

# INVESTIGATING THE CURRENT STATE OF INFECTION CONTROL PRACTICES IN DOMESTICS SERVICES IN THE NATIONAL HEALTH SERVICE IN SCOTLAND – A CASE STUDY APPROACH

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Healthcare Associated Infection (HAI) remains a worldwide problem. This paper is based on an on-going research project which aims to develop a Performance Management Framework for Facilities Management services in the control of Healthcare Associated Infections (HAI). With a focus on the area of FM, an attempt is made to understand how FM practices contribute the control of HAI. In the context of HAI, the research also attempts to explore the importance of both knowledge sharing practices (among the FM and clinical practitioners) and Performance Management (PM) practices in FM services. The arguments of contracting out versus in-housing domestic services in the control of HAI are presented. Domestic services in two hospitals were selected as case studies. The types of domestic services in the two hospitals are: (1) a totally in-house service and (2) a Private Finance Initiative (PFI contract). The main purpose of choosing the case study approach was to explore, in-depth, the practices of control of HAI in domestic services. The choice of two cases allowed for a comparison of these practices. Some findings of the case study approach carried out as part of the aforementioned research will be presented. The paper explicates the findings of the case studies in two parts; first it examines the context of control of HAI in the two cases and then identifies its similarities/ differences. Although both cases have identified the importance of control of HAI in domestic services, there were differences in practices mainly in terms of application and update of standards, integrating with the infection control teams and application of performance management approaches. For the reason that FM has a significant role in the control of HAI, it is concluded that there is a need to prioritise the profile of FM services in the HAI agenda. The crucial lesson from the study is the importance of better collaboration and co-ordination between infection control and facilities management teams. This provides significant efficiency gains from the contractual arrangements whether it is in- house or outsourced.

Keywords: Case Studies, Facilities Management (FM), Healthcare Associated Infections (HAI), Integration, Performance Management (PM)

## INTRODUCTION

Healthcare Associated Infections (HAI) by definition means ‘infection was neither present nor incubating at the time of admission but has developed during the course of a stay in hospital or other facility’ (Scottish Executives Action Plan, 2002). HAI directly affects the patient, their carers and employees through severe or chronic illnesses, pain, anxiety, depression and longer stay in hospital. It also reduces

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productivity and earnings and sometimes causes death (Public Health Laboratory Service, 2000). Treating HAI imposes an additional burden on hospitals and results in additional costs to healthcare and community services. HAI is predominantly considered a clinical issue by many researchers and healthcare managers (Ayliffe, Babb and Taylor, 1999). However, careful consideration would suggest that Facilities Management (FM) has a vital role to play in this regard. There is a growing recognition that domestic services have a dominant role in the control of HAI. Hence, the research on which the paper is based attempts to explore in-depth the significance of FM (specifically domestic services) in the control of HAI. With a focus on the area of control of HAI in domestic services, an attempt is also made to explore, the importance of both knowledge sharing practices (among the FM and clinical practitioners) and Performance Management (PM) practices in FM services.

### **Objectives and Methodology**

The main objectives of the research are:

1. To explore and document the main causes of HAI and to identify the elements of the control of HAI.
2. To ascertain and investigate the role of FM services in the control of HAI in hospital wards.
3. To develop a conceptual model in order to evaluate the relationships of associated issues of control of HAI in the context of FM. The associated issues include integration of FM services to the core clinical process, Knowledge Management (KM) and Performance Management (PM). The conceptual model to be developed will be used to develop the research questions of the study at the later stages.
4. To examine the current state of FM practices with regard to the control of HAI.
5. To investigate, assess and document the performance management approaches in use in the control of HAI from an FM perspective.
6. Develop and refine a performance management framework for FM services in the control of HAI.

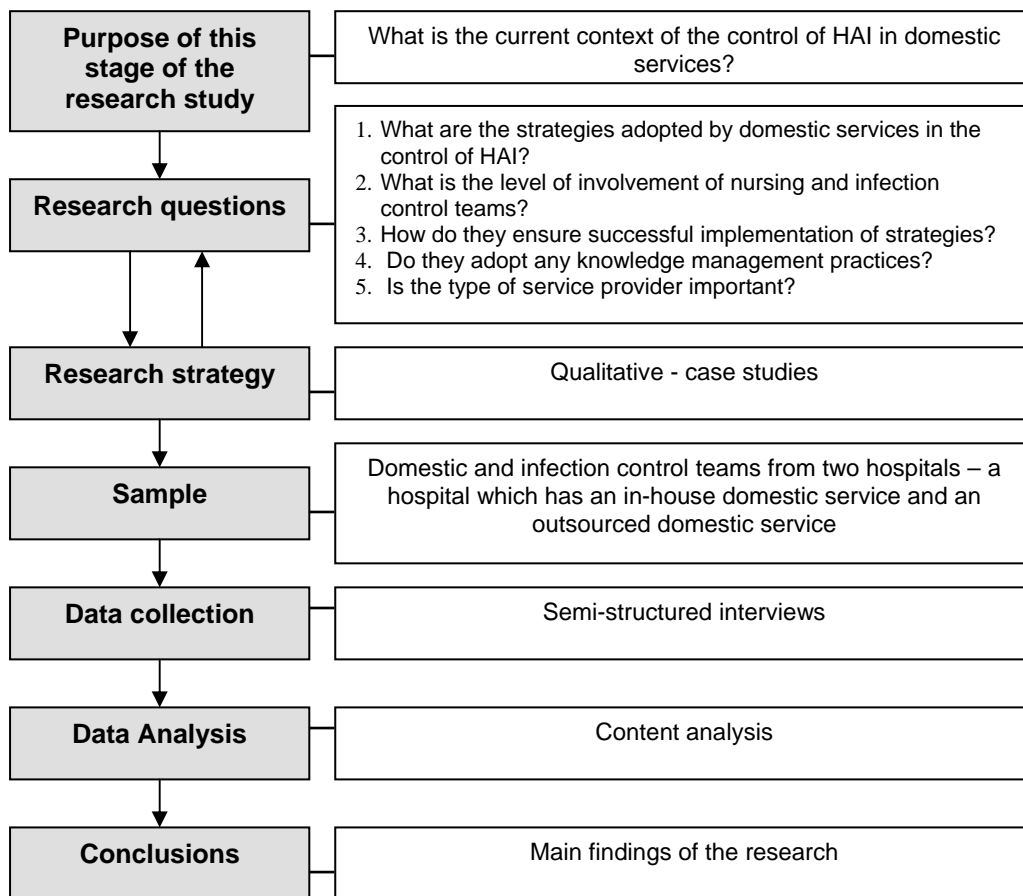
The work carried out so far in this research includes a thorough review of literature. During the literature review, it was identified that there is very little empirical research in this area of the role of FM in the control of HAI. As a result of this and the need to develop research questions, informal interviews with experts in the control of HAI and facilities management in NHS Scotland were carried out. This was conducted as a pilot study concurrently with the literature review. The sample chosen for the informal interviews were twenty-five (25). The variety of experts selected ranged from healthcare managers, infection control team members, facilities managers and construction professionals. It uncovered the bigger picture of the problems in the control of HAI and in facilities management services. It also revealed the significance of domestic services in the control of HAI, which was chosen as the focus area of the study.

The identification of the problems through literature review and informal interviews facilitated the process of developing a basic model (the conceptual framework). The next phases of the research study were grounded on this conceptual framework. The developed framework also provided a base for the researcher to limit the scope of the research study. The framework enabled the researcher to identify the key issues to be

considered under the area of research study, yet, there was still less theoretical base to build up rigid measures or constructs in order to employ a quantitative approach at first. This, without a doubt, gave impetus to the need to employ a qualitative approach as the initial step. A case study approach was carried out. The idea of this paper is to present some of the findings of this case study approach. The initial parts of the paper will present the reasons and modes of employing the case study approach whilst the latter will provide the findings of the case study approach stage.

## THE CASE STUDY APPROACH

The research process of the case study approach is depicted in figure 1. Detailed description of this research process is given in the next sub sections.



**Figure 1:** The research process of the case study approach

## PURPOSE OF THE STUDY AND RESEARCH QUESTIONS

This stage of the study concentrated on domestic services in wards in the control of HAI as the unit of analysis and focused on finding the current context and practical issues of domestic services in the control of HAI. The main purpose of the study was to identify the current context of domestic services. As discussed in the previous section, a conceptual framework was developed using the findings derived from the literature review and informal interviews. This framework was then used to identify the research questions for this stage of the research. The conceptual framework elaborated the bigger picture of all FM services but the research questions were developed focusing only on domestic services. Developing the research questions were reinforced by the challenges identified as part of the findings of the informal interviews and review of literature. Focusing on the bigger picture, i.e. FM services as

a whole, and then stepping into a smaller section of the study, i.e. domestic services, allowed the researcher to maintain a chronological sequence of the research study. It advocated the mostly needed area to be studied considering the current state of the NHS. The study was undertaken to examine the following research questions:

1. What strategies do domestic services adopt in the control of HAI?
2. What is the level of involvement of infection control and nursing teams in operationalising the strategies of control of HAI in domestic services?
3. How do the domestic services ensure the successful implementation of strategies in the control of HAI?
4. Do domestic services employ any knowledge management practices in the control of HAI in domestic services?
5. Is the type of service provider of the domestic services a major contributor in achieving the required levels of standards in the control of HAI in domestic services?

The idea of the case study approach was to scrutinize the existing issues of the control of HAI in domestic services. This was mostly in terms of what is currently happening there in domestic services and how the players endeavour to address the issue of control of HAI.

## **RESEARCH STRATEGY**

Deciding on the research questions then led to the enquiry of type of qualitative strategy to be chosen; a research strategy which has to be good enough to probe the research questions and to be appropriate in fulfilling the aim and objectives of the research. Even though there are several research strategies under the qualitative paradigm which can be chosen to explore a research subject, an in-depth case study approach was selected as the appropriate method as, by definition, it is an in-depth investigation of an event or series of related events (Hammersley, 1989). As Rowley (2004) explains, case studies are a useful research approach for answering why and how questions, or when it is useful to seek to understand a situation. As for Rowley, case study research starts with an analysis and description of the situation in one organisation. Using a case study approach was useful in this study since it has the capability of providing richness of detail and also has the capability of uncovering the realities that exist.

A common criticism of case study is its lack of generalisability (Yin, 1994), sometimes called external validity. The harder someone tries to find an explanation which fits a specific situation, the more likely it is to differ from what would suit a different situation (Dick, 1993). However, no one method is sufficient to capture all salient aspects of an area under study. For the current study; a case study approach, in the main, appeared to be the most appropriate in this study context.

## **SAMPLE**

The research, therefore, follows a case-based research methodology in which multiple case study design (two cases) and analysis is used to help establish cross-case conclusions. A cross-case methodology is generally more robust than a single case study and multiple cases provide the researcher with the means to identify patterns and trends to gain insights into potential differences or similarities between case

studies (Yin, 1994). The selection of cases inevitably involved discretion and judgement, selecting from those which could provide convenient access whilst exhibiting the appropriate area under study. The organisational characteristics such as the size of the hospital (more than 100 beds), type of the hospital (acute hospitals) and more importantly the type of domestic service (the service provider) were considered during the case study selections. The context of NHS in Scotland was only chosen for this stage of the research, firstly due to the fact that NHS in Scotland is the principal focus; secondly, due to the fact that it is a preliminary study to uncover the possible issues of control of HAI in domestic services in a hospital. Selecting the Scottish context was further reinforced by the researcher's personal contacts. Any potential bias was ameliorated by involving different categories of staff and managers (e.g. domestic managers, domestic staff, infection control team members and nurses) in different levels (top level, middle level and operational level). Any potential bias was further addressed by conducting group interviews to involve a bigger sample from the population.

## DATA COLLECTION

The data collection of the case studies was done using semi-structured interviews. Patton (1990) asserts that, semi-structured interviews enable the researcher to seek specific information from informants while maintaining flexibility to explore important issues or themes that arise during the interview. Conducting semi-structured interviews was also useful since there were different levels and professional categories of participants. Each group may have a legitimate, but different, interpretation of the area under study; capturing these different views, as Keen and Packwood (1995) suggest, is often best achieved by using semi-structured interviews. The collected data was recorded using a digital dictaphone. The list of participants of the study is given in table 1. The two cases selected are coded as *CSDS1* (case study 1, which is the in-house domestic service) and *CSDS2* (case study 2, which the domestic services is managed by a PFI contractor), for easy reference.

## DATA ANALYSIS

After the data collection process the next stage was data analysis. Jorgenson (1989) defined analysis of research data as a breaking up, separating, or disassembling of research materials into pieces, parts, elements, or units. With facts broken into pieces, the researcher sorts and sifts them, searching for types, classes, sequences, processes, patterns. The aim of this process is to reconstruct the data in a meaningful or comprehensible fashion. Analysing case study data, however, is one of the least developed and most difficult aspects of doing case studies (Yin, 1994). In considering the type of data to be analysed content analysis was used during this stage of the research. Content analysis can be defined as a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Krippendorff, 1980). It enables researchers to sift through large volumes of data with relative ease in a systematic fashion (US General Accounting Office, 1996). It also allows inferences to be made which can then be corroborated using other methods of data collection (Stemler, 2001).

**Table 1:** Participants of the case study approach

Case No.	Type of Case	Job Category	Type of Management/ staff Level	No. of interviews conducted
CSDS1	<i>In-house domestic service in an Acute NHS Hospital</i>	Facilities Managers	Top	1*
			Middle	2
			Supervisory	2*
		Infection Control Team Members	Top	2
			Middle	1*
			Operational	3*
Nursing Staff (ward based)	Supervisory	2*		
	<b>Total number of interviewees</b>			<b>26</b>
	CSDS2	<i>Outsourced domestic service in an Acute NHS Hospital</i>	Facilities Managers (Trust side)	Top
Middle				1*
Infection Control Team Members (Trust side)			Middle	2
			Facilities Managers (PFI Contractor's side)	Top
Middle				1*
Supervisory			2*	
	Facilities Services Staff	Operational	3*	
Nursing Staff (ward based)		Supervisory	2	

\* group interviews

## MAIN FINDINGS OF THE CASE STUDY APPROACH

This section attempts to highlight the main findings of the case study approach by comparing the two cases selected, i.e. CSDS1 and CSDS2. The main findings are presented against the research questions mentioned above.

### STRATEGIES ADOPTED BY DOMESTIC SERVICES IN THE CONTROL OF HAI:

Both CSDS1 and CSDS2 have similar strategies to carry out the control of HAI in domestic services. Hereby, a strategy simply means ‘an elaborate and systematic plan of action (Oxford Pocket Dictionary, 1994)’. CSDS1 adhere to service specifications while CSDS2 adhere to output specifications in order to identify their main goals in domestic services. As for the views of CSDS1 domestic managers, these specifications include control of HAI targets as well. In CSDS1, specifications for domestic services are mainly based on Scottish Health Management Efficiency Group (SCOTMEG) standards. CSDS1 has also used the NHS QIS (Quality Improvement Scotland, 2003) standards on control of HAI when developing their specifications, whilst keeping SCOTMEG to set out the minimum frequencies required for the main cleaning procedures in the hospital. The SCOTMEG standards were published over ten years ago. Surprisingly, according to one of the domestic manager’s view, it is the most recent guidance for domestic services. CSDS2 uses an output specification to carry out its tasks in domestic services including infection control. According to a group of top level domestic managers from the PFI contractor’s side it was revealed that they have developed their specifications in 1997/98 and have not made any significant changes to these ever since:

*“...we work according to the output specification given by the hospital Trust which is our client. The output specification is the one we work to and it is drawn up by the client and partly by the SPV (i.e. PFI consortium). ... Everything we do should meet the output specification requirements. The output specification is the main part of the contract. It was developed with the contracting services in 1997/98.*

*It was developed within 3 years and after the hospital construction, the contractors (FM and other service providers) started work from 2001. ... there is a clause in the contract that we should review our work. However, we have not made any significant changes in the specifications to date ...”*

The control of HAI is becoming increasingly important and it first became a priority issue in the NHS in Scotland in 2001/2002 after the Salmonella (type of HAI) outbreak occurred in Victoria Infirmary, Glasgow. Thereafter, many government reports published by the NHS in Scotland came into effect in order to reduce the incidences of HAI. Therefore, it appears that the specifications used by CSDS1 and CSDS2 are not up-to-date, especially in terms of control of HAI. Thus, there is a need to review specifications both in CSDS1 and CSDS2. Also, according to the domestic supervisors from CSDS2, CSDS2 specifications are fairly nebulous and are very wide. As findings of the review of literature reveal, a poorly specified service can lead to greater costs as it may result in some areas being cleaned too often or in the wrong way (Ayrshire and Arran Acute Hospitals NHS Trust, 2004). Besides, this also increases the risk for HAI. Therefore it is essential to have properly defined specifications to carry out domestic services including tasks associated with the control of HAI.

Apart from service specifications, CSDS1 and CSDS2 also adhere to policies and guidelines which set out detail information on how domestic services are to be carried out. CSDS1 adhere to both national and local policies and guidelines while CSDS2 only adhere to local policies and guidelines. According to the infection control team of the hospital of CSDS2, they have no involvement in developing the policies and guidelines. This, according to the views of infection control teams, is a major limitation in successfully carrying out practices in the control of HAI.

## **ENSUING SUCCESSFUL IMPLEMENTATION OF CONTROL OF HAI STRATEGIES:**

Monitoring and supervision is carried out in both CSDS1 and CSDS2 to ensure successful implementation of strategies for the control of HAI. However, the matrons of CSDS1 believe that their involvement in monitoring and supervision is of paramount importance. Regular performance audits are also carried out by the domestic teams and infection control teams in CSDS1. In CSDS2 regular audits are carried out by the PFI consortium as well as by the Property and Support services department of the relevant NHS Trust. If the required level of performance is not achieved CSDS2 is penalised by the relevant Trust. The domestic managers from the PFI contractor's side believe that their current penalty system for non-performance is a strength and a positive factor in their performance management approach. Audit Scotland also carries out audits in CSDS1 and CSDS2 normally once in two or three years. However, according to the domestic managers of CSDS1, there is a need to have a comprehensive performance management programme which sets out what is required, how this should be achieved, what is being achieved and how it should be rectified (if the required levels are not achieved) or maintained in future (if the required levels are achieved). It was also identified that no feedback is given to the domestic staff regarding the outcomes of the audits. This is a major drawback in both cases as viewed by the domestic supervisors and domestic staff in CSDS1 and CSDS2. Not employing any benchmarking practices also seemed to be a drawback of the performance management approaches currently employed by CSDS1 and CSDS2.

## **THE LEVEL OF INVOLVEMENT OF INFECTION CONTROL AND NURSING TEAMS IN THE CONTROL OF HAI:**

Identifying the level of involvement of infection control and nursing teams in domestic services was critical in recognising their input in the control of HAI in domestic services. This is also helpful in identifying the communication and coordination practices between the aforementioned parties and domestic services teams. In CSDS1, there was a high level of involvement of Infection control team members in the control of HAI. Both domestic and infection control teams of CSDS1 were contented about the level of involvement of infection control teams. The domestic managers have to always coordinate with the infection control teams during the implementation of new strategies or during change of strategies in the control of HAI. The infection control team does regular supervision to ensure that CSDS1 is maintaining high standards of cleanliness in the hospital. The domestic managers have the authority to point out any deficiencies in the infection control team's work during their monthly infection control committee meetings. However, the nursing team's involvement in CSDS1 was comparatively low. The ward managers/ matrons complained about their low level of involvement in domestic services. According to the ward managers/ matrons, they are the main persons for practices carried out in wards irrespective of the type of work, be it clinical or non-clinical. Therefore, they believe that they should be more involved in the control of HAI in CSDS1 in terms of sharing responsibilities, mainly in terms of supervision and monitoring.

In CSDS2, neither the infection control nor the nursing teams are involved in practices associated with the control of HAI. Both parties believe that their involvement is crucial in CSDS2. However, the domestic managers of CSDS2 believe that the infection control teams partake to some extent in making decisions in the control of HAI in CSDS2. The infection control and nursing teams believe that CSDS2 being managed by an external party is a major barrier to their non-involvement. Their very low level of integration with the CSDS2 domestic managers who are from the PFI contractor's side needs urgent attention. This needs to be improved.

## **KNOWLEDGE SHARING AND DISSEMINATION PRACTICES EMPLOYED:**

Knowledge sharing practices occur among the domestic services managers in both CSDS1 and CSDS2. In CSDS1 infection control teams and domestic managers also share their knowledge during monthly infection control committee meetings. There is a need to establish this in CSDS2 as well since acquiring knowledge from infection control teams is important and useful in the control of HAI in CSDS2. In CSDS1 and CSDS2 domestic supervisors and domestic staff are given induction training. Other training and education programmes are conducted occasionally when the need arise. But the infection control team in CSDS2 believe that CSDS2 does not cover infection control training comprehensively.

There is an infection control champion in CSDS1 selected from the nursing team to mentor both nursing and domestic teams. This is an excellent opportunity for knowledge dissemination. This has to be established in CSDS2. Less Information Technology facilities are available, both in CSDS1 and CSDS2, for the domestic teams to acquire knowledge, especially from internet sources.



## **DOES THE TYPE OF SERVICE PROVIDER MATTER?:**

It appears not. Overall, it was identified that CSDS1 has more established practices than CSDS2 in terms of the strategies adopted, involvement of infection control and nursing teams and knowledge sharing and dissemination. However, irrespective of the type of service provider, it is only a matter of developing the appropriate strategies for the control of HAI and operationalising the strategies. Also, the domestic service managers should ensure that they get adequate input from the infection control and nursing teams while ensuring appropriate knowledge sharing among the parties involved. Conducting sufficient training and education programmes geared towards the control of HAI for domestic staff as well as for domestic managers is also vital.

## **CONCLUSIONS AND THE WAY FORWARD**

Some of the conclusions derived from the case study approach are listed below:

- There is a need to assign properly defined roles, responsibilities and clear authorities for the domestic and clinical teams in the control of HAI in domestic services.
- There is a need to improve integration between domestic and clinical teams. There is also a need to improve the sharing of knowledge between the two teams.
- More is needed on developing a robust performance management framework for domestic services in the control of HAI. At present very little exists in this area, yet, the views of domestic managers suggest that there is an urgent need for one.
- Irrespective of the type of service provider, there is a need for developing and operationalising appropriate strategies for the control of HAI in domestic services.
- Conducting sufficient training and education programmes geared towards the control of HAI for domestic teams, i.e. domestic staff as well as for domestic services managers, is vital. The domestic services managers should ensure that adequate input is taken from the infection control teams when developing training and education programmes for domestic teams in the control of HAI.

The findings of this stage of the study have acted as the basis for developing questions for the postal questionnaire survey carried out throughout UK (England and Scotland) as the next stage of the study. A questionnaire was developed to reflect the key issues derived mainly from the case studies. The questionnaire was also generated through the exhaustive review of research literature that relates to practices associated with the control of HAI and domestic services. A total of 412 completed questionnaires were received out of 1304 sent out, giving an overall response rate of 31.60%. The future work of the PhD includes analysis of the postal questionnaire survey and the development and refinement of the performance management tool for FM services in the control of HAI. A set of semi-structured interviews is to be carried out to refine and validate the PM tool.

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