

Knowledge, attitudes, behaviours and beliefs of healthcare provider students regarding mandatory influenza vaccination

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Conflict of Interest

- I have no actual or potential conflict of interest in relation to this research study or presentation

Background

- Influenza is a serious vaccine-preventable disease¹
- Estimated 12,200 hospitalizations and 3,500 deaths in Canada each year²
- Recommended that healthcare providers (HCP) receive annual influenza vaccine³⁻⁷
- Suboptimal influenza vaccine coverage among HCP⁸
- Many interventions have been demonstrated to improve coverage, but none have succeeded in achieving target coverage rates⁹⁻¹⁰



(Photo courtesy of Manufacturing Chemist, 2018)

Student Policy Context

- HCP students share same risks to themselves and their patients
- Most programs encourage students to receive annual influenza vaccine but do not require it¹¹



(Photo courtesy of English German Student Council, 2018)

Purpose

- To explore the knowledge, attitudes, beliefs and behaviors of Canadian medical, nursing and pharmacy students towards mandatory influenza vaccination policies

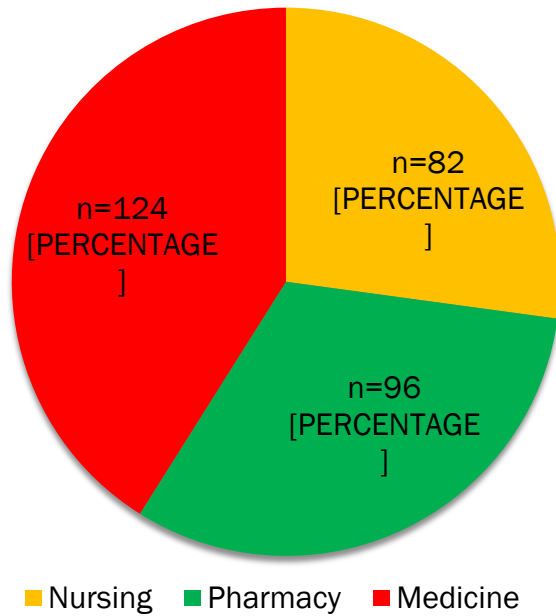
Methods

- Quantitative online survey
- Content validity and test-retest reliability assessed
- Data collection from April-May 2016
- All Dalhousie healthcare students eligible to participate
- Results: descriptive statistics and tests of association

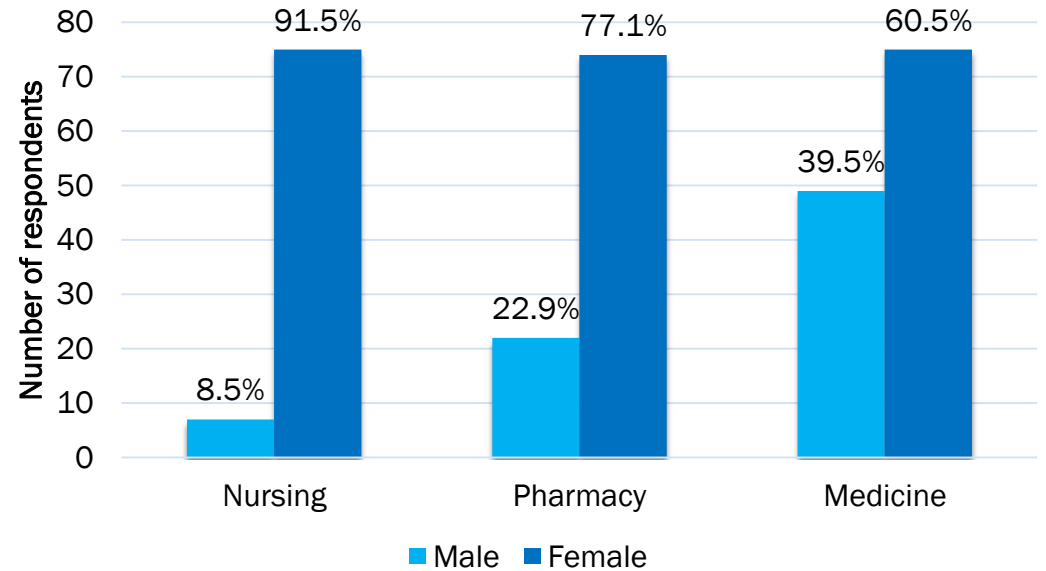


Results

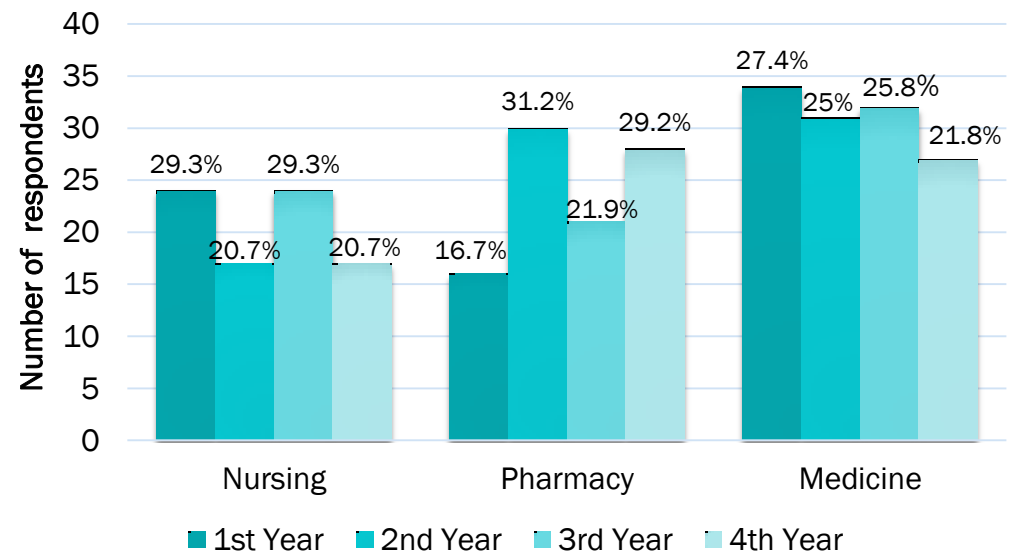
Program



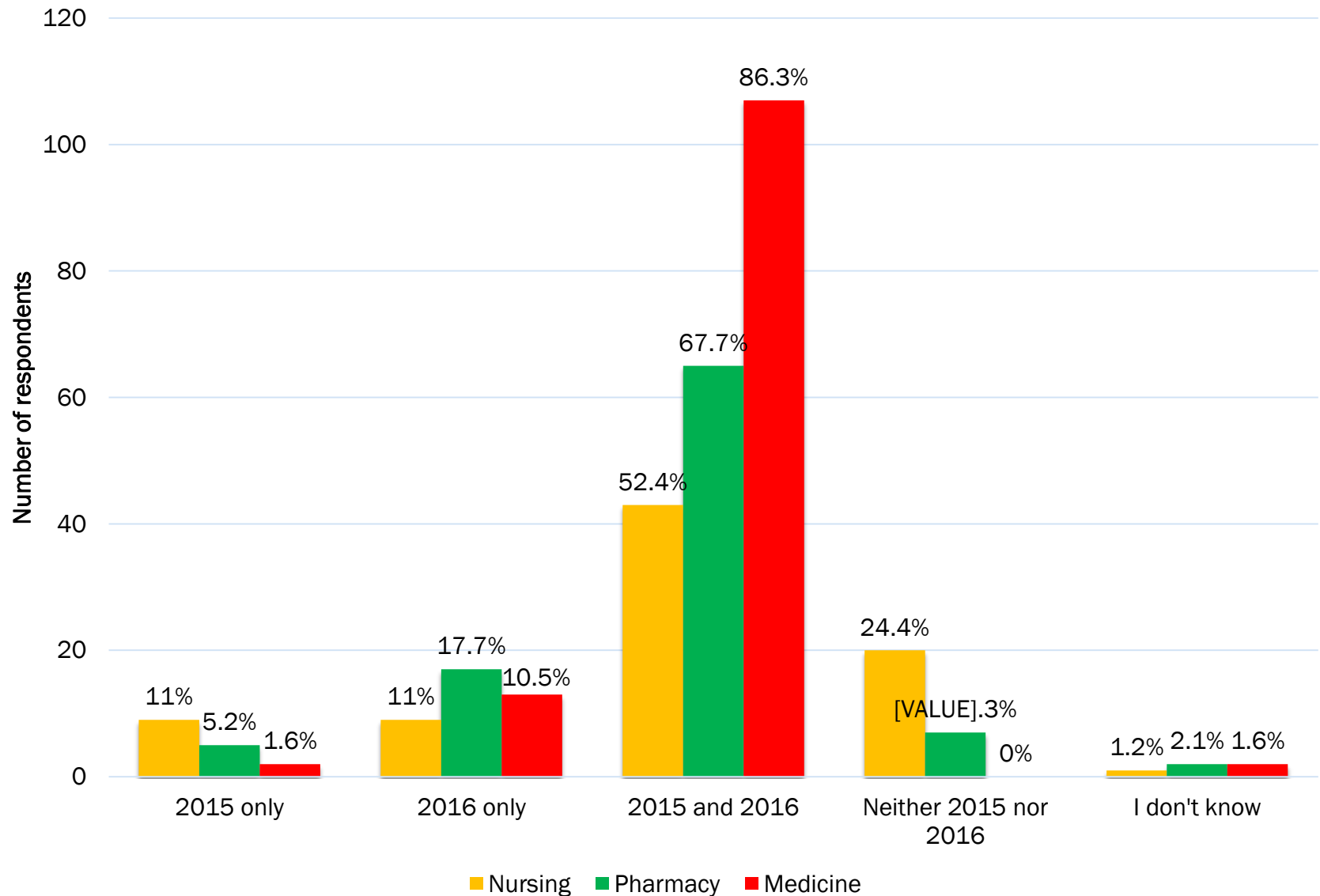
Gender



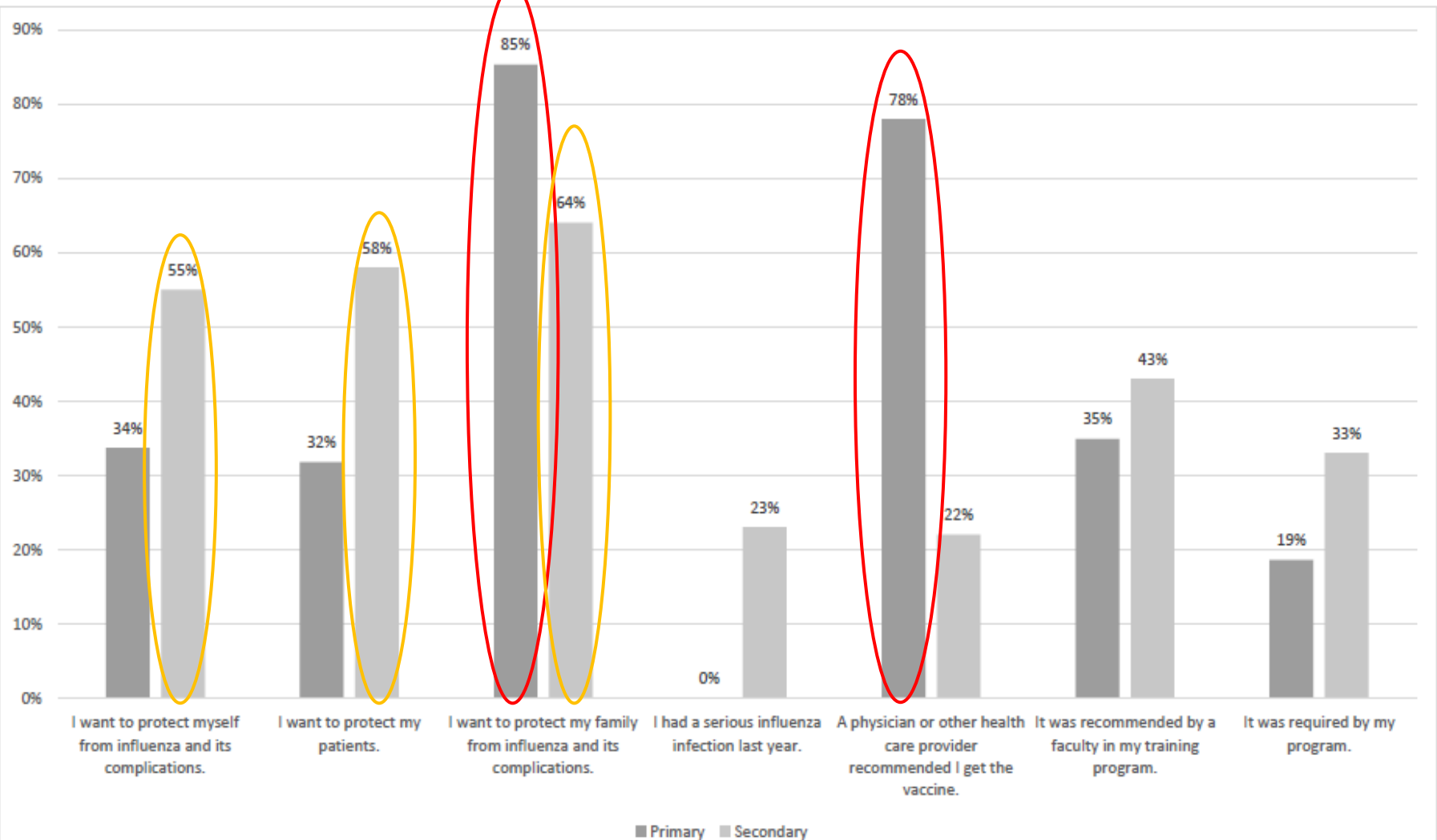
Year of Study



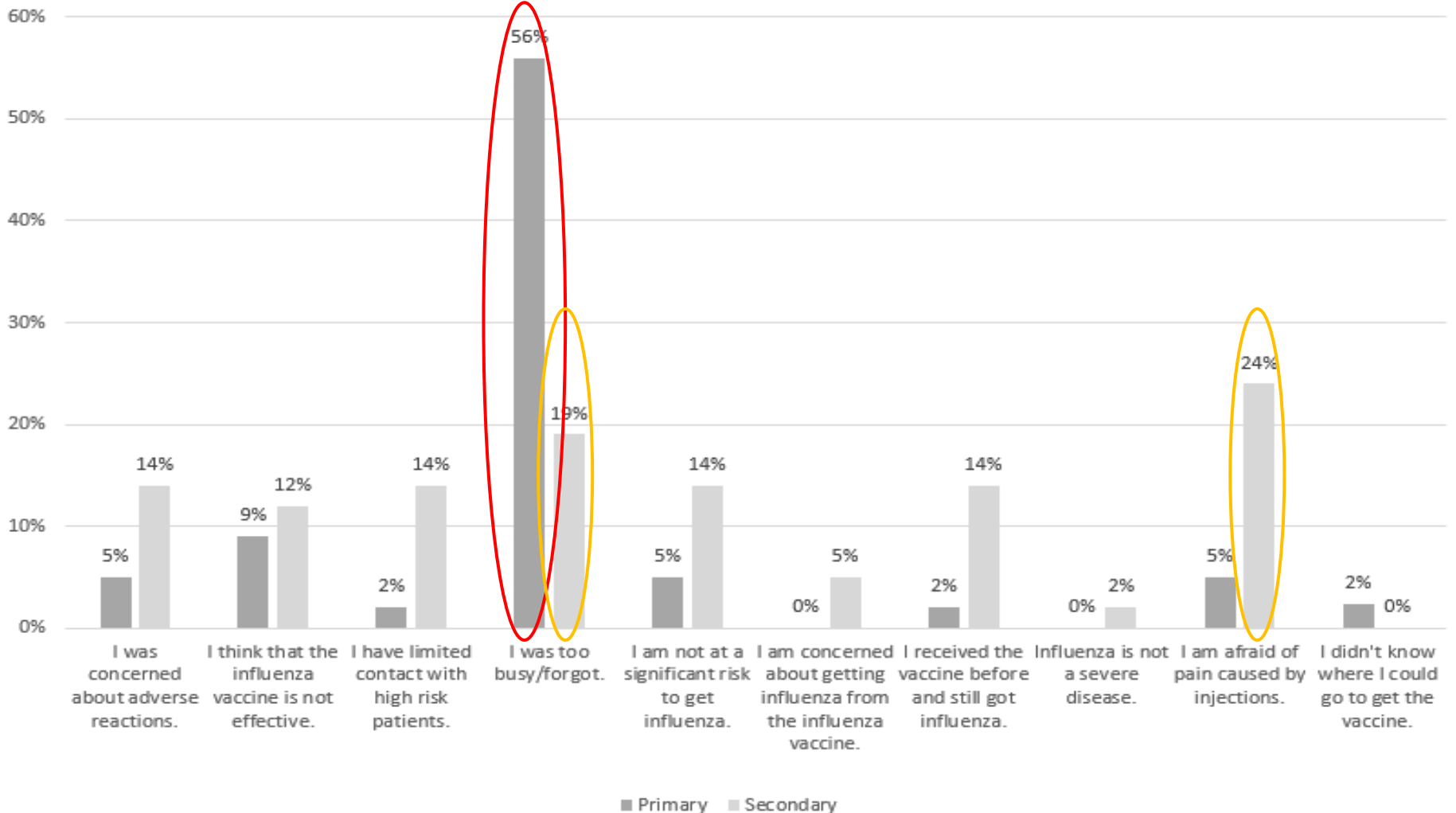
Self-Reported Influenza Vaccination



Reasons for Receiving Vaccine



Reasons for Refusal of Vaccine



Knowledge

Knowledge-Based Questions:

Influenza can result in serious neurological problems.

Injectable influenza vaccine is safe for pregnant women at all stages of pregnancy.

Injectable influenza vaccine can cause influenza.

HCP can transmit influenza to individuals at high risk of influenza.

Individuals who are asymptomatic can transmit influenza virus to others.

Influenza vaccine is less effective in people over 65 years of age.

Egg allergy is a contraindication to receiving the influenza vaccine.

Pregnant women are at increased risk of complications from influenza.

Influenza is spread by droplets from the mouth and nose through coughing, sneezing, or on hands contaminated by respiratory secretions.

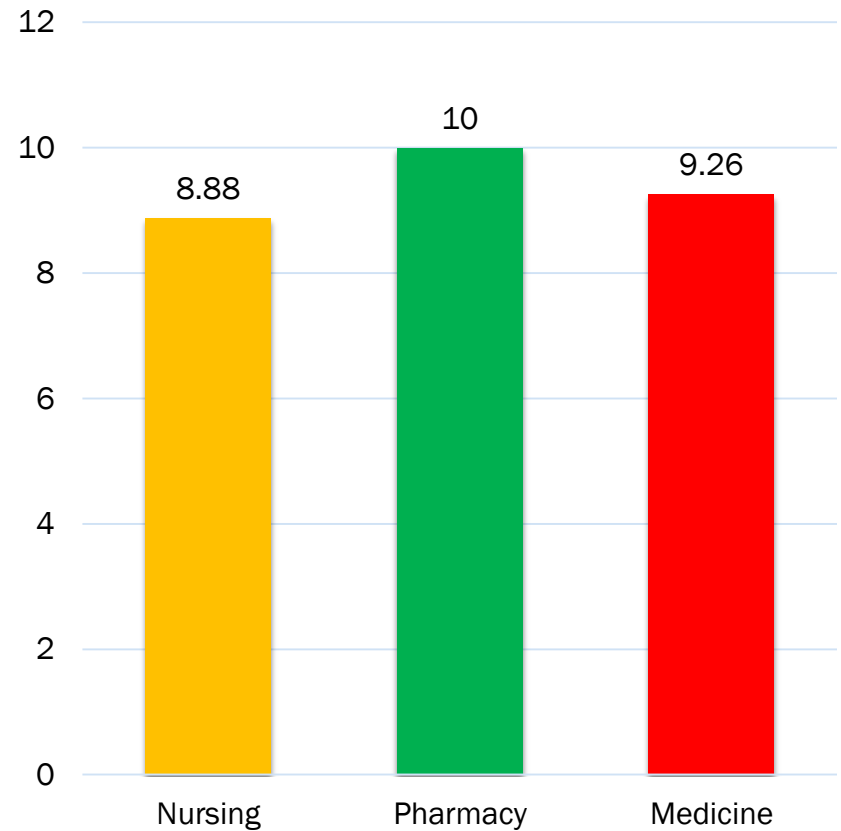
Healthy children aged 6-23 months are at increased risk of complications from influenza.

You are not likely to get sick with influenza if you are healthy.

Fewer patients die from influenza if their HCP has received the influenza vaccine.

It is mandatory for Dalhousie medical, nursing, and pharmacy students to get the annual influenza vaccine.

Mean knowledge scores



Beliefs

- Medical and pharmacy students holding more pro-influenza vaccination attitudes
- Overall agreement:
 - Duty to be immunized
 - Should be taught more about influenza risks and vaccine safety
 - Hospital has right to know influenza vaccination status
 - Hospital should increase efforts to ensure that HCP get influenza vaccine annually

Attitudes toward vaccine or mask policies

| | | Total (n=302) | |
|--|----------------------------|-------------------|--------------------------|
| Statement | Response | % (95%CI) | P-value between programs |
| The Hospitals/Health Care Centres should implement a policy requiring all employees and students to wear a mask at all times while in the hospital during the influenza season if they have not received the annual influenza vaccine. | Strongly agree/agree | 60.9 (55.2, 66.5) | 0.25 |
| | Neither agree/disagree | 21.9 (17.3, 26.9) | |
| | Disagree/strongly disagree | 17.2 (13.1, 22.0) | |
| If the hospital administration had a vaccine or mask policy, I would get vaccinated. | Strongly agree/agree | 75.8 (70.6, 80.5) | 0.18 |
| | Neither agree/disagree | 18.2 (14.0, 23.0) | |
| | Disagree/strongly disagree | 6.0 (3.6, 9.3) | |
| If the hospital administration had a vaccine or mask policy, I would wear a mask rather than get vaccinated. | Strongly agree/agree | 3.6 (1.8, 6.4) | 0.30 |
| | Neither agree/disagree | 9.6 (6.5, 13.5) | |
| | Disagree/strongly disagree | 86.8 (82.4, 90.4) | |
| If the hospital administration had a vaccine or mask policy, I would not get vaccinated and would refuse to wear a mask. | Strongly agree/agree | 6.3 (3.8, 9.7) | 0.21 |
| | Neither agree/disagree | 7.9 (5.2, 11.6) | |
| | Disagree/strongly disagree | 85.8 (81.3, 89.5) | |
| If the hospital administration had a vaccine or mask policy, I would participate in an employee/student protest against the policy. | Strongly agree/agree | 5.6 (3.3, 8.9) | 0.009 |
| | Neither agree/disagree | 7.9 (5.2, 11.6) | |
| | Disagree/strongly disagree | 86.4 (82.0, 90.1) | |
| If the hospital administration had a vaccine or mask policy, I would participate in an appeal/challenge/grievance against this policy. | Strongly agree/agree | 6.6 (4.1, 10.0) | 0.02 |
| | Neither agree/disagree | 9.6 (6.5, 13.5) | |
| | Disagree/strongly disagree | 83.8 (79.1, 87.7) | |

Attitudes toward vaccine policy without masking alternative

| Statement | Response | Total (n=302) | P-value between programs |
|---|----------------------------|-------------------|--------------------------|
| | | % (95%CI) | |
| I would prefer a policy requiring influenza vaccination without the option of wearing a mask if I did not receive the annual influenza vaccine. | Strongly agree/agree | 28.8 (23.8, 34.3) | 0.34 |
| | Neither agree/disagree | 37.4 (31.9, 43.1) | |
| | Disagree/strongly disagree | 33.8 (28.5, 39.4) | |
| If the hospital administration had a policy requiring influenza vaccination without the option of wearing a mask, I would not get vaccinated. | Strongly agree/agree | 6.6 (4.1, 10.0) | 0.35 |
| | Neither agree/disagree | 18.5 (14.3, 23.4) | |
| | Disagree/strongly disagree | 74.8 (69.5, 79.6) | |
| If the hospital administration had a policy requiring influenza vaccination without the option of wearing a mask, I would participate in an employee/student protest against the policy. | Strongly agree/agree | 4.6 (2.6, 7.7) | 0.12 |
| | Neither agree/disagree | 13.6 (9.9, 18.0) | |
| | Disagree/strongly disagree | 81.8 (77.0, 86.0) | |
| If the hospital administration had a policy requiring influenza vaccination without the option of wearing a mask, I would participate in an appeal/challenge/grievance against this policy. | Strongly agree/agree | 5.3 (3.1, 8.5) | 0.21 |
| | Neither agree/disagree | 14.2 (10.5, 18.7) | |
| | Disagree/strongly disagree | 80.5 (75.5, 84.8) | |

Factors associated with being vaccinated

| Univariate analysis | Multivariate analysis |
|---|---|
| <ul style="list-style-type: none">• Age, gender, program, year of study• Duty to be immunized• Hospital has right to know immunization status• Hospitals should increase efforts to have staff vaccinated• Acceptance of declination form• Willingness to accept consequences of noncompliance | <ul style="list-style-type: none">• Age, program, year of study• Duty to be immunized• Desire to be taught more about influenza/influenza vaccine |

Factors associated with supporting vaccine or mask policy

| Univariate | Multivariate |
|--|--|
| <ul style="list-style-type: none">• Duty to be immunized• Desire to be taught more about influenza/influenza vaccine• Hospital has right to know immunization status• Hospitals responsible for developing policies that decrease risk of flu transmission to patients• Hospital/university responsible for ensuring students/staff learn about and are offered influenza vaccine• Hospitals should increase efforts to have staff vaccinated• Willingness to accept consequences of noncompliance | <ul style="list-style-type: none">• Male gender• Hospitals should increase efforts to have staff vaccinated• Willingness to accept consequences of noncompliance |

Factors associated with supporting vaccination policy without masking alternative

| Univariate | Multivariate |
|--|---|
| <ul style="list-style-type: none">• Acceptance of declination policy• Willingness to accept consequences of noncompliance | <ul style="list-style-type: none">• Hospital has right to know immunization status• Acceptance of declination policy• Willingness to accept consequences of noncompliance |

Discussion

- Participants relatively well-informed about influenza and vaccine compared to some studies¹²⁻¹³
- Consistent motivation for receipt of influenza vaccine across studies¹²⁻¹⁴
- Consistent reasons for refusal of influenza vaccine across studies¹²⁻¹⁶
- No clear pattern of increased or decreased influenza vaccination as students progressed through program^{12,13,17}
- Majority of HCP students supportive of influenza prevention policies^{13,16-20}

Discussion

- Our study showed that coverage rates were higher in students than healthcare providers at affiliated hospitals^{13,16,20}
- Diversity of opinions among HCP about influenza prevention policies²¹⁻²⁴
 - Support higher among HCP covered by influenza vaccine requirements²⁴
 - Resistance to the inclusion of influenza in particular²¹

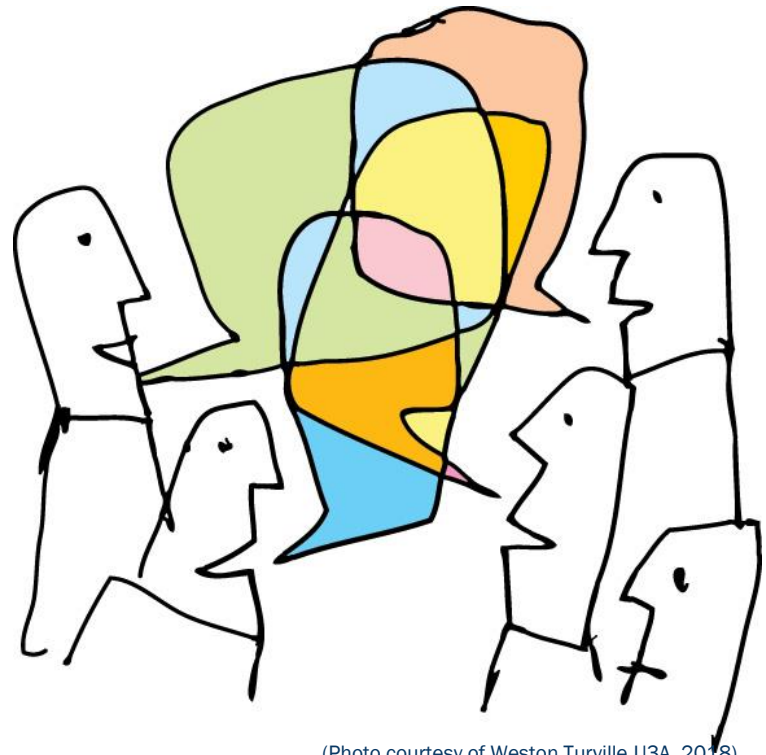
Limitations



- Social desirability bias
- Response bias
- Response rate
- Generalizability

Conclusions & Future Research

- Mandatory vaccine or mask policies are generally supported by the next generation of practitioners
- Future work
 - Broader sampling
 - Longitudinal studies
 - Curriculum adjustments^{12,13,18,25}
-27
 - Elimination of barriers and logistical issues^{11,13,16,25}



(Photo courtesy of Weston Turville U3A, 2018)



(Photo courtesy of CNN, 2018)

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