

25th Monthly Meeting and
HKCEM Toxicology Sub-com
Presentation

8th Aug 2007

Drug Overdose Audit
Application of the Intergrated
Clinical Pathway

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Audit

- 11/06 –2/07
- Drug overdose patients

Audit

- 112 number of cases
 - Patient characteristic
 - Disposal
 - Treatment Modality
 - Psychi consult
 - Outcome –Length of Stay, Mortality, Reattendance
 - Adhere to Paracetamol Overdose protocol

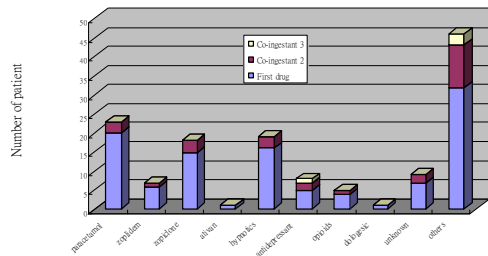
Patient Characteristic

- Sex: Female 69% Male 31%
- Age group: 2 -89 yo
- Time Lapse
 - <4 hour 61.8%
 - 1 hour 21.7%

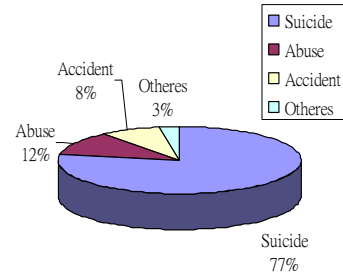
Patient Characteristic

- GCS
 - GCS 15 70.5%
 - GCS 14 8.9%
- Drug characteristic
 - Single 78%
 - Two drugs 18%
 - Three or more 4%

Drug types



Cause of Drug Overdose



Introduction of drug overdose protocol on 1/1/07

Protocol

- Drug overdose protocol
 - Single benzodiazepine overdose
 - Paracetamol overdose flow chart
 - Exclusion and Inclusion Criteria

Protocol – Result

- Result of the new protocol
 - Disposal of patient
 - Admit med vs observation ward
 - Treatment modality
 - Psychi consultation
 - Length of stay
 - Reattendance rate
 - Mortality rate

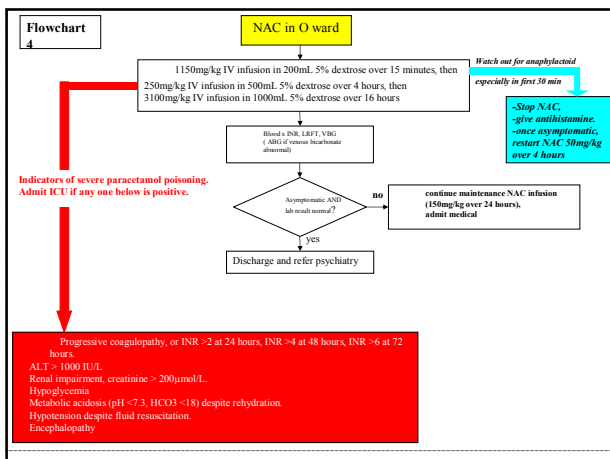
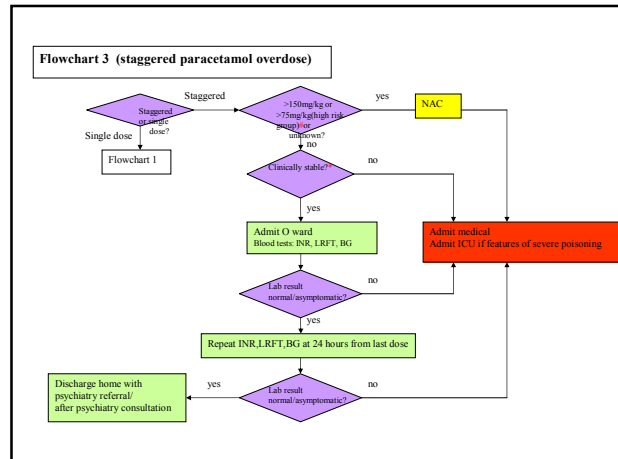
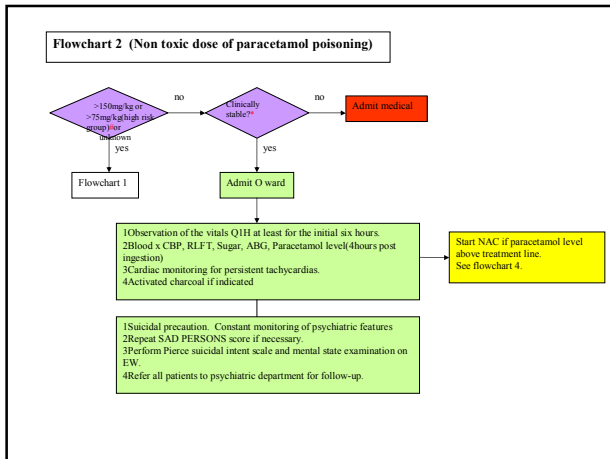
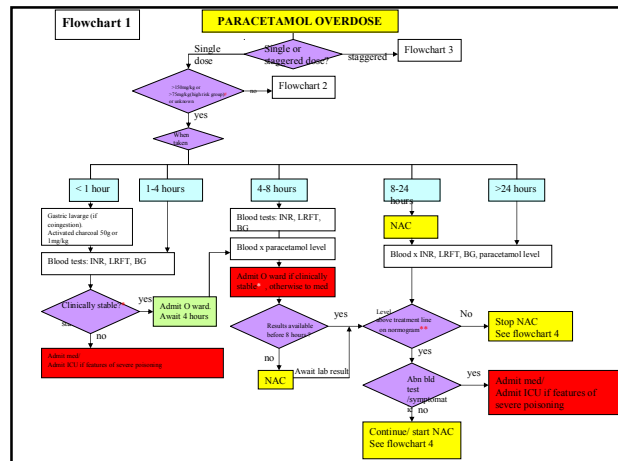
Exclusion Criteria

Paracetamol Overdose Flow Chart

[Intergrated Clinical Pathway](#)

Exclusion Criteria

- Age < 16 or > 65
- GCS < 14
- Abnormal Vitals
 - SBP < 90 or DBP < 60, pulse < 60 or > 110, RR > 25, SaO2 < 92
- Fever
- Widened QRS > 3.5 small sq
- pH < 7.35
- Oral burns
- Comorbidities like chronic liver disease, chronic alcoholic
- Modified SAD PERSONS score > 4
- Unknown/ Multiple drugs



Intergrated Clinical Pathway

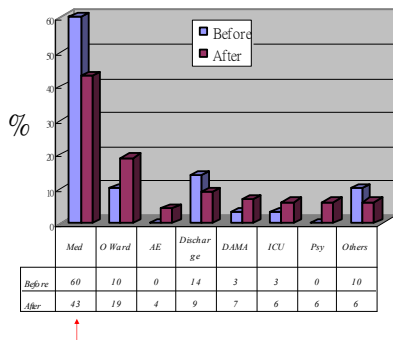
ICU Admission

- Total 5 patients were admitted to ICU
 - 2 → Psychi Drugs
 - 1 → Ketamine/ Ecstasy
 - 1 → Anti HT
 - 1 → Opioids
- GCS \leq 10
- 4/5 were intubated

After introduction of protocol.....

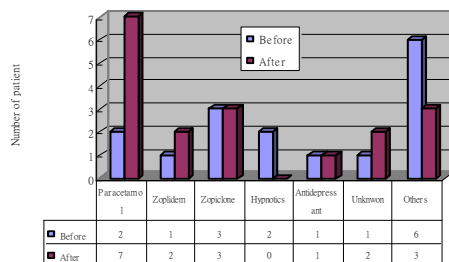
How was our performance?

Disposal of patient Before VS After

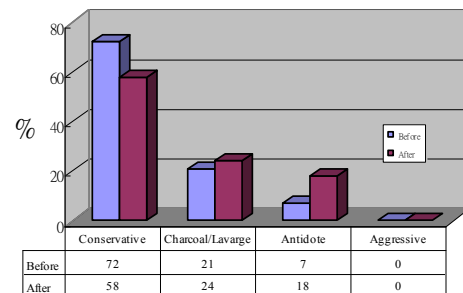


Let's have a look what we have done in O ward/AED/DC....

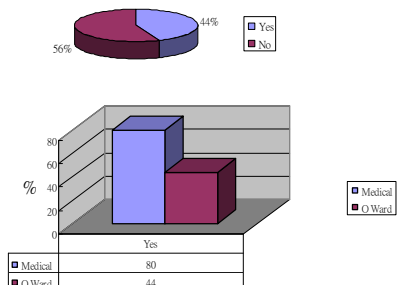
Drug types O Ward/AE/DC



Treatment Modality in O Ward/AE/DC



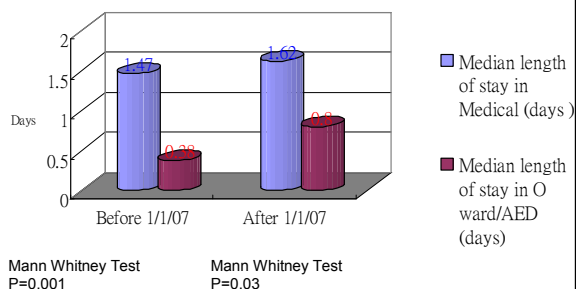
Psychiatric Consultation in O Ward/AE



Length of Stay

- Before 1/1/07
 - Median = 0.38 (0.05-0.75)
- After 1/1/07
 - Median = 0.8 (0.14-1.64)

Comparison the LOS Med vs O ward/AE cases



Reattendance Discharged from O Ward/AE

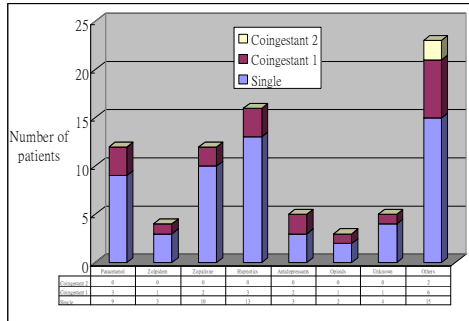
- Before 1/1/07: ZERO
- After 1/1/07: TWO
 - Both of them reattended for suicidal attempts
 - One consulted Psychi and said to be mentally fit for discharge

Mortality in O Ward

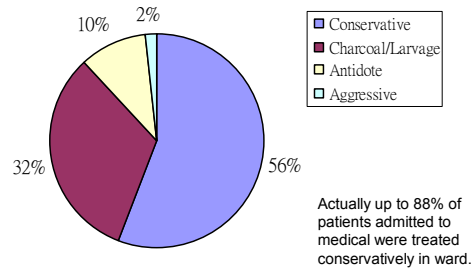
- ZERO

Let's have a look at the medical case types.....

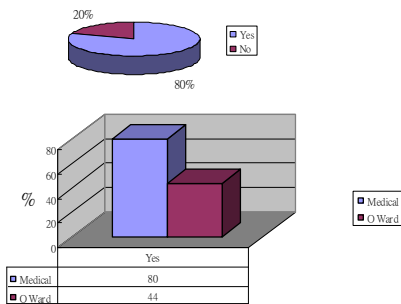
Admit to Medical Ward Drug types (Nov 06-Feb 07)



Treatment modality in Medical



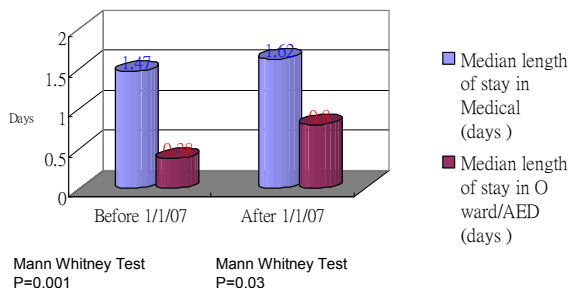
Psychi Consultation in Medical



Length of stay in medical ward

- 11/06-2/07
- Median= 1.5 days

Comparison the LOS Med vs O ward/AE cases



Reattendance (D/C from Med)

- Total 7 cases in 4 months
- Mostly due to psychiatric problem rather than medical.
- 1 of them reattend for asthmatic attack
- 2 cases contributed by the same patient
- 4 cases reattended for mood/ psychi problems

Mortality

- Zero

Summary to medical case type

- Case type:
 - Hypnotics
 - Other drugs
 - Panadol
- Treatment: 88 % Conservative
- Psychi consultation: 80%
- LOS : Median 1.5

How well did we follow the protocol?

Paracetamol

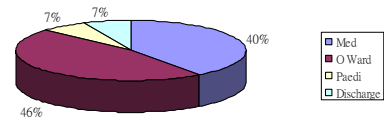
Paracetamol

- None of the patients were wrongly admitted to medical ward after introduction of the protocol
- None of the patients were wrongly admitted to O ward , too!

Destination after 1/1/07

Total 15 patients with paracetamol overdose

Med	6
O Ward	7
Paedi	1
Discharge	1



Documentation according to criteria

- Age 😊 =100%
- GCS 😊
- Vital 😊
- Fever 😊
- ECG 😊
- Acidosis 7/15 no BG done
- Oral burn None mention (may be it's too obvious if happened)
- Comorbidities
- SAD score 1/15 did the SAD score

History

- Dosage 😊
- Time lapse 6 / 7
- Drug types 😊

Blood taking time

- < 1 hours INR LRFT BG
- 1-4 hours INR LRFT BG
- > 4 hours paracetamol level + INR LRFT BG

- Some of us took blood for paracetamol level in patient time lapse < 4 hour
- 2 patients admitted O ward taken bld < 4 hrs
- 2 patients admitted med taken bld < 4 hrs

Normogram

Plot the normogram 😞

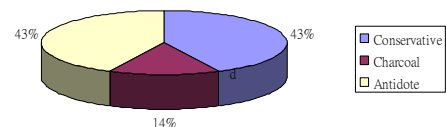
Not in CMS

Treatment in O Ward

- 3 out of 7 patient were given NAC (time lapse 6-12 hours)
- 2 of them given complete 24 hrs infusion of NAC
- 1 stopped after the knowing the blood result was normal

Treatment in O ward

Conservative : 3
Only Charcoal: 1 (10 tabs/ 0.5 hrs)
Antidote: 3 (30 tabs/ 6 hrs ; 2 cases with time lapse 12 hrs)



Conclusion

- No wrong admission to medical ward
- No wrong admission to O ward
- No mortality
- 2 Cases reattended
 - As mentioned before, reason were due to psychiatric problem
- LOS : 0.2-1.64 days

How can we improve?

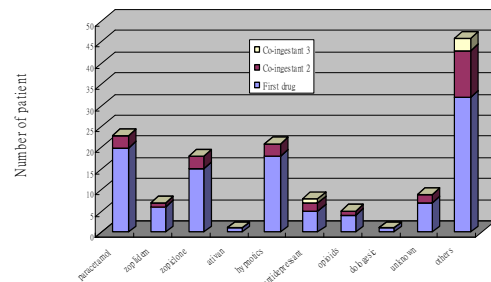
- Integrated Clinical Pathway
 - history
 - psy condition: SAD person score
- Plot normogram (for documentation)
 - Although you think it should be normal or under treatment threshold
- Timing for blood taking
 - Take the correct blood at correct time
 - Otherwise waste resources (need to repeat the paracetamol level at 4 hrs)

Benzodiazepine

- 2 patients attended AED for single agent benzodiazepine overdose
- Admitted to medical ward
- Reasons for 1st case
 - Psychi illness on multiple psychiatric drugs
 - Suspicious of multiple drug overdose
- Reasons for 2nd case
 - Hx of metastatic adeno CA lung on palliative chemo
 - Noted fever after admission with WBC 0.6
 - LOS 13.72 days

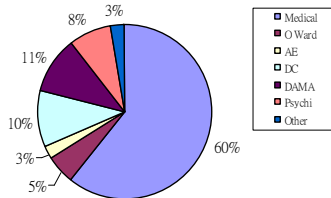
Can we do more?

Drug types



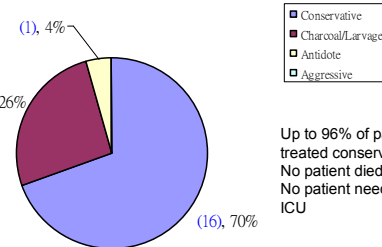
Single Agent Hypnotic Overdose

- 11/06-2/07
- 38 patients



Treatment in Medical

- 23 Patients



Up to 96% of patients were treated conservative in ward.
No patient died
No patient needed to transfer to ICU

Length of stay Single Hypnotic Overdose

- Median = 1.03 days (0.03, 13.72)

Possible reduce medical admission

- In the past 11/06 – 2/07
 - 58/112 → Medical
 - Around **52%**
- If we also admit those patients with single hypnotic overdose
 - 58 minus 23 = 35
 - 35/112 = **31%**
- Of course, it's just a rough calculation !

Take Home Message.....

- Drug overdose protocol :
 - significantly ↓ admission to medical ward
 - significantly ↓ length of stay
 - no increase in mortality
 - minimal reattendance (all due to psy condition)
 (Keep on managing the patient with paracetamol /single benzodiazepam overdose by following the protocol)
- Note more on the history
 - SAD person score
- Complete Integrated Clinical Pathway
- Plot the Normogram
- Time of blood test
 - BG
 - Paracetamol

What next ?