real time feedback approach to gathering patient feedback, they may still be keen to participate in the proposed study which is using a participatory action research approach to help ensure the survey findings lead to service improvement.

In-depth interviews with staff

Ten in-depth semi-structured interviews with staff will be conducted in each of the case-study trusts to get an understanding of how, and to what extent, patient experience data are used by the organisation to improve frontline care. The aim of the interviews will also be to determine what factors appear to promote or limit the use of patient feedback in driving service improvements and the organisations' experiences and expectations of real-time data collection. We will work closely with a key contact at each case study organisation, which is likely to be the 'Patient Experience Manager/Head of Patient and Public Involvement' (or similar), to help identify other appropriate people to interview. The aim is to interview staff across a range of roles in the organisation, including frontline staff (particularly staff working in A&E and older people's wards), Directors of Nursing, Ward Managers/Matrons, Quality and Patient Safety Managers/Leads, Service Leads and Board members. Some of the staff who are interviewed (particularly frontline staff) may also be involved in the participatory workshops.

The aim of the interviews is to get an understanding of how patient feedback is currently reported and communicated within the trust, including how data are used (if at all) to improve frontline care. It will be important to explore with staff what factors appear to promote or limit the use of patient feedback for implementing service improvement measures and their experiences and expectations of using real-

time methods for collecting patient experience data. The interviews will seek to understand, where possible, staff experiences of volunteers being present on the wards in patient support roles or volunteer involvement in other/previous data collections. Staff expectations on the role of volunteers to collect real-time feedback data will also be explored within these interviews. It is expected that each interview will last approximately 45 minutes and will be audio recorded and transcribed to allow for subsequent analysis. It is hoped that the majority of interviews with staff will be face-to-face although it may be necessary to carry out some telephone interviews.

A Framework Analysis approach will be used for analysing the interview data as the five distinct phases form a methodical and rigorous framework for dealing with a large volume of data, such as in this study. It is considered particularly useful in this project as the method is transparent and so will enable more than one researcher to work on the analysis (Ward et al. 2013). Furthermore, a Framework Analysis approach is flexible as during the analysis process it allows the researcher to either collect all the data and then analyse it or start the analysis during the data collection process (Srivastava and Thomson, 2009); the ability for the data analysis to take place alongside the data collection will allow questions to be refined and new avenues of inquiry to develop (Pope et al. 2000) which will be important for this research.

Findings from the interviews will be important for contributing to the process evaluation and planning and designing the participatory workshops that will be held in each case study organisation approximately three months after the implementation of the real-time survey. It is expected that some of the themes arising from the interviews will be common across all sites, whilst certain findings are likely to be specific to one or two sites. It will be necessary to tailor the workshops to ensure they are appropriate and meaningful to the staff involved at each organisation.

Patient Experience Questionnaire Development

To develop and test the real-time survey instrument the following steps will be carried out:

1.   Review and build on existing questionnaire tools

A database of relevant questions will be compiled from existing tools and will then be mapped to the areas identified from the focus group and interviews. Mapping questions in this way will allow the research team to determine what suitable questions already exist and areas where there is a need to develop new questions. This process of question mapping to elements of experience is regularly used by the Picker Institute as part of the questionnaire development process. The existing tools that will be reviewed will include the A&E Department and Inpatient surveys that are conducted as part of the national patient survey programme, the Patient Evaluation of Emotional Care during Hospitalisation survey questionnaire 'PEECH' (Williams & Kristjanson, 2009; Murrells et al, 2013) which is focused on the relational aspects of care, and any other tools that have been developed for local use by NHS organisations. As there are very few tools that have focused on the relational aspects of care there is a need to develop a new tool for the purposes of this study. Although the PEECH questionnaire does measure patients' experiences of the relational aspects of care, it was not developed specifically for use in A&E Department settings, and nor has it been tested for use in a 'near real-time' data collection at the point of care**.** Some of the items are likely to need revision and retesting so they are appropriate to patients treated in Accident and Emergency. Moreover, the PEECH questionnaire was designed to be used in a postal survey sent to patients' homes following discharge, rather than for use on hand-hand

electronic devices administered at the point of care; it cannot be assumed that questions carry forward unproblematically for use in a different mode of data collection.

2.   Use findings from the focus group and interviews with patients

The focus group and interviews held with recent inpatients and A&E attendees will be important for determining which aspects of 'relational care' should be included in the questionnaire, in addition to the results of the factor analysis. It is likely that, in light of the discussions and conversations, new questions will need to be developed in order to cover the issues that are most important to patients. Groves et al (2004) identify three main benefits to using focus groups to aid questionnaire development:

- They are efficient for determining what potential respondents know, what issues are important and how they structure that knowledge
- They help identify the terms that respondents use when describing their experiences. It is important to use words which are familiar and understood by respondents.
- Focus groups require respondents to describe something they know about and questions are best designed when the researcher understands the full experience of the respondents.

As the survey will be conducted in two different care settings - A&E departments and inpatient wards - two different versions of the questionnaire will be developed, although many questions are likely to be the same (or very similar). The questionnaire will include questions that ask about patients' experiences, rather than their overall satisfaction with the care received (satisfaction questions do not help to identify causes of dissatisfaction or priorities). Measuring patients' experiences of care by asking them to provide reports of ''what happened'' provide results that are more useful for quality improvement (eg Cleary, 1998; Graham & Woods, 2013). The questions will be structured with closed response options, rather than open questions, to ensure that the survey findings can easily be analysed over time and compared between the different organisations. This is particularly important given that this is a real-time survey and results need to be fed back to staff working in the selected wards as quickly as possible so that staff can respond quickly the to the findings. In both questionnaires, basic demographic questions will be included (age, sex, ethnic group), an overall health status question ('In general, would you say your health is ….excellent/very good/good/fair/poor?'), route of admission (emergency or waiting list) and a question that asks who completed the survey (patient, proxy or both patient and proxy). Data from these questions will be important for analysing the response data by key groups and for determining the representativeness of the respondent sample. Respondents will also be invited to write their own freetext written comments. Freetext comments can often be used to provide further insight into why patients gave poor ratings to certain questions and inform action plans.

3.   Consult the advisory group on proposed question items

The draft questionnaire will be circulated to members of the advisory group prior to the first meeting. The questionnaire items will then be discussed during the meeting and any suggestions for changes to question wording or response options will be made. It will be important to get feedback from the patient representatives on the appropriateness of the questions included and to highlight any potential areas of confusion. They will also be able to provide useful input on the introductory text that the volunteers will use when inviting patients to participate. The group will also consider the completeness of the list of items for use and discuss any possible omissions, further addressing the content validity of the instrument as initially explored via focus group and interviews.

4.   Cognitively test the questionnaire with patients

The questions will be tested by carrying out cognitive interviews with patients at the point of care. Using Tourangeau's (1984) model of cognitive processes, the interviewers (researchers and patient collaborators) will look at participants' comprehension, retrieval, evaluation and response to each question. Interviewers will also ask participants for their views on the content of the questionnaire and the mode of completion. It is expected that approximately 30 interviews will be conducted in total; 10-15 with current inpatients (aged 75 and over) and 10-15 with patients attending A&E (or those admitted to Acute Assessment Unit). The interviews will be carried out in three rounds with time allocated between rounds to make changes to the questions and/or layout of the questionnaire. The 'patient collaborators' at two of the case study sites will help the researchers to recruit patients for the interviews by approaching people in hospital.

Potential participants will be provided with an information sheet about the project which will clearly explain that their participation is voluntary and will outline how the information they provide will be used in the project. The interviewers will ensure the participants have been properly informed about the study and consent to taking part before the interview commences. Participants will be given a £25 gift voucher to thank them for their time.

Online staff survey

To help evaluate the effectiveness of the real-time patient feedback survey for driving service improvement, a short online survey of staff working in the selected wards at each case-study site will be carried out before and after the introduction of the intervention (ie the real-time survey). The survey invite will also be sent to members of staff working in two wards/directorates within the trusts where the real-time survey has not be implemented to act as control wards. The survey will measure staff awareness of the approaches used to gather patient feedback in their ward(s)/directorates and the trust as a whole. The survey will ask what methods (if any) are used to communicate patient experience data to staff and what changes have been implemented as a result of patient feedback being collected. The survey will also explore the perceived promoters and/or barriers to staff using patient feedback for bringing about change in practice and behaviour. Staff will be asked if they have been involved in examining the results of any patient surveys and if they are aware of any changes that have been made as a result of collecting patient feedback. The survey will also include questions that will provide data for use in the process evaluation, such as staff expectations, and then their experiences, of introducing the real-time feedback survey in their wards/departments including the role of volunteers to administer the survey.

Each relevant staff member will receive an email containing a link to the online survey which will be designed using Snap Surveys, a survey software programme. If the trust(s) do not have comprehensive or up-to-date email addresses for their staff on their electronic staff record (ESR), they will be encouraged to populate a database to include the email addresses of the relevant staff; this should not be too onerous as the survey will only be sent to staff working in a selection of wards/directorates. Alternatively if this is not feasible, staff members will be sent a letter directing them to their staff intranet which will include a link to the survey. The survey fieldwork will run for four weeks, with a reminder being sent to non-responders after two weeks. A publicity poster will be designed to encourage staff to respond to the survey which can be displayed in the appropriate staff rooms/areas.

Similarly the ward managers of the selected wards and A&E departments will be asked to draw their staff's attention to the survey during their regular team briefings. Data from the survey will be analysed in SPSS to allow for more detailed analyses and statistical testing to be undertaken.

Real-time survey data collection

The real-time survey will be administered by volunteers working at each of the six case study organisations. The role of volunteers to administer the survey, rather than clinical staff, is less likely to introduce interviewer bias. The presence of hospital staff may make the respondent feel uncomfortable about criticising their care; volunteers are less likely to be perceived as authority figures by patients (Larsen, 2011). Response bias has been demonstrated particularly in older service users who may fear that complaints may undermine their relationship with their carer (Bauld et al, 2000). To minimise interviewer bias, volunteers will be trained to hand the electronic device over to the patient so that they can complete the survey themselves (and/or with the help of a relative or friend visiting). To ensure good standards of infection control, the volunteers will clean the device with an antiseptic wipe before it is passed on to another patient. The advantage of using volunteers to administer the survey is that they are available to help respondents complete the survey if this is necessary, perhaps due to physical and/or cognitive impairments. This is particularly important given that the survey will be carried out with older inpatients; more than half of older people admitted to hospital will have either an acute or chronic mental health problem, such as dementia, delirium and cognitive impairment (Tadd et al. 2011). Using friendly and well trained volunteers to help patients provide feedback about their experiences should also lead to better response rates. It is argued by Bowling (2005) that "a friendly, motivating interviewer can increase response and item response rates, maintain motivation with longer questionnaires, probe for responses, (and) clarify ambiguous questions."

It is anticipated that recruiting volunteers to administer the survey will be relatively straightforward as many trusts already have a network of volunteers that carry out various tasks within the hospital and/or already have a system in place to recruit more volunteers if necessary. The Picker Institute has experience of working with trusts conducting real-time feedback surveys using volunteers to administer the survey and there has never been a difficulty with ensuring the number of volunteers is maintained over a long data collection period. Sufficient time and resources have been allocated to recruit volunteers over a four month period before the real-time survey is due to be implemented. It is expected that the patient collaborator, recruited at each case study organisation, will oversee the volunteers working on the survey and will be instrumental in ensuring that the numbers of volunteers required to administer the survey is maintained. As previously mentioned, during the data collection period, fortnightly telephone meetings will be held between the chief investigator and each of the patient collaborators. Volunteers will also be asked to keep a weekly diary of their experiences, using standard question prompts to aid completion (see the 'Data analysis and evaluation' section for further information). This information will be collated by the patient collaborator and shared with the research team throughout the data collection period to help ensure that any difficulties in the process of collecting patient feedback can be resolved.

Training volunteers

The volunteers administering the real-time feedback survey in each trust will be required to attend a thorough training session, led by a researcher from the study team and the patient collaborator

(researchers from the Picker Institute are familiar with running training sessions for volunteers that administer similar surveys using electronic devices). The training sessions, which will be run on site, will last two hours and will include coaching on approaching patients and interviewer techniques, such as how to appear or sound neutral, to listen, to probe adequately, and to use techniques to aid recall and to record responses. Volunteers will be trained in the importance of ensuring the patient is fully informed about the study and that their participation is voluntary and that they give their consent to take part.

The session will also include step by step training on how to use the devices (including how to support patients to use the stand-alone tablet in A&E departments) and volunteers will be encouraged to undertake a 30 minute session of going on to the ward or into A&E departments in pairs to practice using the devices and then discussing how they got on with the researchers undertaking the training. Any difficulties in using the devices can then hopefully be resolved by the researchers. The training sessions will take place January-March 2015 in preparation for the implementation of the real-time feedback survey in March2015.

We recognise the importance of including a range of people in the survey and will therefore ensure that the volunteers administering the survey are trained in how best to communicate with people with dementia/cognitive impairment. In particular, we will draw on information provided by the Alzheimer's Society on communicating with someone with dementia (e.g. http://www.alzheimers.org.uk/site/scripts/documents_info.php?documentID=130).

Volunteers will be asked to speak with the ward manager or Sister before approaching patients so that advice can be given on the cognitive abilities of the current patients and therefore the appropriateness for their inclusion in the survey. If a patient is recognised by ward staff to have severe cognitive impairment then the volunteers will be asked to seek proxy respondents for such patients where possible. We will aim to recruit volunteers from a range of ethnic backgrounds although it is unlikely that we would be able to recruit enough volunteers to ensure that language support can be given to all patients whose first language is not English. However, most trusts offer interpreter services which could be supplemented, if needed, by the volunteers using a telephone interpretation service such as 'LanguageLine Solutions'. The training for the volunteers will include how to make use of interpretation services. The research team will seek early feedback from the volunteers after their training on their expectations and concerns on administering the survey. This will help to evaluate the training and identify gaps or areas that need strengthening.

Survey implementation

The real-time survey instrument will be introduced into wards and A&E departments in the six case-study organisations in March 2015. We will work closely with the main contact at each trust to identify the most appropriate inpatient wards for implementing the survey. Given the need to capture the experiences of older people in hospital, the survey will be conducted in wards which generally have a higher proportion of older patients. As older people generally have longer length of inpatient stays (Imison 2012), in order to get a sufficient number of respondents, it may be necessary to group together three or four similar wards across the same department/directorate (The volunteer administering the survey can record the ward name/number on the device when a survey is completed so that the results can still be feedback to the appropriate ward).

Due to the potential difficulty of collecting real-time data from patients attending A&E, it may be necessary for volunteers to approach patients admitted to acute assessment units (or similar) to capture their experiences of the care received in A&E. However, given that these patients' experiences may differ to those A&E attendees discharged home, a fixed electronic tablet (similar to a kiosk) will also be set-up in each A&E department with the aim of collecting feedback from a greater proportion and 'type' of patients attending A&E (such as those attending in the evenings/night time when a volunteer is less likely to be present to collect patients' feedback via the hand-held device). Previous research has shown the usefulness of electronic kiosks to collect patient experience data in busy services (Dirocco and Day 2011). To minimise the risk of the electronic tablet being subject to the collection of erroneous data (due to people completing a survey before being seen by any clinical staff, children playing with the tablet or patients completing more than one survey), it will be positioned close to the reception desk and will be overseen/promoted by a volunteer for some of the time. Patients will be made aware of the opportunity to provide feedback using the tablet via signage, staff communication and by the volunteers collecting feedback via the hand-held devices.

The volunteers will be asked to approach older patients in hospital (those aged 75 and over) that have had at least one overnight stay in order that they can answer a sufficient number of the questionnaire items. The aim is for volunteers to gather feedback from a minimum of 20 patients in each inpatient ward per month and 50 respondents per A&E department per month. These figures are based on what would appear to be achievable from past experience of conducting real-time feedback surveys with trusts. It is important to note that having a good volunteer resource and effective planning will be the key to achieving these numbers. After a ten month data collection period, this should result in an achieved sample size of 200 per inpatient ward and 500 per A&E department in each trust. In generalising to a population represented by this sample, this would give a margin of error of within ±7 percentage points and ±4 percentage points respectively on question results at the ward level. We recognise the challenge in ensuring a good response rate given the focus on older patients in acute hospital settings where the prevalence of cognitive impairment will be higher (note: A&E patients of all ages will be invited to participate). However our experience from conducting near real-time feedback surveys show a good response from older patients. For instance, across three trusts using hand-held devices to gather patient feedback on inpatient wards, 53% of all respondents over a four month period were aged 65 and over (21% were aged 65-74 and 32% were aged 75 and over). This mirrors our experience of collecting feedback from older hospital patients in other surveys: for example, in a postal survey of over 125,000 inpatients in 2012, we achieved a 56% response rate from patients aged 75 or over (compared to an average response rate of 51%).

The results from the real-time feedback survey will be available to each case study trust on a weekly basis through the Picker Institute's online reporting system which enables trusts to easily see the key issues and trends. Results will include an 'overview report' which shows a summary of the results for all questions using 'traffic light' icons to ease interpretation and a 'focus report' which shows the results for key questions. Patients' written comments will also be fed back to staff. In order to protect the confidentiality of patients, results from the survey will only be fed back to staff when there are at least 20 respondents per ward and any patients' written comments will first be anonymised by the research team (i.e. removing any patient or staff names and any information that could lead to an individual being identified, such as admission or discharge dates).

Participatory workshops

After three months of real-time data collection, the first workshops will be held with NHS staff and the patient collaborators at the six case study sites. The aim is to involve a range of staff working in the relevant wards and departments, such as ward managers, nursing staff (including matrons where possible), health care assistants, doctors (including consultants/registrars) and service leads/managers. Staff involved in the workshop will be recruited with the help of the ward manager and the patient experience lead at the start of the data collection period. To maximise attendance at the workshop, regular reminders will be sent to the selected staff by the ward manager, although it is recognised that staff may have to come in and out of the workshop to attend to patients' immediate needs. We appreciate the challenge in ensuring that staff are able to attend the participatory workshops. We will work closely with the main contact at each of the case study organisations at the start of the project to ensure that sufficient time and resources is allocated to recruiting appropriate staff to participate (this will include ensuring that the staff member's manager agrees and will be supportive in releasing them to the workshops. Having board-level commitment to the project should help with this). To help ensure maximum attendance at the workshops, the dates will be agreed and set well in advance and the staff invited to attend the workshop will be reminded, by both the research team and the trust's main contact, on the importance of their presence. It is hoped that between 10 and 15 members of staff will attend the workshop which will be facilitated by the Picker Institute's Dr Susanne Käsbauer, with assistance from a researcher from the study team. The involvement of the patient collaborator at each of the participating trusts will be important for ensuring that the patient viewpoint is kept at the centre of the research and for providing feedback on the process of administering the survey.

The objective of the workshop will be for the participants to identify 'what needs to change, and how' for the real-time survey to drive quality improvement measures to improve patients' reported experiences of care. A report on the results from the survey will be circulated to staff attending the workshop beforehand, although the results will also be discussed during the workshop; it's recognised that not all participants will have previously had chance to read the report. In addition to reporting the results for all questions, the report will start with a summary section that outlines which areas patients are reporting the most and least positive experiences and any notable changes over time. Previous research has shown the importance of sharing patients' written comments with staff in order to stimulate their interest (Reeves et al. 2013), so a selection of anonymised comments will also be included in the report to illustrate the quantitative results.

The aims of the workshop will be to:

- Evaluate the introduction of the real-time survey within the ward/department.
- Discuss the findings from the online staff survey; were staff expectations around the introduction of the real-time survey, such as the role of volunteers to administer the survey, correct?
- Examine the level of staff engagement with the real-time data; how aware are the staff of the survey implementation, how have the survey results been communicated to staff and/or patients (if at all) and the perceived impact of the survey on ward practices and staff behaviour.
- Discuss the factors that appear to encourage and dissuade patients to provide feedback and how participation can be improved (such as discussing innovative ways to feedback the results to patients to encourage future uptake).

- Understand the issues that facilitate the use of the real-time data and the challenges that staff face in using the data to make changes to improve the relational aspects of patient care.
- Explore how to effectively address the barriers to making use of the real-time survey data for quality improvement.

The facilitator will ensure the discussion remains focused on understanding the patient feedback gained from the survey and planning strategies for ensuring this feedback is used effectively. However, as this study is using a participatory action research approach, the aim is for the participants, rather than the research team, to generate ideas and plan strategies on how best to present, communicate and use real-time data to improve their patients' experiences of the 'softer' aspects of care and to recognise how changes to behaviours and practice can be achieved and also maintained. The researchers involved in facilitating the workshops have considerable experience in supporting NHS staff in developing ward-level and organisational strategies to improve patients' experience of care. In facilitating the discussions, the researchers will draw on resources from the CAREFUL programme which aims to engage and motivate staff to bring about improvement in patient care (http://www.themeaningofcareful.com). Members of the research team have been delivering action planning workshops based on feedback from patient and service user surveys for NHS organisations for over five years, with great feedback on the usefulness of these events received from participating staff. Following the workshops, the research team will collate and share findings across the six case-study sites in terms of what is being done, how the data is being used by different parts of the trust and the strategies identified to bring about improvement or how problems have been overcome.

Before the second participatory workshops are conducted, a networking event will be held at Harris Manchester College, Oxford, so that staff from the case study sites can come together and discuss their experiences and share practical examples that can support a change in practice. We are keen that this research promotes a shared learning experience rather than each of the participating organisations working in isolation. After this event an additional meeting will be held with key members of staff involved in the workshops, such as the ward manager and service lead, at each trust. The meetings will be held after five-six months of data collection to ensure the continued engagement of staff in the study and for the research team to provide any support or guidance to staff on making effective use of the data collected and implementing changes.

The second participatory workshop will be held at the end of the fieldwork period to evaluate the inputs, processes and outcomes of implementing the real-time survey in selected wards. Staff attending the second workshop will be provided with a short briefing document beforehand with the key outcomes of the first workshop, networking event and additional meeting with key staff. As far as possible, the same people who participated in the first workshop will also attend this second workshop to ensure some consistency and understanding of the research. The aims of the workshop will be to:

- Explore why the patient feedback results have improved, or not improved, over the course of the data collection (what changes in practice and/or behaviours appears to result in improvement to patients' reported experiences?)
- Evaluate the success of implementing a real-time survey approach for measuring patient feedback (what would need to change, if anything, if this survey was to continue in the longer-term and be rolled out to more wards and patient groups?)

- Identify the key determinants and necessary conditions for the successful implementation of a real-time feedback approach
- Develop recommendations to support NHS trusts in implementing a real-time survey to effectively measure, and improve, patients' experiences of the relational aspects of care.

The aim of the participatory workshops is for NHS staff, rather than the research team, to identify what changes need to be made within their organisation in order to make a difference to patients' experiences of the relational aspects of care. This will inevitably be a much greater challenge to staff than making changes which impact on patients' experiences of the functional/transactional aspects of care. It will require staff from a range of roles to work collaboratively together, over a sustained period of time, to establish what changes can be made to bring about improvement in the relational aspects of care. It is recognised that a change in culture is likely to require significant resources and time before any impact of patient experience can be measured. However greater staff awareness and engagement in using patient feedback is likely to change behaviour and practice to some degree which the continuous real-time surveying of patient experience should identify. Furthermore, there are likely to be initiatives, such as changes to staff training, where the impact on patients' experiences of the relational aspects of care can be measured, and improved, during the course of the survey fieldwork and beyond. Research such as this will help organisations embed a culture of acting on patient experience information which they can continue to build on in the future.

Data analysis and evaluation

The evaluation of the real-time survey for improving patients' experiences of the relational aspects of care will be undertaken at different levels. Please refer to figure 1 below which shows how the various stages of the research will feed into the overall evaluation.

Questionnaire tool

Preliminary evidence of validity will arise from construction of the instrument, through cognitive testing of the questions and factor analysis of the structural relationships between item scores. Initial focus group and interviews with patients and consultation with the expert advisory group will be used to test and address the content validity of the instrument. Meanwhile, cognitive testing will follow the model described by Tourangeau (1984) to test construct validity. To evaluate the validity of measurements from the instrument, tests of data quality will be performed, including floor and ceiling effects for items and scales, missing data (item nonresponse), and internal consistency of proposed scales. We will also take advantage of the use of electronic data capture to collect paradata from the survey – particularly response times for each question. This will allow us to evaluate the time respondents spend on each item and identify any data quality issues (eg where answers are given implausibly quickly, indicating that a respondent has simply 'clicked through' without reading questions).

The processes by which the tool will be validated at the end of the survey will include:

Assessment of provider-level reliability

Analyses will be carried out to ensure that it is possible to discriminate higher- and lower-performing units (eg wards) once measurement error is taken into account. Generalizability theory provides a means of determining the minimum number of respondents needed to achieve an adequate level of provider-level reliability for the scale scores. This will be evaluated using a variance components model of the scale scores. This approach has been applied by the team in Bos et al (2012).

Evidence of differential responding by demographic groups

We will examine scale score differences by demographic groupings (such as age and gender), and also whether there are residual score differences on specific questions associated with certain groups when controlling for overall scale score (known as differential item functioning).

We will examine differential item functioning using the logistic or ordinal regression method detailed in Zumbo (1999). This involves regressing the score for each item on the total score and then assessing whether group membership and (potentially) the interaction between membership and score significantly add to the prediction.

Evidence of consequential validity

The underlying purpose of the new instrument is to lead to improvements in patient experience of relational care. If feedback of the results obtained leads to such improvement, i.e. if use of the instrument has valued consequences, this constitutes evidence of validity (eg Messick, 1989).

Another process by which the tool could be validated would be to examine the convergent and divergent relationships with existing measures. This will not be possible, primarily because administering additional measures of patient experience along with the new instrument would place too much burden on patients (and the volunteers administering the survey), and secondly because existing data collections are insufficiently aligned in terms of population coverage or are not themselves adequately validated (eg the NHS Friends and Family Test).

Patient experience

The effectiveness of the real-time survey for driving improvements in patient experiences will be evaluated by analysing the data from the real-time survey over the course of the fieldwork period, specifically via significance testing for differences in results obtained early and late in the fieldwork period.

The real-time survey data will be analysed to see how the results have changed, if at all, over the data collection period by ward/department, case-study trust, and by patient group (i.e. older inpatients and A&E attendees). Each evaluative question in the survey will be 'scored' by summarising all the response options to a question into a single figure surrounding confidence intervals. Scores are easier to interpret with high scores showing good performance and a lower score suggesting room for improvement; moreover, prior research shows that this method is associated with high levels of reliability and is suitable for use in performance measurement and service improvement (Sizmur, 2012). Scoring the data also allows the results of particular questions to be grouped and aggregated to form a single composite score which will be useful for this analysis. Scores are calculated by converting responses to questions into scores out of 100; scores indicate the extent to which the patient experience could be improved. A score of 0 is given to any response option(s) that suggest considerable scope for improvement, whereas a score of 100 is given to any response option(s) that shows the best possible experience (response options are not scored if it cannot be used to evaluate the trusts performance, such as 'don't know' response options).

If the number of responses by ward are sufficient, patient experience scores (both for individual questions and for composite scores) will be calculated for each week and month of the data collection period per ward/department of each case-study trust and any significant change in the scores over time will be calculated. Rather than simply undertake statistical tests for significance the effect sizes and/or standardised response mean scores would be calculated (Effect sizes and/or standardised response mean scores of approx. 0.2 would be considered small and 0.5 moderate (eg Cohen, 1988)). These statistical tests would be appropriate for this sort of data as they do not require individual patient data but mean scores/standard deviations. In order to make fair comparisons in patients' reported experiences over time, and between organisations, the data will be standardised to control for route of admission, patient/proxy responses and patient demographics (if these are shown to influence how patients' respond).

Figure 1: The components of the overall evaluation of the research project
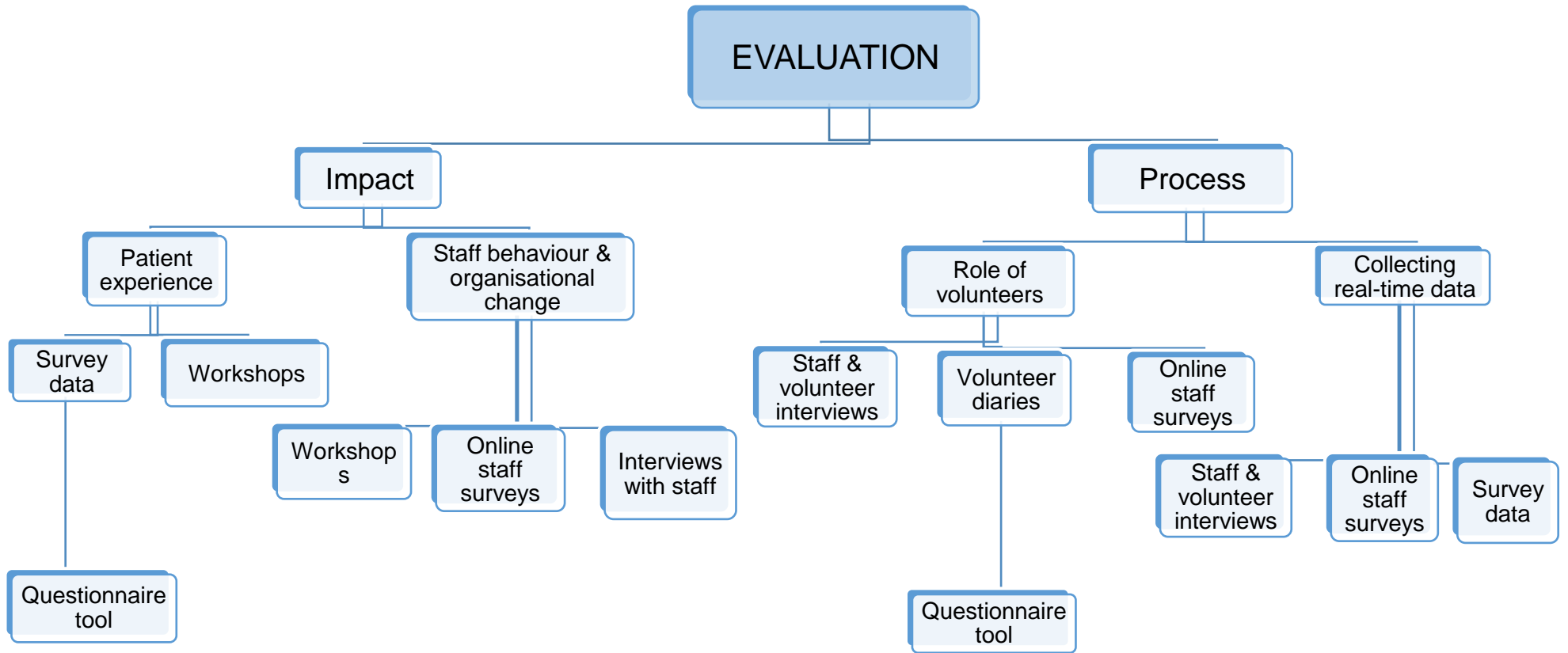
Staff behaviour and organisational change

To evaluate the impact of the real-time survey for driving any changes to ward systems/practices and/or staff behaviours the data from the staff surveys will be analysed to see if there are any noticeable changes in the survey findings since the introduction of the intervention (i.e. comparing the pre and post intervention survey data). The data will be analysed to determine if there have been any significant changes in staff perceptions of patient feedback (in terms of their awareness and engagement with patient survey data) and/or any evidence of changes being made as a result of the real-time data collection, such as staff knowledge or involvement in introducing any initiatives aimed at improving patients' experiences. Staff working in the 'control wards' (ie wards that have not implemented the real-time survey intervention) will also be invited to respond to the survey, so it should be possible to separate the effects of the intervention from other factors that could impact on the results.

Staff members interviewed at the start of the study will also be invited to respond to a more specific online survey at the end of the data collection period. The aim will be to examine their experiences of the real-time survey being implemented within their trust and what impact the survey has had on staff engagement in the overall service improvement agenda. The survey will question what factors, based on their experience of the real-time data collection, need to be in place to ensure staff use the real-time data to make changes (e.g. leadership support, systems). Quantitative results from the staff surveys will be analysed alongside the findings from the participatory workshops and in-depth interviews held with key staff at the end of the survey to build up a detailed understanding of the effectiveness of the survey for bringing about a change in staff behaviours and driving improvements in front-line care. It will also be important for this qualitative work to capture any organisational changes that have been introduced over the course of the fieldwork period which could have influenced NHS staff behaviours and cultures, which in turn could impact on the success of the intervention to drive service improvement. Interviews will be held with four members of staff and the patient collaborator/volunteer involved in administering the survey at each case study site. A paired interview will be carried out with the patient collaborator and one of the volunteers involved in the survey and will focus on evaluating the process of administering the survey (rather than on changes to front-line care). The most appropriate members of staff to be interviewed will be determined during the course of the study, but they are likely to be the two managers of the inpatient ward and A&E Department, and two front-line members of staff (such as a grade 6 nurse); one working in the inpatient ward and one working in A&E.

The key questions to be addressed in this aspect of the evaluation will be:

- To what extent are staff engaged in the real-time data collection? (Are staff aware of the real-time feedback survey? Do staff know how to interpret the real-time data? Are there any differences between different staff groups, e.g. frontline staff versus service leads and managers?)
- How, and with what frequency, was the data from the survey communicated to staff?
- Has the real-time data collection and participatory workshops led to any changes in staff behaviours and/or organisational cultures? Have any interventions been initiated in response to the real-time data collected to improve patient experience?

- What challenges or barriers were faced by staff in using the data for driving service improvements, and how, if at all, were these overcome?
- What are the necessary conditions for the successful implementation of a real-time feedback approach for improving patient experience? What needs to be in place (e.g. in systems, practices and behaviours) to ensure staff have the skills and motivation to engage in and make use of the real-time feedback?
- A high level question such as 'As a result of this research, would you implement a real-time data collection in the trust?'

A central part of the evaluation will be to compare the findings from the six case study organisations. It is recognised that evaluating the effectiveness of the intervention needs to be done in the context of trust-wide strategies and cultures which are likely to have an impact both on staff behaviour and patient experience. As the research is using a participatory research approach, it is expected that the case study trusts will communicate and make use of the real-time data in different ways. It will be important to understand how the different approaches taken by staff impact on how successful the real-time feedback survey is for improving patient experiences. This will be useful for recognising good practice; key for developing evidence-based recommendations to support the introduction and implementation of real-time patient feedback approaches.

Process evaluation

The process of introducing the real-time feedback survey into selected wards will firstly be evaluated by examining the survey response rates and the representativeness of the respondent sample. In order to undertake this analysis, we will ask the participating trusts to retrospectively draw an anonymous sample of patients that were admitted to the selected wards/A&E departments over the data collection period; trusts will be asked to include the patients' basic demographic data, length of stay, route of admission and which particular ward they spent most of their time (for inpatients) so that comparisons between the samples can be made. This kind of information is often extracted from trust information systems for the national patient survey programme and so should be a relatively easy task for trusts to undertake. Sampling guidance will be developed and provided to each trust to aid them in drawing the samples. Data extracted will be fully de-identified before being shared with the research team: NHS numbers, names, and addresses, and so on will be removed.

To evaluate the role of volunteers in the research, volunteers will be asked to record their experiences of administering the survey in a weekly diary. Volunteers will be provided with a template diary form that includes structured prompts and questions to aid completion and reduce the burden placed on them. These questions/prompts will be decided following conversations held with a number of volunteers at the start of the data collection. However, they are likely to cover issues such as survey uptake, success in talking to ward managers about eligibility of patients on the ward to participate in survey, ability to engage 'harder to reach' patients (such as those with dementia and/or those whose first language is not English), any problems with using the devices, any issues with the question items raised by patients, and the ability to get help from patients' friends and family in completing the survey where needed. The information collected will be reviewed regularly by the patient collaborator and research team to evaluate the process of collecting data and to understand the volunteers' perspective on how the survey impacts on their relationships with patients. The information will also be examined

to understand how the process of data collection may create bias in the patients that participate in the survey.

The in-depth interviews carried out with staff and the patient collaborator/volunteer at the end of the data collection will also provide data to be used in the process evaluation. The interviews will seek to understand staff and volunteer experiences of administering the real-time survey over time. The interviews will be important for understanding both staff and volunteer perspectives on the success of the survey implementation. Furthermore, the online staff surveys will include a section on the method of using volunteers to collect data on patients' experiences. The initial survey will gather information on staff expectations of using volunteers to administer the survey, including any areas of concern. The second survey conducted at the end of the fieldwork will ask staff about their actual experiences of volunteers being present on the ward to collect patient feedback via hand-held devices.

Reporting and outputs

The reporting outputs will be developed in collaboration with the case study organisations, the advisory group and patient collaborators. We recognise the value in ensuring that all the project's stakeholders will be involved in developing the outputs. The second participatory workshops with NHS staff and patients will be important for creating the recommendations and reporting outputs, such as the toolkit if the survey is shown to be successful. It is important that any output we produce is suitable for the audience it is intended for, for example patient collaborators will help ensure that outputs are accessible to non-technical stakeholders and participants.

The main output from the research will be evidence-based recommendations and guidelines to support NHS service leads and managers on the implementation of a real-time survey for measuring the 'softer' aspects of patient experience. This resource will include case study newsletters that summarise the key lessons learned about using real-time data to drive service improvement. These recommendations will outline how best the real-time survey should be implemented (such as the approach to fieldwork, use of volunteers) in order that the data is used for service improvements, such as how staff should present, communicate and use real-time data to improve the care that they provide. The recommendations will be shared with trusts participating in the research through training sessions, meetings and employee newsletters. Wider dissemination of the evidence-based recommendations into other NHS organisations will be achieved by carrying out three regional workshop events designed for NHS service managers and patient experience/quality improvement leads. These are likely to be held in Leeds, Birmingham and London and will be publicised via our own extensive contact databases and networks, organisational websites and social media. A webinar will be run for people who express an interest but are unable to attend any of the regional workshops.

Each participating organisation will receive an overall report detailing their results from each of the qualitative and quantitative elements of the project. This will allow them to evaluate how effective the introduction of a real-time survey has been for improving their patients' experiences of the 'softer' aspects of care and will enable them to decide the value in continuing the survey and/or rolling it out to other wards and patient groups in their trust. The findings will be shared with staff at the case study sites through training sessions, meetings and employee newsletters. We will work with the patient representatives in the advisory group and the patient collaborators at the six case study organisations to produce appropriate outputs for disseminating the results to patients and the wider public. The output(s) will need to be developed so that it promotes engagement and interest in the research findings by using an appropriate format and language. We will work with the trusts' communication departments and local patient and/or Healthwatch groups to publicise the results through the best available channels such as local media.

If the evidence generated by the research supports the use of real-time surveys, a toolkit will be developed to enable organisations to successfully implement a real-time survey that is focused on patients' experiences of the relational aspects of care. This output will include the survey instrument, guidance documents on how to implement the survey (including guidelines on the use of volunteers for administering the survey) and resources to help staff to interpret and make the best use of the data for improving patients' experiences. The aim would be for the toolkit to be a valuable resource to organisations wishing to use a robust approach to gathering real-time data on patients' experiences of

the softer aspects of care. The regional workshops and associated webinar will promote the toolkit which will be made freely available for use by NHS trusts. As Professor Jenkinson is a fellow at Harris Manchester College (University of Oxford), a one day conference style event will be held at this College to launch the toolkit to approximately fifty service/quality improvement leads and managers in the NHS. Other approaches that will be used to spread knowledge of the toolkit will be via email dissemination to all acute NHS trusts, social media and by developing a specific web page to promote the tool.

The final project report will provide a robust and evidence-based evaluation of the effectiveness of a real-time feedback survey to improve patients' experiences of the relational aspects of care. It will detail the work undertaken and will outline any differences in the effectiveness of the tool across the different service settings (A&E and inpatient wards) and case study organisations. The report will describe good practice lessons for the implementation of real-time feedback approach so that it best supports a culture shift towards service improvement. The report will include clear recommendations for NHS commissioners, service managers and frontline staff.

In order to tailor the project's key implications and messages, the research findings will be discussed with the NHS Clinical Commissioners organisation. It is planned that the main findings of the research will be disseminated to Clinical Commissioning Groups (CCGs) and Commissioning Support Services possibly via CCG Learning Network(s). Similarly, depending on findings and implications for national-level roles and responsibilities, dissemination to the Directors of Information and Patient experience and other key personnel in the NHS Commissioning Board and its regional offices would be considered.

To raise wider awareness of the research findings, we aim to publish two original research articles, one in an academic peer reviewed journal and one in a professional journal that reaches NHS clinicians and managers. There is an urgent need for evidence of the effectiveness of real-time feedback so this research will provide an important contribution to the evidence base. A policy commentary detailing the evidence from the evaluation that discusses the impact of a real-time data collection on patient experience and the factors that help or hinder the shift from data collection to quality improvement will also be produced.

We would also expect to be able to present the findings during at least one high profile healthcare conference, such as the King's Fund Annual Conference and/or a Royal College of Nursing event. We plan to involve at least one patient representative/collaborator in the presentation of the findings.

Patient and Public Involvement

There are a number of ways in which patients and the public will be involved in this proposed research:

1. Advisory group

Three members of the public will be recruited to the advisory group for this study which will consist of around ten members in total. As outlined in the application form, one patient representative has already been recruited via the Research Design Service and there is interest from a member of Oxfordshire Healthwatch. The purpose of the advisory group is to provide advice and input at the following key stages during the study: i) the development of the questionnaire tool prior to testing ii) reviewing the results from the interviews and staff survey to design the participatory workshops iii) evaluating the results from the real-time survey and workshops for planning the second workshops iv) prior to the reporting and dissemination of results. The advisory group will consist of independent academic experts in the field of patient experience, NHS staff experienced in using electronic devices for collecting patient feedback and individuals from national organisations representing people who use services (we have contacts in Age UK and the British Geriatric Society). All members of the group will be paid for their time and any expenses incurred. The inclusion of patient representatives in the advisory group is important to ensure the patient viewpoint is kept at the centre of the research. Involving members of the public in overseeing the project will help to ensure that effective support is given to the members of the public recruited as a 'patient collaborator' at each of the six participating trusts. Additional specific roles these three 'patient representatives' will have in the research are to:

a. *Input to the focus group and interview card-sort exercise*

The involvement of the patient representatives in planning the focus group and interview materials will be very useful. Their advice and input will be important for designing the cards to be used in the 'card-sort exercise'. Each card will include a statement about a relational aspect of care, such as 'Being treated with kindness and understanding' and 'Being involved in decisions about my care'. The patient representatives will ensure that these statements are easy to understand and cover the relational aspects of care that are considered important to patients.

b. *Review patient information sheets*

Input and guidance from the patient representatives in the advisory group will be essential when developing the patient information sheets for the focus group and interview discussions and the real-time survey. Potential participants of the focus group, interviews and real-time survey will need to be informed about the purpose of the study and how the data gathered from the focus group/interviews/survey will be used by the research team, such as how the information will be treated in confidence and that only anonymous findings will be reported. Involving the public in the development of these patient information sheets should ensure that they are written using user-friendly language and that the information is clear and easy to understand. This is important for ensuring that patients are not put off from taking part in the research.

It will also be beneficial to involve the patient representatives in developing the advertising materials to recruit 'patient collaborators' at the trusts participating in the project and to also recruit patients to the focus group and interviews.

2.   Patient collaborators:

Once the six case-study organisations have been selected, a 'patient collaborator' will be recruited in the locality of each organisation via local Healthwatch groups or the NHS trust's own patient groups or panel. The patient collaborator will work closely with the research team and will be involved in the following main areas:

a.   Testing the survey tool

The patient collaborators will be encouraged to help the researchers test the questionnaire in cognitive interviews with patients. Involving patients in conducting the interviews will help to ensure that the questionnaire is acceptable and accessible to patients. Members of the research team that are experienced in conducting cognitive interviews will provide training to the patient representatives and will ensure that they shadow a researcher carrying out some interviews before undertaking one themselves. Researchers will also be present in the first few interviews conducted by a patient representative to ensure that appropriate support or input can be provided if required.

b.   Training and overseeing the volunteers

The patient collaborators will be involved in drafting the material or information used by the trusts for recruiting the volunteers to work on this project. They will also be involved in the training session given to the volunteers administering the real-time survey; their advice will be sought prior to the training sessions to ensure that the information and training materials provided to the volunteers will be easy to follow and covers all the issues that may arise when implementing the survey. The patient collaborators will also support the researchers in actually delivering the training and will help to show the volunteers how the hand-held devices work and provide important support and motivation to the volunteers attending. The patient collaborator's knowledge and understanding of the training that is required for volunteers administering the survey will be important as they may need to train new volunteers during the data collection period should replacements be required.

The patient collaborator will continue to offer support to the volunteers administering the survey during the fieldwork. They will ensure that the numbers of volunteers required to administer the survey is maintained and will be the first point of contact for the volunteers if they have any queries or difficulties. The patient collaborators will, in turn, be continuously supported by the research team and fortnightly telephone contact will also be made by the lead applicant so that any difficulties arising in the administration of the survey can be communicated and resolved as quickly as possible.

c.   Participating in the workshops

The patient collaborators will be involved in the participatory workshops held with NHS trust staff. They will work with the research team in planning the workshops and their involvement in the actual workshop will be central to ensuring the discussion, and planning strategies for driving improvements in patient care, are focused on the public's interests and concerns. From their close contact with the volunteers administering the survey, they will also be able to provide feedback on the process of implementing a real-time survey and any issues that have arisen. As with the other participants of the workshop, they will be involved in evaluating the data from the real-time survey.

3.   Reporting and disseminating research findings

The patient representatives and collaborators will be involved in interpreting the research findings to help in checking the validity of the conclusions from a public perspective and in highlighting findings that may be more relevant to the public (Involve, 2012). The facilitator of the participatory workshops will also encourage the group to seek ideas from the patient representatives on how best to feedback the findings of the research to patients; the importance of understanding how best to close the feedback loop by telling patients and local communities about the improvements the trust makes in response to patient feedback is recognised. We will work with the patient representatives to ensure that the information used to publicise results to the trusts' local populations is easy to understand and has the most impact.   The patient representatives will also be engaged in the development of the toolkit to enable other organisations to successfully implement the real-time survey; in particular their input will be important when drafting the guidelines on administering the survey using a volunteer resource. It is planned that the patient representatives will be involved in co-presenting some of the research findings at the regional workshop events designed for NHS service managers and patient experience leads and also at a healthcare conference.

Plan of investigation and timetable

See the following page for a Gantt chart that sets out in detail the timetable for the project. The project plan is built around the key phases outlined in the research plan and shows how we will deliver the project within a 30 month timeframe from our start date of 1st September 2014. This includes:

Phase 1 – Project set-up: conducting one focus group and eight interviews with patients, recruiting case study organisations, developing the real-time survey tool and obtaining ethical approval for the planned research. Between September and November 2014 we will conduct the focus group/interviews/ factor analysis and recruit 6 organisations that differ in terms of their composite indicator scores, local geography and population demographics. The draft real-time survey instrument and patient information sheet will be developed from October to November 2014. We will seek to obtain a favourable ethical opinion from December 2014 to February 2015.

Phase 2 – Data collection: conducting interviews with NHS staff, testing the questionnaire, running an online staff survey and implementing the real-time feedback survey from July 2015 to March 2016; the interviews and online staff survey will be completed by the end of May 2015. Please note the revised tool following cognitive testing will be submitted for ethical approval in April 2015 as a substantial amendment.

Phase 3 – Impact and evaluation: conducting two participatory workshops with staff and patient leads, re-running the online staff survey, surveying those members of staff previously interviewed and conducting in-depth interviews with staff and patient collaborators/volunteers. The first workshop will be carried out in August/September 2015 and the second at the end of the data collection in July/August 2016. A network event will be held in October 2015 and an additional meeting will be held with key staff at each case study organisation in November/December 2015.

Phase 4 – Reporting and Dissemination from October 2016 to February 2017. Progress reports will be submitted to NIHR in March 2015 and July 2016 and an interim report will be submitted in October 2015 outlining the project's preliminary findings.

Phase	Task	2014				2015												2016												2017	
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Project set-up	Run 2 focus groups with patients (including data analysis)																														
	Conduct factor analysis to create scores																														
	Recruit 6 case study organisations and 'patient collaborators'																														
	Advisory group meeting																														
	Develop draft instrument before testing																														
	Apply for ethical approval																														
Data collection	Conduct interviews with trust staff (n=60) and carry out analysis																														
	Test survey tool in cognitive interviews and make revisions																														
	Submit substantial amendment to ethics for questionnaire revisions																														
	Run an online staff survey																														
	Recruit volunteers to administer survey at each case study trust																														
	Progress report to NIHR																														
	Train volunteers for administering the survey																														
	Work with volunteers to design the diary for them to complete on their experiences																														
	Real-time survey data collection (10 months)																														
	Advisory group meeting																														
Impact and Evaluation	Conduct first participatory workshops																														
	Share findings across case study sites																														
	Interim report to NIHR																														
	Networking event for case study staff																														
	Meetings with key staff at each case study																														
	Advisory group meeting																														
	Re-run the online staff survey and analyse data																														
	Run a specific survey with the 60 interviewees																														
	Conduct second participatory workshops																														
	Conduct face to face interviews with key trust staff at each site (n=30)																														
	Progress report to NIHR																														
	Data analysis																														
Reporting and dissemination	Advisory group meeting																														
	Draft the final overall report																														
	Prepare recommendations and guidelines																														
	Develop a toolkit																														
	Write a policy commentary																														
	Finalise overall report and power point slides																														
	Draft articles for publication in a professional journal and a peer-reviewed journal																														
	Present findings at the King's Fund Annual Conference (or similar)																														

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