

Improving the reporting of Medication Incidents

From Incident Reporting to Controls Assurance

Quote

- Strive for perfection in everything you do.
Take the best that exists and make it better.
When it does not exist design it.
- Sir Henry Royce.

Horses for Courses

- If you only have a hammer everything is a nail.
- Are there other tools in the rack?

Incident

- Old lady, chronic renal failure, overdosed on Gent- died of acute renal failure.
- Not reported in AIMS but found through death review.
- Q: Has this happened before?
- How do we know?

Reporting

- No such events in incident systems but well known clinically.
- Pharmacists didn't report at all.
- Built Clinical Pharmacy Intervention system for their reporting.
- Over 6 weeks initially tracked both reporting systems.
- No double reports.

Name: **RGH-ADT-TESTC, MAXO** DVA

MRN: **123456** DVA Number: **SX7** Sex: **M** DOB: **04/03/1927** Age: **80**

Address: **NEW ADDRESS FOR APRIL, ADDRESS LINE 3** Suburb: **BARRABUP WA, 6275** Other Details

Date of Intervention

4 / 7 / 2007

Area

Please select...

Adverse Outcome

Did an adverse outcome for the patient occur or was it avoided? (Check all that apply)

- Avoided
- Occurred

Adverse Class

- Adverse Drug Reaction (ADR)
- Contraindication
- Drug interaction
- Failure to adjust for renal impairment
- Failure to receive drug
- High dose
- Inappropriate selection
- Indication not treated
- Sub-optimal dose

Estimated DRP Significance

Major intervention is expected to prevent or address "very serious" drug related problems which may otherwise have the potential to result in major permanent injury or death.
Major intervention is expected to prevent or address "very serious" drug related problems which may otherwise have the potential to result in a major temporary injury, increased length of stay or re-admission, additional investigations and treatment which may include management in a specialized unit e.g. intensive care, coronary care; and cancellation or delay in planned treatment/procedure.
Moderate significance : prevent or address potentially serious drug related problems which may otherwise result in temporary injury or increased length of hospital admission

Please select... [dropdown arrow]

Intervention Class

- Stop drug
- Reduce dose
- Start drug
- Reduce duration of therapy
- Increase dose
- Increase duration of therapy
- Facilitate supply
- Increase monitoring
- Influence treatment selection

Number

Drug Class

- ACEI/AII-RA
- Allopurinol
- Amiodarone
- Antidepressant
- Antiplatelet
- Beta-blocker
- Calcium

estimate of Underlying Causation

- Calculation or unit expression error
- Complex clinical scenario
- Heavy workload
- Illegible order
- Inadequate documentation
- New staff or locum; or dealing with patients other than own
- Poor communication or supervision
- Transcription error

Slip/lapse
 Inadequate follow-up
 Knowledge gap
 Incomplete clinical Hx
 Other

SYSTEMS/PROCESS ISSUES

If you are able to identify any pharmacy or hospital procedures, policies or stationery which may have contributed to the problem please provide details here

Details

Submit

[Summary](#) [Detailed Report](#) [View Events](#)

Quick Links Go To...

Comparison

- Nursing lead reporting- Many (low SAC) administration errors.
- Pharmacy system- Many serious (high SAC) prescribing dosing errors.



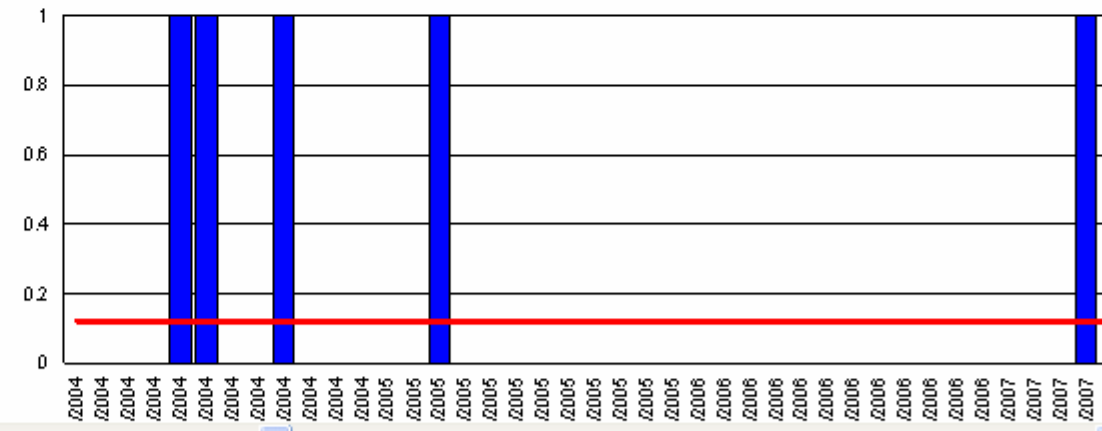
- Committee
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 - Pressure Ulcers - Hospital Acquired



Repatriation General Hospital

AIMS - Number of Actual SAC 1 / Month

From January 2004 to May 2007



Comments and Interpretation - To add a new comment click the "Add New" button below

<input type="button" value="Add New"/>	Heading PSS Report - August 2006	Comment / Action / Risk Comment
Comment There were no incidents assessed as SAC 1 events by managers in August 2006.		<input type="checkbox"/> Display With Chart
Recorded By: snortlr	Recorded On: 03/10/2006 13:17:08	



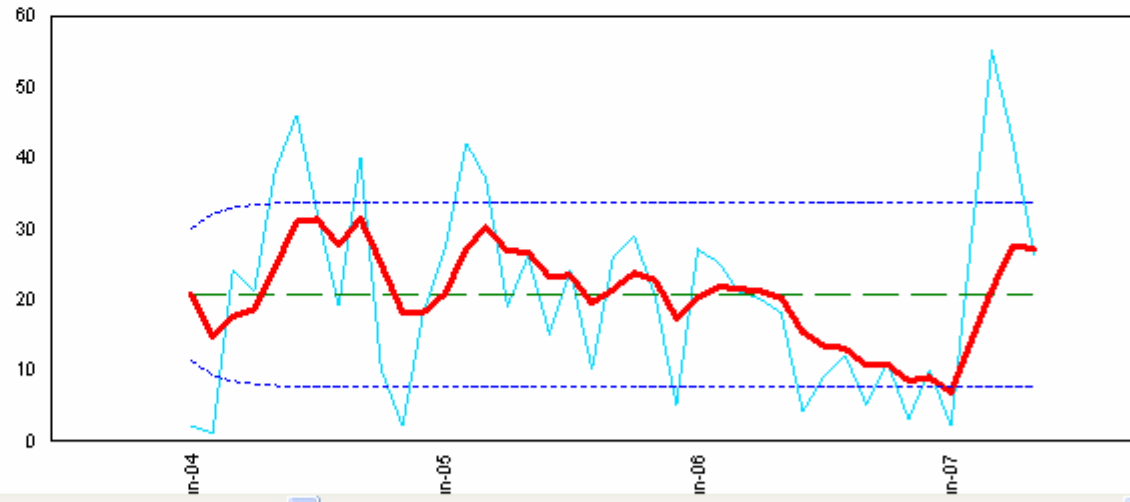
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Number of Major and Critical Drug Related Problems

Report Last Updated: May 2007

Interventions recorded by clinical pharmacists.

The UCL (Upper Control Limit) and LCL (Lower Control Limit) are statistically generated



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<input type="button" value="Add New"/>	Heading	Comment / Action / Risk
	<input type="text"/>	Comment
Comment		<input checked="" type="checkbox"/> Display With Chart
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Recorded By: swalssa Recorded On: 31/01/2007 11:55:08

Rehab Ward A	17
Rehab Ward B	90
Rehab Ward C	4

DRP Class

Adversre Drug Reaction (ADR)	66
Contraindication	42
Failure to receive drug	58
High dose	151
Increased monitoring required	26
Indication not treated	57
Drug interaction	22
Inappropriate selection	32
Other	43
Failure to adjust for renal impairment	57
Sub-optimal dose	36
Therapeutic duplication	19
Treatment not indicated	65
Wrong drug prescribed	6

Estimated DRP Significance

Critical	53
Major	443
Moderate	96

Intervention Class

Facilitate supply	13
Increase dose	35
Increase duration of therapy	1
Increase monitoring	43
Influence treatment selection	31
Other	35
...	100

Control

- Dosing errors in renal failure of well known low therapeutic drugs especially enoxaparin.
- Built integrated creatinine ht wt GFR calculator linked to dosage system for usual suspects.
- Detail system to TMO's
- Tap both reporting systems to monitor success in different areas.

Monitoring incidents.....outside the square



Government of South Australia



if we don't monitor it, then it ain't a problem.....

Dosing of renally cleared drugs.

- many key drugs excreted from the body via kidneys
- little recognition of poor renal function in elderly, camouflaged by normal looking serum creatinines
- several key drugs identified in death review audit (enoxaparin, gentamicin)
- doses not adjusted for renal function, especially in the elderly
- known to double rates of ADE's

GFR+ Calculator - Using optimised version of Cockcroft/Gault equation



[Inpatients](#) [Clear](#) [Help](#)

Name: **John Smith** MRN: **585543** DOB: **01/04/1919**

[Patient Search](#)

Age: years

Weight: kg

Height: cm

cm feet and inches

Serum Creatinine: mmol/L

4 days ago

Female Male

Remember Height and Weight

Calculate GFR

GFR **26** ml/min

Choose The Drug

[Top >>](#)

- ACE Inhibitors
- Allopurinol
- Digoxin
- Enoxaparin (Prophylaxis)
- Enoxaparin (Treatment)
- Gentamicin**
- Lithium
- Metformin**
- Vancomycin

Gentamicin

200mg STAT dose intravenously

Further doses ONLY after 24 hour trough level known

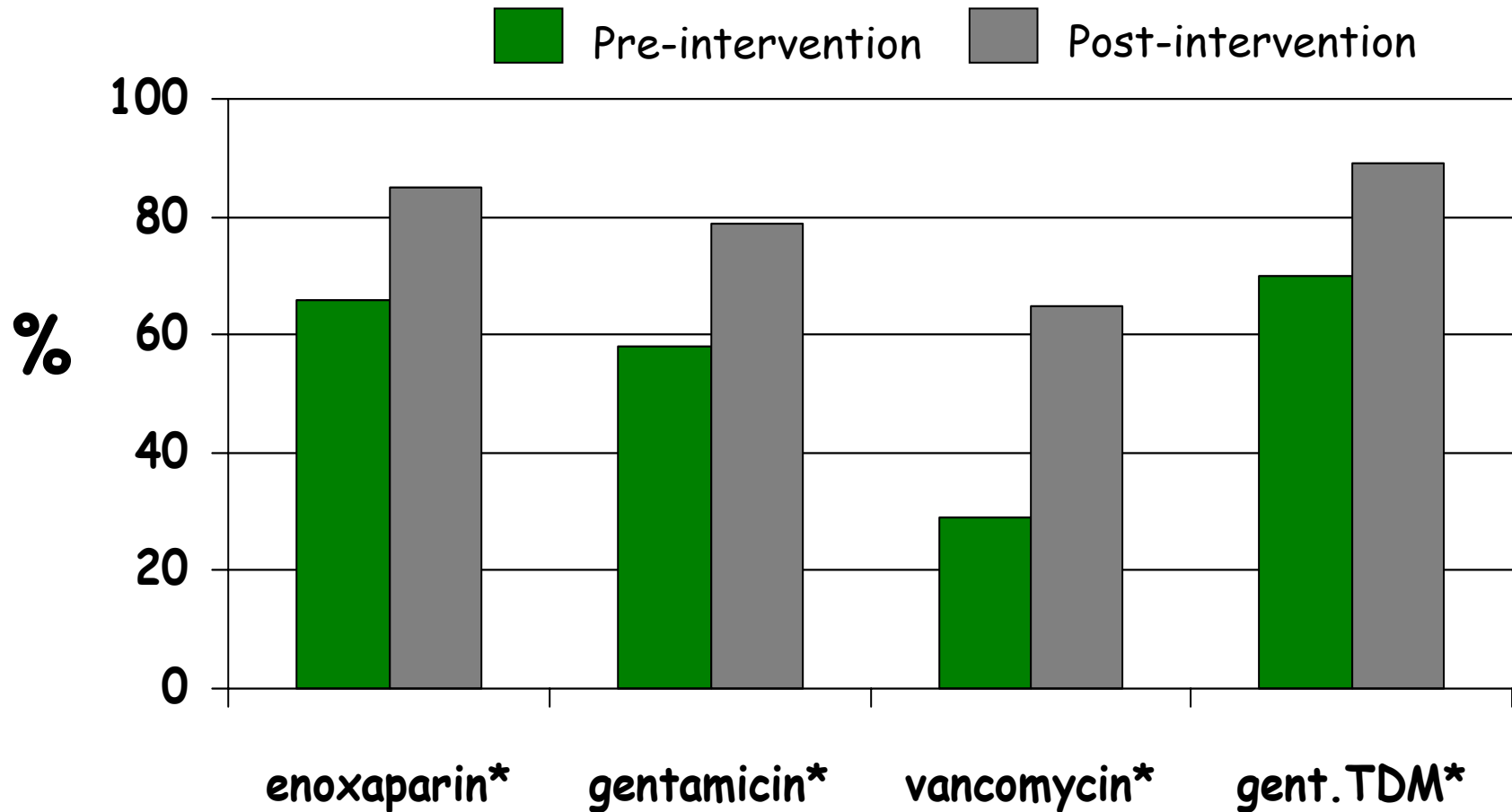
Extended interval dosing (one dose every 2 days or more) may be required for this patient.

[Show More Info](#) [Contact a Clinical Pharmacist](#)

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Improvement in prescribing of renally cleared drugs.



* $p < 0.05$ for difference between pre- and post- intervention

Results

During episodes of acute renal failure, renally cleared drugs (ACE inhibitors, metformin, digoxin, frusemide) were held on 38% of instances in the pre-intervention period versus 62% post-intervention ($p < 0.01$).

Frusemide was more likely to be held after the intervention (19% versus 31%, $p < 0.01$).

- enthusiastically embraced by medical staff
- hopefully lead to improved patient safety and outcomes.

Hyperglycaemia in the hospital setting

Van den Berghe, G. et al. N Engl J Med 2001;345:1359-67

- RCT, n=1548 surgical ICU patients intensive management
BGL 4.4-6.1 mmol/L vs conventional (9-10mmol/l)
- Average dose 3-4U/hr, 25% incidence hypo's (<2.2mmol/l)
- Results
 - ↓ mortality by 43% (from 11% to 6.5%, NNT 17)
 - ↓ mortality in long-stay patients 78%
 - ↓ sepsis by 43%
 - ↓ antibiotic use by 35%
 - ↓ dialysis by 41%
 - ↓ polyneuropathy by 44%
 - ↓ ventilation by 37% (2days)
 - ↓ ICU length of stay by 3 days
 - ↓ intracranial pressure in brain injury, better neurological outcome

In-hospital hyperglycaemia

- Applies to ALL forms of hyperglycaemia
 - stress-induced
 - drug-induced
 - pre-diabetics
- Applies to ALL patients with hyperglycaemia, not just diabetics
- Impacts on mortality and/or morbidity seen in
 - ICU/CCU
 - Cardiac surgery
 - **CCF**
 - **Post-MI**
 - Transplant
 - **COPD**
 - Stroke
 - etc

S/C sliding scales at RGH

	Day 1	Day 2	Day 3	Day 4	Day 5
Patients (n)	11	12	10	7	6
No. of BGL's	25	61	38	26	17
Patients with BGL>10 (%)	45	75	70	71	83
BGL's >10 (%)	52	31	47	58	47

41% of ALL BGL's were >10mmol/L, 3% were <4mmol/L

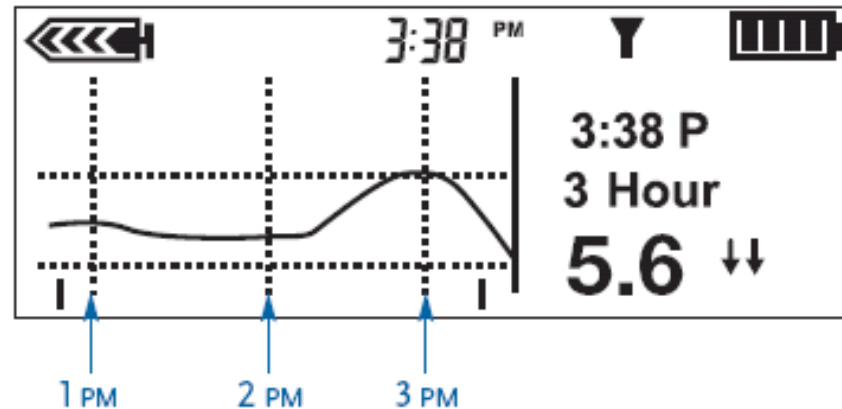
Patients maintained on normal diabetic tx.

	Day 1	Day 2	Day 3	Day 4	Day 5
Patients (n)	117	119	106	86	73
No. of BGL's	255	451	375	297	243
Pts with BGL>10 (%)	44	50	49	42	49
BGL's >10 (%)	28	27	28	28	26

- 28% all BGL's > 10mmol/L
- a number of these had multiple daily readings >10
- worst sub-groups
 - those on insulin
 - post-surgical

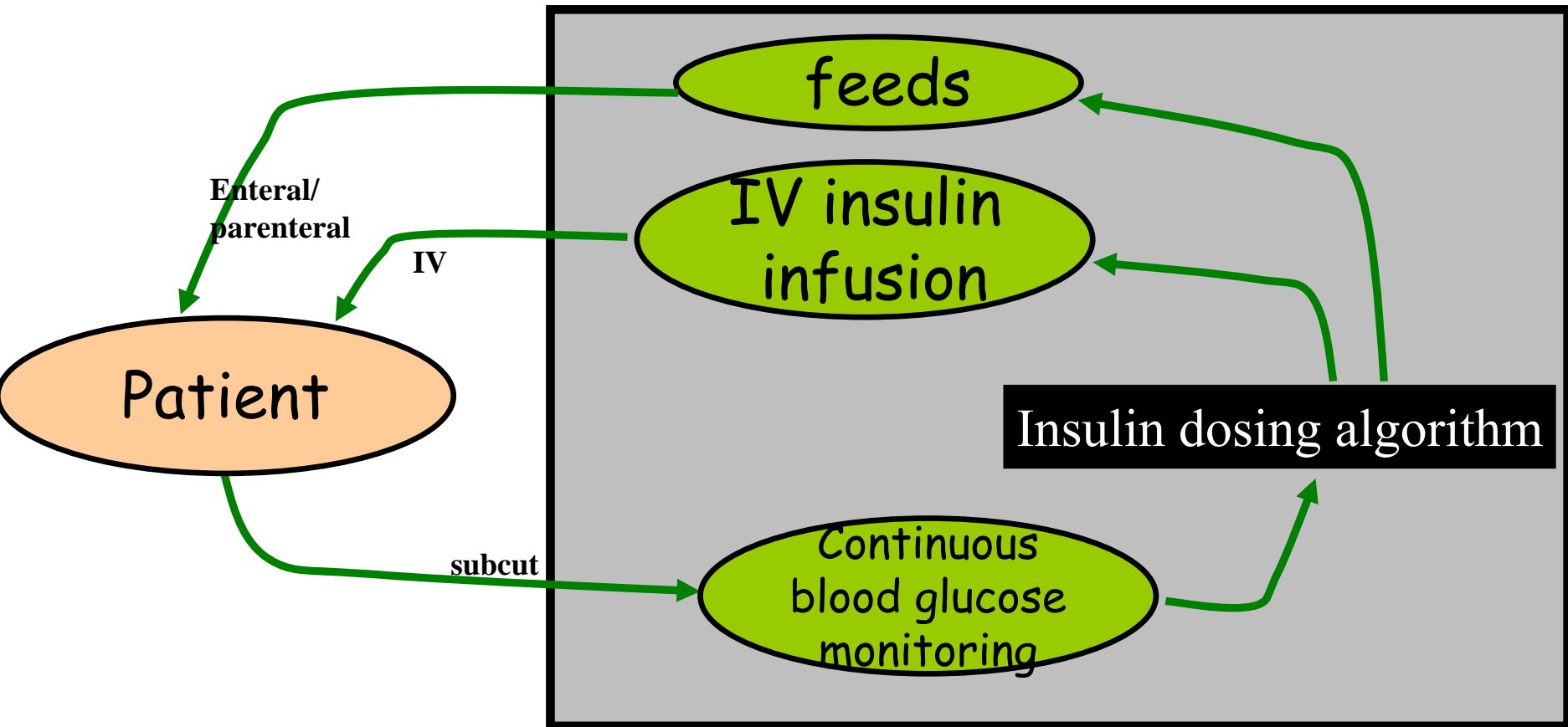
.....the changes to be made

- Develop basal/bolus approach to replace s/c sliding scale insulin
- Identification of patients at most risk for poor BG control during hospitalisation to enable more intensive management where required
- Extension of IV insulin use from ICU onto wards, incorporating use of a continuous glucose monitoring system (CGMS)



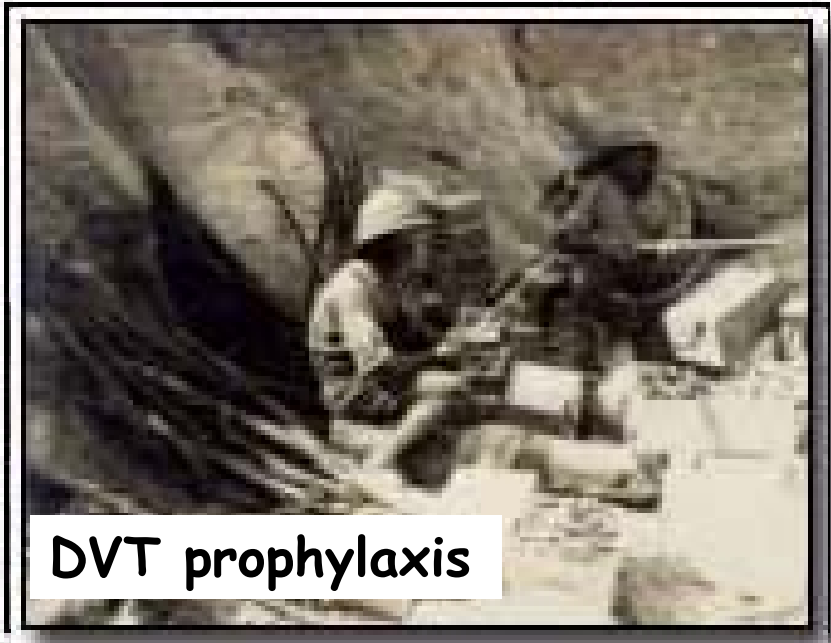
.....the changes to be made

Development of "self-managing" IV infusion model with CSIRO.



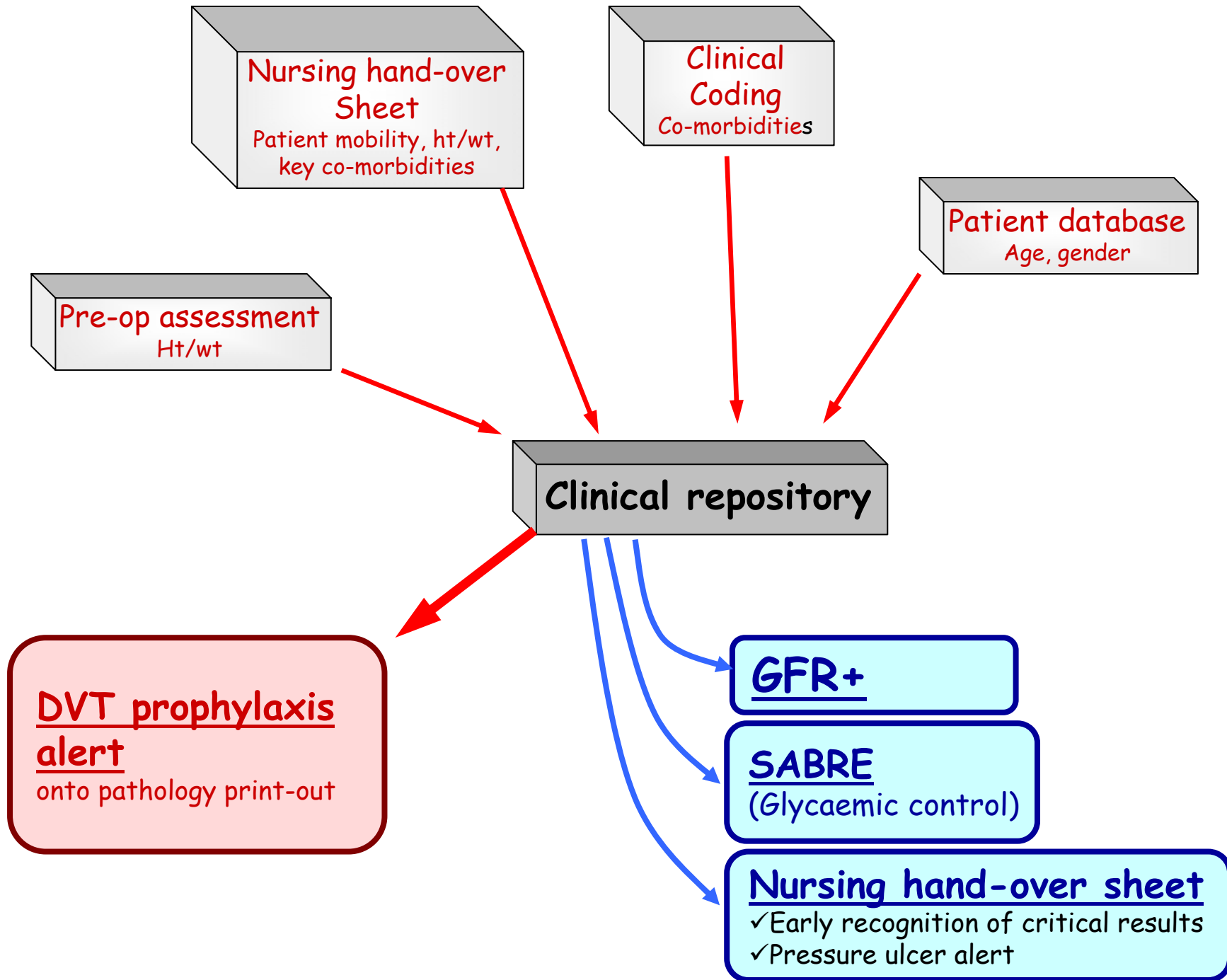
Development of PDA/glucometer concept with CSIRO.

Automated DVT prophylaxis alert



A pattern in the incident monitoring -

DVT prophylaxis interventions were constantly being "washed out" by the constant turnover of junior medical staff, requiring unsustainable resource investment.



Assurance



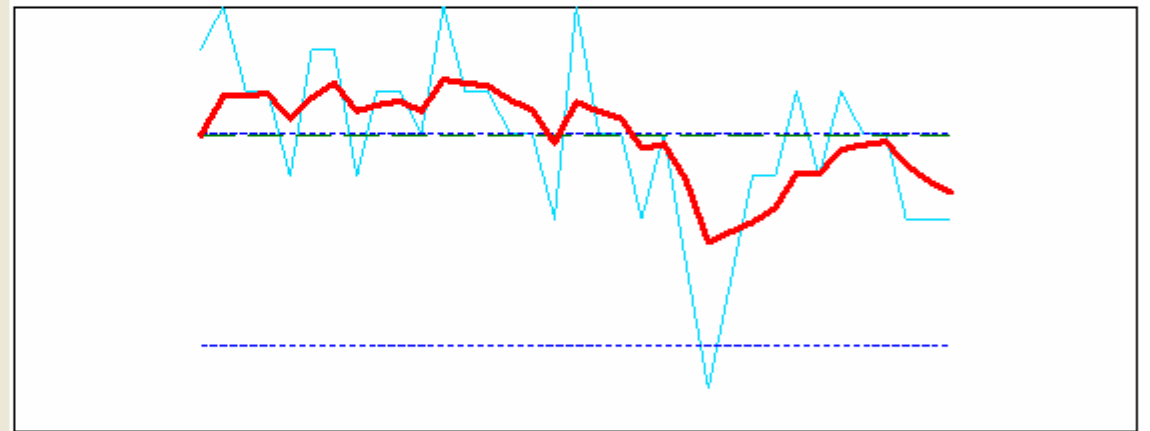
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Falls in Hospital - Per 1000 Bed Days

Report Last Updated: July 2007

Proportion of all falls occurring in Hospital as recorded in the AIMS database per 1000 Bed Days.

The UCL (Upper Control Limit) and LCL (Lower Control Limit) :
 Benchmark falls rate : Victorian Quality Council 2005: Falls rate in acute care setting ranges from 2-7/1000 bed days.



Comments and Interpretation - To add a new comment click the "Add New" button below

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Recorded By:	Recorded On:	



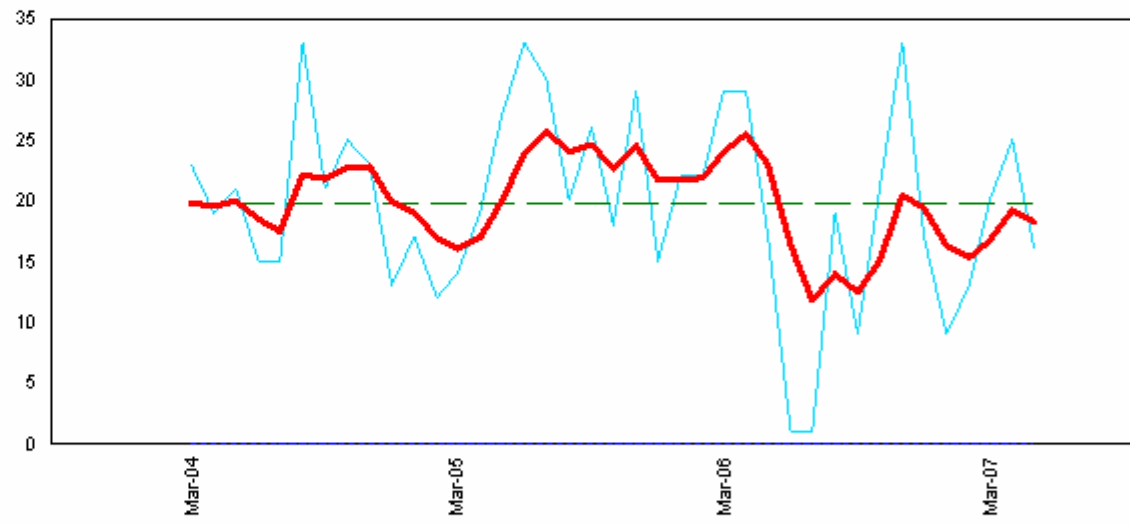
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Medication Incidents - (AIMS)

Report Last Updated: July 2007

Medication incidents recorded in AIMS since March 2004.

The UCL (Upper Control Limit) and LCL (Lower Control Limit) are statistically generated



Comments and Interpretation - To add a new comment click the "Add New" button below

Add New	Heading	Comment / Action / Risk
		Comment
		<input type="checkbox"/> Display With Chart
The AIMS system was not used at RGH during June and part of July		
Recorded By: swalssa Recorded On: 13/09/2006 15:47:02		

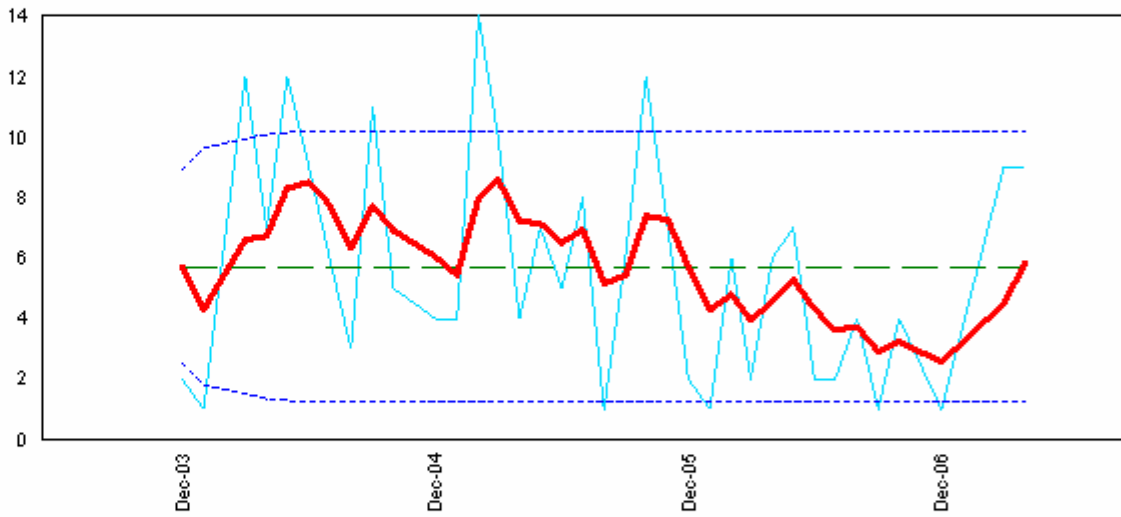


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Number of Drug Related Problems Due to High Dosing

Report Last Updated: April 2007

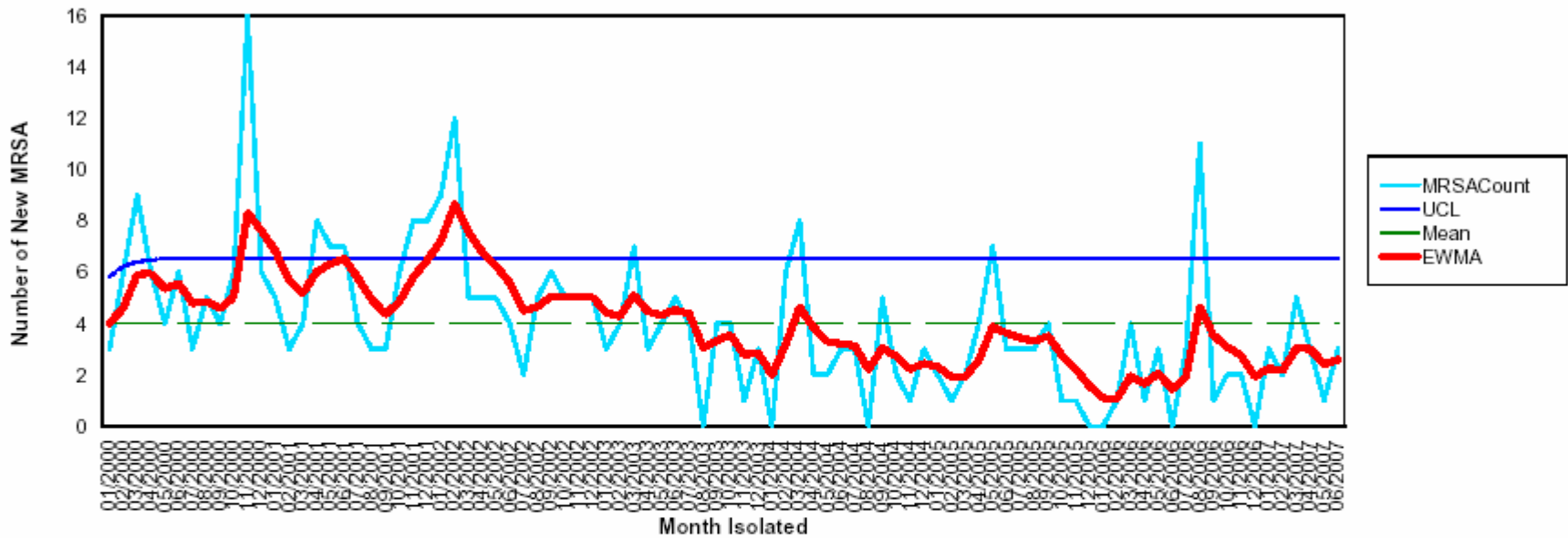
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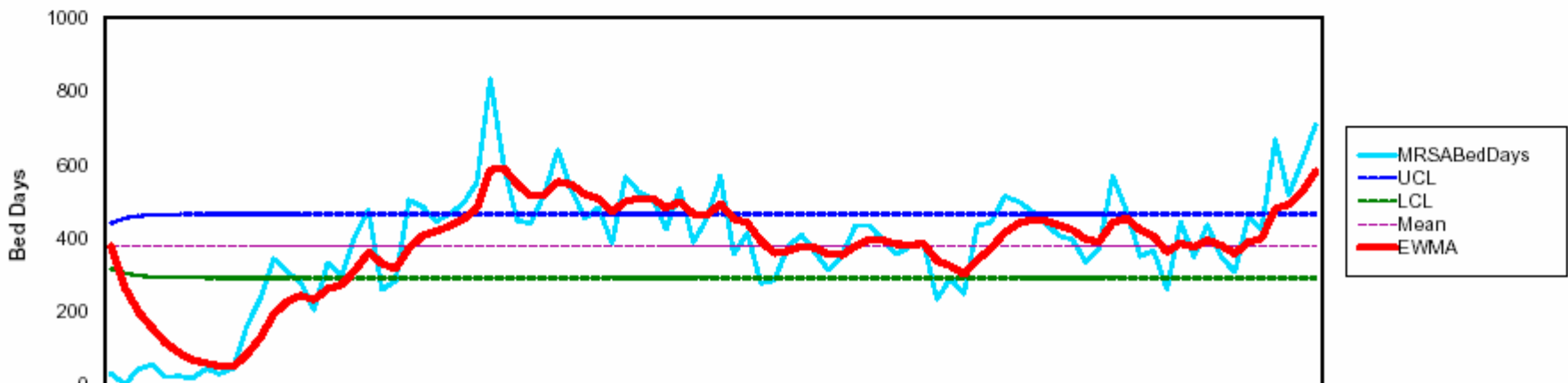
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Healthcare Acquired MRSA



MRSA Bed Days





- [-] Infection Rate - Staph Aureus Bacteraemia
 - [-] Staph Aureus Bacteraemia - Methicillin Resistant
 - [-] Staph Aureus Bacteraemia - Methicillin Sensitive
 - [-] Staph Aureus Bacteraemia - Total Hospital
 - [-] MRO Report
 - [-] SSI Report
 - [-] Targeted surgical wound surveillance
 - [-] Patient Safety and Services Report Card
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 - [-] Pressure Ulcers - Hospital Acquired
- Division
- [-] Division of Medicine
 - [-] Division of Mental Health

Pressure Ulcers - Hospital Acquired

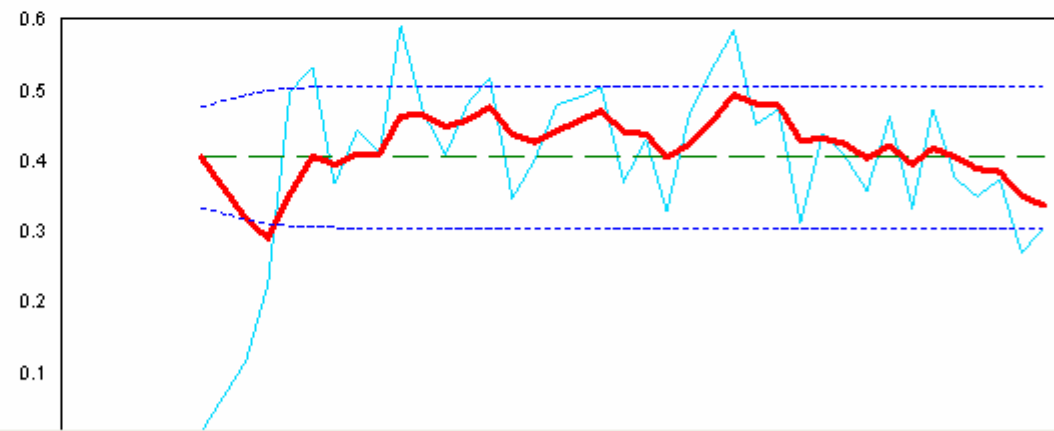
Report Last Updated: May 2007

A pressure ulcer is considered hospital acquired if a pressure ulcer Unit-of-Care (UOC) is activated in Excelcare after the admission date .

The UCL (Upper Control Limit) and LCL (Lower Control Limit) are statistically generated

Numerator : Number of patients by calander month who develop at least one pressure ulcer during their admission

Denominator : Number of occupied bed days



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