



Cost-Effectiveness of a Community-Wide H1N1 Mass Immunization Program Involving Walk-Up and Drive-Thru Options

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Background

Provision of immunization is a cornerstone of an effective emergency response plan for an infectious disease. In addition, gaining experience and having preparation in the event a mass immunization is needed in response to biological attack is warranted at the city level.

H1N1 pandemic influenza A 2009 immunization presented a significant logistical and financial challenge. The goal was to provide immunizations in an efficient manner that was accessible for targeted high risk groups, and within the limitations of funds provided. Due to the incidence of disease and the delayed release of vaccine, the public was eager to have access to vaccine.

Current Project

Current emergency preparedness plans were deemed insufficient for use as part of a mass immunization community-wide response. As a result, the Louisville Metro Public Health and Wellness (LMPHW) partnered with the University of Louisville (UL) to plan and implement a unique community-wide point of dispensing immunization program. A community-wide immunization effort consisting of drive-thru and walk-up options that focused on high risk populations was held at the UL Papa John's Cardinal Stadium.

Study Objective

Our primary objective was to *determine if a drive thru strategy to administer H1N1 immunizations was a cost-effective way in which to provide H1N1 mass immunization, when compared with the traditional walk-up approach.*

Project Description

On November 11-12, 2009 a community-wide H1N1 mass immunization point of dispensing was held in Louisville KY. H1N1 vaccines were administered via one of two methods: (1) a drive-thru or (2) a walk-up process. Injectable and intranasal vaccines were available and were administered based upon appropriateness and influenced by patient preference.

Drive-Thru Approach

Enter the stadium parking area and follow the designated path toward one of the ten immunization tents. Individuals remained in/with their personal vehicle through all phases of the immunization process (signing the informed consent, moving their vehicle through the process, receiving their vaccination, etc.).

Walk-Up Approach

A person could either:
(1) walk to the designated immunization tent
(2) drive their personal vehicle and park in a designated parking area, or
(3) receive free public transportation to the designated immunization tent.

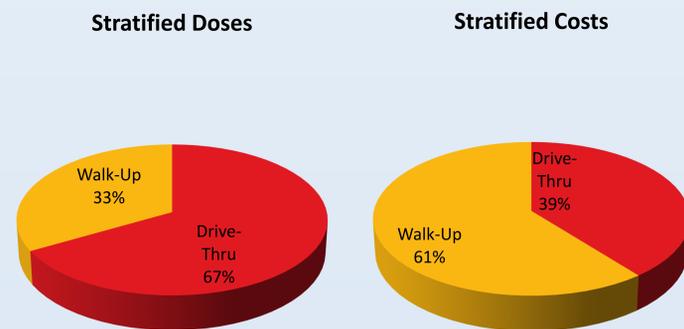


Image 1: Doses and Costs Stratified by Approach

Analysis

Descriptive analysis of the number of immunizations administered was performed. A cost-effectiveness analysis taking a societal perspective was used.

Costs

For this phase of the analysis, we included only direct costs. Costs included personnel and non-personnel costs (e.g., office supplies, security, medical waste disposal, food for volunteers) and represented all items and people that were needed to conduct the event. Indirect costs such as productivity costs (e.g., costs associated with lost productivity) were not included in this analysis.

Results and Lessons Learned

In total 19, 079 immunizations were administered:
- 12, 737 administered via the drive-thru method
- 6, 342 administered via the walk-up method
On average, the drive-thru method provided 400 additional immunizations per hour (796 vs. 396).

Overall, on average cost per immunization dose administered was \$13.35. Costs were significantly higher for the walk-up method (\$29.61/ dose) when compared to the drive-thru method (\$5.58/ dose), p<0.001. (Images 1, 2 and 3).

The drive-thru method was the least expensive method and was the process of choice by more than 60% of the citizens coming to the event for immunization.

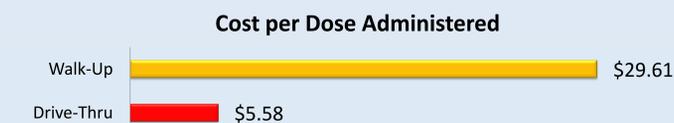


Image 2: Cost per Dose Administered Stratified by Approach

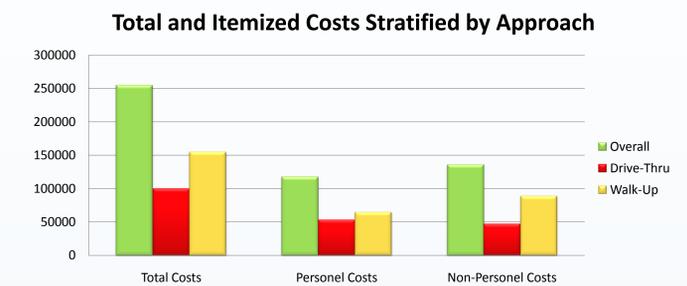


Image 3: Bar charts depicting the differences in total and itemized costs between the two approaches.

Conclusions

A drive-thru H1N1 mass immunization program was a cost-effective way in which to provide H1N1 vaccines in an urban setting. Therefore, future mass immunization programs may benefit from following similar strategies. Although, incorporating a walk-up approach allowed social justice issues to be addressed and ensured all members of society were served. The cost/dose did not include a cost for vaccine or immunization supplies as those were provided by the federal government.

Limitations

Since some costs are not directly comparable (e.g., RNs used for the walk-up method vs. nursing students used for the drive-thru method) financial forecasting may be warranted. As is well established in economic theory, higher output (more vaccines administered) leads to a reduction in marginal cost (cost per vaccine administered); therefore sensitivity analyses are needed to determine the impact volume of output has on the marginal cost per vaccine administered.

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