

## California Senate Bill 72: Considerations for Implementing a Successful Medication Dispensing Machine Pilot Project

### The Problem of Medication Adherence

Medication dispenser technologies are designed to improve medication adherence. Medication non-adherence is a frequent problem that too often results in poor health, avoidable use of high-cost medical services, and loss of independence.

Forty percent (40%) of individuals do not take their medications as prescribed. Such non-adherence is considered responsible for:

- Unexplained treatment failures
- Between 33% and 69% of medication-related hospital admissions
- 23% of all nursing home admissions
- Greater use of high-cost medical resources
- Repeated and unnecessary physician visits

### About SB 72

In keeping with the State's objectives to save lives, reduce health care costs, and assist individuals in living independently in their own homes, California Senate Bill 72 authorizes the establishment of the Home and Community Based Medication Dispensing Machine Pilot Project. The Pilot aims to assist Medi-Cal recipients with taking prescribed medications through the use of an automated medication dispensing machine that includes remote monitoring and telephonic reporting services.

Existing California law provides for the In-Home Supportive Services (IHSS) program, under which qualified aged, blind, and disabled persons receive services enabling

them to remain in their own homes. Counties administer the IHSS program. Eligible Medi-Cal recipients have access to similar services, known as personal care option services.

Senate Bill 72 requires the California State Department of Health Care Services (DHCS) to establish the pilot project for selected Medi-Cal recipients that are at high risk of medication non-adherence. The bill also requires the Department of Finance to evaluate savings to the General Fund as a result of the pilot project. If the pilot project does not reach an annualized savings target of \$140 million by July 2012, the pilot project will be terminated and service hours to all IHSS recipients will be reduced starting October 2012.

### Financial Analysis

The opportunity to reduce costs by improving medication adherence is large.

- The New England Healthcare Institute estimates that \$290 billion of healthcare expenditures could be avoided if medication adherence were improved.
- A CVS Caremark study showed that chronically ill patients who take their medications as directed save the health care system nearly \$8000 per year.
- The SB 72 pilot aims to create annualized Medi-Cal savings of \$140 million (savings calculations are net, fully offsetting costs for implementing the SB 72 pilot project). Supporters of the SB 72 pilot project project that it will take 40,000 recipients, at \$3500 in savings per recipient, to achieve the \$140 million savings.

## Medication Dispensing Machines

Only a handful of available medication dispensing machine brands meet the SB 72 description of “an automated medication dispensing machine with monitoring and telephonic reporting services support.”

### Common Features:

Automated medication dispensing machines with monitoring and reporting capability commonly include the following features:

- Pills are manually loaded into machine, usually by a formal or informal caregiver
- Pills are loaded directly into chambers in the machine, or are loaded into disposable cups that are held by the machine
- At the programmed dosing time, the machine alerts (visual or auditory) the individual and presents the medicines to be taken
- If the medications are not taken within 60-90 minutes, the pills are retracted (like a drawer closing), and up to 5 caregivers are notified
- Adherence rates (number of doses taken successfully vs. those that weren't) can be tracked remotely over days/weeks/months
- Machines are designed to dispense pills only, but can be programmed to remind individuals to take their medicines by other routes, e.g., by injection or inhalation

### Considerations:

Some considerations regarding use of automated dispensing machines include:

- Many of the machines are about the size of a coffee pot and are not portable. Hence, the user must be at home during the programmed dosage time. Such machines may be best suited for individuals that are mainly homebound or for individuals that have convenient dosing schedules, e.g., at wakeup and/or bedtime
- Some brands of dispensers are more labor intensive than others, with the amount of time to load the automated dispenser varying widely. The

maximum number of days between loads can also vary widely—from several days between machine loads to months

- Some brands are available for purchase, others are leased on a monthly basis

## Effectiveness of Medication Dispensers

Large, well-controlled studies of the effectiveness of automated medication dispensers have not been completed to date. However, smaller-scale studies indicate promising effects.

- In a 2004 comparison of an automated medication dispensing machine vs. a plastic pill organizer, use of the machine was associated with a 79% reduction in emergency department visits and a 57% reduction in hospital admissions
- In a 2010 study of older adults that were at high risk of non-adherence, use of an automated medication dispensing machine was associated with an average 98% medication adherence rate

## Matching Intervention to Patient Needs

Medication non-adherence often has multiple causes, calling for a multifaceted approach. Successful interventions can be as simple as changing the dosing from three times a day to twice a day, or as complex as uncovering deeply held beliefs about medicines and addressing those beliefs via education and counseling. Automated medication dispensing machines are a potential solution for the most frequent cause of medication non-adherence: forgetfulness. Medication reminders that are delivered via internet, cell phone, or landline are the primary alternatives to medication dispensers.

## Medication Dispenser Pilot Projects

The Center for Technology and Aging recently completed five medication technology demonstration projects, including an automated medication dispensing machine project. For lessons learned and other useful resources, see: [http://www.techandaging.org/medop\\_program\\_page.html](http://www.techandaging.org/medop_program_page.html)