How do doctors, nurses and healthcare assistants in the Acute Medical Unit look after patients who have diarrhoea and vomiting? An ethnographic study

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Abstract

Background: Hospital outbreaks of infectious diarrhoea and vomiting are a worldwide problem with detrimental human and economic costs. Despite a plethora of well-publicised infection prevention and control strategies and guidelines, the problem of hospital outbreaks appears to be on the increase in the United Kingdom with an estimated cost to the National Health Service of £115 million each year. At present little is known about how contemporary hospital-based clinicians assess patients with symptoms of diarrhoea and vomiting and the infection control management strategies that they employ when caring for patients with suspected or confirmed infectious symptoms.

Methods/design: To address this lack of evidence an ethnographic study focusing on the activities of doctors, nurses and healthcare assistants in the Acute Medical Unit (AMU) of a local teaching hospital has been proposed. Data collection methods include observations of clinical activities, clinician-led photo walks, interviews with relevant patients, doctors, nurses and healthcare assistants, reviews of eligible patients' notes, and reviews of the local hospital's pertinent infection prevention and control guidelines.

A Constant Comparative approach to data analysis that utilises principles of the Framework Method will be employed in this study.

Discussion: This is the first AMU-based study focusing on identifying, describing and explaining the infection control related practices of AMU doctors, nurses and healthcare assistants. It will offer insight into the work culture of these clinicians and highlight the contemporary procedures that they employ in relation to the assessment and infection control management of adult inpatients with symptoms of suspected or confirmed infectious diarrhoea and vomiting. The knowledge gained from this study will add empirical qualitative insight to the body of evidence that is currently used by clinical leaders and policy makers to determine which clinical practices and processes could be improved and/or changed in order to reduce incidents of avoidable hospital outbreaks.

Background

Infectious diarrhoea and vomiting is the most common cause of diarrhoeal disease in both children and adults worldwide and can result in detrimental human and economic costs (Getto et al, 2011; Murray et al, 2012; United Nations Children's Fund (UNICEF), 2007; World Gastroenterology Organisation (WGO), 2012). With about 2 billion cases of diarrhoeal disease reported worldwide every year, the greatest human and economic impact of infectious diarrhoea and vomiting is in developing countries – largely because of poor public health infrastructure (Casburn-Jones and Farthing, 2004; WGO, 2012). Nevertheless, despite better investments in public health in developed countries the incidence of infectious diarrhoea and vomiting remains high and is an important clinical problem (Gadewar and Fasano, 2005; Spies, 2009). In the United Kingdom (UK) it is estimated that hospital outbreaks of infectious diarrhoea and vomiting are costing the National Health Service (NHS) approximately £115 million each year (Lopman et al (2004). With a specific focus on acute care settings, the costs of such outbreaks to affected hospitals include ward and bay closures, loss of staff through sickness, and increased workload on laboratory and cleaning services (Piednoir et al, 2010). The costs to patients include longer hospital stays, restrictions to visitors, and clinical repercussions varying from discomfort to life-threatening disorders related to loss of nutrients, severe dehydration, and electrolyte imbalances (Mattner et al, 2006).

This detrimental impact of hospital outbreaks has led to the development of many infection prevention and

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control strategies over the years which are well-publicised through national guidelines in an attempt to either prevent the spread of infectious diarrhoea and vomiting or effectively manage hospital outbreaks (Aziz and Murphy, 2009; Department of Health (DoH), 2009, 2015; Harris et al, 2010; Health Protection Scotland (HPS), 2013; Norovirus Working Party (NWP), 2012; Public Health England (PHE), 2013). Nevertheless, despite all these guidelines and infection prevention and control strategies, it is reported that over the past decade the burden of infectious diarrhoea and vomiting has increased on the NHS (NWP, 2012). Based on this reported increase of burden despite the availability of a plethora of recommended guidelines and strategies, it is worth considering the fact that there may be an unappreciated theory-practice gap that needs to be understood so as to address the problem. It is therefore essential to investigate how hospital-based clinicians actually assess the infectious status of patients with symptoms of diarrhoea and vomiting and the infection control strategies that they employ when caring for this patient group.

Current literature highlights the fact that infectious diarrhoea and/or vomiting is usually introduced into clinical areas by infected patients, relatives or staff (Chadwick et al, 2000; Lopman et al, 2005; Vardy et al, 2007). Nonetheless, instead of investigating how clinicians actually screen and manage the infection control aspects of individuals with symptoms of diarrhoea and vomiting, current studies have focused on hospital outbreak topics that relate to compliance to Standard Infection Control Precautions (SICPs), adherence to national and local guidelines, and local outbreak management processes immediately before and after outbreaks have been declared (Greig and Lee, 2012; Haill et al, 2012; Harris et al, 2010; Salgado et al, 2009; Vonberg et al, 2008). Moreover, the majority of these studies have focused their investigations on general wards and intensive care units rather than on 'point-of-entry' settings such as Emergency Departments (EDs) and Acute Medical Units (AMUs) – settings which in the UK are identified as 'gateways' into hospital wards. 'Point-of-entry' settings and 'gateways' in that they are usually the clinical areas where patients are first assessed before being transferred to appropriate wards for ongoing treatment (Scott et al, 2009).

In order to address this gap in knowledge and to identify, describe and explain contemporary practice in relation to the assessment and infection control management of adult patients with symptoms of diarrhoea and vomiting, a study with the following primary aim has been proposed:

- To identify and describe how AMU doctors, nurses and healthcare assistants manage the infection control aspects of adult patients with symptoms of diarrhoea and/or vomiting whilst also identifying and explaining the factors that influence this aspect of care.

The specific objectives of the study are:

- To identify and describe how the infective status of adult patients with diarrhoea and vomiting is assessed in the absence of stool microbiology investigation results;
- To identify and explain the factors that promote or inhibit effective patient assessment;
- To identify and describe the infection control interventions that are implemented and performed in relation to diarrhoea and vomiting;
- To identify and explain the factors that promote or inhibit successful implementation and performance of aspired infection control interventions;
- To describe patients' experiences and understanding of care received following an incident of suspected or confirmed infectious diarrhoea and vomiting;
- To produce reports for relevant local clinical managers that present the findings of the study and consequent recommendations.

Methods/design

Study design

This study will employ an ethnographic design and utilise various data collection methods (Boeije, 2002; Charmaz and Mitchell, 2001; Offredy and Vickers, 2010; Pettigrew, 2000). Ethnography can be described as an in-depth study of naturally occurring events within a culture or social group (Savage, 2006). This inductive approach seeks to understand the relationship between culture and events; where culture can be described as the beliefs, values and attitudes of a specific group of people within a given context. At a most fundamental level, ethnography involves generating data by observing and participating in the lives of a social group whereby the researcher is the research instrument. In this study the researcher is a clinical academic who has worked as an honorary staff nurse in the local AMU that will be investigated so as to be well versed with the people working in this environment and their work culture and practices (Murchison, 2010).

Study setting and participants

The study setting is the local AMU of an NHS teaching hospital in the South East of England. As this study is investigating the care of a specific group of patients, purposive sampling (Creswell, 2009) will be used to identify both active and passive study informants.

Inclusion / exclusion criteria

Patients will be eligible for inclusion into the study if they meet any of the following criteria:

(1) if they were referred to the AMU because of suspected or confirmed infectious diarrhoea and vomiting; or
(2) if they develop symptoms of diarrhoea and vomiting (whether expected or unexpected) during their stay on the AMU.

Only patients meeting the preceding criteria who have a good command of the English Language and do not lack mental capacity will be eligible for inclusion to participate in interviews.

With regard to clinicians, only AMU doctors, nurses and healthcare assistants meeting the following criteria will be eligible for inclusion into the study:

(1) if they are involved in the admission, clerking or assessment of AMU patients with symptoms of diarrhoea and vomiting; or
(2) if they are involved in the direct provision of care of AMU patients with symptoms of diarrhoea and vomiting.

Research awareness and staff prospective consent

As this study involves observations and recordings of naturally occurring clinical activities, laminated posters alerting staff, patients and visitors that an observational study is taking place will be displayed on the unit's public notice board and in the unit's staffrooms and information corridors.

In order to facilitate the consenting of clinicians, a period of prospectively consenting as many clinicians as possible will be undertaken before data collection commences. This will involve the researcher either attending staff briefings or engaging in one-to-one conversations with staff through which they will introduce themselves and deliver a brief verbal description of the study and what it will entail. Clinician information sheets will be made available to staff both in person and by leaving copies in the AMU staffroom and multi-disciplinary team room. Clinicians will be given enough time to consider participation before written consent is sought.

Data collection

ata collection will be undertaken over 11 months. Observations of clinical practice will be divided into four 2-month long data collection blocks that are set to coincide with the four seasons of the UK's meteorological calendar as observed by the Met Office (2014). These 2-month blocks will be separated by month-long intervals of preliminary data transcription and analysis that will inform successive data collection blocks (Table 1). The rationale behind collecting observational data in these blocks is to see if there will be any differences in practice across the four seasons.

Observations of practice and field notes

The main source of data in ethnographic research is field notes (Hammersley and Atkinson, 2007). The researcher will therefore be taking field notes of observed practice. These diary field notes will be handwritten on customised data collection sheets whilst in the field and then later transcribed and expounded upon in a word processed research diary for the purpose of analysis. The observational data to be collected will include observations of general activities happening in the AMU and specific activities surrounding the assessment and infection control management of patients with symptoms of suspected or confirmed infectious diarrhoea and vomiting.

Clinician-led photo walks and think aloud exercises

Data will also be collected through clinician-led photo walks; an activity which will also be loosely used as a reflective exercise (Somerville and Keeling, 2004). Clinicians will be given a digital camera to take photographs of what they perceive makes it either easy or difficult for them to look after patients with symptoms of diarrhoea and vomiting in the AMU. For each photograph that they take they will be invited to label the image and then either briefly write about it or dictate into an audio recorder how what they have photographed relates to their experience of caring for patients with symptoms of diarrhoea and vomiting. Photographs from each clinician will be transferred into respective word processed documents together with corresponding transcribed clinician labels and notes for the purpose of analysis.

Semi-structured interviews with patients and clinicians

Data will also be collected through in-depth semi-structured interviews with patients, doctors, nurses and healthcare assistants. The interviews will be used to elicit both general and specific information relating to the care, assessment and infection control management of patients with symptoms of diarrhoea and vomiting. Patients will be interviewed once and asked to generally describe and discuss their experiences of care as patients having diarrhoea and vomiting. Clinicians will be interviewed twice. In the first interview, clinicians will be asked to generally describe and discuss their experiences of caring for patients who have diarrhoea and vomiting. In the second interview they will be asked to expound on, clarify, or amend any of the researcher's preliminary interpretations of the data gathered in the first interview and photo walks. The interviews will be digitally recorded and later transcribed in respective word processed documents for the purpose of analysis.

With respect to data protection, all media containing research data will be stored securely. Paper records will be stored in a secure research office at the hospital site and all electronic media will be stored in a password protected research computer. Participant confidentiality will be maintained and all data will be anonymised.

Data analysis

The primary method of analysis for this study will be the Constant Comparative Method (Boeije, 2002; Offredy and Vickers, 2010). To complement this will be the Framework Method (Gale et al, 2013). Data will initially be coded as 'free nodes' and later these nodes will be grouped into broader themes. These inductive methods of analysis are rooted in Grounded Theory (Glaser and Strauss, 1967) and seek to generate theories regarding social phenomena by systematically examining (comparing

Table 1: Simplified data collection and analysis plan

Activity	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Met Office	*Winter*			*Spring*			*Summer*			*Autumn*		
Data collection												
Research diary												
Observations of practice												
Clinician-led photo walks												
Interviews with clinicians and patients												
Collecting relevant IP&C information												
Data analysis												
Constant comparative analysis							until all data analysed >>>					

and categorising) various data and drawing new meaning from it. Using these methods, data generation and analysis will be undertaken concurrently so that emerging preliminary findings will inform subsequent data collection efforts; a process known as theoretical sampling (Corbin and Strauss, 2008). To complement these frameworks of analysis, NVivo qualitative data analysis software will be used to aid with the management, coding, comparison, and triangulation of collected data (Göransson et al, 2007).

Discussion

This study aims to provide first-hand evidence of the procedures that contemporary AMU doctors, nurses and healthcare assistants employ in relation to the care, assessment and infection control management of adult inpatients with symptoms of diarrhoea and vomiting. It will offer insight into the factors that influence the ability of these clinicians to carry out effective patient assessments and implement aspired infection control interventions. It is hoped that understanding these aspects of care will facilitate the identification of opportunities were infection control practices associated with this patient group can be improved and/or changed so as to reduce incidents of avoidable hospital outbreaks. Furthermore findings from this study will provide lacking qualitative insight into this field of hospital-associated infection prevention practice and shed light into reasons why some recommended infection control interventions might not be working as effectively as expected. Overall, it is hoped that the knowledge gained from this study will add to the body of knowledge that will be used in the future by clinical leaders and policy makers to (1) develop robust evidenced-based patient assessment and infection control management pathways specific to the care of adult inpatients with symptoms of diarrhoea and/or vomiting, and/or (2) develop clinically relevant infection prevention and control guidelines that are easily translatable into realistically actionable hospital policies.

Strengths

One of the greatest strengths this study has lies in its qualitative approach which will allow for a rich exploration of this specific area of the care, assessment and infection control management of patients with symptoms of diarrhoea and vomiting in an acute care setting. The inclusive design of the study aims to gather data from multiple sources which will offer varied perspectives. Patients will offer their perspectives of care as service users and be given the opportunity to make suggestions as to how care delivery could be improved. The three professions represented will offer unique yet comparable perspectives and interpretations of patient care and organisational factors influencing this care that might not yet have been previously considered.

The photographic component of the study also make it strong in that it will capture unique moments in 'real time' clinical practice that words and intelligent arguments could not fully describe or portray. Furthermore, this study will go 'behind the scenes' of a topic in contemporary healthcare shrouded in secrecy as a result of embarrassment and unpleasantness.

Limitations

This study has some limitations which mainly arise from (1) there being only one field observer who is a clinical academic, and (2) the need to conduct this type of research with sensitivity and ethical rigour. Having one field observer who is a clinical academic means that observational data will only be collected when the researcher is present in the AMU on set days as they have other clinical responsibilities outside of the AMU. This means that not all data of the things that influence practice, whether local or external to the AMU, will be recorded. Furthermore, having one observer is like having one camera that can only capture data in its line of sight and audio-visual field. To address these limitations however the researcher will regularly engage in general discussions with AMU staff and undertake observations from multiple observational stations.

Recruiting acutely unwell patients to participate in interviews will also have its difficulties. This is mainly because many patients in the acute phase of illness may experience a decline in mental capacity or are simply too unwell to actively participate (Raymont et al, 2004). As a result it will likely prove difficult to interview some patients who could provide valuable data about their experience of care in the AMU whilst in the acute phase of illness. Furthermore, the embarrassment associated with diarrhoea and vomiting might see younger patients declining to actively participate.

Challenges

There are some specific challenges inherent to this type of study, however the main foreseen challenge relates to the high turnover of both patients and clinical staff in the chosen AMU. Patients do not normally stay on the AMU for longer than 72 hours; they either get discharged home or are transferred to speciality specific wards depending on their diagnosis and treatment plan. With regard to clinicians, nursing staff retention is notably problematic in the chosen AMU and the work pattern of doctors (especially junior doctors) is rotation based; meaning that junior doctor teams spend a specific amount of time working in the AMU before moving on to other specialties. In consideration of the high turnover of both patients and clinical staff, the approved protocol for this study allows for up to 30 patients and 50 doctors, nurses and healthcare assistants to be recruited on varied levels of participation.

Ethics

Favourable ethical approval for the study was sought from and granted by the 'National Research Ethics Service (NRES) Committee South Central - Hampshire A' (reference 14/SC/1197). Documented approval was also obtained from the appropriate NHS Research and Development office. Written informed consent will be obtained from clinicians, patients and/or consultees prior to active participation in the study. The potential burdens and/or embarrassments of participating in the study are clearly mentioned in relevant participation information sheets. Patient participation in the study and important information, such as the date when informed consent is obtained will be documented in each patient's medical file. The researcher is also mindful of the acute illness state of some of the potential patient participants and for this reason patient recruitment will be thoughtfully selective. Due to the infection control risks associated with this study, appropriate risk assessments have been undertaken and the researcher will adhere to the local hospital's infection prevention and control policies and procedures.

Authors' contributions

MM is the principal investigator undertaking this study as part of a PhD project. CM and JP are supervising the project and are also involved in the critical revision of relevant study related manuscripts. MM has drafted the above manuscript with critical input from CM and JP who have read and approved the final manuscript.

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Competing interests statement

The authors declare that they have no competing interests.

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