

Summary of Medication Error Concerns Raised during the 2018 FDA/IMSN Summit

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Expression of Strength



Institute for Safe Medication Practices

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Quantity per “mL” versus per “Container” Expression

March 8, 2012 Safety Brief

A physician ordered 50 units/kg of heparin for a 70kg patient (**3,500 units**). Using a 10 mL vial of heparin, the attending nurse misinterpreted the concentration (1,000 units/mL) as the total amount per vial and drew up 35 mL of heparin. This led to a 1000 fold over dose (**35,000 units**) and patient experienced a significant gastrointestinal bleeding.



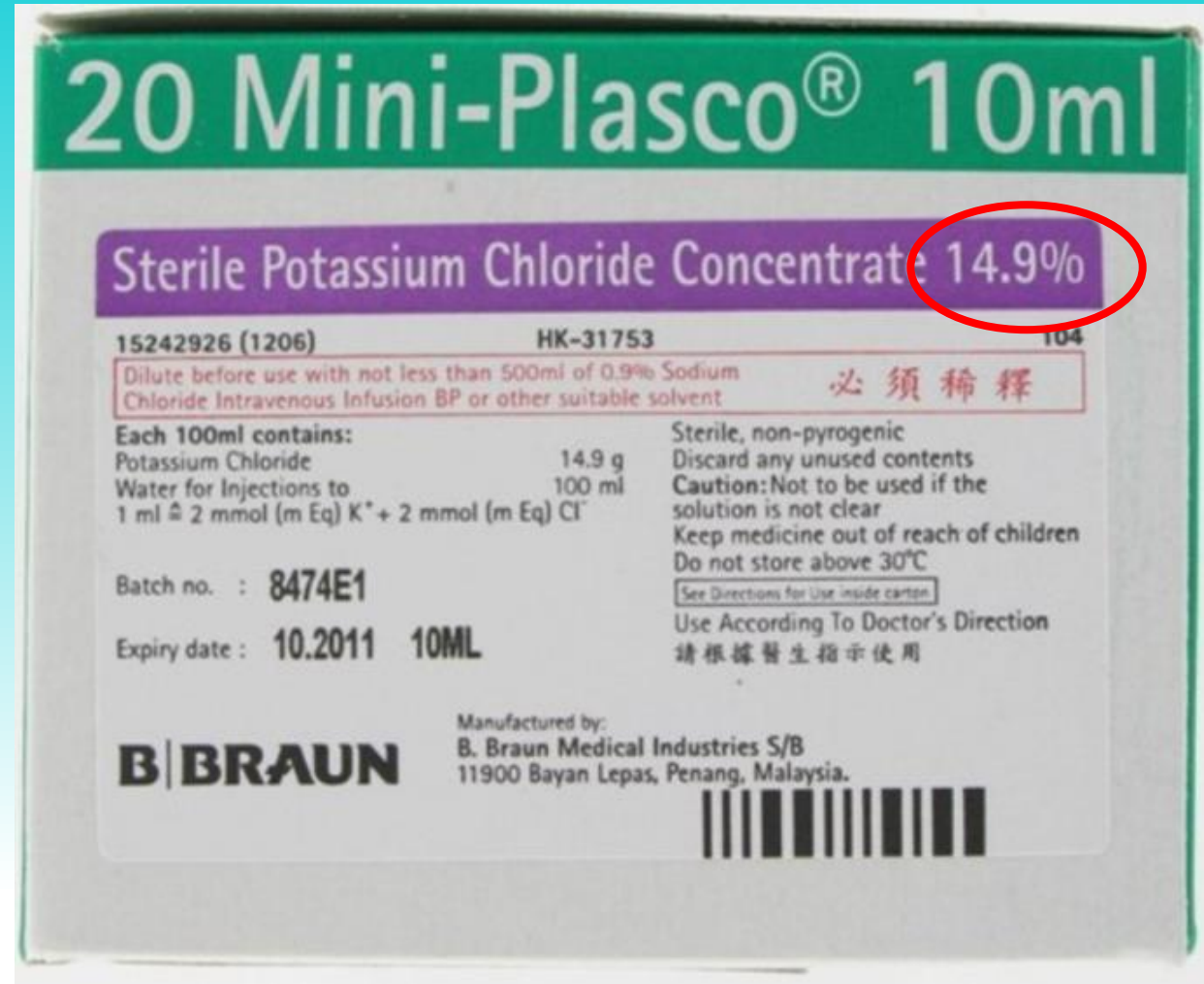
Ratio Expression

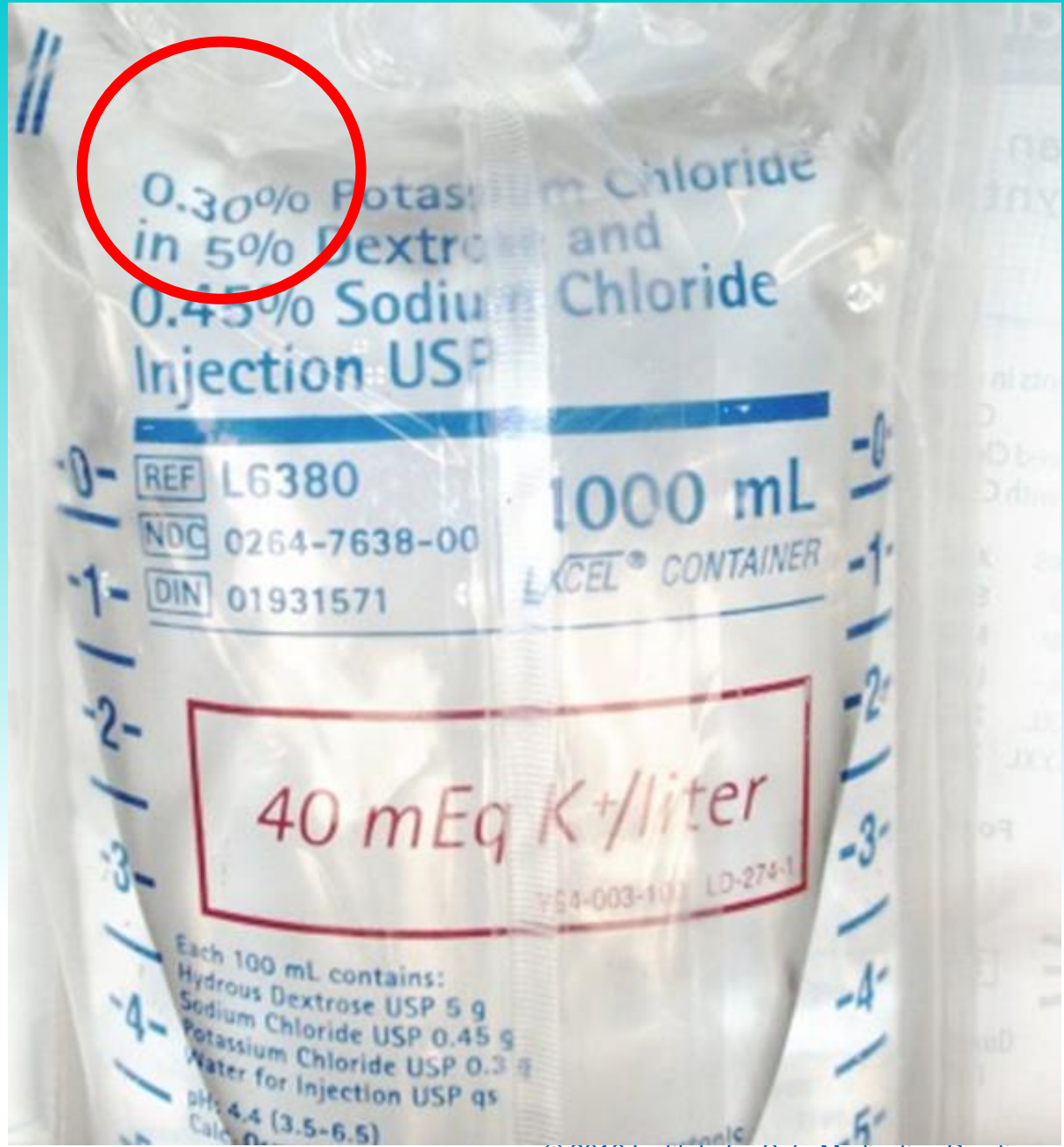


■ **Problem:** A 16-year-old with priapism received an intracavernous irrigation of 4 mL (4 mg) of undiluted 1:1,000 epinephrine. A 1:1,000,000 epinephrine solution should have been used. The physician thought that the 1:1,000 ratio on the 1 mg/mL vial meant that 1 mg of drug had been prediluted with 1,000 mL of fluid. The patient arrested and could not be resuscitated.

Percent Expression

Units not standard to mEq or mmol





Trailing Zeros

Exelon®
(rivastigmine tartrate)
Capsules

equivalent to

3.0 mg

100 Capsules

base

See bottom panel for lot number and
expiration date.

In addition, a whole number should never be followed with a decimal point and a zero. These “trailing zeros” (e.g., “3.0”) are a frequent cause of 10-fold overdoses and should never be used. For example, when prescriptions have been written for “Coumadin 1.0 mg” patients have received 10 mg in error. Similarly, a prescription for “Synthroid 25.0 mcg” could be misread as “Synthroid 250 mcg.”

Error-prone Abbreviations and Dose Designation



60 Regular INSULIN NOW

“U” for “Units”



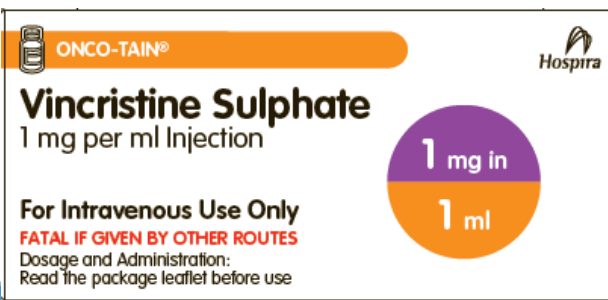
“IU” for “International Units”

• There U go again: The abbreviation “IU” (international units) in an order for “Vitamin E 100 IU daily” was misinterpreted as IV (intravenous). This led to drawing capsule contents into a syringe for intravenous administration. Fortunately, the person preparing the injection contacted a pharmacist before administering the drug. Fully

In one case, a home health nurse administered 41 units of regular insulin to a patient after reading a written order for “Regular insulin 4 IU” in a chart at the patient’s house. Fortunately, the patient was not harmed. A student nurse, aware that the correct order was for 4 units because she had checked the master chart at the home health care office, questioned the amount after the dose had already been given.



Cautionary statements (Special Warning)



Vinca alkaloids

Fatal misadministration of IV vincristine

As we began our Thanksgiving holiday last year, we had just learned that a 69-year-old woman had died due to a medication error that was caused in large part by an *easily remedied* safety problem—mistaken identity of products in unlabeled basins during a sterile procedure (ISMP Medication Safety Alert! Loud wake-up call: unlabeled containers lead to patient's

■ *Dilute vincristine in a plastic minibag of IV fluids for slow, continuously supervised (observed) infusion to deter confusion with intrathecal syringes.* (Dilution stability has been fully supported by: Trissel LA, et al. The stability of diluted vincristine sulfate used as a deterrent to inadvertent intrathecal injection. Hospital Pharmacy 2001;36:740-745.)



Potassium Chloride Injections

SafetyBriefs



A child harmed from potassium chloride error.


Last week, we heard about a child who was admitted to the hospital after receiving an IV push dose of concentrated potassium chloride

K Potassium Chloride Concentrate **20%**
Dilute before use
1 g in 5 ml
13.4 millimoles potassium in 5 ml
10 x 5 ml ampoules

1 g in 5 ml

K Potassium Chloride Concentrate **20%**
1 g in 5 ml
13.4 millimoles potassium in 5 ml
Dilute with a suitable diluent, to at least 70 times its own volume.
10 ampoules each containing 5 ml solution for slow i.v. infusion after dilution.

1 g in 5 ml



CHARLOTTE OBSERVER
APR 90

Potassium Kills Baby At _____ Center

Associated Press

DURHAM — A premature baby has died at _____ university Medical Center after receiving too much supplemental potassium, _____ representatives said.

The infant, a twin born at 26 weeks, died about 11 days ago, said Andrew Wallace, the medical center's vice president for health affairs. The surviving twin was at _____ the last time he checked, he said, but hospital officials would not confirm that the twin was still there this weekend.

The baby died after receiving an infusion "to correct an imbalance of electrolytes," Wallace said.

An effort was being made to increase the baby's amount of potassium. Potassium, a major element of fluid inside cells, helps regulate several body functions.

Wallace said no wrongdoing had been found involving doctors or nurses. He said the medical center had changed its procedures as a result, but would not elaborate.

"The individuals involved are

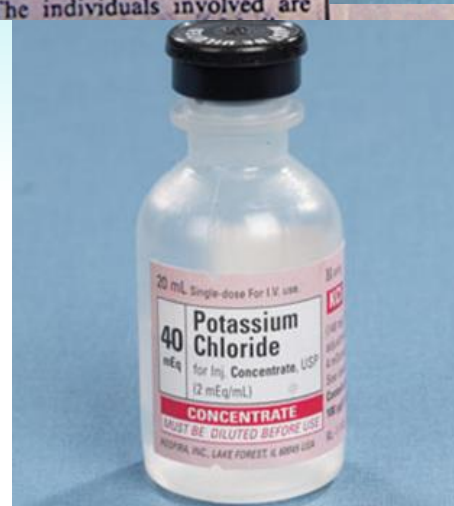
lar occurrence in the future."

The statement was released after an anonymous caller reported the death to WTVD (channel 11) in Durham.

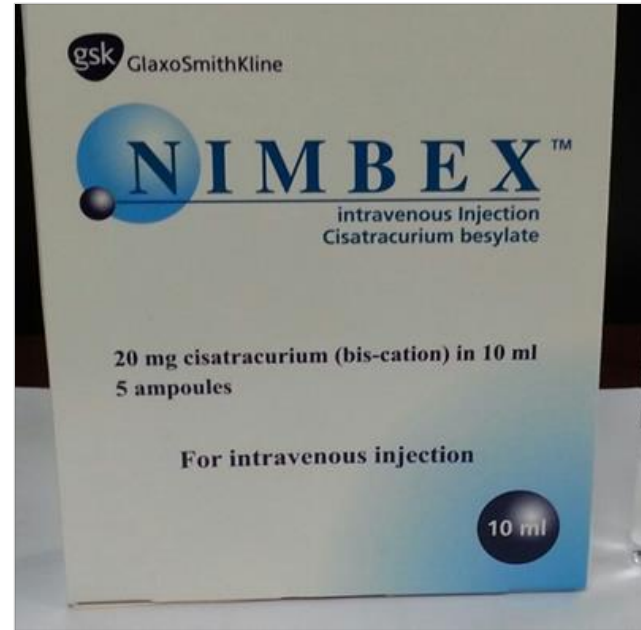
An autopsy was performed, Wallace said. But results aren't available yet.

_____ neonatal intensive care unit is one of about 20 in the state. Roughly half of the babies treated come from other hospitals, but Wallace said he did not know if the twins were born at _____

He declined to identify the baby or say where the family lives.



Neuromuscular blocking agents



A 2009 analysis of **154 events** over a 5 year period showed that a neuromuscular blocker was not the intended drug in approximately half of all wrong drug errors. More than **80%** of these wrong-drug errors reached the patient, and approximately a quarter resulted in patient harm

Pennsylvania Patient Safety Authority. Neuromuscular blocking agents: reducing associated wrong-drug errors. *PA Patient Saf Advis.* 2009;6(4):109-14.

Ampules: Use of contrasting background and label position





Label position

Two component medications





- 0.9 mg lyophilized powder
- 3 mL diluent (0.3 mg/mL calcium chloride in normal saline)



- 380 mg microspheres
- 4 mL diluent (carboxymethylcellulose sodium salt, polysorbate 20, sodium chloride and sterile water for injection)

[illegible]