Chapter 7: Conclusion

7.1 Introduction

The research question this dissertation set out to answer is "**What are the barriers to implementing and sustaining an EAIRRS in healthcare?**" The previous chapter answered this question by proposing a socio-technical systems model which extends but departs from Heeks et al.'s (1999) model about healthcare information systems. This model proposes four barriers:

1) Information and Technology,

2) Attitudes and Values,

3) Training, Staffing and Skills and

4) Leadership and Feedback. The purpose of this chapter is to consider the practical implications of the proposed model and questions for further research.

7.2 Practical Implications of the model

The model proposed in the previous chapter is a socio-technical systems model. The overarching implication of the proposed model is that an NHS organization cannot just purchase an EAIRRS and expect improvements in patient safety. The principle of joint optimization states "that an organization will function optimally only if the social and technological systems of the organization are designed to fit the demands of each other and the environment" (Pasmore, et al., 1982). Applying the principle of joint optimization to the proposed model suggests that any changes to the technical sub-system have to be considered in light of the socio-sub-system and external environment and vice versa. This was recognised in the limitations of the proposed model in terms of how the model could be validated (see Chapter 6.5). Therefore, the remainder of this section will consider other practical implications of the proposed model with respect to DATIX in the organisation studied.

7.2.1 Information

The information that the system collects needs to be aligned with the strategic objectives of the organisation. In this case, the organisation's strategic objective was to improve patient safety by increasing the quality and quantity of incident reports. The research findings suggested that the information collected by DATIX was appropriate for that purpose. There were, however, other reporting systems still being used by other groups within the organisation which did not link into DATIX. Therefore, the organisation was not collecting all adverse incident data in a unified and consistent manner. In order to remedy this, the organisation should have only one system for reporting and recording adverse incidents.

Another research finding was that it was unclear who owned the information reported on the EAIRRS. This remains a dilemma for clinicians who have a duty of confidentiality and disclosure of information. This will depend on the circumstances surrounding the patient. Information can be released depending on the purpose of the disclosure including, for example, Public Inquiries. This appears to be a balancing act for clinicians to release electronic information in order to maintain public confidence (General Medical Council 2009). Public Inquiries such as the Bristol Royal Infirmary (See Chapter 1) have legal powers to require disclosure of confidential patient information in the public interest and assist the investigation process (Kotak et al 2008).

This suggests that all healthcare organisation need to clarify the ownership of the information obtained from an adverse incident, the investigation report and subsequent improvement action plans. All participants had conflicting views about who owned the information - the clinician, the organisation, patient or carer. There may be national directives which need to be developed as different heath organisation may take differing views and actions. Failure to resolve this may undermine patient and public confidence in healthcare in that not all actions are being taken seriously to reduce patient risks.

7.2.2 Technology and Data Analysis

The research found that although reporting was perceived to be a time-consuming activity, the new electronic system was better than the old paper system in that it

was more efficient. The increased efficiency of the electronic system made it clear that the organisation lacked the skills needed to analyse and draw conclusions from the adverse incident data collected.

7.2.3 Attitudes and Values

Implicit in the proposed model is that strategic organisational objectives (improving patient safety by increasing the quality and quantity of incident reports) need to be aligned with espoused organisational values (incident reporting is important for improving patient safety) and staff attitudes (about reporting). The research found that all occupational groups had positive attitudes about responsibility for reporting but consultants had negative attitudes about reporting and viewed the EAIRRS as a management control tool. The implication of these findings is that attitudes about reporting should be measured to determine if and how they change over time. This is usually done through patient safety climate questionnaires (Flin, Burns et al., 2006).

7.2.4 Training, Staffing and Skills

The research found that nurses and managers received training whereas consultants and directors chose not to undertake training. Training has the potential to change attitudes about reporting but if it is done on a voluntary basis, it is not likely to impact on groups that have negative attitudes about reporting such as consultants and directors. It has already been mentioned that the organisation lacked the skills needed to analyse and draw conclusions from the adverse incident data collected and this suggests a training need for the organisation.

7.2.5 Leadership and Feedback

The research found that managerial and leadership roles and responsibilities with respect to incident reporting and recording are unclear. Directors reported that they did not have much knowledge of DATIX and did not use it. This lack of leadership in

reporting caused frustration in managers at all levels in the organisation. In addition, feedback was found to be lacking, and this lack of feedback was linked to under-reporting. These findings suggest that roles and responsibilities with respect to reporting and recording adverse incidents need to be established and clarified for those people in managerial and leadership roles.

7.3 Limitations

The objective of this dissertation was to develop a model of the barriers to implementing and sustaining an EAIRRS in healthcare. The main limitation of the research was that it was based on data from four acute hospitals within one NHS Board. As noted in the section on the Limitations of the Proposed Model (see Chapter 6.5), further research needs to be conducted in other Health Boards in order to determine the extent to which the model is reliable (i.e. to determine whether the same barriers would emerge). This would depend in part on whether those Health Boards were implementing the same EAIRRS (i.e. DATIX) or another electronic system.

Another limitation of the research was that the data is only representative of nurses, consultants and managers. Further research with other occupational groups in healthcare (e.g. domestics, porters, caterers) is required to ascertain those users' views of the EAIRRS, which could bolster the reliability of the proposed model.

The study did not compare adverse incident data reported before and after the introduction of DATIX. Doing so would have allowed for the identification of any change in the type of incidents reported and any change in the reporting rate of different occupational groups that would have presumably come from the introduction of DATIX. However, as noted earlier, before the introduction of DATIX, data were collected on different databases and also recorded against a paper system. This made it difficult to ensure that the data were accurate and up to date. Therefore, it would not have been possible to compare adverse incident data reported before and after the introduction of DATIX as part of this dissertation, as the data beforehand were unavailable.

7.4 Questions for further research

There are many barriers associated with implementing and sustaining voluntary reporting systems. The World Health Organisation (2005) compared different national systems but to date, there is a lack of international comparative research on the socio-technical factors affecting reporting and recording systems. Future research could use a socio-technical systems approach to investigate and then compare barriers to implementing and sustaining an EAIRRS in different national systems. This research would expect to find different socio-technical barriers to emerge between countries – because of differing legal and institutional arrangements, professional bodies, and technology - but it is unclear which types of barriers would be associated with respective types of national contexts.

Another potential barrier to implementing and sustaining reporting systems concerns the coding and categorisation of incidents. Ross, Plunkett and Walsh (2010) discovered widespread discrepancies in how similar incidents are recorded and reported across Scottish Health Boards which impacts the ability of NHS Scotland to learn from adverse incidents (see Appendix 5). The reasons for these discrepancies are currently unclear and future research is needed to explore the underlying causes for these discrepancies.

Another approach to improving patient safety through electronic adverse incident reporting is to consider quality costs (Walsh & Antony, 2007; Walsh & Antony, 2009) (see Appendix 5). This dissertation found that medical consultants had more negative attitudes about reporting than other staff groups. Future research should explore the extent to which incorporating quality costs alongside incident reports can change the attitudes of medical staff to reporting.

Finally, many commercial aviation and oil and gas producing organisations have achieved exemplary safety performance (Hudson, 2003). In order to learn how to overcome socio-technical barriers with respect to reporting in healthcare, future research could compare the socio-technical barriers in the reporting systems from these different industries.

7.5 Conclusion

The research question this dissertation set out to answer is "**What are the barriers to implementing and sustaining an EAIRRS in acute healthcare?**" The overarching implication of the model proposed in this dissertation is that an NHS organization cannot just purchase an EAIRRS and expect improvements in patient safety. As technology continues to advance and changes in work structures and organisation continue, the proposed model will need to be revised accordingly, but it offers opportunities for investigating barriers to reporting in other national healthcare contexts and other high risk industries.