

## Statewide Patient Safety Initiative: Polypharmacy

Polypharmacy, defined as the use of 5 or more medications at a time,<sup>1</sup> may be our country's number one drug problem. It is widespread and associated with adverse outcomes including medication nonadherence,<sup>2,3</sup> adverse drug events,<sup>4</sup> falls,<sup>5,6</sup> inappropriate prescribing,<sup>7</sup> hospitalization,<sup>8</sup> and mortality.<sup>1,9-12</sup> Of special concern, polypharmacy rates nearly doubling from 1999-2000 to 2011-12.<sup>13</sup> Further, it differentially affects our older citizens, 39% of those 65+ years of age take 5+ medications. This is a consumer safety issue of the first order. It is also an economic concern. Prescription medications are the single biggest expense in healthcare. Strategic reductions in prescriptions could decrease healthcare spending (and insurance costs).

No definitive real time source of a patient's active medication list exists. Patients are often unsure of their medications, confused by brand versus generic names, combination tablets that include more than one active ingredient, and different pill colors or shapes. Because patients commonly see more than one provider and have emergency hospitalizations outside their healthcare system, no single provider or health system is responsible for all prescriptions. Further, on average, only half of all prescriptions are filled, making it even more difficult to tell what medications a patient is actually taking. While primary care guidelines strongly recommend reconciliation of all medication lists on an annual basis, few providers take the time to verify all medications. While Surescripts may encompass a large proportion of prescriptions, it is not available in real time, is proprietary, and is not available to, nor controlled by, individual consumers or their providers. If we are to address the problem of polypharmacy, patients and their providers must first have an accurate list of medication fills in real time.

We now have the means to address this information problem and in the process begin building a major resource for innovation and healthcare discovery in Connecticut. According to the Department of Consumer Protection website (<http://www.ct.gov/dcp/cwp/view.asp?q=411378>), the state has already established the Connecticut Prescription Monitoring and Reporting System (CPMRS) focused on controlled substances (schedule II-V) including opioids. The purpose is to present a complete picture of a patient's controlled substance use, including prescriptions by other providers, so that the provider can properly manage the patient's treatment... Under Connecticut law, as of July 1, 2016, each pharmacy, nonresident pharmacy, outpatient pharmacy in a hospital or institution, and dispenser shall report into to CPMRS data collection website (<https://pmpclearinghouse.net>) all controlled substance prescriptions dispensed within 24 hours. Thus, the feasibility of such reporting is established.

Building off experiences gained from CPMRS, we propose a new program:

1. A database of all medication pharmacy fills (not prescriptions since half of these go unfilled).
2. Nightly electronic updates.
3. Applications that allow patients to electronically download and share their data
4. Applications that allow patients to volunteer themselves and their data for ongoing research

Once the database is established, we as a state can begin addressing the problem of polypharmacy based on accurate data and targeting the most dangerous prescribing practices. Doing so would help establish our states leadership in the area of innovation and discovery in the era of precision and personalized medicine.

## References

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