

QUALITY IMPROVEMENT Improving the quality of electronic discharge summaries from medical wards: A quality improvement project

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ABSTRACT

Introduction

The electronic discharge (e-discharge) summary forms an essential component of communication between secondary and primary care. However, its content and quality can often be substandard due to inadequate or inaccurate information.

Method

Two retrospective audits were completed with intervening e-discharge workshops. Local general practitioners were involved in identifying areas for improvement and assisted with the workshops. Crib sheets were emailed to all junior staff and posted on all medical wards.

Results

There was an improvement in the quality of e-discharges with particular improvements on the documentation of test results and patient progress and outcome. Those who attended the workshops produced better quality e-discharges and none recommended unnecessary actions for general practitioners.

Conclusions

E-discharge workshops are effective in improving the overall quality of discharge summaries from medical wards. Introduction of mandatory e-discharge training sessions during hospital induction and junior doctor rotations would be beneficial to teach this important yet challenging skill.

KEYWORDS: electronic discharge, e-discharge, discharge summary, quality, workshop

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Introduction

The electronic discharge (e-discharge) summary forms an essential component of communication between secondary and primary care following a patient's discharge from the hospital. This may be the only source of information available to healthcare professionals and carers when the patient requires post-discharge

care or review, or when they re-present to secondary care. Yet the content and quality of these discharge communications can be substandard and variable due to inadequate or inaccurate information, particularly for patients with complex clinical problems and long hospital stays requiring multiple interventions. Poor quality discharge summaries can lead to increased risk of patient care-related adverse events, undesirable outcomes and unplanned hospital re-admissions.^{1,2}

E-discharges are usually completed by junior doctors (training and non-training grades) and other professionals like advanced nurse practitioners (ANPs), physician associates (PAs) and trainee ANPs who may have little training in this key skill and may rarely receive supervision or feedback. Other contributory factors may include lack of continuity of care, time and workforce constraints and poor understanding of the patients' diagnoses, interventions and clinical progress during their hospital stay.

There is clear evidence that e-discharges are favoured over traditional written discharges.^{3,4} However, there has been little research looking at how to ensure that the e-discharges that are generated are of adequate quality. Previous studies have demonstrated that teaching discharge summaries through a curriculum (including feedback and small group sessions) were effective in improving the quality of discharge communications.^{5,6} However, this appears to be more challenging in adult patients, particularly those with complex and multiple diagnoses and long lengths of stay.

While targeted and intensive educational interventions involving junior doctors may improve the quality of discharge communications, practical and sustainable strategies to maintain quality standards and engagement of junior doctors can still be challenging.^{7,8} As the Medicines Transcribing and e-Discharge (MTeD) system is being developed and integrated with the Welsh Clinical Portal digital workspace across NHS Wales, this project was undertaken in a busy district general hospital in north Wales to improve the quality of e-discharges from the medical wards.

Method

The plan, do, study, act (PDSA) cycle comprised two audits with interventions to address the gaps and drive improvement. Audit 1 was undertaken retrospectively and involved two assessors (trainee doctors) collecting data from the case notes of the

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Patient no:	Age:	Ward:	Date of audit:
Date of patient discharge:	Length of stay:		
1. Allergy section filled? YES NO (ie blank)			
If allergic to medication(s) is the nature of allergy stated? YES NO			
2. Presenting complaint section adequate quality? YES NO BLANK			
Comments if 'No':			
3. Clinical findings on admission section adequate quality? YES NO BLANK			
Comments if 'NO':			
4. Test results section adequate quality? YES NO BLANK			
Comments if 'NO':			
5. Diagnosis list adequate? YES NO			
Comments if 'NO':			
6. Progress in hospital and outcome section adequate quality? YES NO BLANK			
Comments if 'NO':			
7. Advice, recommendations and future plans sections adequate quality? YES NO BLANK			
Comments if 'NO':			
Is there information regarding past medical history? YES NO			
Were there any discussions/decisions regarding resuscitation or escalation? YES NO			

Fig 1. Audit pro forma for e-discharge.

previous six patients discharged from each of the 11 medical wards at Glan Clwyd Hospital during October and November 2019. The audit pro forma (Fig 1) consisted of seven questions about the quality of each e-discharge section with two additional questions on the inclusion of relevant past medical history, resuscitation decision and treatment escalation plans.

Following data collection, we collaborated with local GPs to ascertain their perspectives on anything that should or should not be included in an e-discharge summary. A particular focus was the 'advice and recommendations for GPs' section and a discussion surrounding examples of recommendations that were appropriate or inappropriate.

A series of e-discharge workshops were conducted during the trainees' weekly teaching sessions (foundation year-1, foundation year-2 and core medical/internal medicine trainees). Each workshop lasted an hour and involved feedback from audit 1 with

best practice advice coupled with input from a local GP. This was followed by a practical session writing a discharge summary using our local e-discharge pro forma and a case example from the Royal College of Physicians learning resource materials.⁹ Feedback from the workshops was obtained and analysed. Following this, crib sheets were emailed to all junior medical staff and placed on all medical wards.

Audit 2 was conducted in February 2020 using the same pro forma as audit 1, with one additional question on whether or not the e-discharge author had attended the workshop.

Results

Sixty-six case notes were audited for both audits 1 and 2 across 11 medical wards. A sub-group analysis of the e-discharges authored by those who had attended the workshop (33 e-discharges) was also undertaken.

Thirty-five doctors attended the workshop in total; 85% of these had not received previous training in writing e-discharges and 97% stated they would change their future practice based on these sessions. Feedback from the workshop was overall extremely positive.

The results (Table 1) showed improvements in the quality of most sections, particularly in the sub-group of e-discharges authored by those who had attended the workshops. 'Test results' and 'progress and outcome' sections showed significant improvements. Although there was an increase in the number of e-discharges with an adequate diagnosis, this improvement was not statistically significant.

In addition, there was no significant improvement seen in the quality of the 'advice and recommendations' section, however, there was a reduction in the number of job requests for GPs from 29% of e-discharges in audit 1 to 18% in audit 2. For the e-discharges authored by the workshop attendees, only 9% ($p=0.028$ when compared with audit 1) had requested the GP to action something and these were all appropriate requests.

E-discharges authored by those who had attended the workshops demonstrated a significant improvement in the documentation of nature of allergy ($p=0.0027$). This sub-group also demonstrated a significant improvement in achieving adequate quality in all sections ($p<0.001$). However, there is

Table 1. Quality of e-discharges of all sections from audits and workshop

	Audit 1, n=66	Audit 2, n=66	p value (compared with audit 1)	Workshop attendees, n=33	p value (compared with audit 1)
Allergies recorded	86.0%	86.0%	NS	87.9%	NS
Allergy nature stated	4.76%	35%	0.016	50.0%	0.0027
Presenting complaint adequate	90.9%	92.4%	NS	97.0%	NS
Clinical findings adequate	90.9%	86.3%	NS	90.9%	NS
Test results adequate	54.5%	84.8%	<0.001	90.9%	<0.001
Diagnosis adequate	74.2%	80.3%	NS	84.8%	NS
Progress and outcome adequate	48.5%	72.7%	<0.01	90.9%	<0.001
Advice and recommendations adequate	86.4%	83.3%	NS	84.8%	NS
All sections of adequate quality	21.2%	34.8%	NS	54.5%	<0.001

NS = not significant.

Table 2. Results of additional information

	Audit 1, n=66	Audit 2, n=66	p value (compared with audit 1)	Workshop attendees, n=33	p value (compared with audit 1)
Past medical history documented	31.8%	53.0%	0.016	67.0%	<0.001
Resuscitation/escalation decision documented	11.8%	30.0%	NS	40.0%	NS

NS = not significant.

clearly still room for further improvement, with only 54.5% achieving adequate quality in all sections.

There was a significant improvement in the number of e-discharges containing information regarding past medical history (Table 2). However, we are still relatively poor at communicating resuscitation decisions and treatment escalation plans on e-discharges, which may be due to our hospital's practice of including a separate written document accompanying the e-discharge.

Discussion

Audit 1 showed notable inadequacies in documentation of relevant test results and progress of the patients in hospital including whether discussions were held in matters related to resuscitation, ceilings of care and treatment escalation plans (Table 1). Audit 1 also highlighted instances in 29% of e-discharges where requests were made to the GPs when the onus of executing some of those actions should have been on the patient's own team (Box 1). The reasons for shortfalls in e-discharge standards were likely to be manifold including lack of knowledge on expected standards, lack of skills and inability to grasp the patient's clinical journey from the documented notes due to complexity, lack of continuity of care, time pressure, low prioritisation and demand in the ward to maintain patient flow.

One of the major highlights of this quality improvement project was collaboration with the local GPs to ascertain their perspectives on the quality of e-discharges. They provided examples of what should and should not be included for GPs to action and what to be aware of, and they were also involved in the educational workshops with the junior doctors. The feedback from the workshops included several comments regarding how valuable the GP perspectives were.

Though there was an overall improvement in the quality of e-discharges in audit 2, particular improvements were noticed on the documentation of the quality of test results ($p<0.001$) and patient progress and outcome ($p<0.01$) with more e-discharges

containing information on past medical history. There was no significant improvement seen in the quality of the diagnosis section, primarily due to this section being left blank. Even the e-discharges authored by those who had attended the workshops had a blank diagnosis section in 15%. Clearly this section is a key area and entering a diagnosis should be compulsory prior to electronic sign off.

Those who attended the workshops did produce better quality e-discharges and none recommended unnecessary or inappropriate actions for the GPs. However, none of the sections in audit 2 and for those who attended the workshops achieved 100%, demonstrating the practical challenges as stated earlier and also the challenges surrounding variable human behaviour and learning curve.

The two audit cycles and the interventions were completed over a 4-month period, avoiding rotation of the majority of junior doctors between specialties. However, the project had some limitations. The e-discharge workshops mainly involved training-grade junior doctors. As the audits were undertaken in the medical wards (including medical specialties), the e-discharge workshops did not include doctors from other non-medical specialties namely surgical, orthopaedics, ear nose and throat, obstetrics and gynaecology etc. In view of the practicalities, the workshops also did not involve other non-medical professionals involved in writing e-discharges, namely ANPs and PAs. However, the model for the e-discharge workshop is easily reproducible and can be replicated in other specialties and involving other healthcare professionals. In order for the quality of e-discharges to be consistently adequate, all staff completing e-discharges must be trained; therefore, introducing this as a mandatory session during hospital induction and junior doctor rotations seems reasonable. Another limitation is that patient perspectives were not obtained on matters related to e-discharge quality. This is something that should be considered as part of future projects.

Conclusion

E-discharge workshops with junior doctors are effective in improving the overall quality of discharge summaries from the medical wards. Improved documentation of test results, progress and outcome, and past medical history were particularly noticeable among those who attended the educational workshops, as well as a reduction of unnecessary requests for the GPs to action after discharge.

To maintain e-discharge standards, such workshops need to occur on a rolling basis in medical and non-medical specialties, also including other professionals who are involved in authoring e-discharges (ANPs, PAs and non-training grade doctors). Introduction of mandatory e-discharge training sessions during hospital induction and junior doctor rotations would also be beneficial to teach this important yet challenging skill. ■

Box 1. Examples of inappropriate requests made to general practitioners on e-discharges

- Please chase anti-tissue transglutaminase antibodies
- Review vitamin B12 bloods
- Please re-check urea and electrolytes and magnesium in 1 week
- Please chase HIV results
- Please arrange for Ferinject® once antibiotics finished
- General practitioner kindly chase serum electrophoresis results
- 3/7 Phosphate Sandoz® prescribed; please check bloods on completion of this course

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