Stroke Discharge Summaries – An audit

A final report on the audit of discharge summaries from the stroke units of four Victorian hospitals

General Practice Victoria

State Government Victoria
A Victorian Government Project
AHWI THE AUSTRALIAN HEALTH WORKFORCE INSTITUTE
GPV GENERAL PRACTICE VICTORIA
NETWORKING HEALTH VICTORIA

For further information contact:

Paulette Kelly
Email: p.kelly@gpv.org.au

General Practice Victoria
3rd Floor 458 Swanston Street
Carlton Vic 3053
Phone: 03 9341 5200
Website: www.gpv.org.au

ABN: 80 081 371 968

Stroke Discharge Summaries – An audit

A final report on the audit of discharge summaries from the stroke units of four Victorian hospitals

Executive summary

The Project

In 2012 the Victoria Department of Health's Stroke Clinical Network (VSCN) funded General Practice Victoria (GPV) to undertake an audit of discharge summaries of stroke survivors. The purpose of the audit was to assess the quality of the discharge summaries sent to general practices from the stroke units of four public hospitals in Victoria. GPV worked with the Australian Health Workforce Institute (AHWI) to implement the audit in conjunction with the General Practice Liaison units of the four participating hospitals: Austin Health, Northern Health, Melbourne Health and Western Health.

The process

The audit was conducted in the period July 2012 to March 2013. The approach involved three main phases: (i) development of an audit tool; (ii) audit of stroke discharge summaries using the tool; and (iii) analysis of data and reporting.
The audit tool was developed using technical inputs from a multi-stakeholder Clinical Expert Group.

The discharge summaries for the audit were selected from among stroke survivors who were discharged to home/community-based care in the past six-eight months. At each site, fifty summaries were randomly selected. Excluded from the records audited were patients that had been transferred to in-patient rehabilitation or community-based rehabilitation or palliative care.

The tool

A standardized audit tool was developed that included ten major information components and their corresponding data items. The quality of information for each component was assessed and graded as 'excellent', 'good' or 'poor' based on agreed upon definitions for these three categories.

The Audit

Scanned medical records were electronically viewed and audited with respect to the presence, content and quality of the information documented in the discharge summary. Presence of complete GP details as well as evidence that the summary had been sent to the GP was also reviewed. The responses for the 200 audited records were directly entered and analyzed using Microsoft Excel 2010 to calculate aggregate proportions.

Results

In general, the content of the discharge summaries was considered excellent for the following data items: admission and discharge details, diagnosis, results, investigations and inpatient management. In contrast, the quality of the content was considered to be inadequate or incomplete for the following: hospital contact details, inpatient complications, discharge medications, and follow-up care plan.

Key observations include the lack of complete GP details i.e. name and contact details in more than half of the records. Audit results demonstrated that a low number of patient files contain a medication list and when present, no indication of transmission accompanied the list. More than half of the discharge summaries did not provide the minimum information required by GPs to take action based on the discharge care plan. The expected role of the GP in arranging post-discharge services was not indicated in more than half of the discharge summaries. On average more than 50% of the audited discharge summaries did not include advice on risk modification, driving and return to work.

Although electronic or typed discharge summaries are being used in the stroke units, the records sampled for the audit also included hand-written summaries. Evidence that the discharge summary was sent to the GP is an area difficult to measure in the absence of a process that records how and to whom the summary was sent. Of those discharge summaries that were recorded as sent, 70% were faxed. Timely communication of discharge information is important. Only one-third of the summaries were recorded as being sent to the GPs within 48 hours.

Acknowledgments

The authors would like to thank Associate Professor Helen Dewey and Janelle Devereux from the Victoria Stroke Clinical Network, Department of Health for their active support and interest in the Stroke Discharge Summary Audit project. Their commitment to working in partnership with GPV, and funding the project led to its successful completion. Lenora Lippmann was instrumental in facilitating the initial discussions between GPV and the department that led to the development of the project. Dr Indrajit Hazarika was key to the success of this project; the discharge audit tool he designed and deployed has proved an invaluable resource for collecting quality data. The project would not have succeeded without the input of the Clinical Expert Group; Associate Professor Helen Dewey, Associate Professor Peter Hand, Associate Professor Tony Snell, Dr Tissa Wijeratne, Fiona McKinnon, Dr Sue Hookey and Dr David Isaac.

In addition the project benefitted immensely from the skill, dedication and persistence of the staff at the General Practice Liaison (GPL) and the Stroke Units in each site. At the Northern Health, Rebecca Jessup conducted the audit; at Western Health, Bianca Bell conducted the audit; at the Royal Melbourne Hospital the team was Dr Sue Hookey and Fiona McCormack; and at Austin Health, Dr Wendy Fisher led the audit. At each of the hospital sites, the Health Information Services ably supported the audit by selecting the sample to be audited.

Table of Contents

List of tables

List of figures

Abbreviations

AHWI	Australian Health Workforce Institute
CEG	Clinical Expert Group
DoH	Department of Health
GPL	General Practice Liaison
GP	General Practitioner
GPV	General Practice Victoria
ICD	International Classification of Diseases
KPI	Key Performance Indicator
NSF	National Stroke Foundation
NEHTA	National E-Health Transition Authority
URN	Unique Record Number
VSCN	Victoria Stroke Clinical Network

1. Background

Stroke is one of the major causes of morbidity and mortality in developed countries and consumes about five percent of health service resources.[1] In addition to mortality, long-term morbidity due to stroke is a significant problem leaving significant numbers with moderate or severe disabilities who are then dependent on others to carry out daily activities.

In Australia, stroke is the second biggest killer after heart disease. It was estimated that in 2012 there were over 420,000 people living with the effects of stroke, of which two-thirds had sustained a disability that impeded their ability to carry out activities of daily living unassisted. It is projected that by 2032 there will be around 709,000 Australians living with stroke, or 2.4% of the population.[2] In 2011, it was estimated that there were 60,000 new and recurrent stroke cases in the country.[3] The majority of these strokes (89%) were estimated to have undergone hospital admission.[4] Of these around 88% of stroke survivors live at home and most have a disability.[5]

Organized inpatient (stroke-unit) care has been effective in reducing rates of death and disability among stroke cases.[6] Furthermore, it has been reported that appropriately resourced early supported discharge services can reduce long-term dependency and admission to institutional care as well as shortening hospital stays.[7]

The process of recovering from a stroke usually includes treatment, spontaneous recovery, rehabilitation, and the return to community living.[8] Because stroke survivors often have complex rehabilitation needs, a well-planned discharge is essential to guide optimal recovery and return to pre-stroke activities. According to the National Stroke Foundation (NSF) the discharge plan should include a detailed discharge summary that provides an assessment of the patient needs, and describes a plan for providing information and services to patients following the admitted patient episode of care. It should facilitate smooth, timely and safe

transition from hospital to home or community-based care.[9,10]

Despite recommendations in the Australian Clinical Guidelines for Stroke Management 2010[11] on post-discharge follow-up and services, discharge planning remains poor across the country. In 2011 it was reported that most Australian hospitals (67%) did not have any protocols for reviewing patients post-discharge. Discharge plans and post-discharge contact were not routinely provided by the hospitals.[12] Moreover, the National Stroke Audit Report for Clinical Services: Acute Services found that 21% of patients did not have a discharge summary sent to their General Practitioners (GPs).[12]

GPs provide a critical role in the prevention and long-term management of stroke.[13] To maintain the continuum of care and facilitate secondary prevention of stroke it is fundamental to ensure prompt and effective communication between the hospitals and GPs.

The hospital discharge summaries serves as the primary document communicating a patient's care plan to the GPs.[14] Often the discharge summary is the only form of communication that accompanies the patient to the next setting of care. High-quality discharge summaries are therefore considered to be essential for promoting patient safety during transitions between care settings, particularly during the initial post-hospital period.[14]

Good discharge planning is particularly important for stroke survivors and should include the timely transfer of accurate, relevant data about diagnostic findings, treatment, complications, consultations, tests pending at discharge, and arrangements for post-discharge follow-up.[15-18] This is essential to maintain the continuity of care. In fact, delayed communication or inaccuracies in information transfer may have substantial implications for follow-up care, patient safety, patient and clinician satisfaction, and resource use.[19]

There is limited research to date on the quality of discharge summaries sent by specialist units to GPs. Previous studies have highlighted that poor quality or inadequate details in discharge summaries is a problem that has implications for follow-up care.[19-21] While some hospitals in Australia have attempted independently to quantify the nature and breadth of the problems related to information made available by the public hospital specialist units to GP practices, there has been very little by way of a structured assessment of the issue. The Victoria Clinical Stroke Network (VSCN) has identified this issue as a priority.

The Victorian Department of Health's Stroke Clinical Network (VSCN) funded General Practice Victoria (GPV) to undertake an audit of discharge summaries of stroke survivors to assess the effectiveness of patient discharge practices in Victoria.

The objectives were to:

a. Develop a stroke discharge summary audit tool using a modified nominal group technique;

b. Assess the quality of stroke discharge summaries i.e. content, clarity, completeness and appropriateness;

c. Identify information gaps in the quality of stroke discharge summaries, which may be affecting the follow up care by the GPs;

d. Identify possible avenues for improvement of stroke discharge summaries from public hospital specialist inpatient clinics.

This assessment represents the first stage in a process aiming to enhance the quality of discharge practices thereby ensuring adequate exchange of information between the specialist stroke units and GP practices.

2 Audit process

2.1 The approach

The audit was conducted in the period July 2012 to March 2013. The approach involved three main phases:

- Development of the audit tool;
- Audit of sample of stroke discharge summaries; and
- Analysis and reporting.

Each of these stages is discussed in the following sections.

2.2 Development of audit methodology and tools

The project required an agreed methodology and a standardized tool.

A list of potential data items for a 'perfect' stroke discharge summary were identified through a comprehensive review of the literature (including published literature on discharge audits generally, stroke care guidelines and literature, existing discharge summary formats, and prevailing guidelines such as the National E-Health Transition Authority (NEHTA) guidelines). A multi-stakeholder 'Clinical Expert Group' was established. This group included Victorian specialists, sub-acute care providers, general practice liaison units and subject-experts with expertise and an interest in stroke.

The development of the audit tool was then achieved using the "modified nominal group technique" of consensus method. The consensus method is used to determine the extent to which experts agree about a given issue. It overcomes some of the disadvantages and delays in decision-making or dominance by a specific individual or coalition by building unanimity of opinion amongst preselected groups.[23]The nominal group technique uses a highly structured meeting to gather information from relevant experts (usually 9-12 in number) about a given issue. It consists of two rounds in which experts rank, discuss, and then re-rank a series of items or questions.[23] To apply this technique in the current project the Clinical Expert Group was provided with the list of potential

data items for a stroke-specific discharge summary and a ranking sheet. Each expert privately ranked the individual data items into three categories i.e. 'must have', 'could have' and 'not have'.

The ranking provided for each data item was tabulated and presented in a group meeting. During the meeting the overall ranking was discussed and re-ranked. The final rankings were tabulated and the results fed back to the experts for overall agreement. Based on the data items identified using the 'modified nominal group technique', a stroke specific audit tool was developed (*Annexure 1*) comprised of a minimum set of data items important for continuity of care and secondary prevention.

2.3 Discharge record audit

The audit of discharge summaries of stroke survivors who were transferred to home/community-based care was conducted at the four selected hospital sites with stroke units.

For the selection of sites, public hospitals with stroke units in Victoria were ranked based on the number of stroke cases admitted in the past year. Four hospitals with the highest number of admitted stroke cases were purposely selected to provide generalizable findings on the discharge practices.

At each hospital, the medical records of cases admitted to the stroke unit in the past six-eight months were retrospectively assessed.

The discharge records of all cases discharged from the stroke unit were screened to include fifty randomly selected summaries of:

- Adults ($\geq$ 18 years) who had survived a stroke episode; and
- Were discharged to either home or community-based care.

As the main purpose of the audit was to assess the quality of communication between the specialist units and the GPs, patients that had been transferred to in-

patient rehabilitation, community-based rehabilitation or palliative care were excluded.

The UR numbers of stroke cases that met the inclusion criteria were retrieved via the Health Information Services at the participating hospitals. The International Classification of Diseases (ICD-10) codes for stroke were used to identify the cases.

The scanned medical records were electronically viewed. The discharge records were audited with respect to the presence, content and format of the discharge summary. Accurate and complete GP details, as well as evidence that the summary had been sent to the GP were also reviewed.

At each hospital site, the General Practice Liaison Officer (s) or the Community Participation Coordinator conducted the audit. The auditors had considerable experience in the conduct of similar audits. They also received a day's training prior to the commencement of the site audits. The auditor reviewed each discharge record according to the audit tool set out in *Appendix 2*.

To maximize consistency in interpretation and minimum bias between auditors:

- The standardized audit tool was developed to limit the degree of subjectivity involved;
- Staffs at the General Practice Liaison (GPL) who had previous experience of conducting similar audits were engaged. It was ensured that they had a high level of understanding of the audit objectives and requirements;
- The auditors were trained on the tool. The auditors piloted the tool with a small sample of stroke discharge records. The auditors were encouraged to compare interpretations with their peers and to clarify any queries with the project leads; and

- A 'Yammer'[1] group was created for the auditors to discuss any concerns regarding interpretation.

2.4 Data collection

The audit data were collected in specifically designed Excel files. This ensured consistency in the data collected and rapid analysis of the results of the audits.

The data were de-identified and each file was assigned a non-identifiable code i.e. a unique project ID code to avoid any links with patient records. The data were stored in an electronic format.

A limitation of the collected data could be the reliance on documentary evidence in the discharge record. The underlying assumption was that what is not recorded is not done.

2.5 Analyzing the audit responses

Using the standardized audit tool, data were collected on ten major information components and their corresponding data items. The choice of data items were based on the recommendations of the Clinical Expert Group, as they were considered to be important for the purpose of continuity of care. The quality of information was assessed and graded as 'excellent', 'good' or 'poor' based on agreed definitions for these three categories. (*Please refer to Appendix 3 for definitions of the grades*). At each site, the responses for the individual discharge summaries were recorded in separate Microsoft Excel sheets. For the consolidated results, the responses for the 200 discharge summaries were collated and analyzed to calculate aggregate proportions using Microsoft Excel 2010.

[1] A social networking site that is designed for company collaboration, file sharing, knowledge exchange and team efficiency. (Reference: https://www.yammer.com/product/)

3. Results

Findings from the audit of 200 discharge records across four public hospitals are presented in this section. For each of the ten major information components and their corresponding data items, the quality of the information in the discharge record is discussed. Comparisons are also made between the four hospitals.

3.1 Patient and General Practitioner details

Providing complete and correct information regarding the patient is important for clinical follow-up. In the audited discharge records, 'patient name', 'unique record (UR) number' and 'date of birth' were present in almost all the records. Information on patient contact details was missing in 30% of the audited records and was either inadequate or incomplete in 20% of the records.

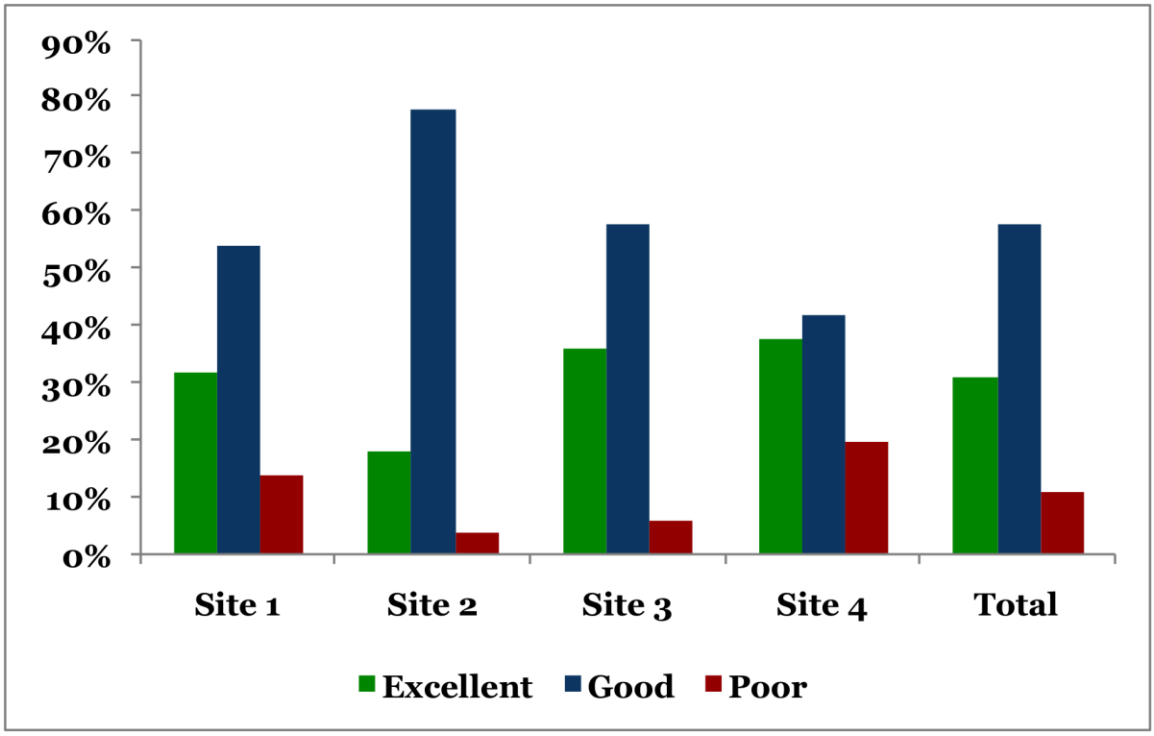
Table 1. **Information on patient and GP details**

PATIENT & GP DETAILS	Quality of Information		
	Excellent	Good	Poor
Patient Name	100%	0%	0%
Patient Date of Birth	94%	0%	6%
UR Number	98%	0%	2%
Patient Contact Details	50%	20%	30%
GP Name	80%	2%	18%
GP Contact Details	31%	58%	11%

Including correct and complete GP details is essential to ensure that the discharge information goes to the right GP. The name of the GP was missing in 18% of the records. In addition, almost two-third of the discharge records (58%) did not include the complete contact details of the GP. In most of these records, the contact or fax number of the GP was not documented.

As shown in *Figure 1*, there were differences in the completeness and adequacy of GP details in the discharge records across the different sites, with *Site 4* having the largest proportion with poor information on GP details.

Figure 1. Quality of information regarding GP details across the hospital sites



3.2 Admission Details

Admission details are important so the GP and/ or subsequent service provider understands where in-patient care was provided and how the patient was admitted to the hospital i.e. a planned referral or an emergency.

In a quarter of the audited discharge records, the complete hospital name and contact details of the institution was not documented. As shown in *Figure 2*, this is mainly because *Site 4* does not routinely include this information in the discharge summary.

***Table 2*. Information on Admission Details**

ADMISSION DETAILS	Quality of Information		
	Excellent	**Good**	**Poor**
Hospital Name	80%	0%	20%
Hospital Contact details	75%	0%	25%
Date of Admission	100%	0%	0%
Source of Admission	76%	5%	19%

While the date of admission was included in all the discharge records, the source of the admission was mentioned in approximately three-quarters (76%) of the records. In most of the records, the latter information was included as a part of the clinical synopsis.

Figure 2. Quality of information regarding hospital contact details across the hospital sites

3.3 Discharge Details

Complete and accurate discharge details are key to a good discharge record. In the audited records it was found that the 'date of discharge' and 'discharge destination' was almost always mentioned; the quality of information provided for the latter item being poor for only 8% of the records. The details regarding the discharging consultant or discharging speciality were either absent or incomplete for close to a quarter of the records.

***Table 3*. Information on Discharge Details**

DISCHARGE DETAILS	Quality of Information		
	Excellent	Good	Poor
Date of Discharge	96%	0%	4%
Discharge Destination	91%	1%	8%
Discharging Consultant	70%	0%	30%
Discharging Specialty	77%	11%	12%

3.4 Clinical Information

The discharge record should articulate a synopsis of what happened to the patient and should reflect the clear picture of the hospital stay rather than just the final diagnosis.

Table 4 summarizes the information provided regarding the clinical course of the patient during the in-patient stay. Almost all discharge records included information on the principal diagnosis, clinical interventions undertaken, relevant investigations and a clinical synopsis. The quality of the information was graded as excellent for most of the audited records.

A good discharge summary should also include a statement about complications that may have occurred during the in-patient stay. In the audited records, it was found that adequate information regarding complications was not included in more than one-third of the records (35%).

***Table 4:* Information on in-patient course**

CLINICAL INFORMATION	Quality of Information		
	Excellent	Good	Poor
Diagnosis at Discharge	98%	1%	1%
Clinical Intervention Description	88%	4%	8%
Clinical Synopsis	87%	6%	7%
Complications	62%	3%	35%
Relevant Investigations and Results	94%	5%	1%

Across the four sites, differences were observed in the quality of information available in the audited records regarding complications experienced by the patient during the in-patient hospital stay (*Figure 3*). *Site 1* had the highest proportion of records with poor information regarding in-patient complications.

Figure 3. Quality of information regarding inpatient complications across the hospital sites

The discharge communication between hospitals and a patient's GP should provide a complete list of medication, including details regarding changes to medicines prescribed, to avoid the risk of the GP prescribing incompatible medication with potentially severe adverse impact on patients. In the audited records, it was found that complete information about patient medications on discharge and information regarding medication changes was described in only 59% of the records. It was noted that in most hospital sites a common practice is to submit information regarding medications as an attached Pharmaceutical Benefits Scheme (PBS) list. However, during the audit, the PBS list could not be located for approximately two-fifth of the patients.

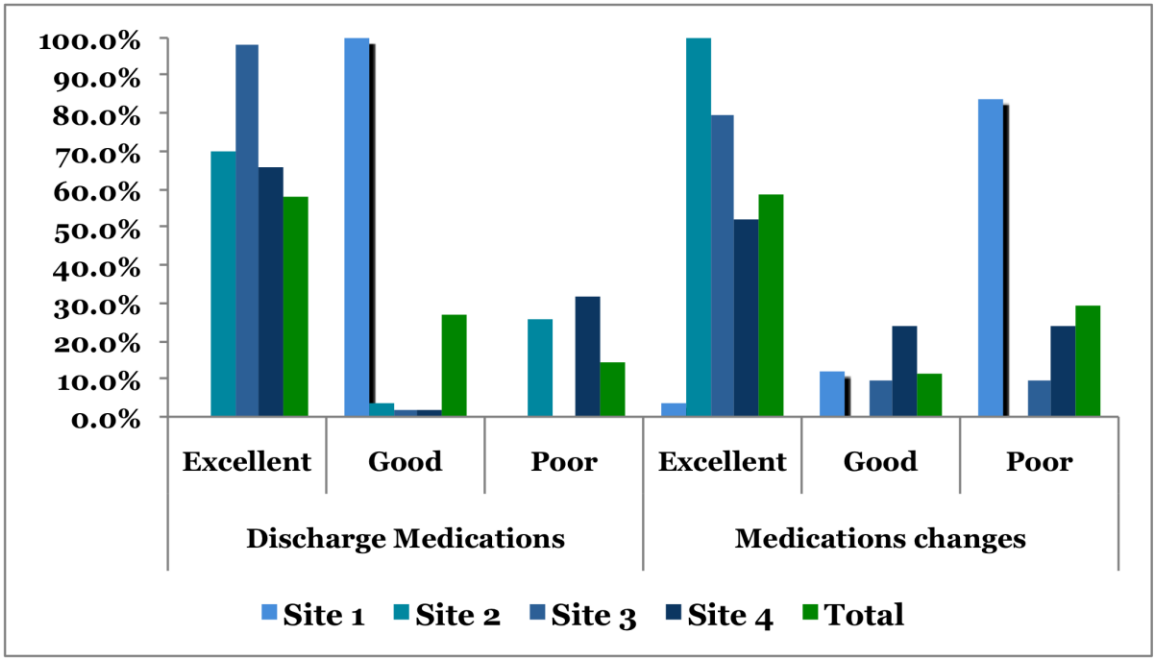
***Table 5:* Information on medications**

MEDICATION INFORMATION	Quality of Information		
	Excellent	Good	Poor
Discharge Medications	59%	2%	39%

Medication Changes	59%	11%	30%

As shown in *Figure 4*, there were differences across the four sites in the quality of information available in the audited records regarding discharge medications and changes in the prescribed medications. In general, while some sites (*Sites 2 & 3*) routinely include a note regarding prescribed medications as a part of the discharge information, others (*Sites 1 & 4*) depend on the PBS medication list to convey this information to general practitioners.

Figure 4. Quality of information regarding discharge medications and medication changes across hospital sites



3.5 Advice, recommendations and future plan

Effective discharge requires the timely initiation of appropriate post-discharge arrangements, possibly facilitated by identification of the role of each service provider in the post-discharge management.

In the audited records the information regarding follow-up advice and future plan was found to vary depending on the service provider (*summarized in Table 5*). The majority of audited discharge summaries (84%) included information regarding outpatient appointments or follow-up tests, which were to be pursued at the hospital.

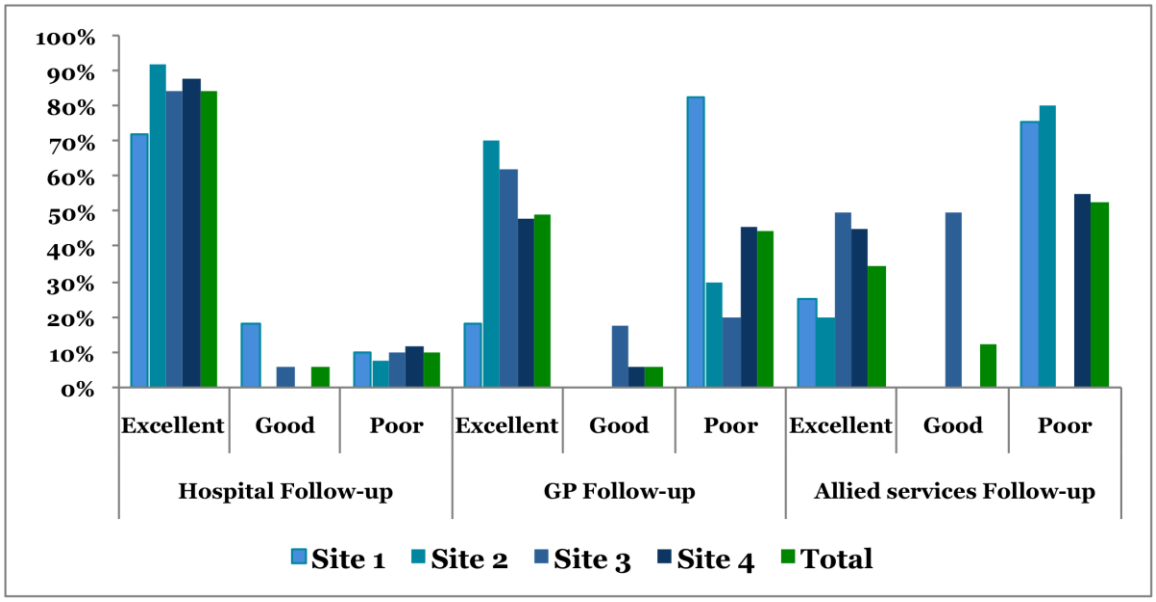
In contrast, the audited records were found to contain few details regarding follow-up actions required by the GP. Almost half of the discharge records (49%) did not include clearly described directives or suggestions for GP action.

Further, only one-third of the discharge records (35%) had information regarding appointments and/or post-discharge arrangements initiated with allied health professionals. It may be that patients did not require such follow-up care if the effects of their stroke event were minimal.

***Table 6.* Information regarding follow-up care**

FOLLOW-UP	Quality of Information		
	Excellent	Good	Poor
Hospital			
Follow-up Action	84%	6%	10%
Health Service Provider to be seen	76%	12%	12%
When	56%	21%	23%
GP			
Follow-up Action (required by GP)	50%	6%	44%
When	31%	1%	68%
Community and Specialist Services (if applicable)			
Services Arranged	35%	12%	53%
Services / Provider to be seen	30%	8%	62%

Figure 5. Quality of information regarding follow-up care across the hospital sites



As shown in *Figure 5*, the quality of the information included in the discharge summary regarding post-discharge follow-up varies across the individual sites. Almost all the sites include information in their discharge summaries regarding follow-up actions to be undertaken by the attending hospital. However, the information regarding any actions that the GP is being requested to undertake or organize was not well documented particularly at *Site 1*. Advice or details of actions to be taken by allied healthcare professionals was infrequently provided by *Sites 1 and 2*.

The discharge records were also assessed to see if information on risk factors and guidance on secondary prevention of stroke was regularly communicated to GPs. It was found that adequate information on identified risk factors were included in less than one-fifth of the audited records. Further, recommendations on secondary prevention measures that should be implemented were not included in more than half of the discharge summaries (53%).

Table 7. **Information on patient advice**

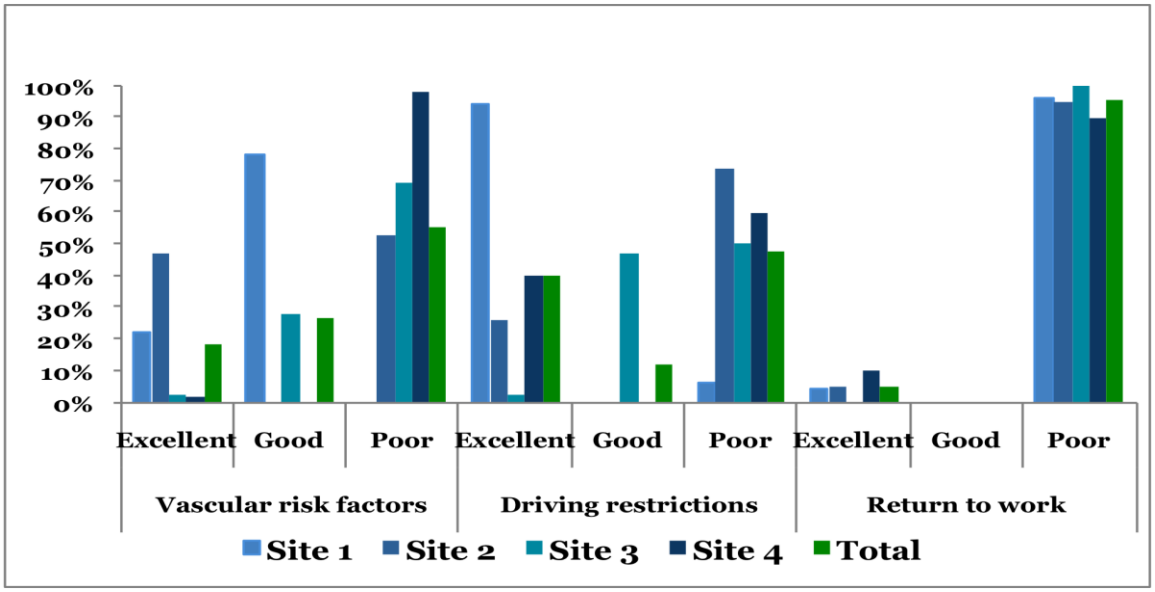
ADVICE	Quality of Information

	Excellent	Good	Poor
Vascular Risk Factors and Recommendations for GP Action	19%	28%	53%
Driving Restrictions**	40%	12%	48%
Return to Work Advice**	16%	0%	84%

***If applicable*

Clearly communicated instruction on driving and return to work was not routinely included in the discharge summaries. In some cases this may reflect the mild nature of the stroke event and/or the working status of the patients. However, the quality of information on these two data items varied across the four sites (*Figure 6*). While return to work advice was not routinely included in the audited records of all four sites, the provision of information on driving restriction was more variable. Advice on driving is routinely included in the discharge summary for *Site 1*, but this information is infrequently included in the discharge summaries from the other sites.

Figure 6. Discharge advice on risk factors, driving and return to work across the hospital sites



3.6 Document author

A good discharge summary should include the name, designation, signature and contact details of the document author. This information denotes the level of experience of the person giving the report and facilitates queries if required. Complete details regarding the document author were present in two-thirds of the audited records. In two-fifths of the records the date of completion was not mentioned.

Table 8. **Information on document author**

DOCUMENT AUTHOR	Quality of Information		
	Excellent	Good	Poor
Document Author's Name	80%	14%	6%
Document Author's Designation	66%	7%	27%
Document Author's Signature	61%	0%	39%
Document Author Contact Number	65%	1%	34%
Date Discharge Record Completed	62%	0%	38%

3.7 Type of discharge communication

Hospital discharge summaries have traditionally been paper-based (handwritten or dictated). In recent years, there has been increased utilization of electronic summaries, as they are more legible than paper-based summaries.[24]

A distinction was made between 'electronic' and 'typed'. Electronic was defined as those discharge summaries that were created by using either a) an auto-populated data feature or b) drop menus to prepare the discharge summary. Typed discharge summaries were defined as those created by manually entering the information into a system primarily as free text.

In the audit it was found that more than two-third of the discharge records were either electronic or typed. Approximately, one-third of the discharge records were hand-written (27%).

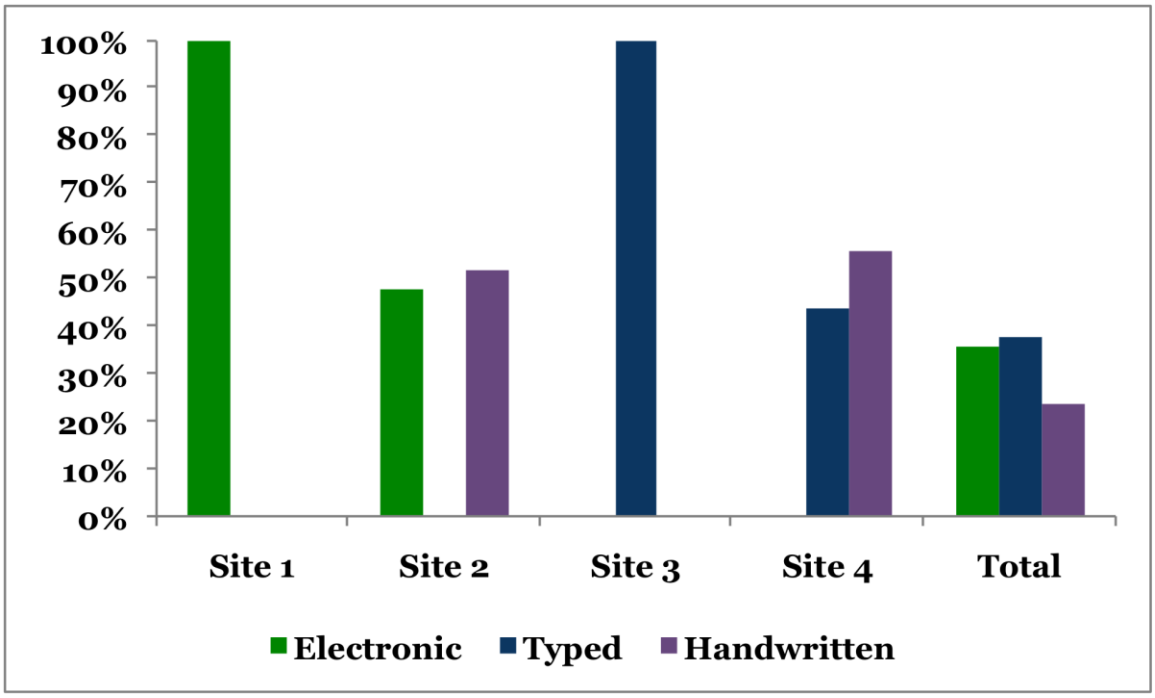
***Table 9*. Type of discharge communication**

Type of Discharge Communication	Electronic	Typed	Handwritten
	36%	36%	27%

The type of discharge communication also varied between the hospital sites. In *Site 1* only electronic discharge summaries were prepared, and in *Site 3* all the discharge communications were typed. In the remaining two sites (*Sites 2 & 4*) the discharge summaries were electronic, typed or hand-written[2].

[2] Electronic or typed discharge summaries are now provided at these two sites. As the discharge records for the audit had been retrospectively sampled, handwritten discharge summaries from the transition phase were included.

Figure 7. Type of discharge communication across the hospital sites



3.8 Mode of transmission

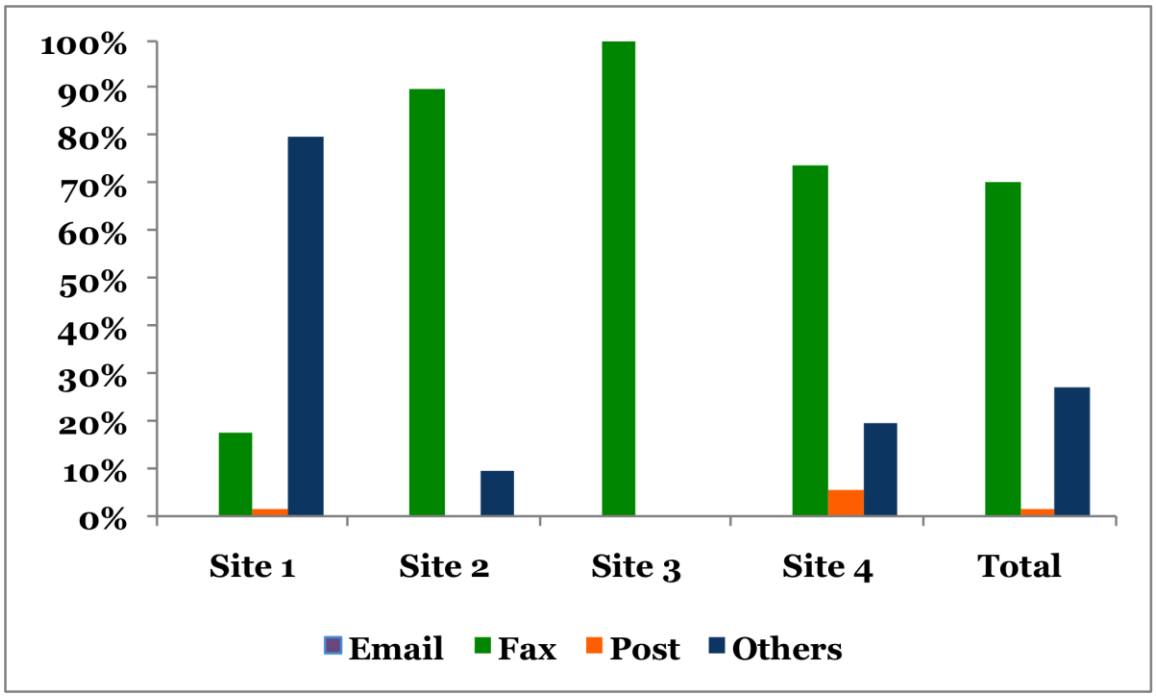
Timely transmission of discharge record between hospital-based consultants and community-based physicians is essential to ensure safe transitions from the hospital back to the community. Previous research[25] has reported that paper-based communication of medical documents between different health care providers is insufficient in quality, error prone and too slow in many cases.

Table 10. **Mode of discharge communication**

Mode of Discharge Communication	Email	Fax	Post	Not known
	0%	70%	2%	28%

In the audit it was found that the discharge documents were primarily transmitted to the GPs by FAX. For about one-third of the records the mode of transfer of information between the hospital and the GP could not be ascertained (indicated in *Table 10* as 'Not known').

Figure 8. Mode of discharge communication across the hospital sites



As shown in *Figure 8*, there were variations in the methods used for the delivery of discharge records between the hospital sites. While the majority of the discharge summaries are faxed to the general practices, at *Site 1* in particular it could not be ascertained if and how many discharge summaries had been sent to the GP.

3.9 Timeliness of dispatch

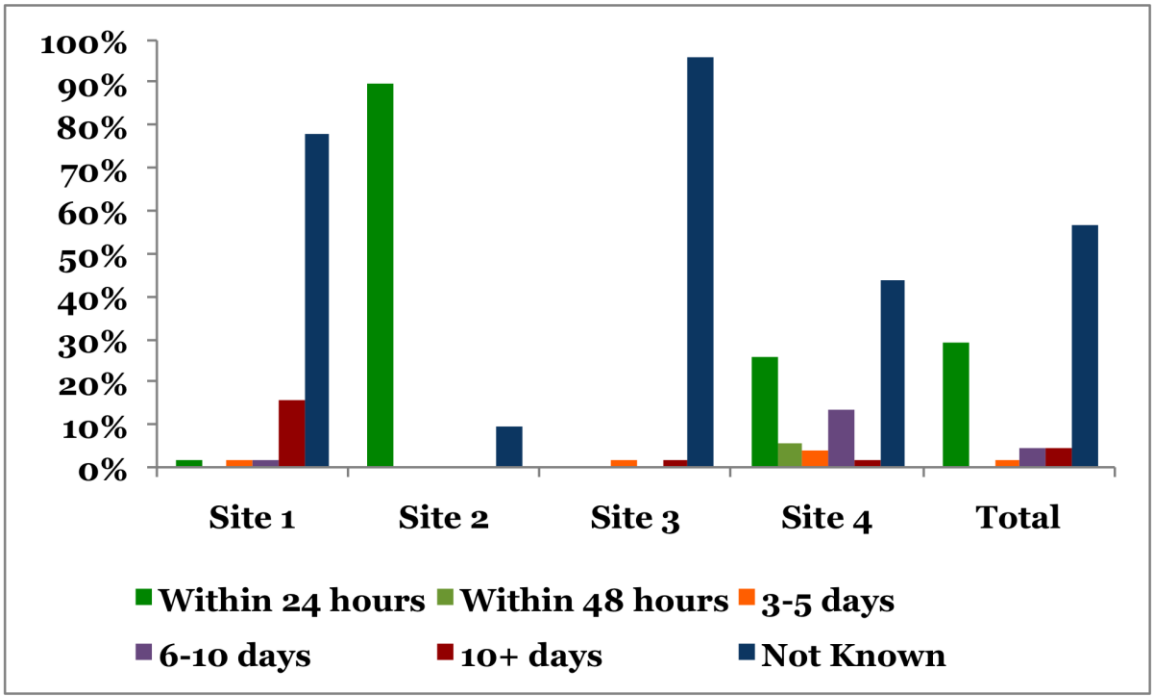
A discharge summary needs to be provided to the GP in a timely manner to be useful in providing appropriate follow-up care. The Australian hospital accreditation standards have set the benchmark at within 48 hours.

***Table 10.* Timeliness of the dispatch**

No. of days to send Discharge Communication	Within 24 hours	Within 48 hours	3-5 days	6-10 days	10+ days	Not Known
	30%	2%	2%	4%	5%	57%

The audit showed that approximately one-third of the discharge records had been dispatched to the GPs within 48-hours days of patient discharge. For more than half of the audited cases information on whether a discharge summary was sent to the GP and when it was sent could not be collected. This was mainly due to the absence of documentation of when and to whom the summary had been sent.

Figure 9. Timeliness of dispatch of discharge communication across project sites



Comparison between sites showed that *Site 2* was the most effective in documenting when a discharge summary was sent and in sending it within 48 hours.

4. Discussion

The range of physical, psychosocial, social and financial challenges that a stroke survivor faces following discharge can be ameliorated through effective discharge planning.[26] Nonetheless, ensuring timely exchange of adequate information between specialist units and general practitioners remains a challenge. A high-quality discharge summary has the potential to reduce adverse events after discharge, decrease healthcare costs, and promote positive outcomes for stroke survivors.[17,20] This audit has demonstrated that discharge summaries from four specialist stroke inpatient clinics do not meet the standard established by the Clinical Expert Group.

On a more positive note the quality of the admission and discharge details included in the discharge summary was found to be excellent. The information included in the audited records on the principal diagnosis, clinical interventions undertaken, relevant investigations and clinical synopsis were also found to be of high quality.

There is however scope for improvement in the following:

4.1 Administrative Information

The key area for attention is completion of GP details particularly their contact details. In some instances a patient may not have a GP or the GP is not known, however on average 80% of Australians have a nominated GP and this is likely to be higher in an older and/or sicker cohort.[30]

Another area for some attention is the full details of the admitting hospital as well as information regarding the discharging consultant. While the discharging consultant may be an intern or on rotation, it was felt that questions arising regarding the discharge are most likely to occur in the first few weeks after discharge increasing the likelihood that the discharging consultant is contactable if identified. In addition it would be useful to ensure that the patient contact details are complete.

4.2 Clinical Information

The key area for attention in the clinical arena is documentation on medications. This audit found that the information on current medications, rationale for changes in stroke survivor's medication and/or dosage is often not clearly or completely documented. The PBS medication list is often not retained in the patient electronic records making it difficult to ascertain if this information has been sent to the GP.

Another area for attention is the inclusion of complications treated during the period of hospitalization. Where no complications have occurred the field should be marked as 'no complications' or N/A.

4.3 Follow-up action

A common deficiency in the audited records was the absence of a follow-up plan. The National Stroke Foundation[12] recommends that the stroke team should organize services and make contact with key service providers before discharge. This should include contacts with community healthcare teams; community services e.g. home help, respite care; specialist treatment appointments; equipment and home modifications etc. It is possible that these have been verbally communicated to the patient and/or their carer. However, these details were not regularly documented in the discharge summary.

In the audited records, the information regarding follow-up care pertaining to the hospital or specialty clinic was generally excellent. However, the role of the different service providers in arranging post-discharge services was not clearly communicated. Further, documentation regarding action that the GP was being requested to organize was considered to be inadequate in most instances. Frequently the discharge records did not include details regarding allied health services that have been organized or need to be organized although this might in some instances reflect a lack of need for such services. The field should be marked as 'not needed' or N/A.

4.4 Secondary prevention

The risk of another stroke increases more than 40% within five years of the first stroke. Recurrent strokes often have a higher rate of death and disability. However, making lifestyle modifications and managing predisposing medical conditions can reduce the risk of recurrent stroke.[31] The audit identified that the risk factors for stroke were not consistently documented. Further, there was often little or no information included in the discharge summary regarding actions that were requested of the GP for the management of these risk factors.

The Clinical Expert Group recommended that all stroke survivors who intend to drive again should be provided with clearly articulated advice on resuming driving which should also be communicated to their GP. The audit showed that only one of the sites routinely included this information in their discharge summary, whereas for others it was done sporadically. The discharge communication should also include return to work advice, where applicable. This was however found to be missing in most of the records and is an area for attention. Where the age of the patients makes this question obsolete, N/A should be marked in the field.

4.5 Type of discharge communication and timeliness

A key area for attention is documentation of when and how the discharge summary has been sent. If the discharge summary is not timely it cannot inform the GP's safe and effective management of the patient. For more than half of the records the timeline could not be estimated because of the lack of adequate information on when and to whom the discharge communication was sent. Further, due to the lack of a notification system it could not be ascertained what proportion of the submitted discharge summaries had been received by the concerned practices. As a minimum the FAX delivery confirmation notice should be filed.

The current audit found that there is a move towards computer-generated clinical documentation, which is to be encouraged as electronically created discharge summaries have a greater likelihood of being more legible and accurate.[27,28]

A caveat of using electronic discharge summaries is that its structure and format often limits the nature and type of information included. A few of the deficiencies noted during the audit may have been due to the non-inclusion of related data items in the discharge format currently being used at the participating hospital sites.

5. Conclusion

The discharge summary is the main communication tool during transition between the hospital and primary care practice. To facilitate continuity of care, it is imperative that the document contains comprehensive information on key content items and is dispatched in a timely legible manner.

The audit findings demonstrate that the stroke discharge summaries generally contain excellent information on admission and discharge details as well as a clear, comprehensive description of clinical events during the inpatient stay. The common deficiencies identified include lack of complete GP details, up-to-date information on medications, inadequate description regarding follow-up plans or post-discharge advice.

Although electronic or typed discharge summary are commonly being used by the hospitals, the evidence of transmission could not be ascertained for a fairly large proportion of inpatient summaries.

To improve the discharge process for stroke survivors, it will be important to ensure that:

- The discharge summaries contain complete information on all key components;
- It includes an up-to-date list of medications;
- It contains a comprehensive follow-up action plan; and

- A mechanism is introduced to ascertain that the discharge summary is sent timely to the correct GP, supplemented by a notification from the practice regarding its receipt.

6. Recommendations

6.1 Administrative Details

- The inclusion of GP details on the discharge summary including GP name, practice phone and fax number is important to ensure the patient information is directed to the relevant GP. The Human Services Directory (HSD), the Victorian on-line database comprising records of general practitioners should be utilized to improve access to GP details.
- The discharge summary should indicate if a patient does not have a regular GP, or has multiple GPs.

6.2 Type and format of discharge summaries

- Standardized electronic discharge summaries should be encouraged. The discharge summaries should be structured with subheadings to organize and highlight the information most pertinent to follow-up care and to ensure that all essential topics are addressed.
- Certain required data items were not included in the electronic discharge formats currently in use. These include the following:
    - Recommendations of any subspecialty consultants
    - Reconciled discharge medication regimen, with reasons for any changes and indications for newly prescribed medications
    - Details of follow-up arrangements made
    - Specific follow-up needs, including appointments or procedures to be scheduled, and tests pending at discharge (including information on service provider responsible for organizing the same)
- Name and contact information of the responsible hospital consultant

- To the extent possible, hospitals should be encouraged to use information technology to extract information into discharge summaries to reduce duplication and ensure accuracy and to facilitate rapid completion of summaries.

6.3 Post-discharge medications

A well described and defined process to ensure that the medication list is completed and sent to the GP is required.

A system to record the transmission of the medication list to the GP is an area that requires attention. The fax delivery confirmation notice is filed.

6.4 Follow-up actions

The discharge summaries should include a discharge plan with details regarding:

  - All pending labs or tests and the responsible person to whom results will be sent.
  - Services organized and contacts established with key service providers.
  - Details regarding any action that the GP is being requested to organize.
- The National Stroke Foundation's "My Stroke Care Plan"[31] is a useful resource that could be adopted.
- Stroke units should encourage the involvement of the GP in discharge planning for stroke survivors with complex needs.

6.5 Post-stroke advice

- The discharge summary should include clear advice regarding
  - Identified risk factors and recommended lifestyle changes and/or interventions.
  - Driving after a stroke
  - Return to work (where applicable)

6.6 Policy Implications

- The time taken for a discharge summary to reach the GP is an important attribute that affirms the need for monitoring. This includes the requirement for discharge summaries to be conveyed to the patient's GP within 48 hours of discharge. This should be a key performance indicator (KPI) for quality handover of care and should be more rigorously adhered to. It would be useful if there were a measure of accountability for summaries not making this KPI.

- Establish a system to record evidence that a discharge summary has been sent from the hospital. This should include a mechanism to acknowledge the receipt of discharge summary at the GP clinic so that the hospital staff is informed whether a summary has or has not been received. The use of secure messaging systems would enable this acknowledgement of receipt.

7. References:

1. Warlow CP, Dennis MS, van Gijn J, et al. Stroke: a practical guide to management. Oxford: Blackwell Science, 2001.
2. Australian Bureau of Statistics. 3303.0 Causes of death 2206: Australia. Canberra: ABS, 2008:88.
3. Thrift AG, Dewey HM, Macdonell RA, McNeil JJ, Donnan GA. Stroke incidence on the east coast of Australia: the North East Melbourne Stroke Incidence Study (NEMESIS). Stroke 2000 Oct; 31(9): 2087-92.
4. AIHW: Senes S 2006. How we manage stroke in Australia.
5. US Agency for HealthCare Research and Quality. Recovering After a Stroke: A Patient and Family Guide - Consumer Guide Number 16, AHCPR Publication No. 95-0664: May 1995.
6. Stroke Unit Trialists' Collaboration. Organised inpatient (stroke unit) care for stroke (Cochrane Review). In: The Cochrane Library, issue 4. Chichester: John Wiley & Sons, Ltd, 2004.
7. Langhorne P, Taylor G, Murray G, Dennis M, Anderson C, Bautz-Holte E. et al. Early supported discharge services for stroke patients: a meta-analysis of individual patients' data. The Lancet. Vol 365 February 5, 2005.
8. Department of Human Services. Effective Discharge Patient Record Audit – Final Report June 1999.
9. General Practice Victoria. Involving GPs in safe referral home: A final report on four Victorian enhanced primary care discharge demonstration projects. Victorian Government Department of Human Services, Melbourne, Victoria, January 2004.
10. National Stroke Foundation. Clinical Guidelines for Stroke Management 2010. Melbourne, Australia.
11. National Stroke Foundation. National Stroke Audit - Acute Services Organisational Survey Report 2011, Melbourne, Australia.
12. National Stroke Foundation. Support Strategy 2008. Melbourne, Australia.
13. Kripalani S, LeFevre F, Phillips CO, et al. Deficits in communication and information transfer between hospital-based and primary care physicians: Implications for patient safety and continuity of care. JAMA 2007; 297: 831-841.
14. Rudd AG, Lowe D, Irwin P, Rutledge Z, Pearson M. National stroke audit: a tool for change? Quality in Health Care 2001; 10:141–151.
15. 10. Horgan F, McGee H, Hickey A, Whitford DL, et al. From Prevention to Nursing Home Care: A Comprehensive National Audit of Stroke Care. Cerebrovasc Dis 2011;32:385–392.
16. Kumlien S, Axelsson K, Ljunggren G, Winblad B. Stroke patients ready for discharge from acute care - a multi-dimensional assessment of functions and further care. Disability and Rehabilitation, 1999; 21(1): 31-38.
17. Dewey HM. Acute stroke patients - Early hospital management. Australian Family Physician 2007; 36(11): 904.

18. Wachter RM. An introduction to the hospitalist model. *Ann Intern Med*. 1999;130:338-342.
19. Wachter RM, Goldman L. The hospitalist movement 5 years later. *JAMA*. 2002;287:487-494.
20. Alpers A. Key legal principles for hospitalists. *Am J Med*. 2001;111:5S-9S.
21. Goldman L, Pantilat SZ, WhitcombWF. Passing the clinical baton: 6 principles to guide the hospitalist. *Am J Med*. 2001;111:36S-39S.
22. Poon EG, Gandhi TK, Sequist TD, Murff HJ, Karson AS, Bates DW. "I wish I had seen this test result earlier!" dissatisfaction with test result management systems in primary care. *Arch Intern Med*. 2004;164:2223-2228.
23. Jones J & Hunter D. Consensus methods for medical and health services research.
BMJ 1995; 311:376-80.
24. Callen JL, Alderton M, McIntosh J. Evaluation of electronic discharge summaries: a comparison of documentation in electronic and handwritten discharge summaries. Int J Med Inform. 2008 Sep;77(9):613-20.
25. Schabetsbergera T, Ammenwertha E, Andreattab S, Gratlc G, Hauxa R, Lechleitnerd G et al. From a paper-based transmission of discharge summaries to electronic communication in health care regions. Int J Med Inform. 2006 Apr; 75(3–4): 209-215.
26. National Stroke Foundation. National Stroke Audit – Rehabilitation Services Report 2012. Melbourne, Australia.
27. Maslove DM, Leiter RE, Griesman J, Arnott C, Mourad O, Chow CM, Bell CM. Electronic versus dictated hospital discharge summaries: a randomized controlled trial. J Gen Intern Med. 2009 Sep;24(9):995-1001.
28. van Walraven C, Laupacis A, Seth R, Wells G. Dictated versus database-generated discharge summaries: a randomized clinical trial. CMAJ. 1999 Feb 9;160(3):319-26.
29. Eastern Heath Discharge Summary Audit. Eastern Health GP Liaison Team, 2011.
30. Britt H, Miller GC, Charles J, Henderson J, Bayram C, Pan Y, Valenti L, Harrison C, O'Halloran J & Fahridin S 2010. General practice activity in Australia 2009–10. General practice series no. 27.
Cat. no. GEP 27. Canberra: AIHW.
31. STARS - Steps Against Recurrent Stroke. Accessed at http://www.stroke.org/site/PageServer?pagename=stars on April 24, 2013.
32. My Stroke Care Plan. National Stroke Foundation. Accessed at http://strokefoundation.com.au/site/media/NSF_MyStrokeCarePlan_web.pdf on March 30, 2013.

Appendix 1

The Project Team

Dr Indrajit Hazarika, Program Manager/Researcher, Australian Health Workforce Institute, University of Melbourne, General Practice Victoria

Ms Lenora Lippmann/Dr Paulette Kelly (PhD), Program Coordinator, Victorian General Practice Liaison Program, General Practice Victoria

The Clinical Expert Reference Panel

Associate Professor Helen Dewey, Department of Medicine, University of Melbourne, Austin Hospital Deputy Director, Department of Neurology, Head, Stroke, Victorian Stroke Clinical Network Chair.

Associate Professor Peter Hand, Head Stroke Care Unit, Royal Melbourne Hospital,

Associate Professor Tony Snell, Director Medicine and Community Care, Department of Health

Dr Tissa Wijeratne, Director of the stroke Unit, Neuroscience Research Unit, Movement disorders program at Western Hospital, Melbourne.

Fiona McKinnon, Physiotherapist, St Vincent's Hospital, Melbourne.

Dr Sue Hookey, Director of General Practice Liaison at Melbourne Health

Dr David Issac, GP Liaison Officer, St Vincent's Hospital, Melbourne.

The Auditors

Rebecca Jessup, Northern Health.

Bianca Bell, Western Health

Dr Sue Hookey, Royal Melbourne Hospital

Fiona McCormack, Royal Melbourne Hospital

Dr Wendy Fisher, Austin Health

Appendix 2

Stroke Discharge Summary Audit Tool

	Heading/Sub-Heading		Heading Present	Quality of Information	Comments
	Record Unique No.: AM / 41				Please comment IF: *There are observations that you would like to note *Quality of the information is sub-optimal and you have recorded it as not "excellent".
1	PATIENT & GP DETAILS				
1.1	Patient Name		Yes	Excellent	
1.2	Patient Date of Birth		Yes	Good	
1.3	Patient Identifier/UR Number		Yes	Excellent	
1.4	Patient Contact Details		No	Poor	
1.5	GP Name		Yes	Excellent	
1.6	GP Contact Details		Yes	Excellent	
2	ADMISSION DETAILS				
2.1	Hospital Name		Yes	Excellent	
2.2	Hospital Contact details		Yes	Excellent	
2.3	Date of Admission		Yes	Excellent	
2.4	Source of Admission		No	Poor	
3	DISCHARGE DETAILS				
3.1	Date of Discharge		Yes	Excellent	
3.2	Discharge Destination		Yes	Excellent	
3.3	Discharging Consultant		Yes	Poor	
3.4	Discharging Speciality/Department		Yes	Excellent	
4	CLINICAL INFORMATION				
4.1	Diagnosis at Discharge		Yes	Excellent	
4.2	Clinical Intervention Description		Yes	Excellent	
4.3	Clinical Synopsis		Yes	Excellent	
4.4	Complications		Yes	Poor	
4.5	Relevant Investigations and Results		Yes	Excellent	
4.6	Discharge Medications		Yes	Good	
4.7	Medication Changes		No	Poor	
5	ADVICE, RECOMMENDATIONS AND FUTURE PLAN				
5.1	**Hospital**				
5.1a	A) Follow-up Action		Yes	Excellent	
5.1b	B) Health Service Provider to be seen		Yes	Good	
5.1c	C) When		Yes	Good	
5.2	**GP**				
5.2a	A) Follow-up Action (required by GP)		No	Poor	
5.2b	B) When		No	Poor	
5.3	**Vascular Risk Factors and Recommendations for GP Action**		Yes	Good	
5.4	**Community and Specialist Services (if applicable)**				
5.4a	A) Services Arranged		Yes	Excellent	
5.4b	B) Services / Provider to be seen		Yes	Excellent	
5.4c	C) When		Yes	Good	
5.5	**Driving Restrictions**		Yes	Excellent	
5.6	**Return to Work Advice**		No		
6	PERSON COMPLETING SUMMARY				
6.1	Document Author's Name		Yes	Excellent	
6.2	Document Author's Designation		Yes	Excellent	
6.3	Document Author's Signature		Yes	Excellent	
6.4	Document Author Contact Number		Yes	Excellent	
6.5	Date Discharge Record Completed		Yes	Poor	
7	DISCHARGE SUMMARY TYPE				COMMENTS
	Type of Discharge Communication		Electronic		
8	MODE				COMMENTS
	Mode of Discharge Communication		Fax		
9	TIMELINESS				COMMENTS
9.1	**No. of days to send Discharge Communication**		Not known		
10	**Standard documents sent to GP alongwith discharge summary**		PBS medication list.		

Appendix 3

RATINGS		
CRITERIA	**CATEGORIES**	**DEFINITIONS**
Quality	***Excellent***	(i) The summary can be read easily at first attempt, requiring no particular effort to discern or comprehend words, letters or numbers; and (ii) Sufficient information for all the item is present and clear; and (iii) The information that has been provided is all relevant to the heading under which it is presented.
	Good	(i) The majority of the summary is clear and legible, but some words, phrases or numbers required concerted effort to clarify (such as asking a colleague to read/discern the word, having to decipher the word/phrase by looking at the context within which it is written, etc); and/or (ii) Some information for the item is present, but may require clarification or need additional information; and/or (iii) Relevant information is present, but a small degree of irrelevant information has been included.
	Poor	(i) Information cannot be read, requiring follow-up with the doctor or health professional completing the discharge summary, or resulting in the absence of necessary/desired information being held back at the hospital from which the patient was been discharged; and/or (ii) The information has not been provided, and no explanation has been given; and/or (iii) A large degree of irrelevant detail has been included.