



Understanding NHANES Response Rates During Data Collection in a Pandemic

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NHANES Data Collection Stages



Screening

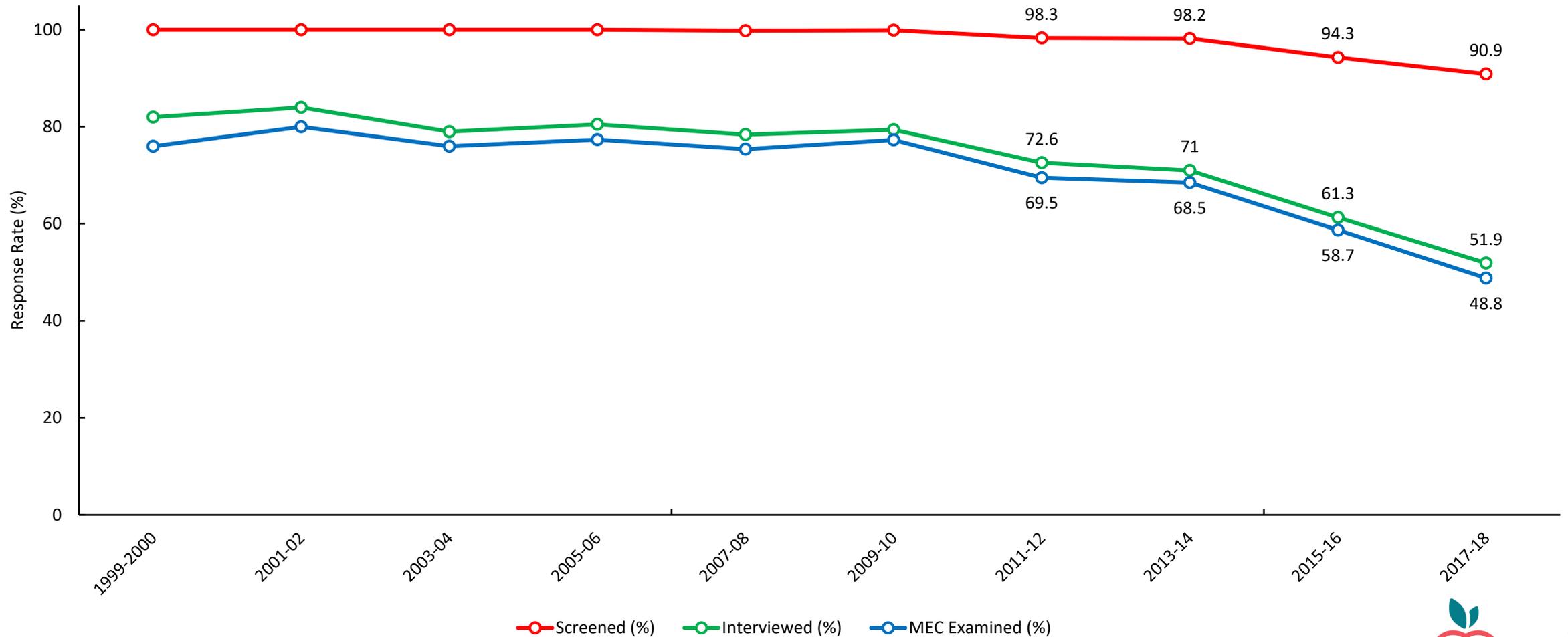


In-home interview



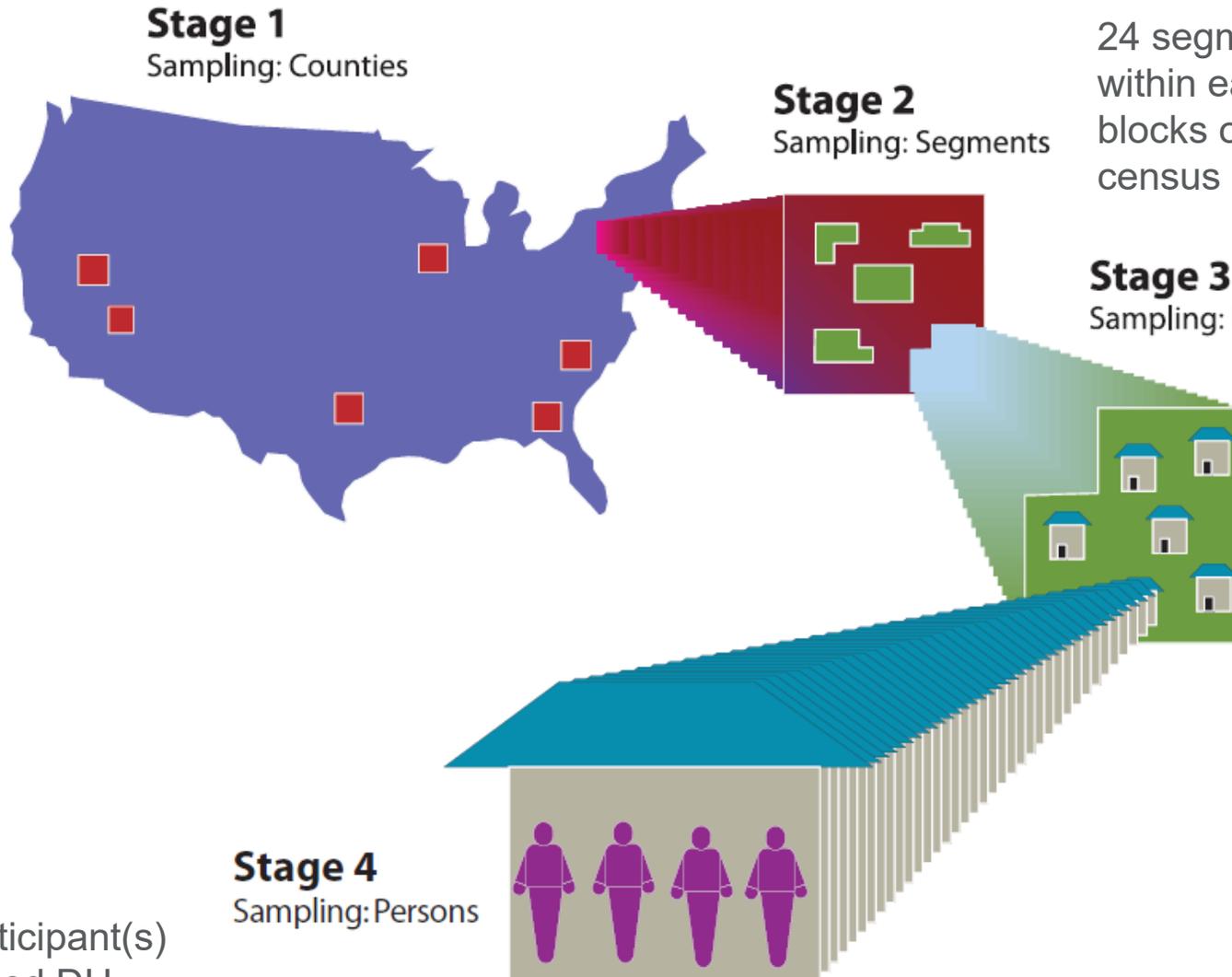
Examination at
Mobile Examination
Center (MEC)

Trends in Response Rates: NHANES 1999–2018



Multistage Probability Sampling Design

15 PSUs selected across US each year (Single counties, multiple counties or parts of counties; Stratified by state-level healthiness, region, urbanicity)



24 segments selected within each PSU (Census blocks or groups of census blocks)

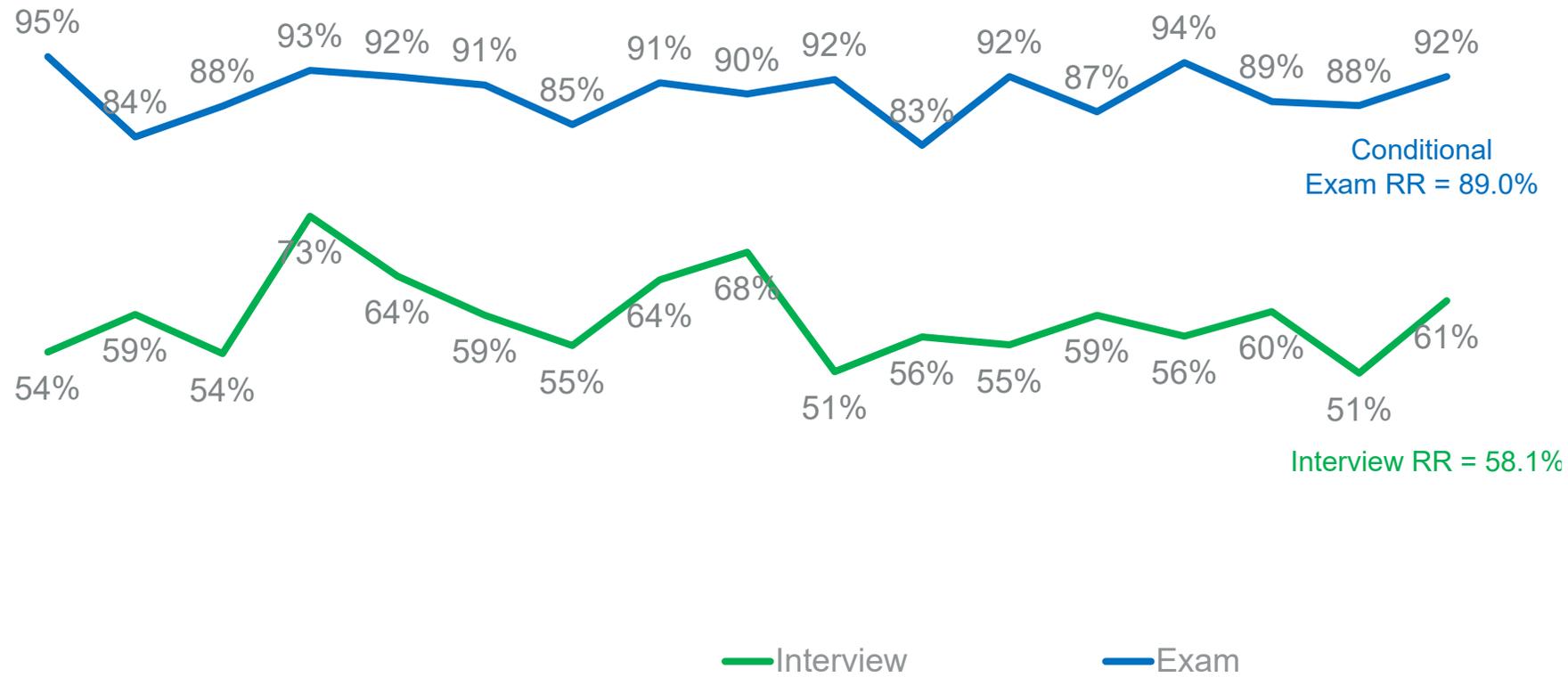
Dwelling units (DUs) selected within each segment

Select participant(s) per occupied DU

NHANES August 2021 – August 2023 Sample Design

- Sampling change: no oversampling by race/ethnicity, income
- Select at least one person per occupied DU
 - All children (0-19 years) and older adults (60+) are selected
 - 1-2 persons 20-59 years, depending on number of persons in HH 20-59

Interview Response Rate (among those identified) and Examined Response Rate (among Interviewed)

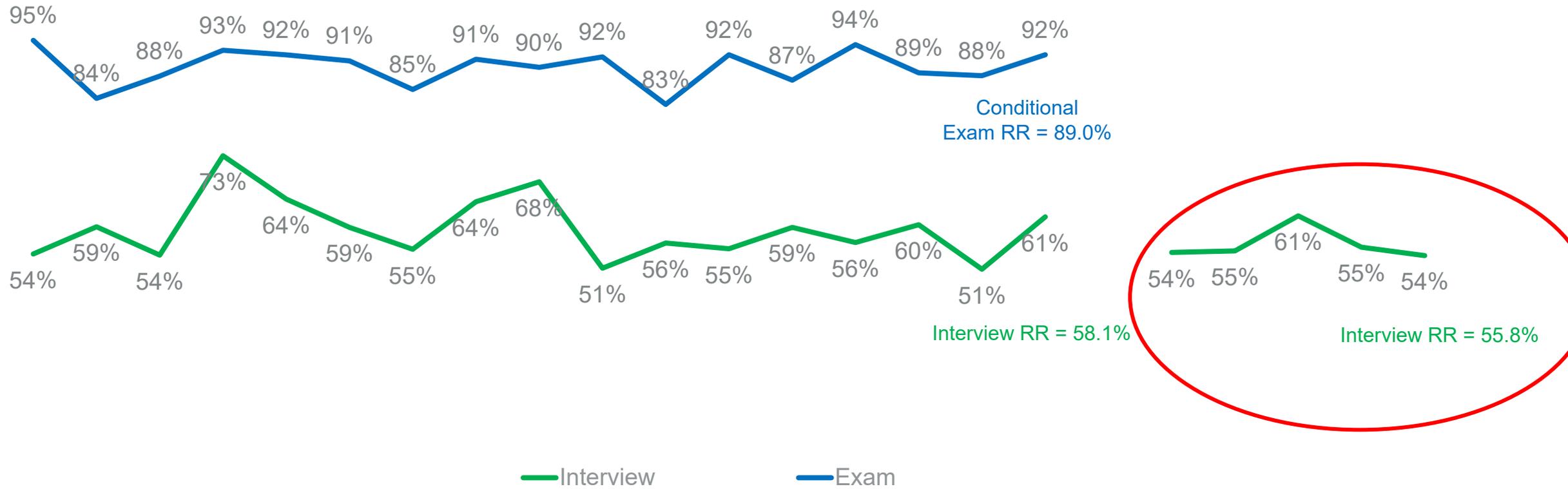


Stand 398 Stand 399 Stand 400 Stand 401 Stand 402 Stand 403 Stand 404 Stand 405 Stand 406 Stand 407 Stand 408 Stand 409 Stand 410 Stand 411 Stand 412 Stand 413 Stand 414

2019

2020

Interview Response Rate (among those identified) and Examined Response Rate (among Interviewed) - continued

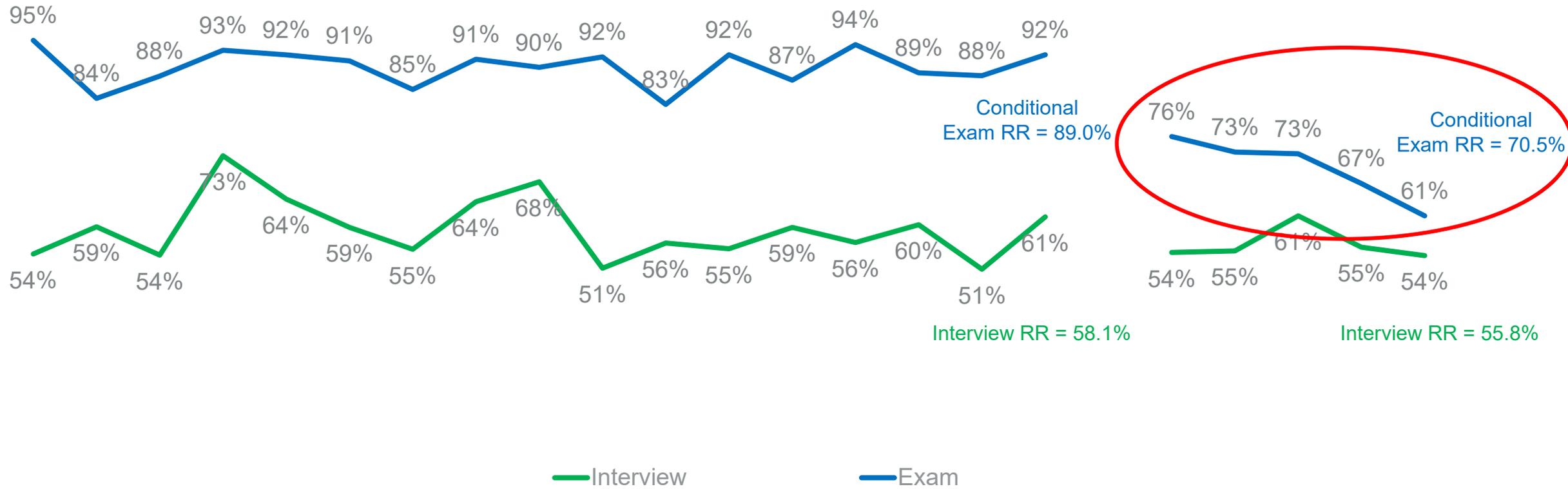


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Stand 428 Stand 429 Stand 430 Stand 431 Stand 432

2019 2020 2021

Interview Response Rate (among those identified) and Examined Response Rate (among Interviewed) – continued 2

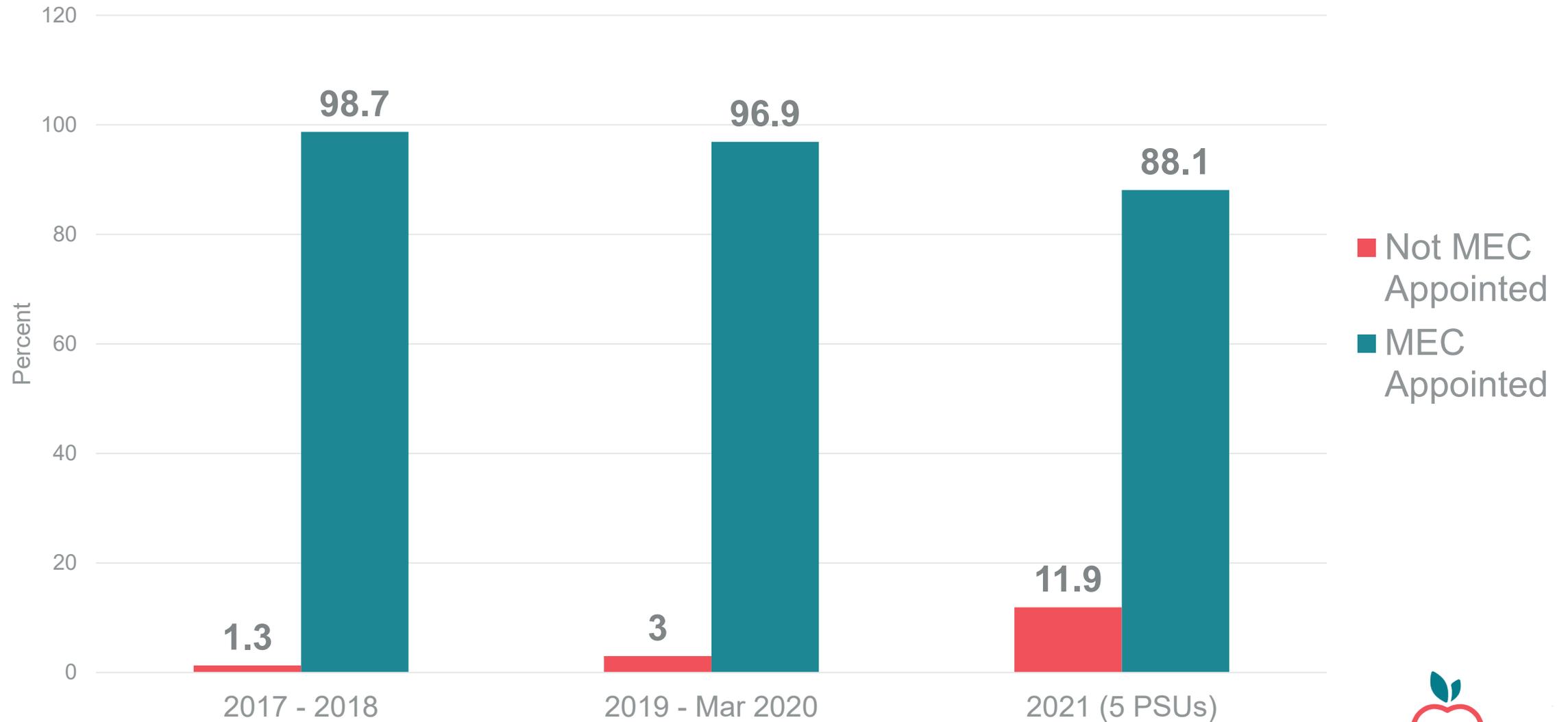


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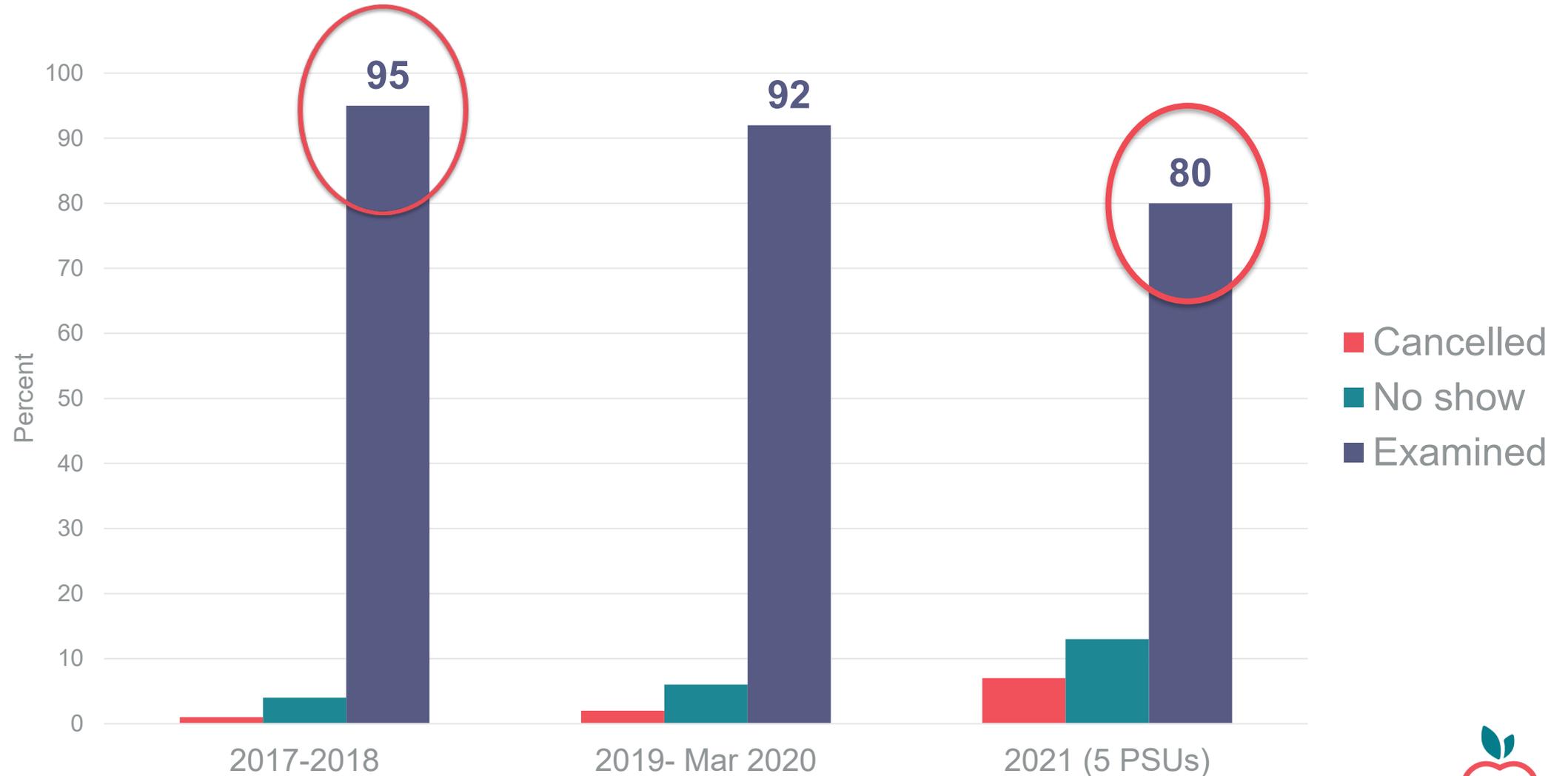
Stand 428 Stand 429 Stand 430 Stand 431 Stand 432

2019 2020 2021

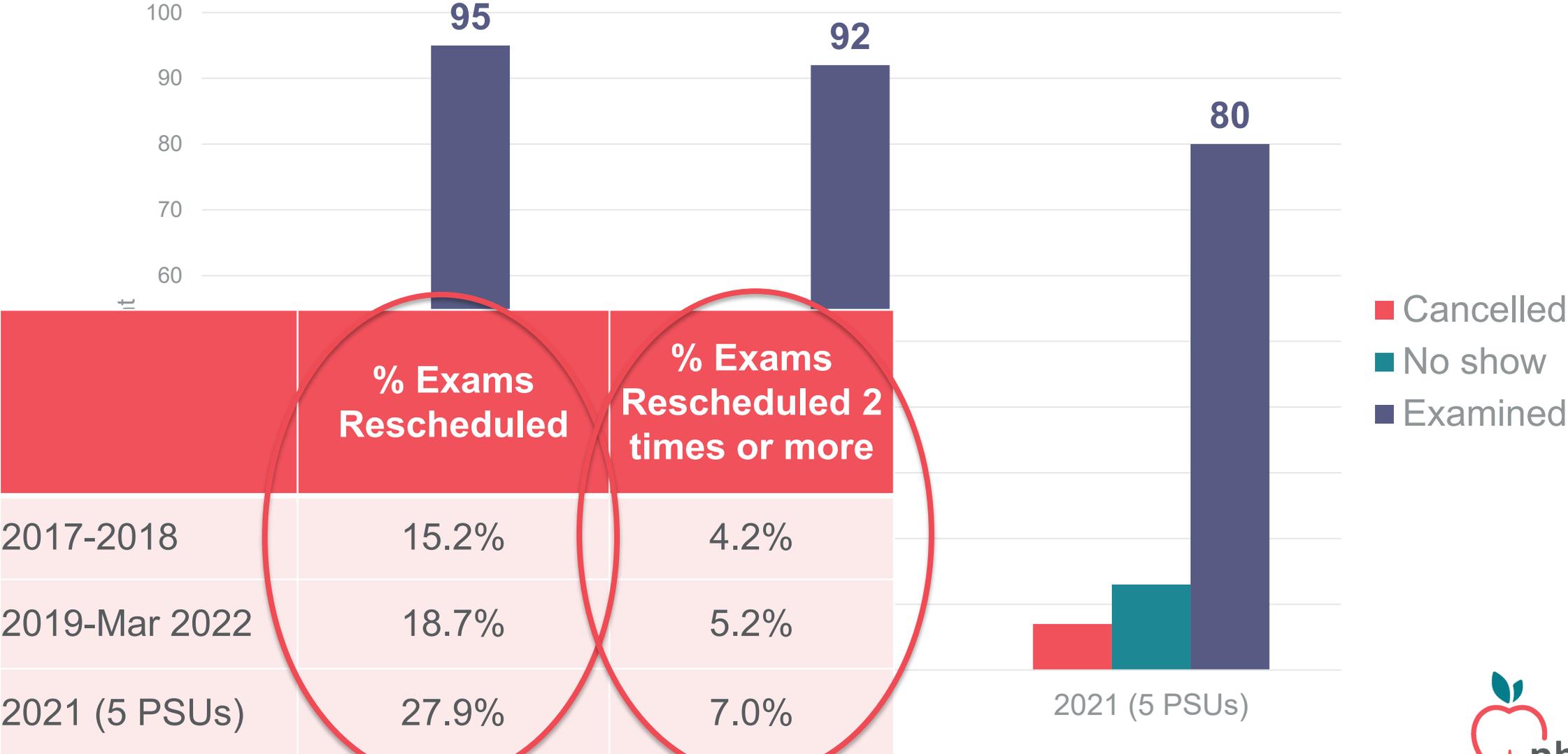
Interviewed Participants who are Appointed to the MEC



Exam Participation among those Interviewed and MEC Appointed

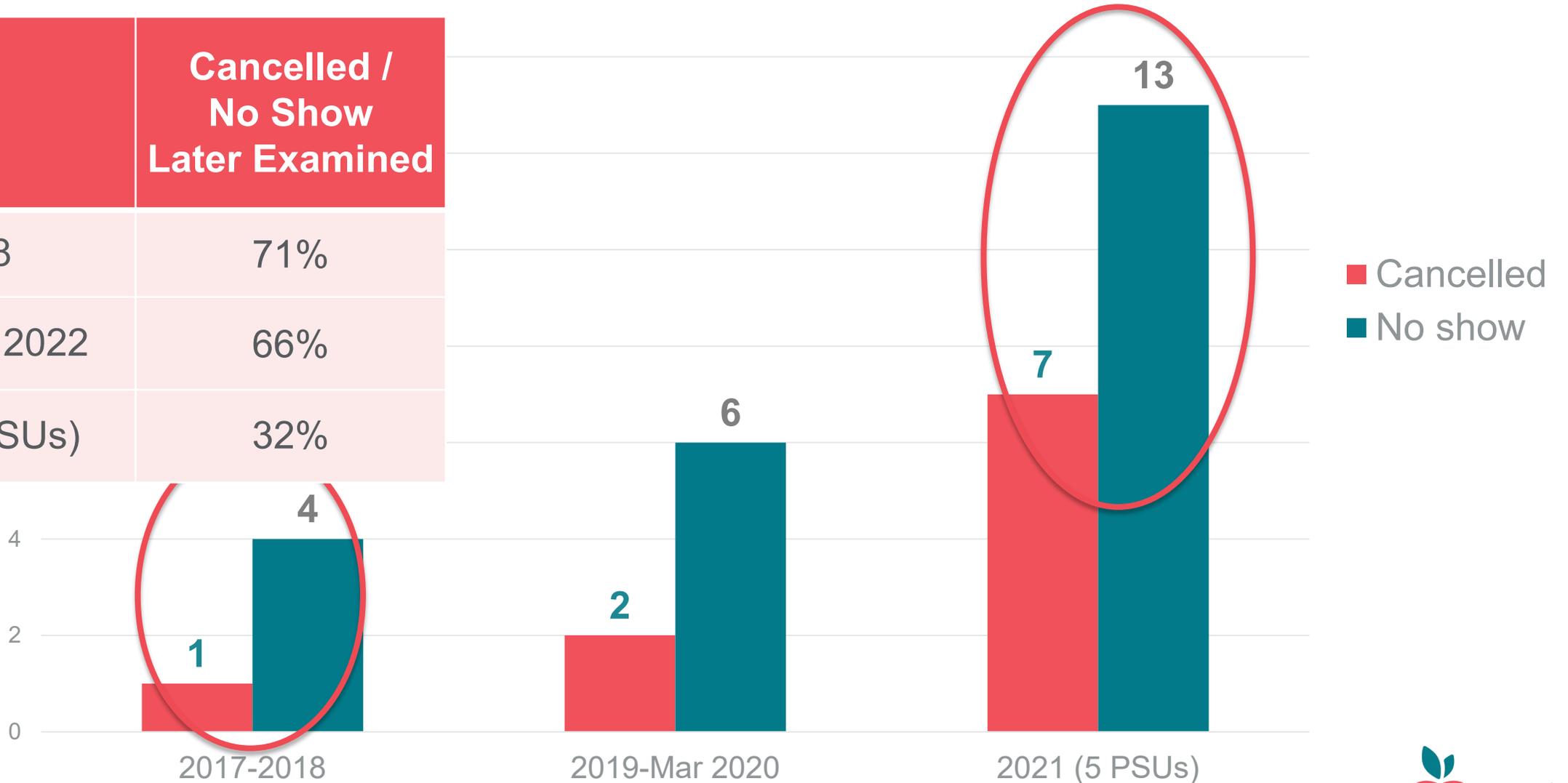


Exam Participation among those Interviewed and MEC Appointed - continued



Exam Non-Response Among Interviewed and MEC appointed

	Cancelled / No Show Later Examined
2017-2018	71%
2019-Mar 2022	66%
2021 (5 PSUs)	32%



Characteristics associated with exam nonresponse among interviewed participants

- Examined differences by sociodemographic characteristics (age, race/ethnicity, education, income) and other factors (# SPs in HH, interview mode)
- Patterns by age were noted but not others
- The greatest difference from pre-pandemic rates is for children 0-5 years

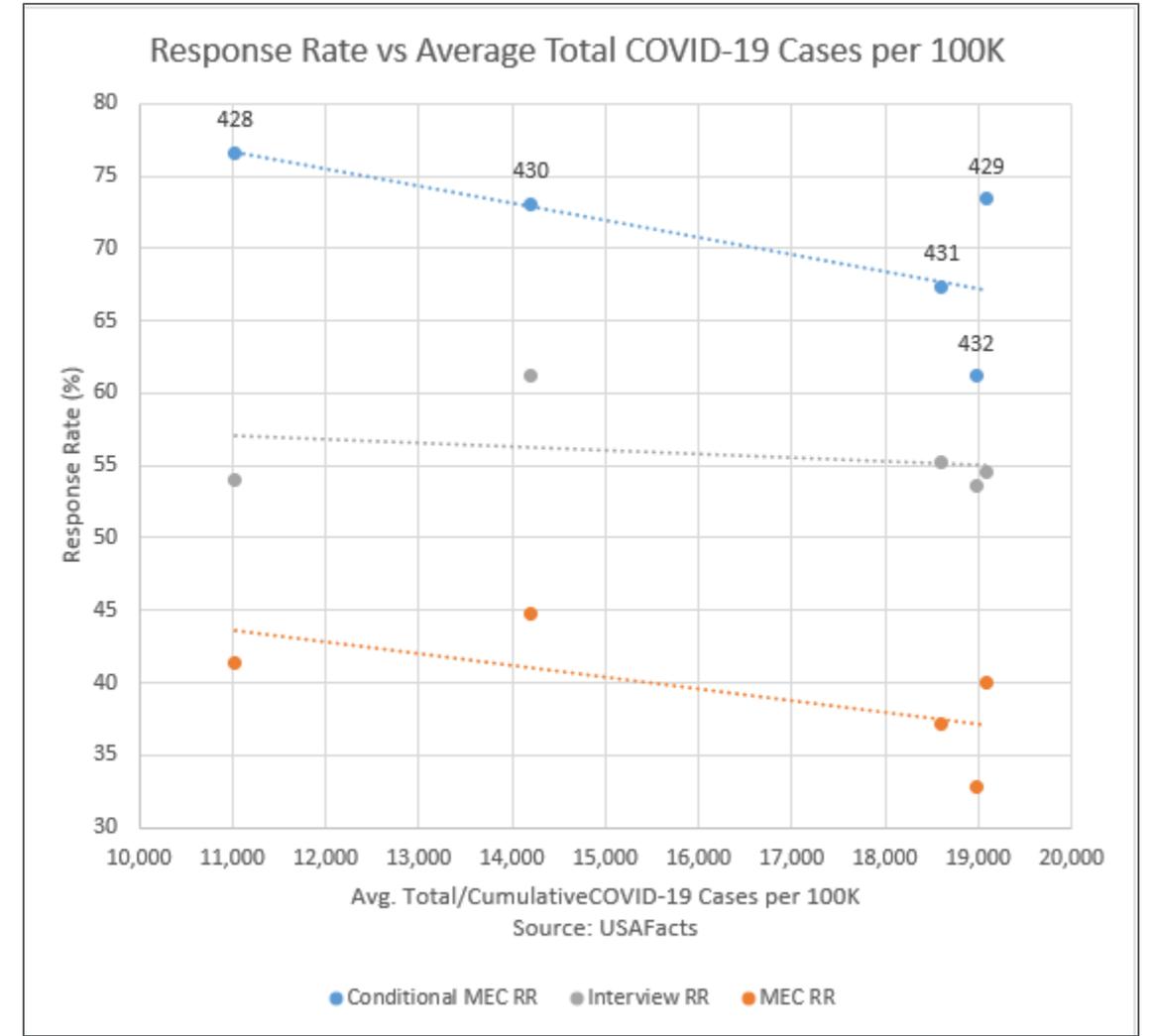
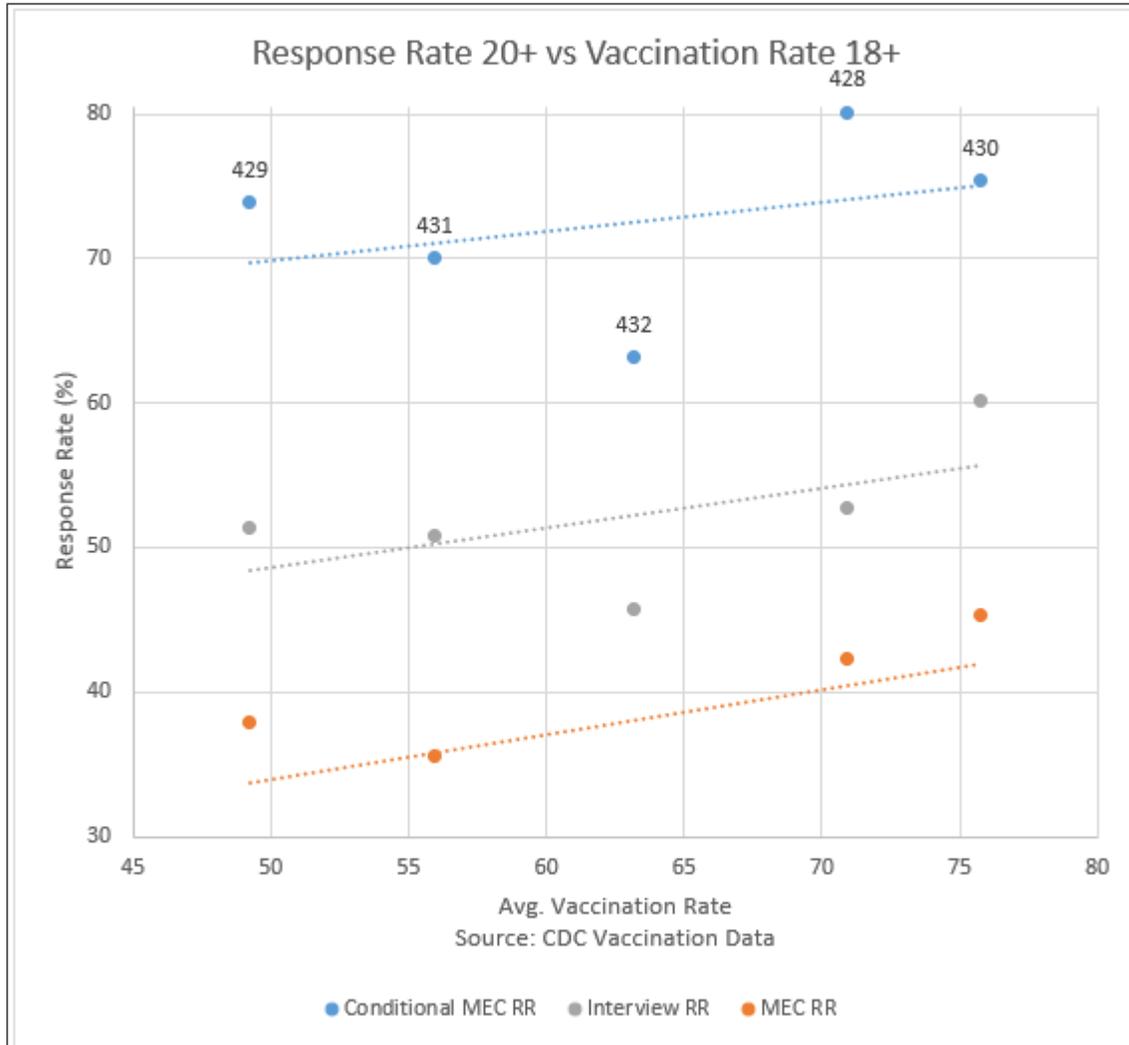
Age Categories	Exam RR 2017-2018	Exam RR 2021
0-5 years	93%	62%
6-11 years	93%	66%
12-19 years	95%	70%
20-39 years	94%	68%
40-59 years	96%	75%
60-79 years	95%	77%
80+ years	90%	65%

Characteristics associated with exam nonresponse among interviewed participants - continued

- COVID-19 vaccination status, a new variable collected in the home interview, was the only other notable predictor of nonresponse (no difference by COVID-19 illness history)
- Lower MEC examination rate among adults not vaccinated for COVID-19.

COVID-19 Vaccine Status, Age 20+	Proportion Interviewed	Exam RR among Interviewed						
Vaccinated	75%	76%	Ever had COVID-19	Proportion Interviewed	Exam RR among Interviewed			
Unvaccinated	25%	65%				Yes, tested positive	17%	70%
						No	81%	70%

Correlation between Vaccination and COVID Case Rates with Response Rates



Approaches to Address MEC Participation

- MEC incentive increase for adults from \$85 to \$125 (experiment for 5 PSUs)
- Offering options to participant for receipt of transportation incentive
- MEC clinician contact:
 - Clinician address participant concerns for those who missed exam or are reluctant to make appointments
- Study ambassadors:
 - Enthusiastic exam participants are used to help convert reluctant potential participant
- Paradata:
 - Identify characteristics of exam participation & cancel/no show; Develop targeted recontact strategies & messaging

Implementing shortly:

- Conduct Survey of MEC Nonrespondents:
 - Follow up questionnaires mailed (with telephone follow-up) to participants who refused exam to better understand reasons for declining.
- Overbooking MEC appointment slots
 - Within COVID safety protocols, book extra SP in session with other appointed SPs who have characteristics associated with cancellation/no show

Examination Response Rates - Summary

- Willingness of persons to be interviewed by phone but not examined in person
- Examination rates much lower since returning to the field
- Fewer people willing to visit a medical center during a pandemic
 - Greater percentage not even scheduling an appointment
 - More cancellations and no shows
 - Greater level of effort per completed exam
- New non-random patterns of nonresponse have likely emerged during pandemic
- Vaccination status most significant factor related to exam response

Questions to the BSC

1. In addition to the strategies already implemented, are there interventions that could be implemented in real time to address exam nonresponse?
2. Are there specific steps to take that could mitigate potential nonresponse bias while data are still being collected?

(e.g., are there examples of more effective messaging that could be used or important paradata to consider?)
3. NHANES is a unique survey with an extra survey stage (exam) not included in other national surveys. Are there any other examples to compare the recent NHANES exam response rate experience?

Questions?

