

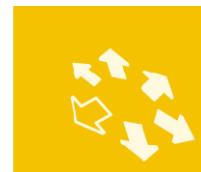
National Mental Health Benchmarking Project Forensic Forum

Special Project

Seclusion Medication Audit



A joint Australian, State and
Territory Government Initiative



AMHOCN

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National Benchmarking Project - Forensic Forum

Seclusion Medication Audit

In previous benchmarking work conducted by the National Benchmarking Project – Forensic Forum on reviewing the Australian Council of Health Care Standards (ACHS) seclusion indicators, significant variation in organisational performance was noted. Participants agreed to further explore, in detail, seclusion events. A detailed audit of seclusion was conducted by participating services in late 2006. Discussion of possible reasons for variation identified that there may be differing prescribing patterns of psychotropic medication.

The aim of this sub-project was to better understand the reasons for variation in seclusion practices and prescribing patterns across participating organizations

Method: Consumer level data to be submitted for each consumer who was an inpatient on 1st November 2005 for acute in-scope services. Same day admissions are not included in this collection. Detailed specifications for this project were developed by the Queensland Mental Health Benchmarking Unit (QMHBU) with advice and endorsement from the National Benchmarking Project Forensic Forum. Formulae for calculation of Chlorpromazine and Benzodiazepine (Valium) equivalent doses are included in the specifications.

This report was compiled by the QMHBU on behalf of the National Benchmarking Project – Forensic Forum; it includes the findings of this sub-project.

Service Profile

	A	B	C	D	Group
Total number of consumers in census	44	43	40	28	155
Average number of days for consumers (Nov)	25	12	27	29	22

Data was collected for 155 consumers. Average length of stay during the month of data collection was the lowest for Org B (12 days), but was similar for the other participating services (25-29 days).

Diagnosis- % of total service population	A	B	C	D	Group
F20-29 Schizophrenia, schizotypal and delusional disorders	89	56	83	75	75
F30-39 Mood Disorders	9	16	15	7	12
F40-49 Stress related disorders		2			1
F60-69 Adult Personality disorders			3	7	2
F70-79 Mental retardation		2		7	3
Other	2	19		4	6
Not recorded		5			1

The most frequent primary diagnosis for consumers was F20-F29 (schizophrenia, schizotypal and delusional disorders). Org B had a slightly differing diagnostic profile with the lowest rate of F20-F29 (56%) and highest recording of other diagnosis (19%) and F30-39 mood disorders (16%). Rates of mood disorders were similar for the Org B (16%) and Org C (15%).

Service Profile - Legal Status	A	B	C	D	Group
Insanity acquittee	23		23	71	25
Unfit to plea	5				1
Remandee	32	40	20	29	30
Serving prisoner	41	42	53		37
Civil regulation		14			4
Other		5	5		3

Legal status for consumers of participating services was varied, possibly as a result of differing mental health legislation in each of the States.

Service Profile - Offence	A	B	C	D	Group
Homicide and related offences	25	23	28	54	30
Acts intended to cause injury	36	9	20	32	24
Sexual assault and related offences	2	5	10	4	5
Dangerous or negligent acts	2		8		3
Robbery	20	28	30	4	22
Other	14	19	5	7	12
Not recorded		16			5

Homicide and related offences were most common in the Org C (28%) and Org D (54%) populations. Acts intended to cause injury were most common in the Org A (36%) and Org D (32%). Robbery was the most common offence for the Org B (28%) and Org C (30%).

Service Profile - Culture	A	B	C	D	Group
ATSI	11	33	3	7	14
NESB - required interpreter	5			7	3
NESB - interpreter not required	20	9	15	7	14

Service Profile - Gender	A	B	C	D	Group
Male	75	72	75	68	73
Female	25	28	25	32	27

Seclusion

	A	B	C	D
Episodes of seclusion	1	8	12	17
Number of people secluded	1	6	9	3
% of consumers secluded	3	14	23	11
Total hours of seclusion	22	18	1535	1125
Avg hours/episode seclusion	22	3	171	375
% of consumers continuous obs	0	2	23	4
Episodes of continuous obs	0	1	9	4
Total hours of continuous obs	0	24	6140	185

Org A had the lowest rate of consumers who experienced seclusion during the month that data was collected (3%). It may be that alternative practices by prison staff may account for some variation from the other services in the group. Org C had the highest rate of seclusion use during this period (23% consumers) with 14% of consumers in Org B service experiencing seclusion. Duration of seclusion varied to a large extent. Org B had the lowest average duration of seclusion (3 hrs), with Org D the highest (375 hrs). Use of continuous observations varied 0% consumers for Org A and 23% consumers for Org C experienced continuous observations.

Medication Use

	A	B	C	D
CPZ mean daily dose all inpts (mg)	504	570	660	522
CPZ mean daily dose F20, F30 (mg)	508	696	744	607
Valium Eq mean daily dose all inpt (mg)	3	16	14	2
Valium EQ mean daily dose if presc BZ (mg)	8	22	18	4
Mean number times PRN antipsychotics administered during month (all consumers)	0.4	5.6	3.5	0.04
Mean number times PRN antipsychotics administered during month (only consumers with PRN Antipsychotics)	2	8	8	1
Mean number of Antipsychotic PRN's/100 Pt days (consumers with PRN Antipsychotics)	20	56	15	0
Mean number PRN Benzodiazepines administered (all consumers)	1	5	9	1
Mean number PRN Benzodiazepines administered (consumers with PRN BZ)	4	7	13	4
Mean number PRN Benzodiazepines administered/ 100 pt days	12	86	46	13

Average chlorpromazine equivalent daily doses were calculated using total daily dose of antipsychotic medication (regular and PRN). The average CPZ equivalent dose for all consumers who experienced an overnight admission during the collection period, was highest for Org C (660 mg) and lowest for Org A (504 mg). This pattern continues when considering only those consumers with primary ICD-10 diagnosis of F20-F30: Org C (744 mg) and Org A (508 mg).

Benzodiazepine equivalent daily doses were calculated using total daily dose of BZ medication (regular and PRN). In considering all consumers, average BZ equivalent doses were highest for the Org B (16 mg) and lowest for the Org D (2 mg). In averaging BZ daily doses for those consumers who were received benzodiazepines only this same pattern emerges Org B (22 mg) and Org D (4 mg).

In considering the average number of times that PRN medications (antipsychotic and benzodiazepine) were administered, varied duration of stay was considered. The number of times PRN meds were administered was divided by the total number of days the consumer was admitted during the month, this was then converted to an average number of PRN's/100 days for ease of comparison. Using this methodology Org B had the highest rate of PRN administration for both antipsychotic and benzodiazepine medications. Org D had very no administration of PRN antipsychotics during this period. Org A had the lowest average rate of PRN benzodiazepine use (12 PRN's/100 pt days).

* Note – 2 consumers were given clopixol acuphase in conjunction with other antipsychotic medication, during the data collection period (1 each for Org A and Org B). As no chlorpromazine equivalent dose is available for clopixol acuphase this has not been added to the consumers mean total daily dose.

CPZ equivalent doses	A	B	C	D
All Consumers	504	569	659	522
Consumers Secluded	475	925	781	208
Consumers Not Secluded	505	511	624	461

Differing antipsychotic medication use was considered for consumers who were secluded versus those not secluded and in comparison to all consumers. Rates of CPZ equivalent daily doses were similar between all consumers and those consumers who did not experience seclusion during the collection period in all cases (max difference 58 mg). Consumers who experienced seclusion had lower average antipsychotic medication daily doses for Org D

and for Org A. Higher avg daily CPZ doses were observed for consumers who were secluded in Org B and Org C in comparison to all consumers of those services. Org B consumers who experienced seclusion had the highest avg daily CPZ equivalent dose (925 mg) and Org D consumers who experienced seclusion had the lowest (208 mg).

CPZ Equivalent doses	A	B	C	D
All Consumers	504	569	659	522
Cons with Continuous Obs.	nil	0	781	185
Cons with no Continuous Obs	504	583	624	541

No Org A consumers had continuous (1:1) observations recorded. A small proportion of Org B consumers had continuous observations (2.3% n=1) and this consumer was not prescribed any antipsychotic medication. While 3.6 % of Org D consumers experienced continuous observations, this group had a relatively low average daily CPZ dose (185 mg). A higher proportion of Org C consumers (23%) experienced 1:1 observations, their average daily CPZ dose was the highest (781 mg).

BZ equivalent doses	A	B	C	D
All Consumers	2.8	15.6	17.9	1.5
Consumers Secluded	0	33.9	20	8.4
Consumers Not Secluded	2.8	12.6	12.2	0.7

Org B consumers who experienced seclusion had the highest average daily BZ equivalent dose (33.9 mg). Org A consumers who were secluded had the lowest (0 mg). With the exception of Org A, consumers who experienced seclusion had higher average daily BZ equivalent doses than their counterparts who were not secluded and in comparison to all consumers.

	A	B	C	D
% consumers with clinically significant HoNOS item 1 (Overactive, aggressive, disruptive or agitated behaviour)	39	23	28	25
% consumers with clinically significant HoNOS item 6 (Problems associated with hallucinations or delusions)	68	60	60	36

HoNOS data was collected for all consumers included in the study. Unfortunately, it is difficult to link medication, seclusion, continuous observations and HoNOS scores due to the fact that the HoNOS collection that was most closely associated with the data collection period was used. In this way it is not possible to determine whether the behaviour/symptom of interest was prior to, during or post any of the possible interventions. Rates of clinically significant scores (>=2) were considered for items 1 and 6. These provide some indication of prevalence for each of the participating services. For both items Org A had the highest proportion of clinically significant ratings for both items. Org B had the lowest level of clinically significant overactive, aggressive, disruptive or agitated behaviours (23%) however this is similar to that of Org D (25%) and Org C (28%). Org D had the lowest rate of clinically significant problems associated with hallucinations or delusions (36%). It is difficult to ascertain what role clinical interventions have in understanding these ratings.

CPZ equivalent doses	A	B	C	D
Honos 1 >=2	511	919	837	328
Honos 6 >=2	582	638	750	432
Honos 1 and 6 >=2	527	857	915	301

BZ Valium equivalent doses	A	B	C	D
All Pts	7.69	21.65	17.99	3.86
Honos 1 >=2	2.95	38.3	23.1	6.25
Honos 6 >=2	7.16	25.82	17.84	2.18
Honos 1 and 6 >=2	3.44	43.94	23.1	2.08

CPZ equivalent doses	A	B	C	D
All Consumers	504	569	659	522
Male	461	506	734	528
Female	635	733	435	511
BZ equivalent doses	A	B	C	D
All Consumers	2.8	15.6	17.9	1.5
Male	2.8	9.5	17	1.9
Female	2.8	31.4	4.9	0.8

CPZ equivalent doses	A	B	C	D
All Consumers	504	569	659	522
ATSI	691	620	649 (1)	428
Non ATSI	481	544	660	530
BZ equivalent doses	A	B	C	D
All Consumers	2.8	15.6	17.9	1.5
ATSI	4.8	11.4	30.6	Nil
Non ATSI	2.5	17.7	13.5	1.6

Prescribing Patterns

	A	B	C	D
% consumers not prescribed any psychotropic medications	2	2	0	7
% consumers prescribed antidepressants	20	23	20	29
% consumers prescribed mood stabilisers	25	21	15	7
% consumers not prescribed antipsychotics	5	14	15	14
% consumers prescribed antipsychotics >1 types	50	70	70	29
% consumers prescribed antipsychotics >2 types	5	43	25	0
% consumers prescribed antipsychotics >3 types	0	18	5	0
% consumers prescribed antipsychotics - depot	36	43	8	8
% consumers prescribed benzodiazepines - PRN or regular	36	72	78	39
% consumers prescribed benzodiazepines - as regular dose	18	26	43	14

A small proportion of consumers of each service with the exception of Org C did not receive any psychotropic medication (antipsychotic, benzodiazepine, mood stabilizer or antidepressant). Rates of antidepressant use were similar in each of the services (20-29%). Org D had the lowest rate of administration of mood stabilizers (and the lowest rate of consumers who had a primary ICD-10 diagnosis F30-39 Mood disorder).

Antipsychotic polypharmacy was of interest. The number of types of antipsychotic medication was recorded and included both regular and PRN prescription. With the exception of the Org D, the majority of consumers who were prescribed antipsychotic medications were receiving >1 type (Org A 50%). For Org B 43% were prescribed >2 types and 18% >3 types of antipsychotic meds.

The use of depot medication was most prevalent for Org B (43%) and least for Org C and Org D (8%). Benzodiazepine prescription (both regular and PRN combined) was similar for Org B (72%) and Org C (78%) and for Org A (36%) and Org D (39%). The regular prescription of benzodiazepine medication was most prevalent for Org B (43%).

% Consumers prescribed medication	A (44)	B (43)	C (40)	D (28)
Benzodiazepines				
Clonazepam	2	42	28	7
Diazepam	30	12	28	29
Lorazepam	2	28	26	
Temazepam	7	12	10	11
Zopiclone*			40	
Nitrazepam		2	3	
Mood Stabilisers				
Carbamazepine		2		
Lithium	14		8	
Sodium Valproate	16	19	8	7
Antidepressants				
Amitriptyline	2	2		
Citalopram		7		4
Clomiprine			3	
Dothiepin	5			
Escitalopram		2		
Fluoxetine				4
Mirtazapine	7	1	5	4
Sertraline	5	2	5	18
Venlafaxine	5	2	8	

* Zopiclone (Imrest) was used only in Org C – note that this medication was not included in the table of benzodiazepine conversions in the project specifications. A conversion rate of 7.5 mg of Zopiclone = 10 mg Chlorpromazine was used. Zopiclone is listed in the MIMS issue 2006 (5) as a sedative, hypnotic medication.

	A	B	C	D
Number and % pts prescribed with diagnosis (F20-F30)				
total no cons F20-F30 (%)	43 (98%)	31 (72%)	39 (98%)	23 (82%)
Amisulpride	5 (12%)	4 (13%)	4 (10%)	2 (9%)
Aripiprazole	3 (7%)		5 (13%)	3 (13%)
Chlorpromazine	2 (5%)	3 (7%)	7 (18%)	
Clozapine	7 (16%)	2 (6%)	9 (23%)	14 (42%)
Haloperidol	1 (2%)	2 (6%)	2 (5%)	
Olanzapine	13 (30%)	16 (52%)	12 (31%)	5 (22%)
Quetiapine	6 (14%)	7 (23%)	6 (15%)	2 (9%)
Risperidone	12 (28%)	14 (45%)	2 (5%)	2 (9%)
Ziprasidone			2 (5%)	
Zuclopenthixol			2 (5%)	
Fluphenazine Decanoate		2 (6%)		
Haloperidol Decanoate			3 (8%)	
Resperidone Consta	10 (23%)	8 (26%)	4 (10%)	1 (4%)
Zuclopenthixol Decanoate	5 (12%)	7 (23%)		1 (4%)

Note that in several cases consumers were prescribed >1 antipsychotic medication – therefore percentages will not total to 100%.

	A	B	C	D	Group	RANZCP SCZ
Medication	Min - Max daily dose – mg (Mean)					
Amisulpride	400-1000 (600)	400-600 (460)	40-1000 (310)	35-100 (67.5)	35-1000 (413)	100-1000
Aripiprazole	10-30 (18)	20-20 (20)	10-40 (23)	20-45 (40)	10-45 (26.5)	10-30
Chlorpromazine	50-600 (325)	100-200 (167)	25-320 (150)		25 - 600 (183)	75-500
Clozapine	250-900 (560)	150-700 (500)	25-1050 (500)	175-1050 (450)	100-1050 (492)	200-600
Haloperidol	15-15 (15)	10-15 (12.5)	5 - 5 (5)		5-15 (10)	1-7.5
Olanzapine	5-25 (15)	5 - 30 (18)	10-50 (28)	5 - 35 (20)	5-50 (20)	5-20
Quetiapine	50-1000 (680)	50-800 (450)	75-2000 (860)	200-500 (450)	50-2000 (653)	300-750
Risperidone	1 - 6 (3.25)	1 - 6 (3.6)	2 - 6 (5.5)	2 - 4 (3)	1 - 6 (3.6)	2-6
Ziprasidone			25-50 (37.5)		25-50 (37.5)	
Zuclopenthixol			10-40 (30)		20-40 (30)	10-75
Fluphenazine Decanoate		12.5-60 (55)				12.5-50
Haloperidol Decanoate			100-150 (133)			50-200
Resperidone Consta	25-50 (44)	25-50 (33)	25-50 (37.5)	50-50 (50)		25-50
Zulcopenthixol Decanoate	20-400 (165)	100-400 (286)		200-400 (200)		200-400

Note that total daily dose is used to calculate range and mean doses (PRN and regular doses administered).

Final notes re calculations –

% consumers not prescribed any psychotropic medications	no of consumers not prescribed any psychotropic med/total number of consumers. NB psychotropic includes antipsychotic, antidepressant, mood stab, benzod med)
% consumers prescribed antidepressants	no of consumers prescribed antidepressants/total number of consumers
% consumers prescribed mood stabilisers	total number of consumers prescribed mood s/total number of consumers
% consumers not prescribed antipsychotics	no of consumers not prescribed any psychotropic med/total number of consumers
% consumers prescribed antipsychotics >1 types	no of consumers prescribed >1 type antipsyc/total number of consumers prescribed antipsyc
% consumers prescribed antipsychotics>2 types	no of consumers prescribed >2 type antipsyc/total number of consumers prescribed antipsyc
% consumers prescribed antipsychotics>3 types	no of consumers prescribed >3 type antipsyc/total number of consumers prescribed antipsyc
% consumers prescribed antipsychotics - depot	no of consumers prescribed depot antipsyc/total number of consumers prescribed antipsyc
% consumers prescribed benzodiazepines - PRN or regular	no of consumers prescribed benzodiazepines (PRN or regular)/total number of consumers.
% consumers prescribed benzodiazepines - as regular dose	no of consumers prescribed benzodiazepines regular dose /total number of consumers.
% consumers with clinically significant HoNOS item 1 (Overactive, aggressive, disruptive or agitated behaviour)	no of consumers with score >=2 for HoNOS 1/total number of consumers
% consumers with clinically significant HoNOS item 6 (Problems associated with hallucinations or delusions)	no of consumers with score >=2 for HoNOS 6/total number of consumers

National Mental Health Benchmarking Project Forensic Mental Health Services

Project – Understanding variation in seclusion practice pt 2 – medication audit Methodology and technical specifications

This document describes the National Mental Health Forensic Benchmarking Project Number – Understanding variation in seclusion practice pt 2 – medication audit. Its purpose is to clarify the purpose and methodology of the project and to further define the information that the group had previously agreed to collect.

1. Understanding variation in seclusion practice

In previous benchmarking work conducted by the National Benchmarking Project – Forensic Forum on reviewing the Australian Council of Health Care Standards (ACHS) seclusion indicators, significant variation in organisational performance was noted. Participants agreed to further explore, in detail, seclusion events. A detailed audit of seclusion was conducted by participating services in late 2006. Discussion of possible reasons for variation identified that there may be differing prescribing patterns of psychotropic medication.

1a. Submission of detailed audit of psychotropic medication use

Consumer Characteristics –

Purpose: To better understand the reasons for variation in seclusion practices and prescribing patterns across participating organizations

Method: Consumer level data to be submitted for each consumer who was an inpatient on 1st November 2005 for acute in-scope services. Same day admissions are not included in this collection.

Data Collection: enter data in excel spreadsheet provided by The Park – Centre for Mental Health (Demographics Worksheet). Data Submitted to AMHOCN by 1st September. The Park will analyze and form a report to present at the Forum.

Number	Item	Information	Method	Format	Notes
1	Consumer ID	Consumer sequence number beginning with 01	Number	Org Code +n Consumers to be listed once in this worksheet	A unique identifier will be required for each consumer who was an inpatient in the in scope acute service on 1 st November 2005. Organizations should use the first three letters of their name E.g. PAR05 = Park consumer number 5.
2	ICD 10 Diagnosis	Most recent ICD 10 Diagnostic category	Select option	<ul style="list-style-type: none"> - F20-29 Schizophrenia, Schizotypal and Delusional Disorders - F30-39 Mood Disorders - F40-49 Stress Related Disorders - F60-69 Adult Personality Disorders - F70-79 Mental Retardation - Other 	

Number	Item	Information	Method	Format	Notes
3	Most Serious Offence relating to current admission	Identify the most serious offence for the consumer that is associated with the current admission.	Select option	<ul style="list-style-type: none"> - Homicide and related offences - Acts intended to cause injury - Sexual assault and related offences - Dangerous or negligent act - Robbery - Other 	These categories were used in a previous forensic benchmarking exercise.
4	Legal Status at Admission	Enter the most appropriate legal status at admission to the in-scope acute inpatient service for the consumer.	Select option	<ul style="list-style-type: none"> - Insanity acquittee - Unfit to plea - Remandee - Serving Prisoner - Civil regulation - Other 	
5	Cultural Background		Select option	<ul style="list-style-type: none"> - ATSI - NESB – requires interpreter - NESB – does not require interpreter - Other 	
6	Gender		Select option	M F	
7	Date of Birth		Add Date of Birth	dd/mm/yy or dd/mm/ccyy	Age at 1/11/05 will be calculated by spreadsheet for comparison 15-24 25-34 35-44 45-54 55-64 65+

Number	Item	Information	Method	Format	Notes
8	HoNOS	Enter the most recent HoNOS rating of all items in the period preceding November 2005 from any collection occasion	Enter number	Numerical	
9	Total number of episodes of seclusion	Enter the total number of episodes of seclusion during November 2005 experienced by the consumer	Enter number	Numerical	
10	Total number of hours of seclusion	Enter the total number of hours of seclusion experienced by the consumer during November 2005	“	“	
11	Total number of hours of continuous observations	Enter the total number of hours of continuous observations experienced by the consumer during November 2005 (Where staff / consumer ratio is 1:1 or >1:1).	“	“	(Continuous observations usually require staff to be within 1-2 m of the consumer at all times). Consumers who experienced continuous observations while secluded are excluded from this count. This item seeks to investigate the use of continuous observations as an alternative to seclusion.

Audit of Medication Administered

Method: An audit of psychotropic medications administered to consumers who were an inpatient on 1st November in the acute in-scope services.

Data Collection: enter data in excel spreadsheet provided by The Park – Centre for Mental Health (Medication Details Worksheet). List each consumer who experienced an admission during November 2005 separately. Data Submitted to AMHOCN by 1st September. The Park will analyze data and form a report that will enable services to present at the October Forum.

Number	Item	Information	Method	Format	Notes
12	Consumer ID	Consumer ID number beginning with 01	Number	Org Code +n Consumers may be listed more than once if >1 episode of seclusion	This information should correspond with the Consumer ID listed in the demographic details worksheet.
13	Routine Prescribed Drug	Select name of routinely prescribed medication. Selections must be made within the categories of antipsychotic, benzodiazepine, antidepressant and mood stabilizer.	Select Option/s	Antipsychotic: Amisulpride Aripiprazole Clozapine Olanzapine Quetiapine Risperidone Ziprasidone Chlorpromazine Haloperidol Pimozide Promazine Pericyazine Thioridazine Thiothixene	The spreadsheet has several lines listed in each category to allow for multiple selections in the case where several medications in the same class may be administered during the census period. NB: Need to add depot meds!!

Number	Item	Information	Method	Format	Notes
				Trifluoperazine Zuclopenthixol Other Missing Flupenthixol decanoate Fluphenazine decanoate Fluspirilene Haloperidol Decanoate Risperidone Consta Pipothiazine palmitate Zuclopenthixol decanoate Acuphase Benzodiazepine: Alprazolam Clonazepam Diazepam Lorazepam Nitrazepam Oxazepam Temazepam Other Missing Antidepressant: Amitriptyline	

Number	Item	Information	Method	Format	Notes
				Citalopram Clomipramine Dothiepin Doxepin Escitalopram Fluoxetine Fluvoxamine Imipramine Mirtazapine Moclobemide Nortriptyline Mianserin Paroxetine Reboxetine Sertraline Tranylcypromine Venlafaxine Other Missing Mood Stabilisers: Carbamazepine Lithium Sodium Valproate Other Missing	
13	Total Daily Dosage – Regular medication	Insert the total dose of routine medication administered each day	Enter number	Numerical	Eg. Chlorpromazine 100mg t.d.s = 3 x 100mg/day = 300 mg/day In the case of depot medication

Number	Item	Information	Method	Format	Notes
					enter dosage and frequency of administration e.g. Haldol 20mg 2/52
14	Date Commenced and Date Ceased	IF medication regime was changed during the census month enter date commenced and date ceased. NB: leave blank if medication was unchanged during month.	Enter date	Dd/mm/yy	This feature has been included in the spreadsheet to enable changes in prescribed medication to be incorporated in the analysis of data. Eg. A consumer is prescribed 10 mg Haloperidol b.d. at the start of the month. This is then reduced to 5 mg b.d. as the consumer improves. To calculate average daily dosage for this consumer the dates that each dosage was prescribed will be required.
15	Name of PRN medication administered	Select the name of each type of PRN medication from categories as listed in 12	As per #12	As per #12	
16	Number of times PRN administered	Enter the number of times each PRN medication was administered during November 2005.	Enter number	Numerical	
17	Total monthly PRN dosage	Enter the total amount of each PRN medication administered during November 2005.	Enter number	Numerical	Add together all doses of each PRN med administered during the month. E.g. a consumer is prescribed Diazepam 5 mg PRN. The consumer receives 4 PRN doses during the month – Total monthly PRN dosage = 5 mg x 4 = 20mg.

Chlorpromazine and Diazepam Equivalent Doses

It is proposed that CPZ and BZ equivalents will be calculated in the following way:

1. For each consumer a total dose for each medication will be calculated for the month (regular and prn doses will be combined)
2. The total monthly dose will be converted to an avg daily dose
3. The avg daily dose will be converted using equivalencies listed in the appendix to a avg daily CPZ or BZ equivalent dose
4. To compare services the avg daily CPZ or BZ equivalent doses will be averaged across each service.

NB: The Queensland Mental Health Benchmarking Unit has sought advice from Professor Tim Lambert, University of Sydney on CPZ equivalent doses with reference to Acuphase.

Example of Analysis (to be conducted by The Park):

Service Profile for consumers who experienced an overnight admission during November 2005

	<i>Org A</i>	<i>Org B</i>	<i>Org C</i>	<i>Org D</i>
No of consumers in census				
Average consumer age				
Median consumer age				
Total hours of seclusion				
Total hours of continuous obs				
% consumers prescribed 2 or more medications of the same class				
% consumers with clinically significant scores for item 1 HoNOS				
% consumers with clinically significant scores for item 6 HoNOS				

<i>Diagnosis</i>	<i>Org A</i>	<i>Org B</i>	<i>Org C</i>	<i>Org D</i>
Not recorded				
F20-29 Schizophrenia, Schizotypal and Delusional Disorders				
F30-39 Mood Disorders				
F40-49 Stress Related Disorders				
F60-69 Adult Personality Disorders				
F 70-79 Mental Retardation				
Other				

<i>Legal Status</i>	<i>Org A</i>	<i>Org B</i>	<i>Org C</i>	<i>Org D</i>
Insanity Acquittee				
Unfit to Plea				
Remandee				
Serving Prisoner				
Civil Regulation				
Other				

<i>Offence</i>	<i>Org A</i>	<i>Org B</i>	<i>Org C</i>	<i>Org D</i>
Homicide and related offences				
Acts intended to cause injury				
Sexual assault and related offences				
Dangerous or negligent Acts				
Robbery				
Other				

<i>Culture</i>	<i>Org A</i>	<i>Org B</i>	<i>Org C</i>	<i>Org D</i>
ATSI				
NESB-requires Interpreter				
NESB- Interpreter not required				
Other				

<i>Gender</i>	<i>Org A</i>	<i>Org B</i>	<i>Org C</i>	<i>Org D</i>
Male				
Female				

Medication Audit for November 2005:

<i>% consumers prescribed medication</i>	<i>Org A</i>	<i>Org B</i>	<i>Org C</i>	<i>Org D</i>
Antipsychotic				
Amisulpride				
Aripiprazole				
Clozapine				
Olanzapine				
Quetiapine				
Benzodiazepine				
Alprazolam				
Clonazepam				
Diazepam				
Lorazepam				
Nitrazepam				
Mood Stabilisers				
Carbamazepine				
Lithium				
Sodium Valproate				
Other				
Antidepressants				
Amitriptyline				
Citalopram				
Clomipramine				
Dothiepin				
Doxepin				
Escitalopram				
Fluoxetine				

Daily Dose range and average dose (mg) – NB includes PRN meds	Org A	Org B	Org C	Org D
Antipsychotic				
Amisulpride				
Aripiprazole				
Clozapine				
Olanzapine	10-30	(12.5)		
Quetiapine				
Benzodiazepine				
Alprazolam				
Clonazepam				
Diazepam				
Lorazepam				
Nitrazepam				
Mood Stabilisers				
Carbamazepine				
Lithium				
Sodium Valproate				
Other				
Antidepressants				
Amitriptyline				
Citalopram				
Clomipramine				
Dothiepin				
Doxepin				
Escitalopram				
Fluoxetine				

Average Dose for diagnosis F20-29 – NB includes PRN meds	Org A	Org B	Org C	Org D
Antipsychotic CPZ equivalent				
Benzodiazepine – Diazepam equivalent				
Mood Stabilisers				
Carbamazepine				
Lithium				
Sodium Valproate				
Other				
Antidepressants				
Amitriptyline				
Citalopram				
Clomipramine				
Dothiepin				
Doxepin				
Escitalopram				
Fluoxetine				

<i>CPZ equivalent daily dose</i>	<i>Org A</i>	<i>Org B</i>	<i>Org C</i>	<i>Org D</i>
CPZ equivalent daily dose - all consumers				
CPZ equivalent daily dose - consumers secluded				
CPZ equivalent doses - consumers not secluded				
CPZ equivalent doses - consumers with clinically significant scores on Item 1 HoNOS				
CPZ equivalent doses - consumers with clinically significant scores on Item 6 HoNOS				

<i>Diazepam equivalent daily dose</i>	<i>Org A</i>	<i>Org B</i>	<i>Org C</i>	<i>Org D</i>
Diazepam equivalent daily dose - all consumers				
Diazepam equivalent daily dose - consumers secluded				
Diazepam equivalent doses - consumers not secluded				
Diazepam equivalent doses - consumers with clinically significant scores on Item 1 HoNOS				
Diazepam equivalent doses - consumers with clinically significant scores on Item 6 HoNOS				

Antipsychotic Drug	Range of 100mg Chlorpromazine Equivalent Values in Literature	Final 100mg Chlorpromazine Equivalent Selected	Dose Range (Includes both Acute & Maintenance Therapy)
Oral:	Per Day (mg)	Per Day (mg)	Per Day (mg)
Aripiprazole		2.5**	
Amisulpride		200**	
Acetophenazine	19-20	20	60-200
Butaperazine	13	13	No Information
Chlorpromazine	100	100*	100-1500
Chlorprothixene	50-100	100	50-1000
Clozapine	44-100	100**	100-900
Droperidol	4-5	4*	120 max.
Flupenthixol	2	2	18 max.
Fluphenazine	1.5-3	2*	1-40
Haloperidol	2-10	2*	2-120
Loxapine	10-20	10	30-250
Mesoridazine	50	50	75-400, 400 max.
Molindone	10	10	10-200
Olanzapine	1.5-3.3	4**	No Information
Pericyazine	20-24	10**	300 max.
Perphenazine	8-10	10	8-100
Pimozide	1-2	2**	2-20
Prochlorperazine	15	15	50-150
Promazine	100-200	100	800 max.
Quetiapine	67	150**	400
Remoxipride	75	75	600 max.
Risperidone	1-3	1.5*	4-10
Sulpiride	200	200	2400 max.
Thiopropazate	10	10	No Information
Thioridazine	80-100	100*	100-800, 800 max.
Thiothixene	2-5	4*	5-60
Trifluoperazine	4-5	5*	5-60
Triflupromazine	25-28	25	75-250
Triluperidol	2	2	8 max.
Ziprasidone		38**	
Depot:	Per Week (mg)	Per Week (mg)	Per Week (mg)
Flupenthixol decanoate	8-20	10	30-200, 400 max.
Fluphenazine decanoate (moderate)	4-12.5	4.2**	19-150
Fluspirilene	1.2-2	2	2-20
Haloperidol decanoate	7.5-25	8.3**	38-200
Pipothiazine palmitate	5-18.75	10	8-200
Zuclopenthixol decanoate	40-100	(**33 as advised by Lambert 06.07)	150-600

Risperidone Consta
Acuphase

6.6**
TBA

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The Chlorpromazine Equivalencies for oral antipsychotics are, where possible, those given by Lambert. His reference list is at least as comprehensive as the above list. Lambert gives sound justification for choices made when a range of values are presented in the literature. Ratings taken from Lambert are marked (*).

Duncan McLean 8th August 2001

Addendum – updated neuroleptic conversion calculations provided by Lambert in July 2007 are marked (**)

Benzodiazepine Equivalents

Diazepam	5mg (oral/im/iv)
Alprazolam	0.5mg
Bromazepam	3mg
Chlordiazepoxide	15mg
Clobazepam	10mg
Clonazepam	0.5mg
Clorazepate	7.5mg
Flunitrazepam	0.5 mg
Flurazepam	7.5-15mg
Lorprazolam	0.5-1mg
Lorazepam	0.5-qmg
Lormetazepam	0.5-1mg
Nitrazepam	5mg
Oxazepam	15mg
Temazepam	10mg

Taken from Bazire, S. (2004) Psychotropic Drug Directory 2003/04. Salisbury: Fivepin Publishing.