



# IMPROVING DRUG ADHERENCE THROUGH BLISTER PACKS, A LOW-TECH LIFESAVER

## Million Hearts® in Action

[ Strategies for Achieving Million Hearts® Goals ]



Pharmaceutical companies and researchers are always seeking the next “wonder drug” to help reduce cholesterol and blood pressure levels, or other ways to decrease the risk of heart disease. But what good is a breakthrough drug if nobody remembers to take it? Most medicines used to treat chronic conditions work extremely well, but only when taken as directed. But this can be difficult for elderly patients, who often have complicated regimens involving multiple medicines. Cardiologist Allen Taylor has explored an idea to help these patients. In a study he co-authored, customized blister packs were used to pack medicines for elderly patients, resulting in nearly perfect medication adherence rate. The blister packs also helped improve the health outcomes for all who participated.



**To me, adherence is the wonder drug that we have in front of us right now that we’re not taking advantage of quite enough.”**

— Allen J. Taylor, MD, FACC, FAHA

### [ Fast Facts ]

- About 76 percent of Americans who have high blood pressure are prescribed medication for their condition, but only 54.4 percent of those people have the condition under control.<sup>1</sup>
- A decline in cholesterol levels in recent years appears to reflect greater uptake of cholesterol-lowering medications rather than changes in dietary patterns.<sup>2</sup>
- Interventions to improve medication adherence among heart failure patients have significant effects on reducing hospital admissions and lowering death rates.<sup>3</sup>



<sup>1, 2</sup> [AHA's Heart Disease and Stroke Statistics — 2017 Update](#) (p. e140 for 1, p. e126 for 2)

<sup>3</sup> [Journal of the American Heart Association](#), June 2016, p. 1 & 14

## [ What We Did ]

Taylor co-authored [a study](#) that followed 200 patients who were taking multiple medications. The average patient age in the study was 78. Most of the patients were being treated for hypertension, cholesterol or both. Medication adherence was 61.2 percent at the beginning of the study. Pharmacists then bundled pills for each patient into individualized blister packs. This meant that instead of fumbling with a handful of prescription bottles, the patients could reach for their blister pack and pop out the proper dosage of their medicine at the proper designated times – morning, noon and night.

## [ What We Accomplished<sup>4</sup> ]

- Medication adherence – or the rate at which patients take all of their medicines at the proper dosage, and at the correct times – soared from 61 percent to 97 percent over a six-month period during the study.
- In addition to increased compliance, results found similar improvements in measured health outcomes: Patients experienced significantly lower blood pressure and cholesterol levels.
- In the second phase of the study, patients were randomly divided into two groups. One continued to receive blister packs and the other returned to what they had been doing, primarily using prescription bottles. For the latter group, the adherence rate fell to 69 percent. The rate among patients who continued using blister packs, meanwhile, remained above 95 percent.

## [ What We Learned ]

- Educating patients about the drugs they take is important, but it may not be enough to ensure they take their medication properly.
- Convenience can be a critically important factor in medicine adherence.
- There are many reasons patients do not take their medication as directed:
  - Patients are human, which means they forget.
  - Keeping track of multiple pills or a complex medical regimen every day can be difficult and confusing.
  - Prescriptions can be expensive, particularly for individuals on a limited income.
  - Patients who have high cholesterol or other conditions that lack outward symptoms may stop taking their medication because they cannot see or feel it working.

## [ What We Are Doing Now ]

- The findings from the medication adherence study using blister packs report were first reported in 2006 but since then, no other research related to or expanding upon the topic has been conducted.
- In addition to more research, Dr. Taylor said an advertising or public awareness campaign could be “very effective” in promoting the importance of taking medication effectively. It also could help recognize lack of adherence as a legitimate health care problem: “It is under the radar screen of the way we take care of patients.”

## [ Bio Info ]

Allen J. Taylor, MD, FACC, FAHA, is chief of cardiology at MedStar Heart & Vascular Institute, including MedStar Georgetown University Hospital and MedStar Washington Hospital Center. Previously, during his 20-year U.S. Army career at Walter Reed, Taylor served as director of cardiovascular research and chief of cardiology service. He retired from the military service in 2008 at the rank of colonel. He currently practices in Washington, DC.

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<sup>4</sup>[Journal of the American Medical Association](#), November 2006, pgs. 2563, 2567-2568