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Automated Medication Reconciliation Part I of IV
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Your Life Your Health
The Examiner
May 26, 2016

The following is the link to SETMA's **Medication Reconciliation Tutorial.** http://www.jameslhollymd.com/epm-tools/medication-reconciliation-tutorial. This is important because the most critical function in medical record keeping is the maintenance of and access to an accurate, valid list of the medications a person is taking.

March 30, 1998, when SETMA purchased an electronic medical record one of the motivations was to facilitate the keeping of a trustworthy medication list. October 2, 2012 was the beginning of SETMA's discussion of an " automated, systems-driven medication reconciliation" method which would systematize and accelerate the process. On October 7, 2015, I received the following note from Mr. David Fulton, MS, PMP, Communication Lead, Medicaid-CHIP Health Information Technology, Texas Health and Human Services Commission

> "I am forming a planning group to develop a state-wide outreach plan to raise EPCS use in Texas. I just discovered this article about SETMA and EPCS: http://www.theexaminer.com/features/commentary/fighting-prescription-drug-abuse.
>
> "Would you be willing to participate in this planning group? There will be a few phone calls to discuss ideas, report progress, get feedback. We are developing a co-marketing plan with Surescripts to make sure we're on target. Texas Medical Association, Office of eHealth Coordination, Texas Pain Society, Texas Hospital Association, Texas eHealth Alliance have all agreed to participate in this planning. I am also reaching out to the State Pharmacy Board and State Medical Board. We'd like to take the under 3% EPCS in Texas and significantly raise it."

In the ensuing months, this group has grown and with David's leadership has successfully formed a coalition to increase the use of electronic prescribing of controlled substances (ePCS). Through the group which David formed, I have come to know Mary Martin and other Surescripts leaders. In our conversations, I discovered that Surescripts and NexGen had already solved the major issues which we had proposed in 2012.

In collaboration with Surescripts, NextGen, David Fulton and others, we have been able to "resurrect" the dream of improving the quality of medication reconciliation, make it much more efficient and work toward resolving one of the most difficult problems in healthcare and in medical records keeping, i.e., maintaining an accurate, valid, complete and reconciled medication record for all patients at all times.

Such an enhancement to patient safety and quality is obvious to anyone who has thought seriously about the systemic problems of healthcare delivery. Over the coming weeks, it is our hope to expand the current functions to include all of the enhancements described in the above tutorial and particularly the functions defined in the following section: Medication Reconciliation Changes Discussed with NextGen May 9, 2016 of the tutorial.

Introduction – Philosophy and Explanation

There was a time, actually quite recently, when the "magic and mystery" of medicine was considered part of the art of medicine and often actually probably made people "feel" safer. Patients had enormous trust in their physicians and looked upon them as their most favored and MOST trusted counselors. Prescriptions written in Latin were reassuring to the patient who believed that their very-well-educated physician knew more than they did because he or she could write a prescription which they, the patient, could not understand.

Most patients took one or two prescriptions a year. Today that number ranges from 25 to 44 prescriptions a year for patients 65 years-of-age and older, depending upon the State in which the patient lives. Medication regimes are much more complicated and are changed much more frequently.

In the 1940s, there were not many medications. In the *Health Care financing Review* (Winter, 1996/ Volume 18, Number 2, p. 15), it is stated:

> "Many of the changes in clinical medicine by the early 1960s were the result of pharmaceuticals: antibiotics, psychotropics, tranquilizers, hormones, and other drugs. It was estimated that 90 percent of the drugs prescribed in 1960 had been introduced in the previous two decades and that 40 percent of the prescriptions could not have been filled in 1954."

The good news was progress increasingly made valuable and useful pharmaceuticals available for treating patients. The bad news was that more and more people were taking multiple medications, some with complicated "sig" codes (written instructions in Latin) and others with an increasing number of serious interactions and with this the potential for mistakes increased significantly. In addition, the following issues produced significant hazards in the use of medications:

- Medication interactions increased to the point to where one of the major pitfalls in dealing with these interactions was "to rely upon your memory in assessing medication interactions." There were just too many for any one person to remember all of them.

- With multiple providers prescribing medications for the same patients, the maintenance of an accurate and complete medication list became increasingly difficult until it became the single most critical and complicated problem in medical records.
- The following sequence of events in prescribing of medications was not uncommon. The provider handwrites a prescription; the patient hand carriers the prescription to the pharmacy; the pharmacist can't read the prescription or worse yet thinks he/she can read it and gets it wrong; the pharmacist calls the doctor's office; the office staff asks the doctor what medication he/she prescribed; the doctor does not remember and asks for the chart; the chart can't be found or has not yet been transcribed and this goes on until sometimes it is several days before the prescription is finally obtained by the patient.

In 2010, it was reported that in the United States annually 7,000 people died due to medical errors that included misreading or otherwise misinterpreting handwritten prescriptions. The following developments created an environment where accurate medication lists in provider records and accurate understanding by patients of what medications they were to take, as well as when and how to take them, became imperative:

- The number of medications grew; today there are over 10,000 prescription medications and over 300,000 over-the-counter drugs.
- The "magic and mystery" of the medical profession decreased both because of an increasingly knowledgeable populace and because of a decreasing trust in physicians.
- More and more people were taking more and more complex medications
- Medications had increasingly serious and dangerous side effects and interactions.
- Technology created new medicines and it would take technology to keep track of them.

A major sociological shift took place in the United States as well. Demand increased to take all of the magic and mystery out of medicine. Hospitals required that abbreviations, particularly Latin abbreviations not be used in hospital records. Medication lists given to patients were required to be written in English instead of Latin abbreviation, i.e., instead of "Sig: 1 po qid," medication directions were required to be written in "Directions: one tablet by mouth four times per day."

As early as the mid, 1970s, healthcare professionals and organizations like the Institute for Safe Medication Practices (ISMP), which describes itself as "A Nonprofit organization educating the medical community and consumers about safe medication practices," began to raise the alarm about the need for safe medication practices. In a 2007 publication entitled, *Protecting U. S. Citizens From Inappropriate Medication Use*, ISMP stated, "3.4 billion prescriptions (were) dispensed in 2005...an increase of nearly 60% since 1995...81% of adults...take at least one medication...and 27% take five." By 2016, the number of dispensed medications rose to 4.2 billion annually.

Magic and Mass

The magic of medicine was gone and the mass of medicines had increased. Both are good things but both require new skills and attentiveness by providers. The imperative for and the complexity of "Medication Reconciliation" is the most important result of these changes. And, it is still a

fact that one of the two most difficult tasks facing all healthcare providers is maintaining an accurate and up-to-date medication list on all patients.

In 2010, the National Quality Forum (NQF) published a study entitled *Preferred Practices and Performance Measure for Measuring and Reporting Care Coordination: a Consensus Report*. One of the critical quality measures is Medication Reconciliation. One of those measures is described as: 'The plan of care document should include essential clinical data documenting the patient's current state, including, but not limited, to problem lists, medication lists, allergies and risk factors, age-appropriate standardized clinical assessments and screening tests; immunizations status...". Repeatedly, medication reconciliation is included as an essential part of care transitions at every point whether the transfer of care was made from clinic to home, hospital to ambulatory care, emergency department to nursing home, hospital to hospice, hospital to skilled nursing facility, hospital to long term acute care or other transitions.