General Practitioner views of an electronic high-risk medicine proforma to facilitate information transfer

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Abstract

Background

The potential of warfarin related harm is increased if clinicians lack the full patient specific information to make informed decisions – an e-proforma has been developed to communicate this information on hospital discharge.

Objective

To determine the views of general practitioners (GPs) on a warfarin discharge e-proforma.

Method

A cross-sectional survey of all GPs (n=272) within the Raigmore Hospital catchment area of NHS Highland, Scotland.

Results

The response rate was 39.3% (107/272). 84 (78.5%) noticed recent changes to information supplied on discharge for warfarin patients. 64 (59.8%) respondents thought this would result in more informed prescribing with regards to dosing, while 65 (60.7%) felt this would improve safety. Accurate

completion, timely receipt of the e-proforma and a realistic date for subsequent INR tests were considered important by GPs.

Conclusion

This study suggests the use of an e-proforma to communicate information about a high-risk medication, warfarin, to GPs on discharge optimises safe, informed prescribing and monitoring in primary care. The development of a discharge e-proforma for other high-risk medication as a patient safety improvement measure should be explored.

Impact of findings on clinical practice

- Use of a warfarin prescribing e-proforma at discharge containing clinical information including; warfarin doses for 7 days prior to discharge and 7 days after, indication, duration of therapy, last INR result, target range and date for next INR test resulted in GPs believing they are able to prescribe warfarin more safely post-discharge.
- Accurate and full completion of the e-proforma was a pre-requisite for GPs to perceive the patient safety benefits to be obtained.
- The development of a discharge e-proforma for other high-risk medication as a patient safety improvement measure should be explored.

Key words: Warfarin; patient safety; integrated care; primary care, high-risk medication

Introduction

The Scottish Patient Safety Programme (SPSP) is a clinical governance and quality initiative which

aims to reduce patient harm and improve outcomes. This programme has received wide critical acclaim, with Scotland perceived as the first country to undertake a national approach to delivering patient safety [1]. This approach was urgently warranted, evidenced from figures that around 10% of patients admitted to United Kingdom National Health Service (NHS) hospitals experience medicines related harm as a consequence of their admission, which could have been avoided in 50% of cases [2]. SPSP focuses on the use of evidence-based tools and practices to augment current systems thereby increasing quality [3]. One of the initial points of focus is to reduce potential harm to patients prescribed the oral anticoagulant warfarin.

The term 'integrated care' relates to the prompt transfer of information where joint working between different healthcare professions is being employed to improve patient care [4]. However, there are some complex challenges involved in maintaining continuity of care between settings [5, 6]. These predominantly manifest as complications during the transfer of information between healthcare teams or by healthcare teams not effectively engaging and educating patients about their medication on discharge from hospital to primary care [7]. The risk to patients as a consequence of poor integrated care can result in preventable re-hospitalisations and harm to patients [8].

The operational standard within Scotland is for anticoagulant prescribing and monitoring to be completed within primary care, supported by access to specialists if required. It is therefore imperative that the general practitioner (GP) has access to the most up-to-date information regarding warfarin therapy. As part of the SPSP programme, NHS Highland (a Scottish geographically remote and rural area) planned to improve the transfer of medication related information from hospital staff to GPs at the point of patient discharge for all patients admitted or commenced on warfarin during admission. After receiving feedback from GPs regarding clinical information required to undertake warfarin management post-discharge safely, an e-proforma was added to the standard electronic Immediate Discharge Letter (IDL) ie discharge summary. There was a definitive need for an e-proforma as full clinical information was not being communicated to GPs on discharge. The IDL, which originally reported - reason for admission; hospital treatment; duration of admission and medication on discharge - was modified to include a warfarin specific e-proforma, with fields of:

warfarin doses for 7 days prior to discharge and 7 days after; indication; planned duration of therapy; last international normalised ratio (INR) result; target INR range; and date for next INR test. The e-proforma was included in the IDL which is emailed to GP practices at the point of discharge. Also, a paper copy is printed on the ward for the patient. The warfarin discharge e-proforma was introduced in May 2010.

Aim of the study

The aim of this study was to determine the views of GPs on the utility of an e-proforma to communicate information regarding warfarin on discharge from hospital.

Method

A draft questionnaire was developed based upon anecdotal feedback from GPs regarding issues relating to medicines information transfer at the point of patient discharge. The draft questionnaire was reviewed for face and content validity by an expert panel of health service researchers before being piloted with two prescribing support pharmacists, two GPs and one practice nurse. The final questionnaire comprised items including: activities in prescribing and monitoring warfarin; views of the impact of the e-proforma on aspects of patient management; and suggested changes to the e-proforma. Question types were a combination of closed, 5-point Likert scales and open response items.

All GPs within the Raigmore Hospital catchment area, identified from the NHS Highland website (n=272), were included in the study. Each was mailed a study introductory letter, participant information leaflet, questionnaire and reply paid envelope. The questionnaires were numbered to allow follow-up of non-respondents who were sent up to two reminders at monthly intervals. Data collection took place between November 2011 and January 2012.

Data were coded and entered into an SPSS database (SPSS Inc., Cary, NC version 21.0) and analysed using descriptive statistics to profile respondents and their questionnaire responses.

The project was approved by the Ethical Review Panel of the School of Pharmacy and Life Sciences at Robert Gordon University, Aberdeen, United Kingdom. The North of Scotland Research Ethics Committee advised that NHS ethical review was not required.

Results

The response rate was 39.3% (107/272). Almost all were involved in managing warfarin patients after discharge, principally prescribing (90.7%, 97) and monitoring (88.8%, 95). The majority of respondents (78.5%, 84) reported awareness of changes to information provision following the introduction of the e-proforma, with the remainder largely commenting that they had not noticed any changes (12.1%, 13) or had yet to receive a e-proforma (3.7%, 4).

Responses to statements relating to aspects of the warfarin IDL e-proforma are given in Table 1, highlighting the positive responses in terms of timeliness of information (52.3%, 56), improved decision making (59.8%, 64), easier management (50.5%, 54) and patient safety (60.7%, 65). In response to the question about warfarin stabilisation 49.5% (53) found there was no change in the ease by which patients could be stabilised on warfarin although 39.3% (42) found it easier given the additional information.

<Insert Table 1 here>

Data on specific aspects of information provision are given in Table 2, with positive responses on all aspects of warfarin management.

<Insert Table 2 here>

Almost one fifth of respondents (16.8%, 18) suggested additions to the information provided however, these suggestions related to the need for the data on the form to be complete and accurate ie the sections for INR results, specific dates for duration of treatment and need for lifelong treatment.

The majority of respondents (71.0%, 76) commented that appropriate dates for GP INR testing were only discussed with GPs prior to patient discharge either occasionally or not at all. Some (16.8%, 18) stated that they were not able to access INR testing within the timescales stated on the e-proforma. This was due to issues including GP practice manpower, a requirement for a home visit or in some areas, the requirement for blood samples to be sent to central laboratory by post, all of which result in delays.

Discussion

The key findings of this study were that the GP respondents were generally positive about the e-proforma, perceiving a beneficial impact on patient care. Several limitations of this study require that the findings are interpreted with caution. Although the 39% response rate was reasonable for a survey of GPs, the responses are based on self-reports and there was no attempt to determine the validity or reliability. However, despite these limitations, the findings are encouraging, with data provided from just under half of all GPs in the area, the vast majority of whom were directly involved in the management and prescribing of warfarin. The improvement in communication between secondary and primary care, specifically with regards to the trends in dosing and INR results, was cited as a key factor involved in this improvement. As a result over half felt that they were able to make more informed, safe, patient management decision in a timely manner regarding prescribing of warfarin as long as the e-proforma was accurately completed. In addition some minor changes to the form were

suggested including specifying the dates pre- and post-discharge in addition to all previous INR results, not just the last INR. Despite this, half of GPs found there was no difference to the ease by which a patient may be stabilised on warfarin. This is likely to be as a result of the general difficulty involved with stabilising the INR for a patient prescribed warfarin.

The use of a discharge proforma to communicate, completely, complex information has been shown to be effective for other clinical situations including after discharge for permanent pacemaker insertion [9]. While this study focused on the use of a discharge e-proforma to communicate information to GPs specifically about warfarin, the utility of an e-proforma should be explored for other high-risk medications to achieve integrated care and improve patient safety. A recent systematic review produced by a member of this research team has found a paucity of research on integrated care supported electronically [10]. Further work is warranted to determine the direct impact on patient care in terms of achieving desired patient outcomes and hospital readmissions. Also, an audit of the quality of completion of the e-proforma by hospital staff is planned.

Conclusion

The introduction of the discharge warfarin e-proforma as an addition to the IDL was perceived positively by GPs who considered that they were able to make more informed prescribing decisions with improvement in patient care. Such an approach could be applied to other high-risk medication to fully achieve integrated care.

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Conflict of Interest Statement

The authors declare that there are no conflicts of interest.

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Table 1 – GP views on communication of information regarding warfarin at discharge and ongoing management of patients in primary care, % (*n*), N = 107

Statement	Strongly agree	Agree	Unchanged	Disagree	Strongly disagree	Missing
You receive completed IDLs in a timely manner	4.7 (5)	47.7 (51)	28.0 (30)	9.3 (10)	5.6 (6)	4.7 (7)
The warfarin IDL has enabled you to better participate in decisions about warfarin dosing post-discharge	6.5 (7)	53.3 (57)	27.1 (29)	3.7 (4)	1.9 (2)	7.5 (8)
The treatment of warfarinised patients is easier to manage post-discharge	4.7 (5)	45.8 (49)	38.3 (41)	1.9 (2)	1.9 (2)	7.5 (8)
Warfarin stabilisation is easier to attain due to the increased information available on discharge	3.7 (4)	35.5 (38)	49.5 (53)	2.8 (3)	0.9 (1)	7.5 (8)
Changes to the warfarin IDL have resulted in improved safety	7.5 (8)	53.3 (57)	29.0 (31)	0.9 (1)	2.8 (3)	6.5 (7)
Changes to the warfarin IDL have made patients more aware of the risks and benefits of warfarin	1.9 (2)	21.5 (23)	56.1 (60)	11.2 (12)	1.9 (2)	7.5 (8)

Table 2 – GP views on information contained within the e-proforma, % (*n*), N = 107

Statement 'If the warfarin IDL has been completed accurately by hospital staff, do you feel that there is sufficient information given to allow for informed prescribing regarding…'	Strongly agree	Agree	Unchanged	Disagree	Strongly disagree	Missing
Dosing	12.1 (13)	63.6 (68)	9.3 (10)	8.4 (9)	0.9 (1)	5.6 (6)
Indication	14.0 (15)	63.6 (68)	11.2 (12)	4.7 (5)	0.9 (1)	5.6 (6)
Duration of treatment	8.4 (9)	56.1 (60)	17.8 (19)	10.3 (11)	0.9 (1)	6.5 (7)
Communication of next expected INR test date	10.3 (11)	66.4 (71)	8.4 (9)	6.5 (7)	2.8 (3)	5.6 (6)
Understanding of the plan for treatment including review period	6.5 (7)	46.7 (50)	21.5 (23)	16.8 (18)	1.9 (2)	6.5 (7)