COMPARE Trial: Comparing Outcomes of mRNA and Protein-based COVID-19 Vaccines and Impact on Reactogenicity

P0468

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MAT-ES-2601657-V1-Mayo 2026

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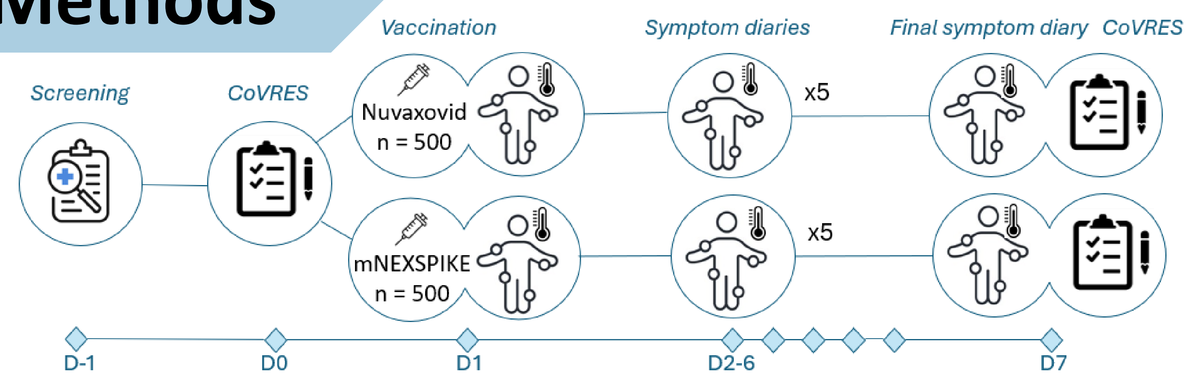
Introduction

COVID-19 vaccine uptake is low with concerns of side effects cited by over half of adults as a reason for declination[1,2]. While existing evidence suggests favorable reactogenicity of the recombinant protein COVID-19 vaccine compared to mRNA-based vaccines[3], there has not been an appropriately powered, randomized, and blinded trial to address this question.

Objectives

- **Compare risk of ≥1 systemic reaction within 7 days: recombinant protein (Nuvaxovid®) vs mRNA (mNEXSPIKE®)**
- Compare number, severity, duration of systemic/local reactions
- Compare risk of experiencing ≥3 systemic symptoms
- Assess disruption to work/social activities using the COVID-19 Vaccine Reaction Experience Survey (CoVRES)
- Evaluate future vaccine intent and platform preference

Methods



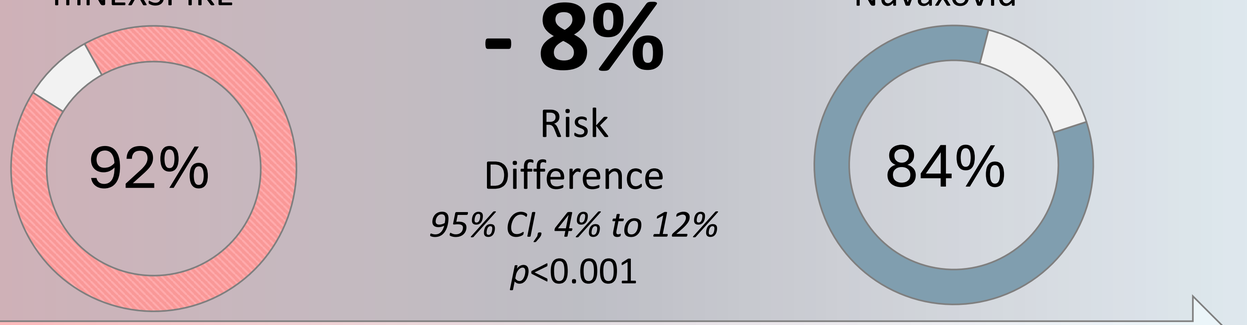
1,000 adults were randomized 1:1 in a double-blinded trial to receive either the **Nuvaxovid recombinant protein vaccine (Sanofi)** or the **mNEXSPIKE mRNA vaccine (Moderna)**. Patient-reported outcomes (PRO) and CoVRES responses were recorded on days 1 and 7.

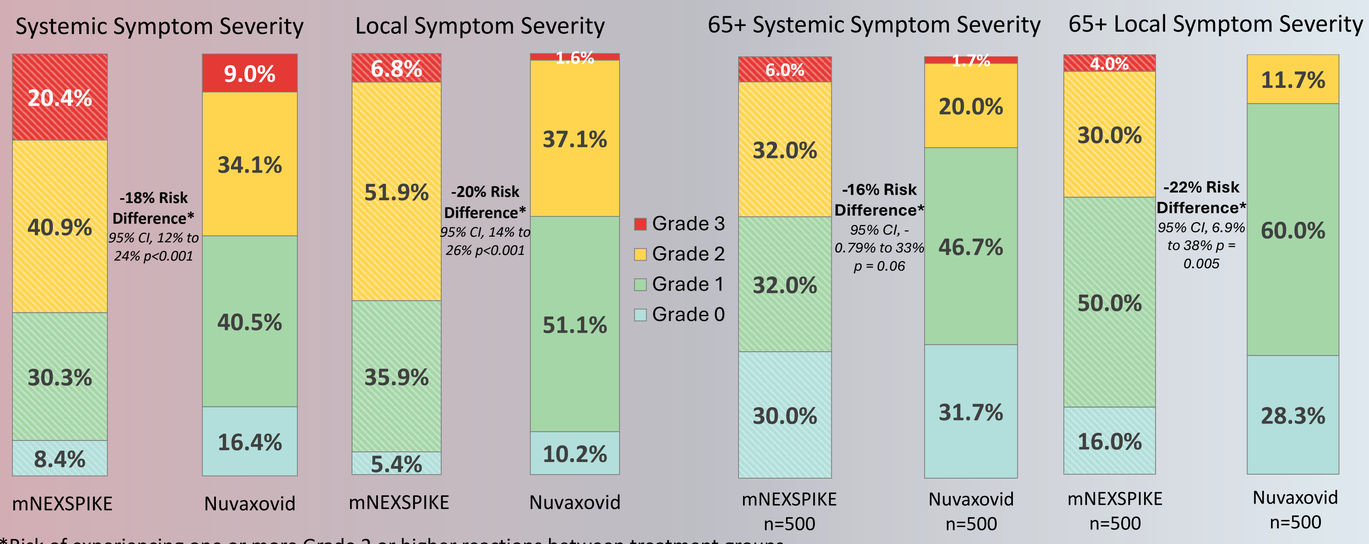
Results

REACTOGENICITY

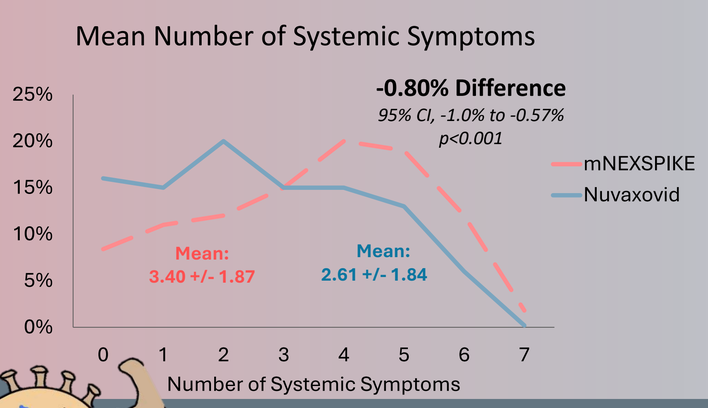
Data completion rate of 99.8% percent: 1000 participants enrolled, 998 retained in study (n = 499 in each vaccine group), 76,846 reactogenicity data points collected

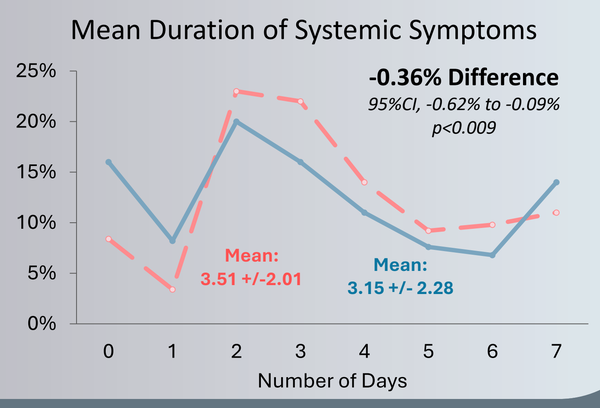
≥1 Systemic reaction within 7 days



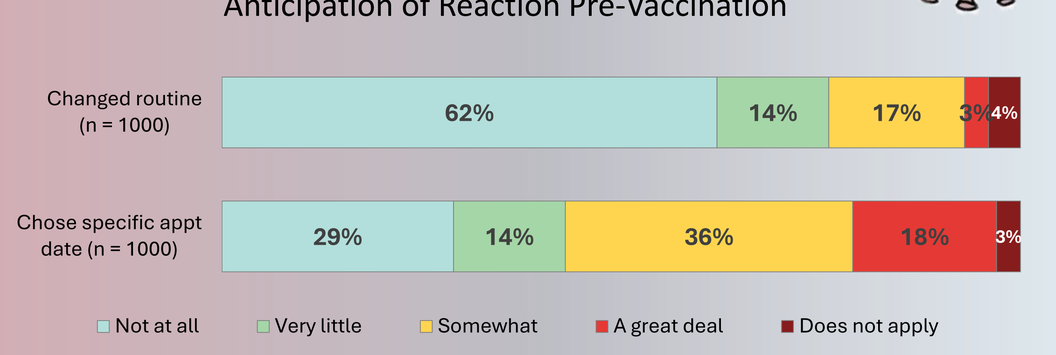


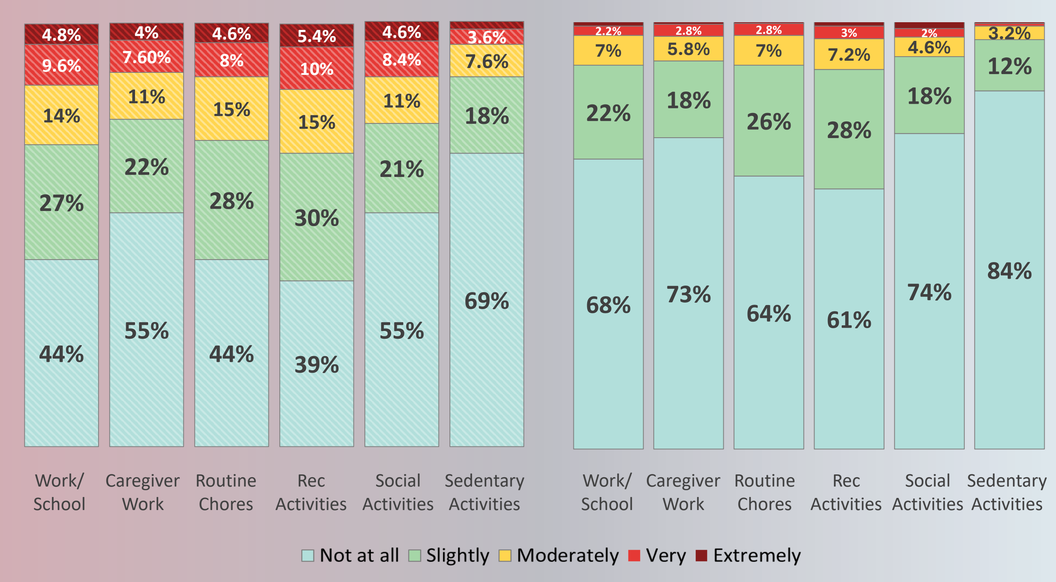
*Risk of experiencing one or more Grade 2 or higher reactions between treatment groups

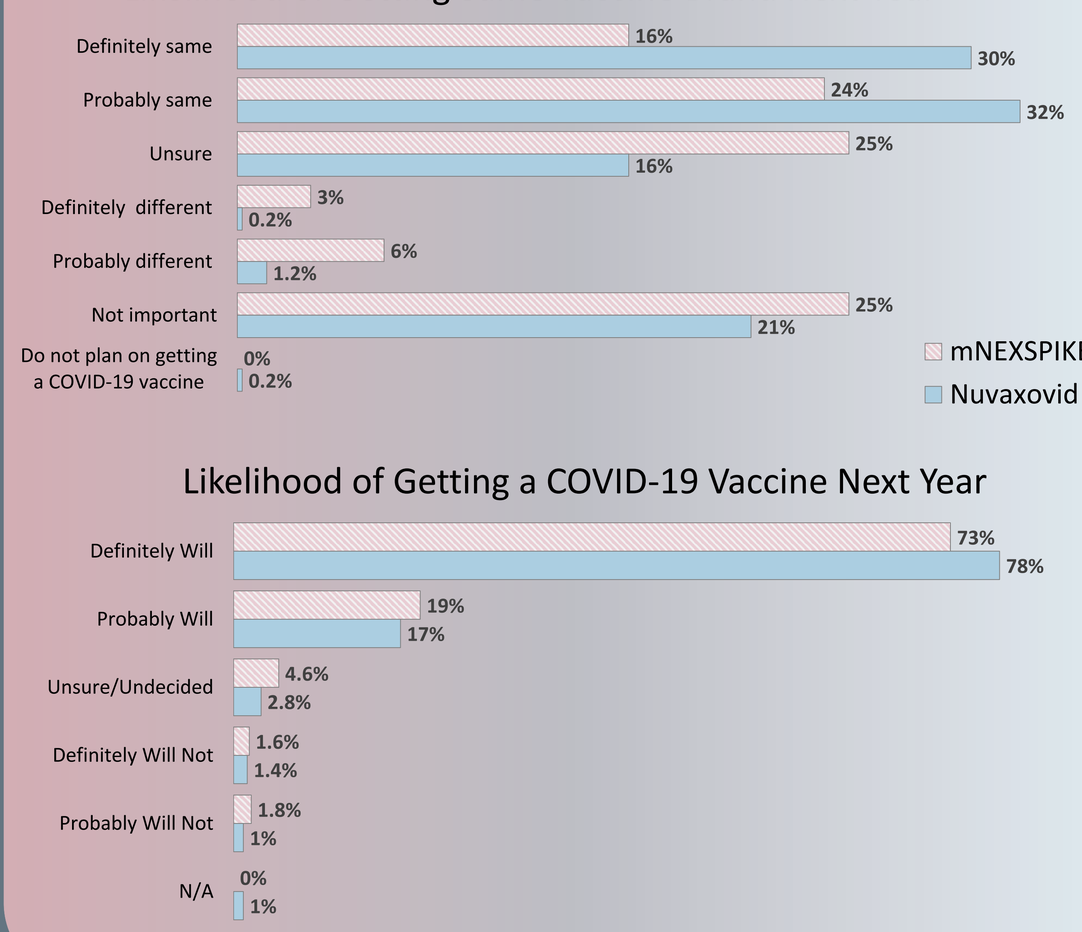




LIFESTYLE IMPACTS (CoVRES)







Conclusion

- Immunization with the protein-based COVID-19 vaccine (Nuvaxovid®, Sanofi) demonstrated a superior tolerability profile, with significantly lower incidences of local and systemic reactions compared to the mRNA-based mNEXSPIKE® vaccine (Moderna)
- PRO and CoVRES analyses indicate less daily life impact for those who received the protein-based vaccine and a greater willingness to receive the same vaccine in the future.

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References

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3. Marchese AM, Rousculp M, Macbeth J, Beyhaghi H, Seet BT, Toback S. The Novavax Heterologous COVID Booster Demonstrates Lower Reactogenicity Than mRNA: A Targeted Review. *J Infect Dis.* 2024 Aug 16;230(2):e496-e502.

Funding statement: This collaborative study is funded by Sanofi.
Disclosures: KS and JN are Sanofi employees and may hold stocks/shares in the company. Other authors have no COI to declare.