

Student-Led Research as a Catalyst for Curriculum Relevance in an Applied Infectious Disease Course

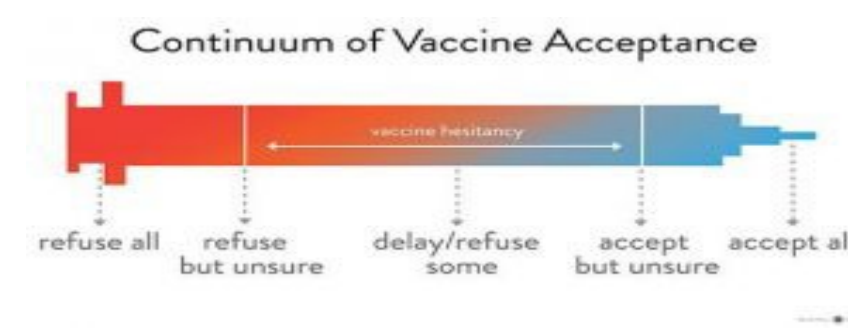


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Overview & Importance

This project aims to create and evaluate curricular interventions to impact future healthcare worker (HCW) vaccine knowledge, beliefs, and intentions, focusing.

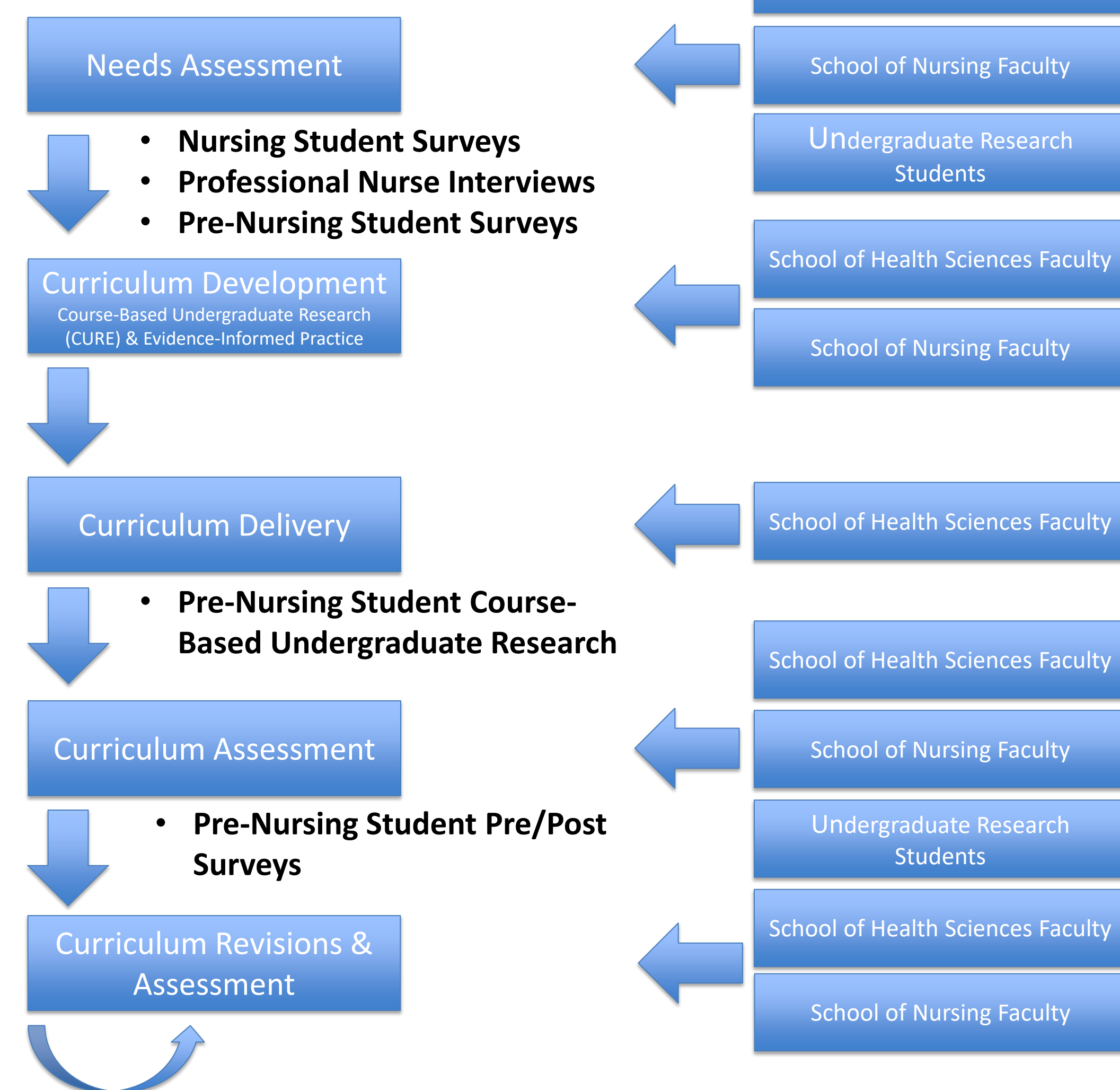
- Vaccines reduce infections, hospitalizations, and deaths associated with many infectious diseases (1).
- Trends towards reduced vaccine acceptance are a growing global health threat (2).
- Complex variables interact to influence individual vaccine decision-making (3)
- Healthcare workers (HCW), including nurses, may play important roles in advocating for vaccine acceptance (4).
- HCW with higher vaccine knowledge may be more effective advocates (5).
- Research indicates that nursing students may have lower vaccine knowledge than other healthcare professions students (6).
- The influenza vaccination status of healthcare workers (HCW), including nurses, affects HCW infection risks, patient outcomes, and healthcare costs and efficiency (7).
- Interventions to impact HCW knowledge, beliefs, and intentions regarding promoting vaccination may be most effective at the pre-professional (8).



Project Staff Responsibilities:

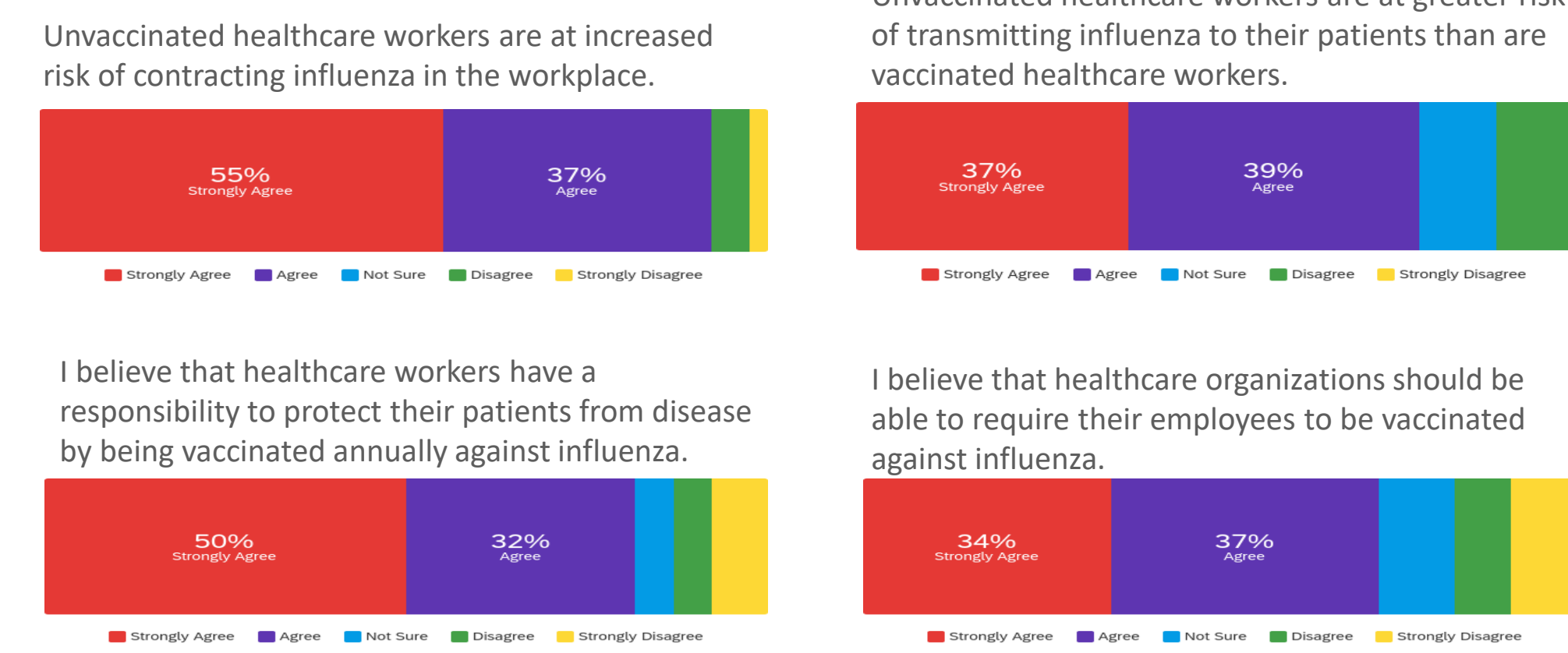
- School of Health Sciences Faculty**
 - Content Area Expertise
 - Pre-Nursing Curriculum Expertise
- School of Nursing Faculty**
 - Professional Needs Expertise
 - School of Nursing Curriculum Expertise
- Undergraduate Research Student**
 - Data Collection & Analysis

Project Workflow:

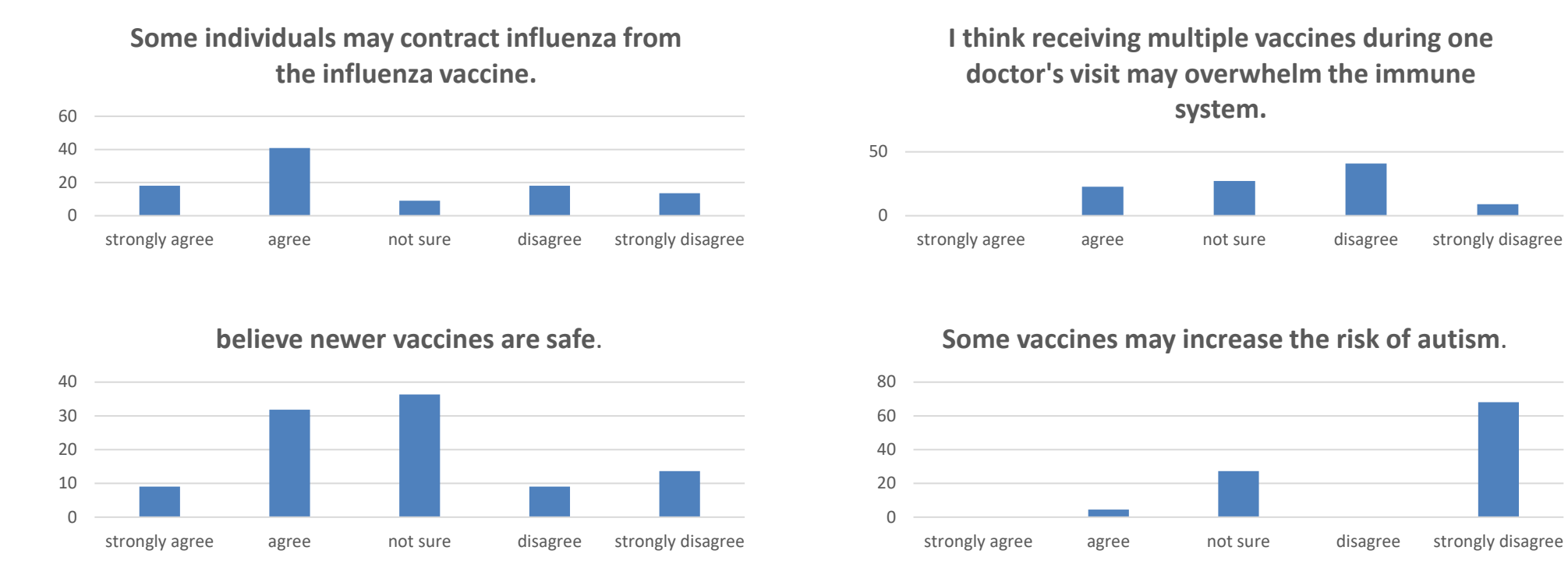


Describing the Problem

Nursing Student Survey: SP 2022



Pre-Nursing Student Survey: FA 2021



Nurse Interviews: SP 2023

Are Nurses Susceptible to Contracting Influenza from Their Patients?
 "You shouldn't be any more susceptible...to anything a patient has if you're practicing adequate (use) of personal protective equipment."
 "Yes...what I mean you can catch the flu from anybody..."
 "I mean I'm sure you are susceptible...but you are if you go out shopping or if you go to the grocery store or if you go anywhere..."
 "I'd say no."
 "We'd rather take the risk than have a vaccination."

Are Unvaccinated Nurses More Likely to Spread Influenza to Their Patients?
 "No...because we would...(be) in our PPE..."
 "No...because nurses in general are careful about PPE and distancing and we're more aware of the spread..."
 "Yes...I think it's possible because they are immunocompromised because they're already a patient."
 "I do not believe that they are more likely to transmit to patients under their care because a responsible nurse would not be giving care to a patient if they came to work with the flu."

Are Influenza Vaccines Safe & Effective?
 "...show proof...(that) it really makes a difference..."
 "...like, what is it going to do later on..."
 "...if you could show statistically where it really does work..."
 "...not knowing, like, down the line, how it might affect your body later..."
 "...like, what is it going to do later on?"

Do Nurses Have a Personal Responsibility to Protect Their Patients by Being Vaccinated?
 "No, not really because...if you're practicing...adequate PPE you shouldn't be transmitting to staff or patients..."
 "There's some of us...in the middle, like well I'm gonna get it just because I don't wanna give it to somebody else...and then feel guilty..."
 "(An) infectious disease doctor told me one time it wasn't so much for my protection it was for my patients' protection and that's when I started taking it because I always refused to take it until then."

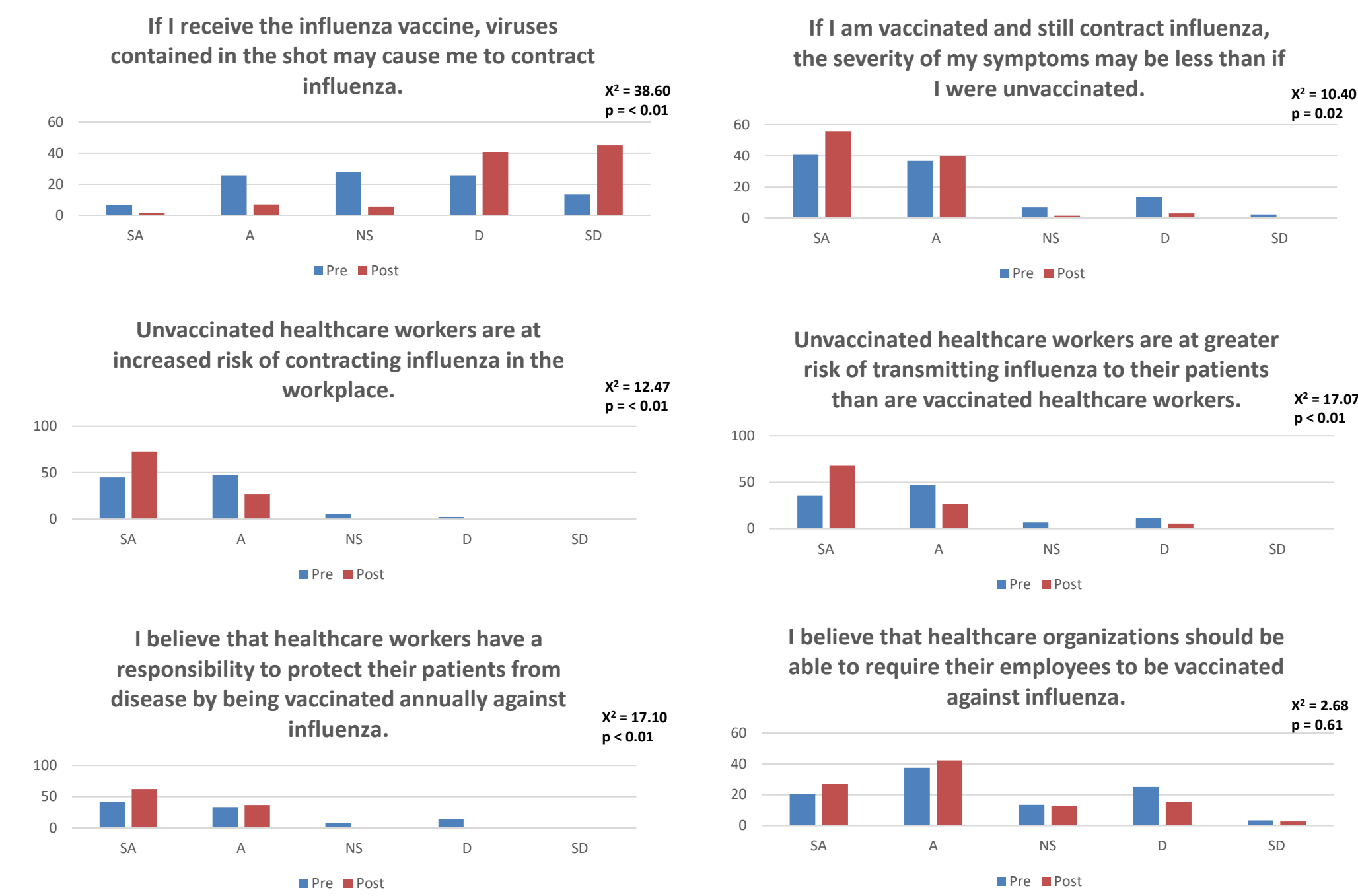
How Do You Feel About Employer Vaccine Mandates?
 "I don't like being told what to do..."
 "I don't think it's right (as an employee)...but as a manager I can see why they do it so I kind of have two different thoughts on it."
 "...you're already resentful...I think they're very resentful being mandated to do something..."
 "I think it should be a choice...they should give reasons why it's better to do it..."
 "I believe that I went through school long enough to know what's right and wrong and that I know how to take care of my patients."

Summarizing the Challenges

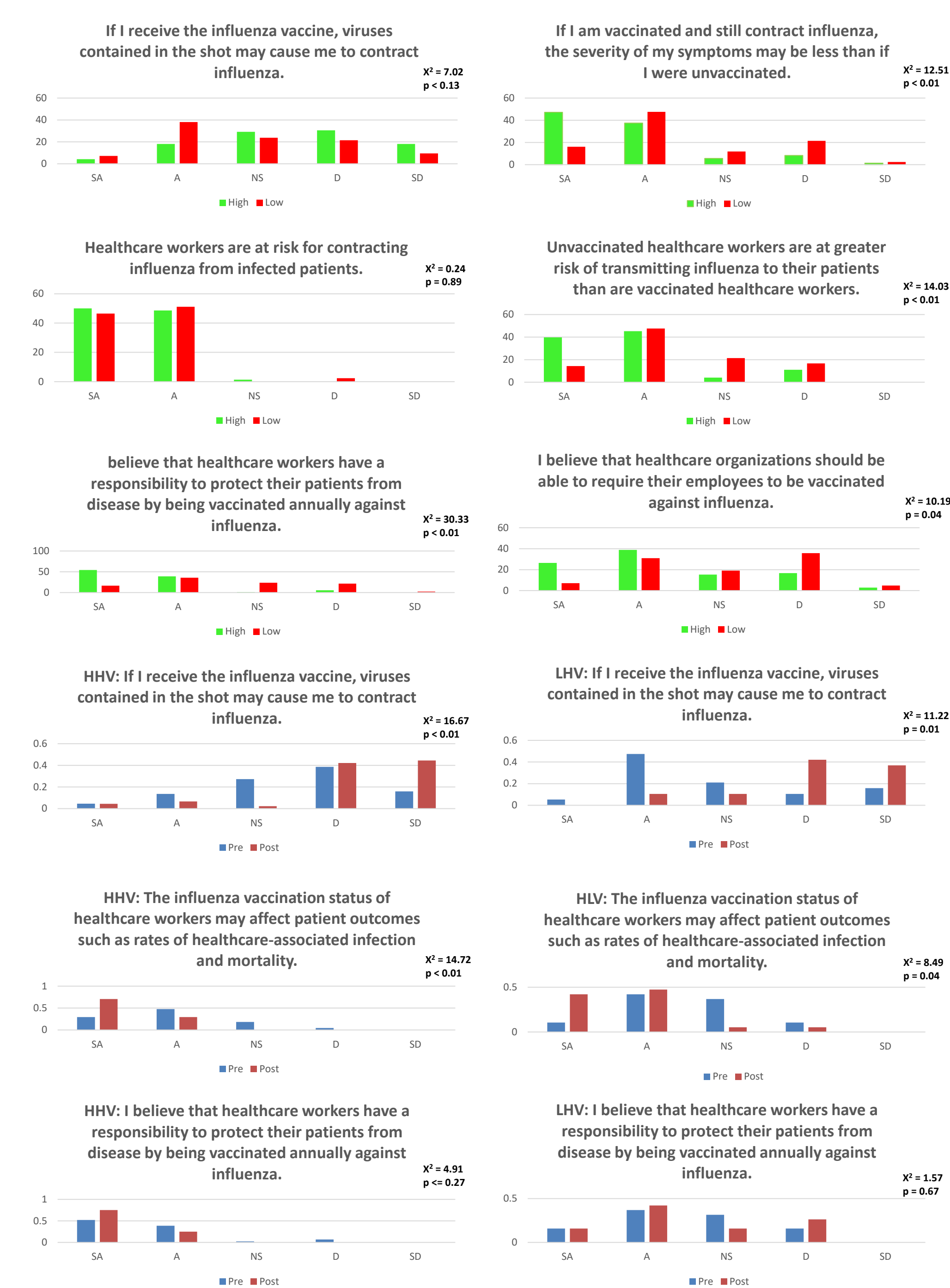
- Vaccine Safety/Efficacy:** Evidence from multiple groups indicate low knowledge/lack of trust in the safety and efficacy of some vaccines.
- HCW Risk vs. Patient Risk/Outcomes:** Future and current HCW may understand their own infection risks based on work environment but show less understanding of how their vaccination status can impact healthcare-associated infection risk.
- HCW Responsibility vs. Employer Mandates:** Pre-Nursing Students, Nursing Students, and Nurses generally indicate greater support for personal responsibility to vaccinate than for employer vaccine mandates.

Curriculum Impacts & Opportunities

Pre-Nursing Students: SP 2023/FA2023/SP 2024, (N = 90 pre, 70 post)



High Historical Vaccinating (HHV) vs Low Historical Vaccinating (LHV) Pre-Nursing Students: SP 2023/FA 2023/SP 2024, (N = 44 pre, 19 post)



Summarizing Curricular Impacts

- Curricula significantly improved Pre-Nursing Student **knowledge** of vaccine safety and efficacy, as well as the importance of HCW vaccination status on patient outcomes.
- Beliefs** regarding HCW responsibilities were significantly impacted, but support for employer mandates showed little change.
- Knowledge and beliefs** differed significantly in several areas between HHV and LHV students.
- A subset of LHV students showed less response to curricula than did other groups.

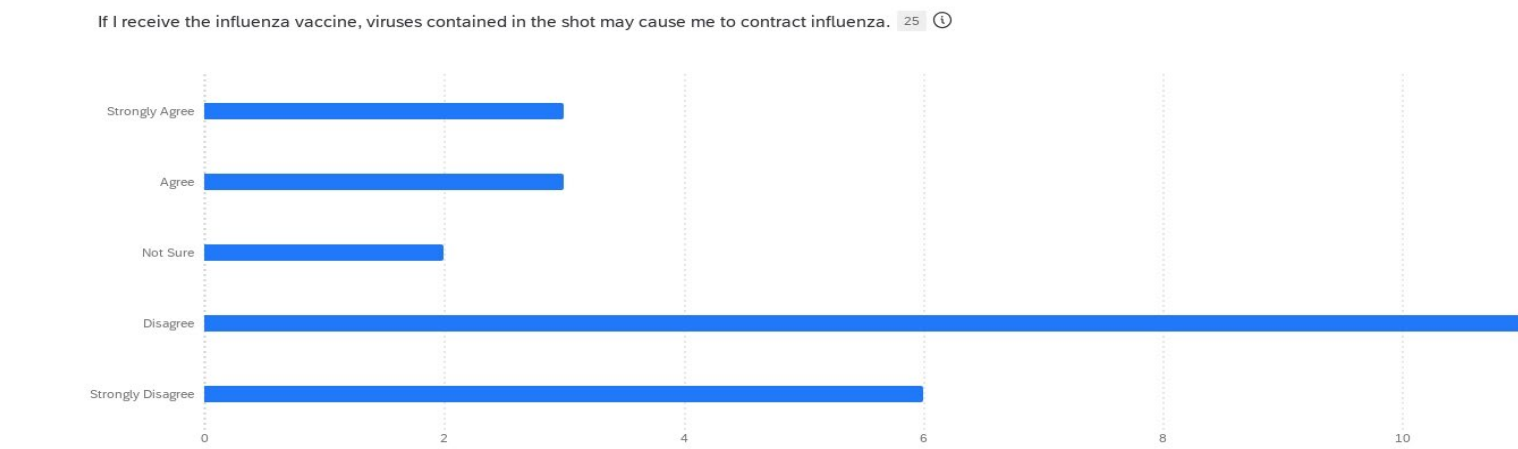
Discussion & Conclusions

- This project **demonstrated the value of collaborative research** partnerships between faculty with diverse expertise, traditional undergraduate research students, and students conducting course-based undergraduate research (CURE).
- By linking course content directly to professional responsibilities, the **CURE & Evidence-Informed Practice** curriculum challenged students to reflect on future professional responsibilities, attracted future undergraduate research students, and **fostered a pipeline of research-oriented health professionals**.
- This **interdisciplinary framework**—integrating faculty and undergraduate student research, CURE curriculum, and evidence-based practice—can serve as a **model for enhancing curriculum relevance and student engagement across academic disciplines**.

Next Steps

Appropriate Population: Evidence indicates that LHV students are heterogeneous in knowledge, beliefs, and their response to curricula. A focus on HHV vs LHV students resulted in impactful curricular updates, but future research is needed to better understand curricular impacts based on starting knowledge and beliefs rather than vaccination status.

Evaluating Long-Term Curricular Impacts & Needs: Ongoing research seeks to describe the long-term impacts of the CURE & Evidence-Informed Practice curriculum. **Do final-semester Nursing Students retain the knowledge gains observed soon after completing the curriculum as Pre-Nursing Students?** Evidence indicates a need for continuing curricula to maintain knowledge status. This will require coordination with School of Nursing faculty.



Citations

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