

Evidence-Based Journal Article Presentation

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A qualitative evaluation of general practitioners'
views on protocol-driven eReferral in Scotland

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Citation

A qualitative evaluation of general practitioners' views on protocol-driven eReferral in Scotland

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Scope

BMC Medical Informatics and Decision Making is an open access, peer-reviewed journal that considers articles in relation to the design, development, implementation, use, and evaluation of health information technologies and decision-making within the healthcare setting.

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Background

- The volume of referrals from primary care doctors to secondary care specialists has been increasing steadily across health systems worldwide.
- In the U.S., it was recently estimated that **a third of patients** are referred to a specialist service every year, and that specialist appointments represent **over 50%** of all outpatient visits.
- In the U.K., a recent report by the King's Fund suggested that there were in excess of **9 million** referrals from primary care to secondary care **in 2008**, resulting in an annual spend of more than **£15 billion** for the National Health Service (NHS) in England

Background(cont'd)

- Previous studies have suggested that eReferral has the potential to introduce many benefits in health system systems, including:
 - **better utilisation** of clinical and administrative resources
 - fast, secure and improved referral processes in primary care
 - **standardisation** and an increased completeness of patient referral data
 - improved communication and satisfaction with referral processes both in primary and secondary care
 - **improved triage** and management of referral requests in secondary care
 - **decreased waiting times** for outpatient appointments
 - a reduction in unnecessary specialist outpatient appointments
 - **reduction in erroneous information**, misinterpretation and referral mismanagement
 - and overall improvements in quality and safety of care for patients

Background(cont'd)

- NHSScotland is organised into **14 regional NHS Boards**, which oversee the provision of primary and secondary health-care services in each region, as well as being responsible for the implementation of national policies at the local level.

Background(cont'd)

- All NHS Health Boards had the **responsibility to ensure** that primary care systems were able to send referrals via the national eReferral system (SCI Gateway) and that secondary care services were capable of receiving and triaging electronic referrals (eTriage).
- As a result, enormous progress has been made in making eReferral almost universal across the NHS in Scotland, reaching an estimated **98.8%** of referrals as of January 2011.

Background(cont'd)

- **Two accredited** commercial GP information systems are currently used throughout primary care in NHSScotland, EMIS and Vision.
- These systems **interface with SCI Gateway** so that relevant medical information can be automatically pulled from the electronic patient records to populate the electronic referral form.

Objectives

- To elucidate **GPs' perspectives** on eReferral to identify the factors which they felt either facilitated or hindered referral processes.

1. Was there a clear statement of the aims of the research?

Yes

Can't tell

No

Consider:

- *What the goal of the research was*
- *Why is it important*
- *Its relevance*

Methods

- Qualitative method
- semi-structured interviews with GPs (n=25) and 1 focus group
- 1 focus group with members of the Scottish Electronic Patient Record programme
- one semi-structured interview with a member of the NHSScotland Scottish Care Information group responsible for the development of the national eReferral System, SCI Gateway (November 2012).
- with a mean duration of approximately 40 minutes per interview.

Methods(cont'd)

19 interviews were conducted over the phone and 6 face-to-face.

Interviews were recorded with participant consent and transcribed verbatim.

Fifteen of the GPs were male and ten female.

Most of the interviewees had been practicing GPs for a considerable number of years, with a range of 1 to 35 years and a mean of approximately 16.5 years.

Respondents were from 9 of the 14 territorial health-boards of Scotland.

Methods(cont'd)

2. Is a qualitative methodology appropriate?

Yes

Can't tell

No

Consider:

- *If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants*

Methods(cont'd)

3. **Was the research design appropriate to address the aims of the research?**

Consider:

- *If the researcher has justified the research design (e.g. have they discussed how they decided which method to use)?*

Yes

Can't tell

No

Methods(cont'd)

4. Was the **recruitment strategy** appropriate to the aims of the research?

Yes

Can't tell

No

Consider:

- *If the researcher has explained **how the participants were selected***
- *If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study*
- *If there are any discussions around recruitment (e.g. why some people chose not to take part)*

Methods(cont'd)

5. Were the data collected in a way that addressed the research issue?

Consider:

- If the **setting for data collection** was justified
- If it is clear **how data were collected** (e.g. **focus group, semi-structured interview** etc.)
- If the researcher has justified the methods chosen
- If the researcher has made the methods explicit (e.g. for interview method, is there an indication of **how interviews were conducted, or did they use a topic guide**)?
- If methods were modified during the study. If so, has the researcher explained **how and why**?
- If the **form of data** is clear (e.g. **tape recordings, video material, notes** etc.)
- If the researcher has discussed **saturation of data**

Yes

Can't tell

No

Methods(cont'd)

6. Has the relationship between researcher and participants been adequately considered?

Consider:

- If the researcher critically examined their own role, potential bias and influence during:
 - Formulation of the research questions
 - Data collection, including sample recruitment and choice of location
- How the researcher responded to events during the study and whether they considered the implications of any changes in the research design

Yes

Can't tell

No
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Methods(cont'd)

- Ethical approval for this study was obtained in February 2010 from the University of Glasgow College of Medicine, Veterinary and Life Sciences ethics committee.
- Themes were discussed and reviewed by 2 researchers.

Methods(cont'd)

7. Have ethical issues been taken into consideration?

Consider:

- *If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained*
- *If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)*
- *If approval has been sought from the ethics committee*

Yes

Can't tell

No

Methods(cont'd)

- DeLone & McLean's model of quality in information systems was used for data coding.
- The framework comprises the following 6 dimensions:
 - eHealth information system quality
 - information quality
 - information usage
 - user satisfaction
 - individual impact
 - organisational impact

Methods(cont'd)

- We then used **Normalisation Process Theory (NPT)** as a conceptual framework **to interpret** the factors which were identified as facilitating or hindering the work of GPs during the patient consultation.

Methods(cont'd)

8. Was the data analysis sufficiently rigorous?

Consider:

- If there is an **in-depth description of the analysis process**
- If **thematic analysis** is used. If so, is it clear how the **categories/themes were derived from the data?**
- Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process
- If sufficient data are presented to support the findings
- To what extent **contradictory data** are taken into account
- Whether the researcher **critically examined their own role, potential bias and influence during analysis and selection of data for presentation**

Yes

Can't tell

No

results

- The result of the qualitative analysis of GP's responses are here presented in the following 3 thematic dyads using the DeLone & McLean's model of information systems' quality :
 - information system and information quality (in section "SCI gateway system & information quality"),
 - information usage and user satisfaction (section "Information usage & user satisfaction"),
 - individual and organisational impact (section "Individual & organisational impact").

results(cont'd)

- SCI gateway system & information quality
- *Perceived benefits of SCI gateway system*
 - Support for automatic data entry
 - Support for providing additional clinical information
 - Support during the patient consultation work-flow

results(cont'd)

- SCI gateway system & information quality
- *Perceived benefits of SCI gateway system*
 - **Support for automatic data entry**

SCI Gateway interoperates with the 2 accredited GP information management systems used throughout the NHS in Scotland and can pull data automatically from the electronic patient record whenever relevant to complete the referral.

results(cont'd)

- SCI gateway system & information quality
- *Perceived benefits of SCI gateway system*
 - Support for providing additional clinical information

The SCI Gateway referrals are usually protocol-driven, which entails providing **pre-determined and relevant sets of information** to allow appropriate screening and triage in secondary care.

In addition, the system permits **additional discretionary information** in the form of comment boxes.

results(cont'd)

- Perceived Dis-benefits of SCI gateway
 - Administratively cumbersome
 - **issues of system performance**(performance issue specific to SCI Gateway, or related to the level of **internet connectivity** at individual practices).
 - **Information presentation & system status** (The SCI Gateway system allows referrals to be “parked” before sending off. Two GPs mentioned that this feature could cause some **confusion** at times. Some GPs who had completed a referral had thought that it had been sent when it was in fact still pending).
 - **Data loss and system breakdown** (the data loss attributed to the eReferral system could also have been the result of issues with the **GPs handling** of the electronic referral, as has been highlighted previously (e.g. confusion about eReferral statuses).

results(cont'd)

- Information usage & user satisfaction
 - Perceived benefits
 - Usefulness & usability of SCI gateway system
 - Immediate transfer of the referral request
 - Clinical advice/referral guidance functionalities

results(cont'd)

- Information usage & user satisfaction
 - Perceived benefits
 - Usefulness & usability of SCI gateway system
 - GPs were reasonably satisfied with the **usefulness of the SCI Gateway** system and the usability of the user interface.
 - perceived **ease of use** and an **intuitive user interface** have been identified as key factors promoting the successful adoption of eReferral.

results(cont'd)

- Information usage & user satisfaction
 - Perceived benefits
 - Immediate transfer of the referral request
 - The immediate transfer of the electronic referral was often perceived as a key improvement on previous paper based referrals by GPs.
 - Previous studies have also highlighted how healthcare professionals have identified immediate information transfer between services as a key benefit of electronic clinical communication.

results(cont'd)

- Information usage & user satisfaction
 - Perceived benefits
 - Clinical advice/referral guidance functionalities
 - SCI Gateway made **explicit clinical advices via the referral protocol** interface was perceived as helpful by several GPs.
 - It won't let you send it if there's something missing from the box... it makes sure the **right level of information gets**.

results(cont'd)

- Information usage & user satisfaction
 - Perceived Dis-benefits
 - 7/25 GPs reported limitations with the usability of SCI Gateway such as:
 - referral protocols being **rigid**
 - check boxes **duplicating information** already contained in adjoining comments or an enclosed clinical letter
 - **From the secondary care consultants' perspectives**, a structured referral protocol ensures that the information that they need is provided regardless of whether it has also been included or not in an adjoining unstructured clinical letter, **as well as knowing exactly where to find it.**

results(cont'd)

- Individual & organisational impact
 - Perceived benefits
 - Improved use of standard protocols and guidelines
 - Improved organisational work processes and performance
 - Improved information sharing/systems integration accross the health services

results(cont'd)

- Individual & organisational impact
 - Perceived benefits
 - Improved use of standard protocols and guidelines
 - the **potential contribution** to an increased awareness, knowledge and use of referral protocols and guidelines.
 - The potential impact of eReferral for primary care education and knowledge transfer has also been highlighted in a recent report on eReferral commissioned by the AHRQ.

results(cont'd)

- Individual & organisational impact
 - Perceived benefits
 - Improved organisational work processes and performance
 - Several GPs suggested that eReferral introduced a number of organisational and performance benefits, **including improved follow-up and tracking of referrals** as well as improving processes for emergency referrals.

results(cont'd)

- Individual & organisational impact
 - Perceived benefits
 - Improved information sharing/systems integration accross the health services
 - The fact that SCI Gateway is able to provide feed-back to GPs on referral statuses and can link-up with the other IT systems used in the practice was perceived as positive.

results(cont'd)

- Individual & organisational impact
 - Perceived Dis-benefits
 - Some GPs (10/25) GPs expressed some concerns about effects on individual or organisational work processes, with several feeling that the electronic referral was:
 - more complex or **time consuming than previous paper-based** referrals (n=5).
 - eReferral is designed **to suit the information needs of the recipient of the referrals,** the **convenience of secondary care consultants.**

results(cont'd)

- Individual & organisational impact
 - Perceived Dis-benefits
 - Lack of feed-back on referrals
 - This aspect **is not directly due to the SCI Gateway** system itself but is rather a consequence of clinical processes in secondary care.

GPs are **no longer kept in the loop up** until they subsequently receive a letter from the outpatient services summarising the clinical findings of the consultant – or a **Did-Not-Attend notification** if the patient did not present for his appointment.

The **system itself has the means to convey** this information to GPs **but hospitals** do not generally provide it to the system.

results(cont'd)

- Individual & organisational impact
 - Perceived Dis-benefits
 - Lack of coordination across the health services & lack of work practice coherence
 - There's still some services that **are not on SCI** Gateway
 - Some services have **no specific protocols** and on occasions **not mapped** or available for referral via the SCI Gateway.

Discussion(cont'd)

- The key lesson here is that the success of the implementation of a national eReferral system in the NHS in Scotland **did not happen overnight**.
- The successful adoption of eReferral in Scotland – both in terms of volume and overall satisfaction of end-users needs to be seen **as the result of the provision of a national integrated infrastructure** for eReferral through the SCI Gateway system combined with a **sustained effort** to engage with **key stakeholders** and **allow changes** in practices, culture and IT use within NHSScotland to take place over a decade and a half.

Discussion(cont'd)

- The work of **relating and engaging with users** is central to the successful implementation of any new technology.

- **If template-based protocols are ignored** only for the patient clinical information to be provided in the form of an unstructured clinical letter, this also runs **the risk of defeating** the purpose of the standard referral document in the first place.

Discussion(cont'd)

- From the perspective of the secondary care practitioners who have designed the referral protocols, this is **to ensure that all necessary steps** have been taken in primary care before the clinical case for the forward referral to a specialist service has clearly been established.

Discussion(cont'd)

- Previous studies have suggested that a surprisingly **high number of secondary consultants** often do not understand why a particular patient has been referred to their service based on the information **that has been provided in the referral letter** or that the **information provided is inadequate** to make a proper patient management decision, **resulting in delays**, the **duplication** of investigations or **underuse** or **overuse** of services.

Discussion(cont'd)

- The need for **greater coordination** across specialties and the development of **mutually agreed referral protocols** between primary and secondary care practitioners **has been recommended** in several recent studies.
- For the SCI system, much of the **reflexive monitoring** around eReferral seems to take place **during the iterative development life-cycle** of the system.

9. Is there a clear statement of findings?

Yes

Can't tell

No

Consider:

- *If the findings are explicit*
- *If there is an adequate discussion of the evidence both for and against the researcher's arguments*
- *If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)*
- *If the findings are discussed in relation to the original research question*

Conclusion

- Most GPs felt that the SCI Gateway system was **reasonably straightforward** to use.
- deployment and adoption of eReferral across the NHS in Scotland has been achieved because primary care doctors considered that the **overall benefits** brought by the deployment of eReferral throughout the patient pathway significantly **outweigh any potential dis-benefits**.

10. How valuable is the research?

Consider:

- *If the researcher discusses the contribution the study makes to existing knowledge or understanding e.g. do they consider the findings in relation to current practice or policy, or relevant research-based literature?*
- *If they identify new areas where research is necessary*
- *If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used*

Yes

Can't tell

No

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