



## Cedars-Sinai: A 10-Year Journey to Expand Care Transitions Beyond the Hospital

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Inaccurate medication lists occur frequently in electronic health care records owing to the need for multiple medications to treat complex comorbidities, poor health and medication literacy, and fragmentation of the healthcare system. Published articles have addressed why medication errors occur at hospital admission and discharge. Surveys have shown that the aging population requires as many as 15 medications to manage chronic diseases. Poor adherence and medication unaffordability are significant contributors to readmissions.

The pharmacist is the most knowledgeable healthcare provider in managing a patient's medications. The traditional focus of hospital

care is to resolve acute care episodes expediently and to discharge the patient at the earliest reasonable time. New medications may be required for short time periods during hospitalization to alleviate acute conditions but may inadvertently be continued at discharge, and chronic medications may be continued unnecessarily without assessment of an ongoing need. Hospital pharmacists who focus on ensuring safe transitions of care (TOC) and resolving acute care issues provide a patient-centered approach that includes optimizing chronic disease management and facilitating better care to prevent readmissions and keep costs down.

Cedars-Sinai Medical Center is a large academic teaching institution

in an ethnically and culturally diverse city with a population of approximately 13 million. Pharmacy-led TOC programs began with a single pharmacy resident completing a rotation with a hospitalist team to perform admission medication histories and reconciliation. The purpose of the rotation was to assess the pharmacist's value in improving patient care. Over the next 10 years, many different strategies and tactics were employed to expand the TOC program while maintaining acute care services.

In 2018, California Senate Bill 1254 was enacted. This formalized pharmacy-led TOCs at hospital admissions across California by ensuring that pharmacy staff obtain and evaluate accurate medication lists for high-risk patients.

### Growth of the Pharmacy-Led TOC Program

Since the Cedars-Sinai pharmacy did not receive additional resources to expand its TOC program, services had to be provided by existing staff. Our ambulatory care pharmacist conducted postdischarge telephonic outreach to ensure that patients understood the medications they were instructed to take upon discharge. There was no expectation of capturing all hospitalist patients; providers referred to this pharmacy service if they felt their patients would benefit from a pharmacist consult after discharge.

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See related articles on pages 12, 13, and 23.

During this time, pharmacist preceptors guided our pharmacy practice residents during their administrative rotations to conduct TOC projects in an ongoing effort to demonstrate the value of pharmacy services. Small TOC evaluations and projects were conducted with different patient populations and in different phases of care. These projects informed the pharmacy administration of the areas of greatest need for pharmacy-led TOC services and identified the patient populations and clinical diseases for which the pharmacist's expertise could have the greatest clinical impact. Second-year administrative residents with more dedicated time for performance improvement activities completed more complex projects. Positive results from these small projects continued to fuel the desire to find opportunities to expand the TOC program and reach more patients.

Pharmacy extenders contributed immensely to the growth of the pharmacy-led TOC program. Pharmacy technicians are the most cost-effective healthcare providers for conducting medication histories. Published studies have demonstrated that pharmacy technicians can safely conduct such histories, allowing the provider and pharmacist more time to perform clinical activities such as medication reconciliation. Other pharmacy extenders include residents and students. In addition to augmenting the services provided on a general medicine rotation, TOCs

**Table 1. Qualitative and Quantitative Metrics Used to Demonstrate the Value of Pharmacy-Led TOC Services**

- Readmissions
- Medication errors and potential harm avoided
- Volume of TOC activities (admission medication histories performed, discharge medication lists reviewed, postdischarge follow-ups conducted)
- Patient education
- Cost avoided (medication errors, readmission)
- Healthcare provider surveys (physicians, nurses)
- Patient satisfaction stories

allow students to supplement their acute care knowledge by emphasizing chronic disease management. For residents, TOCs are a longitudinal rotation at our institution; the residents focus on different phases of care from admissions to postdischarge as the year progresses.

SB 1254 was introduced in January 2018, signed by the governor in September 2018, and became effective in January 2019. In essence, SB 1254 requires that in hospitals with 100 or more beds, pharmacy staff obtain accurate medication lists for high-risk patients upon admission. High-risk criteria are developed by the institution based on the specific patient population.

At Cedars-Sinai, high-risk populations include patients taking 10 or more scheduled medications (all medications except those given

as needed), those who are admitted for organ transplant or have a Centers for Medicare & Medicaid Services Bundled Payment for Care Improvement (CMS BCPI model) diagnosis code (e.g., heart failure, sepsis, chronic obstructive pulmonary disorder). With the passage of SB 1254, more institutions have been able to expand pharmacy-led TOC programs. This is a growing field for pharmacy technicians and provides job satisfaction for employees who choose to work in healthcare with a desire to interact with patients and improve their healthcare experience.

### Metrics and Outcomes to Demonstrate the Value of Pharmacy-Led TOC Services

Demonstrating the value of pharmacy-led services is essential to justify program expansion. Initially, with a small program, metrics such as reduction in readmissions may be difficult to assess until a larger sample size is obtained. Other quantitative data, such as medication errors avoided, can be used to demonstrate the services' value (Table 1).

An institutional scale is employed to determine potential harm for errors intercepted by pharmacy staff performing TOC services. The institutional scale is a crosswalk of the National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) Index for Categorizing Medication Errors and consists of 3 levels of potential harm (low capacity for harm, serious, and life-threatening). Multidisciplinary providers validate potential harm assessment (e.g., medical staff leadership focusing on patient



Cedars-Sinai Medical Center is a large academic teaching institution in an ethnically and culturally diverse city. (Photo credit: Cedars-Sinai Medical Center)

and medication safety, hospitalist physicians).

Data collection is time-consuming and labor-intensive. Strategies to improve efficiency include sampling rather than collecting data for the entire patient population. Sampling may reduce the time to evaluate outcomes such as reduction of readmissions.

Manual data collection should only be conducted if considered essential. When possible, existing technology should be leveraged to automate data collection. Electronic healthcare records (EHR) may capture much of this information (e.g., number of medication histories completed by technicians or pharmacists, discharge medication lists reviewed). Tableau or similar software platforms provide visualization and can reveal data patterns. This eliminates hours of data refinement and provides more timely information.

At Cedars-Sinai, the EHR has been configured to identify patients who meet the high-risk criteria to minimize time for case finding. Tableau is used extensively to monitor the TOC program. Examples of visualizations include percent compliance with medication histories completed by pharmacy staff for SB 1254 high-risk patients, 30-day readmissions of high-risk patient populations, volume of admission medication histories, discharge medication list reviews, and postdischarge telephonic outreach completed per month.

Documenting patient satisfaction is a powerful tool. Patients have shared countless stories of how grateful they were that pharmacists provided education about their medications in a way that they understood it well. These stories are shared with leadership. TOC pharmacists enjoy patient interactions, and these accolades provide immense work satisfaction. Work satisfaction stories translate to increased staff morale, engagement, and productivity. At Cedars-Sinai, several programs exist to recognize staff who excel at providing meaningful patient experiences and demonstrate exemplary clinical care. These patient stories are shared at various forums, increasing staff recognition.



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Within the pharmacy, staff productivity is the most common metric (e.g. how many medication histories or patient care activities are completed during a shift). Benchmarking with other facilities can provide valuable insight if the work is comparable. Other activities completed during a given day should be taken into consideration when comparing data (e.g. student teaching, data collection time, other activities such as medication adherence ascertained during the medication history process). Benchmarking may offer ideas to improve efficiency by highlighting specific activities completed during transitions of care. Programs should determine what is essential for the institution when designing TOC workflows (e.g. is patient education provided during a discharge medication list review). If other disciplines, such as nurses, are performing education at the time of discharge, then the pharmacist does not have to provide this service or may provide education via a consult service. With this time saved, the pharmacists can review more patient discharge medication lists.

Cost optimization can be used to demonstrate the value of a TOC program. Though somewhat outdated, published literature regarding medication errors is available and can be used to quantify the value of medication error avoidance. Readmission costs may be available within the institution, usually in institutional Finance

departments. Understanding specific details of that data (e.g. by payer) may allow for comparison and estimates of projected dollars saved due to prevented readmissions.

### Future Directions

Pharmacists are medication experts and are the individuals most suited to lead efforts to provide safe TOC. Upon admission, pharmacy staff should obtain an accurate medication history. Upon discharge, a pharmacist should review and provide recommendations regarding discharge medications, taking into consideration access, guideline directed medication management and patient educational needs. Post discharge follow up is an invaluable TOC activity that ensures patients accurately reconcile the discharge medication instructions with the contents of their medicine cabinet. During the post discharge follow up, the pharmacist can resolve discrepancies to prevent medication-related errors and to reduce the risk of readmission. All patients should receive pharmacy-led T; however, it may not be fiscally justifiable for patients who are at low risk for errors and readmissions. Creating criteria to define high-risk patients in order to determine which TOC activities should be provided by the pharmacy staff balances fiscal responsibility with making a strong clinical impact on patient care. 🍌