Office of Safety and Quality in Healthcare

Process of Pharmaceutical Review

Baseline Audit Report

September 2008

Government of Western Australia
Department of Health

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Executive summary

In April 2004, Australian Health Ministers agreed that to *"…help safer use of medicines, by the end of 2006, every hospital will have in place a process of pharmaceutical review of medication prescribing, dispensing, administration and documenting processes for the use of medicines."*

In Western Australia (WA), the process of pharmaceutical review was implemented in two phases:

- **Phase One** – Development of the Pharmaceutical Review Policy, outlining the ideal standards for pharmaceutical review
- **Phase Two** – Implementation of an audit to identify the baseline level of compliance by WA Health Services against the standards outlined in the Pharmaceutical Review Policy.

The WA Pharmaceutical Review Policy, launched in March 2007, consists of five standards:

1. Chart Review
2. Medication Reconciliation on Admission
3. Medication Education during Hospitalisation and on Discharge
4. Discharge Process: Communication with General Practitioners and other Health Professionals
5. Quality Activities Promoting Medication Safety.

Phase two of the WA process of pharmaceutical review commenced with the development of an audit tool, evaluating each section within the five standards of the Pharmaceutical Review Policy. The audit was conducted over a one-month period in July 2007.

A total of 18 sites participated in the audit (11 metropolitan and 7 country sites). Data was captured for 1459 patients, with 44% being identified as high-risk patients. Of the sites with clinical pharmacist services, the pharmacist:bed ratio ranged from 1:38 to 1:178.

The results of the Pharmaceutical Review Baseline Audit indicate that there is significant variation between clinical practice in WA hospitals and the standards outlined in the WA Pharmaceutical Review Policy.

Compliance with Standard 1 requires all inpatient medication charts to be reviewed ideally on a daily basis. The audit figures showed that 50% of patients received a chart review (65% for high-risk patients). Of patients that received a chart review, approximately 80% were reviewed within one day of admission. There were no significant differences between the percentages of chart reviews conducted on each weekday; however there was a considerable reduction in chart review activity on the weekend.

Compliance with completing the adverse drug reaction section on the NIMC was poor. The adverse drug reaction section was completed fully for only 40% of patients. Anecdotally the audit data indicated that chart review by an appropriately credentialled professional identified prescription entries that could potentially cause medication errors. This validates the need for Area Health Services to provide more resources to enable chart review to be completed for every patient, especially high-risk patients.

Compliance with Standard 2 requires medication reconciliation, including an accurate medication history, to be conducted for all inpatients, ideally within 24 hours of admission. Approximately 70% of the audit population had a medication history documented (81% for high-risk patients), and 91% of medication histories were documented within one day of admission. Pharmacists were the primary health professional listed as documenting medication history at metropolitan sites, and appropriately credentialled nurses at country sites, while patients were the principal source for providing medication history information. The completion of Standard 2 is also facilitated by the SQuIRe Program's Medication Reconciliation initiative.

Compliance with Standard 3 requires that patients/carers have an understanding of their medications through medication education and provision of a medication profile on discharge. The audit data indicated that less than a quarter of patients who had changes to their medication management were documented as having received education on how to manage these changes correctly. Medication education was reported to primarily be provided by the clinical pharmacist at metropolitan sites, and by the doctor and trainee pharmacist at country sites.

Of those patients discharged prior to the end of the audit period, only 16% were provided with a medication profile on discharge (30% for high-risk patients). However due to variable definitions of a medication profile at the various sites, the provision of medication information to a patient on discharge may be underrepresented.

Compliance with Standard 4 requires a patient's medication-related information to be provided to his or her general practitioner and other health professionals upon discharge, and a pharmacist to be involved in the medication component of the discharge summary. The audit data indicated that 70% of patients had a discharge summary prepared within the audit period (80% for high-risk patients).

Compliance with Standard 5 requires health services to be involved in medication-related safety and quality initiatives, including detecting, reporting and analysing adverse drug reactions and participating in Quality Use of Medicines activities and drug use evaluations. The audit data indicated that of the 2.2% of the patient population that experienced an adverse drug reaction during their admission, no reactions were documented as being reported to the hospital's clinical incident management system or to the national Adverse Drug Reaction Advisory Committee.

As foreseen during the policy development phase, the audit data confirms that there are considerable gaps between policy and practice. The identified gaps are the result of a number of factors, including: workforce and resource issues, a lack of knowledge/impetus to conduct certain tasks, as well as a lack of documentation confirming whether the tasks have been performed.

The process of pharmaceutical review is a multidisciplinary health process, however responsibility primarily lies with clinical pharmacists or appropriately credentialled health professionals. Area Health Services must define which health professionals are 'appropriately credentialled' to undertake the pharmaceutical review process, and invest resources accordingly to build the pool of appropriately credentialled health professionals to undertake pharmaceutical review activities.

Implementation of the Pharmaceutical Review Policy is an operational responsibility of hospitals. Area Health Services should review existing clinical pharmacy resourcing, knowledge and practices within their sites, and implement appropriate human resources, clinical policies and clinical practice improvement strategies to achieve full compliance with the standards of the policy. The WA Department of Health can support Pharmaceutical Review in WA hospitals through the implementation of appropriate Information and Communication Technology (ICT) mechanisms to ensure that clinical staff have access to appropriate clinical decision support tools and evidence-based practice information for pharmaceutical review.

Key recommendations

Section 1 – Chart Review

1. That Area Health Services:
    - Implement strategies to increase the number of patients receiving a medication chart review.
    - Review the timeliness of chart reviews to reduce preventable medication-related adverse events and improve patient safety.
    - Ensure that high-risk patients continue to be prioritised for chart review and receive a chart review at least once daily.
    - Identify who is to undertake the chart review at each hospital site and ensure that they are appropriately credentialled and trained to conduct the chart review effectively.
    - Implement strategies to increase resourcing and chart review on weekends.

Section 1.4 - Allergies and Adverse Drug Reactions

2. That Area Health Services:
    - Provide appropriate education and training to relevant health practitioners to improve documentation and completion of the Allergy and Adverse Drug Reactions (ADR) section on the NIMC.
    - Monitor and report completion of the ADR section of the NIMC and provide feedback to relevant health practitioners.

Section 2 – Medication Reconciliation on Admission

3. That Area Health Services:
    - Implement policies in all WA hospitals governing the documentation of medication history at the time of hospital admission, such as the use of a Medication History Form.
    - Identify who is to undertake the medication reconciliation at each site and ensure that they are appropriately credentialled and trained to conduct the medication reconciliation process effectively.
    - Ensure that the *Medication Reconciliation on Admission* component of the SQuIRe Medication Reconciliation CPI initiative is operational throughout all WA hospitals by the end of June 2009.
    - Encourage patients to bring medications/documentation to hospital on admission to help health practitioners obtain a complete medication history.

Section 3 - Medication Education during Hospitalisation and on Discharge

4. That Area Health Services:
   - Undertake education and monitoring activities to ensure that health practitioners document the provision of medication education to patients and provision of CMI leaflets.

5. That the Office of Safety and Quality in Healthcare works with Area Health Services to improve the incorporation of the Patient First booklet within Clinical Governance activities such as the SQuIRe Program and other patient education programs, with the aim to:
   - Improve dissemination of the Patient First booklet throughout the hospital.
   - Improve documentation of the distribution of the Patient First booklet.

Section 4 - Discharge Process: Communication with the General Practitioner and Other Health Professionals

6. That Area Health Services:
   - Review discharge planning and clinical handover procedures to improve communication with general practitioners and community pharmacists and improve the timeliness and accuracy of discharge summaries and medication profiles.
   - Implement strategies to increase the level of detail included in the discharge summary regarding medication changes, and include the involvement of a clinical pharmacist in the medication component of the discharge summary.
   - Expand the implementation of the *Medication Reconciliation on Discharge* component of the SQuIRe Medication Reconciliation CPI initiative in all WA hospitals by the end of June 2009.

Section 5 - Quality Activities Promoting Medication Safety

7. That Area Health Services:
   - Implement strategies to increase documentation and reporting of adverse drug reactions via the hospital's clinical incident management system.
   - Increase reporting of adverse drug reactions to the Therapeutic Goods Administration's Adverse Drug Reaction Advisory Committee.
   - Ensure any adverse drug reactions occurring during an admission are documented in the patient's medical record and reported in the patients discharge summary.
   - Develop education and promotional strategies to increase participation by health practitioners in hospital-based Quality Use of Medicine activities.
   - Ensure that their hospitals conduct routine review/audits of medication charts and ensure compliance in the following areas: legibility, errors on charts, dose administration times and dose omissions.

General Recommendations

8. That Area Health Services disseminate the findings of this report to all relevant health practitioners working within their hospitals and health services.
9. That the Corporate Governance Directorate of the Department of Health undertakes a state-wide audit to reassess compliance with the Pharmaceutical Review Policy and verify implementation of the recommendations of this audit within 24 months of this publication.
10. To support the implementation of the Pharmaceutical Review related initiatives:
    - The WA Department of Health via the Chief Information Officer, should progress the implementation of appropriate Information and Communication Technology (ICT) mechanisms to ensure that clinical staff have access to appropriate clinical decision support tools and evidence-based practice information for pharmaceutical review and pharmacy management areas.
    - Area Health Services should work with the Commonwealth and State Government to participate in the PBS Reform Program.

Workforce Recommendations

11. That Area Health Services:
    - Review the current clinical pharmacist:bed ratio (excluding those working in non-clinical areas), and compare this ratio against the standards set by the Society of Hospital Pharmacists of Australia.
    - Progress the implementation of the PBS Reform Program at their hospitals, including the preparation of a business case to obtain funding under the PBS Reform Agreement to engage additional pharmacists to meet the requirements of PBS Reform. The business case presented should include adequate FTEs to cover the activities of pharmaceutical review as well as the diversion of clinical pharmacists to non-clinical work.
    - Reduce the amount of diversion which occurs when clinical pharmacists are given non-clinical work which could be carried out by other persons.
    - Implement measures to increase activities related to pharmaceutical review on weekends.
    - Identify appropriately credentialled health professionals to be responsible for pharmaceutical review activities if there is a lack of clinical pharmacists due to workforce issues.
    - Ensure that there are systems in place for the training and accreditation of appropriately credentialled health professionals undertaking aspects of the Pharmaceutical Review Policy.

Definitions

Chart review – a review of a patient's medication chart(s) to identify potential risks associated with a patient's medications and clarify information that is not clear or legitimate. The review of the medication chart(s) may involve reference to other sources of information, such as the IV Fluid chart.

Appropriately credentialled professional – a pharmacist, doctor or nurse who has the relevant knowledge, or the ability to access relevant knowledge, about certain aspects of the medication management cycle.

Illegible prescription – a prescription that is NOT considered to be printed legibly and has the potential to be misinterpreted. The prescription must be able to be clearly interpreted by all clinicians involved in the patient's care.

High-risk patient – a patient who meets one or more of the following criteria:

- is currently prescribed five or more medications;
- has multiple co-morbidities;
- is prescribed a medication with a narrow therapeutic index;
- is receiving therapy with high-risk drugs (such as anticoagulants and immunosuppressants);
- has symptoms suggestive of a drug-related admission; and
- is having difficulty managing medicines because of literacy, language difficulties, dexterity problems, impaired sight, dementia or other cognitive difficulties.

Medication history – the recording of all medications (including over-the-counter medications and complementary therapies) a patient is taking at the time of hospital admission or presentation. It includes recording previous adverse drug reactions and allergies and any recently ceased or changed medications.

Supplementary activities – tasks that are expected to enhance the outcome of the standard, and should be undertaken if the activity concurs with current practice and resources are available.

Introduction

In April 2004, Australia's Health Ministers agreed on a national health reform agenda. To reduce the number of adverse events and improve patient safety, eight key safety and quality initiatives were endorsed. One of these initiatives stipulated, *"To also help safer use of medicines, by the end of 2006, every hospital will have in place a process of pharmaceutical review of medication prescribing, dispensing, administration and documenting processes for the use of medicines."*

Each State/Territory was required to define and implement its own process of pharmaceutical review. In Western Australia (WA), the process commenced in May 2006 with an introductory workshop that established a definition of pharmaceutical review for WA Health, identified current practices of pharmaceutical review and agreed on a process for the planning and implementation of pharmaceutical review across the State.

Following the workshop, it was decided that the Ministerial Directive would be implemented in two phases in WA:

- Phase One – Development of the Pharmaceutical Review Policy, outlining the ideal standards for pharmaceutical review
- Phase Two – Implementation of an audit to establish the current level of compliance by WA Health Services against the standards outlined in the Pharmaceutical Review Policy.

The WA Pharmaceutical Review Policy was completed and distributed in March 2007. The five standards for pharmaceutical review in WA are:

1. Chart Review
2. Medication Reconciliation on Admission
3. Medication Education during Hospitalisation and on Discharge
4. Discharge Process: Communication with General Practitioners and Other Health Professionals
5. Quality Activities Promoting Medication Safety.

Further information about these standards is available in the Pharmaceutical Review Policy, and can be viewed online at www.safetyandquality.health.wa.gov.au/medication/pharmaceutical_review.cfm

When the Pharmaceutical Review Policy was being developed, Area Health Services advised that it was impractical for the standards within the policy to be met at the outset with current levels of resourcing. For this reason, it was agreed that a baseline audit would be undertaken in 2007 to establish the extent of pharmaceutical review activity in WA health services and identify the gap between current practice and the required practice. This audit concentrated on quantitative rather than qualitative outcomes.

This report details Phase Two of the process of pharmaceutical review in WA, including the results of the Pharmaceutical Review Baseline Audit.

Methodology

Audit Tool

- The audit tool was developed by the Office of Safety and Quality in Healthcare in consultation with the Pharmaceutical Review Expert Advisory Group.
- The audit tool was developed in close reference to the Pharmaceutical Review Policy to ensure that the pertinent points within each standard of the policy were measured.
- The audit tool consisted of nine sections with 49 questions, categorised under each pharmaceutical review standard.
- Each hospital was required to complete a hospital demographic information sheet (Appendix 1) relating to hospital capacity, staffing levels and quality improvement activity participation.

Audit Process

- Participating hospitals were requested to nominate a Pharmaceutical Review Audit Project Lead.
- The Office of Safety and Quality in Healthcare conducted two briefing sessions for the Project Leads in June 2007. The briefing session covered the structure of the audit tool, and detailed instructions on how each section of the audit tool should be completed.
- A PowerPoint presentation and detailed guidelines were made available to Project Leads detailing the purpose of the audit and how the tool should be completed. Project Leads were encouraged to use this presentation when coaching their hospital staff on how to undertake the audit.
- The following instructions were given to hospitals about the audit process:
  - The audit will be conducted over a one-month period, Sunday 1 July 2007 to Sunday 29 July 2007.
  - A random selection of newly admitted patients between Sunday July 1 and Sunday July 8 2007 are to have the audit tool attached to their file notes.
  - The audit tool should be kept with the patient's notes until the patient is discharged from hospital. If the patient is not discharged by the end of the audit period (29/07/2007), tick the 'Not discharged prior to audit completion date' box.
  - The purpose of this audit is to gauge the current level of compliance by WA Health Services against the five standards of the WA Pharmaceutical Review Policy. To ensure that we have accurate data, do not alter your behaviour for patients that are being audited.

Data Entry and Analysis

- At the conclusion of the audit period, the audit tools were collated by Project Leads and returned to the Office of Safety and Quality in Healthcare for data entry.
- Data was entered into a Pharmaceutical Review Database.
- Data was transferred from the database into SPSS for analysis.

Participating Sites and Sample Group

- Eleven metropolitan sites participated in the audit (Table 1).
- Seven country sites participated in the audit, however one site did not have sufficient resources to conduct the audit, therefore no data was obtained (Table 2).
- A total of 1459 patients were audited, 24% of admissions for the one-week sample collection period.
- High-risk patients constituted 44% of the sample group.

Table 1. Participating Sites and Sample Group (Metropolitan Hospitals)

Hospital	Patients Audited	High-risk Patients Audited	Female Patients[a]	Male Patients[a]
METROPOLITAN				
Armadale Health Service	48	27 (56%)	18 (38%)	30 (62%)
Bentley Health Service	35	21 (60%)	23 (66%)	11 (31%)
Fremantle Health Service	63	42 (67%)	29 (46%)	34 (54%)
Graylands Health Service	21	21 (100%)	5 (24%)	12 (57%)
King Edward Memorial Hospital	132	5 (4%)	132 (100%)	0
Osborne Park Hospital	87	32 (37%)	52 (60%)	25 (29%)
Rockingham Kwinana District Hospital	106	33 (31%)	76 (72%)	23 (22%)
Princess Margaret Hospital	94	37 (39%)	46 (49%)	48 (51%)
Royal Perth Hospital	156	118 (76%)	70 (54%)	86 (55%)
Sir Charles Gairdner Hospital	188	146 (78%)	95 (51%)	92 (49%)
Swan Kalamunda Health Service	97	34 (35%)	61 (63%)	36 (37%)
Total	**1027**	**516 (50%)**	**607 (59%)**	**397 (39%)**

[a] 23 patients (2%) did not have gender documented.

Table 2. Participating Sites and Sample Group (Country Hospitals)

Hospital	Patients Audited	High-risk Patients Audited	Female Patients[a]	Male Patients[a]
COUNTRY				
Albany Hospital	127	27 (21%)	5 (4%)	1 (0.8%)
Broome Hospital	54	24 (44%)	26 (48%)	27 (50%)
Bunbury Regional Hospital	99	31 (31%)	51 (52%)	48 (48%)
Geraldton Hospital	69	29 (42%)	41 (59%)	27 (39%)
Kalgoorlie Hospital	57	5 (9%)	30 (53%)	27 (47%)
Narrogin Regional Hospital	26	15 (58%)	12 (46%)	14 (54%)
Port Hedland Hospital	0[b]	–	–	–
Total	**432**	**131 (30%)**	**165 (38%)**	**144 (33%)**

[a] 123 patients (29%) did not have gender documented.

[b] Port Hedland Hospital reported a zero audit result due to a number of circumstances, including workforce issues.

Sample Group Age Distribution

Table 3. Sample Group Age Distribution

Age Group	No. of Patients	Group Mean Length of Stay (days)[a]	Median Length of Stay (days)
0 - 9	119	2.2 (n=118)	1
10 – 19	76	2.7 (n=71)	2
20 – 29	173	2.9 (n=159)	2
30 – 39	171	3.4 (n=152)	3
40 – 49	125	3.7 (n=116)	2
50 – 59	128	4.3 (n=119)	3
60 – 69	122	4.6 (n=106)	3
70 - 79	172	5.8 (n=150)	4
80 – 89	125	6.9 (n=106)	5
90 – 99	32	11.3 (n=28)	8.5
100 +	2	13.5 (n=2)	13.5

[a] 82 patients (6%) were not discharged prior to the end of the audit period and were not included in calculating mean length of stay. The number of patients included in the average length of stay calculation is presented in brackets.

NOTE: 214 patients (15%) did not have their date of birth documented

Participating Sites Demographic Details

Table 4. Hospital Demographic Details

Hospital	# Beds	# Patients Admitted	# Audit Attached	# Audit Completed[a]	# Audit Incomplete	% Audited
	See Appendix 1 for full questions					
Armadale Health Service	212	97[b]	48	48	0	49.5%
Bentley Health Service	180	35	35	35	9[d]	100.0%
Fremantle Health Service	452	973	70	63	7	6.5%
Graylands Health Service	205	30	30	21	9	70.0%
King Edward Memorial Hospital	264	350	177	132	54[d]	37.7%
Osborne Park Hospital	170	99	87	87	0	87.9%
Rockingham Kwinana District Hospital	65	107	106	106	0	99.1%
Princess Margaret Hospital	220	751	109	94	15	12.5%
Royal Perth Hospital	739	1183	156	156	0	13.2%
Sir Charles Gairdner Hospital	502[c]	240	189	188	0	78.3%
Swan Kalamunda Health Service	211	1171	–	99	–	8.5%
Albany Hospital	108	255	127	127	0	49.8%
Broome Hospital	36	93	54	54	0	58.1%
Bunbury Regional Hospital	113	305	140	100	40	32.8%
Geraldton Hospital	66	127	78	69	5 (+ 4 missing)	54.3%
Kalgoorlie Hospital	89	223	57	57	0	25.6%
Narrogin Regional Hospital	51	61	30	26	3[d]	42.6%
Port Hedland Hospital	174	–	–	–	–	
Total	**3118**	**6100**	**1481**	**1462**	**142**	**Mean: 24.0%**

[a] Throughout the report, the sample group comprises 1459 patients (rather than 1462). It was discovered at the completion of the data analysis and reporting phase that three records (0.2%) were omitted due to a data entry oversight (patient 14 Bunbury, patient 80 Swan and patient 82 Swan). The omitted records were reviewed for any significant variations to the average. Although not ideal, the report was not recalculated with the omitted records since the omitted records would have had little to no influence on the final outcome.

[b] Excluding same day unit and some wards that have no clinical pharmacy services.

[c] Number of inpatient beds, excludes emergency department, short stay unit, day procedure unit and other day beds in the chemotherapy unit and other areas.

[d] Hospitals were given the opportunity to review and amend inconsistent data – no response was received.

NOTE: The data above was supplied by the hospitals undertaking the audit, unless more accurate figures were obtained during data analysis.

Participating Sites Pharmacy Services Details

Table 5. Hospital Pharmacy Service Capacity

Hospital	1. Authorised FTE Pharm	2. Filled FTE Pharm	3. # Pharm	4. Authorised FTE Clin Pharm	5. Filled FTE Clin Pharm	6. # Clin Pharm[a]	7. # Clin Tech[a]	8. Clin Pharm: bed
	See Appendix 1 for full questions							
Armadale Health Service	4	4	4	2	2	2	0	1:106
Bentley Health Service	5	5	6	3	3	3	2	1:60
Fremantle Health Service	30.6	28.6	36	13	12	14	0	1:38
Graylands Health Service	7	7		4	4	4	0	1:51
King Edward Memorial Hospital	6.8	6.8	8	2	2	8	0	1:132
Osborne Park Hospital	5	5	8	4	4	6	0	1:42.5
Rockingham Kwinana District Hospital	2.5	2.5	3	0	0	0	0	0
Princess Margaret Hospital	15.8	15.8	20	4	4	6	0	1:55[b]
Royal Perth Hospital	41.2	36	46	16	13	20	0	1:57[c]
Sir Charles Gairdner Hospital	36	36	41	14	13	13	0	1:38.6
Swan Kalamunda Health Service	7	7	8	5	5	8	3	1:42
Albany Hospital	2.2	2.2	3	2	2	–[d]	0	1:54
Broome Hospital	1	1	1	0	0	0	0	0
Bunbury Regional Hospital	2	2	2	0	0	0	0	0
Geraldton Hospital	1	1	1	0	0	0	0	0
Kalgoorlie Hospital	2.1	1.5	2	0	0.5	1	0	1:178
Narrogin Regional Hospital	1.1	1.1	1	0	0	0	0	0
Port Hedland Hospital	1	1	1	0	0	0	0	0

[a] Number of clinical pharmacists/technicians includes full-time, part-time and casual.
[b] 1.5 of the 4 clinical pharmacist positions are allocated to oncology, and the work is quite different to standard clinical work. Oncology clinical pharmacists have an average of 20 beds per FTE and the remaining 2.5 clinical pharmacists have an average of 76 patients per FTE.
[c] Some clinical pharmacists are allocated to small specialist areas leaving the remainder to cover an increased number of beds.
[d] No specific FTE for clinical - all FTE do some clinical.

NOTE: Some clinical pharmacists do part clinical/part non-clinical work, rotating through non-clinical areas as required. The clinical pharmacist:bed ratio is the average ratio throughout the hospital. Only 2 hospitals have clinical services available over the weekends (excluding on-call service) and these are very limited.

Results

Section 1 - Chart Review

All inpatient medication charts are to be reviewed ideally on a daily basis by an appropriately credentialled person such as a clinical pharmacist.

- **The frequency of chart review needs to be determined by the acuity or clinical risk of the patient.**
- **High-risk patients require daily chart review.**

Regular chart review is recommended to reduce preventable medication-related adverse events and improve patient safety. The audit determined if a chart review was carried out by an appropriately credentialled person, as determined by each hospital. The day(s) chart review occurred was noted, as well as the compliance with a number of tasks which should occur during a chart review, as per the Pharmaceutical Review Policy. The documentation of allergies on the chart was audited to review the level of completion.

Recommendations for Area Health Services:

- Implement strategies to increase the number of patients receiving a medication chart review.
- Review the timeliness of chart reviews to reduce preventable medication-related adverse events and improve patient safety.
- Ensure that high-risk patients continue to be prioritised for chart review and receive a chart review at least once daily.
- Identify who is to undertake the chart review at each hospital and ensure that they are appropriately credentialled and trained to conduct the chart review effectively.
- Implement strategies to increase resourcing and chart review on weekends.
- Provide appropriate education and training to relevant health practitioners to improve documentation and completion of the Allergy and Adverse Drug Reactions (ADR) section on the NIMC.
- Monitor and report completion of the ADR section of the NIMC and provide feedback to all health practitioners.

1.1. Was at least one chart review conducted during the audit period?

- At least one chart review was conducted for approximately 50% of the sample group (Table 6).
- The percentage of chart reviews at the metropolitan sites was 63%, compared to 19% at the country sites (Table 6).
- The percentage of chart reviews increased to 65% for high-risk patients - 75% at the metropolitan sites and 28.5% at country sites (Table 7).

Table 6. Chart Review – *All Patients*

All Patients	Yes	No	NA[a]	Unknown	Total	Missing
Metropolitan	641 (62.7%)	355 (34.7%)	22 (2.2%)	5 (0.5%)	1023	4
Country	81 (18.9%)	340 (79.4%)	7 (1.6%)	–	428	4
WA State	**722 (49.8%)**	**695 (47.9%)**	**29 (2%)**	**5 (0.3%)**	**1451**	**8**

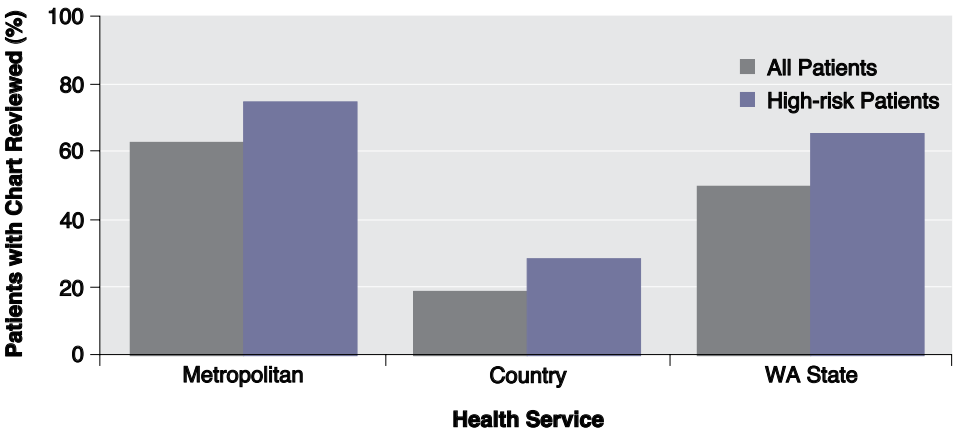
[a] NA was indicated for 29 persons, reasons given include no chart written or available for review and no regular medications charted for patient.

NOTE: At Fremantle Hospital, pharmacists did not sign pharmacist review box of the medication chart. They did sign and date each drug. These dates were recorded as the review dates – reviews occurred more frequently than documented on the chart.

Table 7. Chart Review – *High-Risk Patients*

High-risk Patients	Yes	No	NA	Unknown	Total	Missing
Metropolitan	385 (74.6%)	127 (24.6%)	–	4 (0.8%)	516	
Country	37 (28.5%)	93 (71.5%)	–	–	130	1
WA State	**422 (65.3%)**	**220 (34.1%)**	–	**4 (0.6%)**	**647**	**1**

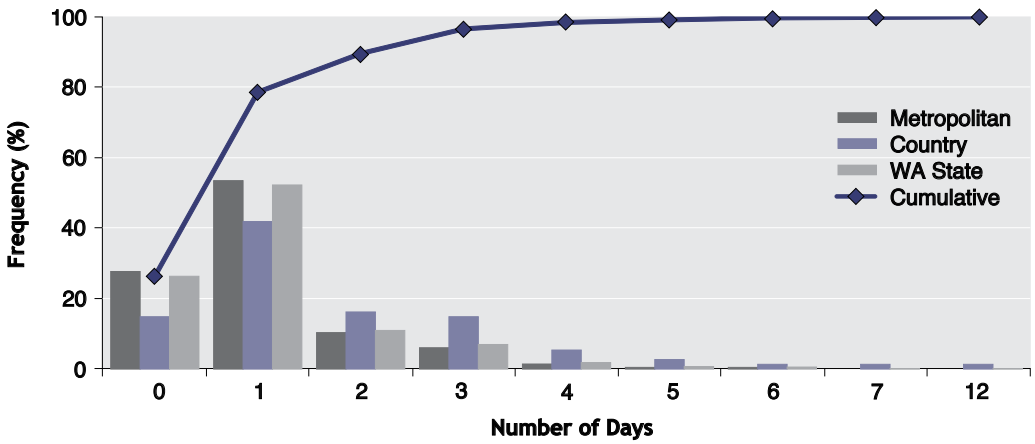
Figure 1. Percent of patients with at least one chart review conducted



1.2. Number of days post admission to first chart review

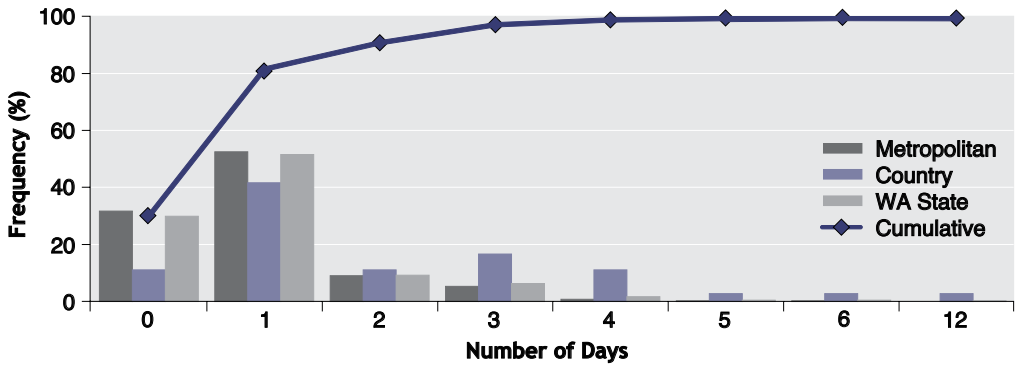
- Of the 722 patients who had a chart review conducted, 702 audit forms identified the number of days to first chart review.
- As the date of admission and chart reviews were reported rather than the date and time, the exact time (i.e. within 24 hours of admission) of the initial chart review is not able to be identified. At the State level, 79% of charts were reviewed within 1 day of admission, 26% on the day of admission, and 53% the day after admission (Figure 2).
- The percent of chart reviews conducted within 1 day of admission increased to 81.5% for high-risk patients, 30% on the day of admission, and 52% the day after admission (Figure 3).
- Maximum number of days to chart review was 6 days after admission at metropolitan sites, and 12 days after admission at country sites.

Figure 2. Number of days post admission to first chart review for patients who had a chart review conducted – *All patients*



NOTE: Number of days shown are post admission, i.e. where number of days = 0, this is the day of admission.

Figure 3. Number of days post admission to first chart review for patients who had a chart review conducted – *High-risk patients*



NOTE: Number of days shown are post admission, i.e. where number of days = 0, this is the day of admission.

1.3. Breakdown of chart review for each day of the week

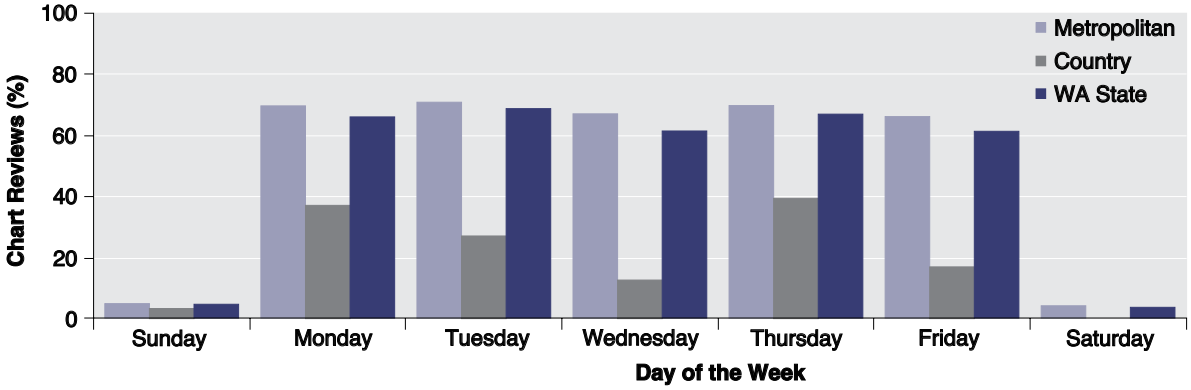
- At the State level, the breakdown of chart review for each day of the week shows minimal variation across the working week (61 - 68% of charts reviewed Mon-Fri) but is considerably reduced on weekend days to less than 5% (Table 8).
- Across the State, 98% of charts were reviewed by a pharmacist, and 2% of charts reviewed by another appropriately credentialled professional.
- When chart review occurred on a weekend day the majority of these patients were at either Fremantle Hospital or Sir Charles Gardner Hospital, both hospitals having a limited weekend clinical pharmacist service.

Table 8. Chart Review on Each Day of the Week - Statewide

WA State	Total sum of days	Sum of charts reviewed by pharmacist	Sum of charts reviewed by other professional	Total number reviews	Percent of charts reviewed
Sunday	777	33	2	35	4.5%
Monday	892	572	14	586	65.7%
Tuesday	898	601	13	614	68.4%
Wednesday	909	548	7	555	61.1%
Thursday	889	586	6	592	66.6%
Friday	852	514	6	520	61%
Saturday	735	26	0	26	3.5%
Total	**5952**	**2880 (98.4%)**	**48 (1.6%)**	**2928**	**49.2%**

NOTE: This section includes each chart review conducted for each patient. Those patients that had a length of stay greater than one week and had frequent chart reviews may have had the same day documented for chart review over multiple weeks.

Figure 4. Percent of chart reviews on each day of the week



1.4. Allergies and adverse drug reactions

Data for the section below was missing for some patients, therefore these patients were excluded from the sample group. As PMH was not using the NIMC and their chart did not have a facility for the clinician to sign and date the ADR box they were excluded from this question.

- Of the sample group, 35% had the 'nil known/unknown' allergy box ticked and the ADR section signed and dated by the clinician, indicating full compliance with the ADR section completion.
- Of the sample group, 5% had a drug/allergy documented completely, i.e. ADR sticker attached, drug/allergen documented, reaction details documented and initialled and ADR box signed and dated by clinician.
- For 60% of the sample group the ADR section was incomplete in some form, with 8% having no ADR information documented.

1.5. Completion of tasks associated with chart review for each drug prescribed on the NIMC.

To complete this question, the auditor examined each drug prescribed on the NIMC in relation to the tasks associated with chart review as per the Pharmaceutical Review Policy. These tasks included ensuring that generic drug names were used and ensuring appropriate doses for all medications. The completion of these tasks was assessed by evaluating the areas listed below (Tables 9 – 20).

If a chart review had not been conducted prior to the audit, or drugs were prescribed after the chart review had been conducted, the outcomes for each task were included in the pre chart review column. If a chart review had been conducted for the drugs prescribed, the outcomes for each task were included in the post chart review column.

If the auditor observed discrepancies and made any changes to the chart, these changes were not included in the post chart review data so not to bias the results.

Caution should be applied in interpreting the results below. Direct comparisons cannot be made between the pre and post figures due to differing sample sizes.

Table 9. Total number of prescription entries

	Pre	Post
Sample size	1005	627
Sum of entries	8436	7005

Table 10. Number of prescription entries per person that do not use generic drug name (or agreed exceptions)

	Pre	Post
Prescription entries per patient	2.02	1.46

i.e. 2.02 prescription entries per person did not use generic drug name (or agreed exception) pre chart review compared with 1.46 prescription entries per person that did not use generic drug name (or agreed exception) after chart review.

Table 11. Number of prescription entries per person that do not meet legal requirements

	Pre	Post
Prescription entries per patient	0.73	0.51

Table 12. Number of prescription entries per person that are not in accordance with hospital policy, guidelines and restrictions on use

	Pre	Post
Prescription entries per patient	1.18	0.16

Table 13. Number of illegible prescription entries per person

	Pre	Post
Prescription entries per patient	0.25	0.10

Table 14. Number of potential known drug interactions identified

	Pre	Post
Prescription entries per patient	0.59	0.74

Table 15. Number of potential known drug interactions identified with no documented action/monitoring

	Pre	Post
Prescription entries per patient	0.31	0.28

Table 16. Number of prescription entries per person not using approved abbreviations as per published Commonly Used and Understood Abbreviations[1]

	Pre	Post
Prescription entries per patient	0.99	0.68

Table 17. Number of prescription entries per person not for an appropriate indication

	Pre	Post
Prescription entries per patient	0.24	0.20

Table 18. Number of unintentional dosage discrepancies identified per person

	Pre	Post
Prescription entries per patient	0.15	0.07

Table 19. Number of unintentional drug form discrepancies identified per person

	Pre	Post
Prescription entries per patient	0.10	0.04

Table 20. Number of route discrepancies identified per person

	Pre	Post
Prescription entries per patient	0.37	0.26

Section 2 - Medication Reconciliation on Admission

Medication reconciliation, including an accurate medication history, is to be conducted for all inpatients by an appropriately credentialled professional, ideally within 24 hours of admission for high-risk patients. Further to obtaining a medication history from the patient/carer, one other source should be consulted to confirm the patient's current medications. This source should ideally be the patient's general practitioner, or alternatively, the community pharmacist, carer or family member.

While the Pharmaceutical Review Policy states that medication reconciliation should be conducted for all inpatients, the compliance with this aspect of the Policy was outside the scope of this audit and not measured.

Although the audit question for this section asked whether a medication history was completed, it was not possible for all auditors to fully assess the completeness of the medication history documented. Some audits were conducted retrospectively rather than prospectively and the patients may have been discharged prior to auditing, and therefore not available for detailed questioning about their medication history or to verify the completeness of information available. For this reason, this section reviews if a medication history was documented and does not assess the extent of completion of the medication history.

Recommendations for Area Health Services:

- Identify who is to undertake the medication reconciliation at each site and ensure that they are appropriately credentialled and trained to conduct the medication reconciliation process effectively.
- Implement strategies to ensure that an accurate medication history is completed for all inpatients in a timely manner, ideally within 24 hours of admission for high-risk patients.
- Implement strategies to ensure that a second source is consulted to confirm the medication history details.
- Implement policies governing the documentation of medication history at the time of hospital admission, including the use of a Medication History Form.
- Ensure that the *Medication Reconciliation on Admission* component of the SQuIRe Medication Reconciliation CPI initiative is fully operational by June 2009.
- Encourage patients to bring medications/documentation to hospital on admission to help health practitioners obtain a complete medication history.

2.1. Was a medication history documented?

- A medication history was documented for 68% of patients in the sample group (Table 21).
- Documentation of medication history increased to 81% for high-risk patients (Table 22).
- NA was indicated for some patients – reasons given for this include no medications.

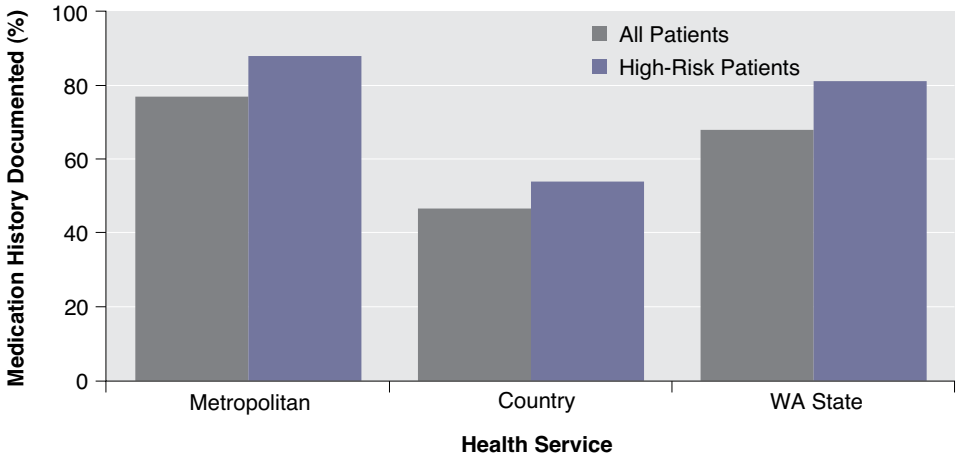
Table 21. Documentation of Medication History - *All Patients*

All Patients	Yes	No	NA	Unknown	Total	Missing
Metropolitan	780 (76.9%)	152 (15%)	65 (6.4%)	17 (1.7%)	1014	13
Country	199 (46.6%)	191 (44.7%)	35 (8.2%)	2 (0.5%)	427	5
WA State	**979 (67.9%)**	**343 (23.8%)**	**100 (6.9%)**	**19 (1.3%)**	**1441**	**18**

Table 22. Documentation of Medication History - *High-Risk Patients*

High-Risk Patients	Yes	No	NA	Unknown	Total	Missing
Metropolitan	451 (87.9%)	55 (10.7%)	5 (1.0%)	2 (0.4%)	513	3
Country	69 (53.9%)	49 (38.3%)	9 (7.0%)	1 (0.8%)	128	3
WA State	**520 (81.1%)**	**104 (16.2%)**	**14 (2.2%)**	**3 (0.5%)**	**641**	**6**

Figure 5. Percent of patients with medication history documented

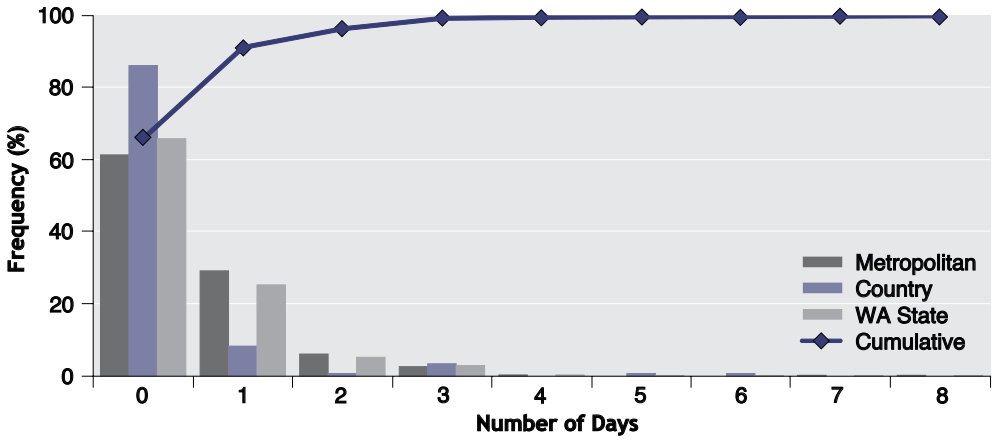


2.2. Days to document medication history

The following information is based on those charts where date of medication history documentation was specified (97% of patients who had medication histories documented).

- As the dates of admission and medication history taking were reported rather than the date and time, the detailed timing (i.e. within 24 hours of admission) of the medication history taking is not available. At the State level, 91% of patients had their medication history documented within 1 day of admission, 66% on the day of admission and 25% the day after admission (Figure 6).
- Maximum number of days taken to document medication history was 8 days.
- Approximately 7% of patients had their medication history documented within the 10 days prior to admission.

Figure 6. Days post admission to document medication history for patients who had a medication history documented and the date it was documented indicated.



NOTE: Number of days shown are post admission, i.e. where number of days = 0, this is the day of admission.

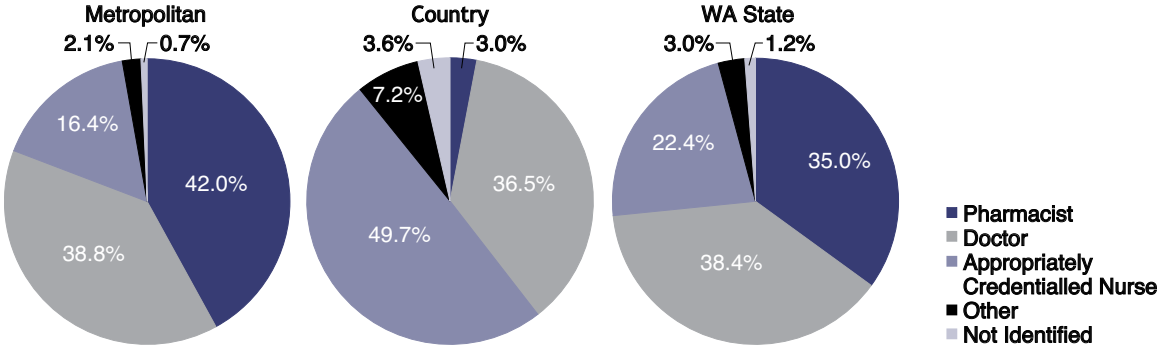
2.3. Health professional documenting the medication history

- The health professional documenting the medication history was unknown for 1.4% of the sample group.
- There was significant variation between the country health professionals documenting the medication history and metropolitan health professionals (Table 23).
- Pharmacists (42%) predominantly documented the medication history at metropolitan sites (Figure 7).
- Appropriately credentialled nurses (50%) predominantly documented the medication history at country sites (Figure 7). This definition of appropriately credentialled nurse was interpreted on a site by site basis and inter-rater variability exists.

Table 23. Health Professional Documenting the Medication History

	Pharmacist	Doctor	Appropriately Credentialled Nurse	Other	Not Identified
Metropolitan	320 (42%)	296 (38.8%)	125 (16.4%)	16 (2.1%)	5 (0.7%)
Country	5 (3%)	61 (36.5%)	83 (49.7%)	12 (7.2%)	6 (3.6%)
WA State	**325 (35%)**	**357 (38.4%)**	**208 (22.4%)**	**28 (3%)**	**11 (1.2%)**

Figure 7. Health professional documenting the medication history



Other category responses – health professional documenting medication history
Nurse (including RN, EN, triage RN, student RN, admitting nurse and ASEN)
Pharmacy student

2.4. Source providing medication history information

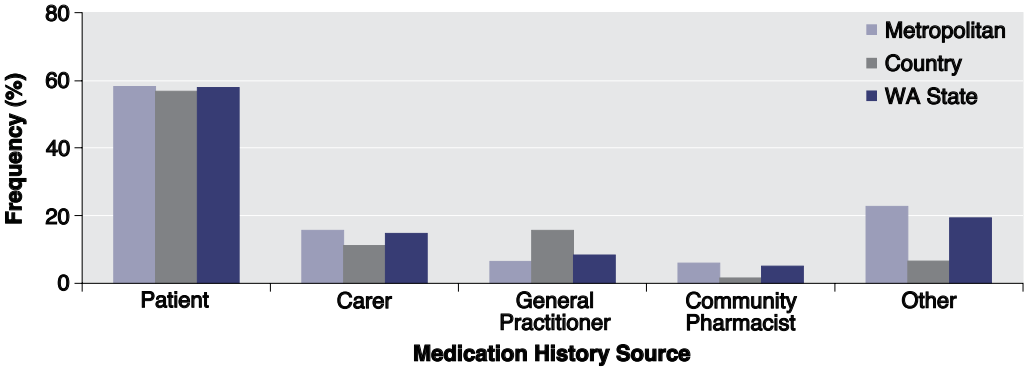
- The source providing the medication history was unknown for 139 patients (9.6%) of the sample group.
- The patient was the primary source for providing information for the medication history in approximately 60% of the sample group.
- 'Other source' accounted for 19% of the provision of medication history information (see text box overleaf for details).
- 24% of medication histories were obtained from more than one source thereby allowing confirmation of the information provided.

Table 24. Source of Medication History Information

	Patient	Carer	General Practitioner	Community Pharmacist	Other
Metropolitan	454 (58.2%)	122 (15.6%)	50 (6.4%)	46 (5.9%)	176 (22.6%)
Country	113 (56.8%)	22 (11.1%)	31 (15.6%)	3 (1.5%)	13 (6.5%)
WA State	**567 (57.9%)**	**144 (14.7%)**	**81 (8.3%)**	**49 (5.0%)**	**189 (19.3%)**

NOTE: these are not mutually exclusive categories, medication history that was confirmed by a second source would have 2 sources listed and be included in table twice

Figure 8. Source of medication history



Other category responses – medication history source		
Copy of script on patient's file	Past medical record	Medication profile
Copy of previous hospital charts	Discharge summary	Nursing home profile
Webster Pack	ED notes	Past medical history
Dietician	Medication list	Previous discharge letter
Discharge letter	Discharge transfer notes from hospital	Psychiatrist/psychologist
Doctor's admission notes	Doctor's correspondence letter	Silver Chain
Doctor from previous hospital	Hostel medication list	Previous admission
List brought in by patient	Medication list from GP	Previous discharge summary
Own medications	Medication profile from community pharmacy	Royal Flying Doctor Service

2.5. Medication reconciliation on admission – supplementary activities

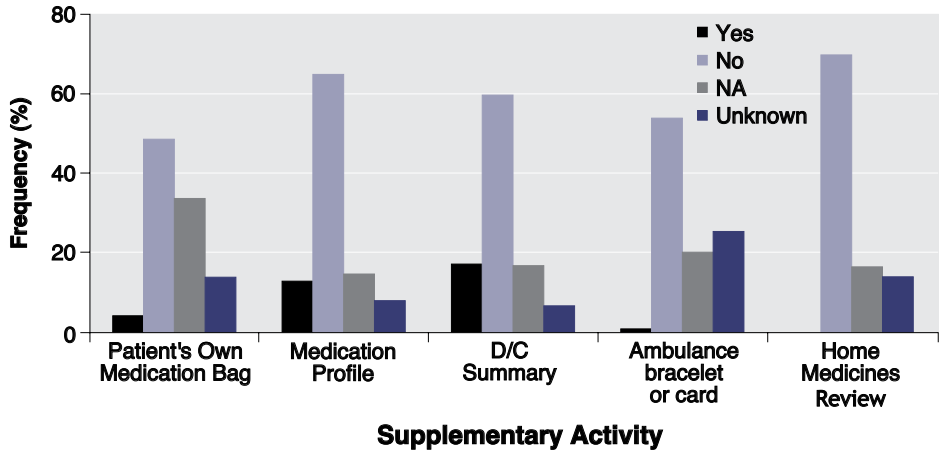
- There was generally a low compliance with the supplementary activities across the health system (Table 25).

Table 25. Compliance with Supplementary Activities

	Yes	No	NA	Unknown	Total	Missing
Patient's Own Medication Bag[a]	60 (4.4%)	612 (45.2%)	482 (35.6%)	199 (14.7)	1353	12
Medication Profile consulted	185 (12.8%)	938 (64.8%)	211 (14.6%)	114 (7.9%)	1448	11
Discharge Summary consulted[b]	247 (17.1%)	861 (59.6%)	241 (16.7%)	95 (6.6%)	1444	15
Ambulance bracelet or card consulted	11 (0.8%)	779 (53.8%)	291 (20.1%)	367 (25.3%)	1448	11
Home Medicines Review report consulted	–	1008 (69.7%)	238 (16.4%)	201 (13.9%)	1447	12

[a] PMH does not stock 'Patient Medication Bags' therefore PMH data was excluded from calculations.
[b] Discharge summary refers to a previous hospital discharge summary or nursing home summary being available on admission.

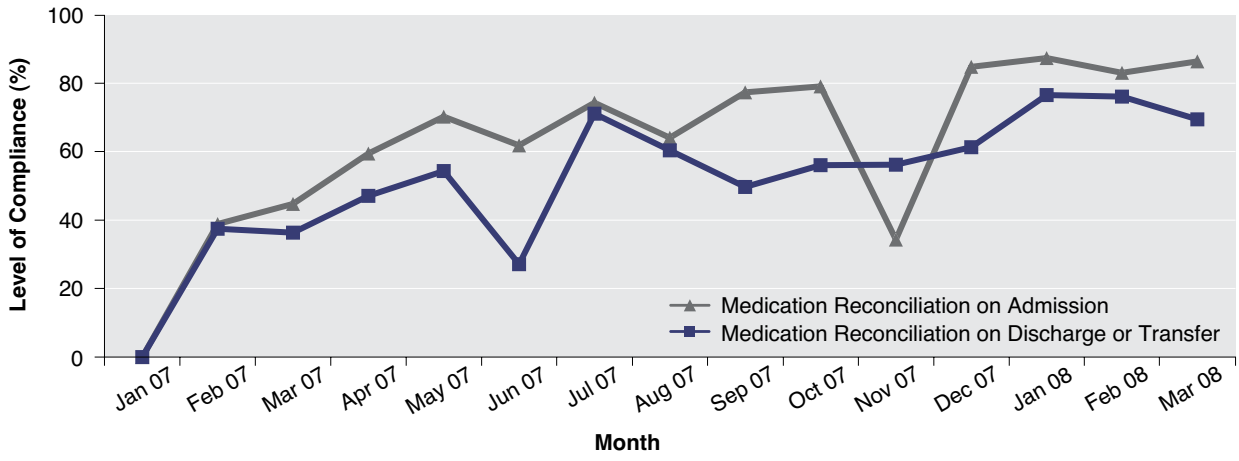
Figure 9. Frequency of supplementary activities being conducted



2.6. SQuIRe Program - Medication Reconciliation Initiative

While outside the scope of this audit to review medication reconciliation on admission and discharge, work is being conducted within the WA health services in this area. The Safety and Quality Investment for Reform (SQuIRe) Program has been supporting health services in performing medication reconciliation on admission and discharge or transfer. Figure 10 shows the aggregated state-wide results attained by WA hospitals in implementing the SQuIRe Medication Reconciliation initiative.

Figure 10. Medication reconciliation results from SQuIRe Program



There are two process measures associated with this initiative:

1. Medication reconciliation on admission
2. Medication reconciliation on discharge or transfer.

As Figure 10 shows, medication reconciliation on admission and discharge or transfer has improved since this initiative started in January 2007. However, medication reconciliation on discharge or transfer has not improved to the same extent as medication reconciliation on admission and more intensive work is required in this area.

Section 3 - Medication Education During Hospitalisation and on Discharge

Patients and/or their carers are to be provided with medication education during their hospitalisation to ensure that they have an understanding of their medications and ideally be given a medication profile on discharge. Medication education is to be provided when additions, cessations or alterations are made to the dosage regime of the patient's medications during a hospital visit or for patients being prescribed high-risk drugs. Consumer Medicine Information (CMI) is to be provided with every new drug prescribed.

The audit assessed the documentation of medication education and did not examine if education was provided but not documented. This may produce an inaccurately low representation of this activity as provision of medication education is not routinely documented by all hospitals when given (with the exception of warfarin counselling).

Where the provision of medication counselling in conjunction with other written information has been documented to increase compliance[2]; an inverse relationship can be expected between patient education, medication regime compliance and drug-related hospital admission.

Recommendations for Area Health Services:

- Undertake education and monitoring activities to ensure that health practitioners document the provision of medication education and CMI leaflets.
- Implement strategies to increase the awareness and provision of the Patient First Booklet among staff and patients.
- Implement strategies to the improve timeliness of medication education and the provision of medication profiles to patients.
- Develop strategies and allocate resources to support the involvement of clinical pharmacists and other health practitioners in the discharge process, including provision of medication education to patients.

3.1. If changes were made to the patient's medication management, was the provision of education documented?

- 62% of patients had a change to their medication management (addition, cessation or alteration).
- Of the patients with changes to their medication management, 19% had the provision of education documented (Table 26).
- 20% of high-risk patients had the provision of education documented (Table 27).

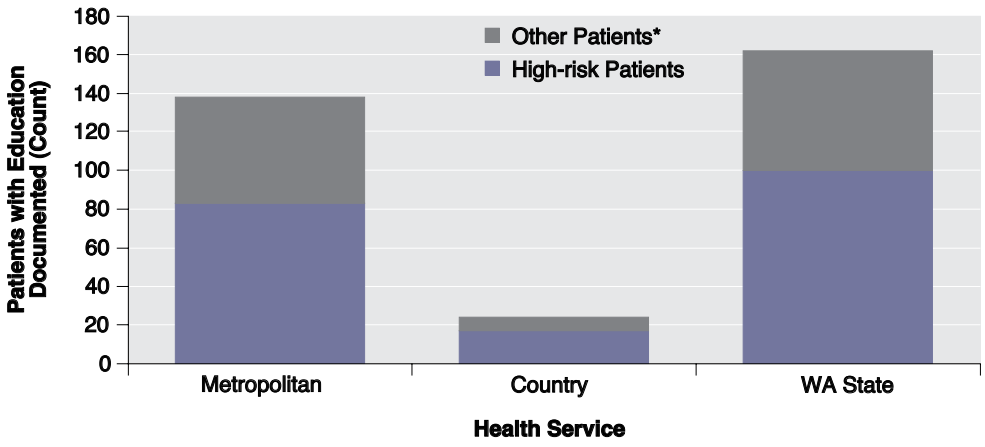
Table 26. Documentation of the Provision of Medication Education – *All Patients with changes to their medication management*

All Patients	Yes	No	NA	Unknown	Total	Missing
Metropolitan	138 (21.5%)	424 (66.1%)	17 (2.7%)	62 (9.7%)	641	22
Country	24 (11.3%)	165 (77.5%)	9 (4.2%)	15 (7%)	213	4
WA State	**162 (19%)**	**589 (69%)**	**26 (3%)**	**77 (9%)**	**854**	**26**

Table 27. Documentation of the Provision of Medication Education – *High-Risk Patients with changes to their medication management*

High-risk Patients	Yes	No	NA	Unknown	Total	Missing
Metropolitan	83 (20.7%)	296 (67.1%)	13 (3.2%)	36 (9%)	401	9
Country	17 (18.7%)	63 69.2%)	3 (3.3%)	8 (8.8%)	91	4
WA State	**100 (20.3%)**	**332 (67.5%)**	**16 (3.3%)**	**44 (8.9%)**	**492**	**13**

Figure 11. Number of patients with education documented if changes were made to medication management

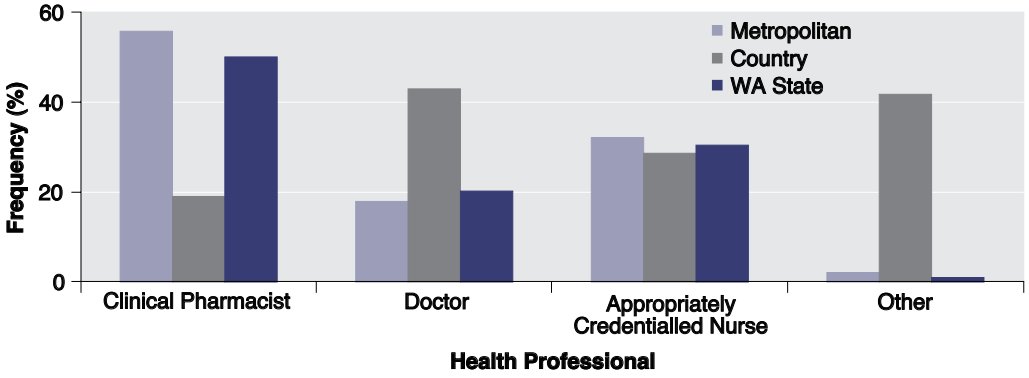


* Other patients not identified to be high-risk patients

3.2. Health professionals providing education for changes in medication management

- At metropolitan sites, medication education was primarily provided by the clinical pharmacist (Figure 12).
- At country sites, medication education was primarily provided by the doctor and the trainee pharmacist/pharmacy student (Figure 12).

Figure 12. Health professional providing medication education



Other category responses – health professional providing medication education		
Trainee Pharmacist	Nurse	Pharmacy Student

3.3. Was the provision of a Consumer Medicine Information leaflet documented in the medical record?

- The data below refers to patients that had changes made to their medication management.
- The documentation of provision of a Consumer Medicine Information (CMI) leaflet to patients was 5% (Table 28).

Table 28. Documentation of the Provision of a Consumer Medicine Information Leaflet

All Patients	Yes	No	NA	Unknown	Total	Missing
Metropolitan	38 (5.9%)	513 (79%)	32 (4.9%)	66 (10.2%)	649	14
Country	4 (1.9%)	188 (88.7%)	14 (6.6%)	6 (2.8%)	212	5
WA State	**42 (4.9%)**	**701 (81.4%)**	**46 (5.3%)**	**72 (8.4%)**	**861**	**19**

NOTE: Fremantle Hospital gives out CMI leaflets to all patients with discharge medication, if not given the reason is noted. However, this routine distribution is not documented anywhere.

3.4. Was the provision of a Patient First booklet documented in the medical record?

- The provision of a Patient First booklet was documented for 6.5% of patients (Table 29).

Table 29. Documentation of the Provision of Patient First Booklets

All Patients	Yes	No	NA	Unknown	Total	Missing
Metropolitan	4 (0.4%)	742 (76.6%)	87 (9%)	136 (14%)	969	58
Country	86 (20.7%)	309 (74.5%)	15 (3.6%)	5 (1.2%)	415	17
WA State	**90 (6.5%)**	**1051 (75.9%)**	**102 (7.4%)**	**141 (10.2%)**	**1384**	**75**

NOTE: Some hospitals offer or give the Patient First booklet at admission while some hospitals have the booklets located in patient areas such as waiting rooms or patient drawers for the patient to take if wanted. In both situations, the provision of the Patient First booklet would not necessarily be documented anywhere. Pharmacy is not involved in the distribution of these booklets and so the low rate of yes response could be partly due to lack of documentation and lack of auditor involvement.

3.5. Was the patient provided with a medication profile on discharge?

- 16% of patients were provided with a medication profile on discharge (Table 30).
- This figure for medication profile being provided on discharge doubled to over 30% for high-risk patients (Table 31).
- Figure 13 highlights the prioritisation of high-risk patients in receiving a Medication Profile on discharge.

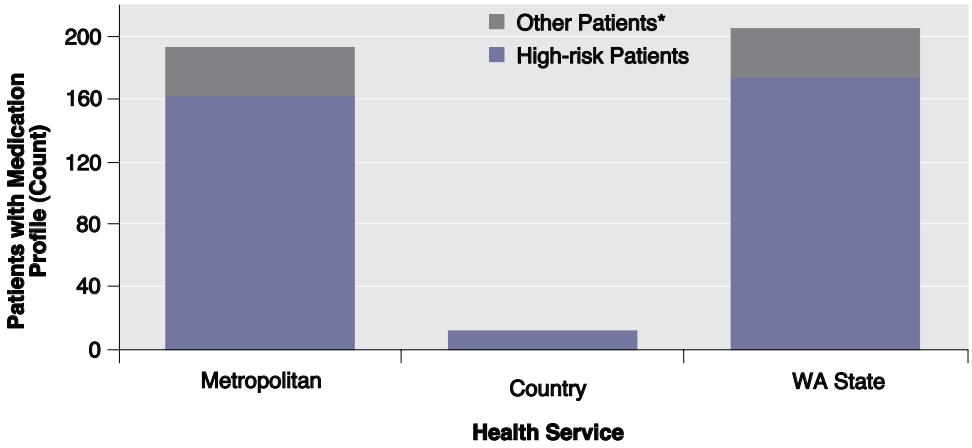
Table 30. Provision of Medication Profile on Discharge - *All Patients*

All Patients	Yes	No	NA	Unknown	Total	Missing
Metropolitan	193 (21.4%)	503 (55.8%)	119 (13.2%)	86 (9.5%)	901	45
Country	12 (2.9%)	291 (70.1%)	89 (21.4%)	23 (5.5%)	415	16
WA State	**205 (15.6%)**	**794 (60.3%)**	**208 (15.8%)**	**109 (8.3%)**	**1316**	**61**

Table 31. Provision of Medication Profile on Discharge - *High-Risk Patients*

High-risk Patients	Yes	No	NA	Unknown	Total	Missing
Metropolitan	162 (37.1%)	198 (45.3%)	27 (6.2%)	50 (11.4%)	437	16
Country	12 (10.2%)	82 (69.5%)	10 (8.5%)	14 (11.9%)	118	12
WA State	**174 (31.4%)**	**280 (50.5%)**	**37 (6.7%)**	**64 (11.5%)**	**555**	**28**

Figure 13. Patients provided with medication profile on discharge



* Other patients not identified to be high-risk patients

Section 4 - Discharge Process: Communication with the General Practitioner and other Health Professionals

A patient's medication related information is to be provided to his or her general practitioner and other health professionals upon discharge. Ideally, a pharmacist should be included in the medication component of the discharge summary. For patients using administration aids (such as Webster-Paks), information about the current medication regimen should be provided to the patient's preferred community pharmacist.

The communication between the hospital and the general practitioner or other health professionals upon discharge may assist to improve post-discharge continuity of care which is a factor in determining readmission rates.[2]

Recommendation for Area Health Services:

- Implement strategies to increase the number of patients that are provided with a discharge summary in a timely manner and improve documentation of discharge summary provision.
- Implement strategies to review and reduce unintentional discrepancies between the NIMC, medication profile and discharge summary.
- Implement strategies to improve information included in the discharge summary regarding medication changes, including rationale, monitoring requirements and expected outcomes.
- Review current resourcing and implement measures to increase clinical pharmacist involvement in the medication component of the discharge summary.
- Review discharge planning processes and implement strategies to ensure timely dissemination of patient medication related information to general practitioners and other health professionals upon discharge.
- Expand the implementation of the *Medication Reconciliation on Discharge or Transfer* component of SQuIRe Medication Reconciliation CPI initiative.

Table 32. Summary of Patients Discharged before the end of the Audit Period

Patient Discharged	Yes	No
Metropolitan	946 (92.1%)	81 (7.9%)
Country	431 (99.8%)	1 (0.2%)
WA State	**1377 (94.4%)**	**82 (5.6%)**

4.1. If the patient was discharged before the end of the audit period, was a summary prepared within the one-month audit period?

- Of the patients discharged before the end of the audit period (Table 32), 70.5% had a discharge summary prepared within the one-month audit period (Table 33). This increased to 80% for high-risk patients (Table 34).
- Patients who were discharged towards the end of the audit period were probably less likely to have a discharge summary prepared during the audit period because of the lack of time between discharge and end of audit.

Table 33. Patients with a Discharge Summary Prepared within the Audit Period – *All Patients*

All Patients	Yes	No	NA	Unknown	Total	Missing
Metropolitan	751 (81.5%)	146 (15.9%)	9 (1%)	15 (1.6%)	921	25
Country	198 (46.5%)	98 (23%)	126 (29.6%)	4 (0.9%)	426	5
WA State	**949 (70.5%)**	**244 (18.1%)**	**135 (10%)**	**19 (1.4%)**	**1347**	**30**

Table 34. Patients with a Discharge Summary Prepared within the Audit Period – *High-Risk Patients*

High-risk Patients	Yes	No	NA	Unknown	Total	Missing
Metropolitan	387 (85.8%)	56 (12.4%)	3 (0.7%)	5 (1.1%)	451	2
Country	75 (58.6%)	26 (20.3%)	25 (19.5%)	2 (1.6%)	128	2
WA State	**462 (79.8%)**	**82 (14.2%)**	**28 (4.8%)**	**7 (1.2%)**	**579**	**4**

Figure 14. Proportion of patients with a discharge summary prepared within the audit period

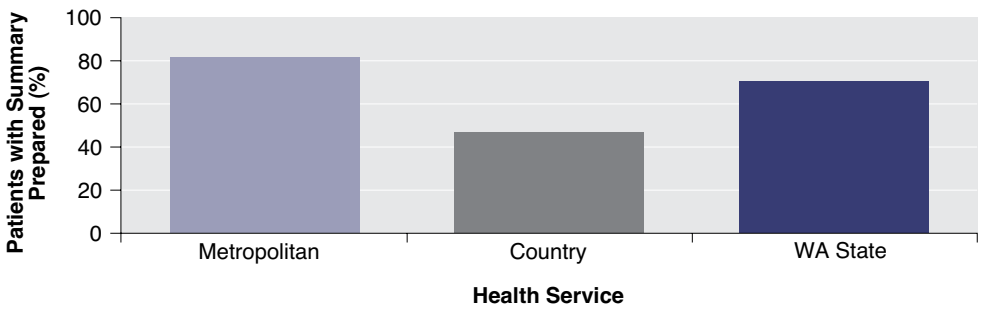
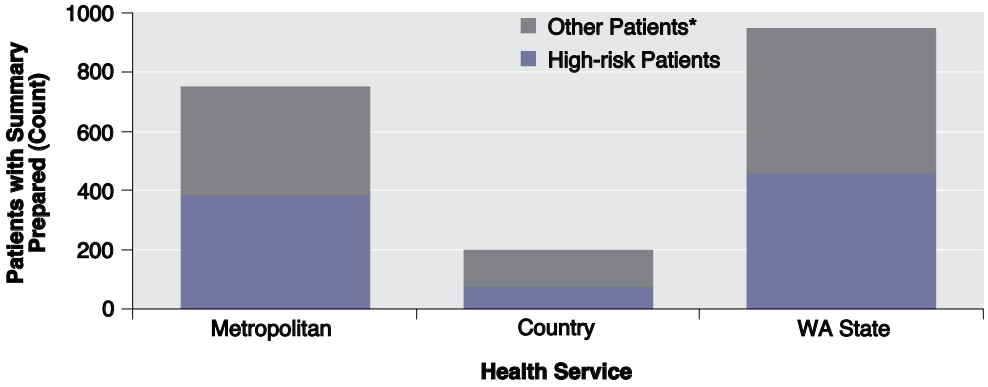


Figure 15. Patients with a discharge summary prepared within the audit period split for high-risk and other patients



* Other patients not identified to be high-risk patients

4.2. If a discharge summary was prepared, were there any discrepancies between the NIMC and the discharge summary?

- 39% of patients overall had a discrepancy between the medications on the NIMC and the discharge summary - 43% at metropolitan sites, and 24% at country sites (Table 35).
- The audit did not give any indication of the potential consequences of these discrepancies. Some of these could have been intentional discrepancies while others could have been unintentional, potentially dangerous discrepancies.

Table 35. Discrepancies between NIMC and Discharge Summary

	Yes	No	NA	Unknown	Total	Missing
Metropolitan	316 (42.9%)	340 (46.2%)	72 (9.8%)	8 (1.1%)	736	15
Country	46 (24%)	130 (67.7%)	11 (5.7%)	5 (2.6%)	192	6
WA State	**362 (39%)**	**470 (50.6%)**	**83 (8.9%)**	**13 (1.4%)**	**928**	**21**

4.3. If a medication profile and discharge summary were prepared, were there any discrepancies between the patient's medication profile and discharge summary?

- 21% of metropolitan patients had a discrepancy between the medications on the medication profile and the discharge summary (Table 36).
- 11% of country patients had a discrepancy between the medications on the medication profile and the discharge summary (Table 36).
- The significance of these discrepancies was beyond the scope of the audit.
- The audit did not assess if there were any discrepancies between the medication profile and the NIMC.

Table 36. Discrepancies between Medication Profile and Discharge Summary

	Yes	No	NA	Unknown	Total	Missing
Metropolitan	37 (21.3%)	105 (60.3%)	31 (17.8%)	1 (0.6%)	174	7
Country	1 (11.1%)	8 (88.9%)	–	–	9	7
WA State	**38 (20.8%)**	**113 (61.7%)**	**31 (16.9%)**	**1 (0.5%)**	**183**	**7**

4.4. If a discharge summary was prepared, was the involvement of a clinical pharmacist in the medication component documented in the medical record?

- 4% of patients had the involvement of a clinical pharmacist in the medication component of the discharge summary documented in the medical record (Table 37).

Table 37. Clinical Pharmacist Involvement in Discharge Summary Preparation

	Yes	No	NA	Unknown	Total	Missing
Metropolitan	34 (4.6%)	509 (68.2%)	124 (16.6%)	79 (10.6%)	746	5
Country	2 (1%)	141 (71.9%)	52 (26.5%)	1 (0.5%)	196	2
WA State	**36 (3.8%)**	**650 (69%)**	**176 (18.7%)**	**80 (8.5%)**	**942**	**7**

4.5. If a discharge summary was prepared, did the patient receive a copy within the audit period?

- 38% of patients who had a discharge summary prepared received a copy of the discharge summary within the audit period (Table 38).

Table 38. Copy of the prepared Discharge Summary Provided to Patient within the Audit Period

	Yes	No	NA	Unknown	Total	Missing
Metropolitan	340 (45.8%)	284 (38.2%)	9 (1.2%)	110 (14.8%)	743	8
Country	18 (9.3%)	106 (54.6%)	8 (4.1%)	62 (32%)	194	4
WA State	**358 (38.2%)**	**390 (41.6%)**	**17 (1.8%)**	**172 (18.4%)**	**937**	**12**

4.6. If a discharge summary was prepared, was the patient's general practitioner provided with a copy?

- 67% of general practitioners were provided with a copy of the patient's discharge summary (Table 39), this was generally provided via fax or mail. However, it was out of the scope of this audit to confirm whether the general practitioner received and reviewed the discharge summary.

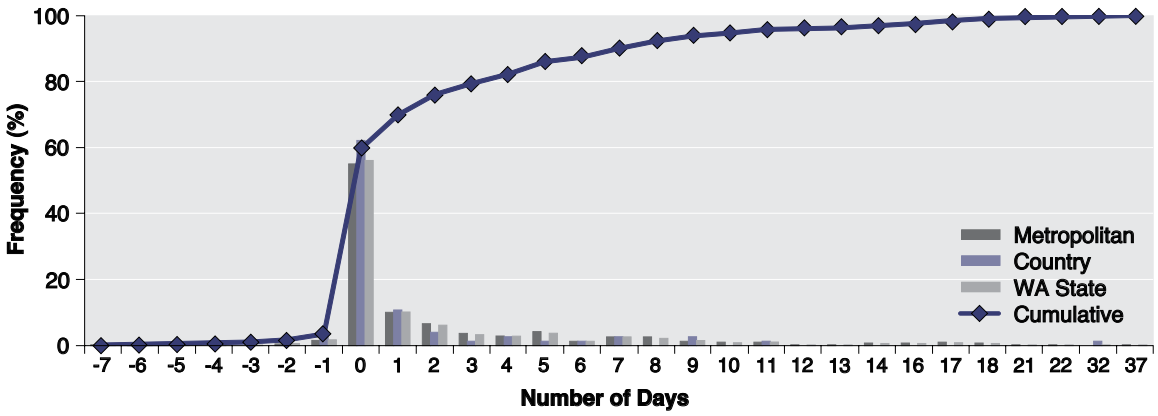
Table 39. Copy of the Discharge Summary Provided to the Patient's General Practitioner

	Yes	No	NA	Unknown	Total	Missing
Metropolitan	506 (68.5%)	78 (10.6%)	13 (1.8%)	142 (19.2%)	739	12
Country	116 (59.5%)	38 (19.5%)	5 (2.6%)	36 (18.5%)	195	3
WA State	**622 (66.6%)**	**116 (12.4%)**	**18 (1.9%)**	**178 (19.1%)**	**934**	**15**

4.7. Number of days taken to provide general practitioner with a copy of the patient's discharge summary

- The majority of discharge summaries were provided to the general practitioner on the day of discharge (Figure 16).
- The data indicates that discharge summaries were provided to the general practitioner up to 7 days prior to discharge and one-month post discharge (Figure 16).

Figure 16. Days taken to provide general practitioner with discharge summary



NOTE: 171 entries that indicated that the general practitioner was provided with a discharge summary did not provide a date.

4.9. Documented Residential Care Facility (RCF) liaison and community pharmacy liaison for Residential Care Facility patients

- Of the audit sample population, 52 patients resided in Residential Care Facilities (3.6%).
- The RCF was provided with the patient's discharge medication list for 60% of patients and contacted to discuss patient's medication for 41% of patients (Table 40).
- The community pharmacy was provided with the patient's discharge medication list for 28% of patients and contacted to discuss patient's medication for 20% of patients (Table 40).
- Only 2 Residential Care Patients had 'no' documented for liaison with other health professionals (RCF or community pharmacist) on discharge.

Table 40. If the patient resides in a Residential Care Facility, were the following tasks completed?

	Yes	No	NA	Unknown	Total	Missing
Was the RCF provided with patient's discharge medication list?	28 (59.6%)	6 (12.8%)	3 (6.4%)	10 (21.3%)	47	5
Was the RCF contacted to discuss patient's medications?	17 (40.5%)	11 (26.2%)	3 (7.1%)	11 (26.2%)	42	10
Was the patient's community pharmacist provided with discharge medication list?	14 (28%)	24 (48%)	4 (8%)	8 (16%)	50	2
Was the patient's community pharmacist contacted to discuss patient's medications?	10 (20.4%)	23 (46.9%)	6 (12.2%)	10 (20.4%)	49	3

4.10. Completion of the patient's discharge summary (Table 41)

- 93% of medications in the discharge summary had the generic name documented.
- 91% of medications in the discharge summary had the drug dose documented.
- 57% of the medications in the discharge summary had the drug status documented.
- 9% of the medications in the discharge summary had the rationale for change documented.
- 3% of the medications in the discharge summary had the monitoring requirements documented.
- 2.5% of medications in the discharge summary had the expected outcomes documented.

Table 41. Completion of the Patient's Discharge Summary

	Number of patients	Sum of responses
Total number of medications	**900**	**3270**
Medications with generic drug name documented	696	3050 (93%)
Medications with dose documented	676	2989 (91%)
Medications with drug status documented	641	1871 (57%)
Medications with rationale for change documented	610	300 (9%)
Medications with monitoring requirements documented	587	112 (3%)
Medications with expected outcomes documented	585	82 (2.5%)

Section 5 - Quality Activities Promoting Medication Safety

Health services are to be involved in medication related safety and quality activities.

Recommendations for Area Health Services:

- Implement strategies to increase documentation and reporting of adverse drug reactions via the hospital's clinical incident management system.
- Implement strategies to increase reporting of adverse drug reactions to the Therapeutic Goods Administration's Adverse Drug Reaction Advisory Committee.
- Ensure any adverse drug reactions occurring during an admission are reported in the patient's discharge summary.
- Develop education and promotional strategies to increase participation by health practitioners in hospital-based Quality Use of Medicine activities.
- Implement strategies to ensure that hospitals conduct routine review/audits of medication charts and ensure compliance in the following areas: legibility, errors on charts, dose administration times and dose admissions.

5.1. If the patient experienced an adverse drug reaction during this admission, was the reaction life threatening or non-life threatening?

- Of the audit sample population, 32 patients (2.2%) had experienced an adverse drug reaction during this admission.
- 6.5% of adverse drug reactions were classified by health practitioners as being life-threatening (Table 42).
- 90% of adverse drug reactions were classified by health practitioners as being non life-threatening (Table 42).
- The severity of the adverse drug reaction was unknown for 3% of patients (Table 42).

Table 42. Patients Experiencing an Adverse Drug Reaction

Patients experiencing ADR = 32	Yes	No	Unknown	Total	Missing
Life threatening	2 (6.5%)	28 (90.3%)	1 (3.2%)	31	1

5.2. If the patient experienced an adverse drug reaction, where was the reaction documented?

- The patient's notes were the most common place for the adverse drug reaction to be documented (97%, Table 43).
- The two life-threatening ADRs were documented on the discharge summary, but only one was also documented in the notes. Neither of the life-threatening ADRs were reported to have been documented on the medication chart.

Table 43. Adverse Drug Reaction Documentation

Patients experiencing ADR = 32	Yes	No	NA	Unknown	Total	Missing
In the patient's notes	28 (96.6%)	1 (3.4%)	–	–	29	3
On the patient's medication chart	6 (20.7%)	22 (75.9%)	1 (3.4%)	–	29	3
In the discharge summary	8 (30.8%)	9 (34.6%)	9 (34.6%)	–	26	6

5.3. If the patient experienced an adverse drug reaction, was the reaction reported via the hospital's clinical incident management system?

- No adverse drug reactions are documented to have been reported via the hospital's clinical incident management system (Table 44).

Table 44. Reporting of Adverse Drug Reactions via a Clinical Incident Management System

Patients experiencing ADR = 32	Yes	No	NA	Unknown	Total	Missing
WA State	–	**26 (86.7%)**	**2 (6.7%)**	**2 (6.7%)**	**30**	**2**

5.4. If the patient experienced an adverse drug reaction, was the reaction reported to the Adverse Drug Reaction Advisory Committee?

- No adverse drug reactions are documented to have been reported to the national Adverse Drug Reaction Advisory Committee (Table 45), a subcommittee of the Therapeutic Goods Administration.

Table 45. Reporting of Adverse Drug Reactions to ADRAC

Patients experiencing ADR = 32	Yes	No	NA	Unknown	Total	Missing
WA State	–	**25 (80.6%)**	**2 (6.5%)**	**4 (12.9%)**	**31**	**1**

5.5. Does the hospital have a committee that is responsible for the oversight and coordination of initiatives relating to the Quality Use of Medicines?

- 13 of the 18 hospitals (72%) have a committee responsible for the oversight and coordination of initiatives relating to the Quality Use of Medicines (Table 46).

Table 46. Quality Use of Medicines Committee

	Yes	No	NA	Unknown	Total	Missing
WA State	**13 (72.2%)**	**5 (27.8%)**	–	–	**18**	

5.6. Does the hospital promote participation in Quality Use of Medicine activities?

- 16 of the 17 hospitals (94%) with responses recorded for this question promoted participation in Quality Use of Medicine activities (Table 47).

Table 47. Quality Use of Medicines Activities

	Yes	No	NA	Unknown	Total	Missing
WA State	16 (94.1%)	1 (5.9%)	–	–	17	1

5.7. Does the hospital participate in drug use evaluations?

- 8 of the 18 hospitals (44%) participate in drug use evaluations (Table 48).

Table 48. Drug Use Evaluations

	Yes	No	NA	Unknown	Total	Missing
WA State	8 (44.4%)	10 (55.6%)	–	–	18	

5.8. Does the hospital conduct routine review/audits of charts for features such as legibility, errors on charts, dose administration times and dose admissions?

- 15 of the 18 hospitals (83%) stated that they conduct routine review/audits of charts (Table 49).

Table 49. Routine Reviews/Audits Conducted

	Yes	No	NA	Unknown	Total	Missing
WA State	15 (83.3%)	3 (16.7%)	–	–	18	

5.9. If the hospital conducts routine review/audits of charts, are the audit tools endorsed and consistent with the aims of an appropriate QA committee?

- Of the 15 hospitals that conduct regular chart reviews, seven (47%) have audit tools that are endorsed and consistent with the aims of an appropriate QA committee.

Table 50. Are Audit Tools Endorsed by and Consistent with the Aims of an appropriate QA Committee?

	Yes	No	NA	Unknown	Total	Missing
WA State	7 (46.7%)	8 (53.3%)	–	–	15	

5.10. Are hospital staff involved with other hospital and state medication safety working groups and email distribution networks, such as the WA Medication Safety Group?

- 17 of the 18 hospitals (94%) have staff involved with other hospital and state medication safety working groups.

Table 51. Hospital Staff Involvement with Medication Safety Groups

	Yes	No	NA	Unknown	Total	Missing
WA State	**17 (94.4%)**	**1 (5.6%)**	**–**	**–**	**18**	

Discussion

Chart Review

On average, half of the sample group had a chart review conducted. This was higher for metropolitan patients, and considerably lower for country patients. The Pharmaceutical Review Policy recommends that high-risk patients receive daily chart review. While this is not occurring for all such patients, high risk patients appear to be prioritised. The reduced rate of chart review in country hospitals is reflective of the lack of authorised FTE clinical pharmacist positions in these hospitals.

The data shows that when a chart review is occurring, it is usually performed within one day of admission, either on the day of admission or the day following. The maximum number of days for chart review to occur was longer for patients at country sites than patients at metropolitan sites. This again is reflective of the limited clinical pharmacists in country areas.

When activity was examined for days of the week that chart review was occurring, there was significantly less chart review activity occurring on weekends. This is indicative of the lack of clinical pharmacists working on the weekend to perform such functions.

Length of stay could also influence the rate of timely chart review and other pharmaceutical review activities. Patients who have a short length of stay (e.g. 2 days only) are potentially less likely to be reviewed by a clinical pharmacist or appropriate credentialled professional, especially if the short stay was over the weekend as most hospitals do not provide clinical pharmacy services over the weekend.

Allergies and Adverse Drug Reactions

Completion of the ADR section was poor, with only 40% of the sample group having this section appropriately completed. Appropriate completion of the ADR section involves:

- the documenting clinician ticking the ‘nil known/unknown’ allergy box and dating and signing the ADR section, if the patient is not known to have an allergy; or
- an ADR sticker being placed on all relevant sections of the chart, drug/allergen documented, reaction details documented and initialled and the ADR box signed and dated by documenting clinician, if the patient is known to have an allergy.

Of the 60% of patients with an incomplete ADR section, 8% had no ADR information documented at all. This leaves the possibility that patients could have an undocumented allergy. This situation could potentially result in the administration of a problem drug and compromise patient safety.

Prescription Entries

The number of prescription entries that could potentially cause medication errors were overall reduced after the completion of a chart review by a pharmacist or appropriately credentialled professional. The general improvement observed in areas of: generic drug name, legal prescriptions, compliance with hospital policy and guidelines, restrictions on use, legible prescriptions, approved abbreviations, appropriate indications, unintentional dosage discrepancies, and drug form or route discrepancies, indicates the process of chart review may reduce medication error and improve patient safety and compliance with policy/laws.

The process of chart review resulted in an increase in the number of drug interactions identified and a decrease in the number of potential known drug interactions with no documented action or monitoring, both activities that can improve patient safety. The potential for reducing errors and improving patient safety through chart reviews can be greatly increased if the proportion of charts being reviewed is increased as part of routine hospital medication safety programs.

There are various limitations that should be kept in mind when interpreting the data from this section. Firstly, the results must be viewed with some caution, as the pre-post sample size was not equivalent, limiting direct comparison. Secondly, the interactions could have been drug-drug or drug-disease interactions, detrimental or beneficial to the patient, depending on how the question was interpreted by the person completing the questionnaire. Thirdly, there are currently no standard guidelines indicating which drugs can be acceptably prescribed using their non-generic names. Different hospitals accept different brand names which can include but are not limited to drugs such as Seretide® or Panadeine-ft®. Further discussion is required to develop a list of acceptable non-generic names that can be applied across the State.

Medication History and Reconciliation on Admission

Two thirds of the sample group had their medication history documented, this activity being higher for patients at metropolitan sites. Approximately half of the patients in country hospitals had a medication history documented. This is perhaps reflective of the lack of clinical pharmacists, however the figure is considerably low considering that admitting doctors generally take medication histories as part of the standard history.

Medication histories were documented prior to admission for some patients, potentially at a pre-admission clinic visit or as part of a pre-admission consultation. The majority of medication histories taken were documented to be within one day of admission, either on the day of admission or the day following. Approximately 3% of patients had their medication history documented greater than 11 days prior to admission (up to 226 days prior to admission). Possible explanations are data recording error at the hospital site, use of medication history from previous admission/documentation or completion at a pre-admission clinic. One patient had their medication history completed 96 days after admission, this is likely to be a data recording error since the date provided was after the audit results were submitted. It was outside the scope of this audit to review the number of medication histories that were reconciled with medications prescribed on the chart at admission or transfer. One reason why this was outside the scope of this audit is the lack of documentation of such an activity. This area should be addressed in future audits.

While doctors and pharmacists were the primary professionals recording medication history in metropolitan areas, within country areas, doctors and appropriately credentialled nurses were required to complete this task. In all areas the main source of medication history information was the patient, however only a quarter of medication histories were confirmed by a second source. The process of confirmation is recommended in the Pharmaceutical Review Policy, and efforts must be made to understand barriers, e.g. time constraints, and address these barriers to improve compliance with this step in the medication reconciliation process. At times the patient may be confused or uneducated about their medication and medication histories taken from the patient alone may have errors, which would not be detected unless a second source is consulted.

Medication reconciliation is one of the eight clinical practice improvement (CPI) initiatives occurring through the SQuIRe Program. The first component, medication reconciliation on admission, involves obtaining and confirming a patient's medication history at the time of admission, reconciling the patient's medication history against their medication chart and resolving any discrepancies noted.

The funding for participation in the SQuIRe Program is additional to the annual baseline operational budget that WA hospitals receive from the WA Government. Hospitals have used their SQuIRe funds in various ways including setting up intensive systems affecting a small area within the hospital or systems which cover the whole hospital.

The data received to date indicates that a promising start has been made in each of the areas for which the medication reconciliation CPI initiative is underway. However, it should be noted that medication reconciliation is not yet underway in all wards and all WA hospitals. The results do indicate that given the appropriate resources, medication reconciliation on admission can be potentially conducted for all patients in all WA hospitals.

Supplementary activities to medication reconciliation such as the use of patients own medication bags (POMB), patient medication profiles, patients presenting with previous hospital discharge summaries or nursing home summaries, reports from home medication reviews and the use of St John Ambulance 'MedicAlert' bracelets or cards were overall rarely documented as occurring. Low compliance with supplementary activities can be attributed to a number of factors, including a lack of documentation of activity being conducted and there being no need for any supplementary activities if an accurate medication history was already obtained from other sources. Activities such as an education campaign to encourage patients to bring documentation (such as medications profiles, previous discharge summaries, home medication reviews etc) and their medications with them to hospital should be considered to improve compliance with these supplementary activities.

Medication Education During Hospitalisation and on Discharge

Patients who have changes made to their medication regimen during hospitalisation should be provided with medication education during hospitalisation and be given a medication profile on discharge. The documented compliance with this activity was found to be low, medication education was documented as being provided to only 19% of all patients (20% for high-risk patients) when the medical record and medication chart were reviewed.

When medication education was provided to patients, clinical pharmacists were the most likely to provide the education for patients within the metropolitan area but doctors or other health professionals (trainee pharmacist, pharmacy student or nurses) were most likely to provide the information in country areas.

The rate of provision of Consumer Medicine Information (CMI) leaflets was very low with 5% of patients documented as having received a CMI leaflet. Results for medication education given by a health professional and the provision of a CMI leaflet may be falsely low if these activities are occurring and not being documented in the patient notes or on medication charts. This is the situation in one hospital where CMI leaflets are routinely given out to all patients, but no documentation is kept for this activity.

The provision of a Patient First booklet was documented for 6.5% of patients. Compliance with this initiative was greater in country areas (21%) than in metropolitan areas (0.4%). While this audit reviewed the level of documented provision of this booklet, much of the distribution is not documented. The expected outcome of the provision of the Patient First booklet to patients is increased discussion about patient issues. Whether this discussion took place was beyond the scope of the Pharmaceutical Review Audit to measure.

The provision of a patient medication profile occurred for 16% of patients, this improved to 31% for high-risk patients, again indicating some prioritisation of these patients. The level of provision was higher in metropolitan areas than country areas perhaps reflecting the increased numbers of clinical pharmacists and so capacity to prepare medication profiles. This question must be interpreted with caution as some hospitals included the medication list which is incorporated within the discharge summary as being a medication profile provided to the patient while other hospitals only included a separate medication profile. Some hospitals do not prepare a separate medication profile but the pharmacist is involved in preparing or checking the discharge summary medication section. However, the documentation of this process is generally poor and should be improved.

Discharge Process: Communication with the General Practitioner and Other Health Professionals

Only 71% of patients that were discharged had a discharge summary prepared during the audit period, this increased to 80% for high-risk patients. Part of this discrepancy can be attributed to patients who were discharged towards the end of the audit period, for whom the discharge summary was still in process at the end of the audit period. Patients in country facilities were less likely to have a discharge summary prepared than metropolitan patients indicating a difference in the discharge process between country and metropolitan areas.

For patients who had a discharge summary prepared there was a notable rate of discrepancy between the discharge summary and the NIMC and between the discharge summary and the medication profile when both were prepared. The implications of these discrepancies cannot be inferred from the results as an investigation of the causes of these discrepancies was outside the scope of this audit; the discrepancies could have been intentional changes or unintentional errors.

Discharge summaries were not prepared for patients at some country hospitals. One reason being the patient's general practitioner was also responsible for the care of the patient in the hospital and therefore the preparation of a discharge summary is considered unnecessary.

Two thirds of general practitioners were provided with a copy of their patient's discharge summary. Patients who were discharged at the end of the audit period could have influenced this data as the information may not have been transmitted by the end of the audit period. Although this report states that the patient's general practitioner was provided with a discharge summary, it was out of the scope of this audit to measure the number of general practitioners that actually received and reviewed the patient discharge summaries. Some patients may not have a general practitioner, a factor that was not captured in the audit.

A point to note is that the data indicates that discharge summaries were provided to the general practitioner up to 7 days prior to discharge (Figure 16). This is of concern as the general practitioner may not be provided with the most current information, however, the result may have been due to a data recording error. The maximum number of days to provide the general practitioner with a discharge summary was over five weeks post-discharge. This may have been a data recording error, however this should be reviewed by Area Health Services to ensure that general practitioners receive the patient's discharge summary in a timely manner.

Patients who have dosage aids (such as Webster-Paks) prepared by their community pharmacy should have greater involvement of that pharmacy in the discharge process, to facilitate the continuation of medication changes on discharge. Patients who are living in a Residential Care Facility will generally have an allocated community pharmacy who will prepare medication into some form of dosage aid. The results indicated that communication by the hospital with Residential Care Facilities and community pharmacies is occurring to a high degree, however strategies should be reviewed to ensure that communication with other health professionals in a timely manner continues to increase.

Only 9% of patients discharged from country hospitals received a copy of the discharge summary, this was higher for patients from metropolitan hospitals (46%). It is important for patients to receive a copy of their discharge summary so that they are informed, empowered, and have a resource to provide at future health-related appointments such as subsequent hospital admissions, in which a discharge summary can facilitate the medication history recording process. Again, lack of documentation may falsely lower the rates noted in the audit.

The second component of the medication reconciliation CPI initiative is medication reconciliation on discharge or transfer. This involves the reconciliation of the discharge summary against the patient's medication chart and resolution of any discrepancies noted, as well as confirmation of liaison between the hospital and all members involved in the patient's care upon discharge. The data received to date indicates that some sites have started to conduct medication reconciliation on discharge or transfer; however the uptake of this component of medication reconciliation is slower than that on admission.

The involvement of a clinical pharmacist in the discharge process was very low, on average clinical pharmacists were involved in only 3.8% of discharges. As expected, this was lower in country areas. The low result could be attributed to a of lack of time of clinical pharmacists, lack of specified role for clinical pharmacist or lack of inclusion of the clinical pharmacist in the discharge process, all areas that should be addressed to improve the discharge process.

The discharge summary was in most cases completed with the generic name of the medication and the dose of the medication. However there was a lack of documentation of further information, such as medication status, rationale for changes, monitoring requirements and expected outcomes. This information if included in the discharge summary assists the general practitioner and patient to understand any medication changes and what to monitor and expect after discharge.

Quality Activities Promoting Medication Safety

A small proportion of patients experienced an adverse drug reaction during their admission, of these only two were classified as life-threatening. While documentation of these adverse drug reactions in the patients' notes was high, completion of the reaction information on the medication chart and in the discharge summary was low. This lack of documentation on the medication chart and within the discharge summary increases the risk that the same or a more severe adverse drug reaction could re-occur in the future.

Neither of the life-threatening adverse drug reactions were documented as being reported through the hospital's clinical incident management system or to the Adverse Drug Reaction Advisory Committee. This lack of data that the incident was reported to the hospitals clinical incident management system might be due to lack of documentation that an AIMS form had been completed and no easy access to records of AIMS forms data at a ward level. This may also be due to the lack of training in completion of AIMS forms, such that staff are unsure if an AIMS form should be completed for such an incident.

There is generally a good level of participation of hospitals and their staff in medication-related safety and quality activities. However the extent of participation in drug-use evaluations and routine reviews/audits should be reviewed by sites and increased where applicable to ensure patients are provided with high-quality, best-practice, safe care.

Overall Issues

- There is a lack of common understanding and definition within hospitals of an appropriately credentialled professional for conducting pharmaceutical review activities.
- The clinical pharmacist: bed ratio ranges from 1:38 to 1:178 (as shown in Table 5). This does not take into account that many of the clinical pharmacists have some of their time diverted to attend to non-clinical activities. These levels are lower than recommended by the Society of Hospital Pharmacists of Australia (SHPA). SHPA recommends that clinical pharmacist: bed ratios range between 1:15 and 1:90 depending on the patient case mix.
- The implementation of the Commonwealth Pharmaceutical Benefit Scheme Reform Program in WA hospitals will impact on pharmaceutical review activities being conducted.

Commonwealth Pharmaceutical Benefit Scheme Reform Program

The Commonwealth Pharmaceutical Benefit Scheme (PBS) Reform Program is part of a strategy to improve the continuum of care for patients moving between the hospital and community setting, and aims to improve the way patients access their medications.

The PBS Reform Program is an initiative between the Commonwealth and State Governments, and for hospitals to access additional funding for pharmacy services, they are required to implement a set of best-practice guidelines (the APAC Guidelines[4]). When the WA Pharmaceutical Review Policy was developed, the APAC Guidelines were incorporated into each standard. Therefore, by implementing the PBS Reform Program, WA hospitals are anticipated to increase their compliance with the standards of the Pharmaceutical Review Policy.

The PBS Reform Program is in the process of being implemented in all WA public hospitals, but is awaiting the development of appropriate computer systems (Pharmacy Management Application).

The process for implementing the PBS Reform Program requires hospitals to outline resource requirements to be able to comply with the APAC Guidelines. This increase in pharmacist numbers is expected to have a positive impact on the implementation of the Pharmaceutical Review Policy, and the extent to which pharmaceutical review activities are conducted in WA hospitals.

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4. Australian Pharmaceutical Advisory Council. Guiding principles to achieve continuity in medication management. Canberra; Commonwealth of Australia; 2005.

Appendix 1

Hospital Demographic Information Sheet

Delivering a Healthy WA

Pharmaceutical Review

Baseline Data Collection
Hospital Demographic Information Collection
One sheet to be completed per hospital.

1.	Hospital Name: _____		
2.	Total number of hospital beds (as at 01 July 2007):	_____	
3.	Total number of patients admitted to hospital between 01 July and 08 July 2007:	_____	
4.	Total number of patients with Pharmaceutical Review Baseline Audit Tool attached to patient file between 01 July and 08 July 2007:	_____	
5.	Total number of COMPLETED Pharmaceutical Review Baseline Audit Tools collected at the end of the audit period (this includes patients that weren't discharged, but have the 'Not discharged prior to audit completion date' box ticked):	_____	
6.	Total number of INCOMPLETE Pharmaceutical Review Baseline Audit Tools collected at the end of the audit period:	_____	
7.	Total number of authorised full-time equivalent (FTE) Pharmacist positions:	_____	
8.	Total number of filled full-time equivalent (FTE) Pharmacist positions:	_____	
9.	Total number of Pharmacists (count the number of Pharmacists including full-time, part-time and casual staff):	_____	
10.	Total number of authorised full-time equivalent (FTE) Clinical Pharmacist positions:	_____	
11.	Total number of filled full-time equivalent (FTE) Clinical Pharmacist positions:	_____	
12.	Total number of Clinical Pharmacists (count the number of Clinical Pharmacists including full-time, part-time and casual staff):	_____	
13.	Total number of Clinical Technicians (support staff working in a clinical capacity):	_____	
14.	Average Clinical Pharmacist to patient ratio during the audit period:	_____	
15.	Does the hospital have a committee that is responsible for the oversight and coordination of initiatives relating to the Quality Use of Medicines?	YES	NO
16.	Does the hospital promote participation in Quality Use of Medicine activities?	YES	NO
17.	Does the hospital participate in drug use evaluations?	YES	NO
18.	Does the hospital conduct routine review/audit of charts for features such as legibility, errors on charts, dose administration times and dose omissions?	YES	NO
19.	If 'YES' are the above review/audit of charts endorsed by an appropriate QA committee (i.e. audit tools are endorsed and consistent with the aims of the QA committee)	YES	NO
20.	Are hospital staff involved with other hospital and state medication safety working groups and email discussion networks, such as the WA Medication Safety Group?	YES	NO

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