XXI CONGRESO de la SOCIEDAD CHILENA de ADMINISTRADORES de ATENCION MEDICA y HOSPITALARIA

Safety and Management In Infusions

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Patient Safety

- U.S. national health expenditures are estimated to be $4 trillion by 2016, or 20% of the gross domestic product.
- Nurses say that distractions cut the bedside time by 25 %.

Medication Error Statistics

- **The 1999 Institute of Medicine report “To Err is Human”:**
- Medical errors account for between 44,000 to 98,000 deaths in the United States each year[1]
- Medical errors are the eighth leading cause of death in the United States, occur at a rate greater than motor vehicle accidents, breast cancer, or AIDS[1]
- Over 770,000 patients are injured because of medication errors every year[2] including at least 7,000 deaths due to medication error
- **The 2006 IOM report “Preventing Medication Errors”:**
- Medication errors, among the most common medical errors, harm at least 1.5 million people every year[3]

- 1. Kohn, LT, et al. To Err is Human: Building a Safer Health System. Washington, DC: National Academy Press; 1999
- 2. Bates DW, Spell N, Cullen DJ, et al. The costs of adverse drug events in hospitalized patients. JAMA. 1997 277:307-311
- 3. Aspden P, Wolcott J, Bootman JL, et al. Preventing Medication Errors. Washington, DC: Institute of Medicine National Academies Press; 2006

Joint Commission Report[7]

- Pediatric patients have >3 times chance of an adverse drug event (ADE) than adults
  - Medications formulated and packaged primarily adults, need to alter the original medication dosage requires series calculations and tasks, each significantly increasing the possibility of error
  - Less able to physiologically tolerate a medication error due to still developing renal, immune and hepatic functions.
  - Not able to communicate effectively to clinician
- Pediatric-specific strategies for reducing medication errors
  - *Standardize, Ensure full pharmacy oversight*
  - *Use technology judiciously*
    - Recognize use of infusion pumps, or smart pumps, is not a guarantee against medication errors
    - Appropriate education for nurses, pharmacists and other caregivers regarding these technologies is important

7. The Joint Commission. Preventing pediatric medication errors. 2008;39. Available at: www.jointcommission.org/SentinelEvents/SentinelEventAlert/sea_39.htm

Dollar$ and Sense……

- Conservative number of 400,000 preventable drug-related injuries occur each year in hospitals, with additional numbers of injuries associated with long-term facilities and outpatient clinics
- Each preventable ADE that took place in a hospital added about $8,750 (2006 dollars) to the cost of the hospital stay[3]

Assuming (conservative estimate) 400,000 preventable events per year x $8,750/each = Total annual cost of Approximately $3.5 billion NOT counting lost wages or productivity [4]

A hospital patient can expect on average to be subjected to at least one medication error each day*

4. Medical malpractice verdicts, settlement and statistical analysis, Jury Verdict Research. Referenced by: Albert, T. Liability insurance crisis: Bigger awards just one factor. April 15, 2002. : http://www.ama-assn.org

Hot Buttons for Healthcare Organizations

- Providing safe, efficient, cost effective means for quality care and meeting regulatory guidelines.
- Finding the technology that is end-user friendly, patient safe and provides ease of patient care flow.
- Technology that supports the care giver with closed loop technology.
- Finding a partner that will provide front end and back end service of new products or interface capability.
- Development of future advancements in technology, software and hardware.
- Continue research for physicians and clinicians.

Clinical Care for all Patients

- All clinicians practice evidenced based care for clinical outcomes
- Support of technology to help drive compliance or guide care towards desired outcome.
- Quality outcomes are driven by standardization of order sets.
- Care maps to guide day to day continuum of care.
- Evaluation of quality data to see where we are falling down.
- Streamline our initiatives to improve our efficiencies.
- Grass roots technique used vs. top down methodology.
- Communication of initiatives, transparent data, improved care.

Integration of Technology

- Necessity to ensure compliance
- Provide real time info to the end user
- Increase efficiency of nurse response time
- Patient information at fingertips
- Integration of patient data to other technology (i.e. billing, database, monitors)
- Increased communication amongst caregivers
- Overall reduction of errors
- “Smart” approach to patient care
- Therapeutic decision support systems

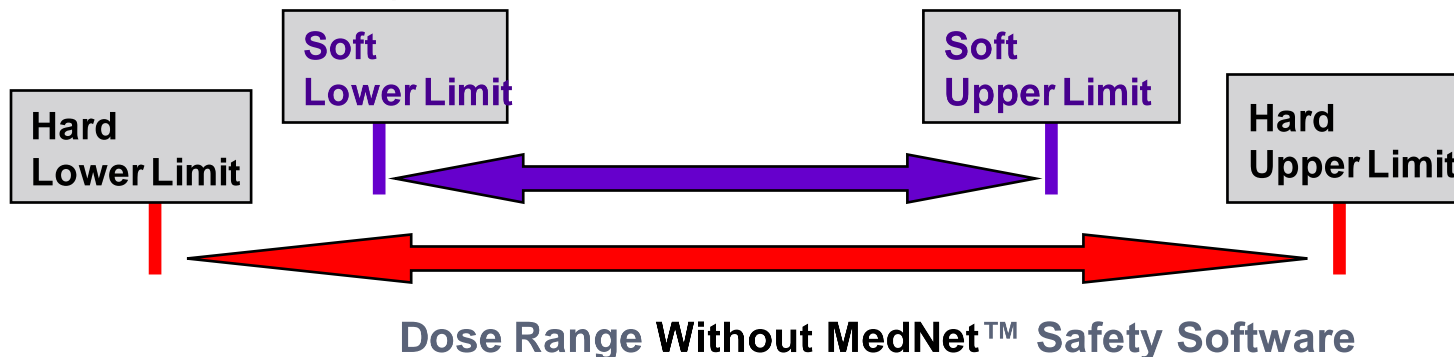
Safety Features To Look For In IV Pump Technology

- Technology that allows nurses easy programming.
- Ability to utilize 5 rights for patient safety.
- Ease of use with placing pump on and off pole.
- Reports can be pulled to see if compliance with the library is maintained.
- Reports can show where drug library changes need to be made.
- Reports can demonstrate “good catches” regarding potential drug errors.

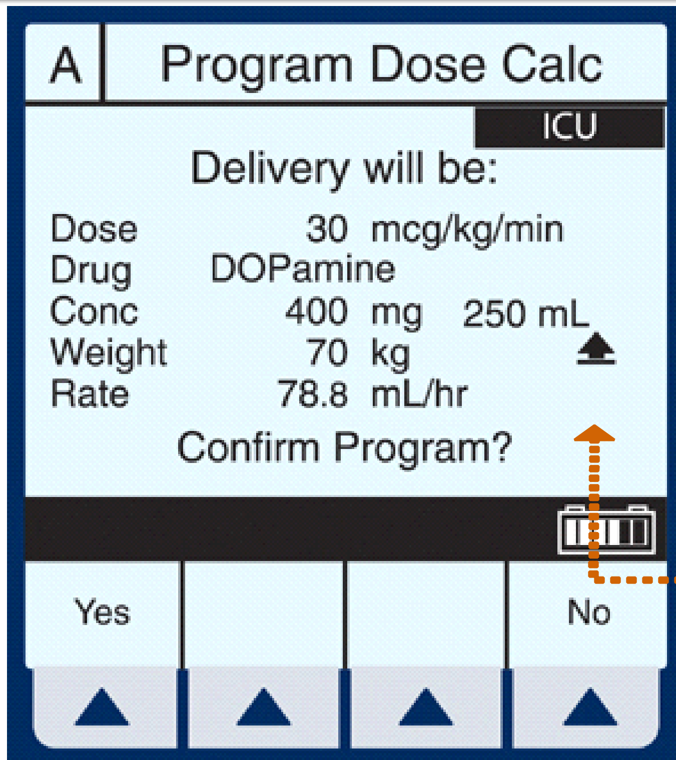
Safety Software Features

Supports Safety

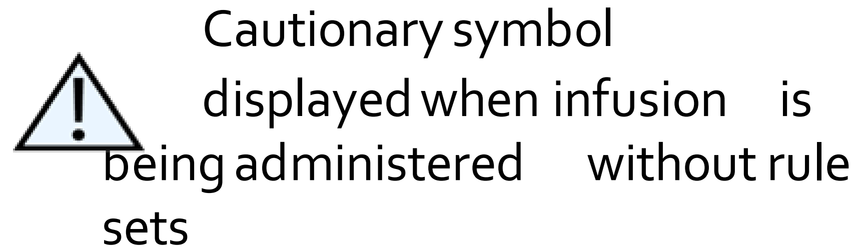
- Hospital specific “TALLman” lettering
- Dosage limits applied to any IV infusion
- Drug library customized to meet individual patient care area needs
- User-defined dosage limits for each medication, soft and/or hard limits
  - Hard limits cannot be overriden
  - Soft limits may be overridden or edited with confirmation



Programming Made Easy



- The clinician confirms the program and selects "Yes"



Cautionary symbol displayed when infusion is being administered without rule sets

The display includes a symbol indicating to the clinician that the Soft Upper Limit is exceeded

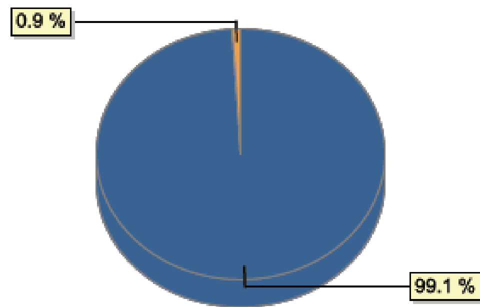
Hard and soft limits are set by the institution according to package inserts and/or hospital best practice guidelines.

Infusion Summary Reports

Active Drug Libraries 12/29/08 5.40 11810

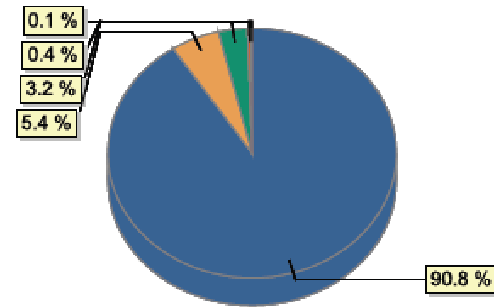
CCA: All

Total Programs



Medication	16259	99.1 %
Other Drug	153	0.9 %
Total:	16412	100.0 %

Alerts

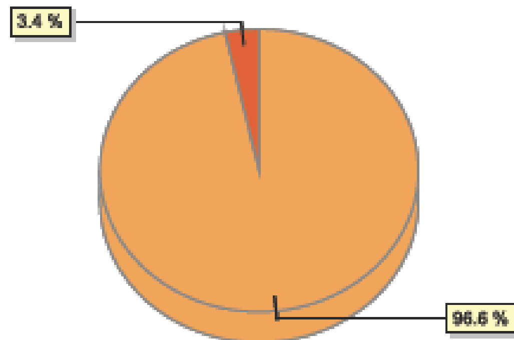


No Alert	15346	90.8 %
DoseRate Override	921	5.4 %
DoseRate Edit	547	3.2 %
Bolus Override	68	0.4 %
Bolus Edit	21	0.1 %
VTBI Override	0	0.0 %
VTBI Edit	0	0.0 %
Total:	16903	100.0 %

Infusion Summary Reports Cont.

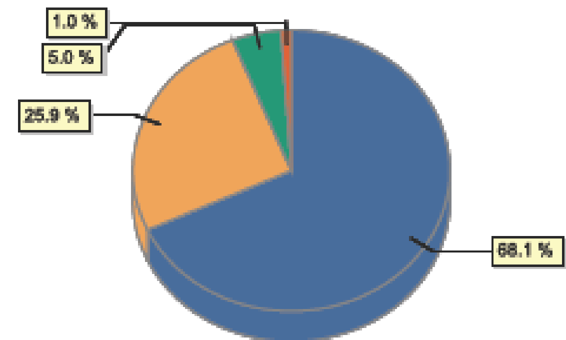
CCA: All

Hard Limit Alerts



DoseRate Override	0	0.0 %
DoseRate Edit	197	96.6 %
Bolus Override	0	0.0 %
Bolus Edit	7	3.4 %
VTBI Override	0	0.0 %
VTBI Edit	0	0.0 %
Total:	204	100.0 %

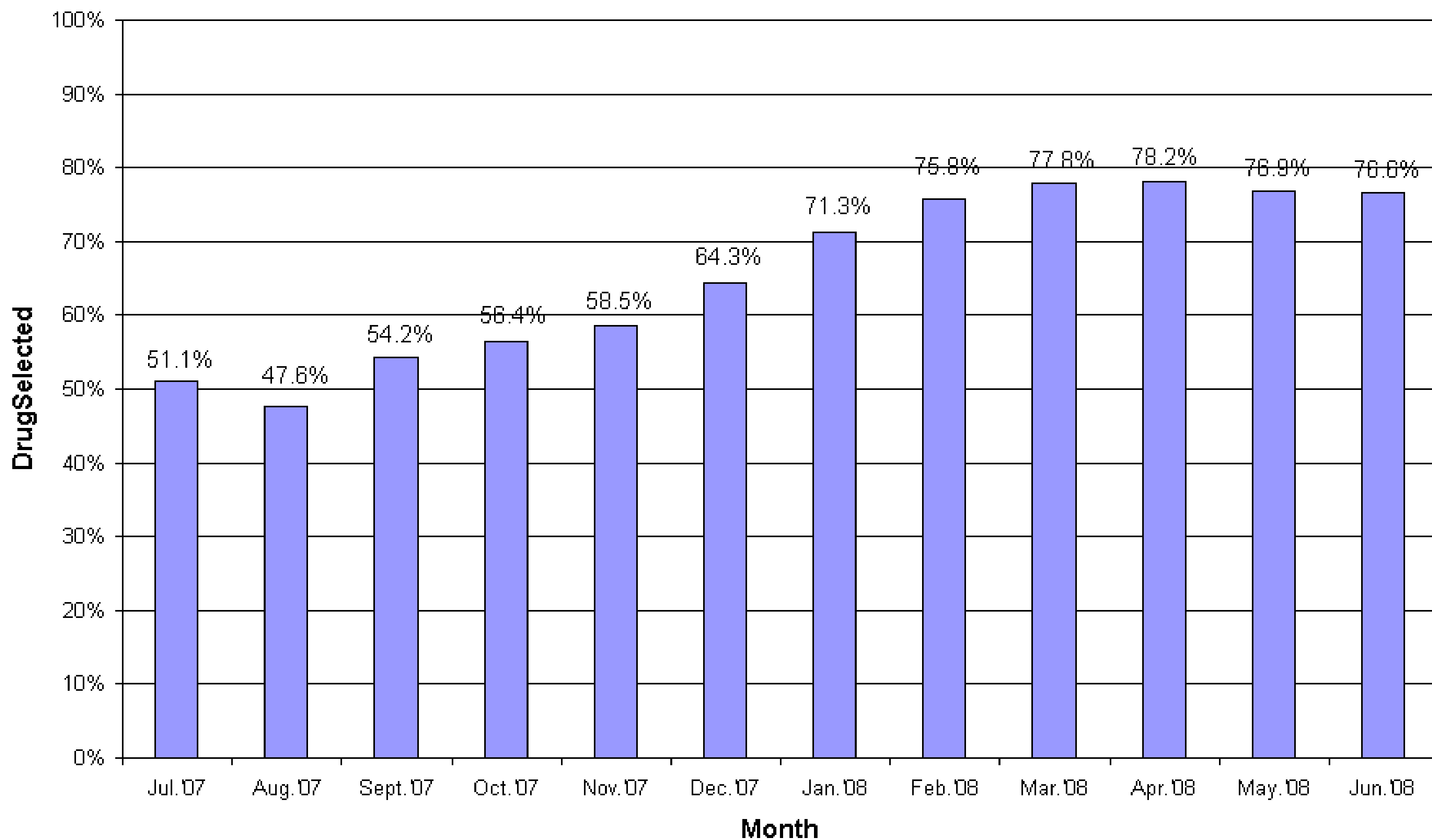
Soft Limit Alerts



DoseRate Override	921	68.1 %
DoseRate Edit	350	25.9 %
Bolus Override	68	5.0 %
Bolus Edit	14	1.0 %
VTBI Override	0	0.0 %
VTBI Edit	0	0.0 %
Total:	1353	100.0 %

Trend Reports - Drug Library Compliance

Regional Healthcare System



Edit Variance Report

Edit Variance Detail Report

Active Drug Libraries 12/29/08 5.40 11810

CCA: Cardio-2

Medication/Concentration	Alert Date/Time	Rule Set	Limit	Limit Violated	Initial Value	Final Value	Variance
Fentanyl 5 mg/100 mL	03/05/2009 22:46	Dose Rate	10 mcg/kg/hr	UPPER HARD	100	0.57	900.00%
Heparin 25000 units/250 mL	02/24/2009 21:05	Dose Rate	500 units/hr	Lower Soft	12.5	1250	-97.5%
Heparin WBD 25000 units/250 mL	02/11/2009 20:25	Dose Rate	25 units/kg/hr	UPPER HARD	1300	15	5,100.00%
Propofol 1000 mg/100 mL	020/9/2009 13:51	Bolus Amount	20 mg	UPPER HARD	980	31.036	4,800.00%

CCA: OR

Medication/Concentration	Alert Date/Time	Rule Set	Limit	Limit Violated	Initial Value	Final Value	Variance
Insulin 100 units/100 mL	02/12/2009 9:53	Dose Rate	25 units/hr	UPPER HARD	999	8	3,896.00%
Lorazepam 40 mg/250 mL	03/06/2009 8:30	Dose Rate	7 mg/hr	UPPER HARD	20	7	185.71%
Vancomycin 1250 mg/250 mL	02/09/2009 20:17	Dose Rate	1000 mg/hr	UPPER HARD	2500	1000	150.00%

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Where Do We Go From Here

- Engage our front line staff to help drive the initiatives
- Become more efficient by streamlining processes
- Partner with vendors to provide technology that enhance clinical outcomes
- Enhance revenue by capturing supplies used, lost equipment tracking, proper utilization of staff
- Continue to be on the cutting edge of technology
- Utilize research to enhance future services offered
- Ensuring that you have the right technology available to your team members to make the their job easier – so they can focus on the patient.

Challenges We Face

- How to do more with less – estimated at 30% less resources
- Getting paid for the care we provide
- Using technology that can provide improved patient outcomes
- Increase in uninsured and underinsured and self pay patients.
- Government/regulatory driven programs that may or may not impact patient outcomes.

Final Thoughts

- Patient safety should be the most important hospital position.
- Ensuring that you have the right technology available to your team members to make the their job easier – so they can focus on the patient.
- Proper planning for projects which includes Executive Leadership.
- Technology that can provide you with the data you need to ensure safety measures are being upheld.

Thank You

Questions?

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