

# Vaccine Ambassadors: An Educational Model to Spread Awareness About Vaccines in Detroit



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## INTRODUCTION

- The coronavirus disease 2019 (COVID-19) pandemic has revealed health disparities, weakening healthcare infrastructures, and severe communication gaps.
- Society's perception of the healthcare system - significant mistrust in the medical field due to past instances of involuntary experimentation of minorities.<sup>2</sup>
- Detroit has a COVID-19 vaccination rate of 75.1% since the beginning of the pandemic.<sup>1</sup>
- Key factors for these low rates are misinformation and fear of the unknown. Notably, social media has become the main source of distributed information, given that it is readily available and easily consumed.<sup>2</sup>
- To improve vaccination rates and overall health, there needs to be a movement towards community involvement and education in vaccines.
- Key members of the community that are often overlooked as agents of change are the youth. Their connections and networking are indeed limited. However, there has been a notable amount of policy, environmental, and system changes enacted by youth advocacy.<sup>3</sup>
- In fact, research has shown that they are instrumental in community and youth development.<sup>3</sup> They have a unique position in the community where they are intimately involved in the interworking of the neighborhood and its culture. Through their enthusiasm, creativity, and energy, they provide a different perspective that is absent from current policy. Involving them simultaneously improves the community's health while paving a future for a new generation of leadership.<sup>3</sup>
- Accordingly, the Vaccine Ambassador program involves the empowerment and teaching of youth who in turn will educate their peers. Past research has shown peer education is an effective tool to increase competency and enact behavior change.<sup>4</sup>
- A significant factor contributing to its success is the demographic similarity amongst the instructor and the audience.<sup>4</sup> This enables effective dissemination of material and a built-in trust between the parties. A study done by Cai et al. also showed longevity to the behavioral interventions taught by the peers.<sup>5</sup>
- Effectively, it molds the future generations to be civic-minded and knowledgeable about vaccine importance while simultaneously increasing vaccination rates.

## METHODS

### Vaccine Ambassadors Training

Eleven Detroit area high school students who are high achieving and willing to commit to 12 months of participation were recruited. Once recruited, vaccine ambassadors completed three weeks of training from Wayne State University School of Medicine students and faculty. Topics covered included history of vaccines, immunology behind vaccines, types of vaccines, administration and side effects of vaccines, herd immunity, aspects of false news, and different teaching and leadership techniques. These young students aimed to spread this knowledge and education to youth in various communities throughout Detroit, such as schools, community events, outreach events, and many more.

### Measures

The impact of the Vaccine Ambassador program was measured through a pre- and post-test given to the youth at the educational outreach events. Twenty-five participants were given the same seven questions to determine what they knew previously to what they learned during the educational session. The questions gauged participants' level of knowledge regarding vaccinations and immunity. Results were analyzed by comparing both mean responses and individual responses before and after ambassador presentations with a paired sample t-test ( $\alpha=0.05$ )

## RESULTS

This on-going study has preliminary results from 25 participants. Ages range from 6-12 years old. The average correct answers from the pre-survey are 45% ( $s^2 = 0.05$ ). The average correct answers from the post-survey are 82% ( $s^2 = 0.06$ ). The paired sample t-test was significant meaning there is a statistically significant difference between the two means ( $t=-6.71, p>0.001$ ). One participant answered all the questions correct on the pre-survey and thirteen who answered all correctly on the post-survey.

For all seven questions of the pre-survey, the following are the percentages of questions answered correctly by participants; Q1 - 32%, Q2 - 76%, Q3 - 28%, Q4 - 56%, Q5 - 40%, Q6 - 56%, and Q7 - 28%. The following are percentages of questions answered correctly by participants during the post-survey; Q1 - 84%, Q2 - 84%, Q3 - 84%, Q4 - 83%, Q5 - 88%, Q6 - 80%, and Q7 - 80% (Figure 1). Therefore, there was an increase in correct answers for every question.

## DISCUSSION

- Preliminarily showed that Detroit area children are not well versed on what vaccines are, how vaccines work, or why they are used.
- Children were not able to determine whether or not vaccines were a treatment or a preventative measure and believed that vaccines and antibiotics work the same way.
- The low knowledge about vaccines in the Detroit community could be a leading reason why the community has a lower COVID-19 vaccination rate. A recent study found that lower education levels lead to higher vaccine hesitancy and ultimately lower vaccination levels.<sup>7</sup>
- While there is no question in the survey relating to negative perceptions on vaccines, each session does point out the myths surrounding vaccines and discusses why they are untrue. By hearing this information from their peer ambassadors and not a physician, the students are more likely to change their perceptions and attitudes of these myths.
- Detroit youth lack information regarding vaccines, demonstrates the need to educate them about vaccines.
- The increase in post-survey responses shows initial success and effectiveness of youth-led health education in the community. Not only are youth able to learn, but they are able to apply their knowledge and teach others. By teaching their peers, youth can make informed decisions when older and enact behavioral changes that promote healthier living.

## PUBLIC HEALTH IMPLICATIONS

- Promotion of healthier living in current and future community.
- Equipping the youth with knowledge and empowering them to share it.
- This education will bridge the gap and introduce more trust between communities and healthcare workers.
- Wish to implement the program with other ambassadors to educate the community on antibiotic resistance, advocating for health in all government or private policies, and human papillomavirus (HPV) vaccines.

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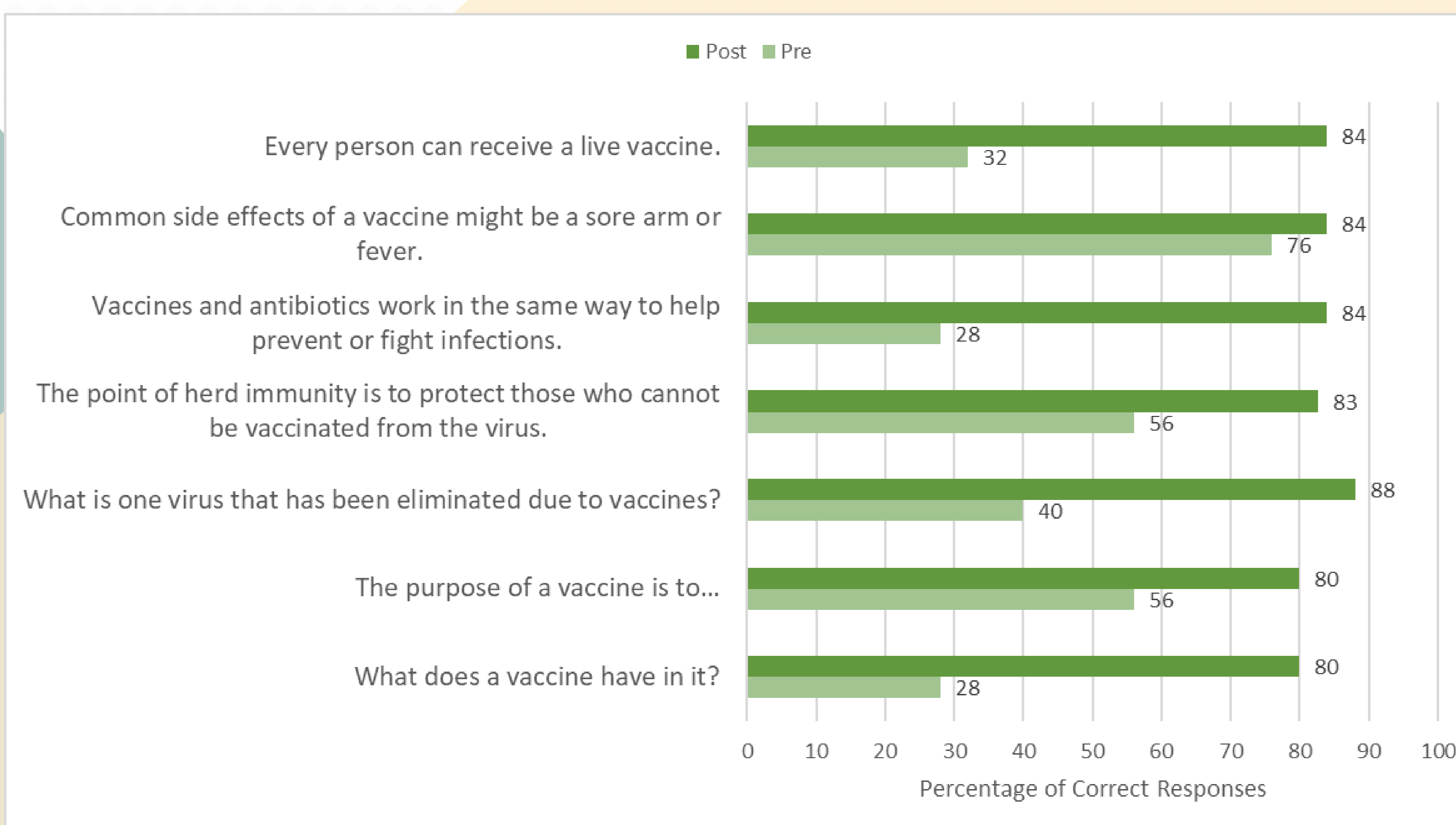


Figure 1. Comparison of pre- and post-survey responses