

# Within-season projections of U.S. COVID-19 booster uptake over the 2023/2024 season



Inga Holmdahl<sup>1</sup>, James Singleton<sup>2</sup>, Jennifer Kriss<sup>2</sup>, Shannon Stokley<sup>2</sup>, Paige B. Miller<sup>1</sup>, Beau B. Bruce<sup>1</sup>, Scott W. Olesen<sup>1</sup>

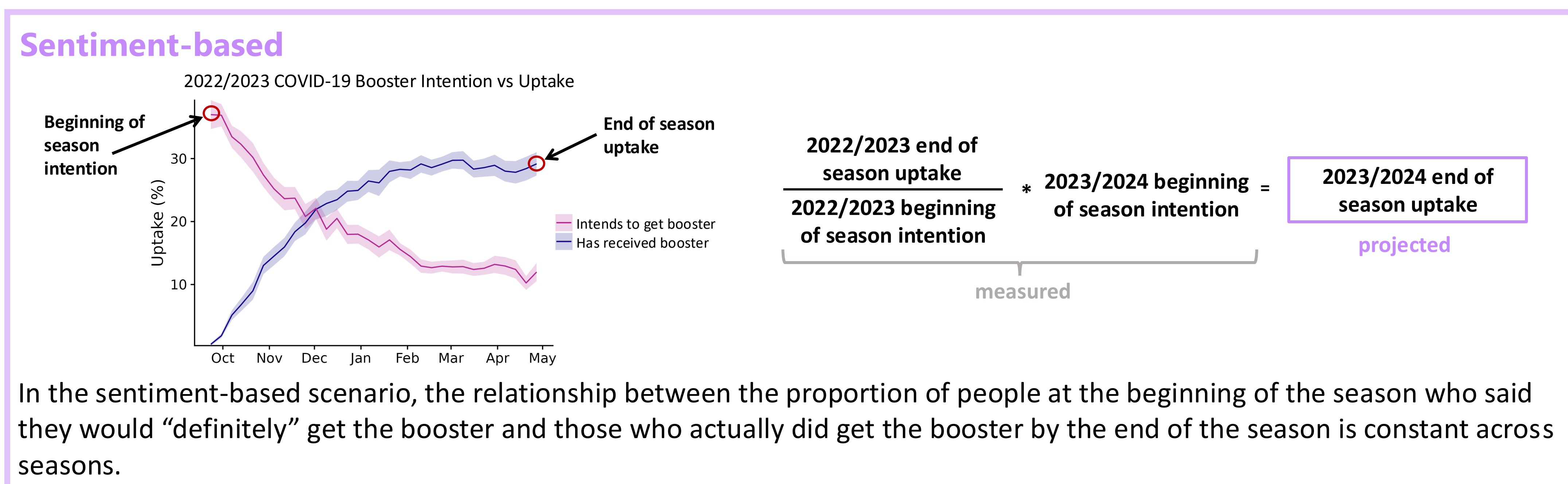
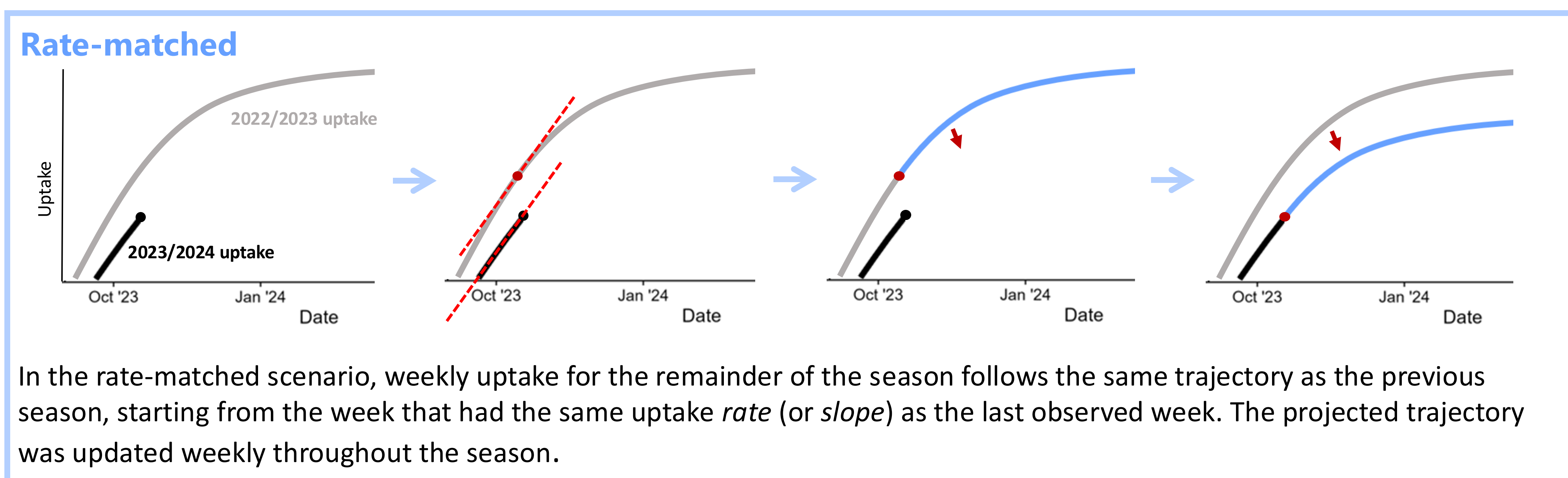
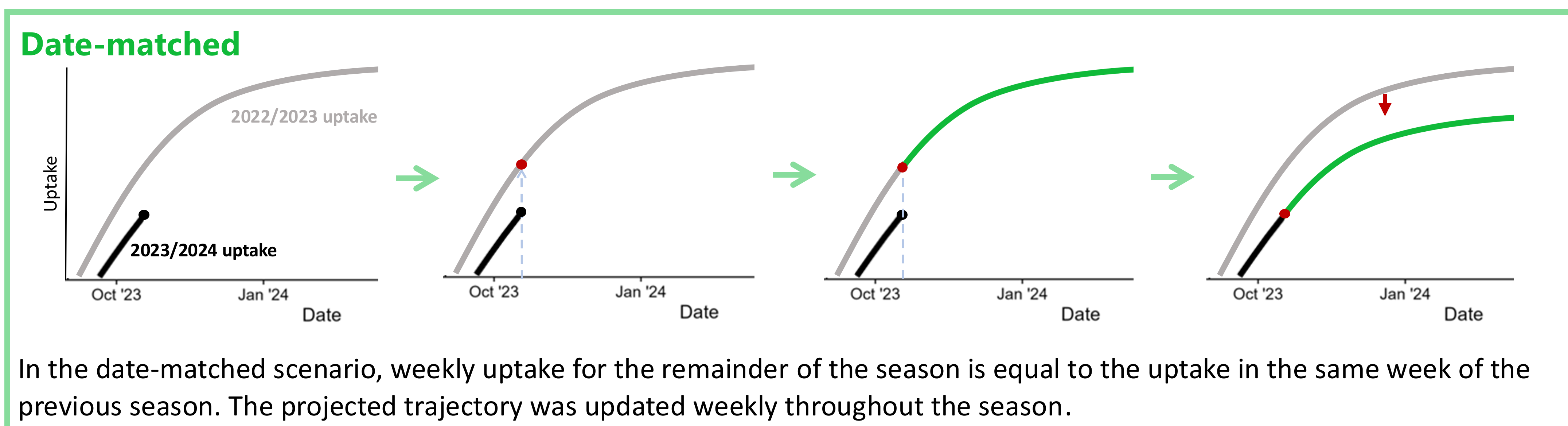
1. Predict Division, Center for Forecasting and Outbreak Analytics (CFA), Centers for Disease Control and Prevention
2. Immunization Services Division, National Center for Immunization and Respiratory Diseases (NCIRD), Centers for Disease Control and Prevention

## Introduction

Updated bivalent booster vaccines against COVID-19 were developed for the 2023/2024 season and recommended by CDC for people six months or older in September 2023. The Advisory Committee for Immunization Practices (ACIP) approved the updated booster 12 days later in the 2023/2024 season compared to the timing of the previous booster dose recommendation. In this study, we aimed to project end-of-season (April 2024) COVID-19 booster uptake using real-time data available earlier in the season. We developed three scenario-based approaches to project end-of-season uptake using data from 4 weeks at the beginning of the 2023/2024 vaccine rollout period.

**Objective: Make in-season projections of cumulative, end-of-season COVID-19 booster uptake among U.S. adults for the 2023/2024 season.**

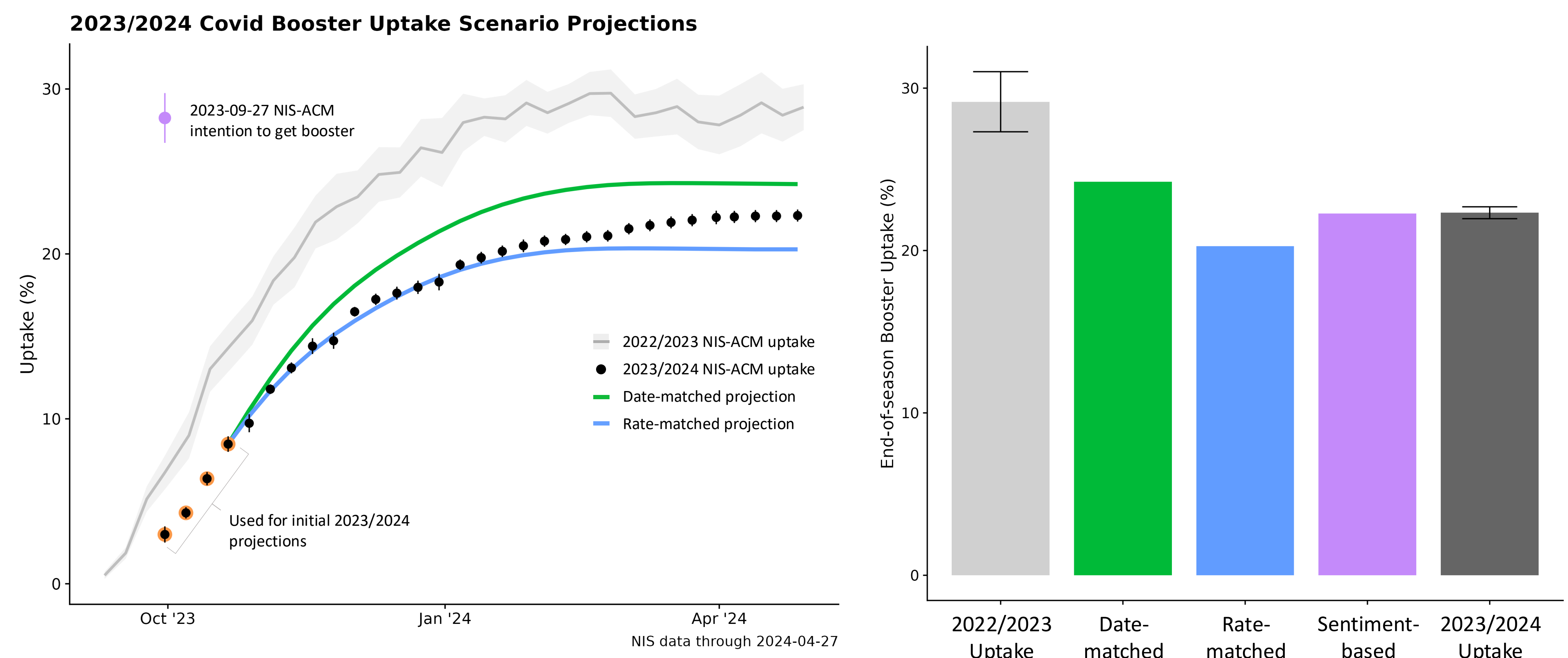
## Scenarios



## Data

- Starting the week ending September 30, 2023, the National Immunization Survey-Adult COVID Module conducted ongoing surveys of a representative sample of the adult U.S. population asking whether respondents intended to get the updated COVID-19 booster or had received it. Estimates were developed on a weekly basis using interviews completed during each week.
- These survey data from the 2023/2024 season were compared to the equivalent data collected during a similar period 12 months prior. Sentiment survey response from the first week of the 2023/2024 season was used for sentiment-based projection.

## Results



- Based on NIS-ACM data available on October 21, 2023, the rate-matched scenario projected 20% uptake by the end of the season and the date-matched scenario projected 24% uptake.
- Based on NIS-ACM sentiment surveys from September 29, 2023, the sentiment-based scenario projected 22% uptake by the end of the season.
- As of April 27, 2024, the overall total COVID-19 booster uptake reported by NIS-ACM was 22% ( $\pm <1\%$ ), which was within the range bracketed by the three scenarios.**
- Overall, 2023/2024 uptake was 7 percentage points lower than uptake of the prior COVID-19 booster by the same point in time.

## Conclusions

Projections made using only 4 weeks of survey data accurately bracketed end-of-season uptake for the 2023/2024 updated COVID-19 booster. Validated models that can accurately project end-of-season uptake using limited data from the start of the season could be used to make real-time adjustments to vaccine rollout strategies and messaging.

## Next Steps

- Validate performance of scenario projections over time throughout the 2023/2024 season.
- Incorporate data from both previous seasons of COVID-19 booster administration to project scenarios for the 2024/2025 season.

The findings and conclusions of this report are those of the authors and do not necessarily represent the official position of the U.S. Centers for Disease Control and Prevention.