



INNOVATIVE REGISTRY-BASED OUTREACH COMPONENT (IROC)

Funded by the Society of Adolescent Health & Medicine (SAHM)

Conducted by the San Diego Immunization Partnership- a UCSD contract with

Epidemiology and Immunization Services

Health and Human Services Agency

County of San Diego



SPECIFIC AIMS



- Assess and compare effectiveness of adolescent immunization reminders via: postcards, text messages, emails
- Demonstrate a replicable reminder strategy that increases adolescent vaccination rates
- Evaluate cost and staff impact of reminders
- Evaluate parental preference for immunization reminders via postcards, text messages, emails



- San Diego County is culturally diverse with 3.2 million people
- Adolescents aged 11-17 years: 318,374
 - 46% Hispanic, 33% White, 10% Asian, 4% Black, 7% Others
- The San Diego Immunization Partnership (SDIP) is a service contract between the University of California, San Diego and the County of San Diego
- Project was funded by the Society of Adolescent Health & Medicine (SAHM) 07/01/2012-09/30/2013

BACKGROUND-2012 IISAR REPORT



- The San Diego Immunization Registry (SDIR) is an internet-based immunization information system (IIS)-396 sites
 - Providers enter or update records manually or via interface
 - Participation is voluntary
 - Participation primarily non-profit Community Health Centers and Public Health Centers; smaller private clinic participation
- Adolescent Participation in SDIR*(11 through 17 years)
 - 46.4% (147,880/318,374)
- Adolescent Immunization Coverage (13 through 17 years)
 - Tdap-57.9%
 - MCV1-43.2%
 - HPV3 (female)-18.0%
 - HPV3 (male)-4.4%

*with 2 or more IZ in SDIR

METHODS-ELIGIBILITY



- 11 through 17 years of age
- Valid telephone number and local address
- Received/documented at least one vaccine other than H1N1 <3 years
- Not up-to-date: 1 Tdap, 1 MCV4 (<16 years) or 2 MCV4 (\geq 16 years), 3 HPV, 2 Varicella (or no history of chickenpox)
- No medical contraindication, nor personal exemption

METHODS-RECRUITMENT



- Selected randomly from eligible SDIR records
- Conducted the recruitment from September 2012-February 2013
- Managed and recorded data in WinCati 5.0 (Computer-Assisted Telephone Interviews)



Phone recruitments were performed by trained bilingual staff

- 3 staff with 4 hours/day and 6 days/week
- Obtained consent
- Verified vaccination dates
- Offered iROC services
- Selected reminder method based on the parental preference



- **Postcard recruitment** was capped at 300
- **Emails and text reminders** sent using the automated messaging service Voicent™
- **Participants** were tracked and removed from list for future reminders if they became up to date or unsubscribed or unreachable/undeliverable

METHODS: INTERVENTION GROUPS



Reminders did not specify which vaccines were missing

- **Postcard**

- Included contact information
- Parents could unsubscribe or report up to date status by calling study manager

- **Email**

- Parents could unsubscribe or report up to date status by replying to the email message

- **Text message**

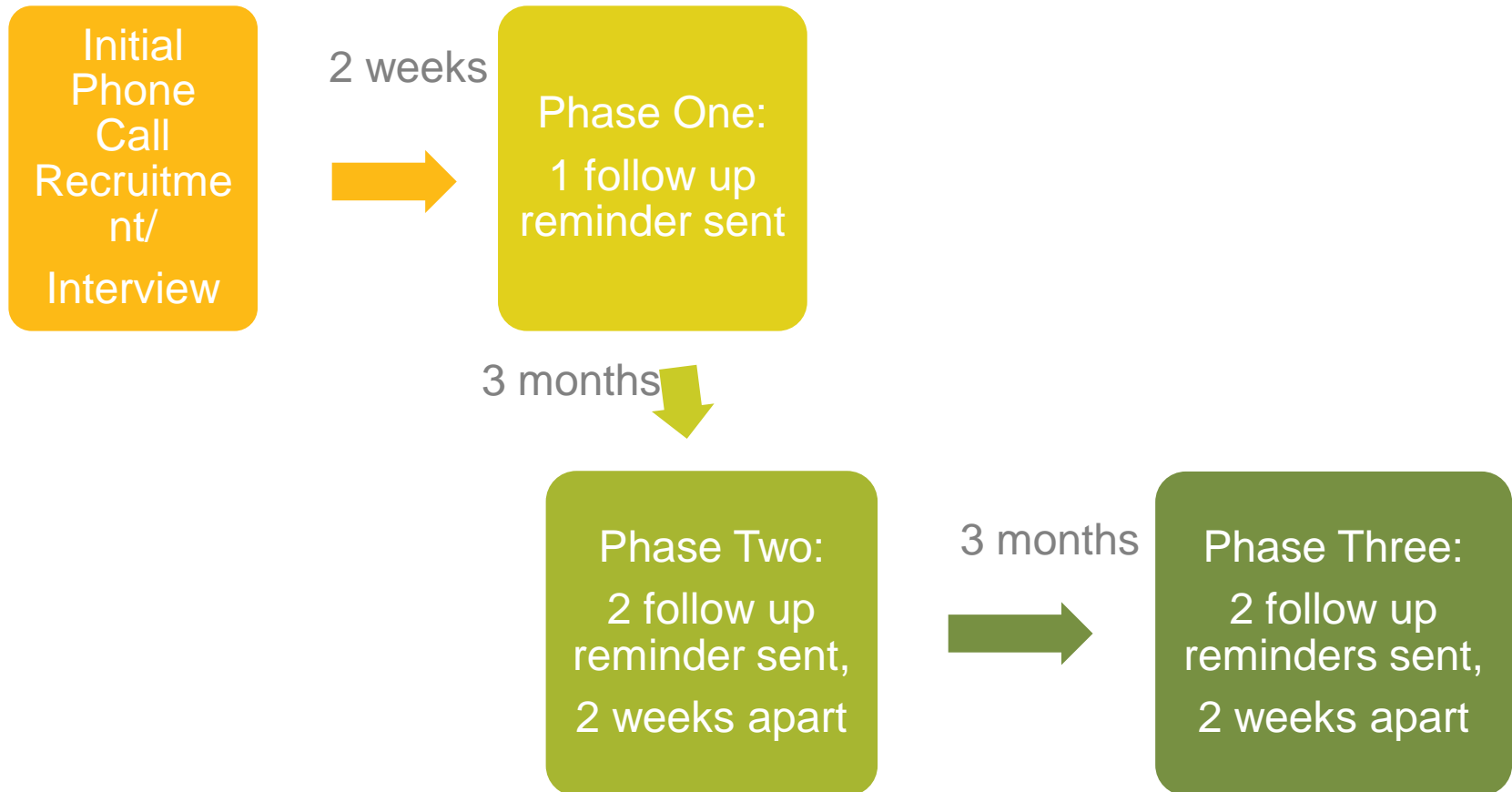
- Parents could unsubscribe or report up to date status by replying to the text message

METHODS: COMPARISON GROUPS



- **Enrollment-phone-call-only group (primary comparison)**
parents declined to participate or unsubscribed before receiving the first follow-up reminder
- **The non-intervention group (secondary comparison)**
parents were unreachable or were not selected

VACCINATION REMINDERS TIMELINE (POSTCARD, EMAIL AND TEXT GROUPS)

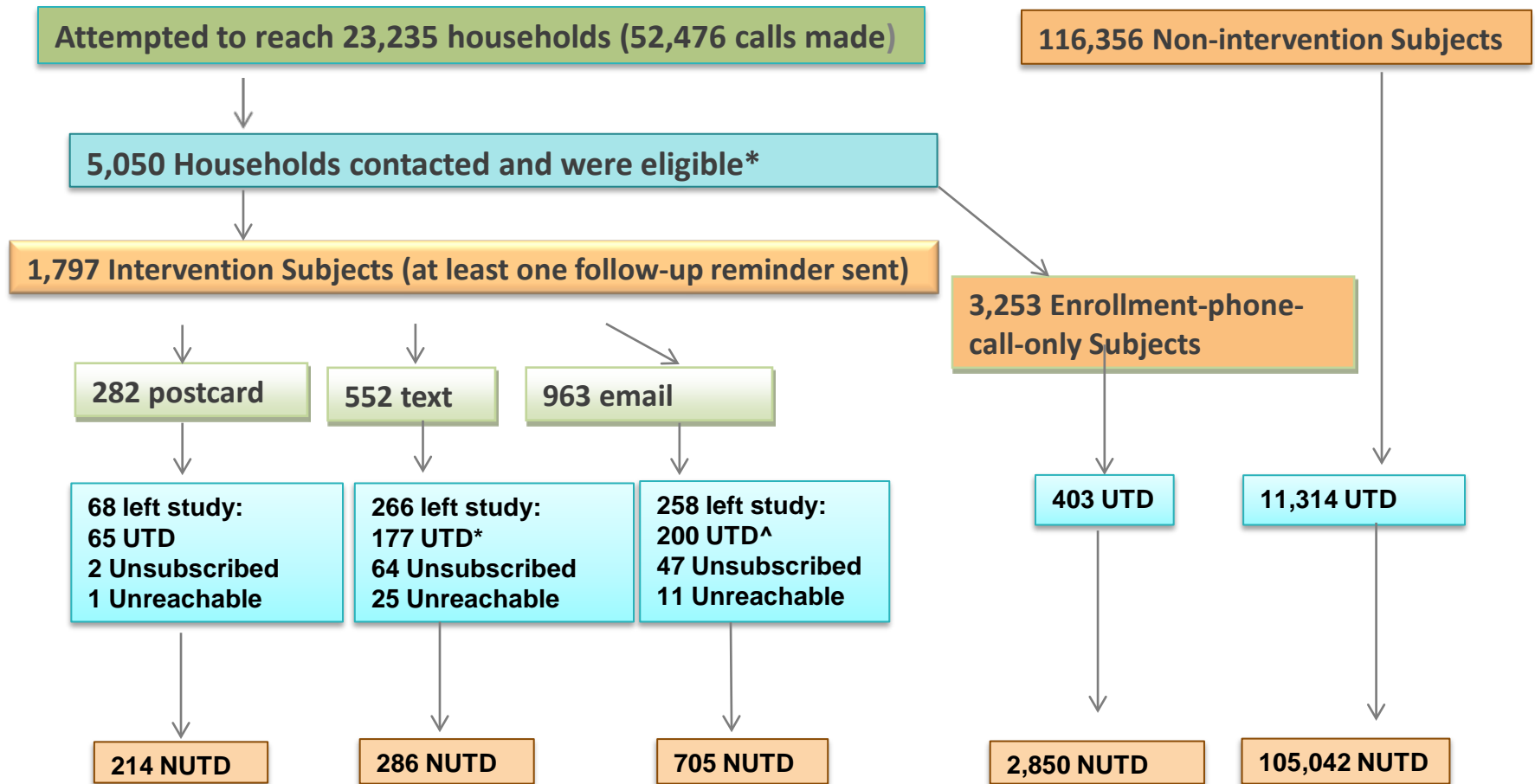


STUDY DEMOGRAPHICS- GENDER AND AGE AT BEGINNING OF STUDY



	Intervention Group	Enrollment-Phone-Call-Only Group	Non-Intervention Group
Gender	Percentage	Percentage	Percentage
Female	49.5	47.7	47.0
Male	50.5	51.4	43.0
Unknown	0.0	0.8	10.1
Total	100.0	100.0	100.0
Age			
11	12.3	11.3	10.6
12	13.0	14.3	12.6
13	15.0	15.9	16.0
14	14.6	14.0	15.3
15	13.8	14.5	15.9
16	18.0	16.1	14.9
17	13.3	13.8	14.7
Total	100.0	100.0	100.0
	(N=1,797)	(N=3,253)	(N=116,356)

PROJECT FLOWCHART



36,409 (20%) records were ineligible, therefore, records were not downloaded.

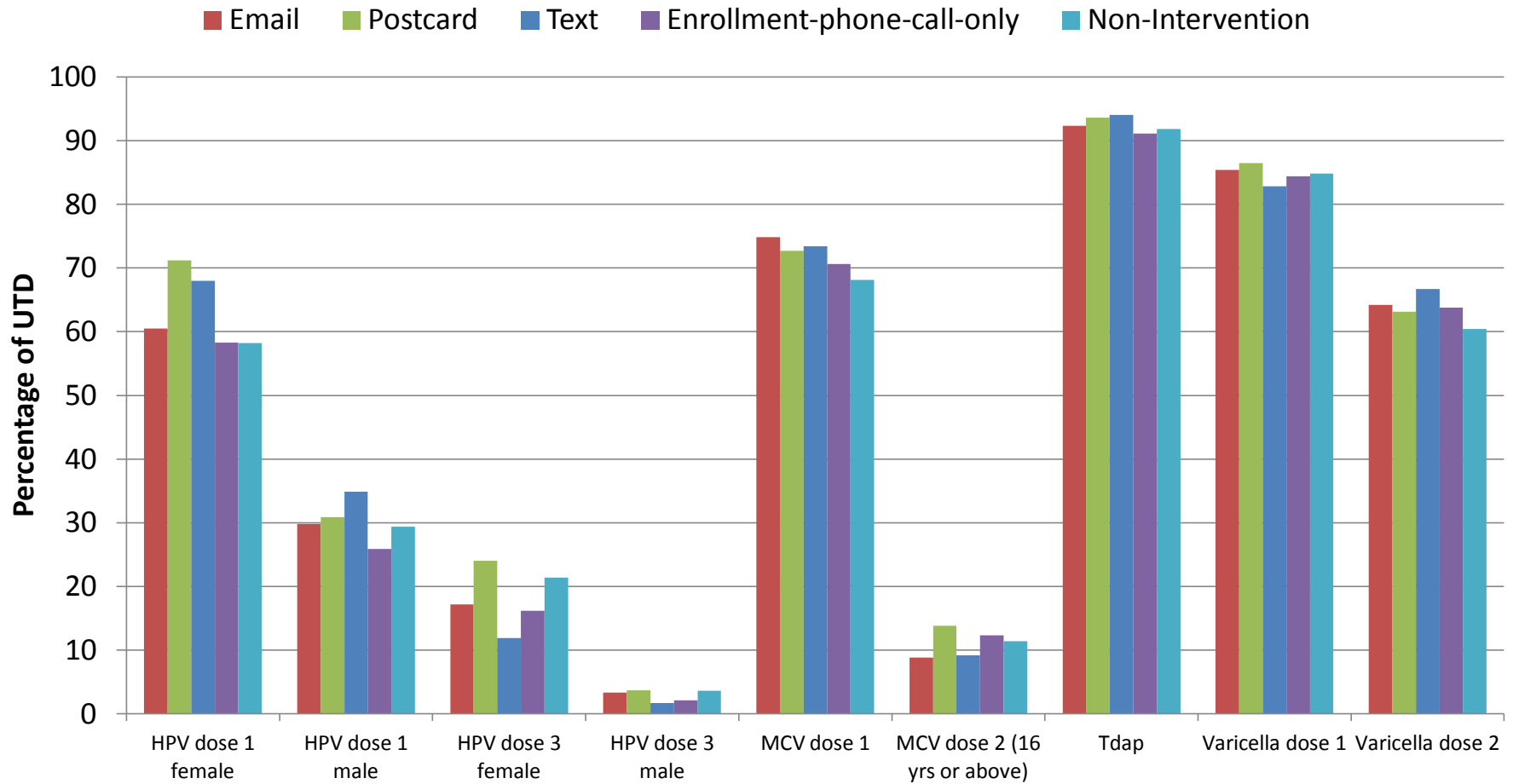
The initial refusal rate for conducting the interview was 8.3% (1,934) and the eligible households but declined the recruitment was 6.7% (1,576)..

323 (1.4%) households were up-to-date based on the household reported immunization data or parental recall, and therefore were removed from the study..

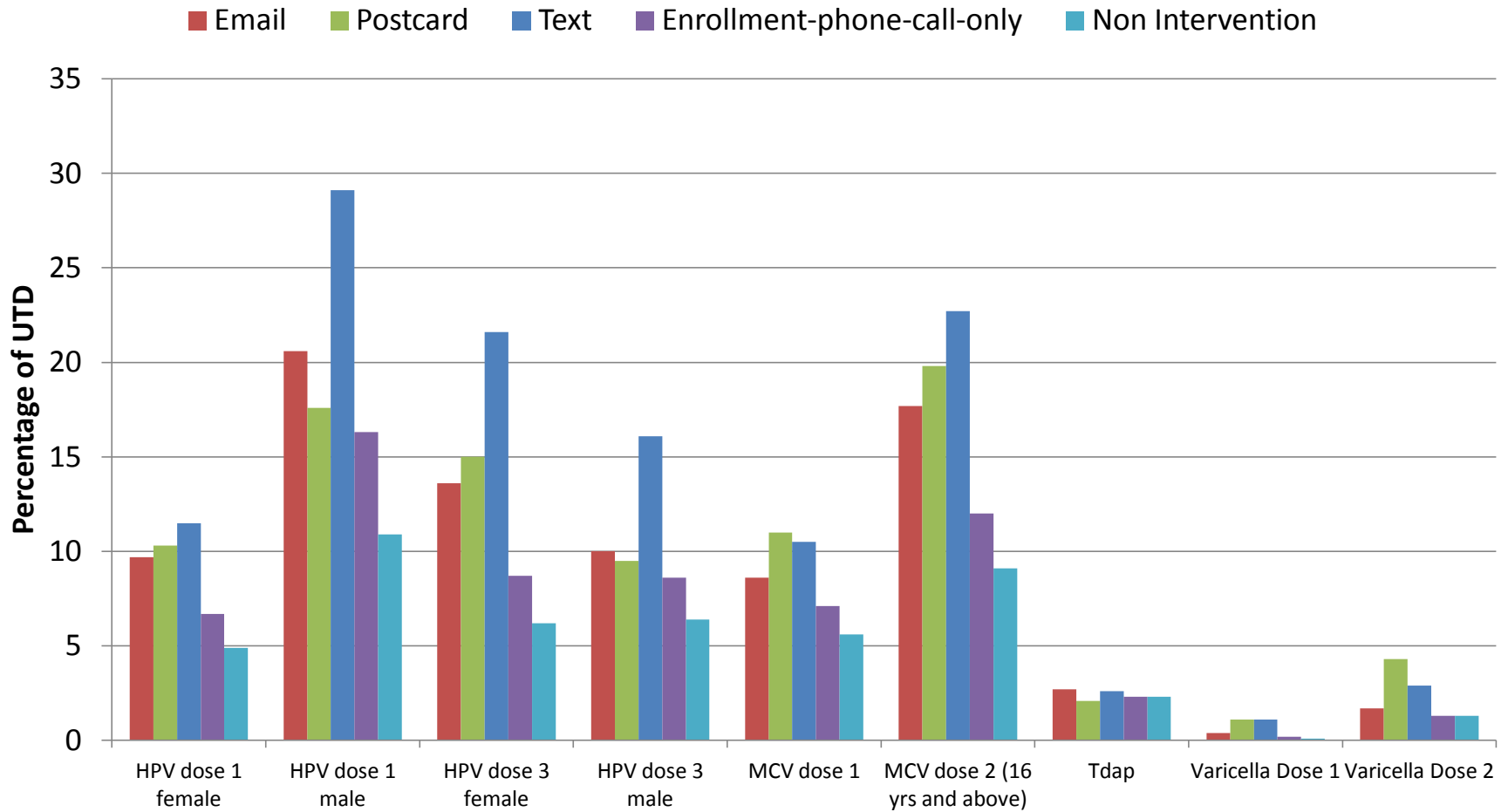
*6 unsubscribed people became UTD.

^6 unsubscribed people became UTD. 1 invalid contacts became UTD

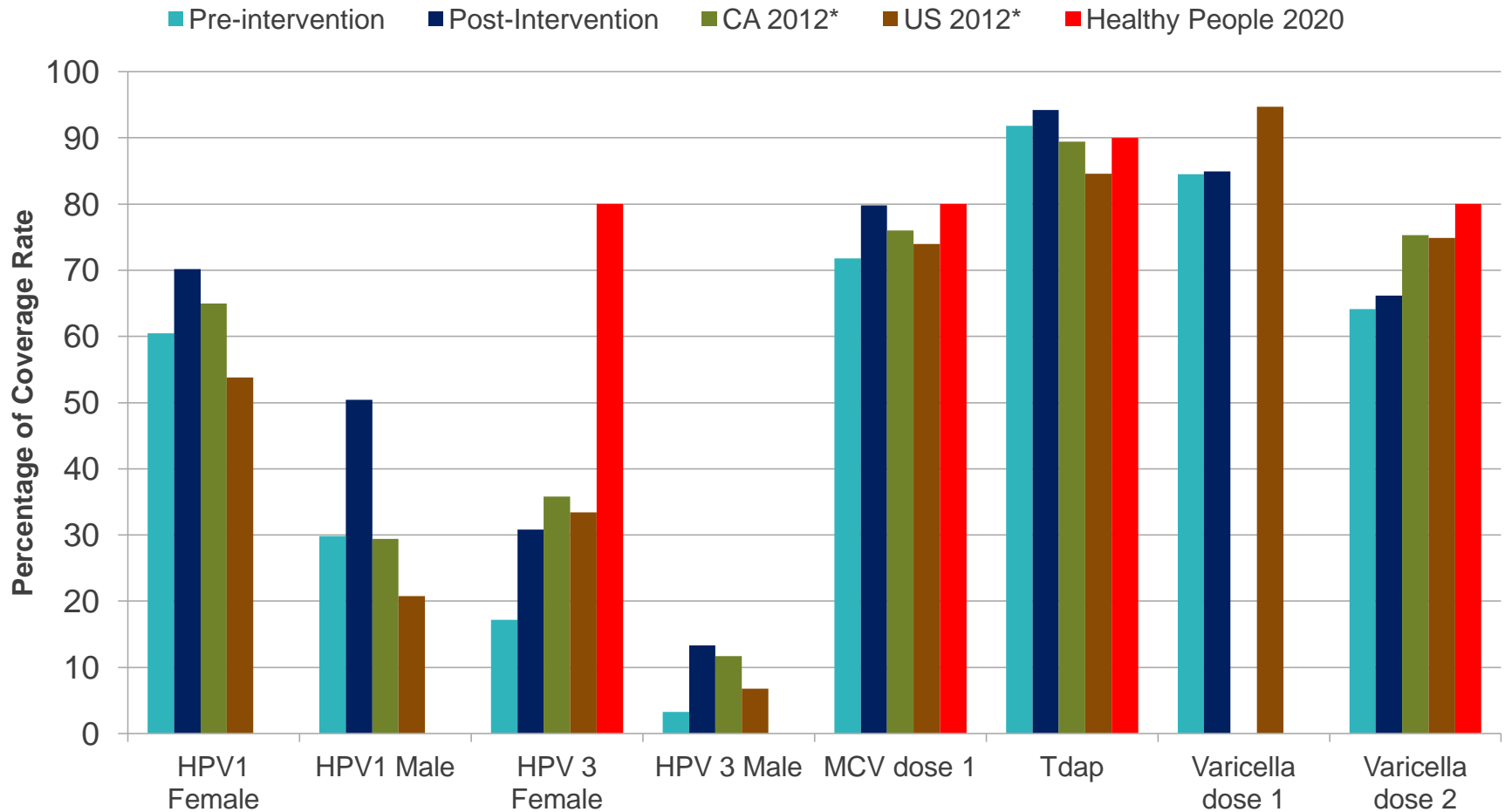
BASELINE UTD STATUS BY ANTIGEN



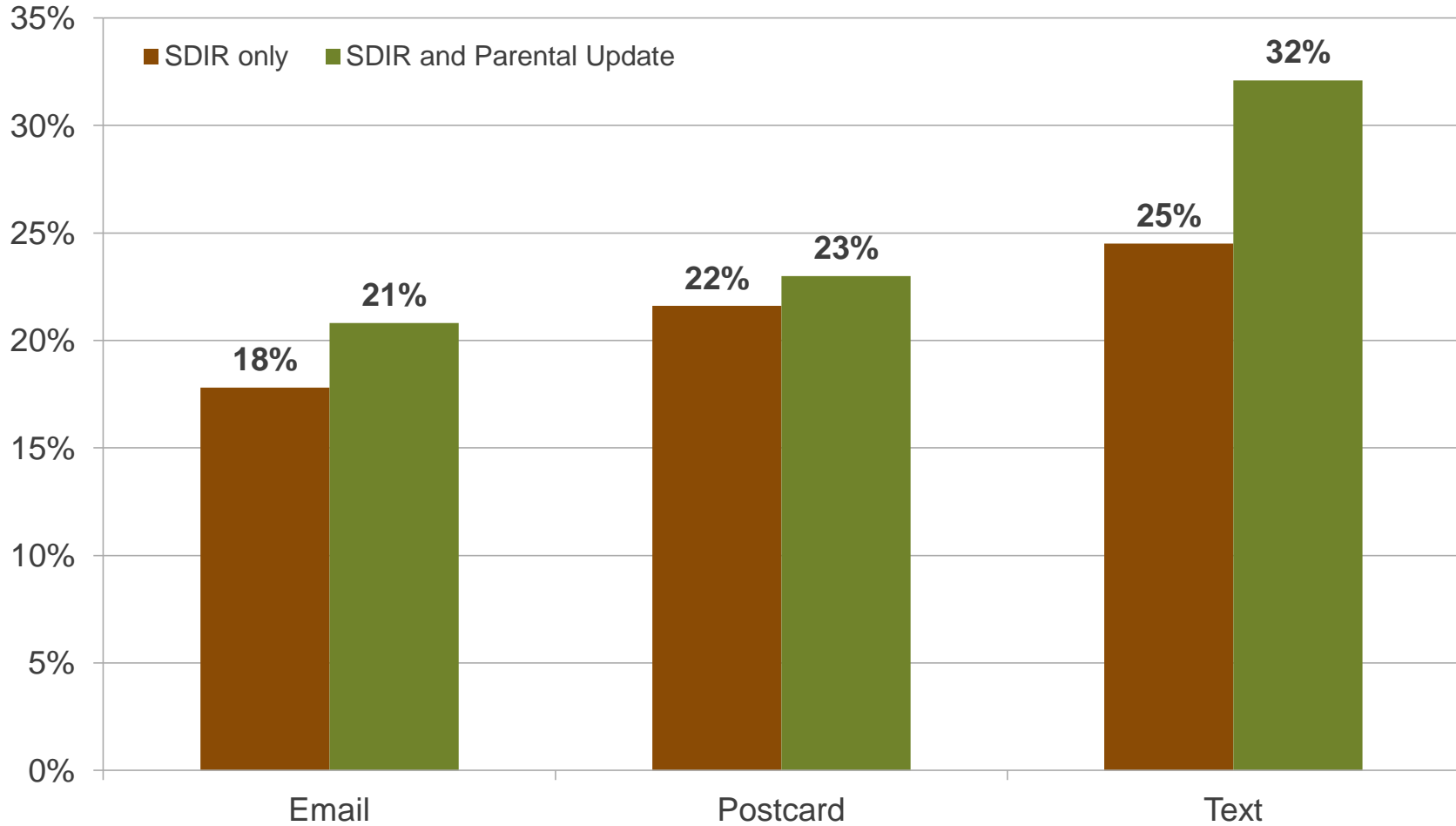
IMPROVEMENT OF COVERAGE RATE FROM FINAL TO BASELINE



PRE AND POST INTERVENTION RATES* COMPARED WITH HEALTHY PEOPLE 2020 GOALS*



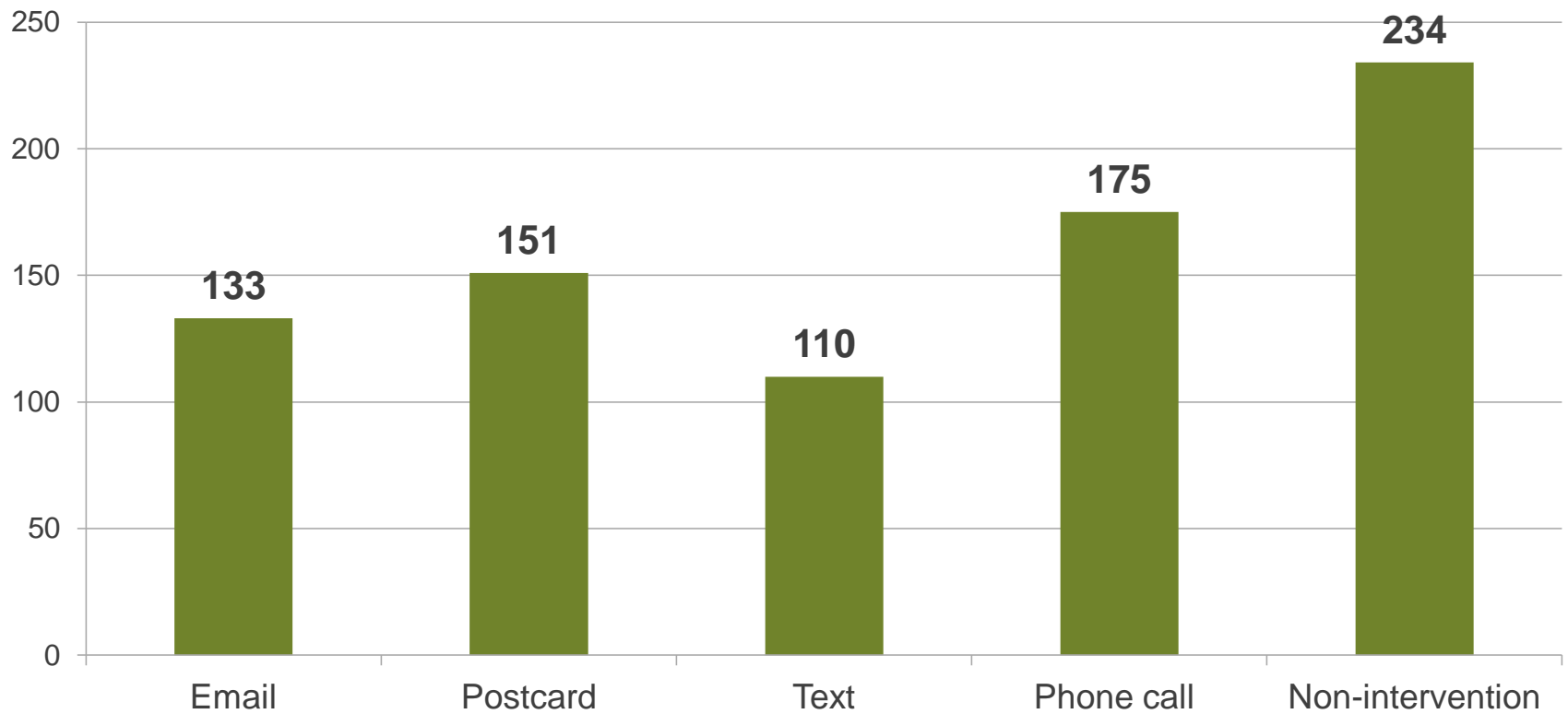
COMPARISON OF UTD STATUS SDIR VS. COMBINED PARENTAL REPORT



AVERAGE TIME ELAPSED UNTIL UP TO DATE



Average Time in Days



ODDS OF BECOMING UTD BY GROUP



Type of Group	Odds Ratio for becoming UTD	Significance*
Email	2.43 (95% CI: 2.08, 2.85)	p=0.000*
Postcard	2.78 (95% CI: 2.11, 3.67)	p=0.000*
Text	4.38 (95% CI: 3.66, 5.25)	p=0.000*
Enrollment-phone-call-only	1.31 (95% CI: 1.18, 1.46)	p=0.000*
Non-intervention	1.00	-

ODDS RATIOS FOR INTERVENTION TYPE COMPARISON



Type	Odds Ratio for becoming UTD	Significance*
Postcard vs. Email	1.1 (95% CI: 0.83, 1.57)	p=0.409
Text vs. Postcard	1.6 (95% CI: 1.13, 2.19)	p=0.008*
Text vs. Email	1.8 (95% CI: 1.42, 2.28)	p=0.000*

COST COMPARISON FOR FOLLOW-UP REMINDERS



Intervention Type	Average Cost per Enrollee	Cost per Reminder sent	Cost per UTD status change
Email	\$3.09	\$0.80	\$14.86
Postcard	\$4.65	\$1.25	\$20.22
Text	\$3.09	\$0.80	\$9.63



- Postcard reminders were the most popular
- Successful intervention participants: UTD improvement
 - 18.8% text
 - 14.0% postcard
 - 13.7% email
- Comparison groups: UTD improvement
 - 10.0% enrollment-phone-call-only
 - 7.2% non-intervention



- The reminders were effective
- People liked postcards the most, and text the least
- On average, when parents received text messages adolescents became up-to-date more rapidly compared to those receiving emails or postcards
- Adolescents of parents who only received a single recruiting phone call became up to date more rapidly than those who weren't contacted at all



- Text messages were the most cost-efficient method
- Text message recipients had significantly higher odds to become up to date than both email recipients and postcard recipients
- Odds for becoming up to date were not significantly different between email and postcard recipients.

ACKNOWLEDGEMENTS



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