

Sampling Techniques Used to Select a Nationally Representative Sample of WIC Participants for the WIC Infant and Toddler Feeding Practices Study – 2 (ITFPS-2)

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Survey Objectives

- Examine the differential effects of Women, Infants and Children (WIC) policies and practices on early childhood nutrition (e.g., breastfeeding practices).
- Longitudinal study (prenatal – 60 months, 17 interviews)
- Provide updates to measures/analyses from earlier studies.
 - ❖ 1994 Infant Feeding Practices Study (IFPS)
 - ❖ 2008 Nestlé Feeding Infants and Toddlers Study (FITS) and IFPS-2

Original Sampling Plan

- Nationally representative sample of WIC enrollees (infants).
- 2-stage sampling of 80 WIC sites.
- Recruitment window assigned to each site based on new enrollee flow rate.
- Sample approximately 98 new WIC enrollees per site during an assigned recruitment window.
- Oversample certain demographics for increased precision of estimates for certain subgroups from designated interviews.

Original Sampling Plan

- All new WIC enrollees during an assigned recruitment window were to be asked to participate the study at the WIC site.
- Half of new WIC enrollees were to be sampled as core sample and the other half as supplemental sample.
- Supplemental sample was to be subjected to subsampling algorithm to sample only the subgroups which needed added precision for subgroup analyses conducted in certain interviews (e.g., estimates from 1-month interview, but not prenatal).

Interview	Core sample	Supplemental sample
Prenatal	X	
1-Month	X	X
3-Month	X	X
5-Month	X	
7-Month	X	X
9-Month	X	
11-Month	X	
13-Month	X	X
15-Month	X	
18-Month	X	
24-Month	X	X
30-Month	X	X
36-Month	X	X
42-Month	X	X
48-Month	X	X
54-Month	X	X
60-Month	X	X

WIC Sampling Challenges

- No national frame of WIC enrollees available.
- Imperfect frame of WIC sites.
- Oversampling certain subgroups when no national frame of WIC enrollees available.
- Approximately fixed number of participants per site required.

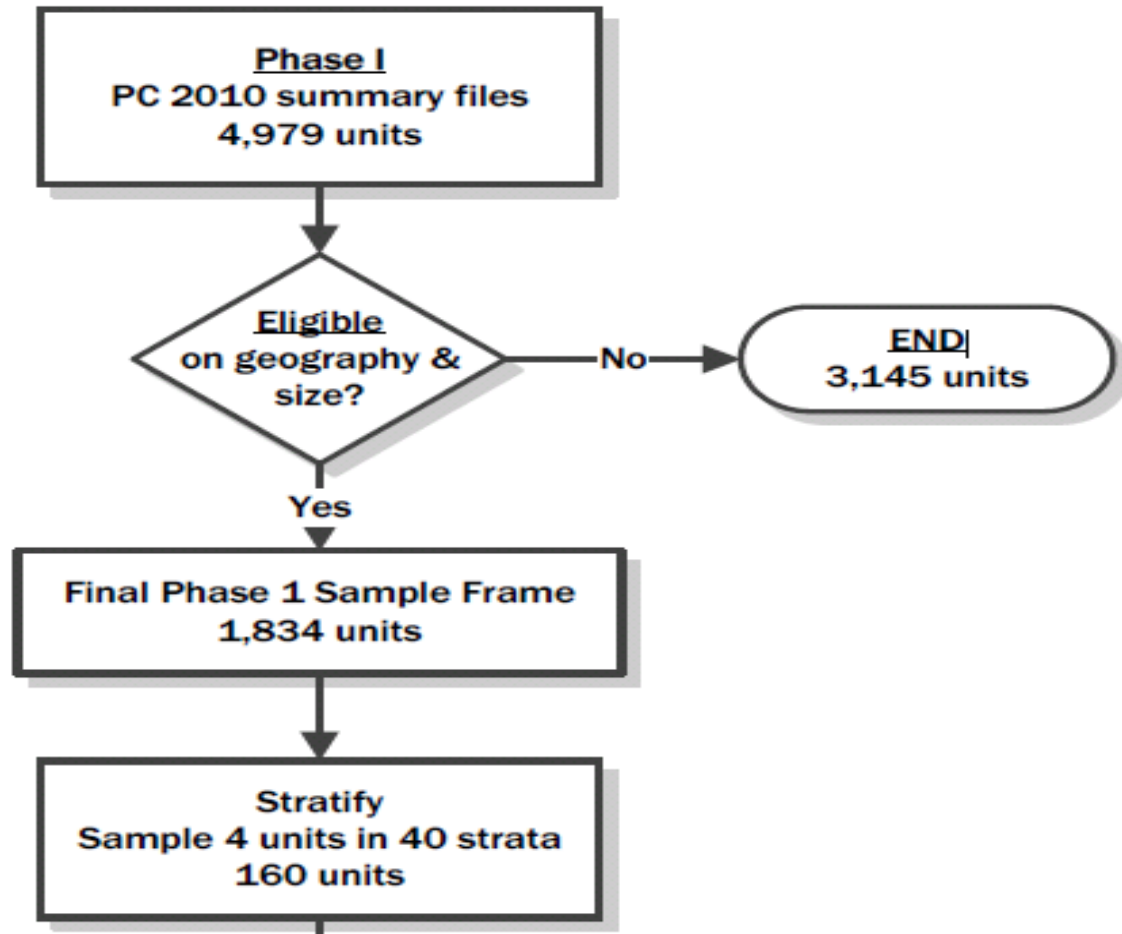
Challenge #1: Imperfect Frame of WIC Sites

- Built frame from list of reporting units^a = local agencies or individual sites.
 - Used two-stage sampling.
- Current eligibility of each reporting unit was unknown.
 - Used two-phase sampling in the 1st stage to select 80 eligible reporting units.
 - ❖ Create measure of size (MOS) for phase 1 using the estimated number of new enrollees based on the April 2010 enrollment counts from the PC 2010.
 - ❖ Sampled 4 reporting units per stratum (40 strata) with probability proportional to MOS.
 - ❖ Determined eligibility of each reporting unit.
 - ❖ Subsampled 2 eligible reporting units per stratum with equal probability.

^a *WIC Program and Participant Characteristics 2010 (PC 2010)*

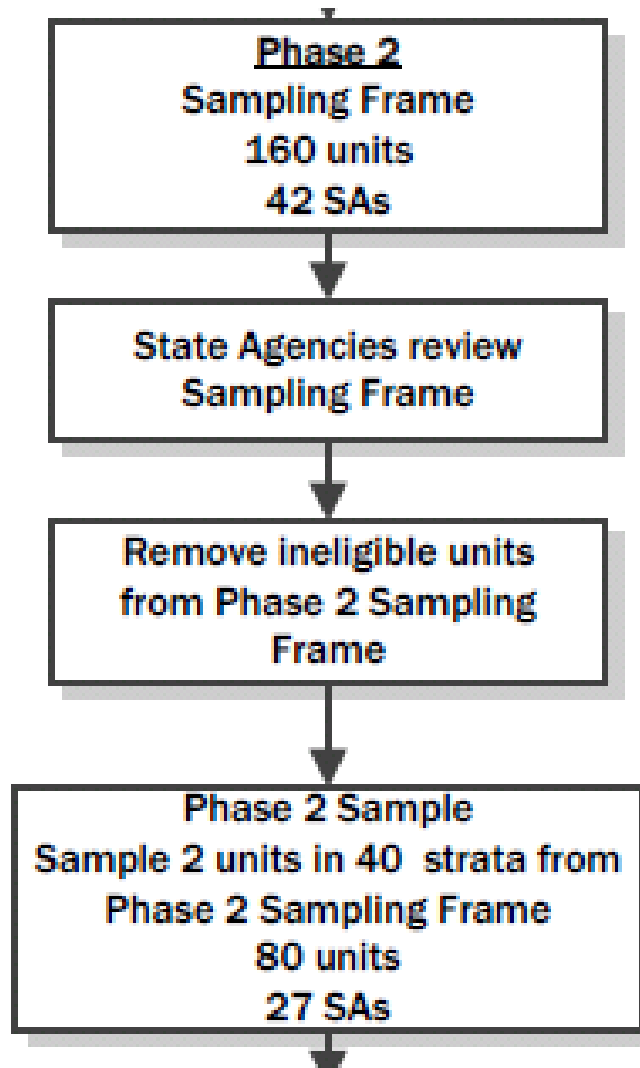
Sampling WIC Sites

-Stage 1, Phase 1-



Sampling WIC Sites

-Stage 1, Phase 2-



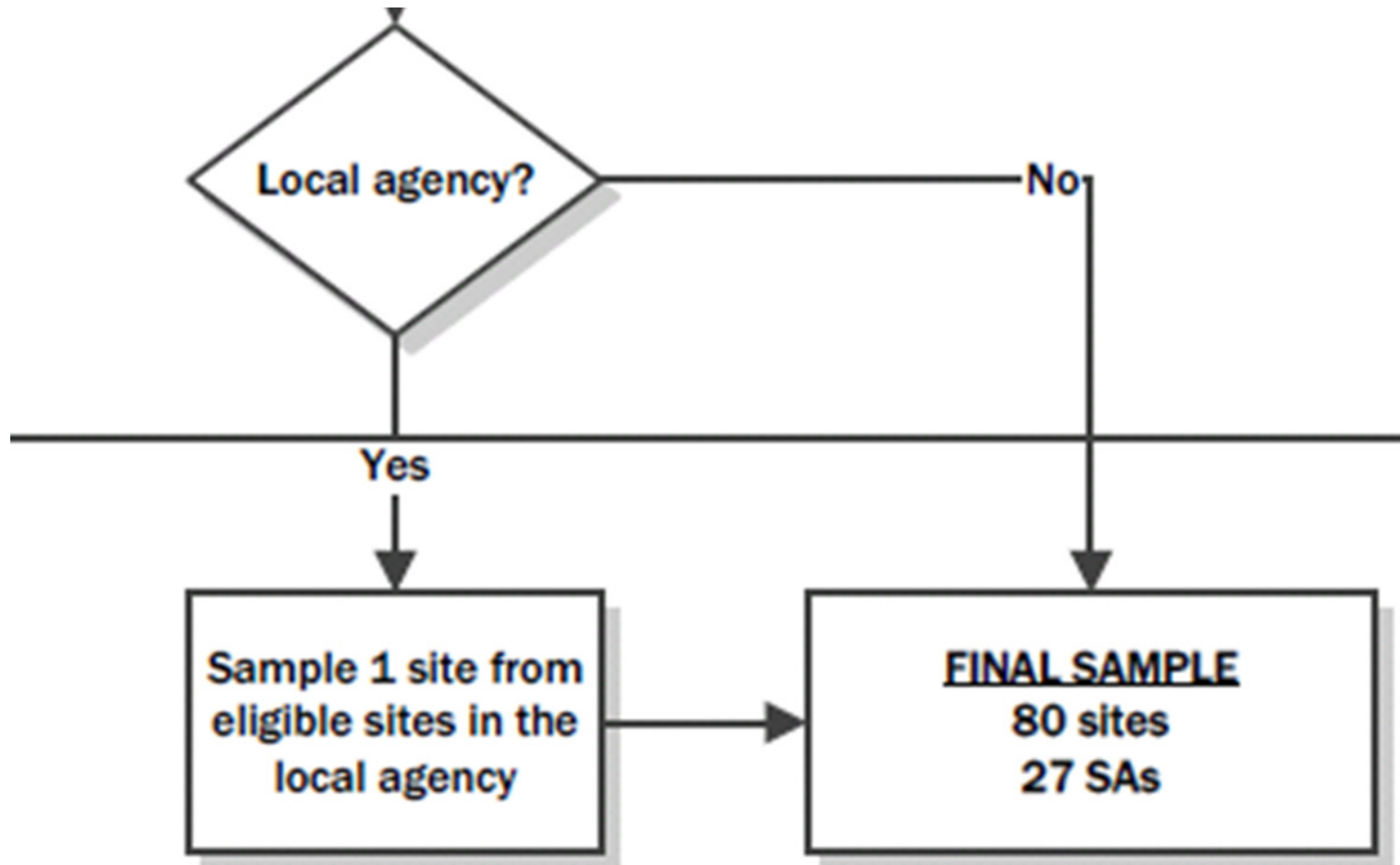
Sampling WIC Sites

-Stage 2-

- If a sampled reporting unit in stage 1 was a local agency, sample one site among eligible sites within each sampled local agency (with probability proportional to MOS).
 - Result in a sample of 80 sites.

Sampling WIC Sites

-Stage 2-



Challenge #2: No National Frame of WIC Enrollees

How to sample infants at a selected site?

- Targeted approximately *98 new WIC enrollees* per site.
- Determined a *recruitment window length* for each site based on average daily flow and schedule.
 - Initial window lengths ranged from 4 days to 77 days.
- Problems encountered with recruitment windows:
 - ❖ The site enrollment schedule \neq The site operation schedule.
 - ❖ WIC site enrollment schedule and flow varied per site.
 - ❖ WIC site average daily eligible enrollment varied.
 - Needed to get updated enrollment information from each site.

Challenge #3: Oversampling Certain Subgroups

- Needed to oversample certain demographics to meet precision requirements for certain interviews (e.g., African Americans, overweight/obese enrollees).
 - Take two samples – Core and Supplemental. Cases in supplemental sample only get certain interviews.

Interview	Core sample	Supplemental sample
Prenatal	X	
1-Month	X	X
3-Month	X	X
5-Month	X	
7-Month	X	X
9-Month	X	
11-Month	X	
13-Month	X	X
15-Month	X	
18-Month	X	
24-Month	X	X
30-Month	X	X
36-Month	X	X
42-Month	X	X
48-Month	X	X
54-Month	X	X
60-Month	X	X

Challenge #3: Oversampling Certain Subgroups

- Needed to oversample certain demographics to meet precision requirements for certain interviews (e.g., African Americans, overweight/obese enrollees).
 - Take two samples – Core and Supplemental. Cases in supplemental sample only gets certain interviews.
- Designated 50% of new enrollees to Core sample and 50% to Supplemental sample (original plan).
- Subsampled important subgroups in supplemental sample to take more enrollees from rarer subgroups.
- Subsampling rates based on precision requirement and population distribution.

	Target		
	Core	Supp	Total
Total attempted to recruit	3,920	3,920	7,840
Total consented & enrolled	2,804	1,186	3,991

Challenge #4: Approximately Fixed Number of Enrollees per Site

- Inflated recruitment window by 3% prior to data collection, due to concerns about potential decline in WIC enrollment.
- Monitored sampling progress - Early in the enrollment period, projected enrollment was tracking well below target.
 - Inflated recruitment windows by an additional 10%.
 - Increased the proportion of sampled cases designated to Core to 87.5%.
 - Eliminated subsampling in the Supplemental sample; Supplemental sample became "take all" once change was in place (not retroactive).

	Target			Actual		
	Core	Supp	Total	Core	Supp	Total
Total attempted to recruit	3,920	3,920	7,840			6,775
Total consented & enrolled	2,804 (70%)	1,186 (30%)	3,991	3,503 (80%)	864 (20%)	4,367

Summary

- A flexible, creative approach was key.
- Successfully overcame challenges by making informed decisions that maintained the integrity of the sample and the quality of the data.
 - Two-stage sampling and two-phase sampling in the first stage to select 80 sites.
 - Oversampling of certain demographics by taking 2 samples (core and supplemental).
 - Assigning recruitment window considering updated individual site information.
 - Monitor sampling progress and make adjustments to meet the goal (sampling rate change, global extension of recruitment window).
 - Participant level base weight is calculated by $1/\{\text{Pr}(\text{selecting site}) * \text{Pr}(\text{selecting individual in a site})\}$.

Thank you!

Questions? Comments?
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