

Effectiveness of zinc for the management of diarrhea in rural Pakistan

Pakistan Zinc Effectiveness Trial
Group*

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Diarrhea burden & management in Pakistan

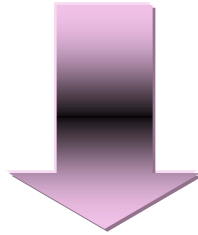
	PDHS(1990) ¹	MICS(1995) ²
Diarrhea in preceding 2 weeks	15 %	26 %
ORS use during diarrhea episodes	39 %	46 %
Increased fluid and feed during diarrhea episodes	8.8 %	25 %

1. Macro International/NICHD. Pakistan Demographic and Health Survey 1990/1991.1990.
2. Government of Pakistan. Multiple Indicators Cluster Survey of Pakistan (MICS), Ministry of Health, Government of Pakistan. 1995.

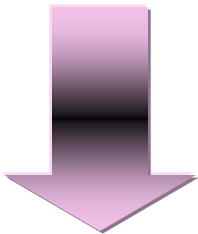
Study design

- Phase 1: Formative Research (2003)
- Phase 2: Pilot phase & development of intervention plan (2004)
- Phase 3: Effectiveness evaluation of zinc at scale (2005-7)

Phase 3

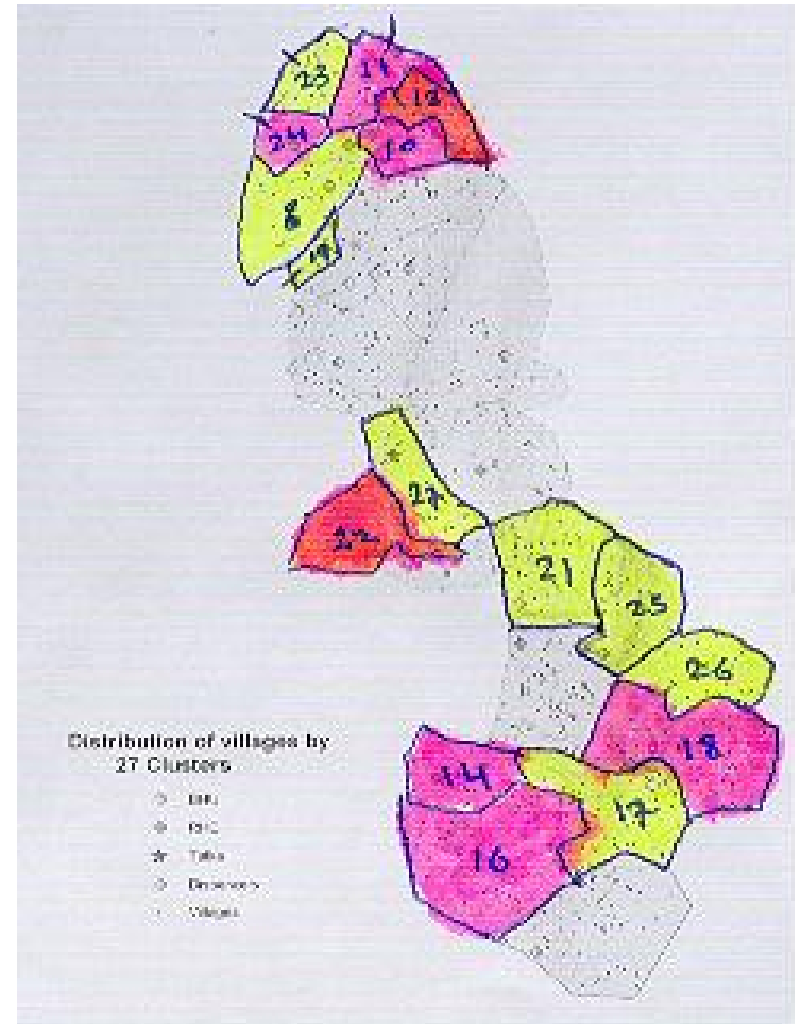
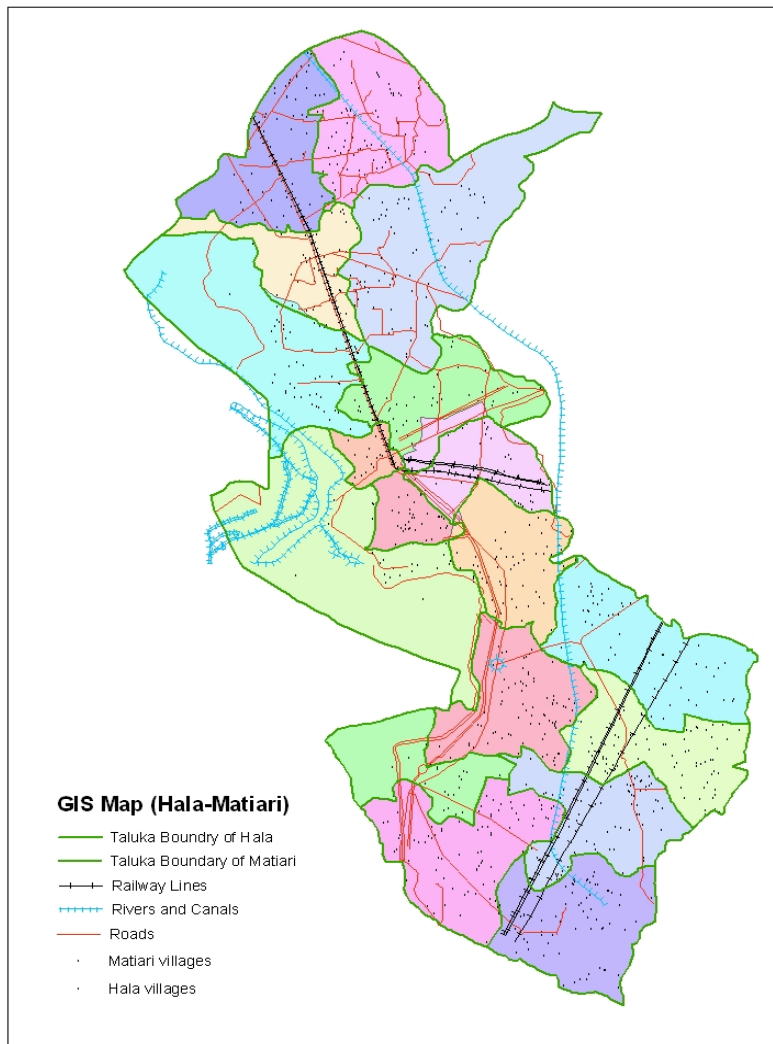


Upscaling the Zinc Intervention



16 clusters
859 villages
45756 households
304868 population

Intervention and control clusters



Objectives of Phase 3

- 1. To estimate the reduction in severity of diarrhoeal episodes and improved recovery rates in zinc intervention clusters**
- 2. To evaluate the acceptability and effectiveness of zinc treatment for acute childhood diarrhoea through local health care system including:**
 - Acceptance of Zinc in community
 - Downstream distribution in local healthcare system
- 3. To assess if Zinc treatment will lead to**
 - An increase in use of ORS in the community
 - Reduction in use of antibiotics and antidiarrhoeals in the community
- 4. To develop the framework and methodology for inclusion of zinc in National Primary Health Care Programme for the government of Pakistan**

Provision of Zinc (“Zincol”-dispersible tablet) for Diarrhea

- Lady Health Workers and Government Health Care Facilities provided ORS and zinc free
- Pharmacies were provided zinc for 10 Rs per course with a suggested retail price of 15 Rs
- Physicians were provided free samples but primarily expected to prescribe zinc to be obtained from pharmacies

Marketing Activities

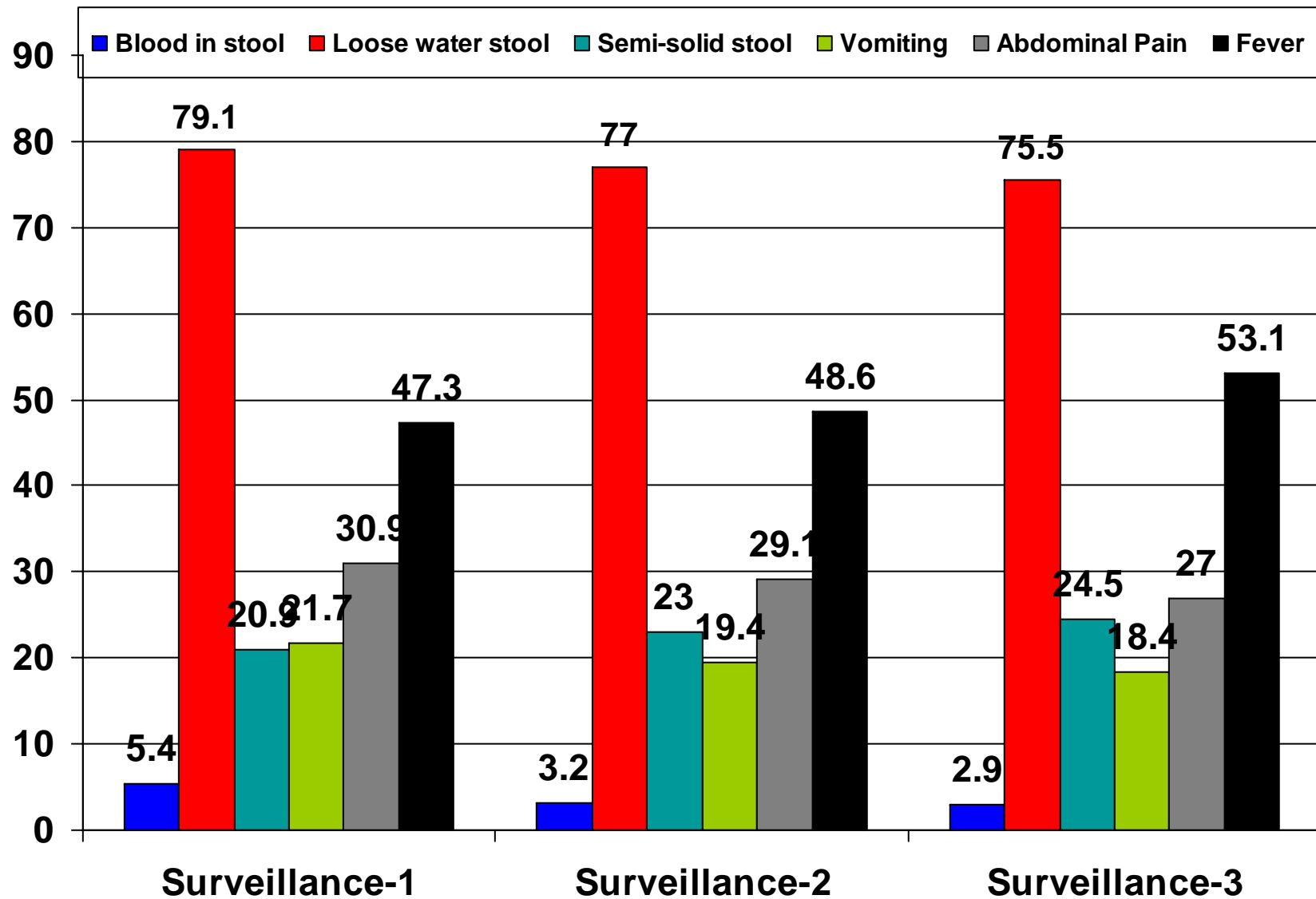
- The Government Health Care Facilities, Private Health Care Providers and the Pharmacies were visited every fortnight.
- Posters and banners were placed at Health Care Facilities, Clinics, Medical Stores and pharmacies and at the important public places in Intervention clusters

Evaluation Methodology

- Regular surveillance of the population was performed every 3 months by a team of trained data collectors (independent of the intervention staff)
 - Children with diarrhea in last 24 Hours and 2 weeks were identified and details collected on nature of diarrhea and treatment received.
 - Every fifth child with current diarrhoea was followed up by a study team with additional 3 visits (at day 3,7 & 14) to complete profile of diarrhea, treatment sought and recovery
 - No treatment or care provided (except referral).

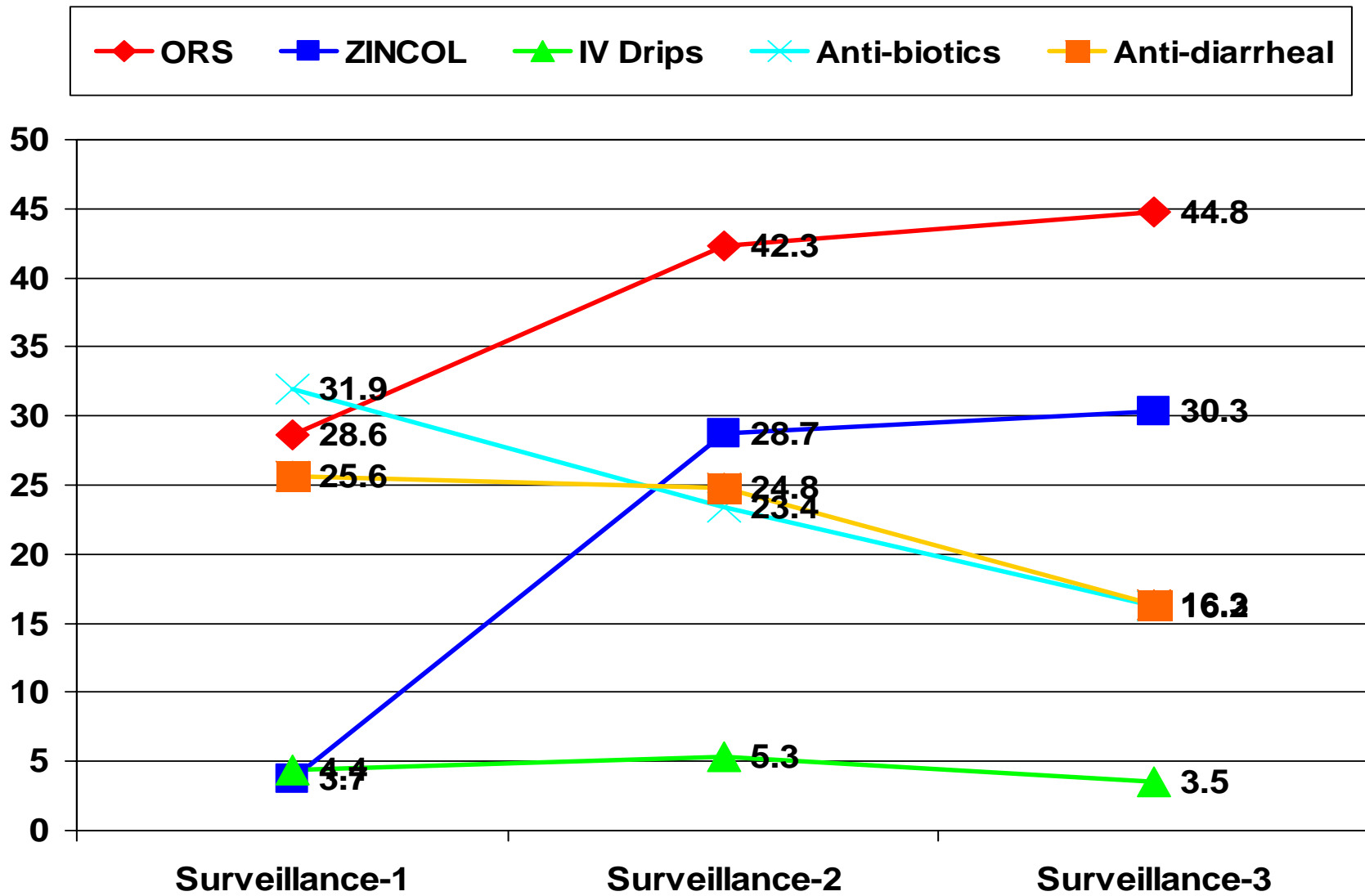
Selected findings

Associated Symptoms (Intervention)



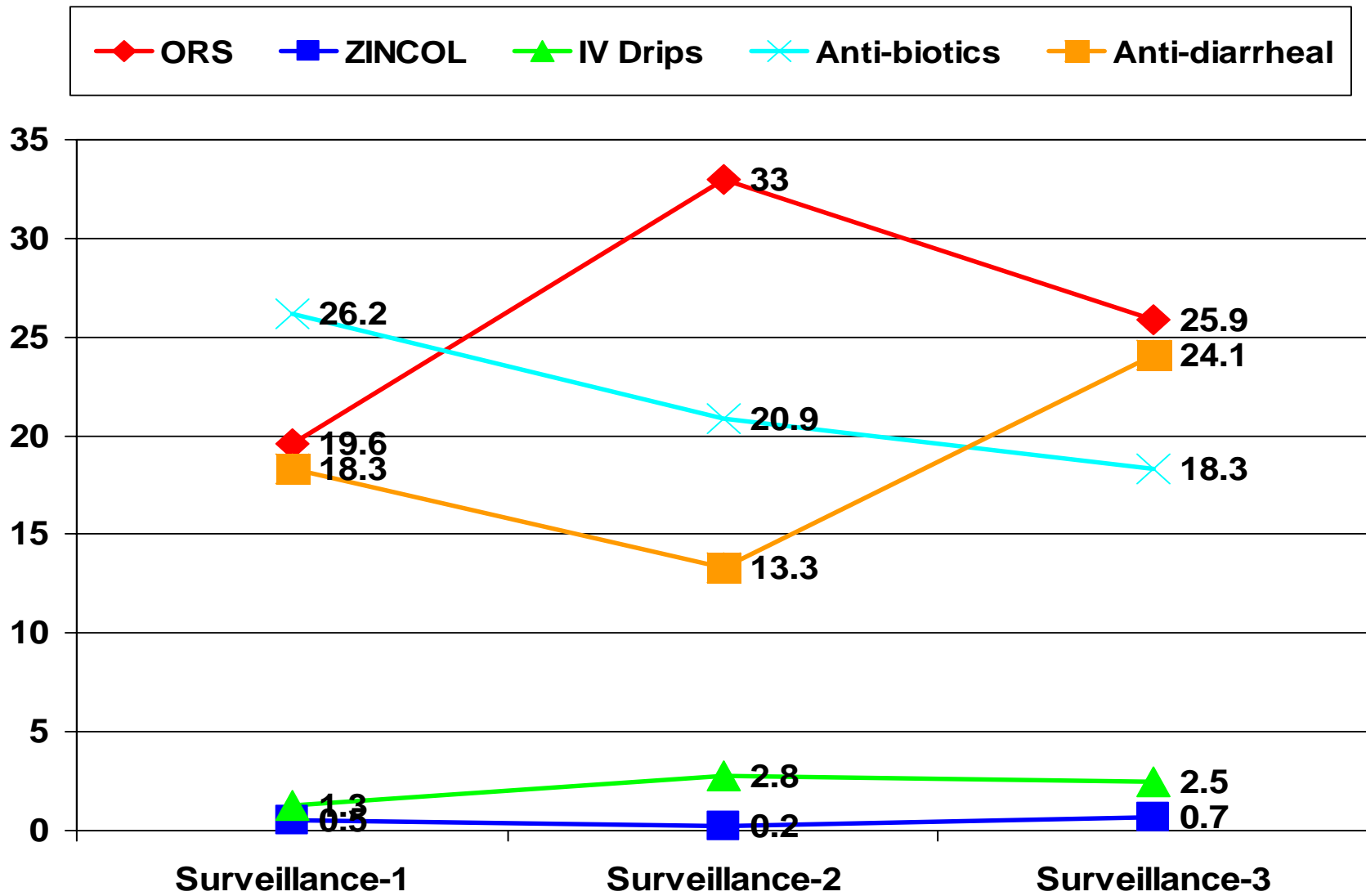
Treatment trends for diarrhea

Intervention clusters surveillance

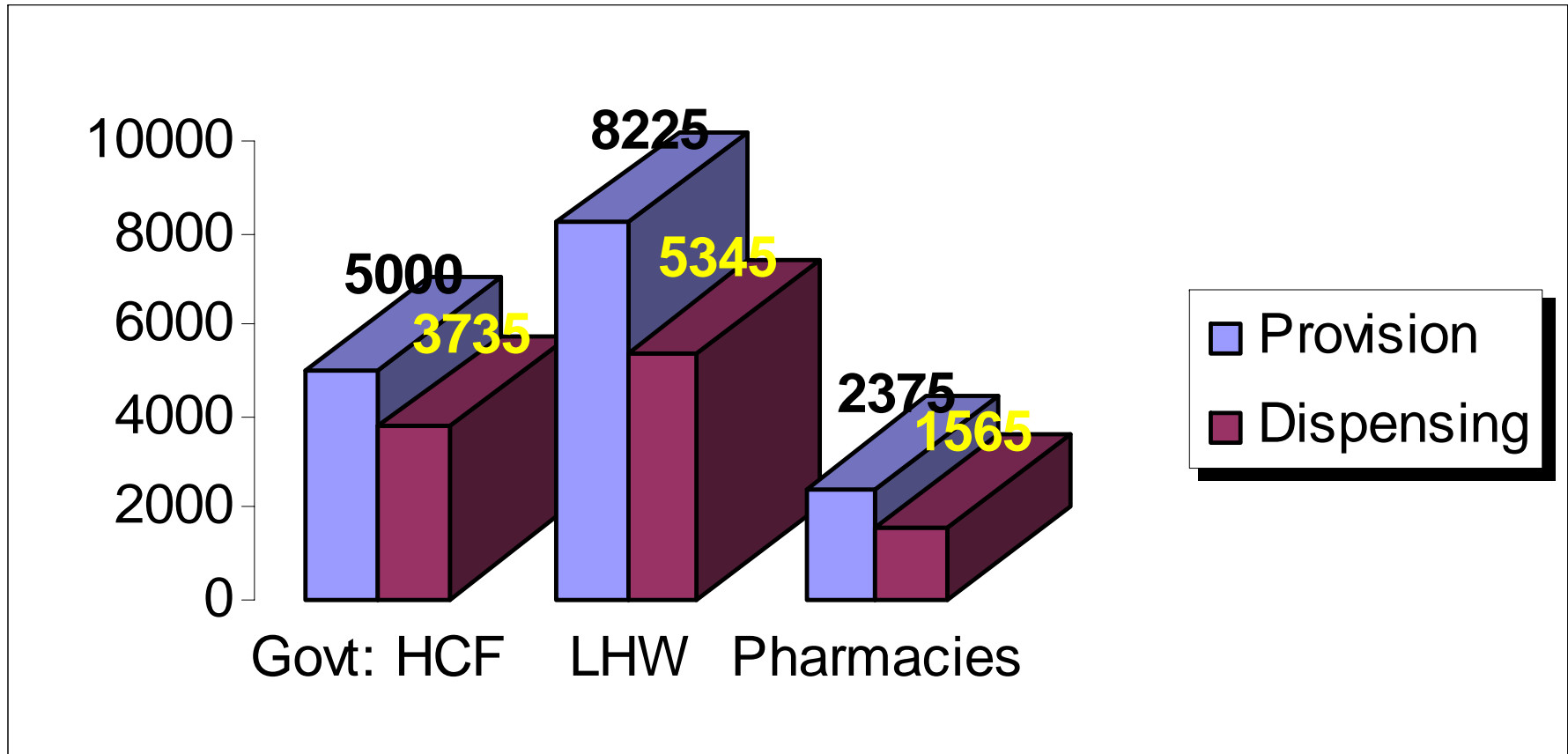


Treatment received

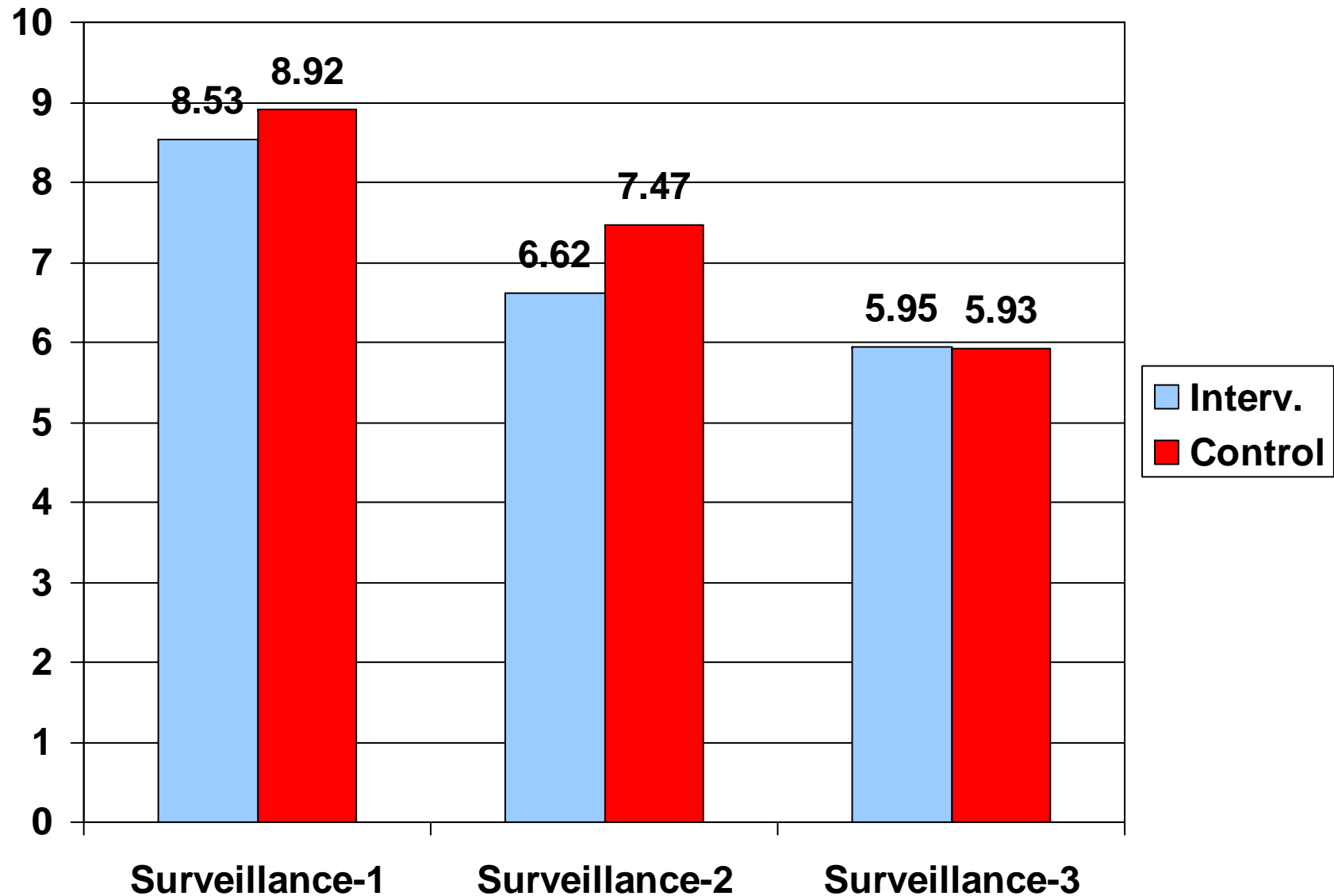
Control clusters surveillance



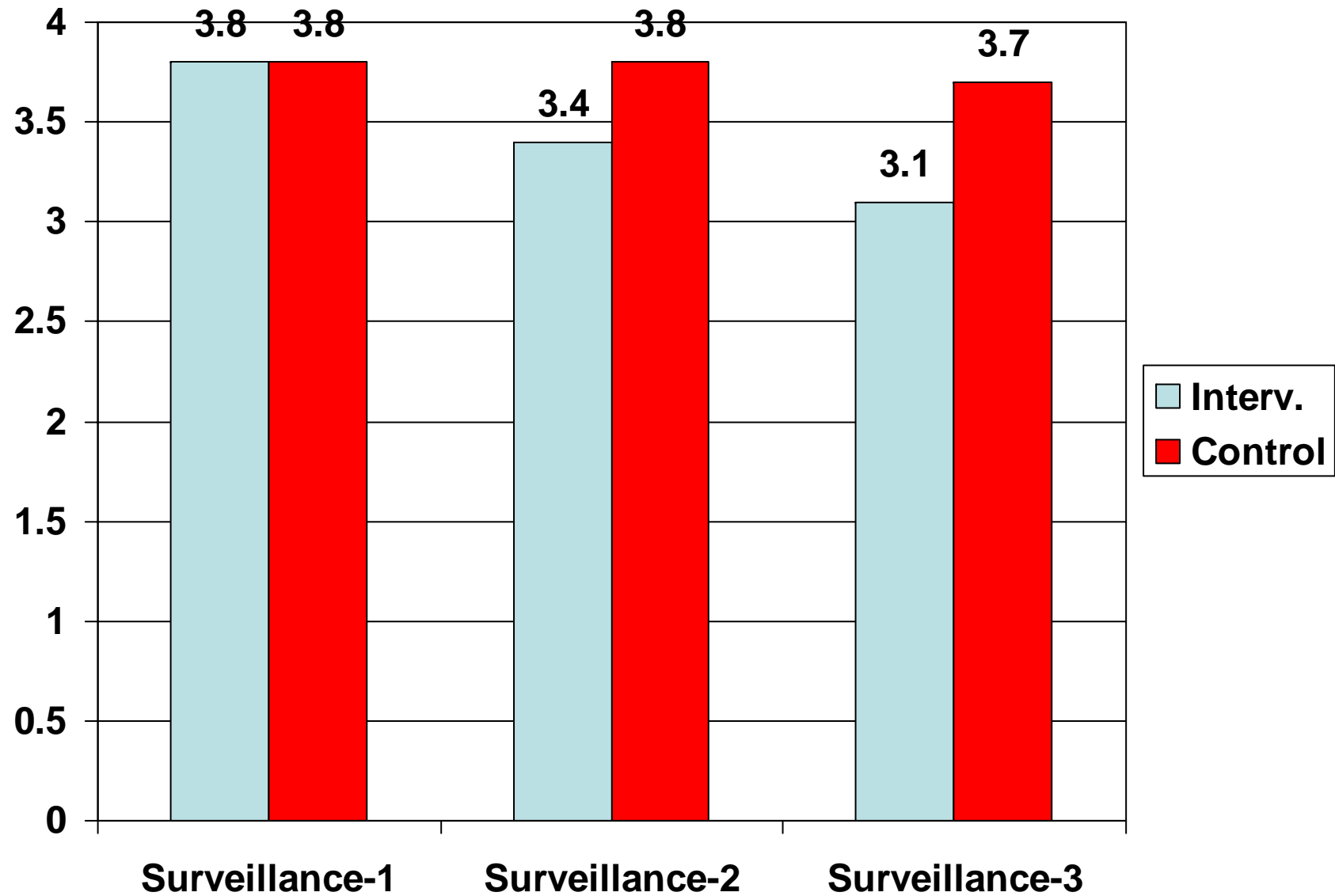
Zinc Blister Provision /Dispensing



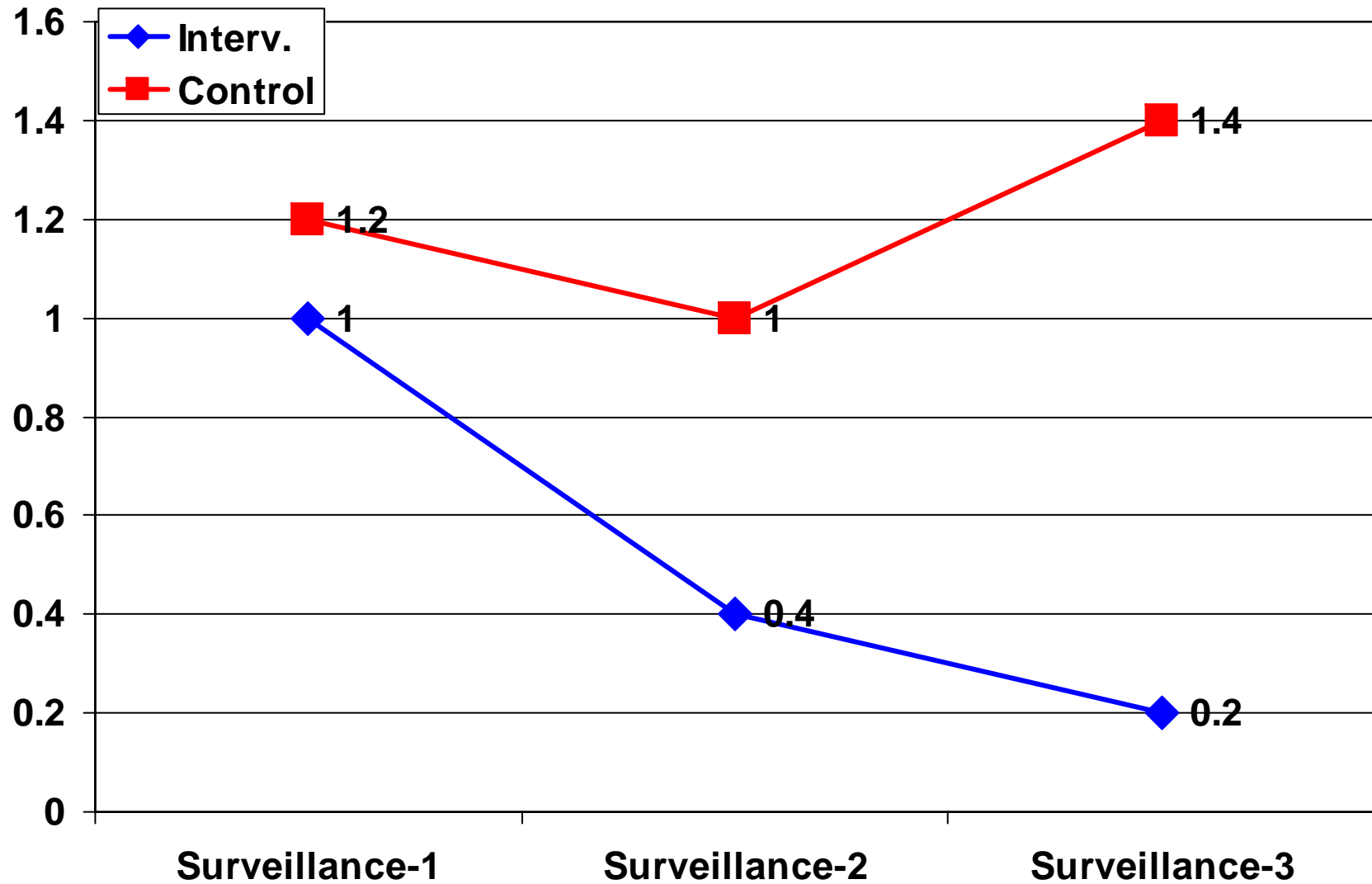
Diarrhea Rates % (previous 24 hrs.)



Avg. duration of Diarrhea (days)



Rates of hospitalization of children for diarrhea (%)



Conclusions (1)

- These preliminary data from an effectiveness trial suggest that it is feasible to introduce zinc for the treatment of diarrhea in health systems at scale
- A social marketing scheme for the use of zinc (modeled on usual pharmaceutical detailing) and public sector training led to a significant uptake of zinc and alterations in prescribing patterns by public and private care providers, pharmacies and Lady Health Workers

Conclusions (2)

- Routine household surveillance indicated a significant increase in the use of zinc for the management of diarrhea in intervention clusters
- This was also accompanied by a significant increase in the use of ORS for diarrhea in both intervention and control clusters
- The use of zinc in the intervention clusters was accompanied by a significant reduction in diarrhea incidence and reduced rates of hospitalization

Conclusions (3)

- Similar data and trends were seen in the subset of children with diarrhea who were selected for in-depth follow up
- The surveillance data suggests that the overall use of zinc in the intervention clusters is accompanied by a significant reduction in antimicrobial and anti-diarrheal prescribing and use at household level

Cost of treating dehydration

Source	Treatments	Range of costs
Government facility	ORS (IV often not available)	Free of charge
Shop	ORS	Rs. 5-7 per sachet (\$0.08-0.12)
Private clinic	IV drip given in clinic	Rs. 150-300 / bag (\$2.50-5.00)
Private hospital	IV drip & other treatments given in hospital	Rs. 5,000 - 15,000 for hospital care and other costs (\$85-256)

Important Note: In case of severe dehydration or diarrhoea parents seek care from private or public hospitals in big cities. In that event treatment cost include hospital cost 40%, Medicines 27%, transport 9%, food 10% and attendant 14% with some variations in public and private sector hospitals.

Total costs of diarrhoea treatment

Where was diarrhoea treated?	Severity of diarrhoea		
	Mild	Moderate	Severe
At home	<Rs. 50 <\$1	Rs. 50-100 \$1-2	
Private clinic	Rs. 100-200 \$1.75-3.50	Rs. 300-500 \$5-9	Rs. 500-1500 \$9-26
Private hospital in Hyderabad			Rs. 5000-15000 \$85-260
Civil hospital in Hyderabad			Rs. 2000-5000 \$35-85