

**Community-Based Intervention to Increase Appropriate Use of Low-Dose  
Aspirin by Individuals at High Risk for Heart Attack and Stroke  
Stephens County Pilot  
2008-2009**

## **Introduction**

It has been shown that prophylactic aspirin therapy can reduce the risk of strokes and heart attacks by 25% in individuals at risk. The USPSTF recommends low-dose aspirin therapy for men ages 45-79 and women ages 55-79 when the reduction in risk of myocardial infarction outweighs the potential increase in risk of gastrointestinal bleeding. Currently Oklahoma ranks as the 4<sup>th</sup> unhealthiest state in the nation. A predominate factor in this ranking is cardiovascular disease, which accounts for 39% of all deaths in Oklahoma. Clearly in such a population there could be significant benefit from increasing the appropriate use of low-dose aspirin.

This pilot project was undertaken to determine, within a single Oklahoma county, whether an effective community-based campaign to increase appropriate use of low-dose aspirin could be carried out at a cost of approximately \$18,000 and whether the method could then be spread to other counties in the state.

## **Methods**

### **Study Design**

After several months of planning, the community-based intervention was conducted from January 2009 through June 2009 in Stephens County Oklahoma (pop 43,182 - 2000 census). An \$18,000 grant was provided by the Oklahoma State Department of Health (OSDH) to the Department of Family and Preventive Medicine (DFPM) at the University of Oklahoma Health Sciences Center (OU-HSC) to fund the project. The Duncan Regional Hospital Foundation was the ultimate recipient of most of these funds, which they used for local activities. A local family physician, Kent King, M.D., directed the project at the community level, and one of his daughters, Katy King, a college student, did much of the groundwork. A collection of key community stakeholders were convened on at least two occasions to provide input and assure buy-in.

During the initial three months of the project, local stakeholders in consultation with a researcher from the DFPM, James Mold, M.D., identified all of the potential dissemination channels for the information on low-dose aspirin and best ways to reach them and discussed strategies for increasing the frequency and accuracy of advice provided by clinicians and pharmacists. They and an OSDH Aspirin Task Force helped the OSDH design educational materials to be used in the project. At the end of the planning period, a written dissemination/implementation plan was submitted to the OSDH for review, comment, and approval.

Very few changes were made in the plan, which was then implemented over a six-month period. Thirty-three area churches were provided with educational posters to be displayed in their foyers. They were also given a sample announcement to run in the weekly church bulletins citing the benefits of aspirin therapy and urging members to ask their doctor about it. Additional posters and bookmarks were distributed to Duncan Regional Hospital, and a hospital-wide electronic message board displayed the information from the educational poster. Two billboards were erected on major thoroughfares in and out of Duncan. Weekly newspaper ads ran in two local newspapers. In addition, a public broadcast slide-type television commercial ran several times a day.

All 11 pharmacies in the area participated in the project. They were provided with educational posters to be placed throughout the pharmacy, as well as informative bookmarks for distribution. These materials described the benefits of aspirin therapy for appropriate populations and urged patients to ask their doctor if they should consider a low-dose aspirin regimen. Eighteen physicians in 13 practices were provided with the educational posters to be placed in their waiting rooms and bookmarks for distribution. All Physicians and Pharmacists were urged to counsel patients meeting treatment criteria about a regimen of low-dose aspirin. To encourage them to document these encounters, they were offered the chance to win a \$25 gift certificate (for most encounters in which an aspirin recommendation was made).

### **Outcome Measures**

A survey was administered to all 11 pharmacies and to 7 of the 18 physicians. The survey included an estimate of the percentage of patients counseled about low-dose aspirin prior to and during the study period, as well as an estimate of the percentage of patients who had asked about low-dose aspirin in the six months prior to and during the study. Also obtained were opinions about the strengths and

weaknesses of the campaign materials, the campaign as a whole, and suggestions for improvement of future projects. A survey was conducted of the community advertising agencies to estimate the exposure gained through each venue.

To determine the effectiveness of the aspirin campaign, data was collected from the Duncan Wal-Mart for the six months before and the six months during the initiative to serve as a representative sample of area-wide aspirin sales. Data was also collected from the Duncan Regional Hospital on discharge diagnoses of ischemic and hemorrhagic strokes, myocardial infarctions, and gastrointestinal hemorrhages during the one year prior to and the six months during the interventions.

## Results

### Impact of Dissemination Strategies

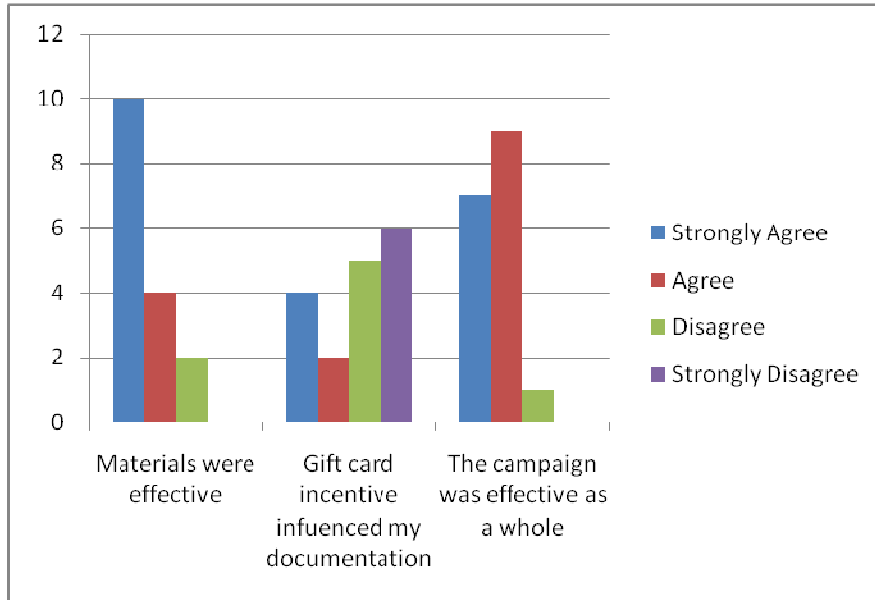
#### Survey Data

The Health professional surveys revealed that most doctors and pharmacists believed that the aspirin project was effective in raising community awareness and that the educational materials used for the program were useful. Most stated that the gift card incentive was ineffective in influencing the documentation of low-dose aspirin counseling (Figure 1). They reported a 35.7% increase in the percentage of patients counseled about aspirin therapy, as well as a 66.2% increase in the percentage of patients who asked about low-dose aspirin therapy (Table 1). Responses to the other survey items are shown in Table 2.

**Table 1: Clinician estimates of numbers of patients counseled and number coming in with questions about low-dose aspirin.**

<b>Estimated Aspirin Counseling</b>			
	<b>Pre-Study</b>	<b>Study</b>	<b>% Change</b>
<b>% of Patients Counseled</b>	35.50%	48.20%	35.70%
<b>% of Patients who Initiated Counseling</b>	15.40%	25.60%	66.20%

**Figure 1: Clinician perceptions of effectiveness of the initiative.**



Responses to the other survey items are shown in Table 2.

**Table 2: Responses of clinicians and pharmacists (combined) to survey questions.**

**1. In what ways would you improve the materials (this could include adding or eliminating certain materials) for future projects?**

“Be sure to include that talking to your doctor is necessary before beginning aspirin therapy. A ‘shelf talker’ at the end of aisles in the pharmacy would be helpful.”

“A brochure would be good, probably better than a bookmark. A question hotline or website that patients could access would be a huge help.”

“The information could be delivered as coupons attached to the medication at the pharmacy.”

“Provide some kind of display for the pamphlets; showcase them more.”

**2. How could the documentation of patient counseling be improved for future studies?**

“Provide more space for documentation on the forms.”

“The form should be simplified. A check box system would be best.”

“Give the patient a card to fill out. This could be mailed in or left in a box at the pharmacy.”

“Have the patient fill out a survey.”

“Patient fills out the survey while in the office.”

“A reminder for the Pharmacist.”

“Give patient a toll free number to call and report aspirin counseling.”

“Require less questions.”

“Provide an online questionnaire with boxes to check.”

**3. Do you have any suggestions for the implementation of future projects?**

“Work with Bayer to provide free baby aspirin samples. Make documentation less cumbersome.”

Pharmacist expressed concerns about patients informing physicians and educating patients on correct dosage.

“More general media advertisements”

“Face to face promotion at public events. Set up booths etc.”

“The pharmacy is a great avenue for education. A volunteer powered support phone line would be beneficial.”

“Target interventions to the at-risk profile; assisted living centers, senior citizens’ centers, etc.”

“Get samples from Bayer; provide to the patients upon counseling.”

Estimated numbers of people reached through the various advertising venues are shown in Table 3.

**Table 3: Estimated numbers of people reached by each advertising method used in the project.**

Location	Media Type	Estimated Population Reached
Churches	Flyers and Posters	5460 per. Week
KFXI-FM 92.1, Marlow, OK	Radio Advertisement	Unknown
Arnold Outdoor, OKC, OK	Billboard Advertisement	4950 per. Day
Marlow Review, Marlow, OK	Newspaper Advertisement	3000 per. Week
Duncan Banner, Duncan, OK	Newspaper Advertisement	7000 per. Week
Cable One, Phoenix, AZ	Television Commercial	Unknown

**Wal-Mart Data**

When compared to the pre-study period (June –Dec 2008), the six months comprising the study showed a marked increase in both total 81mg aspirin sales and total 81mg aspirin pills sold. However, a similar increase was seen in sales of 325mg aspirin (Table 4). We are now trying to get denominator data so

that we can run statistical tests and also data on sales of ibuprofen during the same time periods for comparison in case there was an increase in analgesic use generally.

**Table 4: Sales of quantities of aspirin and total numbers of pills sold during the 6 months before and the 6 months during the intervention**

<b>81 MG</b>			
<b>Avg. Per Month</b>	<b>Pre</b>	<b>Study</b>	<b>% Change</b>
Sales	459.4	539.3	17.40%
Pills	63,354	70,145	10.70%

<b>325 MG</b>			
<b>Avg. Per Month</b>	<b>Pre</b>	<b>Study</b>	<b>% Change</b>
Sales	139	172.3	23.70%
Pills	17,179	23,325	35.70%

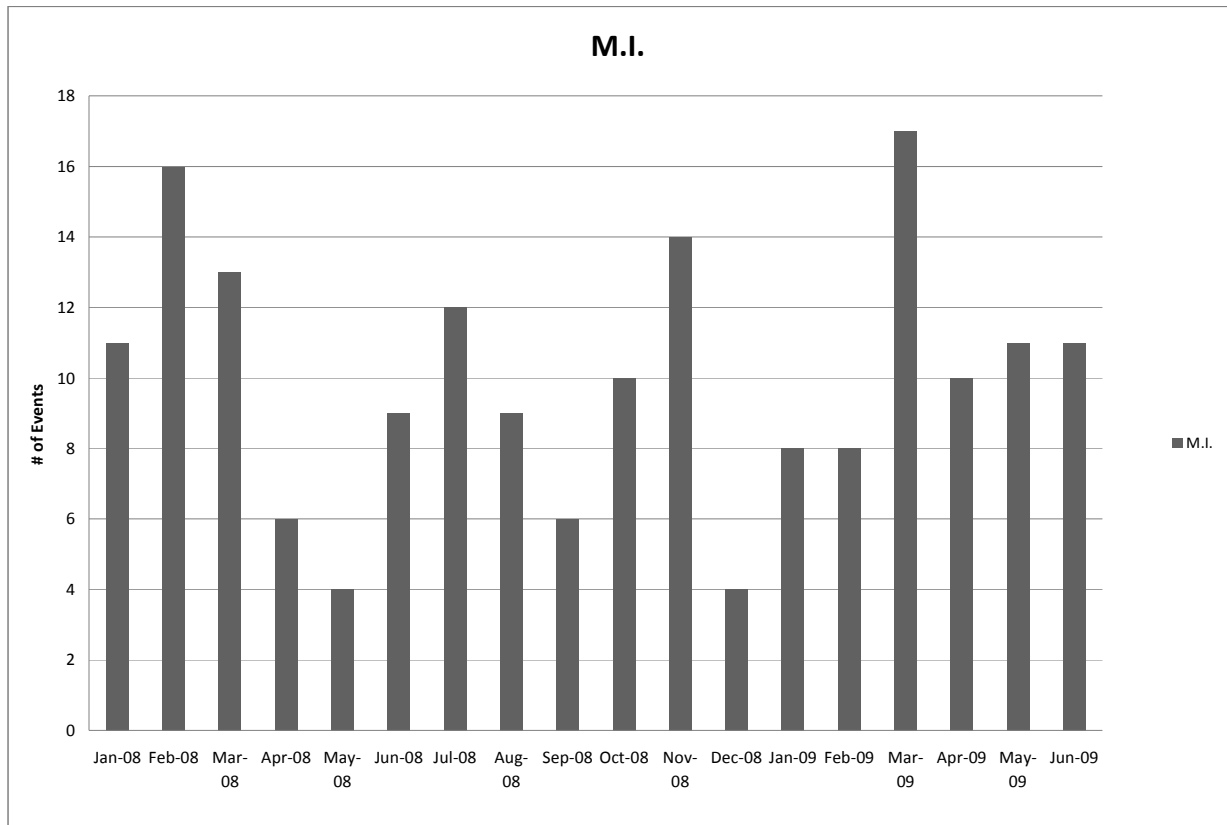
#### **Duncan Regional Hospital data**

When compared to the monthly average of the pre-study period (Jan-Dec 2008), there was an 11% increase in the number of patients either seen in the Emergency Department and or admitted with myocardial infarction over the 6 months of available data during the study period (Jan-June 2009). The rate of hospitalizations for stroke rose by 9.4%. There was a 61.5% increase in the incidence of G. I. bleeding over the same period. (Table 5). However, none of these differences reached statistical significance.

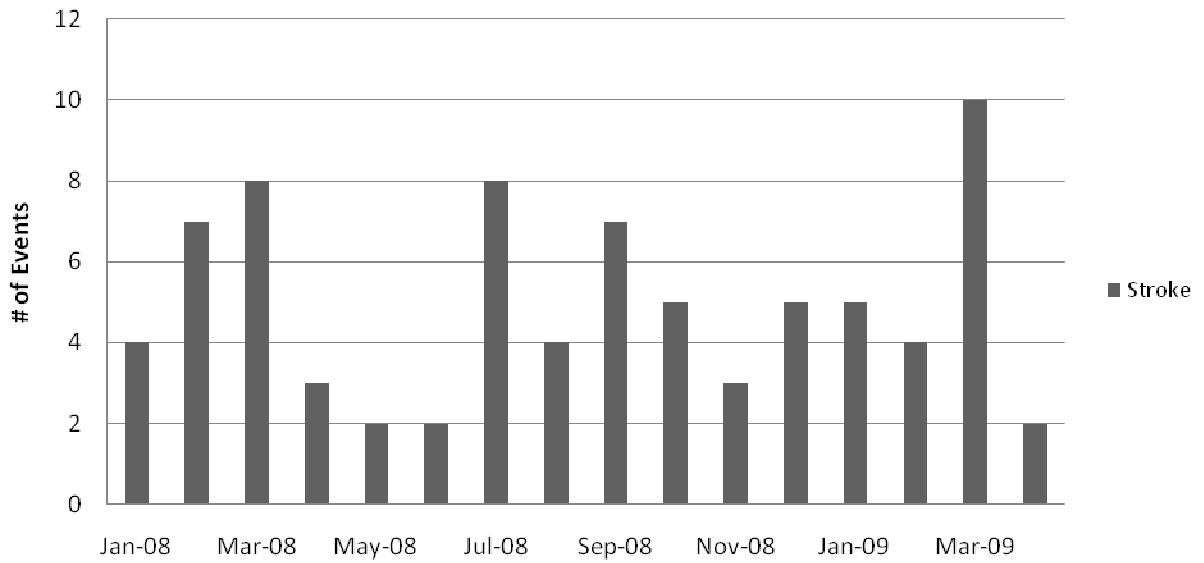
**Table 5: Average numbers of hospital discharges per month with heart attack (MI), stroke, and gastrointestinal hemorrhage (GI Bleed) during the 12 months prior to and the 6 months during the intervention.**

Event	Pre-Study Avg. Per Month	Post-Study Avg. Per Month	% Change
M. I.	9.5	10.5	(+)11%
Stroke	4.8	5.25	(+)9.4%
G.I. Bleed	3.25	5.25	(+)61.5%

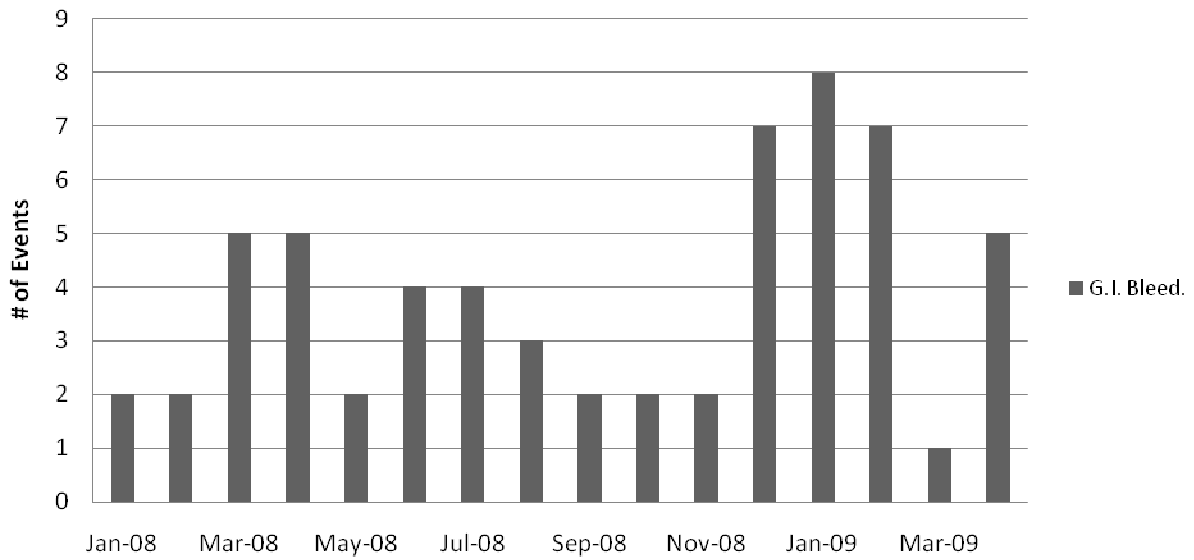
**Figure 2: Graphical representation of the actual numbers of patients with heart attack, stroke, and GI bleeds discharged from the hospital by month. The intervention period is represented by the final 6 bars.**



## Stroke



## G.I. Bleed.



## Discussion

Based upon the Stephen's County pilot, it is probably feasible to institute an effective communitywide health initiative with an \$18,000 budget. Though the sales data from Wal-Mart has not yet been determined to be statistically significant, it appears that the use of aspirin in the community increased since the implementation of the low-dose aspirin campaign. It therefore stands to reason that awareness of low-dose aspirin therapy in Stephens County has increased as a direct result of the community health initiative. The major requirements for the intervention are a local opinion leader and someone who can do the leg work required to distribute educational materials and authoritatively instruct the various groups in their use. Dr. Mold is prepared to help the OSDH identify clinicians who could serve as opinion leaders.

Based upon the WalMart data and clinician feedback, at least one minor change needs to be made in the educational materials. The educational materials did not include the terms "low-dose" or "baby" and it is possible that the message of aspirin therapy reached the population, but the correct dosage was lost in translation. If this is the case, this presents an issue that should be addressed in future low-dose aspirin campaigns across the state.

A limitation to the study was that the implementation of much of the intervention occurred late into the study period. These interventions were delayed because of the schedule for delivery of study funds. Unlike in a University setting, the project was directly limited by the availability of grant dollars, and the second phase of intervention began when the second installment was received. In considering extrapolation of this project to the state of Oklahoma, some consideration should be given to the particular avenues of implementation and the specific monetary needs of each.