Case Insert

A medical error occurred after the pharmacy received a telephone order to prepare an oral liquid preparation of methotrexate 12 mg per mL, with instructions to administer 6 mg (0.5 mL) once a *week* for a toddler with juvenile dermatomyositis. A pharmacist transcribed the order incorrectly and entered it into the pharmacy computer with a dosing frequency of *daily*. The pharmacy prepared the solution, and labeled the medication with instructions to take 0.5 mL ***daily*** **instead of** ***weekly***. The pharmacist handling the order was unfamiliar with methotrexate dosing and did not recognize that a daily dose would be toxic. Also, the pharmacy had never filled a prescription for oral liquid methotrexate before the event. The child received a *daily* dose for 7 days before the error was noticed by the prescriber. The adverse effects of this overdose were assessed with laboratory testing and clinical follow up. A pharmacist filled out the initial event report using the hospital incident reporting system. This was a brief electronic from that was filled out this was then reported to the hospitals safety/risk management department who undertook an initial investigation and further filled out the existing report on the hospitals electronic incident reporting systems which has a standard set of questions informed by the AHRQ common formats and the type of event. Within the week this detailed report was reviewed by the hospital safety committee and final questions were filled on the incident. The information was formally designated as patient safety work product and then forwarded to the PSO. The PSO acknowledged receipt of the report and with in 24 hours had found 31 cases of similar methotrexate overdosing from its 100 member hospital's who all reported their events using AHRQ common formats built into their incident reporting systems. The PSO also found 10 Root Cause Analysis (RCA)'s involving methotrexate overdoses and summarized the 31 cases and 10 RCAs and returned that information deidentifed to the hospital. Based on this information the hospital conducted its own RCA and identified new contributory factors not seen in the prior RCA's. For example these contributory factors included the facts that this event could have been prevented by a hard stop in the pharmacy computer for *daily* dosing of oral methotrexate (or if the pharmacy was filling frequent pediatric oncology orders, for *daily* doses without a stop date after 5 days or less). The results of this root cause analysis can be generalized as a patient safety intervention, through performing a review of all medications for maximal indicated dosing and then implementing stop orders to prevent overdoses along with their associated toxicities. The RCA was declared patient safety work product and the results forwarded to the PSO. The PSO reviewed the RCA and gleaned new learning's which it sent out to its member hospitals as a patient safety alert.

ADD STEP BY STEP HOSPITAL/PSO interaction

Step 1 Hospital declares case report PSWP and electronically submits to PSO in common formats compatible fashion

Step 2 PSO acknowledges Receipt of Case Report and reviews all similar cases in its database using common formats links

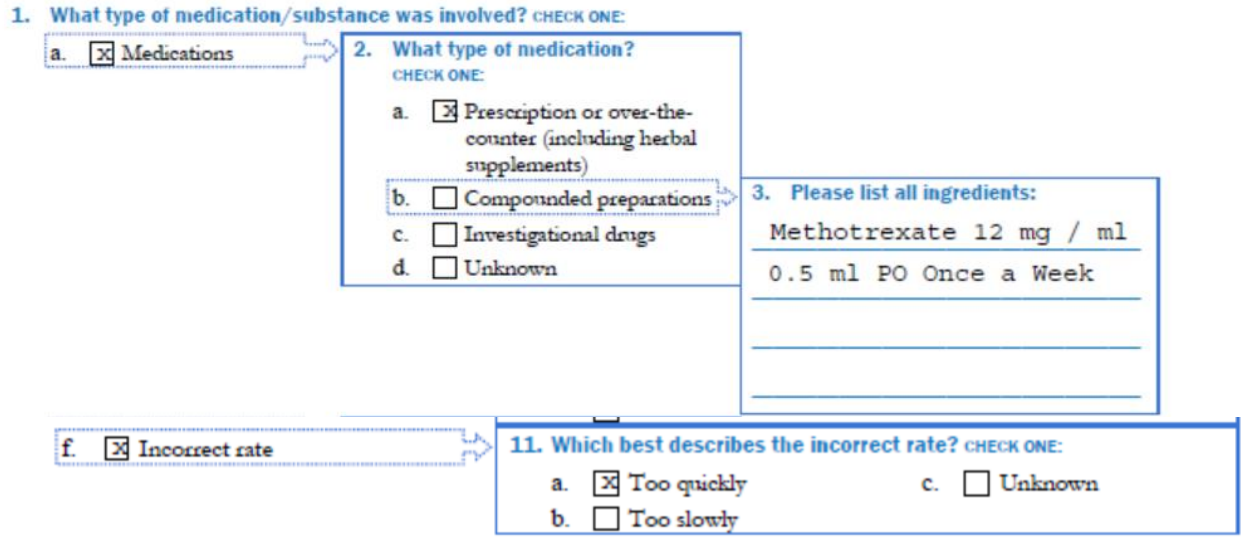
Step 3 PSO reviews all 31 related cases discovered and also 10 root cause analysis related to these cases

Step 4 PSO reports back to hospital on summary of 31 similar cases and 10 related root cause analyses

Step 5 Hospital conducts RCA and formally declares it PSWP and submits results to PSO

Step 6 PSO reviews RCA, compares it the prior 10 RCA and generates a new findings patient safety alert which it send to all it member hospitals

Case example provided by the Institute for Safe Medication Practices PSO.



1. What type of medication/substance was involved? CHECK ONE:
   a. [X] Medications
2. What type of medication? CHECK ONE:
   a. [X] Prescription or over-the-counter (including herbal supplements)
   b. [ ] Compounded preparations
   c. [ ] Investigational drugs
   d. [ ] Unknown
3. Please list all ingredients:
   Methotrexate 12 mg / ml
   0.5 ml PO Once a Week

f. [X] Incorrect rate

11. Which best describes the incorrect rate? CHECK ONE:
    a. [X] Too quickly
    b. [ ] Too slowly
    c. [ ] Unknown

16. At what stage in the process did the event originate, regardless of the stage at which it was discovered? CHECK ONE:

a. [ ] Purchasing
b. [ ] Storing
c. [ ] Prescribing/ordering
d. [ ] Transcribing
e. [ ] Preparing
f. [ ] Dispensing
g. [ ] Administering
h. [X] Monitoring
i. [ ] Unknown
j. [ ] Other: PLEASE SPECIFY

Please provide the following medication details for any medications or other substances directly involved in the event.

	17. Generic name or investigational drug name	18. Ingredient RXCUI (if known)	19. Brand name (if known)	20. Brand name RXCUI (if known)	21. Manufacturer (if known)	22. Strength or concentration of product
1	Methotrexate	311527				12mg/ml