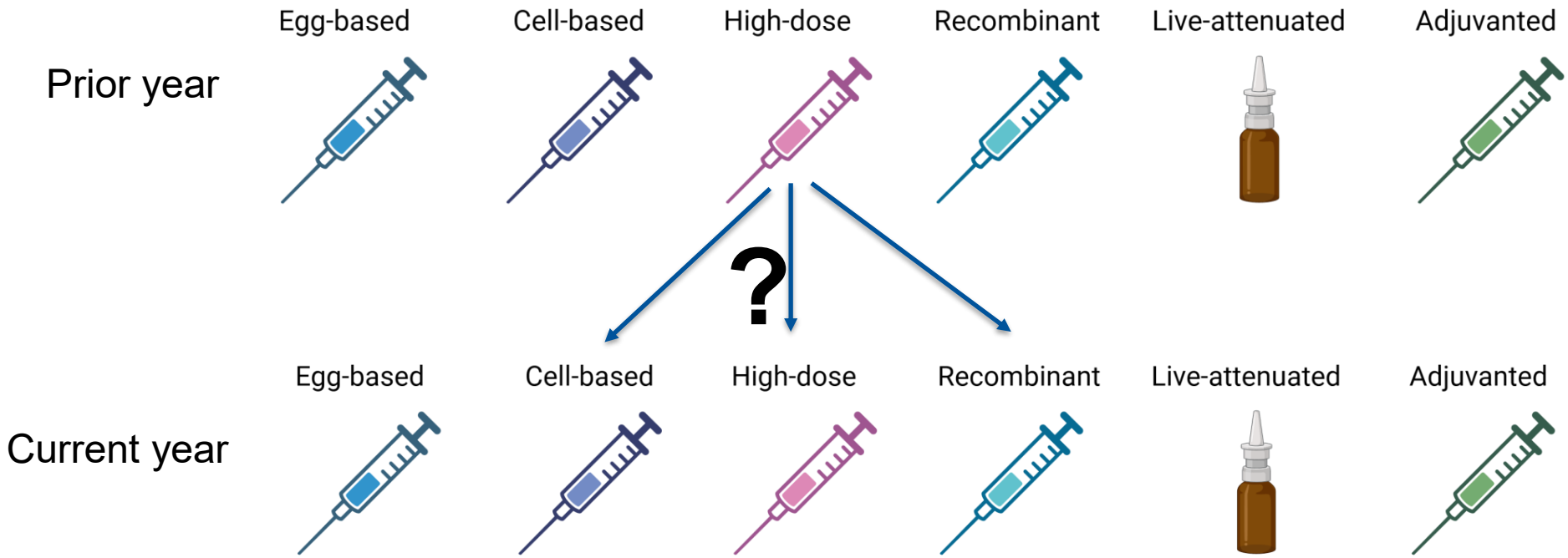
The Impact of Prior Vaccine Type on Subsequent Influenza Vaccine Responses

Andreas Handel

University of Georgia

Introduction

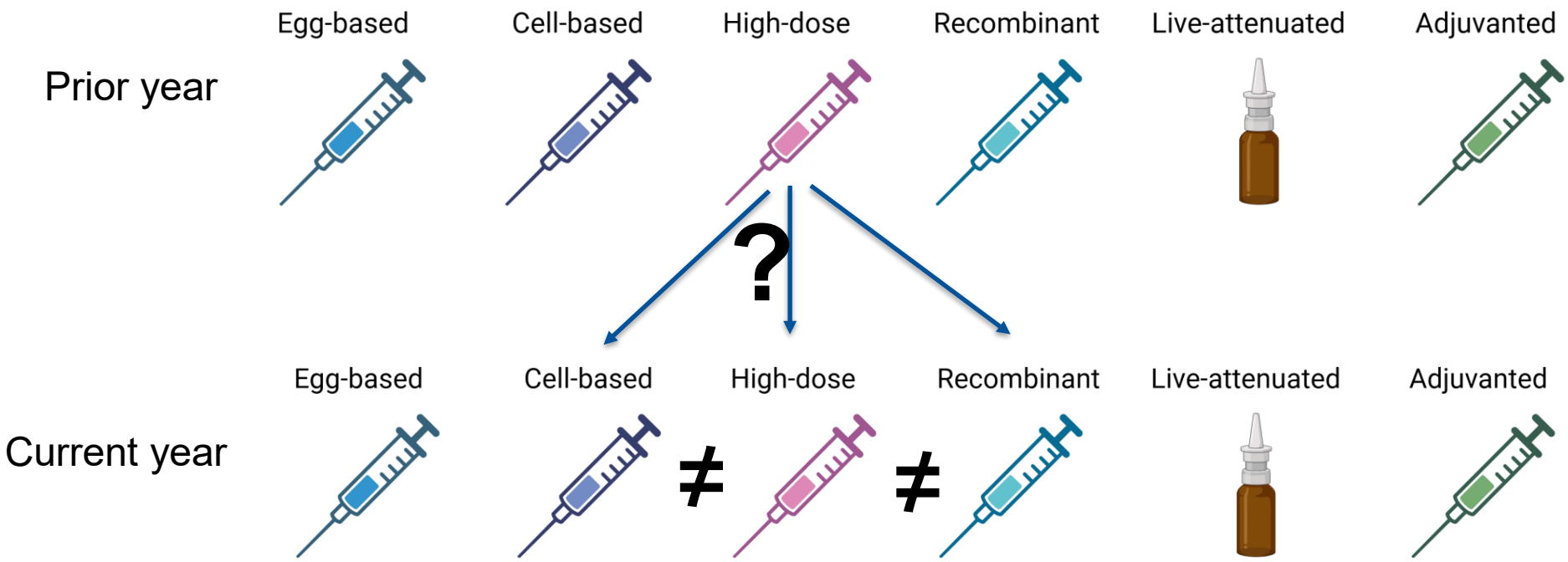
- Different influenza vaccines types are available
- Annual influenza vaccination is recommended
- Do certain vaccine sequences lead to better responses?



National Foundation for Infectious Diseases

Introduction

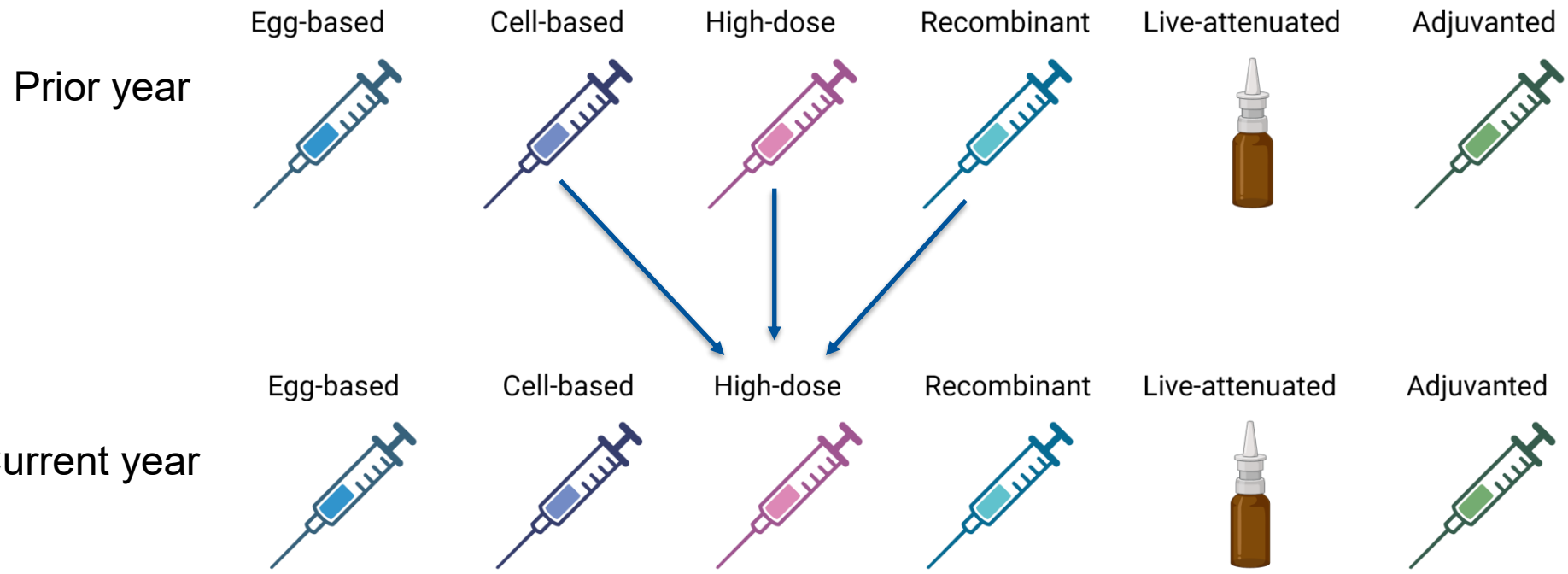
- Hard to compare different current vaccines for same prior one



National Foundation for Infectious Diseases

Project

- Can compare immunogenicity (HA antibody response) of different influenza vaccines based on prior year vaccine types



National Foundation for Infectious Diseases

Data

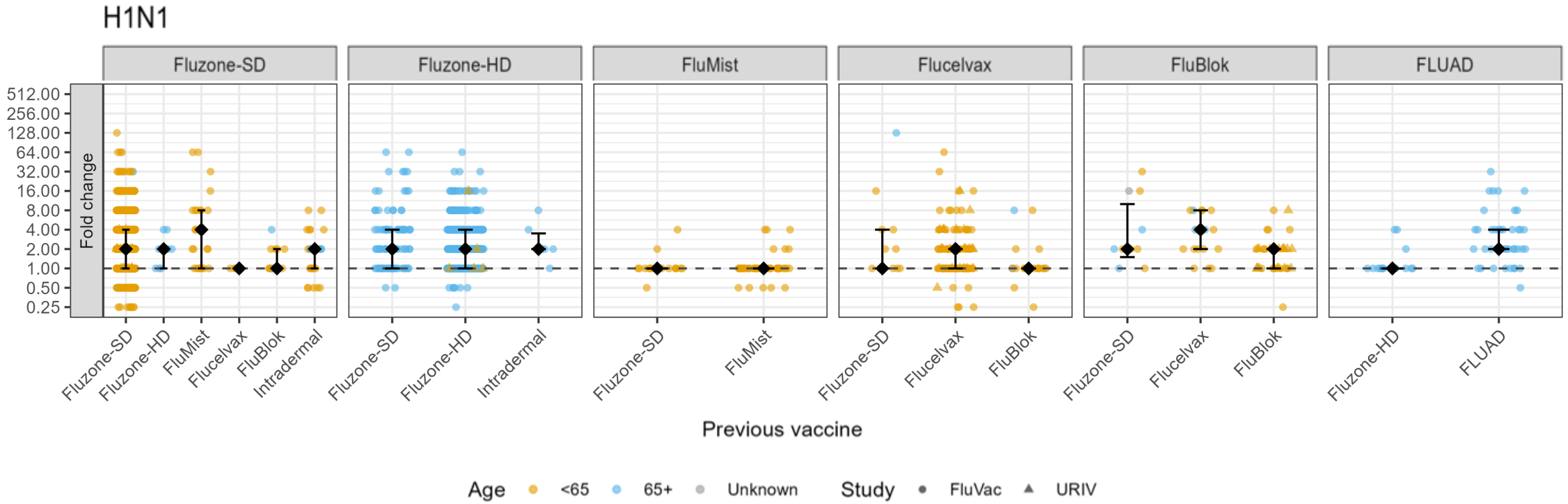
- Data comes from two prior influenza vaccination studies spanning 2013-2025

Current vaccine	Fluzone-SD[1]	Fluzone-HD[1]	FluMist[1]	Flucelvax[1]	FluBlok[1]	FLUAD[1]
Previous vaccine						
Fluzone-SD	1,527	103	17	13	11	-
Fluzone-HD	9	415	-	-	-	17
FluMist	25	-	54	-	-	-
Flucelvax	6	-	-	116	17	-
FluBlok	16	-	-	19	34	-
FLUAD	-	-	-	-	-	40
Intradermal	26	6	-	-	-	-

[1]n

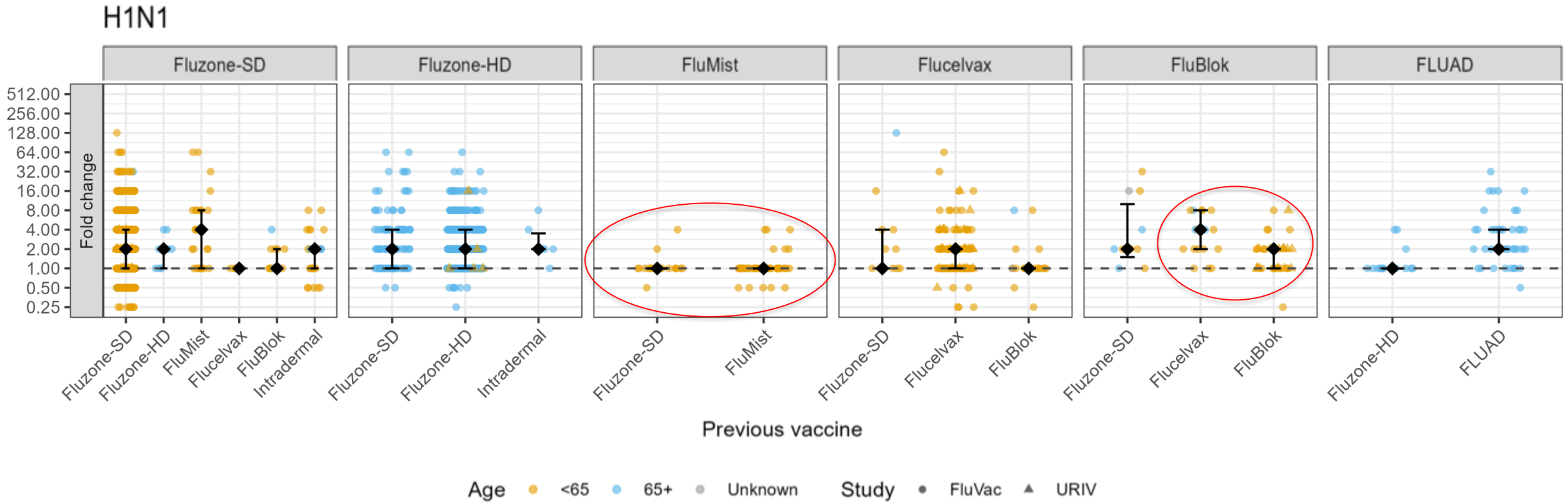
National Foundation for Infectious Diseases

Exploratory Analysis



National Foundation for Infectious Diseases

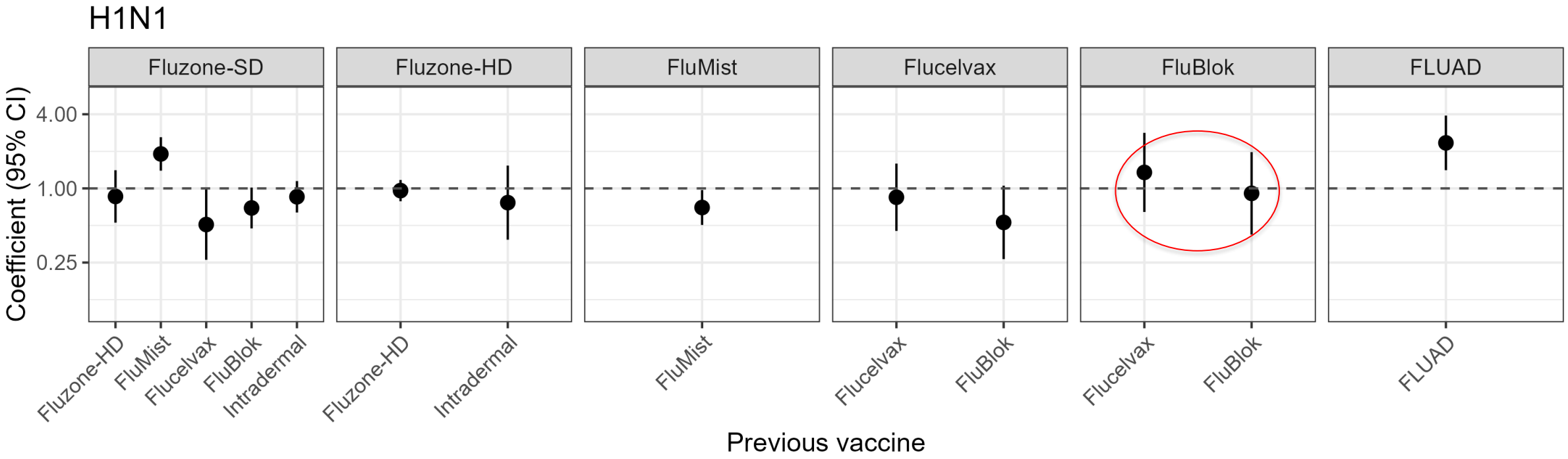
Exploratory Analysis



National Foundation for Infectious Diseases

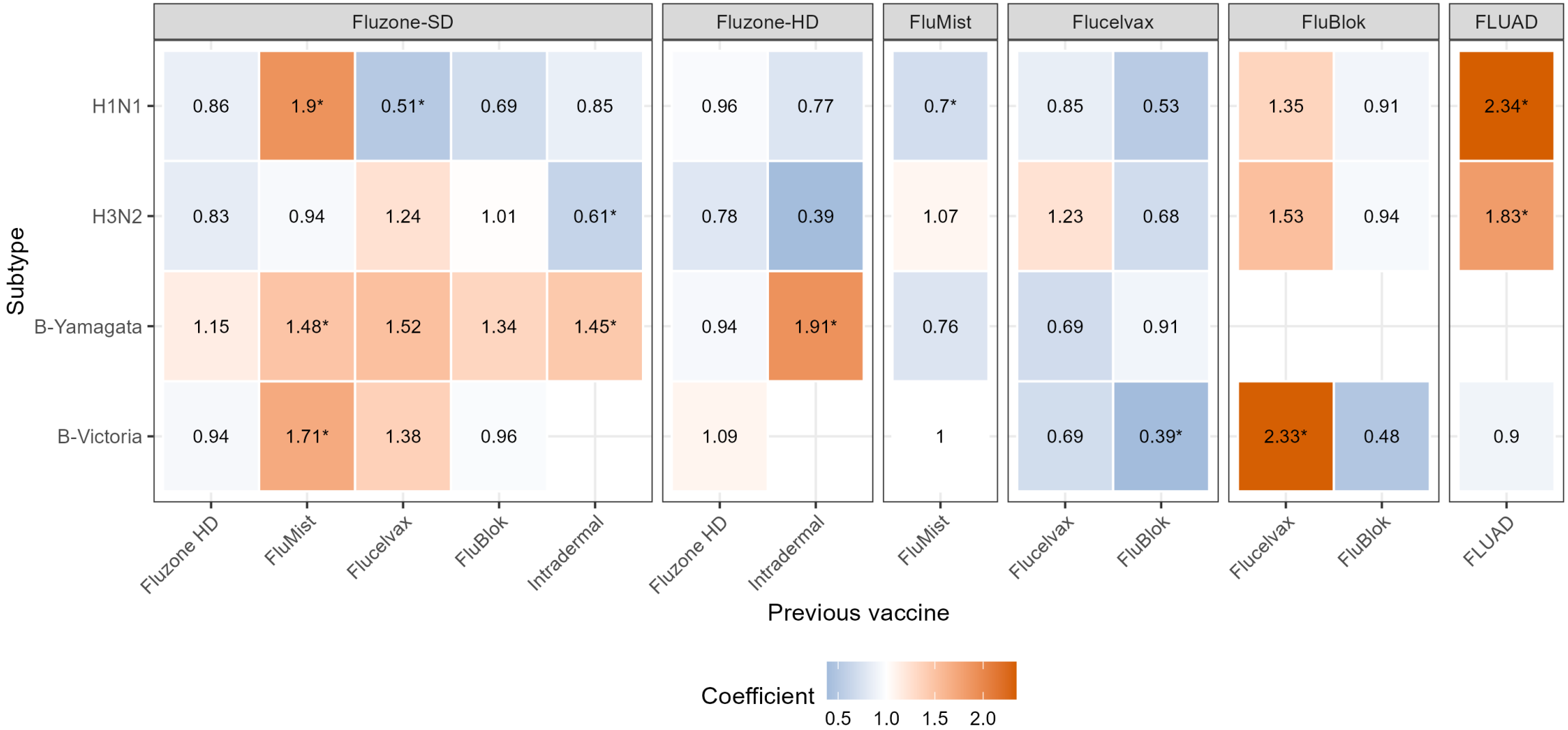
Regression Analysis

- Outcome: Vaccine titer increase
- Predictors: **Prior vaccine type,** pre-vaccination antibodies, age, study, vaccine strain change, vaccine strain



National Foundation for Infectious Diseases

Subtype comparison



* CI excludes null (1 on fold-change ratio scale)

Summary

- Prior-current vaccine sequencing seems to sometimes make a difference, but varies based on vaccine type, flu subtype
- We need to disentangle basic vaccine differences from sequence differences
- Studies beyond immunogenicity are needed to evaluate protection

Acknowledgements

- **Murphy John**
- Ted Ross, Andrea Sant
- Many other collaborators
- NIH

Contact:
ahandel@uga.edu
andreashandel.com

National Foundation for Infectious Diseases