Pittsburgh Regional Healthcare Initiative
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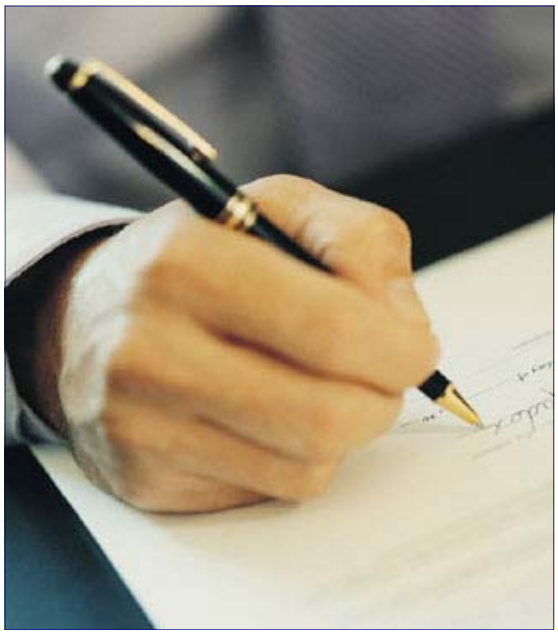
Hand written orders

Ambiguity exacts toll on patient, worker

Jane Brown[1], a pharmacist at a local hospital, was nearing the end of her shift, and she was running behind. When she graduated from pharmacy school three years ago, this hospital was her first choice, and she hasn't regretted it. But she always feels busy, always feels behind.

This was a typical shift, and Jane discovered that about 25% of the orders crossing her desk were either illegible or incomplete, and required clarification. She had resolved several orders during her shift, calling the physicians or the nurses who had sent them down.



As it turned out, Jane had read one of the difficult-to-read orders correctly, and had correctly realized that it would interact with another drug the patient was taking. The physician thanked her, changed the order, and Jane noted the discrepancy on a sheet for later entry into the computerized tracking system.

Another order she wasn't so sure about. She thought she knew which drug the physician meant to prescribe, but an upstroke in the writing confused her. She wasn't about to guess. To be on the safe side, Jane called the physician, who gave the correct drug name (*not* the one she would have guessed). The physician was a little irritated to have been called. His waiting room was full of patients; he thought Jane should have easily been able to read his handwriting; and he told her so. Jane's hospital doesn't log ambiguous orders as errors, but Jane keeps track of them herself.

Now, very near the end of her shift, three hand written orders lay on Jane's console that she just couldn't decipher. At the end of this shift, she had volunteered to work a second shift down in the pediatric pharmacy. Now Jane was in a double-bind. She just couldn't be late to pediatrics. But she just couldn't leave these orders unresolved, either.

One particularly puzzling order left her nowhere to turn. A couple of the "five rights" were missing. (The "five rights" are: right patient, right time, right dose, right route [IV, oral] and right frequency.) Although Jane couldn't decipher the patient's name or the frequency, that wasn't the biggest problem. There was actually a sixth "right" that was missing: right doctor. The physician's name was obscured on the order, the signature that of a busy executive—a loop and a straight line. Which physician? Which patient? Jane didn't even know whom to call.

Time was up. This shift was over. She was needed in the busy pediatric pharmacy immediately. Her colleague, pharmacist Harold Jackson, was ready to begin his shift. Jane had no choice but to export the three remaining "issues" to Harold, who was none

too pleased to be starting his shift buried under leftover problems. He would be behind his entire shift.

And three patients still hadn't received their medication...

What is an illegible order?

Diane Cousins, Vice President, Practitioner and Product Experience for US Pharmacopœia (USP), defines it this way:

> An illegible order is itself an ambiguous thing. You may be able to read my handwriting but someone else may not. We believe that if an order is not fully legible to the health professional working with it, it is an error. [USP] would consider it a Category B error if the pharmacist called the physician because she was not really certain what it said.
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> Some say, "Well if the pharmacist can't read it, he should call the physician." But sometimes the pharmacist will think it is in fact readable. This phenomenon is called *confirmation bias*, where you see what you know or are familiar with. As an example, a pharmacist may read a handwritten prescription and think with certainty that the order is clear. It's what he dispenses all the time. In fact it may be an order for a drug new to the market. The pharmacist is not aware of that drug, so when he reads the handwritten order he sees the drug name that he is most familiar with.
>
> USP does not make recommendations on handwriting legibility but there is a set of recommendations by the NCC MERP that may be helpful. Because some would say reading an Rx is too subjective, USP's standard for the readability of an order is that it be ***unambiguous enough to be read 100% of the time.***

The five "rights" of prescribing:

- **Right patient**
- **Right time**
- **Right dose**
- **Right route**
- **Right frequency**

Danger of routine

Besides confirmation bias, the danger of routine is always present. Some describe the problem this way:

> While most people associate medical errors with untrained, inexperienced or incompetent caregivers, most of our errors are made by well trained, experienced and competent caregivers who perform their tasks so well that they have become almost second nature. Doctors and nurses are most likely to slip doing something they have done correctly a thousand times—asking patients if they are allergic to any medications before writing a prescription, for example, or remembering to verify a patient's identity. . . The big implication of this is that some of the most routine health care tasks paradoxically carry the biggest risk to patients.[2]

Danger of drug names

> There's another landmine in the prescribing world: many popular medications have remarkably similar names. The antidepressant Zyprexa and the antihistamine Zyrtec; the anticonvulsant Cerebys and the anti-inflammatory Celebrex; and the mood stabilizer Lamictal and the antifungal Lamisil are but three of many examples where even good penmanship is no substitute for an alert and functioning brain in those who write and those who fill prescriptions. Only recently has the FDA pushed manufacturers to avoid sound-alike names. The pharmaceutical giant Eli Lilly, for one, was compelled to change the name of a new drug for attention-deficit disorder from *tomoxetine* to *atomoxetine* because the former resembled the anticancer drug, *tamoxifen*, to a dangerous degree.[3]

It's important to have everyone "at the table" when discussing problems that affect entire systems, including pharmaceutical suppliers. The problem is never singular—illegible orders—but a compilation of problems from many sources. Finding and fixing root causes requires cooperation and creative problem-solving from every entity touching the system.

Is CPOE the answer?

Articles by NCC MERP, ISMP and others tout computerized physician order entry (CPOE) as the cure for ambiguous prescribing orders. While CPOE is not a universal remedy, it can help. The VA estimates that CPOE has eliminated 55% of medication errors, including legibility problems. (Only 5% of orders are allowed to be hand written at the VA, for esoteric medications, for example.) Children's Hospital, which instituted CPOE in 2003, has also realized impressive gains in legibility and error reduction; however, like many other hospitals, Children's is discovering that the CPOE system itself can introduce other kinds of error. And anyone who has ever endured a computer malfunction knows that automated systems are not 100% reliable.

Most important, sophisticated computer systems do not address the day-to-day, person-to-person interactions required for a flawless healthcare delivery system.

Local hospitals go after the problem

At more than one area hospital, CEOs have stepped forward and stated that illegible or incomplete orders will not be filled. The standard is that the most junior pharmacist ought to be able to read the order. These rules have reduced resistance of physicians to being called for clarification, and have resulted in fewer problem orders. However, the burden of problem-solving still rests with the pharmacists.

UPMC Northwest recently documented that it takes the equivalent of 2.5 full-time employees to clarify all of the ambiguous orders. More important, calls for clarification delay the medication from getting to the patient on time. Some have observed that, with automatic pharmacist call-backs, physicians come to view these interruptions as part of their work, not as a problem.

Addressing problems like these requires a blame-free, multidisciplinary approach, and begins with these basic questions: "Why CAN'T orders always be clear and unambiguous? What are the barriers to perfect prescription clarity?"

At UPMC Northwest, a recent patient order of 12 individual medications contained five that were incomplete or illegible. In an effort to resolve the problem immediately and prevent its recurrence, the ordering physician, pharmacy manager, and CEO met to understand why it occurred.

As a result, the physician agreed to block print future orders and to use a pocket card (above) to identify the most commonly used dangerous abbreviations, recommended alternatives, and the critical elements of a safe medication order. The physician also agreed to facilitate a meeting with his peers to further highlight legibility problems and elicit their help in resolving them.

Said CEO Neil Todhunter of the work, "I'm impressed with the understanding around illegibility, the willingness to experiment and change processes for patient safety improvement."

As legibility experiments like these undergo various refinements, more problems will be exposed, creating the opportunity to solve them. But sometimes low-tech responses, like the pocket card, and like a pilot's checklist, can help break through the danger of routine.

Legibility Tools Available

The Pennsylvania-based Institute for Safe Medication Practices offers initiatives to help reduce medication errors caused by communication glitches such as: alerts on look-alike or sound-alike drugs, and preprinted prescription pads that include icons representing body systems to help doctors communicate the purpose of their order. ***http://www.ismp.org***

You can also find the latest ISMP look-alike, sound-alike alert at ***http://www.prhi.org*** *under* ***Publications, Regional Alerts.***

Check out the recommendations on handwriting and legibility at the NCC MERP website:

http://www.nccmerp.org/council/council1996-09-04.html

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