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# Attitudes Towards Vaccination Among Medical Students: A Two-Site Study

Dylan Devlin

Michael Grant

Trishul Kapoor

Marie Lemay

Sarah Manning

*See next page for additional authors*

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**Authors**

Dylan Devlin, Michael Grant, Trishul Kapoor, Marie Lemay, Sarah Manning, Meredith Sooy, Chris Finley,  
and Jan Carney

# Attitudes Towards Vaccination Among Medical Students: A Two-Site Study

Devlin, D.<sup>1</sup>; Grant, M.<sup>1</sup> ; Kapoor, T.<sup>1</sup> ; Lemay, M.<sup>1</sup> ; Manning, S.<sup>1</sup> ; Sooy, M.<sup>1</sup>; Finley, C.<sup>2</sup>; Carney, J.<sup>1</sup>  
<sup>1</sup>University of Vermont College of Medicine; <sup>2</sup>Vermont Department of Health

## Introduction

- Mandatory immunization for school age children in the 20<sup>th</sup> Century led to a substantial decline in infectious disease.
- All US states allow medical exemptions from immunizations with 49 permitting additional religious exemptions and 19 permitting additional philosophical exemptions.
- Vaccine exemptions have led to an increase in the incidence of disease outbreaks.
- Healthcare providers play a critical role in educating parents about the benefits and risks of immunizations.
- This project compares student attitudes and knowledge regarding vaccination at medical schools in two distinct states: one with no additional exemptions (West Virginia) and one with both additional exemptions (Vermont).

## Methods

### Literature review

- Gathered information on vaccination trends, student/provider attitudes, state exemptions, and the importance of provider recommendation in patients' decision-making.
- Reviewed and evaluated prior studies with similar constructs to obtain survey items.

### Pilot Survey

- Survey questions were consolidated from validated sources and modified to assess vaccination experience, attitudes, and knowledge.
- Survey was distributed to all students at the University of Vermont College of Medicine (UVM COM) and Marshall University School of Medicine (MU SOM) through e-mail. In addition to the introductory email, a reminder email was sent after one week. The survey was also publicized on social media.

### Data Analysis

- Responses from 107 UVM COM students and 68 MU SOM students were compiled, organized, and analyzed using SPSS.
- Data was stratified based on state of origin, state of medical school attendance, and year in medical school.
- Each survey was assigned a composite score calculated from responses to all questions.

## Results

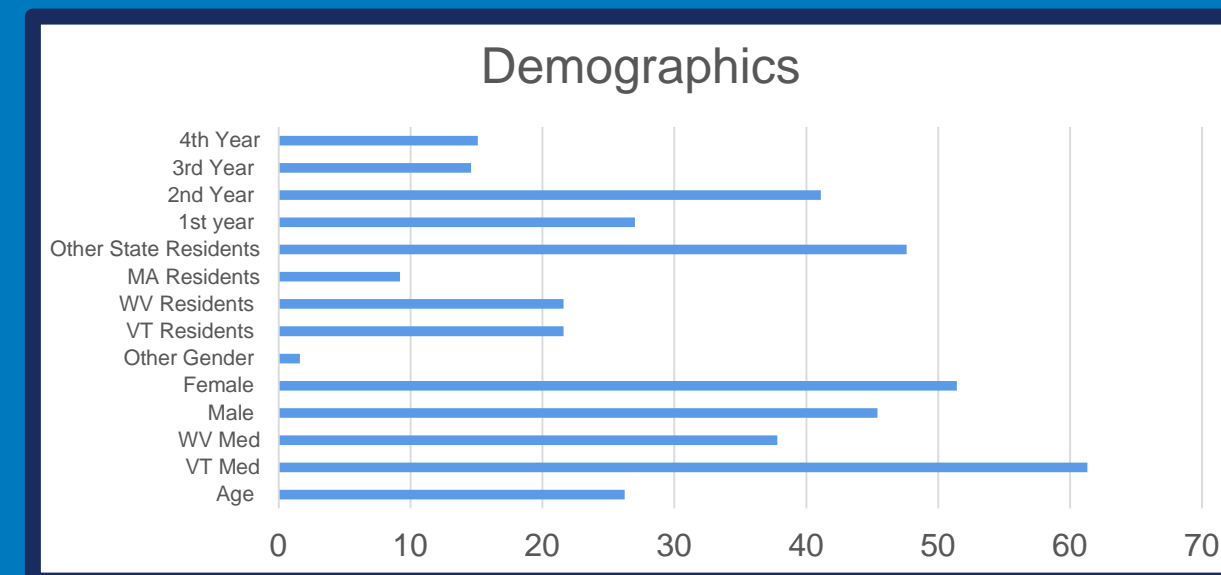


Figure I

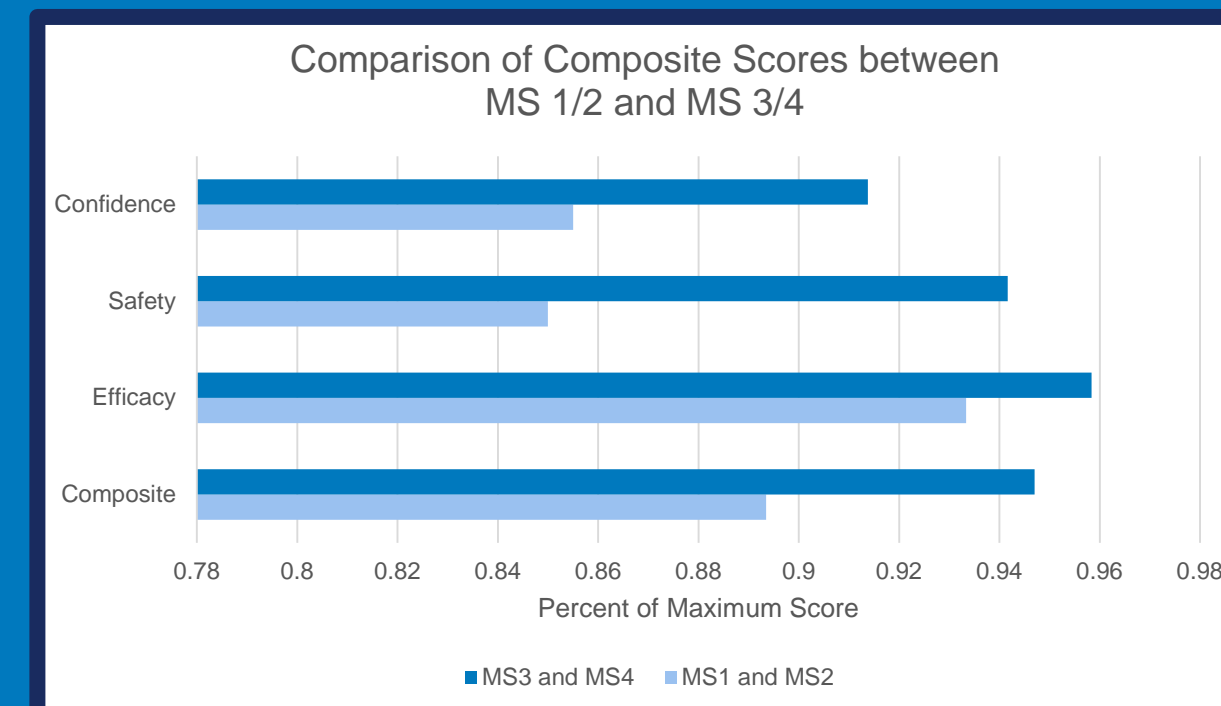


Figure II

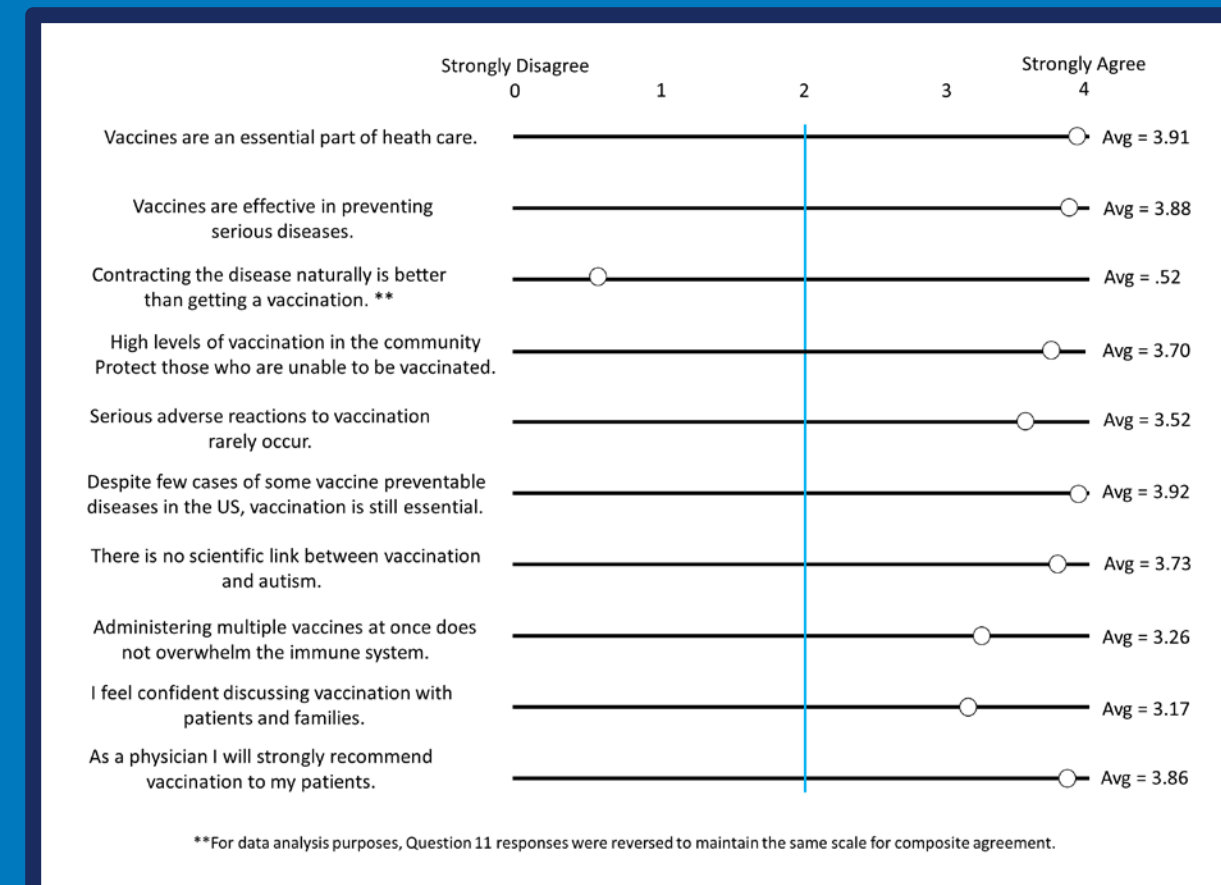


Figure III

- Mean composite agreement score of  $36.41 \pm 4.39$  out of a possible 40 points (Figure I).
- No statistically significant differences between the two schools; slight trend of stronger agreement for VT natives than WV natives.
- Difference in agreement on the safety of vaccines between native VT and native WV (Safety Composite  $11.13 \pm 1.30$  VT Native versus  $10.00 \pm 1.92$  WV Native  $p = 0.003$ ).
- Significant difference between MS1/MS2 compared to MS3/MS4 (Mean Composite  $35.74 \pm 4.94$  for 1/2 versus  $37.89 \pm 2.18$  for 3/4  $p = .003$ ) (Figure II).
- The most dramatic shift occurred in knowledge about the safety of vaccines (Composite Safety Score  $10.17 \pm 2.08$  for 1/2 to  $11.28 \pm 1.20$  for 3/4 out of 12 possible).



## Discussion

- Students in the clinical years (MS 3 and MS 4) rate these vaccine parameters significantly higher than students in the didactic years (MS 1 and MS 2) of their medical education.
- Exposure to patients with serious infections and office discussions of patient prevention during clerkship years helps to solidify students' vaccine awareness and understanding.
- Despite strong agreement about the necessity and efficacy of vaccines, understanding of immunological principles was mixed among respondents.
- Overall, students are unaware of the vaccination exemptions in the state in which they attend medical school.
- Data is suggestive of significant plasticity in medical students' attitudes toward vaccination.
- Findings are suggestive of influences from various aspects of medical education curriculum, clinical exposure, and training.
- Limitations of the study include a small sample size and narrow geographic sample.

## Conclusions

- Medical students view vaccinations as safe, efficacious, and critical to public health.
- Findings suggest students' advancement in the curriculum (didactic vs clinical) strongly influences their attitudes toward vaccination, while exemptions allowed in each state do not play a significant role in developing those attitudes.
- Further research involving a larger, and more diverse, sample of medical schools will provide opportunities to explore both internal (aspects of curriculum) and external (exemptions, agenda publicity, political demographics, etc.) influences on vaccination attitudes amongst medical students.

## Acknowledgments & References

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