

Improving discharge summary documentation of older adults in a rehabilitation hospital with an electronic discharge template

Christopher Portelli, Maria Bonnici, Claudia Scerri,
Liberato Camilleri, Peter Ferry

Background: During past quality improvement projects at our rehabilitation hospital, inconsistencies were observed in the inclusion of essential information in discharge notes. This had the potential to compromise the continuity of care to other healthcare providers upon discharge. The introduction of an electronic discharge summary template (EDST) aimed to address this issue by providing guidance to clinicians for comprehensive documentation and handover.

Methods: The EDST was developed through a structured process involving feedback from healthcare professionals obtained via structured interviews and questionnaires. One hundred discharge letters were chosen through sample randomization and audited against the EDST criteria. Subsequently, formal training sessions were conducted for foundation year doctors on the utilisation of the template. Post-implementation, another one hundred discharge letters were analysed to evaluate the impact of the EDST.

Results: Initial analysis revealed areas requiring improvement, particularly the Barthel score on admission and discharge, patient weight, and cognitive assessment. Following implementation of the EDST, significant improvements were observed in these areas. Feedback from foundation doctors utilising the EDST guided further refinements to the template.

Conclusion: The introduction of the EDST resulted in improved documentation and overall discharge summary completeness. The sustained utilisation of the EDST within our hospital's electronic discharge system is recommended to support ongoing improvements in discharge communication and patient care continuity.

Dr Christopher Portelli
MD, MRCP(UK)

Department of Geriatric Medicine,
Karin Grech Rehabilitation Hospital,
Pieta', Malta
St Vincent De Paul Long-Term Facility,
Luqa, Malta

Dr Maria Bonnici
MD, MSc(UK), MRCP(UK)
MRCP(Geriatrics)

Department of Geriatric Medicine,
Karin Grech Rehabilitation Hospital,
Pieta', Malta
Mater Dei Hospital,
Msida, Malta
St Vincent De Paul Long-Term Facility,
Luqa, Malta

Dr Claudia Scerri
MD, PgDip (Med Ed)

Department of Obstetrics & Gynaecology
Mater Dei Hospital
Msida, Malta

Prof Liberato Camilleri
BEd.(Hons), MSc, PhD

Faculty of Science
Maths & Physics Building
University of Malta
Msida, Malta

Dr Peter Ferry, MD, MSc, MRCP(UK),
Dip Ger, Dip ORT, Cert MedED

Department of Geriatrics,
Karen Grech Rehabilitation Hospital,
Luqa, Malta

Older adults often experience complex medical problems that require a multi-disciplinary approach. Our rehabilitation hospital has a bed capacity of approximately 250 patients, and despite it not being an exclusive geriatric rehabilitation hospital, around 75% of the patients admitted are older than 65 years of age. In most cases, it receives patients discharged from the only acute care hospital on the island. A few patients from the community who require rehabilitation are also admitted, with the aim of returning back to the community at their previous level of function. A comprehensive geriatric assessment (CGA) is needed to achieve maximum rehabilitation potential and not to miss important aspects of care.¹ It is important to ensure the communication of patient information for good follow-up care in the community setting and between different hospitals. The CGA is conducted by a multi-disciplinary team including geriatricians, nurses, pharmacists, and allied health professionals.

It was noted that our conventional electronic discharge summaries did not adequately incorporate all the elements of the CGA, which is specific to the older population. Although some electronic discharge summaries include most of the relevant information, there is a lack of uniformity and documentation. The aim of this quality improvement project (QIP) was to implement interventions to improve the documentation of discharge summaries by designing an electronic discharge summary template (EDST) that will guide doctors on what to write in the discharge letter (DL) and hold interval education sessions on the importance and use of this EDST.

MATERIALS AND METHODS

First Phase

Following consultations with Maltese consultant geriatricians, it was determined that discharge summaries serve as vital communication tools between healthcare providers and should encapsulate CGA findings. It was agreed that an EDST might help doctors include all necessary information. Subsequently, an expert multi-disciplinary board was formed including 3 consultant geriatricians, 2 general practitioners, 2 higher specialist trainee geriatricians, 1 ward nurse, 1 community liaison nurse, 1 pharmacist,

1 physiotherapist, 1 occupational therapist, 1 speech and language pathologist and 1 social worker. This was accomplished using the Delphi method.

Second Phase

A retrospective analysis of 100 randomly selected discharge letters from the previous 5 months was conducted. Each letter was anonymised and assigned a numerical identifier. Data pertaining to the absence of specified headings of the CGA were recorded in a Microsoft Excel Sheet.

Third Phase

The newly devised EDST was piloted within the electronic case summary application used by FY doctors to generate discharge letters. Training sessions were conducted to familiarise these doctors with the template and emphasise its utility in facilitating comprehensive handover to health professionals. This process was iteratively executed over three consecutive quarters involving 24 FY doctors.

Fourth Phase

Feedback was collected from FY doctors, and after consultation with the expert team, the EDST was changed accordingly.

Fifth Phase

After six months of using the pilot template, a further one hundred discharge letters were audited using sample randomization. Statistical package for the Social Sciences (SPSS) was utilised for data collection, and this was analysed using descriptive statistics and the difference of two proportions Z-test to determine if there was a statistical difference between the two sets of data.

RESULTS

In the 1st phase 100% consensus on the ideal format of the EDST was reached after two cycles using the Delphi method.

Pre and post implementation of the EDST

In the 2nd phase, the results showed that 99% of the DLs included an admission note and 95% included past medical history/past surgical history (PMH/PSH).

The majority of the DLs included medical management (88%), and relevant treatment changes (88%). Improvement was needed in other areas, such as the Barthel score on admission (55%) and discharge (47%), weight (2%), and cognitive assessment (53%). After the implementation of the EDST, there was a significant improvement in all of the above sections (see [Figure 1](#) and [Table 1](#)).

Feedback from the users of the EDST

A total of 14 FY doctors answered our feedback questionnaire. Two individuals were foundation year one, and 12 were foundation year two. 13 FY doctors used the EDST. Of these 14 individuals, 13 felt that the newly formulated EDST was useful in writing a discharge summary, while one individual felt that the EDST was time consuming. One individual stated that unfortunately, the family general practitioner is never documented in the clinical notes, and so it was never documented in the summary. One FY also suggested, if applicable, to include another section regarding psychiatric management. 10 FY doctors felt that no improvement was necessary with the EDST. Most of the above concerns were addressed in the subsequent FY doctors' intake.

DISCUSSION

Poor communication between the secondary and primary care settings is a high-risk healthcare event.² This is particularly well evidenced in relation to medication errors following discharge. A well-documented discharge summary of the care received in hospital with primary care is essential for patient safety. International evidence suggests that discharge letters are unsatisfactory for several reasons including; incomplete and inadequate information, unclear follow-up plans, letter inaccuracies, delayed letter delivery, unclear medication information, lack of patient-centeredness (e.g., letter dense with jargon), and miscommunication leading to adverse events such as patient readmissions in the older population.³

Our quality improvement project demonstrated that the new EDST improved documentation in most of the sections studied in the discharge summary. Our study is supported by results obtained from other similar quality improvement projects. Maurice et al^{sup>4} have formulated a similar approach in their project in which they introduced an electronic prompting system in their discharge summary program. The results were also encouraging as the proportion of adequate diagnosis, comorbidities, inpatient care summary and treatment all improved with their interventions. This further confirms our results and supports our finding that an electronic

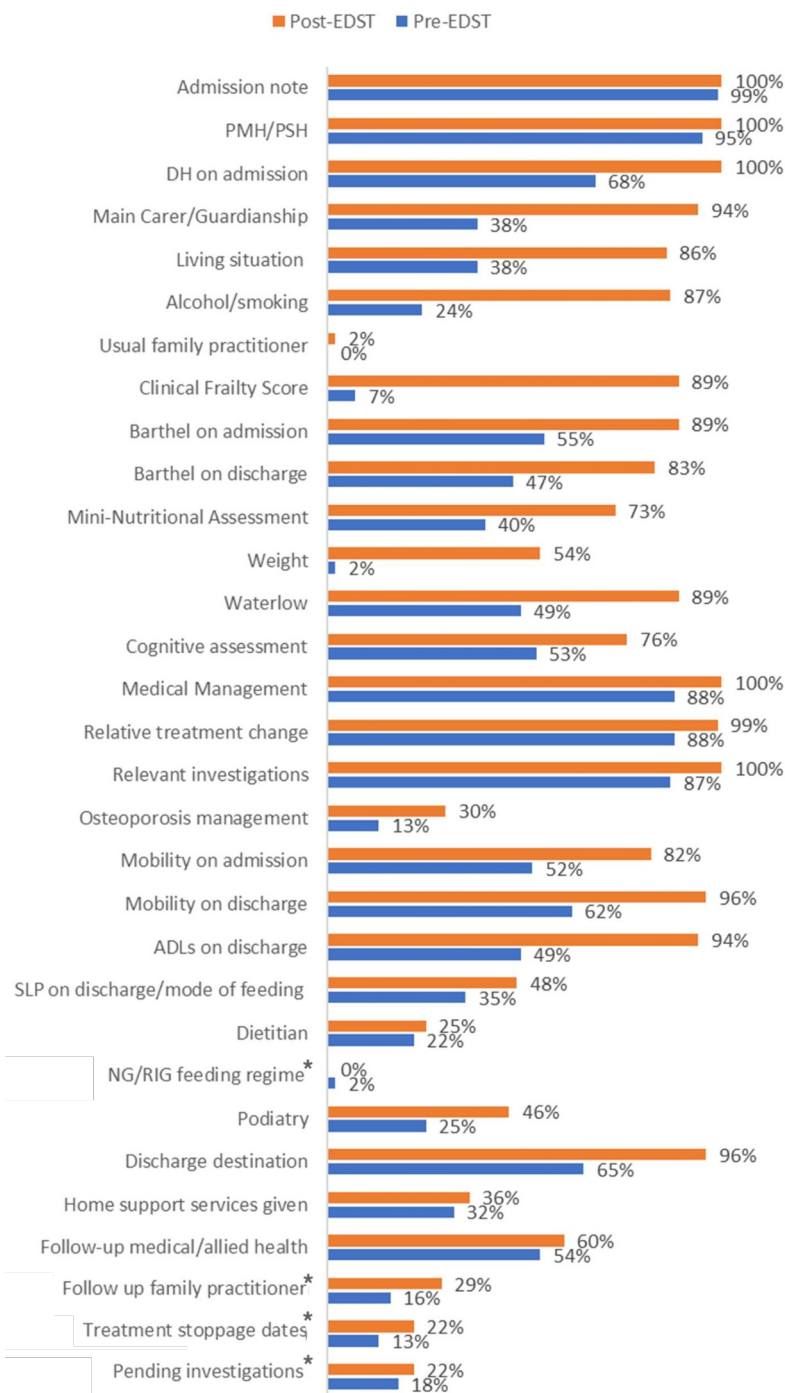


Figure 1 Showing the pre-and-post implementation percentages of main headings on the EDST

Table 1 Showing the sampling distribution of two population portions and the p-value. In most of the main headings of the EDST there was significant improvement after the implementation of the EDST

Discharge Letter	Pre-Percentage	Post-Percentage	Z-Score	P-value
Admission Notes	99%	100%	-1.0025	0.16
PMH/PSH	95%	100%	-2.2646	0.012
DH	68%	100%	-6.1721	<0.00001
Main carer/guardianship	38%	94%	-8.3591	<0.00001
Living situation	38%	86%	-6.9926	<0.00001
Alcohol/smoking	24%	87%	-8.9639	<0.00001
Usual family practitioner	0%	2%	-1.4213	0.078
CFS	7%	89%	-11.6058	<0.00001
Barthel admission	55%	89%	-5.3545	<0.00001
Barthel discharge	47%	83%	-5.337	<0.00001
MNA	40%	73%	-4.7068	<0.00001
Weight	2%	54%	-8.1892	<0.00001
Waterlow	49%	89%	-6.1156	<0.00001
Cognitive assessment	53%	76%	-3.3987	0.00034
Medical management	88%	100%	-3.5729	0.00018
Relative tx change	88%	99%	-3.1551	0.00079
Relevant investigations	87%	100%	-3.7288	0.0001
Osteoporosis management	13%	30%	-2.926	0.0017
Mobility on admission	52%	82%	-4.5114	<0.00001
Mobility on discharge	62%	96%	-5.9026	<0.00001
ADLs on discharge	49%	94%	-7.0489	<0.00001
SLP on discharge	35%	48%	-1.8656	0.031
Dietitian	22%	25%	-0.5003	0.31
NG/RIG	0%	2%	-1.4213	0.078
Podiatry	25%	46%	-3.1032	0.00097
Discharge destination	65%	96%	-5.5326	<0.00001
Home support services	32%	36%	-0.5971	0.27
FU Medical + Allied health	54%	60%	-0.857	0.19
FU Family practitioner	16%	29%	-2.2013	0.014
Treatment stoppage dates	13%	22%	-1.6749	0.047
Pending investigations	18%	22%	-0.7071	0.24

prompting system improves the documentation of discharge summaries.

Our results can be attributed to the implementation of the EDST. However, we must also take into consideration that an education session on how to write a discharge summary and how to use the EDST was given to the FY doctors in our quality improvement. Dedicated formal training to FY doctors or medical students on discharge summaries is uncommon.⁵ The quality of discharge letters from medical officers improves throughout the year with experience. Phatal et al⁶ have demonstrated that educational intervention alone improves the overall quality of discharge summaries by introducing a two-hour structured workshop for medicine residents. Earnshaw et al⁷ have shown that education and feedback on discharge summaries have also improved the quality of documentation. We also need to consider that most of the doctors involved were foundation two doctors. These doctors already had 1-year of experience in completing discharge summaries, which may have influenced our results.

Our quality improvement project also involved gathering feedback from FY doctors. Most doctors found the EDST useful and did not suggest any changes to the template. However, two individuals highlighted that the EDST is too time consuming, whilst two others expressed that the EDST has saved them time in writing a discharge summary. Time needs to be considered when writing a discharge summary, as FY doctors are busy and heavily involved with ward responsibilities. Time is a measure that needs to be assessed in future quality improvements using the newly formulated EDST.

Furthermore, our project highlights the importance of stakeholder engagement and iterative refinement in quality improvement initiatives⁸. The involvement of a MDT, comprising healthcare professionals in different specialties and also medical/pharmacist working in the community, ensured that the EDST reflected the diverse needs of clinicians/allied health professionals involved in discharge communication.

Limitations in this quality improvement project were that the format, qualitative content, (i.e., information accuracy), summary length, and overall readability of the discharge summary were not specifically

SUMMARY BOX

What is known about the subject:

- Discharge summaries are essential pieces of medical documentation that are used by both healthcare professionals and patients to understand the events of a hospital admission, and ensure safe handover of care.
- Discharge letter summaries are often of poor quality and contain incorrect or incomplete documentation of patient diagnosis, comorbidities, complications, and procedures.
- Improvement in discharge letter documentation is necessary for a better handover to primary care and to ensure patient safety in the discharge process.

What are the new findings:

- FY doctors did not have a guide on how to write a discharge summary before the implementation of the EDST, and this template helps FY doctors formulate a well-documented discharge summary.
- Most of the FY doctors found the EDST useful in helping them formulate a well-documented discharge summary.
- This quality improvement has shown a significant positive change in documentation and has become the new standard in our rehabilitation hospital.

assessed. Moreover, not all FY doctors engaged in feedback. In the 1st phase of our project, we did not include patients to provide feedback on what they believed should be included in the discharge summary. Additionally, the restrictions in functionality of the electronic case summary program potentially impacts user experience and documentation efficiency.

By standardising documentation practices and promoting MDT collaboration, initiatives like the EDST have the potential to improve care coordination, reduce medical errors, and ultimately enhance patient outcomes in geriatric rehabilitation settings.

Acknowledgements

We would like to thank all the medical and allied health care professionals involved in forming the electronic discharge letter template which was used to carry out this quality improvement project.

Abbreviations

CGA	Comprehensive Geriatric Assessment
EDST	Electronic discharge summary template
DL	Discharge Letter
FY	Foundation year
QIP	Quality improvement project

REFERENCES

1. Ellis G, Gardner M, Tsiachristas A, et al. Comprehensive geriatric assessment for older adults admitted to hospital. *Cochrane Database Syst Rev*. 2017;9:(9)CD006211.
2. Cresswell K, Aynsley M, et al. Mind the gap: improving discharge communication between secondary and primary care. *BMJ Open Qual*. 2015;4:(1)u207936.w3197.
3. Weetman K, Spencer R, Dale J, Scott E, Schnurr S. What makes a “successful” or “unsuccessful” discharge letter? Hospital clinician and general practitioner assessments of the quality of discharge letters. *BMC Health Serv Res*. 2021;21.(1)
4. Maurice A, Chan S, Pollard CW, et al. Improving the quality of hospital discharge summaries utilising an electronic prompting system. *BMJ Qual Improv Rep*. 2014;3:(1)u200548.w2201.
5. Ming D, Zietlow K, Song Y, Lee HJ, Clay A. Discharge summary training curriculum: a novel approach to training medical students how to write effective discharge summaries. *Clin Teach*. 2019;16:(5)507–12.
6. Phatak A, Matheathew M, Dave N, Parekh M, Pandya H. Impact of educational intervention on quality of discharge summaries. *J Clin Diagn Res*. 2018.
7. Earnshaw C, Pedersen A, Evans J, Cross T, Gaillemine O, Vilches-Moraga A. Improving the quality of discharge summaries through a direct feedback system. *Future Healthc J*. 2020;7:(2)149–54.
8. Maurer M, Mangrum R, Hilliard-Boone T, et al Understanding the influence and impact of stakeholder engagement in patient-centered outcomes research: a qualitative study. *J Gen Intern Med*. 2022;37(S1):6–13.