

Preventing Medication Errors in EMS

Examples and Case Reports
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Medication Error

Any preventable event that may cause or lead to inappropriate medication use or patient harm. Wrong drug, wrong dose etc.

Encourage the self-reporting of medication errors.

“EMS personnel must be allowed to report medication errors without fear of reprisal.”

“Thirty-two (9%) of paramedics reported committing a medication error in the last 12 months.”

“In this study, 4% of errors made by paramedics were not reported before this anonymous survey.”

Prehosp Emerg Care 2007;11:80-84 Vilke GM, et al.
Paramedic Self-Reported Medication Errors

Prevention is the best medicine

Continuing education for paramedics to review incidents and to learn how to prevent them.

Change the location of error prone drugs in the paramedic drug box.

Change the drug packaging to make the drugs look different.

Develop a CQI process to log, investigate and review incidents. Take corrective action prn.

Change the packaging.



Change the packaging.



Change the supplier.



Change the location in the box.



Change the location.



Good News!

Since our last review in March 2009, we have had no reported medication errors due to medications in glass vials being used inappropriately.

PFD Paramedic Medication Error Survey March 2009

379 of 425 paramedics who attended the CE meeting on medication errors returned the anonymous survey (approx. 90%)

PFD Paramedic Medication Error Survey March 2009

- 10% of Paramedics reported a medication error in the past 12 months (2/08—2/09).
- 20% of the errors reported on the anonymous survey involved giving Mag. Sulfate to COPD patients (severe asthma is the only respiratory indication).

Self-Reported Medication Errors (last 12 months)

- Mag. Sulfate for COPD/Emphysema pt.
- Epi. IV instead of IM for allergic reaction.
- Midazolam 5mg IM instead of 1mg (peds.)
- Sodium Bicarb. instead of D50 (BS=26)
- Cardiac asthma patient.

73 y.o. male with hx of COPD

Per wife, patient had poured muriatic acid in pool, inhaled some fumes and became short of breath. On arrival, paramedics found patient with agonal respirations, O₂ Sat. 64% HR 114, BP 73/52 RR 6-8. Lungs-diminished tidal volume with wheezing. Tx'd with BVM Ventilation, In-line SVN albuterol/atrovent, IV solumedrol, Mag. Sulfate 2 gms IV.

Patient improved

O₂ Sat. improved to 91% and patient' LOC started returning to normal at arrival to the hospital E.D.

31 female with respiratory distress

Patient had a hx of allergy to mushrooms. She ate some mushrooms (which she was allergic to) and guess what happened. She feels like her airway is closing off. O₂Sat. 80% HR 110 BP 144/107 RR 32 labored. Lungs: tidal volume decreased/no wheezes Tx'd her with Epi. 0.3mg IV (instead of IM)

She improved

HR 90 BP 140/100 RR 24 O₂ Sat. 100%

Patient stated she felt much improved.

The hospital was notified of the error and observed patient for 2 hours for adverse effects. None were noted.

18 month old

Per the grandfather, child started seizing 10 minutes ago. No prior hx of seizures.

Wgt. 40 lbs. Child was given 1 ml of versed IM. Midazolam conc. is usually 5mg/5ml.

The vial in the drug box was 5mg/1ml. One paramedic drew it up/gave the syringe to the 2nd paramedic who gave it IM. The first paramedic recognized the error.

The seizures stopped

Childs RR stayed in the 40's. CN to the peds facility notified them of the error. Child was admitted for seizure evaluation. No adverse reactions noted.

Unconscious patient

Hx of insulin dependant Diabetes Mellitus
BS 26. FF/EMT got a 50cc syringe out of the drug box and paramedic gave it. The patient did not wake up—so he asked for another D50. The FF/EMT recognized that the D50 looked different. The paramedic gave that and patient woke up/PM realized he gave bicarb the first time.

Case Review

78 female – extremely labored breathing, speaking in 1-2 word sentences. Pt. felt she was having a bad asthma attack. She also complained of chest pain. Onset 2 hrs.

PMH: COPD, ASTHMA, MI, High BP, DM

Vital signs: BP 178/120 HR 120 RR 30

Oxygen Sat. 68% on R/A.

Case Review

Physical Exam: Awake, A + O x's 4.

Neck: no JVD, trachea midline

Lungs: decreased tidal volume, wheezes in all lung fields.

Rest of exam was within normal limits.

Monitor showed A. Fib. at 120-130/min.

What is the appropriate treatment?

Paramedics on scene treated
this patient for asthma.

Asthma Protocol

- Oxygen @ 15 L/min non-rebreather mask
- Albuterol/Atrovent SVN
- Solumedrol 125 mg IV
- Mag. Sulfate 2 gms IV for severe asthma.
- Epi. 0.3 ml IM (patch if over 35 y.o.)

Patient had a decrease in LOC
after the Mag. Sulfate was infused.

The patient was then given
Epi. 0.3ml IM (without a patch).

What were they thinking?

Epinephrine is contraindicated
in hypertensive, tachycardic
patients with chest pain.

Especially in pts. with a previous hx of MI.

This patient got better.

- Oxygen Sat. improved to 100%
- Respirations slowed to 22/min (from 30)
- BP remained high—170/130
- Chest pain remained the same.

What is cardiac asthma?

- CHF with pulmonary edema can cause wheezing.
- Treatment should have been Oxygen, NTG, NTG, NTG. (maybe lasix and albuterol SVN). Some systems use CPAP.
- 12 lead EKG should have been done.

At the hospital E.D.....

The patient was treated with sublingual NTG intravenous NTG and lasix. (CXR—Dx. CHF)
She was admitted for an MI workup--serial EKGs and cardiac enzymes--which were negative. She was subsequently DC'd.

5 points to remember!

- Patients don't always know what is wrong.
- When faced with a short of breath, COPD, CHF diabetic, hypertensive, hypoxic, chest pain pt.
- Treat the worst problem first! (its not asthma)
- Give oxygen, then NTG. Then reassess the pt.
- Thank God some patients get better despite what we do to them.

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The End

Questions?