



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

Greater improvements in child growth and diet quality after a holistic community development intervention than after nutrition training alone

LC Miller, N Joshi, M Lohani, BL Rogers, S Mahato, Su Neupane, Sh Neupane, S Ghosh, P Webb



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GERALD J. AND DOROTHY R.
Friedman School of
Nutrition Science and Policy



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

or...more simply:

**Kids & families do better in communities
which participate in comprehensive
development activities**



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BACKGROUND

- Nutrition-sensitive agricultural interventions vary in their impact on child growth and diet

J Nutrition (2007) 137: 2311

BMJ (2012) 344: d8222

Paediatr Perinat Epidem (2012) 26: 205

- Household-level nutrition training programs also have variable success in improving these outcomes

J Int Dev 19: 627–652 (2007)

Food Nutr Bull 28:375-383 (2007)

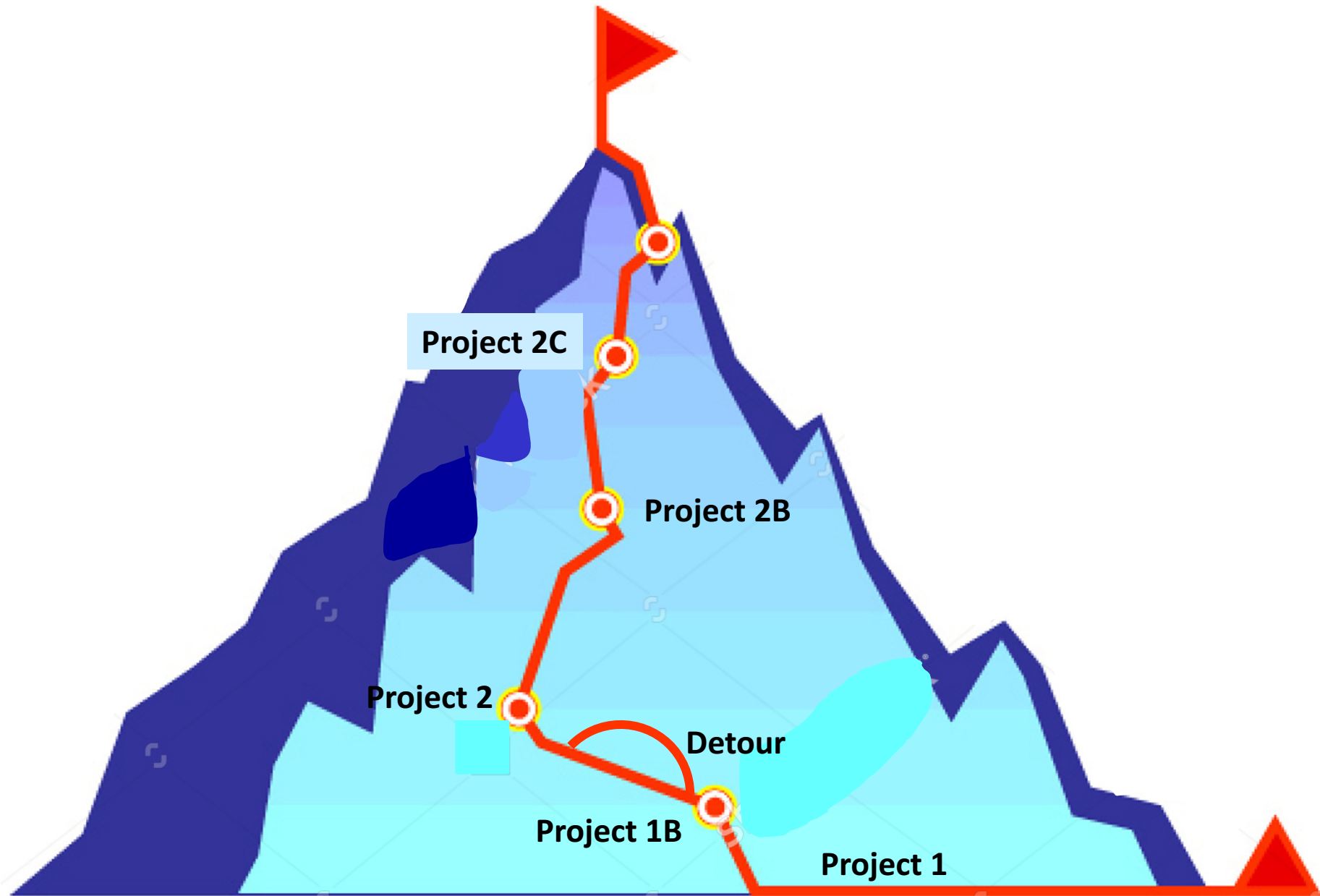
- What happens if these interventions are combined?



Intervention: Heifer Nepal

- Intensive community & social capital development aimed at reducing poverty
- Livestock and values-based training in women's self-help groups





Project 2C

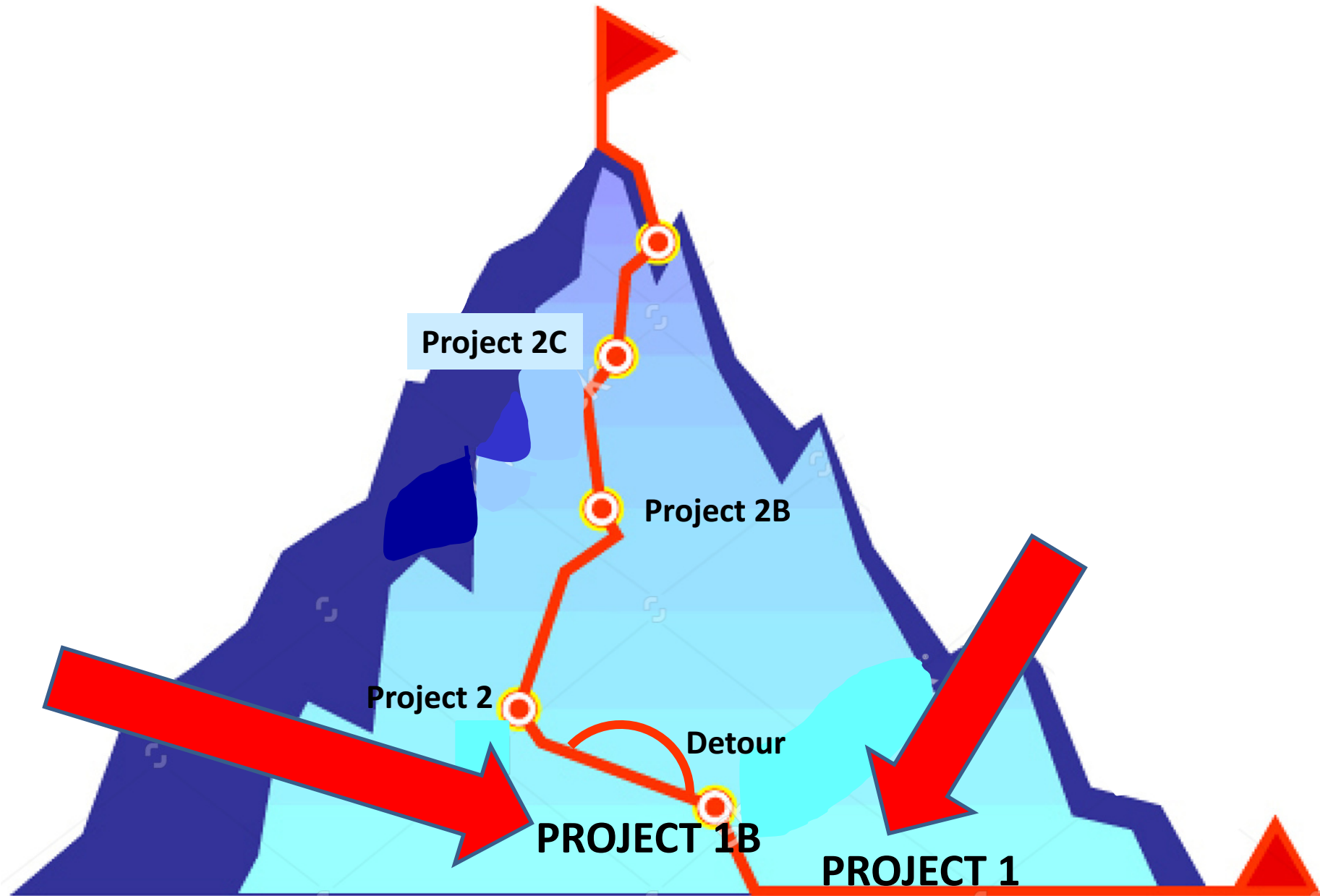
Project 2B

Project 2

Detour

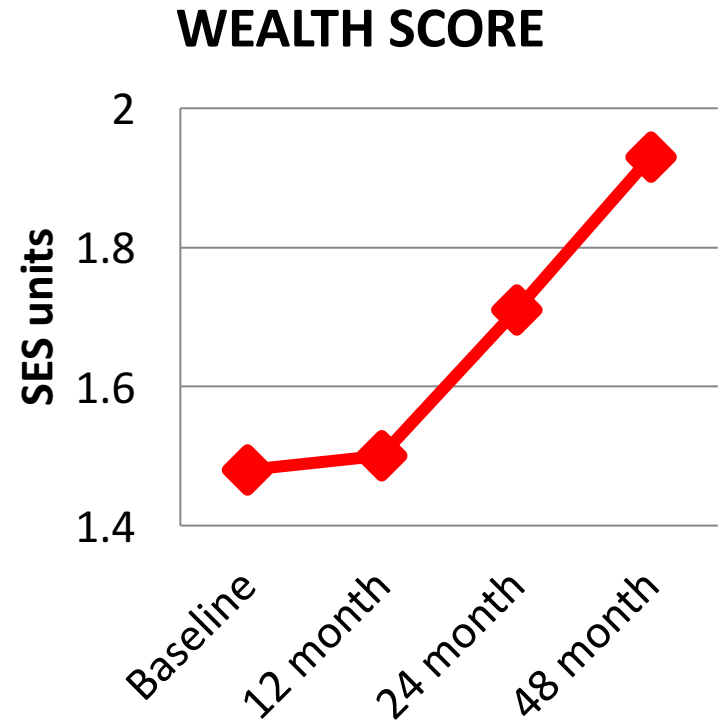
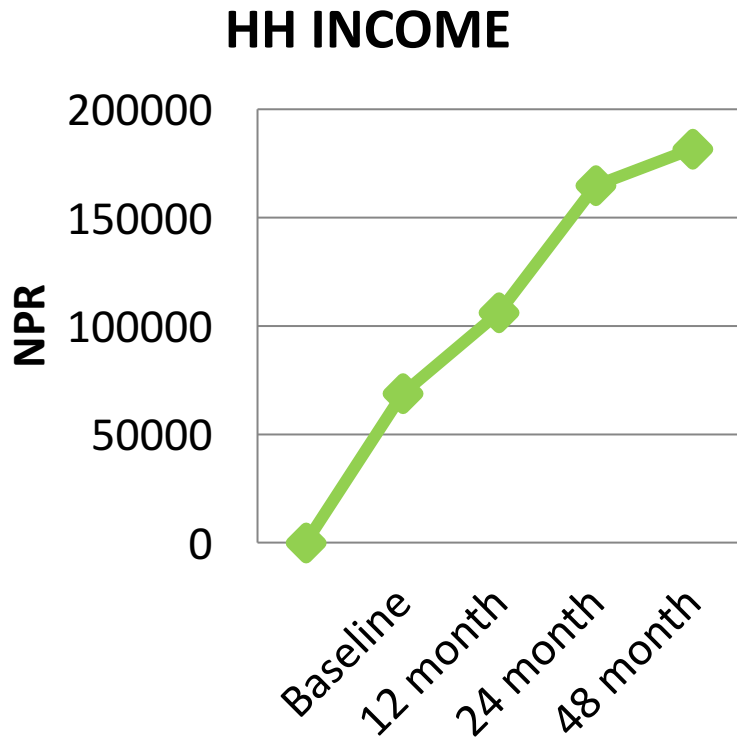
Project 1B

Project 1



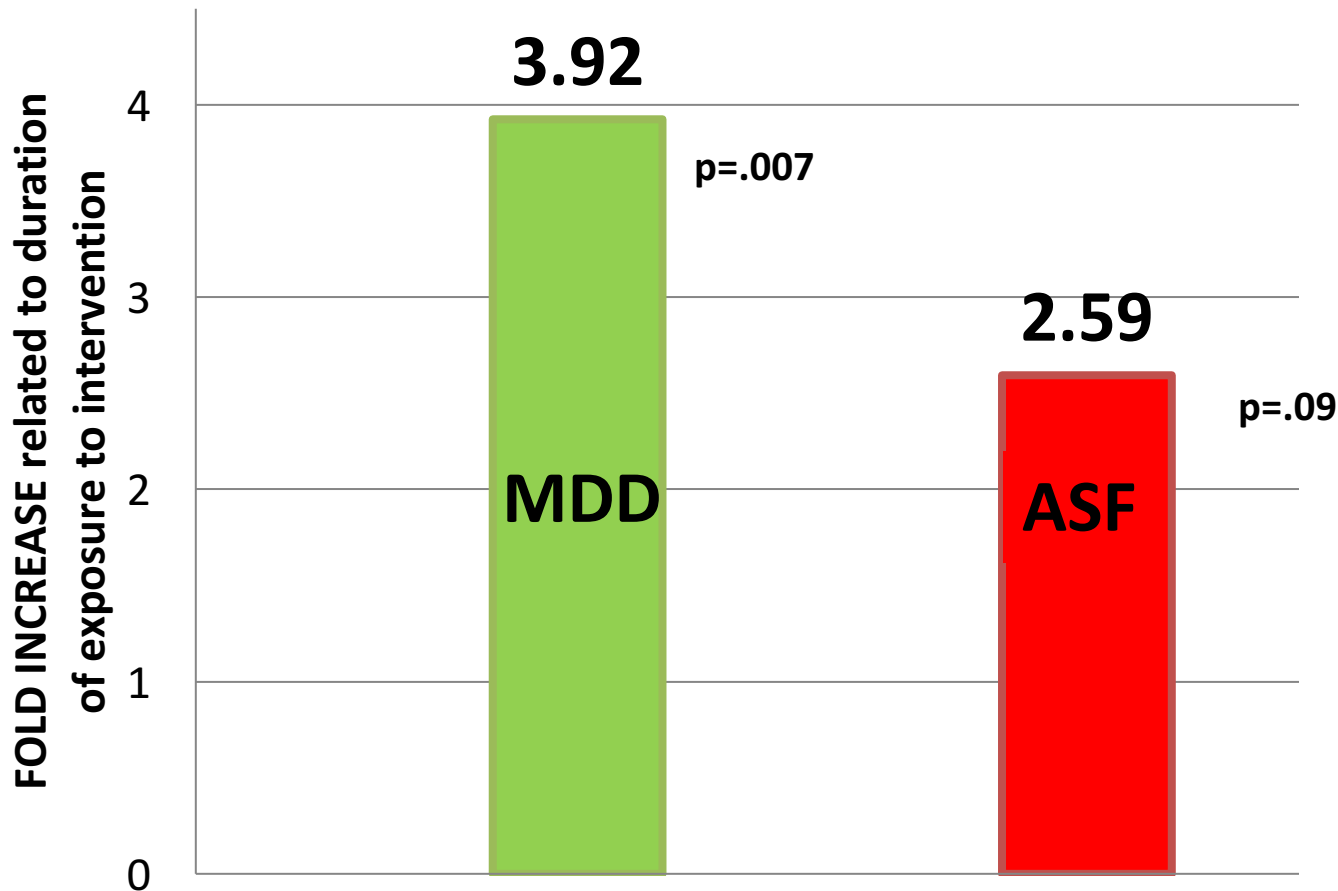
The intervention works...

household income and wealth



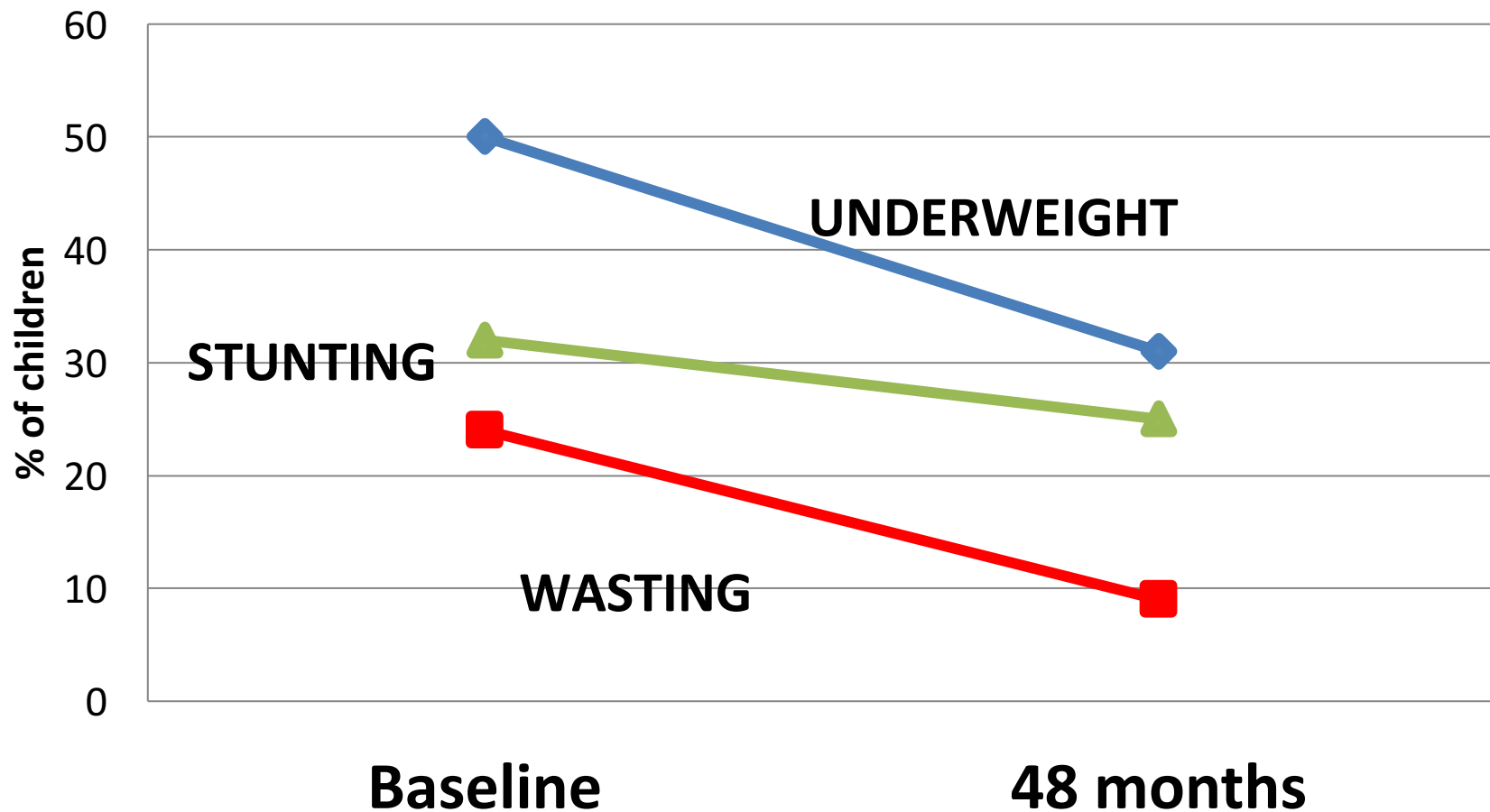
The intervention works...

child minimal dietary diversity and ASF consumption



The intervention works...

decrease in undernutrition

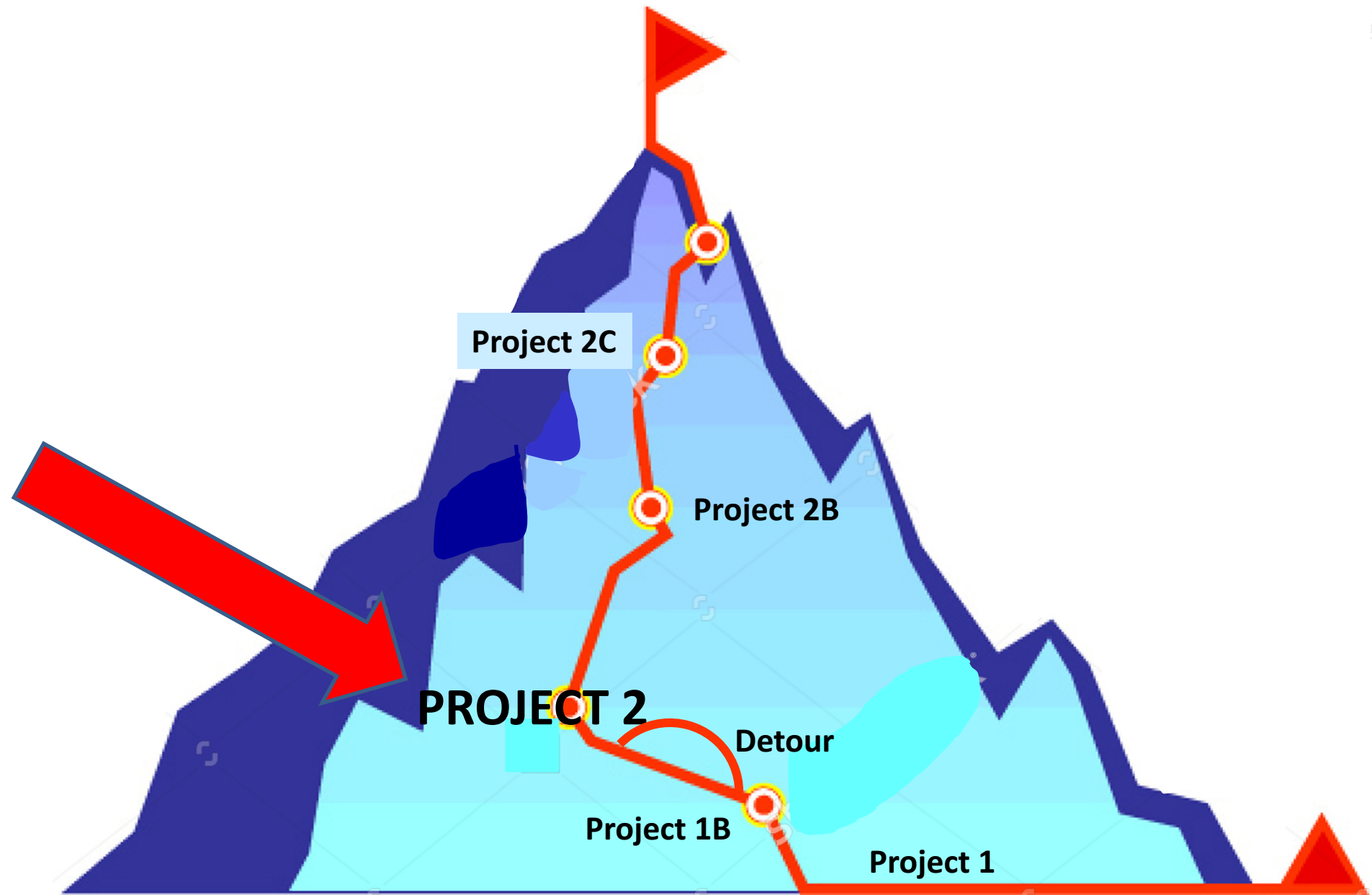




More questions....

- Can child growth be further improved?
- Can diet quality be further enhanced?
- How important is the community development component of Heifer's work to child and HH outcomes?





Nutrition training

- Developed after completion of first project
- Reinforced in women's self-help groups by trained facilitators
 - practical demonstrations
 - didactic training

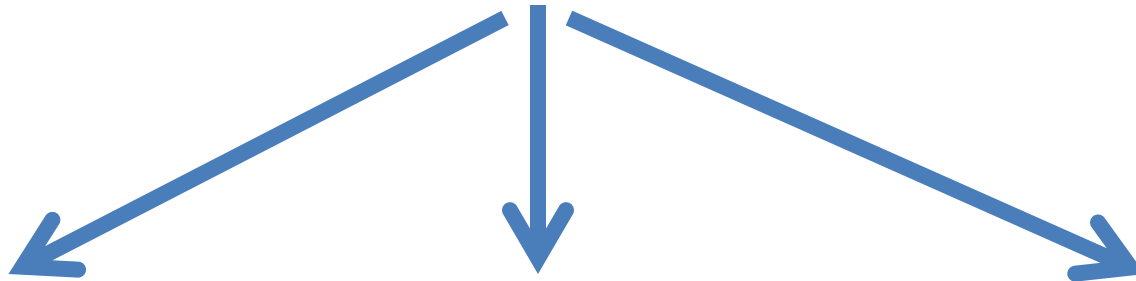




Methods

- Reviewed roster of communities in Banke district which had requested inputs from Heifer Nepal
- Communities (974 HHs) matched for specific characteristics were invited to participate
- Randomized → 3 clusters





FULL HEIFER PROGRAM



Social Capital Development

Nutrition Training

Livestock Training

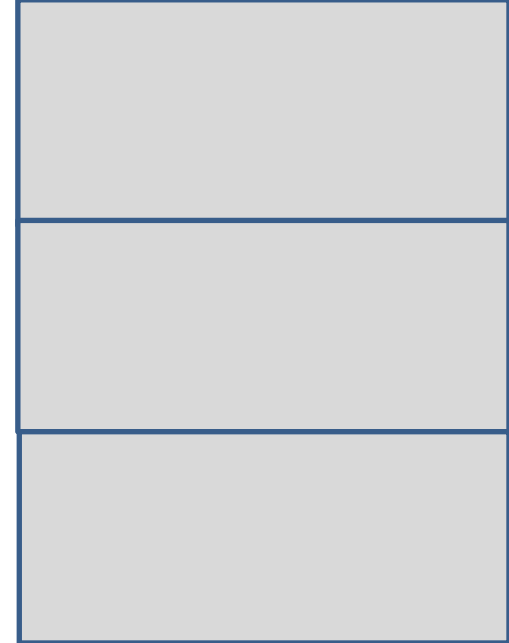
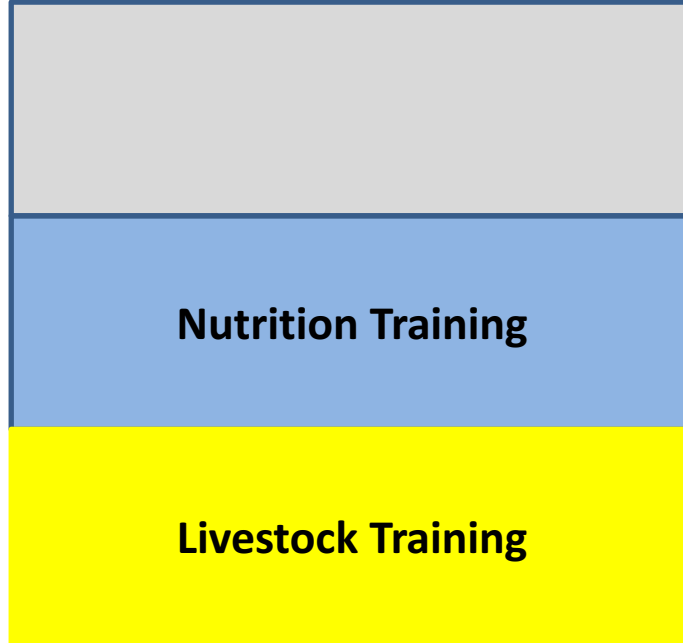
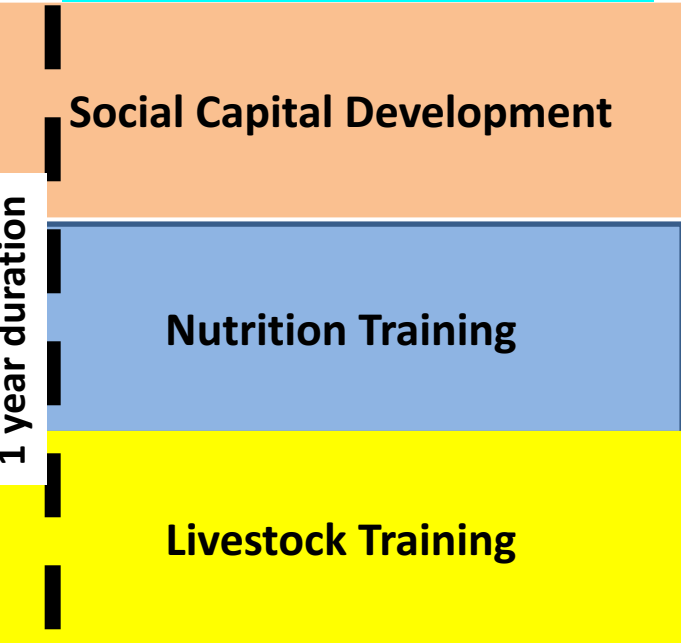
PARTIAL GROUP

Nutrition Training

Livestock Training

CONTROL GROUP

1 year duration



Methods

5 HH surveys over ~33 months (independent research organization)

HH INDICATORS

- Land
- Animals
- Wealth
- Income
- Food Security

CHILD INDICATORS

- Anthropometry
- Health
- Diet quality (ASF, DDS)
- School attendance

WOMEN'S INDICATORS

- Empowerment
- Knowledge-Attitudes-Practices (child health, nutrition)

Methods

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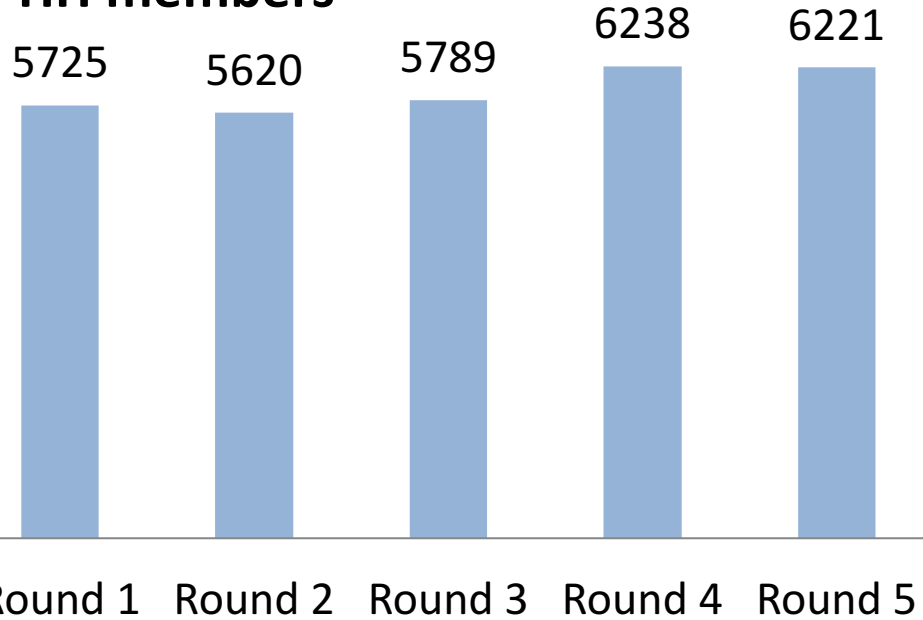
WOMEN'S INDICATORS

- Empowerment
- Knowledge-Attitudes-Practices (child health, nutrition)

HHs included only if $\geq 75\%$ participation in training

Results: Participants

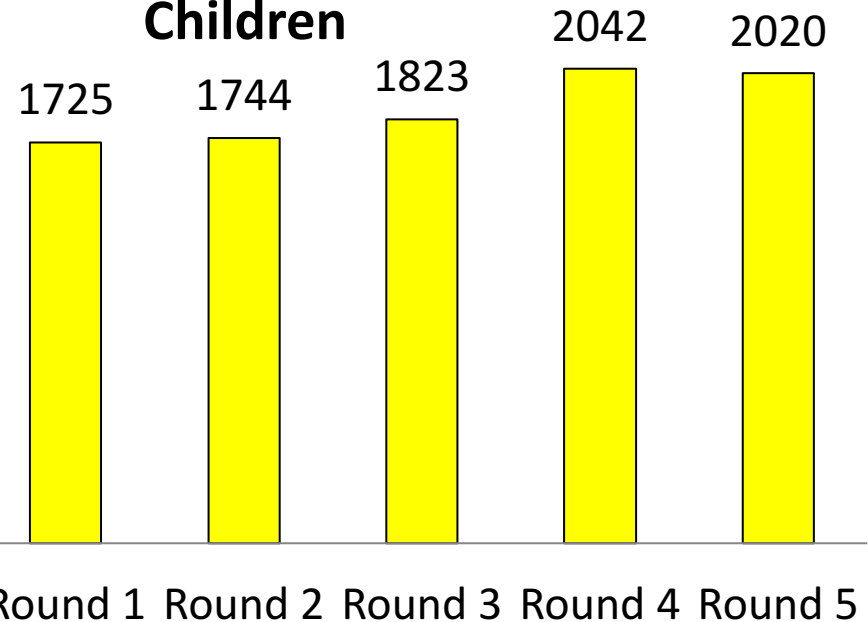
HH members



974 HHs

~6000 HH members

Children



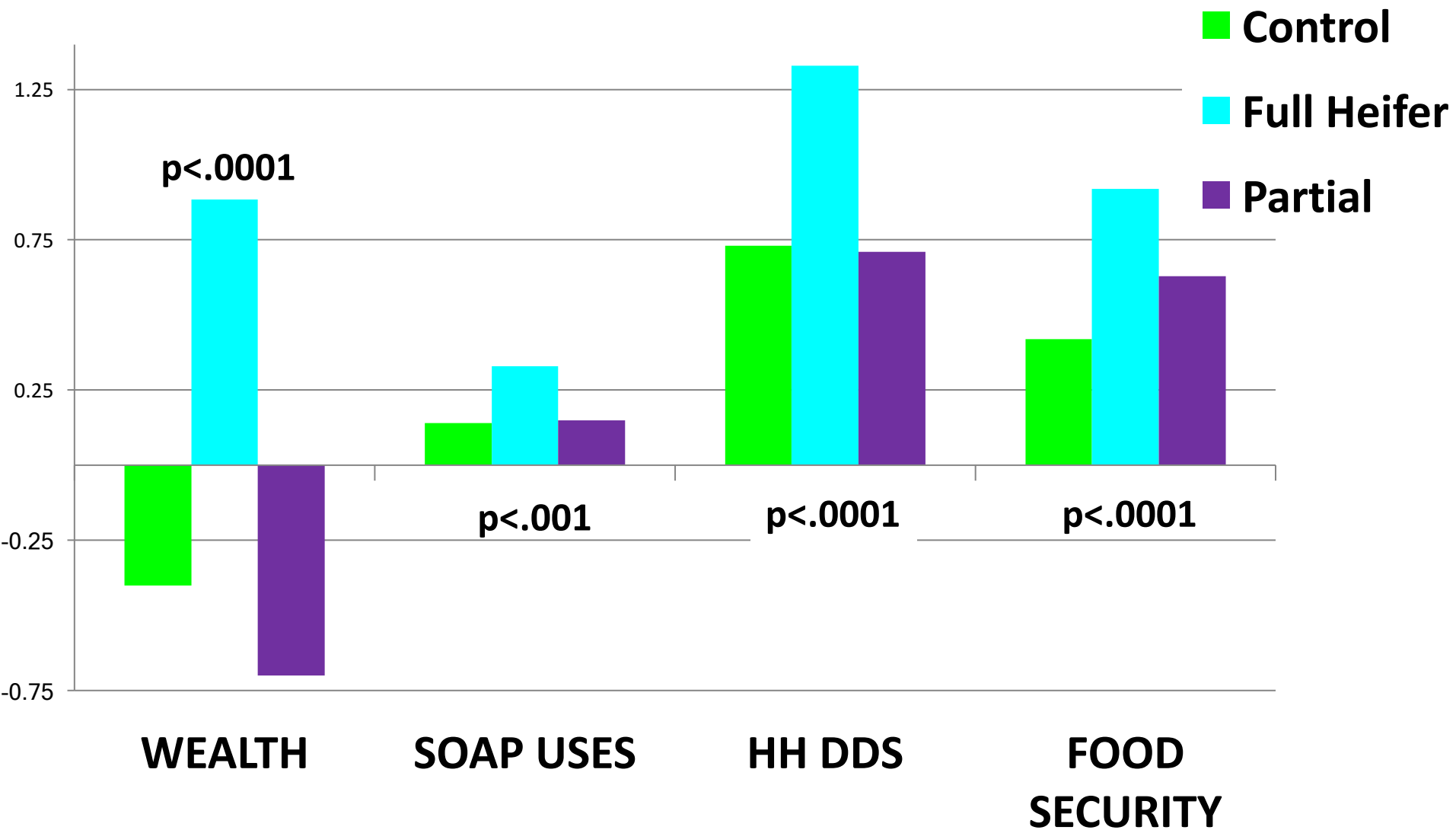
Results: Community clusters equivalent at baseline

- Wealth score
- Income
- Income per HH member
- Soap use
- HH ASF consumption
- HH diet diversity
(adults)



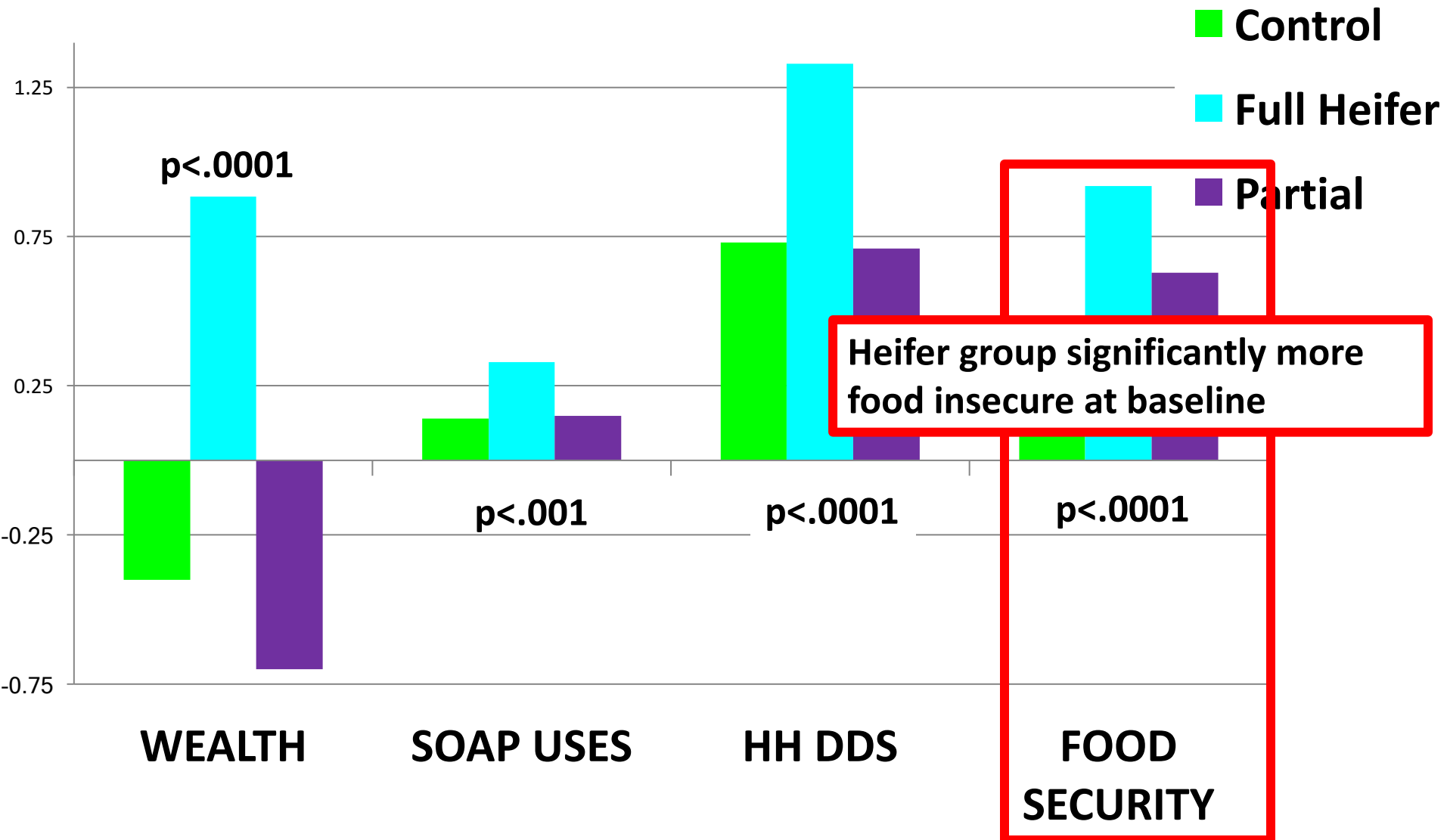
HH INDICATORS

Δ baseline to 33 months

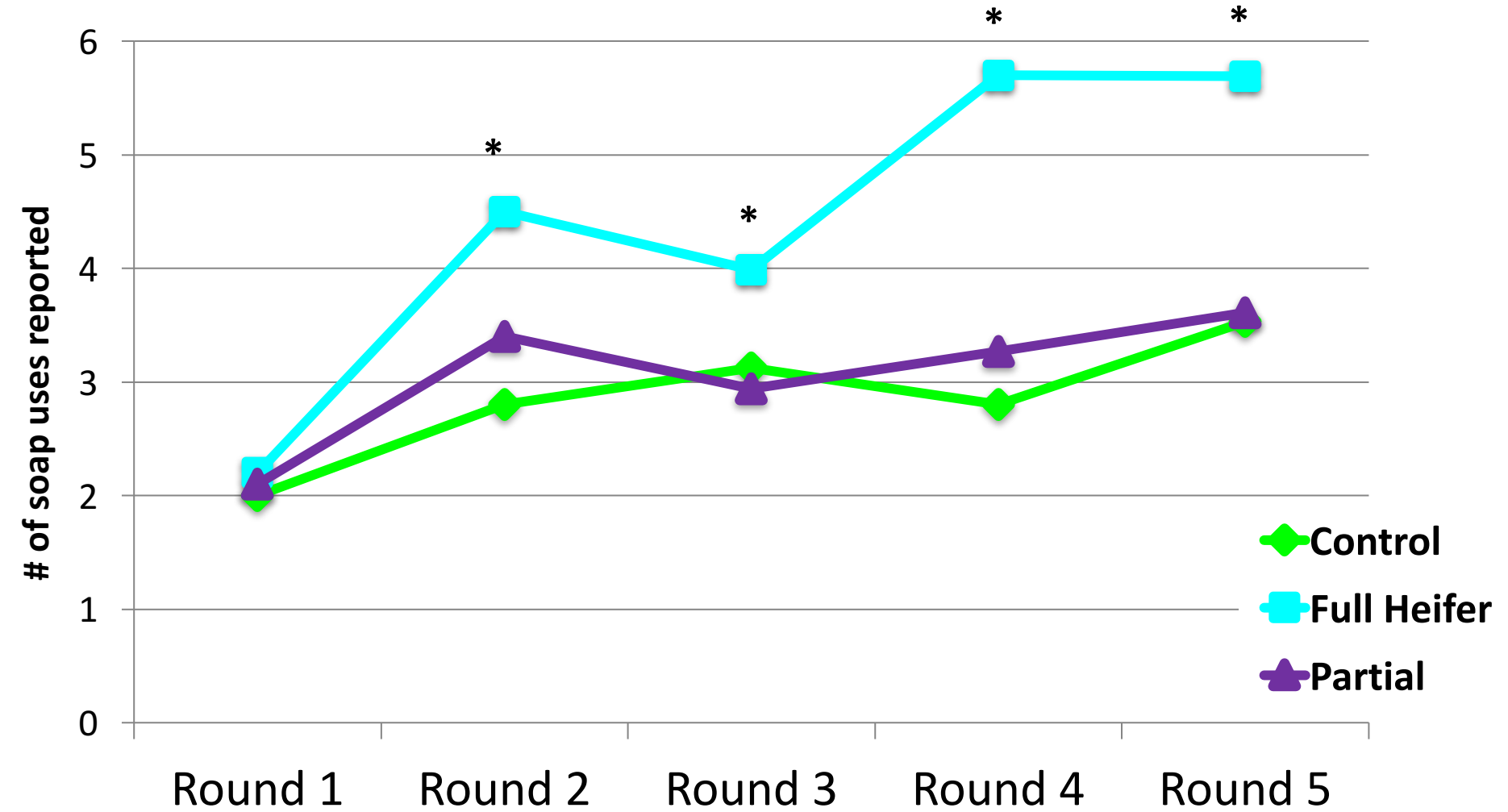


HH INDICATORS

Δ baseline to 33 months

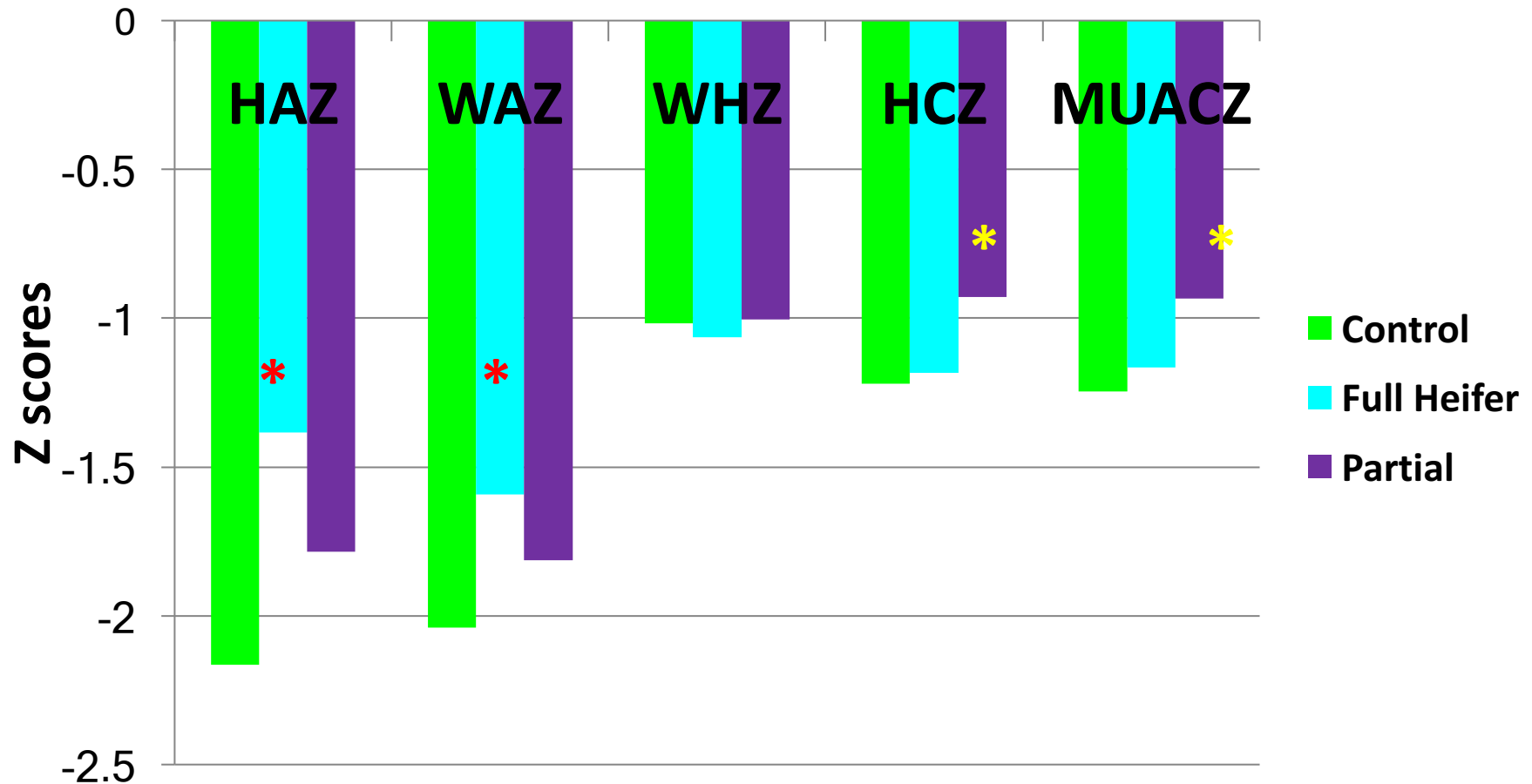


Soap use



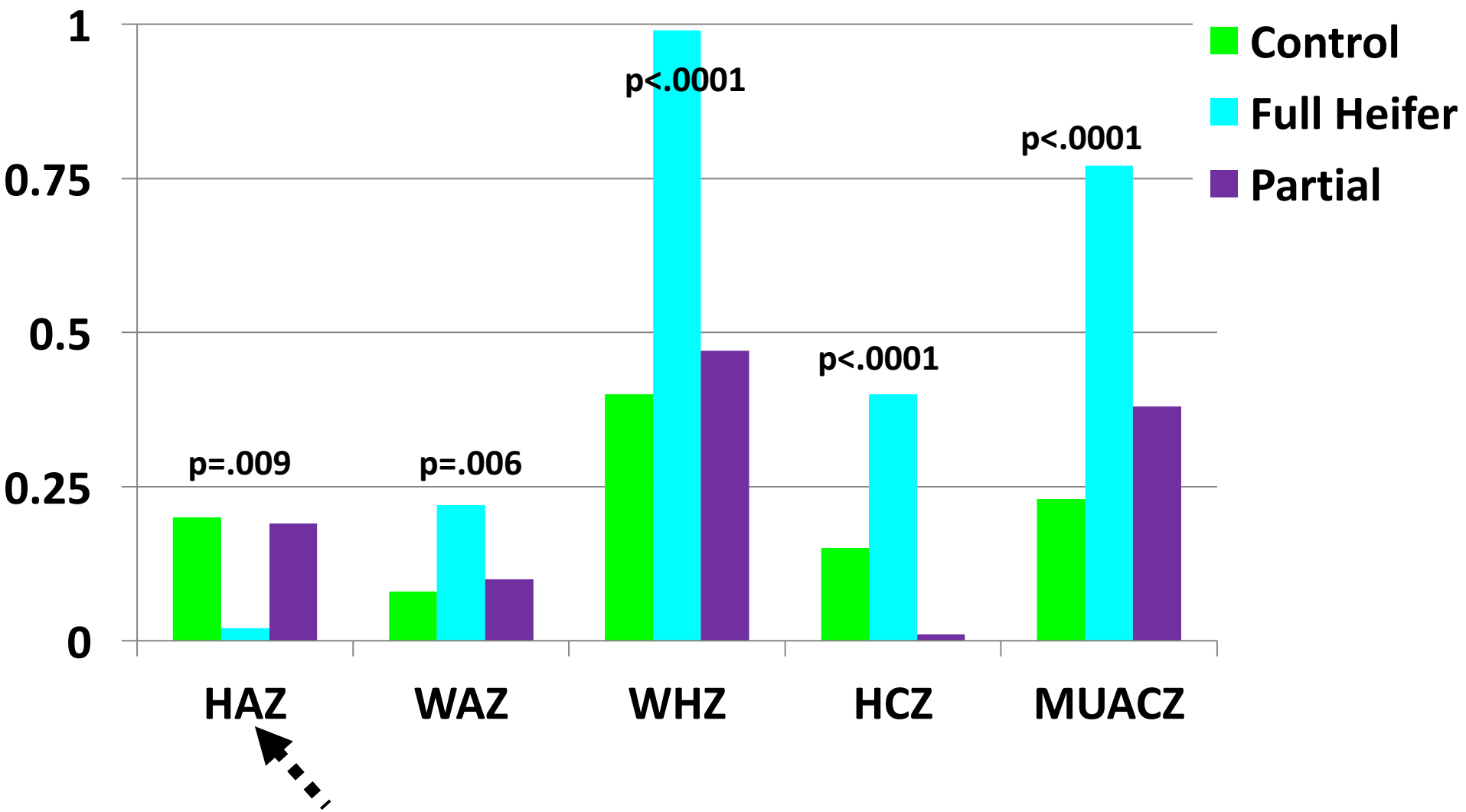
*p<.001

Child anthropometry at baseline: differed between groups



CHILD GROWTH INDICATORS

Δ baseline to 33 months



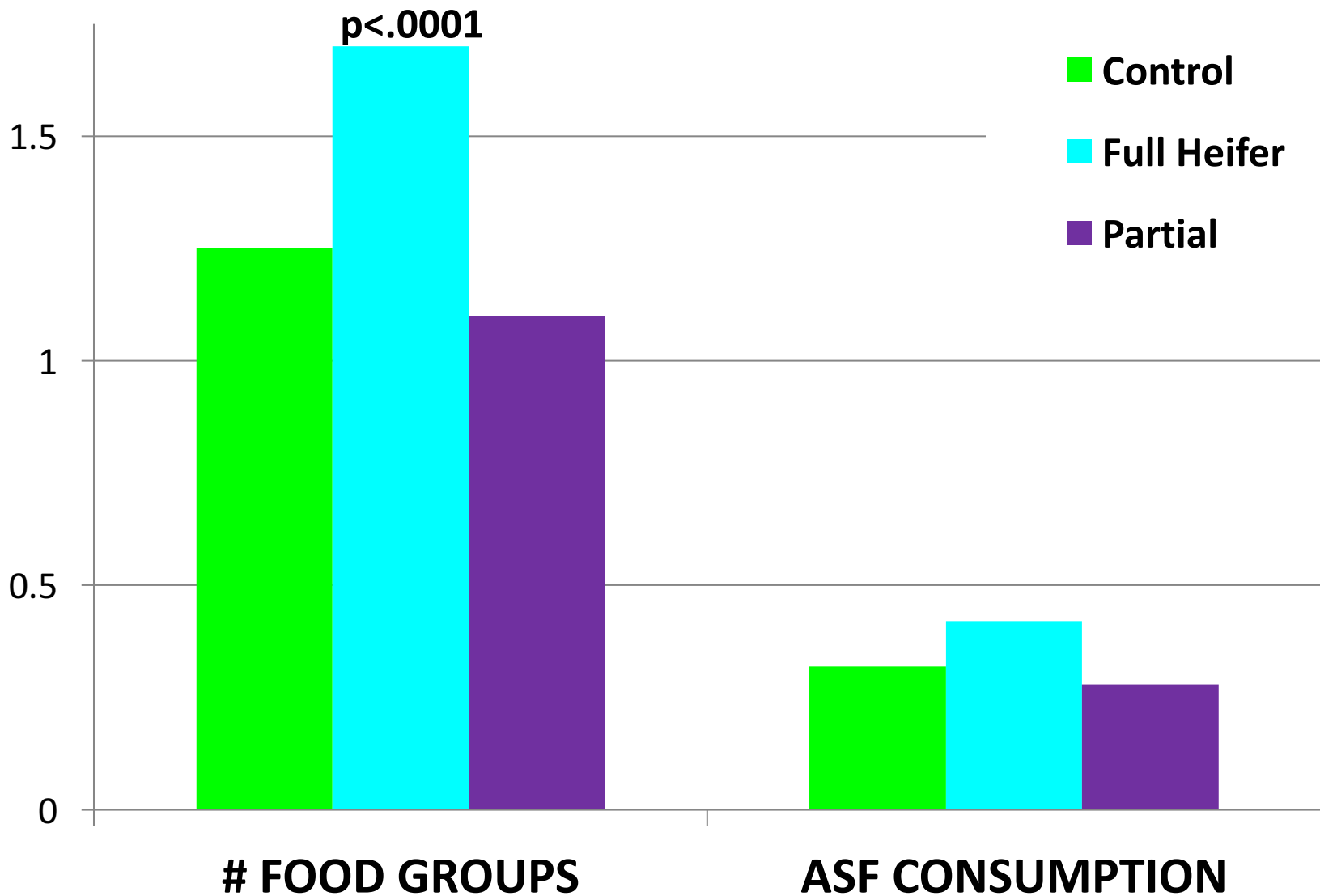
Child diet at baseline

- Dietary diversity and ASF consumption equivalent

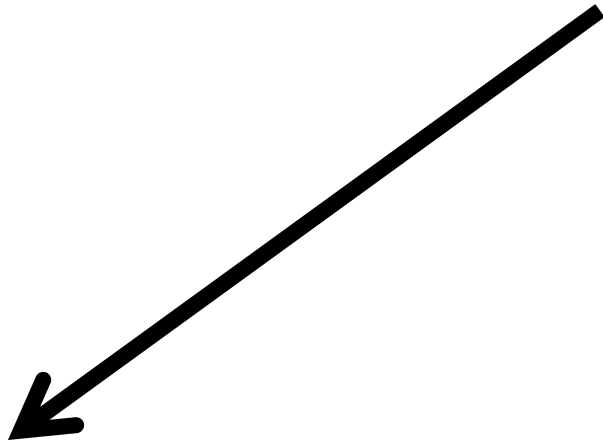


CHILD DIET QUALITY

Δ baseline to 33 months



Mixed effects model adjusted for child and HH factors



- Age
- Gender
- Baseline anthropometry



- Caste
- Animal ownership
- Wealth
- Land ownership
- Women's education
- Women's empowerment

Fixed effects: Group assignment

Random effects: clustering at HH level

Being in the intervention group predicted better growth outcomes

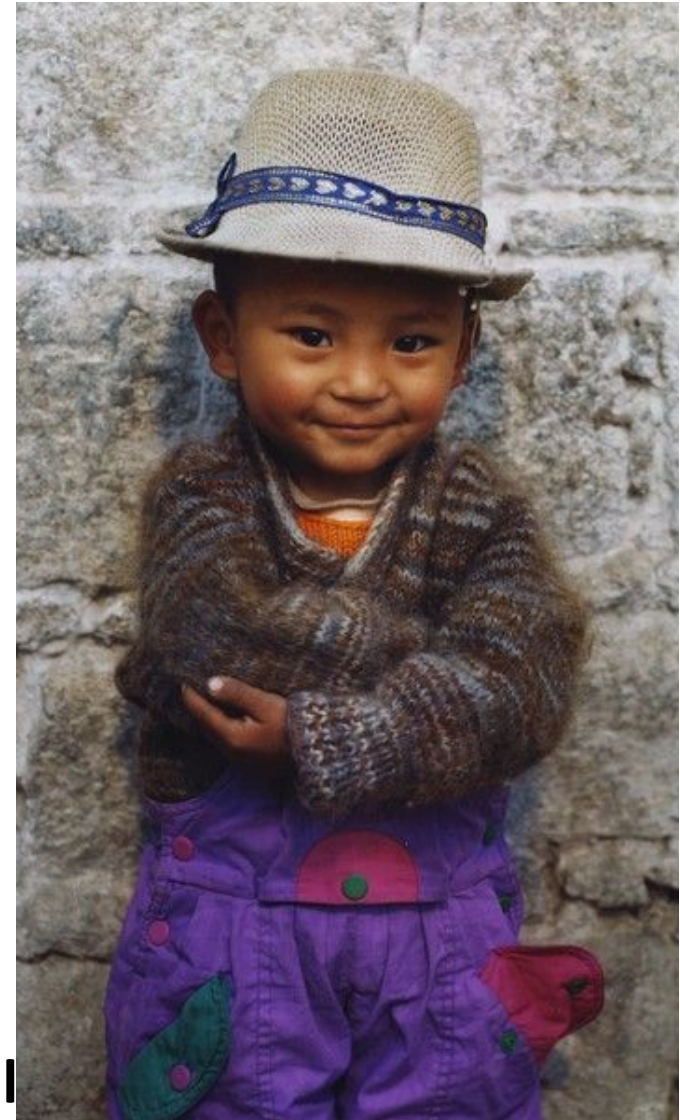


● WAZ

● HAZ

● WHZ

Mixed effects model



Being in the intervention group predicted greater improvement in child diet quality



- Diet diversity
- ASF consumption

Mixed effects model



Being in the intervention group predicted greater improvement in child health



- Diarrhea
- Respiratory illness
- Fever



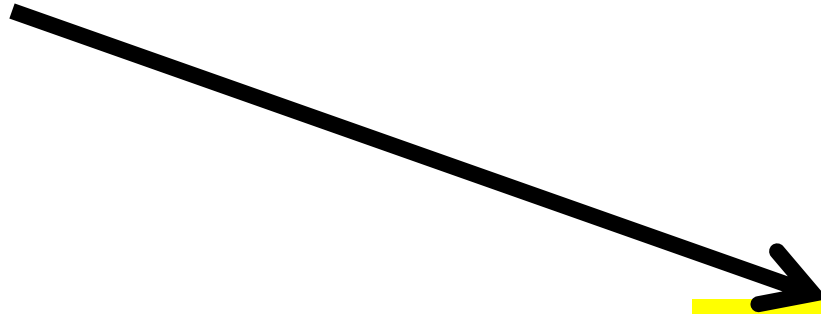
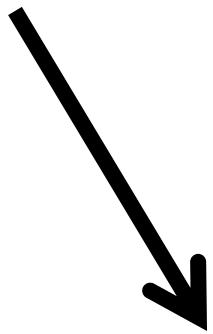
(Composite score)



- **Strengths**
 - Longitudinal, prospective study with retention rate >96%
 - Data collected by consistent independent research team
- **Weaknesses**
 - Possible exposure to other programs in the area
 - Some differences in communities at baseline
 - Did not conduct separate validation of nutrition training

Summary

Better outcomes were seen in families which received the full package of Heifer intervention, at both the **child** and **HH** level



Child: More improvement in

- Growth (HAZ, WAZ, WHZ)
- Diet quality (ASF, DDS)
- Health (# of illness episodes)

HH: Greater increases in

- Wealth
- Soap uses
- Diet diversity
- Food security

Conclusion

Intensive, holistic interventions may be more effective in creating measureable and sustainable improvements in important child and HH outcomes

...although these are more costly and more difficult to implement





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The U.S. Government's Global Hunger & Food Security Initiative

Acknowledgements

- Heifer Nepal
- Heifer International
- Valley Research Group
- Nutrition Innovation Lab
- Participating families



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Tufts
UNIVERSITY

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U.S. GOVERNMENT PARTNERS



Obrigado!

شكراً

Gracias

Merci

Vielen
Dank

Thank You

Ευχαριστώ

धन्यवाद