# Protocol Booster Vaccine Safety Systematic Review

# Protocol: Comparative Safety of Booster Vaccines (COVID-19, Influenza, HPV)  
  
\*\*Systematic Review Title:\*\* Comparative Safety of Booster Vaccines (COVID-19, Influenza, HPV): A Systematic Review and Meta-Analysis of Adverse Events Following Booster Doses Compared to Primary Vaccination  
  
\*\*Registration:\*\* To be registered on PROSPERO  
\*\*Authors:\*\* AI Research Automation System v2.5  
\*\*Date:\*\* September 21, 2025  
  
## Background and Rationale  
  
Vaccination programs for COVID-19, influenza, and HPV have implemented extensive booster dose schedules to optimize protective immunity. While primary vaccination safety data is well-established, comparative safety profiles of booster doses versus primary doses across multiple vaccine types remain unclear.  
  
Individual studies suggest boosters may increase local reactions but reduce serious adverse events. However, fragmented evidence across vaccines prevents comprehensive risk assessment. Post-COVID-19 vaccine campaigns and ongoing influenza/HPV programs necessitate evidence synthesis for booster safety strategies.  
  
## Research Questions  
  
\*\*Primary Question:\*\*  
What is the pooled incidence of adverse events following booster vaccine doses compared to primary vaccination doses for COVID-19, influenza, and HPV vaccines?  
  
\*\*Secondary Questions:\*\*  
1. What is the comparative risk of serious adverse events (SAEs) between booster and primary doses?  
2. How does safety profile vary by vaccine type (mRNA, viral vector, adjuvanted, viral)?  
3. What is the dose-response relationship between number of booster doses and adverse events?  
4. Does safety profile differ by population subgroups (age, sex, comorbidities)?  
  
## Methods  
  
### Eligibility Criteria  
  
#### Population  
- Recipients of COVID-19, influenza, or HPV vaccines  
- Both primary and booster dose cohorts within studies  
- Any age group, including vulnerable populations  
  
#### Intervention  
- Booster vaccine doses (dose ≥3 for COVID-19, ≥2 for influenza/HPV)  
- Any booster formulation within same ...