

## Tools for Optimizing Medication Safety (TOP-MEDS)

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<b>Mechanism:</b>	RFA: HS11-004: Centers for Education and Research on Therapeutics (CERTs) (U19)
<b>Grant Number:</b>	U19 HS 021093
<b>Project Period:</b>	September 2011 – September 2016
<b>AHRQ Funding Amount:</b>	\$711,643

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**Summary:** The Centers for Education and Research on Therapeutics (CERTs) demonstration program is a national initiative to conduct research and provide education to advance the optimal use of therapeutics such as drugs, medical devices, and biological products. The program consists of six research centers and a CERTs Scientific Forum and is funded and run as a cooperative agreement by the Agency for Healthcare Research and Quality in consultation with the U.S. Food and Drug Administration.

Drug therapy is the most common medical service patients receive, but it is plagued by risks and hazards. Newly released medications may cause patient side effects that were not identified in pre-marketing research. High-risk commonly used drugs such as opioid analgesics are frequently selected and dosed improperly. Drug name confusion causes patients to receive the wrong drugs. Consumers use drugs unsafely because drug information is limited and confusing. The need to prevent or mitigate medication-related harm is great.

This project is developing Tools for Optimizing Medication Safety (TOP-MEDS) to address these issues by developing, testing, deploying, and disseminating tools and training materials in four key areas: 1) statistical methods for large-scale studies of comparative drug safety and effectiveness; 2) opioid prescribing and dosing for acute pain; 3) methods for preventing and detecting drug name confusion errors; and 4) patient-centered, language-concordant drug information.

Research findings will be disseminated through a network of cooperating organizations with local and national reach. The TOP-MEDS CERT will emphasize education in two of its four aims by engaging in broad outreach activities at conferences for health professionals; developing Web-based training programs for in-house staff; creating continuing education programs; producing Web-based content related to the four key areas; and using social media—especially Facebook, Twitter, and YouTube—to disseminate its work. Project staff will work with payers, accreditors, policymakers, and legislators to identify policy levers that can increase the adoption of patient-safety best practices.

### Specific Aims:

- Develop and apply a multivariate person-time logistic regression model for large-scale adverse drug event screening. **(Ongoing)**
- Improve the safety and effectiveness of inpatient acute pain care by developing and validating a Web-based simulator to train prescribers in the proper selection and dosing of opioids. **(Ongoing)**
- Refine a standard battery of tests for pre-market safety screening of drug names, and develop

and test methods for preventing and detecting drug name confusion errors in clinical databases.  
(Ongoing)

- Evaluate an electronic health care-based, low-literacy strategy for promoting safe, effective prescription drug use among English and Spanish-speaking patients in an urban primary care setting. (Ongoing)

**2012 Activities:** Because each aim represents a distinct research project, activities are listed by aim:

Aim 1: The project team established contracts with vendors, developed the project software, and began data collection. The team has concentrated on the development of two new statistical methods: one allowing time-varying propensity scores; the other able to treat the drug-adverse event linkage as a cluster in certain pharmacological designs.

Aim 2: The scientific protocol for the institutional review board (IRB) was completed. The protocol delineates the measurement strategy in the inpatient setting. The primary research and input to development of the protocol was accomplished through a review of relevant literature. A functioning prototype of the simulator has been completed and is undergoing design refinements. The simulator is a Web-based application, which makes it highly functional on mobile platforms. IRB approval was obtained to extract data related to developing an electronic version of opioid events. Development of a didactic curriculum for residents was initiated.

Aim 3: Analytic methods were under development as were a battery of tests to identify drug names that are confusing. The team is beginning to refine the set of tests and retrospective detection for premarket screening on drug name confusion. The drug name confusion project has two aspects: 1) the preapproval screening methods; and 2) a retrospective detection of drug errors at the hospital. The team negotiated with organizations to obtain data regarding rates of confusion. Large health systems were concerned about liability but the team worked with a patient-safety organization to negotiate obtaining the data.

Aim 4: The team is focusing on start-up activities such as protocol establishment. The IRB paperwork has been completed.

**Preliminary Impact and Findings:** This project has no findings to date.

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**Target Population:** Adults, Low Literacy, Low-SES/Low Income\*, Racial or Ethnic Minorities\*: African-Americans, Hispanics

**Strategic Goal:** Develop and disseminate health IT evidence and evidence-based tools to improve the quality and safety of medication management via the integration and utilization of medication management systems and technologies.

**Business Goal:** Implementation and Use

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\* This target population is one of AHRQ's priority populations.