Searching for Patient Safety (SPS)

Evaluation of an application of free text search to promote safer radiology reporting

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1 Research Governance Statement

This study will be conducted according to the Research Governance Framework (Second Edition April 2005) and according to the Principals of Good Clinical Practice (GCP) and in accordance with the declaration of Helsinki.

This study protocol does not require ethical approval from the NHS research ethics committee because it represents a service evaluation and development exercise.

2 Key Project staff & Signatures

Name	**Role & Affiliation**
Dr Carl J Reynolds	Project lead, National Clinical Fellow, NHS Medical Director's Clinical Fellow Scheme, Clinical Advisor to the National Patient Safety Agency, Health Informatics MSc student at University College London
Dr Jonathan Brodie	Collaborator, Specialist Registrar in Radiology, Norfolk and Norwich University Hospital
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Professor Erika Denton	Supervisor, National Clinical Director for Imaging, Department of Health
Dr Paul Taylor	Supervisor, Reader in Health Informatics, University College London

3 Introduction

3.1 Study Abstract

It is recognized the term 'superficial femoral vein' should not be used in doppler ultrasound radiology reporting because it is frequently incorrectly understood by general physicians and this poses a threat to patient safety. Despite widespread recognition that the term is dangerous

it is still used by some reporters. The advent of Radiology Information Systems (RIS) makes it technically possible to identify where, if at all, the term has been used in doppler ultrasound radiology reports in an automated fashion using free text search. To date such an approach has not been attempted in the literature and may offer a valuable opportunity for additional quality assurance measures in doppler ultrasound radiology reporting.

3.2 Primary Hypothesis

Automated free-text search of RIS can identify the presence of the term 'superficial femoral vein' in routine doppler ultrasound radiology reporting.

3.3 Purpose Of The Study Protocol

To investigate the primary hypothesis and explore any issues arising from the introduction of an automated free-text searching of RIS to identify the presence of the term 'superficial femoral vein' at a district general hospital (DGH).

4 Background

4.1 Prior Literature and Studies

The use of the term 'superficial femoral vein' in doppler ultrasound radiology reports is deprecated because it is misunderstood by many clinicians who do not appreciate that the superficial femoral vein is a deep vein. Unfortunately, this leads to failure to diagnose and treat some patients who have a deep vein thrombosis and may lead to patient harm(Bundens et al., 1995)(Riancho & Ontan, 1996)(Hammond, 2003)(Caggiati et al., 2002)(Caggiati et al., 2005).

Despite this it is reported that the term still frequently finds its way into radiology reports(Thiagarajah et al., 2011)(Weiss & Weiss, 2008).

There is increasing recognition that in the era of the electronic medical records computer technology may be harnessed to identify, and prevent, events which threaten patient safety(Bates et al., 2003)(Tinoco et al., 2011)(Govindan et al., 2010)(Forster et al., 2011).

4.2 Rationale For This Study

To date there has not been an evaluation of the implementation of automated free-text searching of RIS to identify the presence of the term 'superficial femoral vein'. If an automated free-text search of RIS can identify the presence of the term in routine doppler ultrasound radiology reporting this would provide an opportunity for the introduction of countermeasures to avoid its use.

5 Study Objective

5.1 Primary Aim

To establish if automated free-text search of RIS can identify the presence of the term 'superficial femoral vein' in routine doppler ultrasound radiology reporting at a DGH.

5.2 Secondary Aims

- To investigate the opportunity for the introduction of countermeasures to avoid the use of the term 'superficial femoral vein' and explore barriers to this.
- To investigate the frequency of the term 'superficial femoral vein' occuring in the National Reporting and Learning System (NRLS) database at the National Patient Safety Agency.

6 Study Design

6.1 Design Summary

6.1.1 Automated free-text search of RIS

An automated free-text search of RIS will be designed and carried out for the term 'superficial femoral vein'.

6.1.2 Investigation of occurences of the term 'superficial femoral vein'

If the term 'superficial femoral vein' is found to occur it will be investigated whether or not patient harm actually resulted.

6.1.3 Investigation of the opportunity for the introduction of countermeasures to avoid the use of the term 'superficial femoral vein'

If the term 'superficial femoral vein' is found to occur it will be investigated whether or not input controls or other countermeasures to avoid its use may be implemented.

6.1.4 Automated free-text search of the NRLS database

An automated free-text search of the NRLS database will be designed and carried out for the term 'superficial femoral vein'. Any incident reports identified will be subject to further analysis.

7 Proposed Timeline

- December-January, literature review, identification of a suitable site, initial search of site RIS and NRLS databases
- Febuary-March, analysis of occurence of patient harm, development and testing of countermeasures
- April-August, write up

8 Research outputs

It is anticipated that this study will lead to a peer reviewed publication in a radiology and/or patient safety specialist journal and presentations at radiology and/or patient safety academic meetings.

9 Data Handling And Record Keeping

For the duration of the study data will be stored electronically and encrypted.

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