Vaccines and Related Biological Products Advisory Committee Meeting

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mRNA-1273 (Moderna COVID-19 Vaccine) – Request for Emergency Use Authorization in Individuals 6 Months - 5 Years of Age

ModernaTX, Inc.

Vaccines and Related Biological Products Advisory Committee

June 15, 2022

Introduction

Carla Vinals, PhD
Vice President
Regulatory Affairs Strategy, Infectious Diseases
ModernaTX, Inc.

EUA Request for Moderna COVID-19 Vaccine in Infants, Toddlers and Young Children

Young Children
2-5 Years

Primary Series
25 µg, 2-Dose

Infants/Toddlers
6-23 Months

Primary Series
25 µg, 2-Dose

Proposed Indication: Prevention of COVID-19 caused by SARS-CoV-2

Primary Series: 2-dose, intramuscular administration 1 month apart

Totality of Evidence Supports Benefits of mRNA-1273 in Infants, Toddlers & Young Children Outweigh Potential Risks

Safety (Primary Objective)	▪ mRNA-1273 was generally well-tolerated ▪ Safety profile consistent with young adults ▪ No new safety concerns have been identified
Immunogenicity (Primary Objective)	▪ Designed to meet FDA criteria for Emergency Use Authorization ▪ Co-primary immunogenicity objectives met for 2-dose primary series
Efficacy (Secondary Objective)	▪ Evidence of vaccine efficacy against COVID-19 with mRNA-1273 ▪ Comparable to real-world effectiveness in adults during omicron period

Moderna COVID-19 Vaccine Meets FDA Recommendations for EUA in Individuals 6 Months - 5 Years of Age

1. Clinical trials enrolled >6,600 individuals 6 months - 5 years
   - >5,000 participants received ≥ 1 injection of mRNA-1273
   - Median duration of follow-up >2 months in each study cohort
2. Dose selected for each age group met co-primary immunogenicity objectives compared to young adults 18-25 years of age
3. Vaccine efficacy consistent with efficacy/effectiveness in individuals ≥ 18 years of age
4. Established plans for active safety & effectiveness follow-up post authorization
5. Benefit / risk profile positive in both age groups

Unmet Medical Need

Evan Anderson, MD, FAAP
Associate Professor, Pediatrics and Medicine
Emory University School of Medicine

Infants, Toddlers & Young Children
6 Months - 5 Years

Rituparna Das, MD, PhD
Vice President,
Clinical Development, COVID-19 Vaccines
ModernaTX, Inc.

Summary

Jacqueline Miller, MD, FAAP
Senior Vice President,
Therapeutic Area Head, Infectious Diseases
ModernaTX, Inc.

The Burden of COVID-19 in Infants and Young Children and the Need for Vaccines

Evan J. Anderson, MD, FAAP, FIDSA, FPIDS
Associate Division Chief for Clinical Research in Pediatric ID
Professor of Pediatrics and Medicine
Attending Physician at Children's Healthcare of Atlanta
Emory University School of Medicine

EMORY UNIVERSITY SCHOOL OF MEDICINE

Children's Healthcare of Atlanta

POTENTIAL CONFLICTS AND DISCLOSURES

- Financial compensation to Emory for clinical research:
  - Pfizer, Merck, GSK, Sanofi Pasteur, Novavax, Regeneron, PaxVax, MedImmune, Janssen, and Micron unrelated to this talk
  - Pfizer – pediatric COVID-19 vaccine clinical trial
- Consultant for:
  - Medscape, Sanofi Pasteur, Janssen, GSK, Moderna, and Pfizer
- Safety monitoring committees/ Endpoint Adjudication Committee
  - Kentucky BioProcessing, Inc
  - Sanofi Pasteur
  - WCG and ACI Clinical
- NIH funded
  - Local PI for several Moderna mRNA-1273 studies (Phase I & 3 studies in adults, variant study, variant booster studies, and pediatric trial)
  - Local PI for the Janssen Ad26-Spike protein Phase 3 study

Common Misperceptions about COVID-19, Risks and the Need for Vaccination in Infants and Young Children

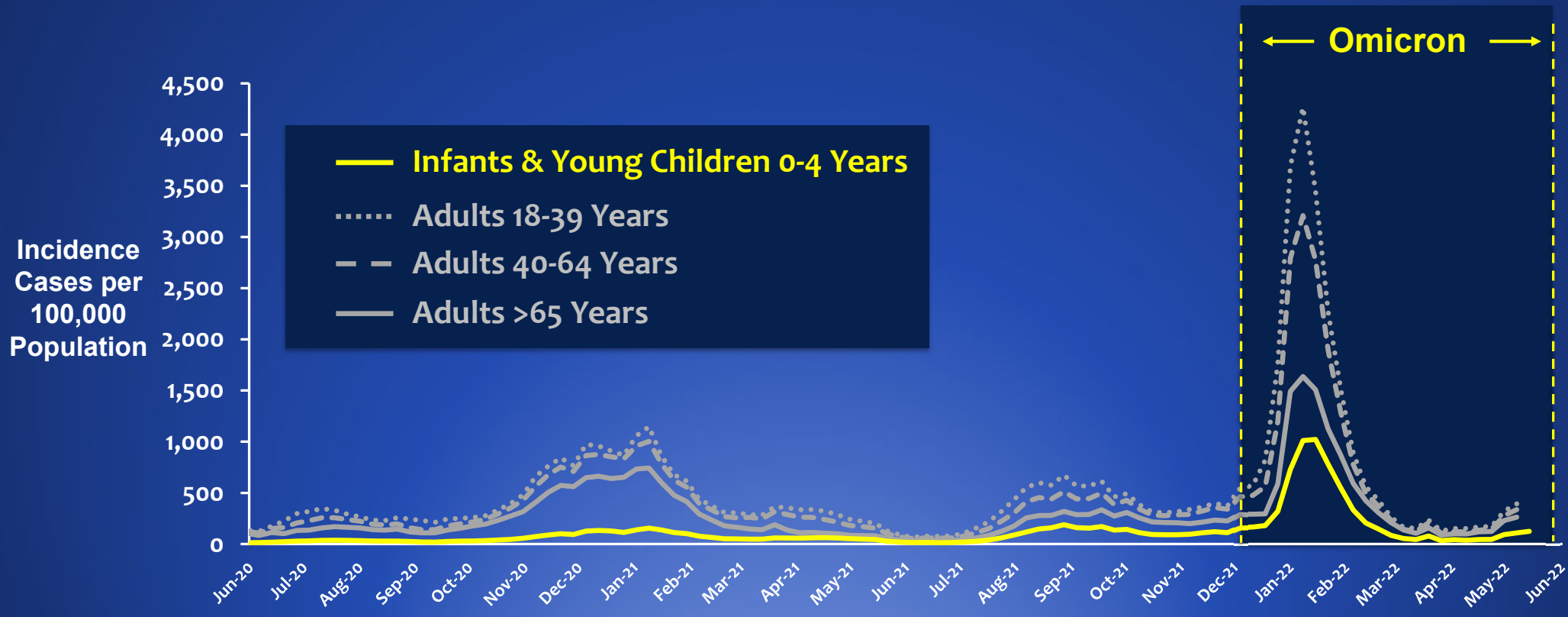
1) Infants and Young Children don't get infected with SARS-CoV-2
2) Infants and Young Children don't get hospitalized with COVID-19
3) Infants and Young Children don't die with COVID-19
4) Families/children are just inconvenienced by COVID-19

Data demonstrate that these were misperceptions

CR-10

Infants and Young Children Do Get Infected with SARS-CoV-2

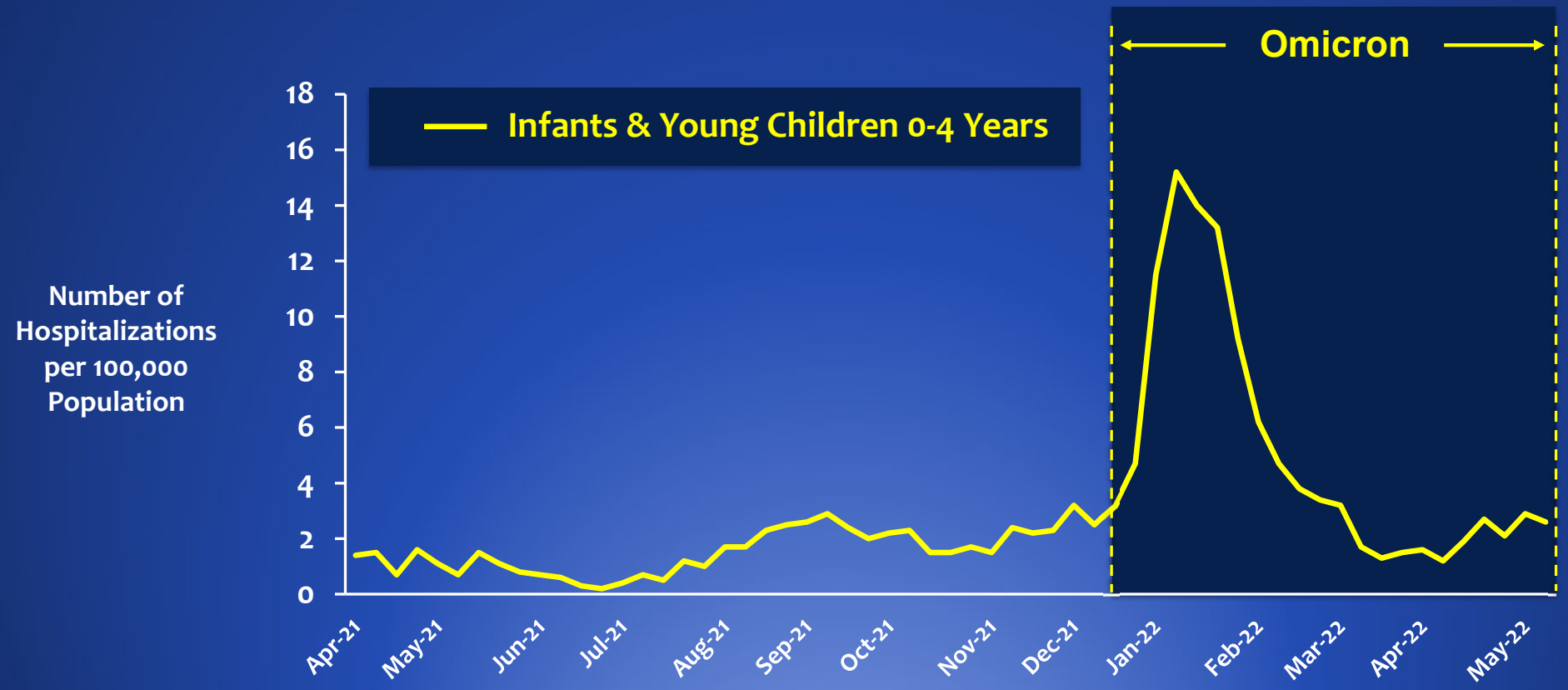
Substantial Increase in COVID-19 with New Variants of Concern



Data as of May 14, 2022
https://covid.cdc.gov/covid data tracker/#demographicsovertime

Infants and Young Children Do Get Hospitalized with COVID-19

Marked Surge of COVID-19 Hospitalizations with Omicron



Marks et al. MMWR 2022- COVID-NET
Data as of May 14, 2022 https://gis.cdc.gov/grasp/covidnet/covid19_3.html

Infants and Young Children Do Get Hospitalized with COVID-19

Substantial Disease Burden Associated with COVID-19 Hospitalization

	COVID-NET Oct 2020-Sept 2021 0 - 4 Years (N = 698)
Hospital Length of Stay; median days (IQR)	**2** (1-4)
Pneumonia	**7%**
ICU Admission	**24%**
Invasive Mechanical Ventilation	**6%**
ECMO	**0.3%**

- **63%** of children (0 - 4 years) hospitalized due to COVID-19 have NO underlying medical condition

Delahoy, et al., *Clin Infect Dis* 20212; 73:336 340. doi: 10.1093/cid/ciac388/6589788
FluSurv NET (October–April 2017–2021) and COVID NET (October 2020–September 2021)

Infants and Young Children Do Die from COVID-19

Deaths Involving COVID-19 in US Children 0-4 Years

- **442** total deaths 2020-2022 (as of June 2)
  - **74** Deaths in 2020
  - **221** Deaths in 2021
  - **147** Deaths in 2022 (as of June 2)

Data as of June 2, 2022
https://data.cdc.gov/NCHS/AH Provisional COVID 19 Death Counts by Week Race /siwp yg6m

Infants and Young Children Do Die from COVID-19

Deaths due to COVID-19 Higher than Other Vaccine Preventable Diseases

Disease	Deaths (Per Year)	Date Range	Age (Years)
COVID-19	74-221	2020-2022	0-4
Influenza	68-87	2018-2020	0-4
Varicella	50	1970-1994 (prevaccine)	< 15
Rubella	17	1966-1968 (prevaccine)	All
Hepatitis A	3	1990-1995 (prevaccine)	< 20
Rotavirus	20-60	1999-2007 (prevaccine)	< 5

Anderson EJ, et al. *Clin Infect Dis* 2021; 73:336 340. doi: 10.1093/cid/ciaa1425.
https://gis.cdc.gov/grasp/fluview/pedfludeath.html
https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm and https://www.cdc.gov/flu/spotlights/index.htm

Infants and Young Children NOT Just inconvenienced by COVID-19
Impacts Educational Outcomes and Child Behavior/Mental Health

- Masking and social distancing of young children is difficult
- **59%** of children 0-5 years of age not enrolled in kindergarten were in at least one weekly nonparental care arrangement[1]
  - Frequent, unexpected disruptions in care and schooling of children significantly contributed to daily burden for families during COVID [2]
  - Children's well-being correlated with number of crisis-related hardships that family endured [3]
- Potential impact upon neurodevelopment of pandemic-born babies[4]
- Increase in reported child abuse and child mistreatment[5]

1. https://nces.ed.gov/fastfacts/display.asp?id=4
2. https://econofact.org/impact of disruptions to schooling and childcare during the pandemic
3. A. Gassman Pines et al./PEDIATRICS Volume 146, number 4, October 2020
4. M. Moyer/NATURE Volume 601, January 2022 and https://www.medrxiv.org/content/10.1101/2021.08.10.21261846v1
5. E.M. Abrams et al. / Ann Allergy Asthma Immunol 128 (2022) 19–25

COVID-19 is Important in Infants and Young Children, and a Safe and Effective Vaccine is Needed

1) Infants and Young Children DO get infected with SARS-CoV-2

- Well documented, continuously renewing unvaccinated and uninfected reservoir

2) Infants and Young Children DO get hospitalized with COVID-19

- Surge with omicron occurred when most children (0-4 years old) had no access to COVID-19 vaccine
- ~1 in 4 hospitalized children require ICU interventions

3) Infants and Young Children DO die with COVID-19

- 442 total deaths 2020-2022 (Children 0-4 years)
- Mortality far exceeds that of many other pre-vaccine pathogens

4) Families/children are NOT just inconvenienced by COVID-19

- Impacts upon child development and well being

Study 204: Safety, Immunogenicity, and Efficacy of mRNA-1273 in Infants, Toddlers and Young Children, 6 Months - 5 Years of Age

Rituparna Das, MD, PhD

Vice President, Clinical Development, COVID-19 Vaccines

ModernaTX, Inc.

>5,000 Infants, Toddlers & Young Children Received ≥ 1 Dose of mRNA-1273

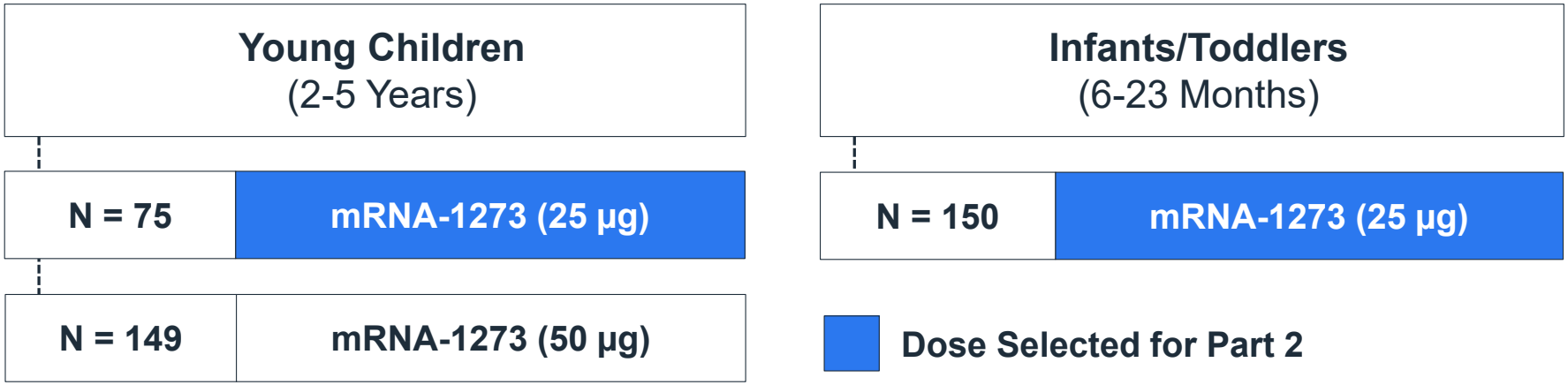
Study 204 (Safety Set)

Age Range	Dose Selected	Participants Receiving ≥ 1 Injection		
		mRNA-1273	Placebo	Total
2-5 years	25 µg	3,100	1,007	4,107
6-23 months	25 µg	1,911*	589*	2,500
	Total	5,011	1,596	6,607

* Enrollment Ongoing

Part 1 Open-Label, Dose-Escalation, Age De-Escalation Study

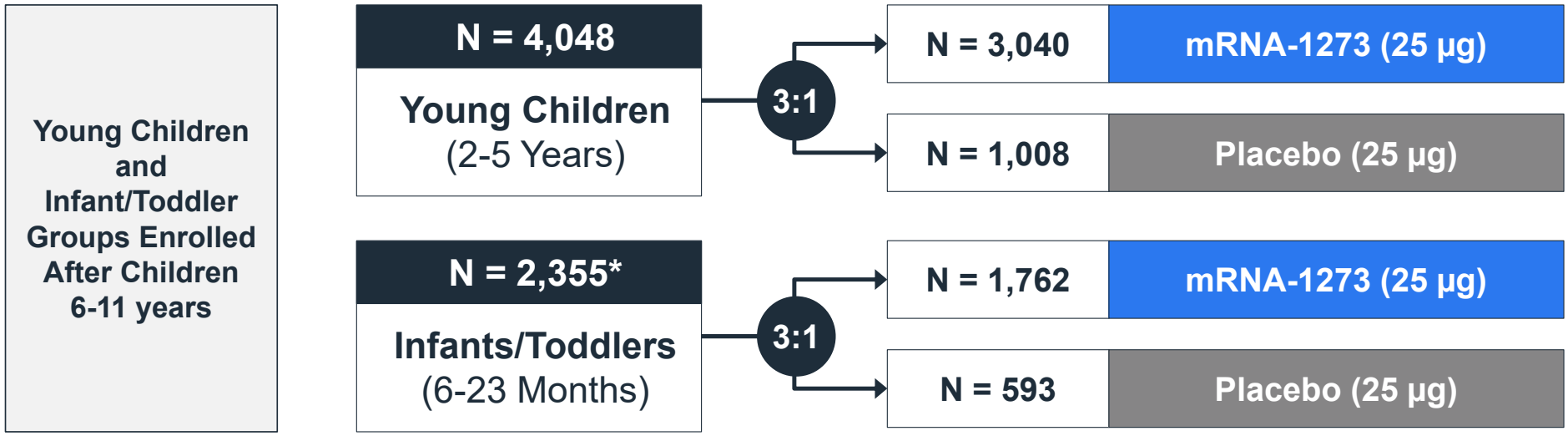
Study 204: Designed to Select Dose for Randomization Phase (Part 2)



- Lowest evaluated dose level selected for each age group
  - Showed acceptable tolerability profile
  - High likelihood of meeting immunogenicity criteria
- External DSMB reviewed all Part 1 data and agreed with selected doses

Part 2 Randomized, Placebo-Controlled Study

Study 204: Enrollment Progressed Sequentially through Age De-Escalation



*Enrollment ongoing in Infants and Toddlers (6-23 Months)

Median Safety Follow-Up in Each mRNA-1273 Age Group Meets EUA Recommendations of >2 Months

Study 204

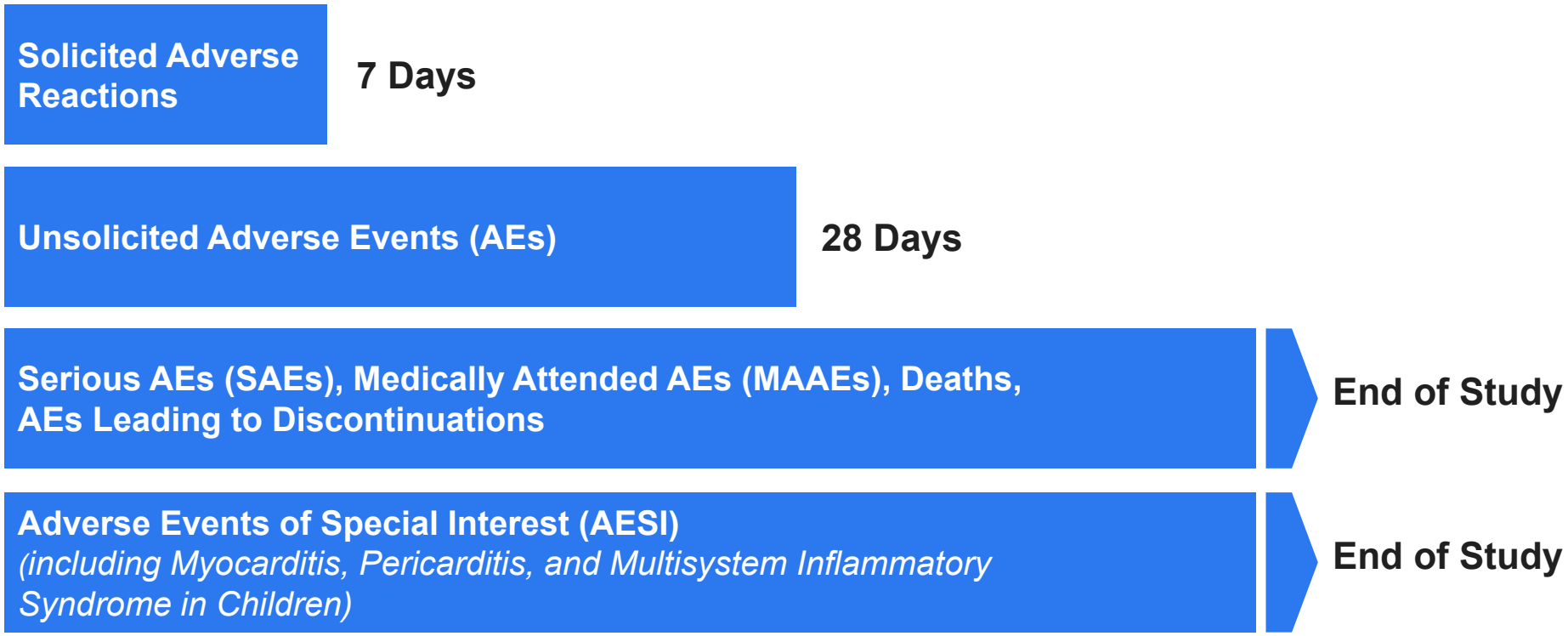
Age Range	Part	Dose	mRNA-1273 (N)	Median Follow-Up Post-Dose 2 (Months)
2-5 years	Dose-Ranging	25 µg	75	7.4
		50 µg	149	8.5
6-23 months	Dose-Ranging	25 µg	150	8.3
2-5 years	Blinded, Randomized	25 µg	3,031	2.5
6-23 months	Blinded, Randomized	25 µg	1,760	2.4

1 month = 28 days

Primary Safety Objective: Endpoints and Duration of Follow-up

Study 204

Active Surveillance



Primary Effectiveness Objective

Study 204

Immunogenicity

GMC of serum antibody and seroresponse rate (day 57) compared to 18-25-year-olds in pivotal efficacy Study 301

- GMC Ratio lower 95% CI ≥ 0.67 and point estimate ≥ 0.8
  - FDA requested point estimate ≥ 1.0 if doses < 100 µg selected
- Difference in seroresponse rate lower 95% CI > -10% and point estimate >-5%

Effectiveness inferred by immunobridging

Secondary Efficacy Endpoints, COVID-19 Case Definitions
Study 204

Two COVID-19 Definitions

CDC Case Definition
1 systemic symptom or 1 respiratory symptom + a positive RT-PCR

Efficacy (Study 301) Case Definition
2 systemic symptoms or 1 respiratory symptom + a positive RT-PCR

Demographics

Demographics

Study 204 (Part 2): Infants, Toddlers, and Young Children (6 Months - 5 Years), Safety Set

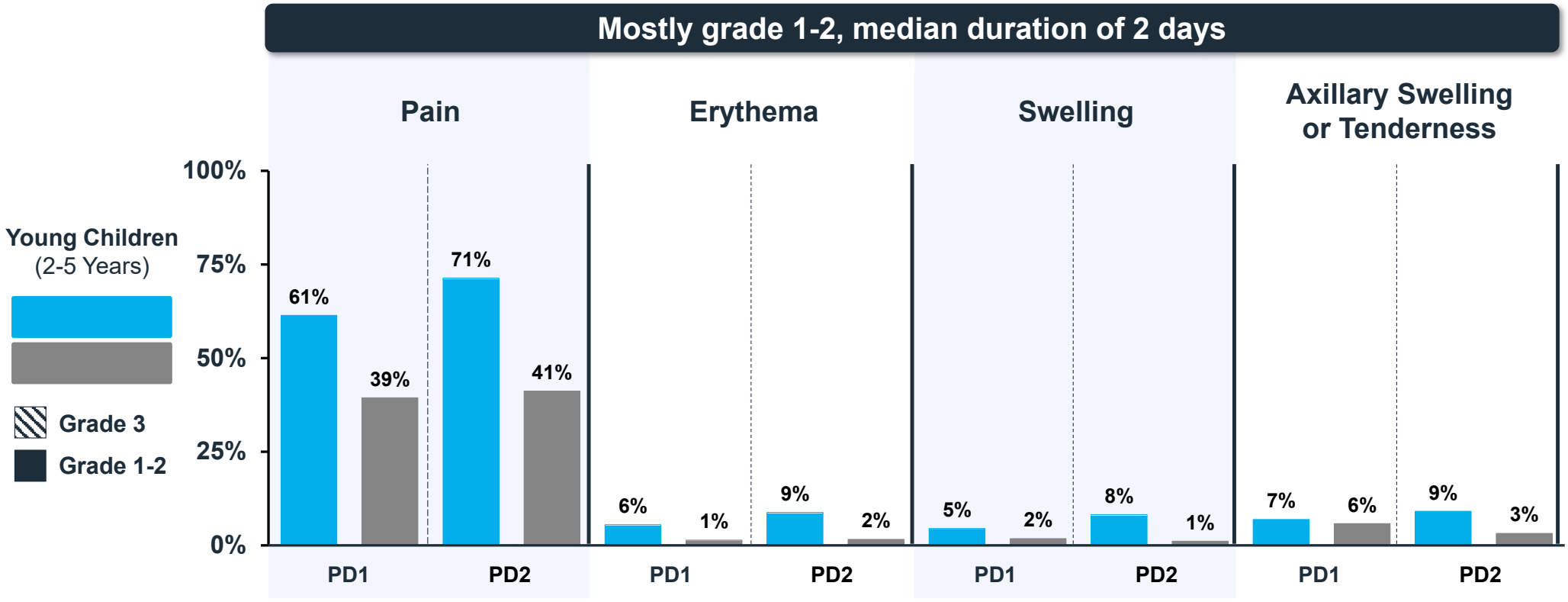
		Infants/Toddlers (6-23 Months)		Young Children (2-5 Years)	
		mRNA-1273 (25 µg) N = 1,761	Placebo N = 589	mRNA-1273 (25 µg) N = 3,031	Placebo N =1,007
Age	Mean	11.4 Months	11.3 Months	3.0 Years	3.0 Years
Gender	Female	48%	51%	49%	49%
Race	White	79%	79%	76%	79%
	Black or African American	3%	3%	5%	4%
	Asian	4%	6%	6%	5%
	American Indian or Alaska Native	0.2%	0	0.4%	0.3%
	Multiracial	11%	11%	11%	10%
Ethnicity	Hispanic or Latino	13%	14%	14%	14%
	Not Hispanic or Latino	86%	85%	85%	85%

Safety

Local Reactions

Solicited Local Reactions within 7 Days After Dose 1 & 2

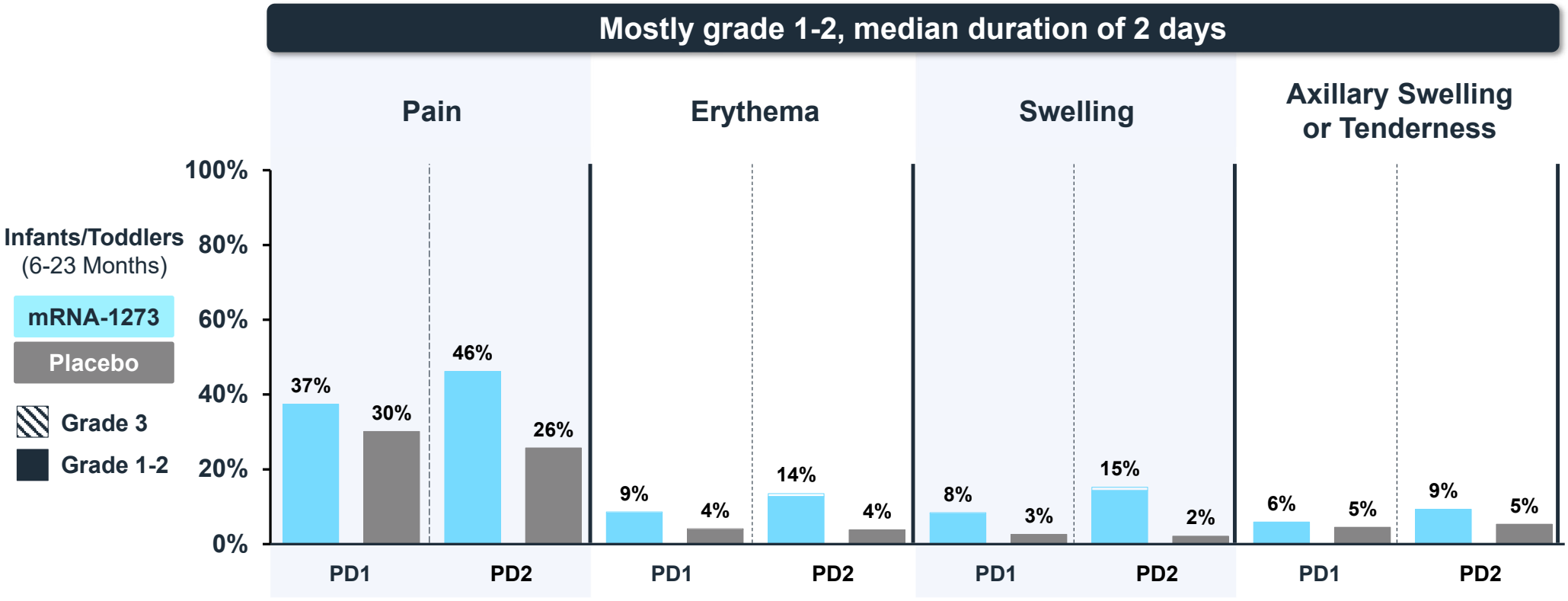
Study 204: Young Children (2-5 Years)



Solicited Safety Set; No Grade 4 events reported

Solicited Local Reactions within 7 Days After Dose 1 & 2

Study 204: Infants & Toddlers (6-23 Months)



Solicited Safety Set; No Grade 4 events reported

Safety

Systemic Reactions

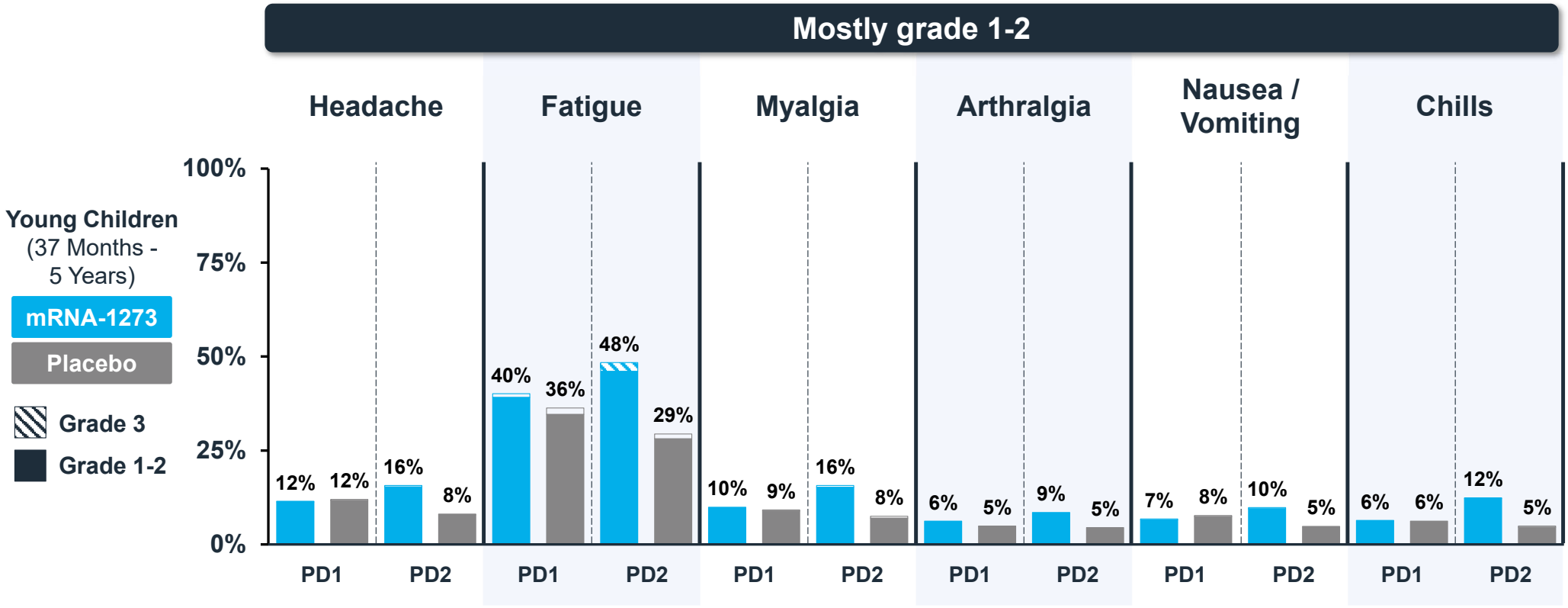
Solicited Systemic AEs Were Evaluated According to Age

Study 204

- **Young Children, 37 months - 5 years**
  - Events assessed included fever, headache, fatigue, myalgia, arthralgia, nausea/vomiting and chills
- **Infants/Toddlers, 6-36 months**
  - Events assessed included fever, irritability, crying, sleepiness, and loss of appetite

Solicited Systemic Reactions within 7 Days After Dose 1 & 2

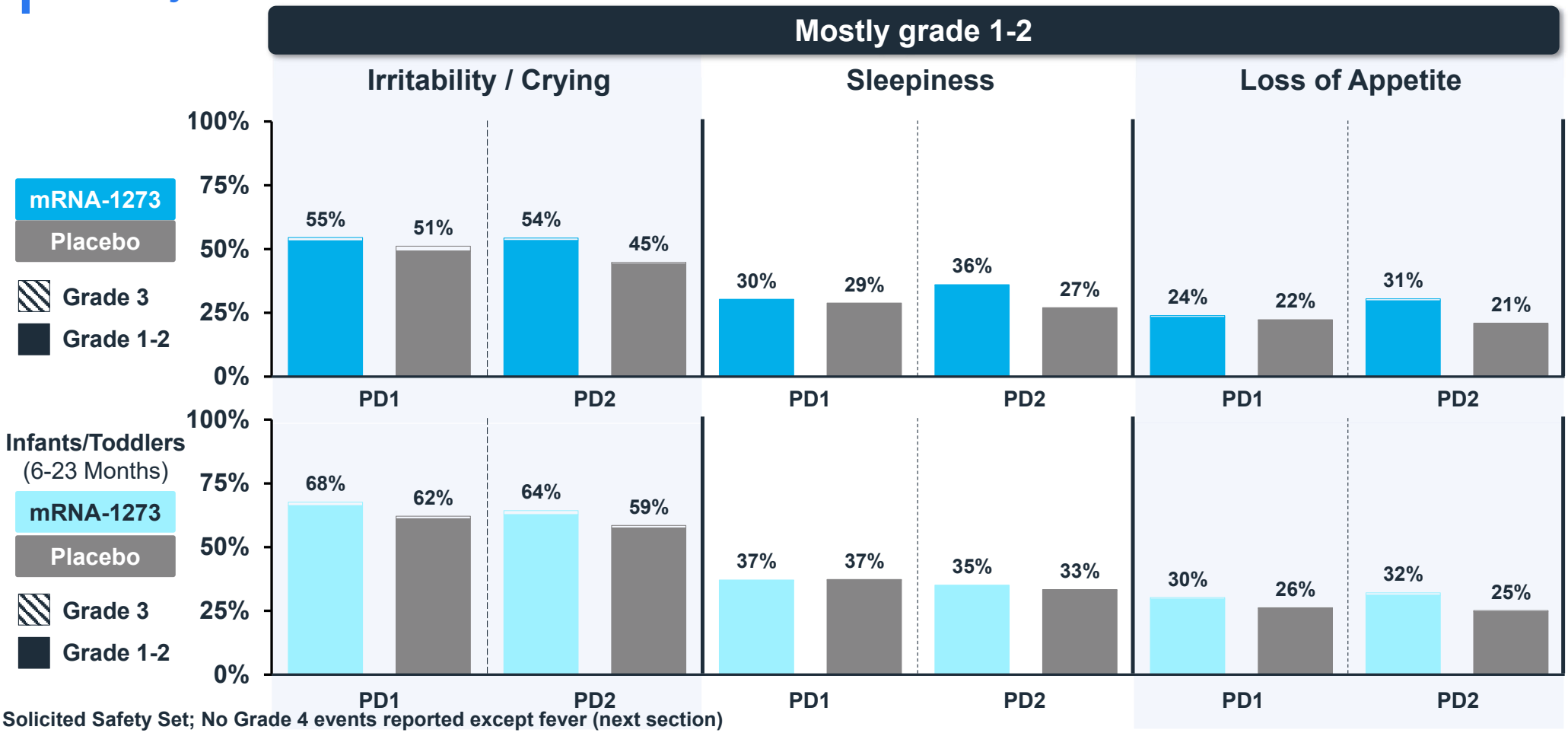
Study 204: Young Children (37 Months -5 Years), Pediatric Toxicity Scale



Solicited Safety Set; No Grade 4 events reported except fever (next section)

Solicited Systemic Reactions within 7 Days After Dose 1 & 2

Study 204: Infants/Toddlers (6-23 Months) & Toddlers (24-36 Months), Infant/Toddler Toxicity Scale



Solicited Safety Set; No Grade 4 events reported except fever (next section)

Safety

Fever

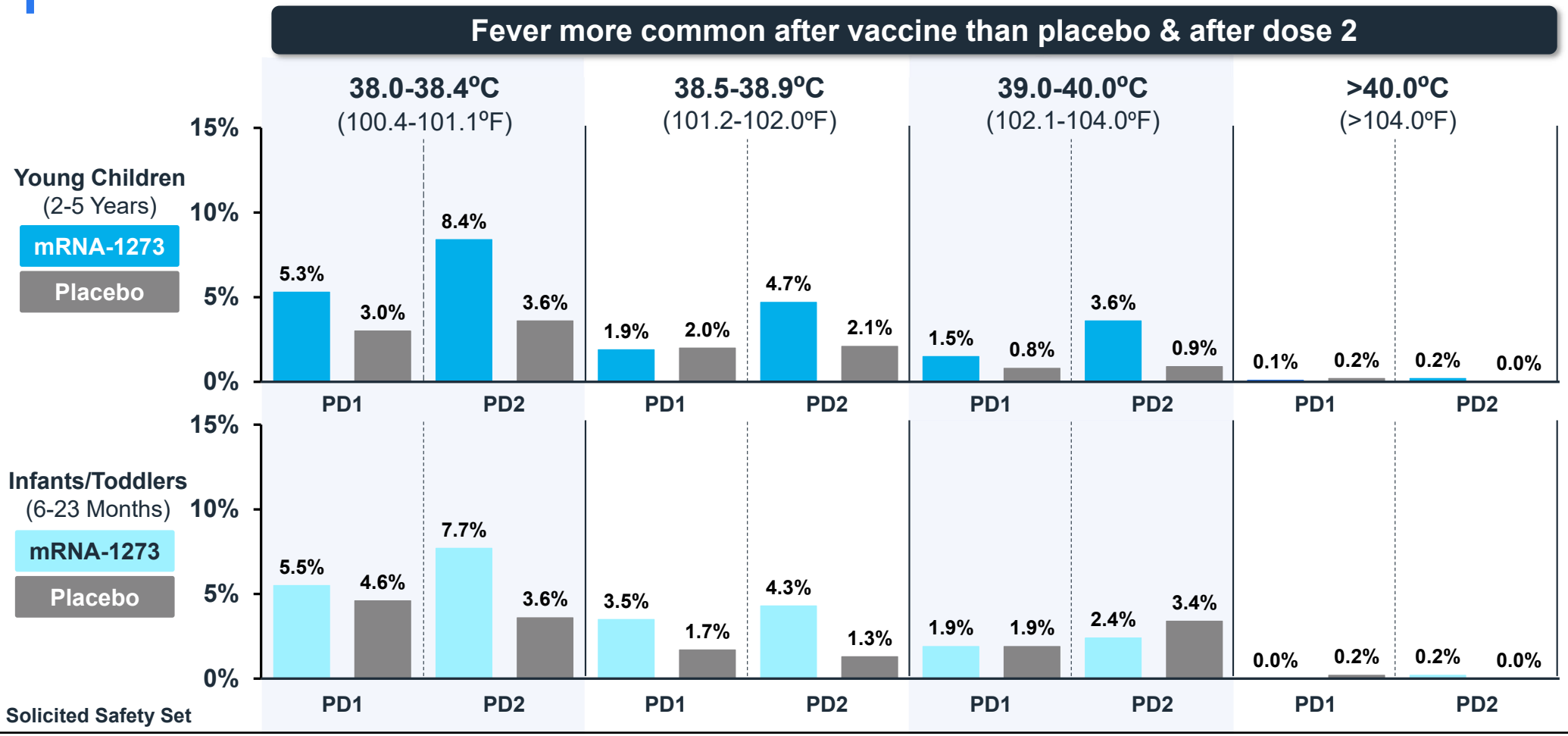
Fevers: Distribution of Temperatures Across Age Groups

Study 204: Children (6 Months - 5 Years)

Fever After Any Dose	mRNA-1273	
	Young Children (2-5 Years) 25 µg N = 3,016	**Infants/Toddlers** (6-23 Months) 25 µg N = 1,758
Any Fever ≥ 38.0ºC (≥100.4ºF)	**23%**	**22%**
≥ 38.0 - 38.9ºC (100.4 – 102.0ºF)	**18%**	**18%**
≥ 39.0 - 40.0ºC (102.1 - 104ºF)	**4%**	**4%**
> 40ºC (>104ºF)	**0.4%**	**0.2%**

Maximum Temperatures within 7 Days After Dose 1 & 2

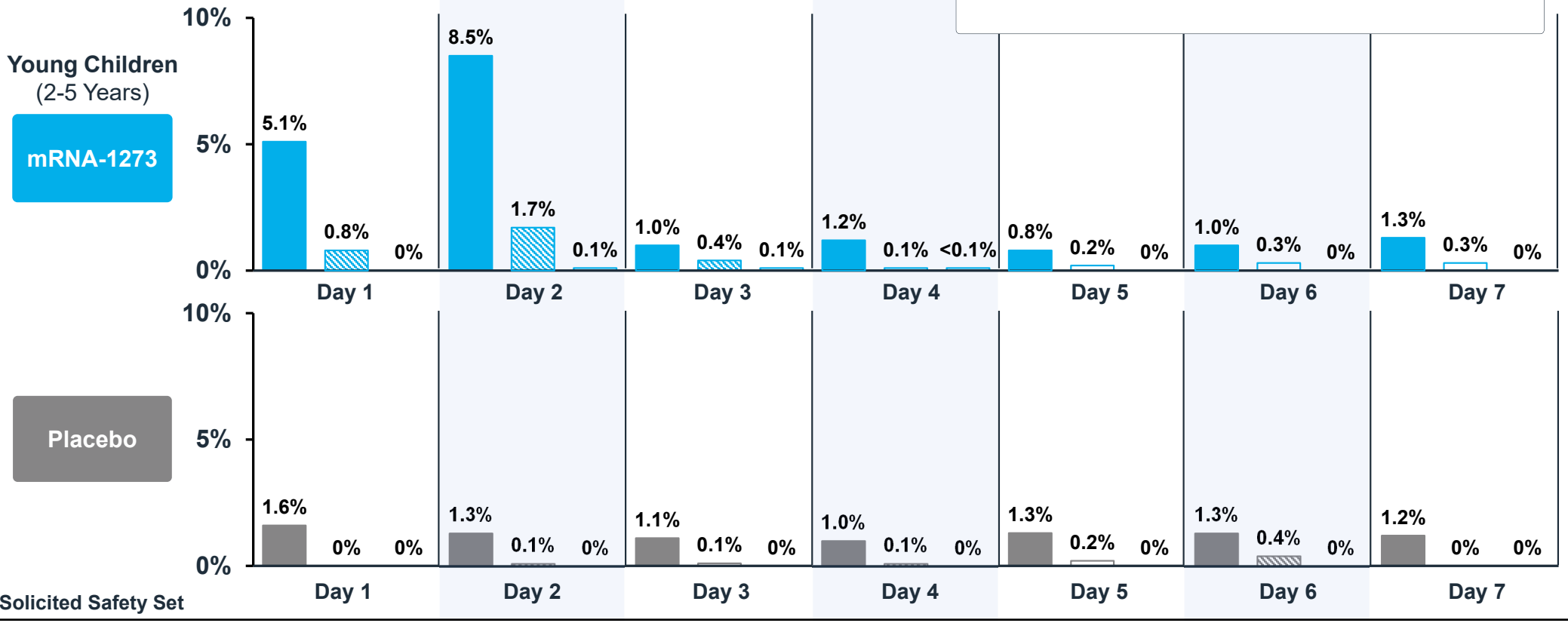
Study 204 (Part 2): Infants/Toddlers (6-23 Months) and Young Children (2-5 Years)



Fevers by Day and Temperature, Post-Dose 2

Study 204 (Part 2): Young Children (2-5 Years)

Most fevers occurred within 2 days of vaccination, median duration was 1 day

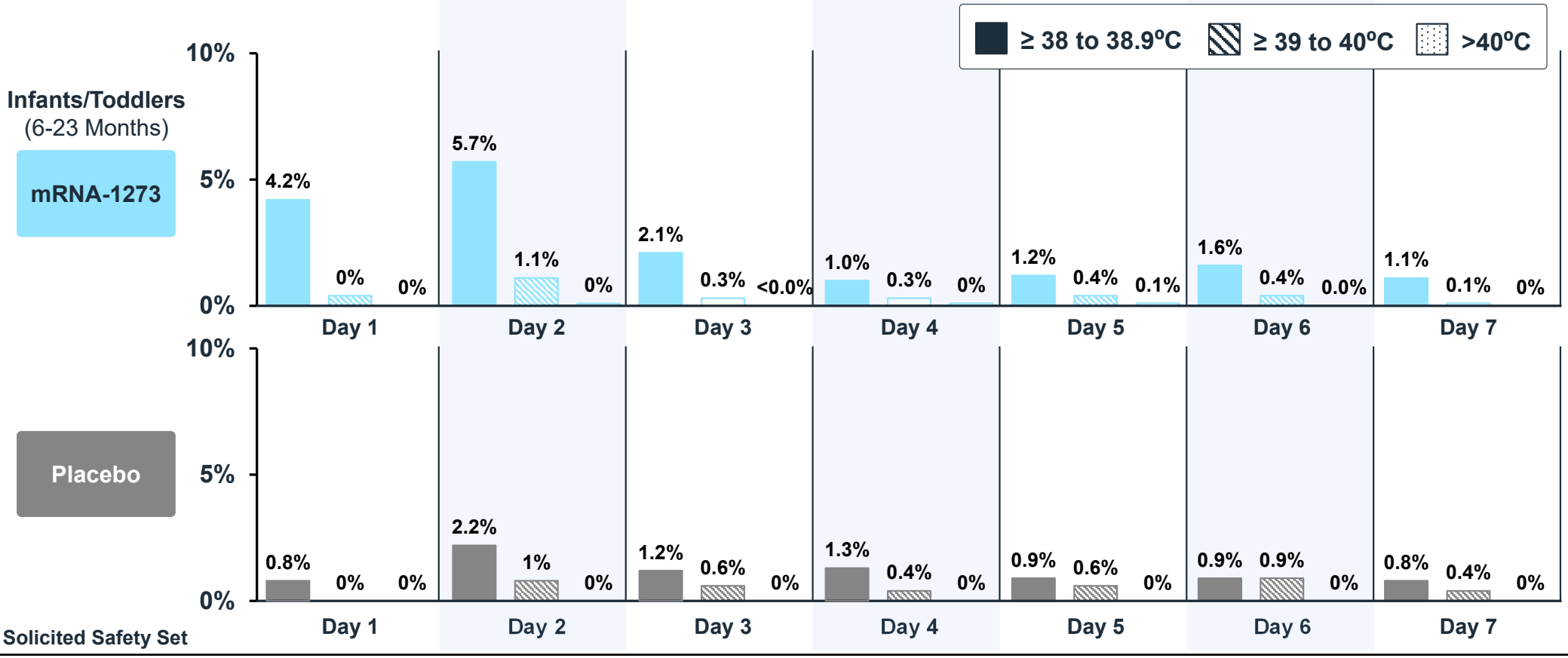


Solicited Safety Set

Fevers by Day and Temperature, Post-Dose 2

Study 204 (Part 2): Infants/Toddlers (6-23 Months)

Most fevers occurred within 2 days of vaccination, median duration was 1 day



Solicited Safety Set

Fevers (>40°C or >104°F) within 7 Days of Any Injection

Study 204: Infants/Toddlers (6-23 Months) and Young Children (2-5 Years)

	Young Children (2-5 Years) 25 µg		Infants/Toddlers (6-23 Months) 25 µg	
After Any Dose	**mRNA-1273** N = 3,016	**Placebo** N = 1,007	**mRNA-1273** N = 1,758	**Placebo** N = 585
Fever, % (n)	**0.4%** (11)	**0.2%** (2)	**0.2%** (4)	**0.2%** (1)

- Duration of peak temperature >40°C lasted <1 day
- 15 events in vaccine recipients
  - 6 had symptoms of concurrent viral infections

Time to Onset of Reported Febrile Seizures

Study 204: Infants/Toddlers (6-23 Months)

Age	Gender	Time to Onset	Related per Investigator	Concurrent AEs
17 months	Female	2 days PD1	Yes	Fever to 103.1°F, maculopapular rash on trunk 2 days post event*
16 months	Male	10 days PD2	No	Fever to 102.2°F; maculopapular rash on trunk, urticaria bilateral cheeks, URI, bilateral otitis media
19 months	Male	21 days PD2	No	Fever to 101ºF, diagnosed with Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis Syndrome (PFAPA) after data cut
17 months	Female	66 days PD2	No	Fever to 101.5ºF, considered likely viral by ER physician

*Post 21Feb 2022 data cut this child experienced another febrile seizure ~6 weeks later; received Dose 2 with antipyretics – no events reported

Safety

Unsolicited Adverse Events

Unsolicited Adverse Events

Study 204: Young Children (2-5 Years), Safety Set (Part 2), Up to 28 Days After Any Injection

3:1 Randomization (mRNA-1273:Placebo)	mRNA-1273 N = 3,031		Placebo N = 1,007	
	Any AE	Related to Vaccination	Any AE	Related to Vaccination
All	40%	9%	38%	8%
SAE	0.1%	0	<0.1%	0
Fatal	0	0	0	0
Medically Attended AEs	22%	1%	22%	0.3%
Leading to Discontinuation – Vaccine	0*	0*	0	0
Leading to Discontinuation - Study	0*	0*	0	0
Severe	0.7%	0.6%	0.9%	0.8%
AESI – Any	0.2%	<0.1%	<0.1%	<0.1%
AESI of MIS-C	0	0	0	0
AESI of Myocarditis/Pericarditis	0	0	0	0

*One event updated to reflect discontinuation after 1st dose post data cut
Serious Adverse Event (SAE), Multisystem Inflammatory Syndrome in Children (MIS-C), Adverse Event of Special Interest (AESI)

Unsolicited Adverse Events

Study 204: Infants & Toddlers (6-23 Months), Safety Set (Part 2), Up to 28 Days After Any Injection

3:1 Randomization (mRNA-1273:Placebo)	mRNA-1273 N = 1,761		Placebo N = 589	
	Any AE	Related to Vaccination	Any AE	Related to Vaccination
All	49%	17%	48%	12%
SAE	0.5%	<0.1%	0	0
Fatal	0	0	0	0
Medically Attended AEs	28%	1%	27%	0.5%
Leading to Discontinuation - Vaccine	<0.1%	<0.1%	0.2%	0
Leading to Discontinuation - Study	0	0	0.2%	0
Severe	1%	0.7%	0.7%	0.5%
AESI – Any	0.2%	0.1%	0	0
AESI of MIS-C	0	0	0	0
AESI of Myocarditis/Pericarditis	0	0	0	0

Serious Adverse Event (SAE), Multisystem Inflammatory Syndrome in Children (MIS-C), Adverse Event of Special Interest (AESI)

Immunogenicity

Primary Objective

Prespecified Co-Primary Immunogenicity Endpoints of GMC Ratio and Seroresponse Met

Study 204 (Part 2): Young Children (2-5 Years)

Day 57 Analysis, Part 2 PsVNA	Study 204 **Young Children** (2-5 Years) **mRNA-1273 (25 µg)** N = 264	Study 301 **Young Adults*** (18-25 Years) **mRNA-1273 (100 µg)** N = 295
GMC (Geometric Mean Concentration) 95% CI	**1410** (1274, 1561)	**1391** (1262, 1532)
GMC Ratio (Study 204 vs. 301) 95% CI	**1.01** (0.88, 1.17)	
Seroresponse, n/N (%) 95% CI	261/264 **(98.9%)** (96.7, 99.8)	289/291 **(99.3%)** (97.5, 99.9)
Difference (Study 204 vs. 301) 95% CI	**-0.4** (-2.7, 1.5)	

Success Criteria Met

GMC Ratio: Lower 95% CI ≥ 0.67 & Point Estimate ≥ 0.8

Difference in Seroresponse Rate: 95% CI > -10% & Point Estimate > -5%

Per Protocol Immunogenicity Subset; *Samples tested at PPD laboratories

Prespecified Co-Primary Immunogenicity Endpoints of GMC Ratio and Seroresponse Met

Study 204 (Part 2): Infants & Toddlers (6-23 Months)

Day 57 Analysis, Part 2 PsVNA	Study 204 **Infants/Toddlers** (6-23 Months) **mRNA-1273 (25 µg)** N = 230	Study 301 **Young Adults*** (18-25 Years) **mRNA-1273 (100 µg)** N = 295
GMC (Geometric Mean Concentration) 95% CI	**1781** (1606, 1974)	**1391** (1262, 1524)
GMC Ratio (Study 204 vs. 301) 95% CI	**1.28** (1.12, 1.47)	
Seroresponse, n/N (%) 95% CI	230/230 **(100%)** (98.4, 100)	289/291 **(99.3%)** (97.5, 99.9)
Difference (Study 204 vs. 301) 95% CI	**0.7** (-1.0, 2.5)	

Success Criteria Met

GMC Ratio: Lower 95% CI ≥ 0.67 & Point Estimate ≥ 0.8

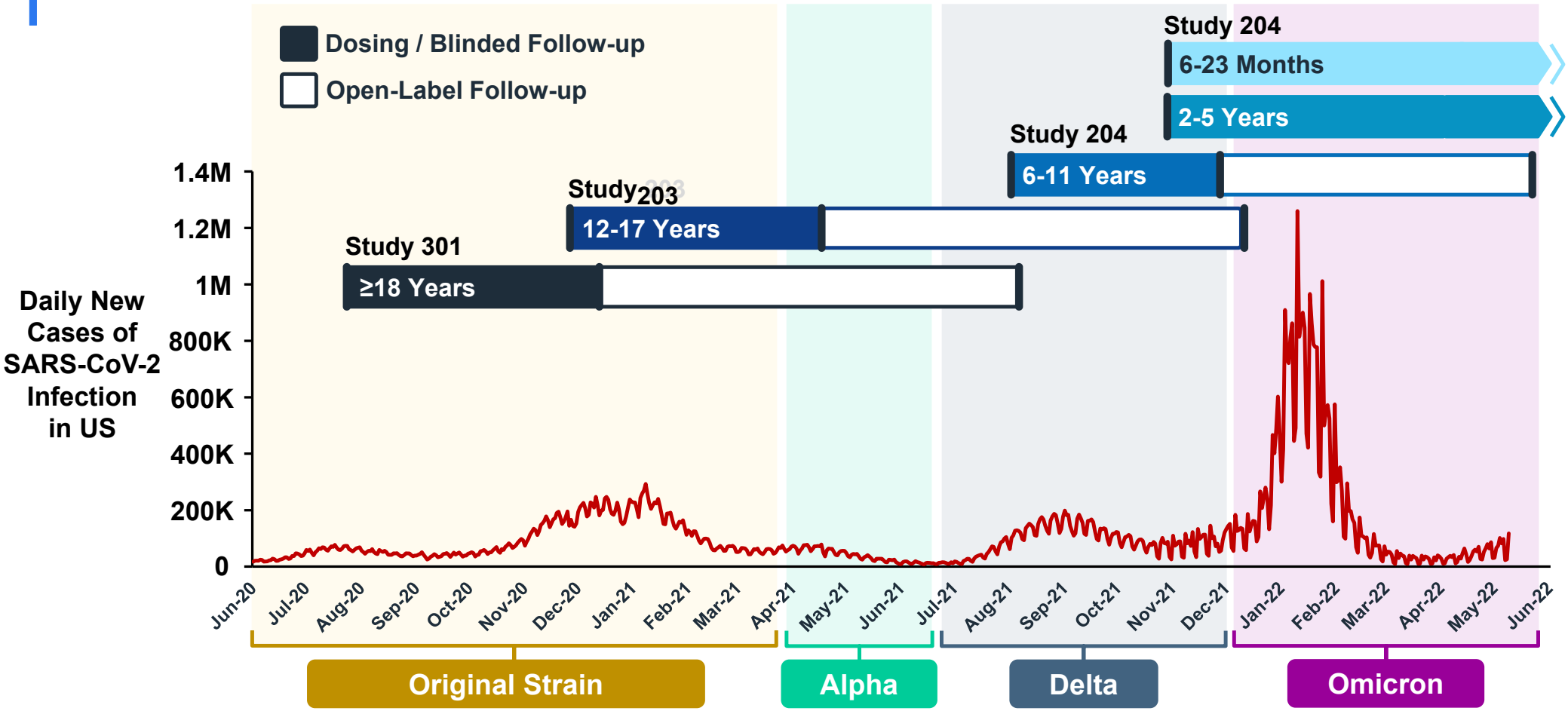
Difference in Seroresponse Rate: 95% CI > -10% & Point Estimate > -5%

Per Protocol Immunogenicity Subset; *Samples tested at PPD laboratories

Efficacy

Secondary Objective

Clinical Studies Conducted During Different Periods of COVID-19 Pandemic



https://covid.cdc.gov/covid-data-tracker/#trends_dailycases

Efficacy Against Symptomatic COVID-19 During Omicron Period

Study 204 (Part 2): Young Children (2 - 5 Years), Per Protocol, ≥14 Days Post-Dose 2

	mRNA-1273 25 µg	Placebo
CDC case definition of COVID-19		
Cases, n/N (%)	119 / 2,594 (4.6%)	61 / 858 (7.1%)
Incidence rate per 1000 person-years (95% CI)	175 (145, 209)	277 (212, 356)
VE (%) based on incidence rate (95% CI)	**36.8%** (12.5, 54.0)	
301 case definition of COVID-19		
Cases, n/N (%)	71 / 2,594 (2.7%)	43 / 858 (5.0%)
Incidence rate per 1000 person-years (95% CI)	104 (81, 131)	194 (140, 261)
VE (%) based on incidence rate (95% CI)	**46.4%** (19.8, 63.8)	

CDC case definition: 1 systemic or 1 respiratory symptom + positive RT-PCR
301 case definition: 2 systemic or 1 respiratory symptom + positive RT-PCR

71 days median follow-up post-dose 2 in Part 2 for both groups combined

Efficacy Against Symptomatic COVID-19 During Omicron Period

Study 204 (Part 2): Infants / Toddlers (6 - 23 Months), Per Protocol, ≥14 Days Post-Dose 2

	mRNA-1273 25 µg	Placebo
CDC case definition of COVID-19		
Cases, n/N (%)	51 / 1,511 (3.4%)	34 / 513 (6.6%)
Incidence rate per 1000 person-years (95% CI)	138 (103, 182)	280 (194,391)
VE (%) based on incidence rate (95% CI)	**50.6%** (21.4, 68.6)	
301 case definition of COVID-19		
Cases, n/N (%)	37 / 1,511 (2.4%)	18 / 513 (3.5%)
Incidence rate per 1000 person-years (95% CI)	100 (70, 138)	146 (87, 231)
VE (%) based on incidence rate (95% CI)	**31.5%** (-27.7, 62.0)	

CDC case definition: 1 systemic or 1 respiratory symptom + positive RT-PCR
301 case definition: 2 systemic or 1 respiratory symptom + positive RT-PCR

71 days median follow-up post-dose 2 in Part 2 for both groups combined

Sensitivity Analyses of Efficacy Against Symptomatic COVID-19

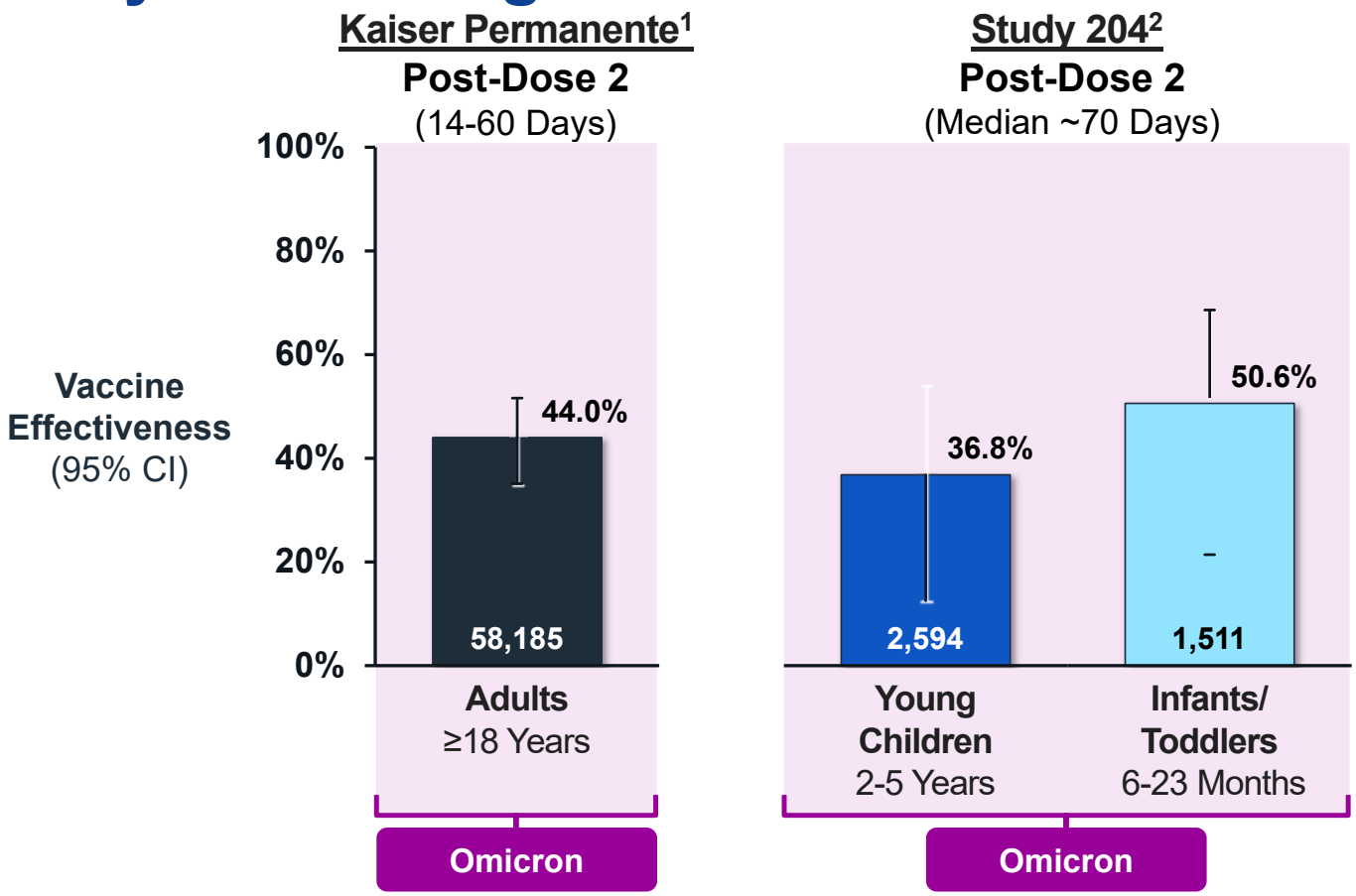
Study 204 (Part 2): Infants / Toddlers (6 - 23 Months), Per Protocol, ≥14 Days Post-Dose 2

COVID-19 Cases Starting 14 Days After Dose 2	mRNA-1273 25 µg	Placebo
CDC case definition of COVID-19		
Cases, n/N (%)	74/1,512 (4.9%)	52/513 (10.1%)
Incidence rate per 1000 person-years (95% CI)	202	434
VE (%) based on incidence rate (95% CI)	**53.5%** (32.4, 67.9)	
301 case definition of COVID-19		
Cases, n/N (%)	51/1,512 (3.4%)	30/513 (5.8%)
Incidence rate per 1000 person-years (95% CI)	138	246
VE (%) based on incidence rate (95% CI)	**43.7%** (8.5, 64.8)	

CDC case definition: 1 systemic or 1 respiratory symptom + **any positive COVID-19 test (including home tests)**
301 case definition: 2 systemic or 1 respiratory symptom + **any positive COVID-19 test (including home tests)**

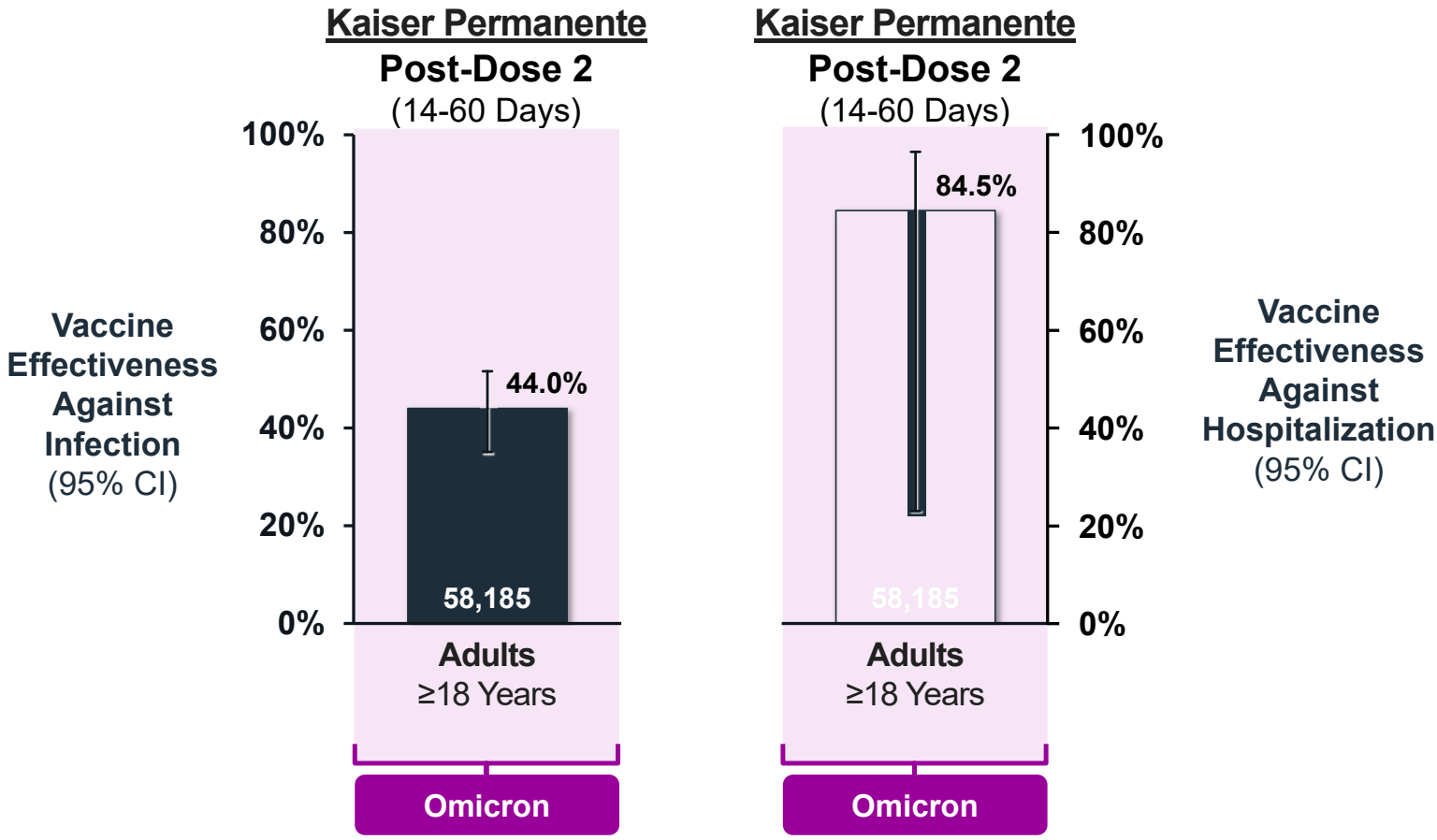
Vaccine Efficacy from Pediatric Program and Real-World Effectiveness During Omicron Period

Real-World Effectiveness (Kaiser Permanente) Compared to Study 204 During Omicron Period



1. Tseng HF et al, 2022; Vaccine Effectiveness against infection
2. Study 204 – Vaccine Efficacy based on CDC Definition

mRNA-1273 Remains Highly Effective Against Hospitalization During Omicron Period in Adults



Tseng HF et al, 2022

Study 204: Ongoing Follow-up and Evaluation of Infants, Toddlers and Young Children

- All participants followed for safety for 12 months after last dose
- All participants offered booster dose >4 months after 2nd dose
  - mRNA-1273 (prototype vaccine)
  - mRNA-1273.214 (Omicron-containing vaccine)

Summary of Moderna COVID-19 Vaccine

Study 204: Infants, Toddlers and Young Children (6 Months - 5 Years)

Safety
(Primary Objective)

- mRNA-1273 was generally well-tolerated in this age group
  - Local and systemic reactions lower than older children and adults
  - Fever in ~25% of participants, mostly grade 1-2, short duration
- 1 related SAE of fever/seizure within 28 days

Immunogenicity
(Primary Objective)

- Pre-specified immunogenicity objectives met
- Vaccine immunogenic, GMCs and seroresponse rates non-inferior to young adults
  - *Children (2-5 years):* GMC ratio 1.01 & difference in seroresponse rates -0.4
  - *Infants/Toddlers (6-23 months):* GMC ratio 1.28 & difference in seroresponse rates 0.7
- Vaccine effectiveness successfully inferred based on immunogenicity

Efficacy
(Secondary Objective)

- Demonstrated efficacy against COVID-19, 14 days after dose 2, during Omicron period
  - *Children (2-5 years):* 36.8% (CDC definition) & 46.4% (Study 301 definition)
  - *Infants/Toddlers (6-23 months):* 50.6% (CDC definition) & 31.5% (Study 301 definition)
- Consistent with adult effectiveness against Omicron
- Boosters are under evaluation

Summary

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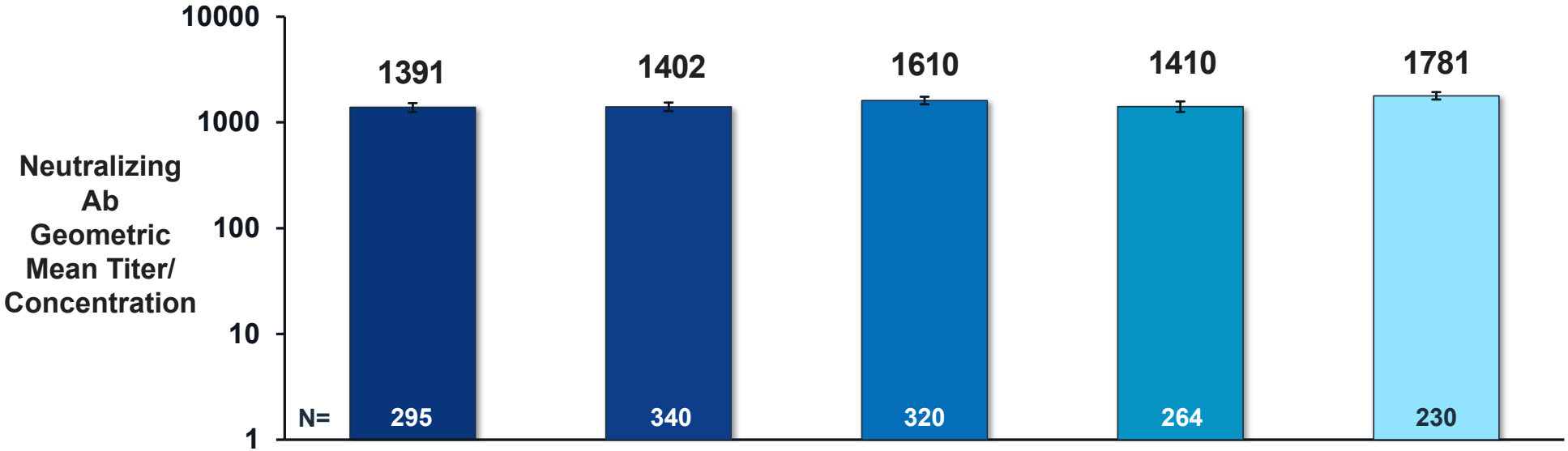
Significant Unmet Need Remains for Pediatric Vaccines Against SARS-CoV-2

Infants, Toddlers and Young Children (6 Months - 5 Years)

- COVID-19 hospitalizations increased in young children during Omicron period[1]
  - ~1 in 4 hospitalized children 0-4 years hospitalized require ICU admission[2]
- 442 deaths involving COVID-19 have been reported in US children 0-4 years[3]
  - Higher than other vaccine-preventable disease[4]

1. Marks et al. MMWR 2022- COVID-NET
2. Delahoy, et al., Clin Infect Dis 20212; 73:336-340. doi: 10.1093/cid/ciac388/6589788
3. Data as of June 2, 2022 - https://data.cdc.gov/NCHS/AH-Provisional-COVID-19-Death-Counts-by-Week-Race-/siwp-yg6m
4. Anderson EJ, et al. Clin Infect Dis 2021; 73:336-340. doi: 10.1093/cid/ciaa1425

Immunogenicity of mRNA-1273 1 Month After a 2-Dose Primary Series, Consistent Across All Age Groups



	Study 301 Young Adults (18-25 Years)	Study 203 Adolescents (12-17 Years)	Study 204 Children (6-11 Years)	Study 204 Young Children (2-5 Years)	Study 204 Infants/Toddlers (6-23 Months)
Dose	100 µg	100 µg	50 µg	25 µg	25 µg
Geometric Mean Ratio (vs Young Adults)		1.1	1.2	1.01	1.28

Moderna's Ongoing Commitment to Long-Term Evaluation of Safety and Effectiveness of mRNA-1273

Pre-Authorization Clinical Trials

- Administration of booster doses ≥4 months post 2nd dose
- Long-term safety follow-up through 12 months post last dose

Post-Authorization Observational Studies

- 4 ongoing studies to evaluate myocarditis postvaccination in various populations
- 2 PASS assessing vaccine safety in different populations (US & EU) & age groups
- Kaiser Permanente vaccine effectiveness study in different age groups

PASS – Postauthorization Safety Study

Moderna COVID-19 Vaccine Meets FDA Recommendations for EUA in Individuals 6 Months - 5 Years of Age

1. Clinical trials enrolled >6,600 individuals 6 months - 5 years
   - >5,000 participants received ≥ 1 injection of mRNA-1273
   - Median duration of follow-up >2 months in each study cohort
2. Dose selected for each age group met co-primary immunogenicity objectives compared to young adults 18-25 years of age
3. Vaccine efficacy as assessed in 265 cases over 71 days of median follow-up consistent with efficacy/effectiveness in individuals ≥ 18 years of age
4. Established plans for active safety & effectiveness follow-up post authorization
5. Benefit / risk profile positive in both age groups

EUA Request for Moderna COVID-19 Vaccine in Infants, Toddlers and Young Children

Young Children
2-5 Years

Primary Series
25 µg, 2-Dose

Infants/Toddlers
6-23 Months

Primary Series
25 µg, 2-Dose

Proposed Indication: Prevention of COVID-19 caused by SARS-CoV-2

Primary Series: 2-dose, intramuscular administration 1 month apart

THANK YOU to Our Study Collaborators, Investigators, and Participants

- All investigators
- Study site personnel
- BARDA
- NIH & COV-PN
- Most importantly, the infants, toddlers, and children who participated in these trials & their families