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Preferences for a Combination Influenza and COVID-19 Vaccine: Results From a Threshold Technique Study With Consumers in the United Kingdom

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BACKGROUND

- Several combination vaccines against influenza and coronavirus 2019 (COVID-19) are in development.[1-3]
- There have been numerous studies of preferences for influenza vaccination[4] and preferences for COVID-19 vaccination.[5-7] However, there is very little information on preferences for combination vaccines against influenza and COVID-19.

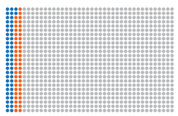
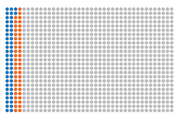
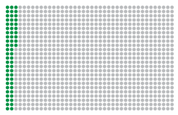
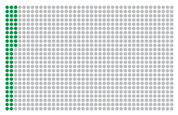
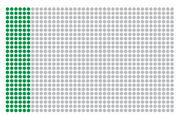
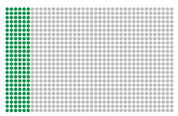
OBJECTIVES

- To quantify preferences for a combination vaccine for influenza and COVID-19 compared with a stand-alone influenza-only vaccine among consumers in the United Kingdom (UK).
- To determine consumers' tolerance for the increased risk of moderate-to-severe systemic side effects (i.e., flu-like symptoms [FLS]) for a combination vaccine rather than a stand-alone influenza vaccine.

METHODS

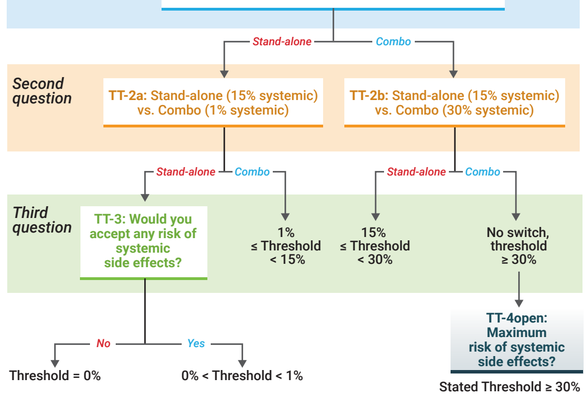
- Respondents (recruited from an online panel) were residents of the UK, aged 18 years or older, and able to read and understand English.
- Respondents completed a threshold technique (TT) exercise included in an online discrete choice experiment.
- The TT measures the tolerance for increased risk of moderate-to-severe systemic side effects in exchange for the additional protection and convenience of the combination vaccine compared with the stand-alone influenza vaccine.

Figure 1. Baseline Combination Vaccine Threshold Question

Feature	Vaccine A	Vaccine B
Illnesses prevented by vaccine	Flu (1 injection)	Flu and COVID-19 (1 injection)
Number of flu infections prevented in the next year	 Vaccine prevents flu in 48 of 100 people in the next year	 Vaccine prevents flu in 48 of 100 people in the next year
Vaccine helps prevent hospitalization because of the flu	**Same** as most other vaccines	**Same** as most other vaccines
Level of flu protection in the 6 months after vaccination	**Fades** within 6 months	**Fades** within 6 months
Risk of an injection site reaction that makes it difficult to do daily activities	 60 injection site reactions in 1,000 people (6%)	 60 injection site reactions in 1,000 people (6%)
Risk of a general, flu-like reaction that makes it difficult to do daily activities	 150 general reactions in 1,000 people (15%)	 150 general reactions in 1,000 people (15%)
Which vaccine would you choose?		

- The first, or baseline, TT question was a direct question about the consumer's preference for a single-injection combination vaccine over the stand-alone influenza vaccine with identical influenza vaccine efficacy and side effect risks (**Figure 1**).
- **Figure 2** shows how the risk of moderate-to-severe systemic side effects associated with the combination vaccine was systematically varied (range, 0%-30%) in a series of subsequent TT questions until the respondents' preferred vaccine (combination or stand-alone influenza vaccine) switched. Univariate analysis of combination vaccine acceptability and multivariate analysis (interval regression analysis) of FLS risk tolerance were conducted with the TT question responses.

Figure 2. Schematic Representation of Threshold Technique Question Series on Combination Influenza and COVID-19 Vaccination



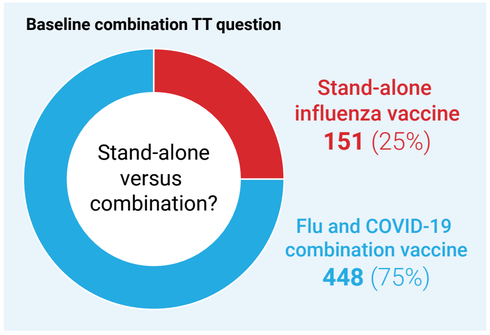
Combo = combination influenza and COVID-19 vaccine;
Stand-alone = stand-alone influenza vaccine.

Note: Respondents in the highest risk tolerance interval (willing to accept a 30% or higher risk of moderate-to-severe systemic side effects) were asked an open-ended question about the maximum amount of risk of moderate-to-severe systemic side effects they would accept before switching their choice from the combination vaccine to a stand-alone influenza vaccine.

RESULTS

- **Figure 3** presents selected respondent characteristics.
- Three-quarters of respondents preferred the combination vaccine compared with the stand-alone influenza vaccine in the first TT question (**Figure 4**).

Figure 4. Response to the First Threshold Technique Question Regarding Combination Vaccine (n = 599)



Note: One respondent did not answer the baseline TT question and was excluded from the analysis.

- Based on the distribution of respondents across intervals for the tolerance for the risk of moderate-to-severe systemic side effects, approximately half of respondents (n = 308) were willing to accept a risk of moderate-to-severe systemic side effects greater than 30% (**Figure 5**).
- A minority of respondents (n = 45 [7.5%]) would not accept any risk of moderate-to-severe systemic side effects for a combination vaccine (**Figure 5).**
- Interval regression modelling indicated the following:
  - On average, UK consumers were willing to accept a maximum risk of moderate-to-severe systemic side effects of 24.1% (95% confidence interval, 23.0-25.2) in exchange for a combination vaccine rather than a stand-alone influenza vaccine.
  - Higher education, previous experience with flu vaccination, and previous experience with COVID-19 vaccination increased the average maximum acceptable risk by 2.8%-3.5%, 5.7%, and 6.1%-6.8%, respectively.
  - Body mass index > 40 or 1 additional health risk factor for serious flu complications reduced the average maximum acceptable risk of moderate-to-severe systemic side effects by 6.3% and 1.3%-1.6%, respectively.

Figure 3. Descriptive Statistics for Sample (N = 600)

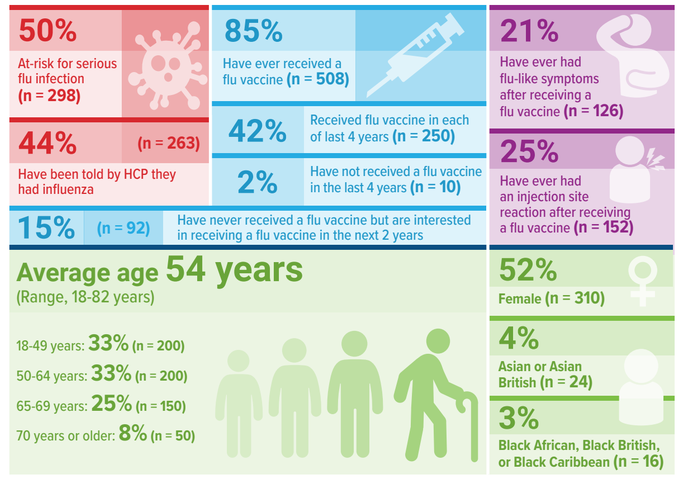
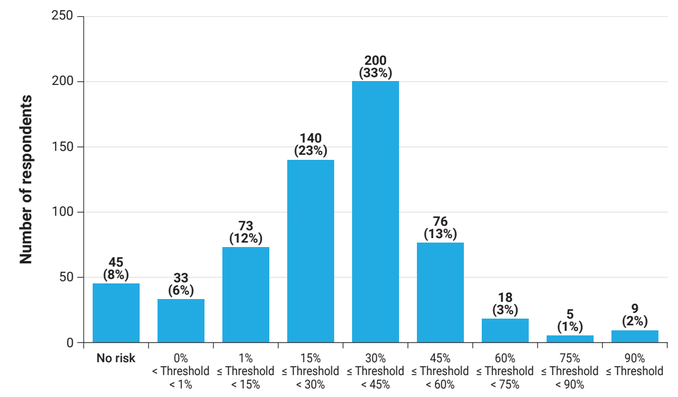


Figure 5. Frequency Distribution of Maximum Acceptable Risk of Moderate-to-Severe Systemic Side Effects for a Combination Vaccine (n = 599)



Maximum acceptable risk of systemic side effects (flu-like symptoms) consumers would accept to select a combination flu-COVID vaccine over a stand-alone flu vaccine

Note: One respondent did not answer the baseline TT question and was excluded from the analysis.

CONCLUSIONS

- The vast majority of UK consumers would likely prefer the added protection and convenience of a single-shot combination influenza and COVID-19 vaccine compared with a stand-alone influenza-only vaccine.
- UK consumers would accept increased risks of moderate-to-severe systemic side effects in exchange for the added protection and convenience of the combination vaccine.

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Disclosures

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