Value of an Integrated Outpatient Pharmacy by utilizing a Medication Therapy Problem (MTP) Framework

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Background

6.7 billion prescriptions were filled in 2022. 70% of US adults are on ≥1 medication[1,2] . Medication errors cost up to $42 bn annually[3]

Ample research demonstrates significant impact on clinical, economic, and patient satisfaction with pharmacist involvement in medication management.

Medication Therapy Problems (MTPs) arise when the use, omission, or inappropriate administration of a drug results in sub-optimal clinical outcomes

The MTP categories framework was developed by the Pharmacy Quality Alliance (PQA) to standardize MTP identification and documentation

Problem

Outpatient pharmacists make high-impact clinical interventions daily—but without standardized documentation, their value remains underreported and underrecognized. This project evaluates whether a standardized MTP framework improves documentation of our pharmacists' clinical impact and can be used for quality improvement projects to further patient care.

Project Goals

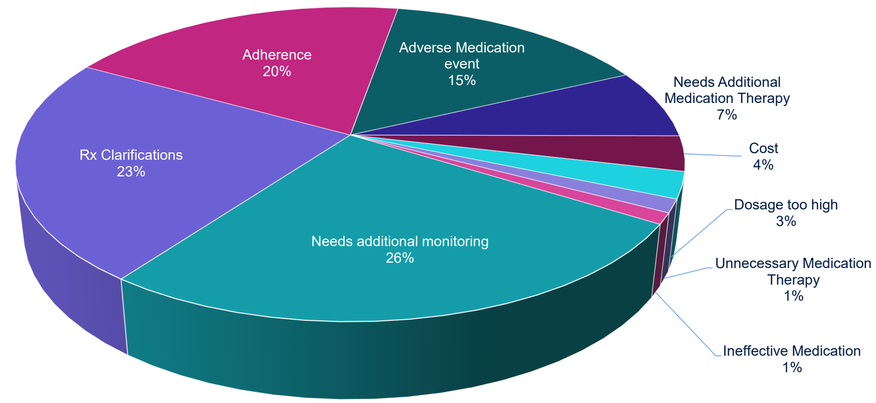
- Develop a documentation tool to capture MTPs within Epic
- Analyze the types of MTPs identified and resolved in a six-month timeframe
- Evaluate the impact of identification and resolution of MTPs on our pharmacy workflow
- Evaluate sustainability and opportunities for quality improvement with collected data

Medication Related Need	MTP Category	MTP Rationale
Indication	Unnecessary medication therapy	• Duplicate therapy • No medical indication • Non-medication therapy more appropriate • Addiction/recreational medication use • Treat possible adverse reaction
	Needs additional medication therapy	• Preventive therapy • Untreated condition • Synergistic therapy
Effectiveness	Ineffective medication	• More effective medication available • Condition refractory to medication • Dosage form inappropriate
	Dosage too low	• Dose too low • Frequency inappropriate • Incorrect administration • Medication interaction • Incorrect storage • Duration inappropriate
	Needs additional monitoring	• Medication requires monitoring
Safety	Adverse medication event	• Undesirable effect • Unsafe medication • Medication interaction • Incorrect administration • Allergic reaction
	Dosage too high	• Dosage too high • Frequency inappropriate • Duration inappropriate • Medication interaction
	Needs additional monitoring	• Medication requires monitoring
Adherence	Adherence	• Does not understand instructions • Patient forgets to take • Medication not available • Cannot swallow/administer
	Cost	• More cost-effective option • Cannot afford medication

Methodology

- Filed MTPs from UCSF Specialty, Parnassus and Bayfront Outpatient Pharmacies analyzed over a six-month period (8/1/25 –1/31/26)
  - Exclusions: Incomplete MTPs (no End Date), MTPs prior to 8/1/25, null PROBLEM/RATIONALE
  - 505 cases identified for analysis

Most Common PROBLEM Categories Identified (%)



Safety
- Lab monitoring
- Drug interaction checks
- Adverse effect management
- OTC/non-pharm management
- Prophylactic therapy

Indication/Effectiveness
- Drug formulation changes
- Dosing checks (frequency, quantity, strength)
- Therapy duplication
- Incorrect drug, sig, quantity

Adherence
- Missed dose management
- Administration supplies for injections
- Change medication form
- Education on administration

Cost
- Patient Assistance Programs
- Manufacturer Copay Cards
- Prior authorizations
- Appeals
- Biosimilar adoption

Lessons Learned:

Ongoing staff education is critical to ensure that all pharmacists are aware of when and how to document clinical problems and resolutions. Complete and consistent documentation was a crucial gap – some cases were left open without documented resolution and documentation format varied from pharmacist to pharmacist. Fields were occasionally left blank (e.g. RECOMMEND, OUTCOME) because either it was not applicable or unclear what should be documented, leading to analysis gaps.

Next Steps:

Redesign and realign current framework for more intuitive and seamless documentation, clarity, consistency and accuracy across all outpatient pharmacies. Focus on modifying existing framework to ensure it is specific to our needs and sustainable within demands of workflow. Utilize the data to fill in gaps in internal workflow and with our partnered clinics, to improve efficiency and turnaround time. Integrate the identification and resolution of the MTPs into workflow and quality improvement projects to provide comprehensive and quality care to our patient population.

References: 1. "The Use of Medicines in the U.S. 2023." *IQVIA Healthcare Information Technology and Pharma Clinical Research Company*, www.iqvia.com/insights/the-iqvia-institute/reports-and-publications/reports/the-use-of-medicines-in-the-us-2023. Accessed 3 Mar. 2026.; 2. NCHS Data Query System. Prescription medication use among adults [Internet]. Hyattsville (MD): National Center for Health Statistics; c2025 [cited 2026 Mar 3]. Available from: https://www.cdc.gov/nchs/dqs/index.html. 3. Um, Irene S., et al. "Dispensing error rates in pharmacy: A systematic review and meta-analysis." *Research in Social and Administrative Pharmacy*, vol. 20, no. 1, Jan. 2024, pp. 1–9, https://doi.org/10.1016/j.sapharm.2023.10.003. 4. Medication Therapy Problem Documentation | Optimizing Medications for Better Health