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## ABSTRACT

### RATIONALE:

Vaccination against influenza and COVID-19 is strongly recommended for reducing serious respiratory complications for at-risk individuals, yet vaccine uptake remains low. One potential factor predicting vaccine uptake is trust in health care providers who recommend this treatment. While trust has been tested in this capacity, validated instruments are often not used. Accordingly, we used the validated *Trust in My Health Care Team* Questionnaire to measure overall trust and its components as predictors of influenza and Covid-19 uptake in at-risk individuals.

### METHODS:

In this observational study, we administered the *Trust in My Health Care Team* questionnaire to a convenience sample of 81 pulmonary outpatients considered at-risk for complications from respiratory viruses. The self-complete trust questionnaire has 29 items, each with a range of 1-5, with higher scores predicting greater trust. Since our goal is to study 100 subjects, this is a presentation of preliminary data. At-risk conditions were determined by accepted clinical criteria. Fluency of English and sufficient cognitive ability to complete the questionnaire were required. Covariates included demographics (age, gender, socioeconomic status (SES), educational achievement) and three vaccine attitudes (concern over side effects, concern over efficacy, and perceived level of importance, each on 1-4 scales). Univariate and multivariate logistic regression analyses were used, with vaccine uptake (ever or in the preceding 12 months) as the dependent variable and trust scores as the major independent variable, with the other factors as covariates.

### RESULTS:

The mean age was 66 ± 12 years, 58% were female, 28% were Black, 26% percent had low SES, and 86% had a high school education or greater. Eighty-eight percent and 91% had ever received the influenza and COVID-19 vaccines, respectively, while 60% and 42% had them over the preceding 12 months. None of our demographic variables predicted vaccine uptake. The total trust score was 3.68 ± 0.48; in univariate analyses this predicted ever influenza vaccination (odds ratio (OR), 95% confidence interval (CI) 6.18 (1.26 to 30.25) and COVID-19 vaccination (OR 8.38 (95% CI 1.32 to 53.31). The trust component, *Communication*, was the strongest predictor of ever influenza vaccination, while *Fairness* was for COVID-19. Total trust score was inconsistently predictive of either vaccine uptake during the preceding 12 months. However, for COVID-19 uptake over this period, concern over side effects, perceived lack of benefit, and considered low importance very strongly predicted reduced uptake.

### CONCLUSIONS:

*Trust in the health care team* strongly predicted ever uptake of both influenza and COVID-19 vaccination. Attitudes toward safety, benefit and importance of COVID-19 strongly predicted uptake of this vaccine in the preceding year.

## BACKGROUND and AIM

Despite their importance in at-risk individuals, uptake of both influenza and COVID -19 vaccinations remains low. While undoubtedly multiple factors affect vaccine uptake, our aim was to determine whether trust in health care providers, as determined by scores from the validated, *Trust in My Health Care Team*, significantly predicts influenza and COVID-19 vaccine uptake in outpatients at risk for respiratory and systemic complications from the viral infections.

## METHODS

**Study Design:** This single site (St Francis Hospital outpatient pulmonary) observational study evaluated trust scores and covariates as predictors of vaccine uptake.

### Inclusion criteria:

- Male or female, age range 40 to 90
- Attendance at Pulmonary office at SFH
- Considered to be clinically at high risk for complications of influenza or COVID-19
- Sufficient fluency in English language to respond to investigator questions and fill out the Trust questionnaire (this questionnaire does not have a Spanish translation)
- Sufficient cognitive ability to provide responses to questions and questionnaire items

### Exclusion criterion:

- Language barrier or cognitive issue that would preclude participation in the study

## METHODS (cont.)

### Objectives:

1. Determine whether patients' trust in health care providers, as assessed using the *Trust in My Health Care Team questionnaire*, predicts self-reported uptake of influenza and COVID-19 vaccines
2. Determine whether patient demographics (age, gender, SES, education level, race/ethnicity) or vaccine attitudes (safety, benefit, importance) are related to uptake of influenza and COVID-19 vaccines, either independently or as covariates.

**Statistical analyses:** Logistic regression, trust as continuous variable

## Trust in Health Care Team Questionnaire, 1-5 scoring for each item (Richmond et al.)

### Communication

1. People who work in health care have good judgment.
2. People who work in health care explain the benefits and risks of treatments to patients.
3. People who work in health care listen to patients.
4. People who work in health care believe patients when they say something is wrong.
5. People who work in health care follow up with patients when needed.

### Fidelity

1. People who work in health care put making money above patient needs.
2. People who work in health care recommend expensive treatments to make money.
3. People who work in health care hide mistakes.
4. People who work in health care might experiment on patients without their knowledge.
5. People who work in health care rush through appointments.

### Systems

1. People who work in health care are held accountable if they make a mistake.
2. People who work in health care are held accountable if they treat patients unfairly.
3. People who work in health care are held accountable if they discriminate against patients.

### Confidentiality

1. People who work in health care keep medical records private.
2. People who work in health care use secure systems to store medical records.
3. People who work in health care respect patient privacy.

### Fairness

1. People who work in health care treat patients fairly, regardless of their ability to pay.
2. People who work in health care treat patients of all races and ethnicities fairly.
3. People who work in health care treat patients fairly, regardless of their gender (e.g., male, female, or nonbinary).
4. People who work in health care treat patients fairly, regardless of their sexual orientation (e.g., straight, gay, lesbian, or bisexual).
5. People who work in health care treat patients fairly, regardless of their weight.
6. People who work in health care treat patients fairly, regardless of their religion.
7. People who work in health care treat patients fairly, regardless of their education level.

### Stigma

1. People who work in health care treat patients with a history of mental illness unfairly.
2. People who work in health care treat patients diagnosed with HIV unfairly.
3. People who work in health care treat patients who abuse drugs unfairly.

### Global

1. All things considered, I trust people who work in health care.
2. I put my trust in people who work in health care.
3. People who work in health care are trustworthy.

## Vaccination attitudes we tested

- I am concerned over side effects
- I think the vaccine has little or no benefit
- Vaccination is important for me to take

## PRELIMINARY RESULTS

**Table 1. Demographics**

Age (years)	66 ± 12
Female (%)	58
Race/ethnicity (%)	
Black (%)	28
White (%)	54
Latino (%)	16
Asian (%)	4
Low SES (%)	26
Employed (%)	28
Education < high school (%)	14

### Most frequent primary diagnoses in sample:

OSA (27%), COPD (23%), asthma (20%), ILD (17%)

## PRELIMINARY RESULTS (cont)

**Table 2. Trust total score and components**

<b>Total</b>	<b>3.68 ± 0.48</b>
• Communication	3.86 ± 0.58
• Fidelity	3.36 ± 0.76
• Systems	3.68 ± 0.48
• Confidentiality	3.47 ± 0.81
• Fairness	3.92 ± 0.60
• Stigma	3.30 ± 0.75
• Global	3.98 ± 0.83

**Table 3. Self-reported vaccination status**

<b>Influenza</b>	
Ever (lifetime) (%)	88
12 months (%)	60
<b>COVID-19</b>	
Ever (%)	91
12 Months (%)	42

**Table 4. Vaccine uptake: univariate analyses with trust scores as predictors (per unit difference)**

<b>Influenza (ever)</b>	
Total trust score	OR: 6.18 (1.26 to 30.25) p = 0.025
Communication	OR: 11.37 (2.40 to 53.87) p = 0.0002
Global	OR: 2.11 (1.01 to 4.40) p = 0.046
<b>Influenza 12 months</b>	
Communication	OR: 2.33 (1.02 to 5.35) p = 0.046
<b>COVID-19 (ever)</b>	
Total trust score	OR: 6.18 (1.32 to 53.31) p = 0.024
Fairness	OR: 4.85 (1.21 to 19.48) p = 0.026
Global	OR: 3.01 (1.27 to 7.12) p = 0.012
<b>COVID-19 12 months</b>	
Systems	OR: 0.53 (0.29 to 0.97) p = 0.004

**Table 5. Attitudes predicting low vaccination uptake**

- Influenza ever: No significant predictors
- Influenza 12 months: Side effects, low importance
- COVID-19 ever: No significant predictors
- COVID-19 12 months: Side effects, low perceived benefit, low importance (all strongly predictive)

## KEY POINTS

- *Trust in health care team* significantly predicts ever (lifetime) influenza and COVID-19 vaccination uptake
- Attitudes regarding the specific vaccination (concern over side effects, perceived benefit, and perceived importance), although not related to ever-vaccination for COVID-19, were very strong predictors of COVID-19 vaccination over the preceding 12 months
- Testing a larger and more diverse population would be necessary to confirm generalizability of our results