

# Impact of a UNICEF Child Survival Strategy on the Nutritional Status of Children Under 3 in Rajasthan, India



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# Presentation Outline

- Background on Rajasthan
- Nutritional Context
- Anchal Se Angan Tak Strategy
- Research Question & Evaluation Objectives
- Methods
- Results
  - Feeding practices
  - Caring practices
  - Nutritional status
- Program Successes and Future Challenges

# Background on Rajasthan

- Most northwestern state in India
- Population = 56.4 m
- Extreme level of poverty, illiteracy & malnutrition
- Gender inequity
- Poor child health indicators



# Nutritional Context in Rajasthan

## ■ Anthropometrics

	% of children U5
Stunting (HAZ <-2)	43.7
Wasting (WHZ <-2)	20.4
Underweight (WAZ <-2)	39.9

- 70% of children 6-59 months are anemic
- 28% of infants born with a low birth weight
- Median duration of **exclusive** BF = 1.4 months

*NFHS III, 2007*

# Background on ASAT

- Early childhood care strategy implemented by UNICEF and the Government of Rajasthan
- Focus on children under three
- Behavior change communication approach
  - Infant and young child feeding practices
  - Immunization/Vit A supplementation
  - Proper hygiene and sanitation
  - Effective diarrhea management
  - Promotion of iodized salt



# Research Question:

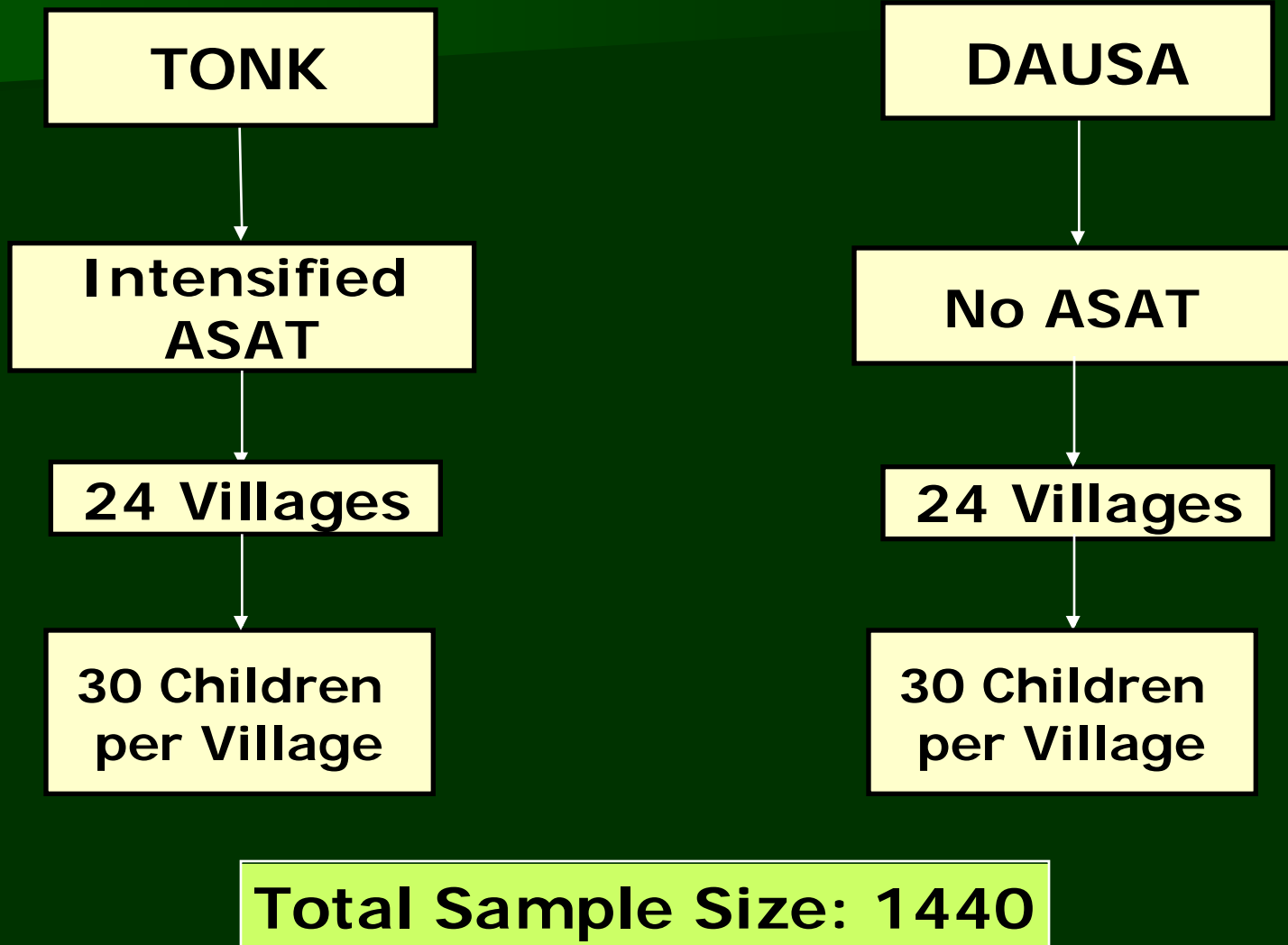


*Does the Anchal Se Angan Tak (ASAT) strategy significantly and positively affect the overall nutritional status of children under three?*

# Evaluation Objectives & Key Indicators

To Evaluate:	Key Indicators
Breastfeeding Practices	<ul style="list-style-type: none"><li>■ Time of BF introduction</li><li>■ Feeding of colostrum</li><li>■ Other substances given prior to BF</li><li>■ Duration of exclusive BF</li></ul>
Timeliness of Complementary Feeding	<ul style="list-style-type: none"><li>■ Mean age of introduction of semi-solid food</li></ul>
Diarrhea management	<ul style="list-style-type: none"><li>■ Use of ORS</li><li>■ Continued feeding during diarrhea</li></ul>
Hygiene practices	<ul style="list-style-type: none"><li>■ Frequency and timing of hand washing</li><li>■ Substance most commonly used to wash hands</li></ul>
Child nutritional status	<ul style="list-style-type: none"><li>■ HAZ, WHZ, WAZ</li></ul>
Salt iodization	<ul style="list-style-type: none"><li>■ % of household with adequately iodized salt (&gt;15 ppm)</li></ul>

# Sampling Framework





# Data Collection

- Quantitative Questionnaire and Anthropometrics
  - Administered to mother/female caregiver
  - Collected info on:
    - Breastfeeding and child feeding practices
    - Hygiene and sanitation
    - Diarrhea management
    - Immunizations
    - Awareness of community resources
    - Household SES



# Data Analysis

- SPSS
- Independent sample t-tests to compare continuous variables in ASAT and non-ASAT districts
- Chi-square analysis to compare categorical variables
- z scores calculated under both NCHS and WHO growth standards

# Results: Child & Maternal Characteristics

	<b>ASAT</b> N~675	<b>Non-ASAT</b> N~712
<b>Child Characteristics</b>		
Age (mean months $\pm$ SD)	16.4 $\pm$ 9.5	16.3 $\pm$ 9.0
Male (%) <sup>†</sup>	54.3	48.9
<b>Maternal Characteristics</b>		
Age (mean years $\pm$ SD)	26.6 $\pm$ 29.6	26.0 $\pm$ 28.5
Education (mean years $\pm$ SD)	1.2 $\pm$ 2.8	1.4 $\pm$ 3.1
Literacy (% literate) <sup>†</sup>	17.6	19.2

<sup>†</sup> Chi-square analysis revealed a significant relationship between the district and the relevant variable

# Results: Household Characteristics

	<b>ASAT</b> N~680	<b>Non-ASAT</b> N~712
Caste †		
SC/ST (%)	41.7	64.6
OBC (%)	45.3	22.1
General (%)	13.0	13.3
Religion †		
Hindu (%)	97.2	99.3
HH Wealth Index Score (mean ± SD)	2.5 ± 0.1	3.6 ± 0.1
Land Owned (mean biswas <sup>°</sup> ± SD) **	58.4 ± 315.1	24.1 ± 60.0

† Chi-square analysis revealed a significant relationship between the district and the relevant variable

\*\*  $p < 0.001$

<sup>°</sup> 1 Biswa = 50 square yards

# Results: Feeding Practices

Indicator	0-6 mths		6-12 mths		12-36 mths	
	ASAT N~103	Non- ASAT N~97	ASAT N~174	Non- ASAT N~178	ASAT N~389	Non- ASAT N~412
Child Fed Colostrum %	58.3**	39.2**	42.8*	31.8*	46.3**	34.4**
Child Fed Non – Breast Milk Substance Prior to BF %	69.6	74.5	68.4	72.5	69.8	73.1
Age of Complementary Food Introduction ° (Mean mths ± SD)	---	---	7.7±3.4	8.0±2.2	9.9±4.0	10.4±3.4

\*  $p < 0.05$ , \*\*  $p < 0.01$

† Solid foods were defined as any that is soft in texture (e.g. rice, roti, dal, halwa, khichiri)

° Calculation based on children who are already receiving complementary food

# Results: Caring Practices

Indicator	0-6 mths		6-12 mths		12-36 mths	
	ASAT N~103	Non- ASAT N~98	ASAT N~172	Non- ASAT N~179	ASAT N~410	Non- ASAT N~434
Mother Washing Hands with Soap After Defecation %	27.2*	16.3 *	27.9**	11.7**	25.4**	15.2**
Use of ORS During Episodes of Diarrheat %	38.4	32.9	45.2	43.9	52.9	50.6
Child Fed the Same or More During Diarrheat %	88.3	86.0	84.8	89.5	78.9*	85.7*

\*  $p < 0.05$ , \*\*  $p < 0.01$

† Calculation based on children who have experienced diarrhea

# Results: Nutritional Status

	<b>ASAT</b> N~686	<b>Non-ASAT</b> N~712
<b>Stunting</b>		
WHO HAZ (mean ± SD)	-1.63 ± 1.87**	-1.92 ± 1.57**
NCHS HAZ (mean ± SD)	-1.48 ± 1.65**	-1.73 ± 1.42**
<b>Wasting</b>		
WHO WHZ (mean ± SD)	-1.42 ± 1.03*	-1.31 ± 1.01*
NCHS WHZ (mean ± SD)	-1.37 ± 0.86*	-1.27 ± 0.86*
<b>Underweight</b>		
WHO WAZ (mean ± SD)	-1.91 ± 1.30	-2.02 ± 1.21
NCHS WAZ (mean ± SD)	-1.98 ± 1.22	-2.08 ± 1.10

\* p < 0.05, \*\* p < 0.01

# Results: Gender Differences in Nutritional Status

	ASAT		Non-ASAT	
	Males N~373	Females N~312	Males N~348	Females N~364
<b>Stunting</b>				
WHO HAZ (mean ± SD)	-1.61 ± 1.95	-1.65 ± 1.75	-1.85 ± 1.57	-1.98 ± 1.57
NCHS HAZ (mean ± SD)	-1.42 ± 1.68	-1.56 ± 1.61	-1.62 ± 1.38*	-1.83 ± 1.46*
<b>Wasting</b>				
WHO WHZ (mean ± SD)	-1.45 ± 1.00	-1.39 ± 1.07	-1.30 ± 0.99	-1.33 ± 1.04
NCHS WHZ (mean ± SD)	-1.37 ± 0.83	-1.37 ± 0.90	-1.27 ± 0.87	-1.27 ± 0.85
<b>Underweight</b>				
WHO WAZ (mean ± SD)	-1.91 ± 1.28	-1.92 ± 1.34	-1.93 ± 1.40	-2.10 ± 1.27
NCHS WAZ (mean ± SD)	-1.94 ± 1.19	-2.02 ± 1.25	-1.99 ± 1.07*	-2.17 ± 1.12*

\* p<0.05



# Results: Salt Iodization



	<b>ASAT</b> N=673	<b>Non-ASAT</b> N=708
Not Iodized (0 ppm) %	42.8	46.2
Inadequately Iodized (<15 ppm) %	23.9	26.1
Adequately Iodized (>15 ppm) %	33.3	27.7

# Summary of Key Findings

## Program Successes

- Earlier initiation of breastfeeding
- More mothers fed infants colostrum
- Earlier introduction of complementary feeding
- More mothers washed hands with soap
- Lower rates of stunting

## Future Challenges

- Improve management of diarrhea
- Improve WHZ and WAZ scores
- Increase use of iodized salt

# Limitations of the Evaluation

- No baseline data
- Difficulties measuring breastfeeding practices
- Unable to use sample weights



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# Questions?

