

Reaching Millennium Development Goal 4:

Recent decline in Childhood Mortality in Rural Gambia

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Outline

- **Background**
 - Sub-Saharan Africa and the MDGs;
 - Data and progress measurement.
- **Methods**
 - Study area and population;
 - Data and statistical analyses;
 - Verbal autopsies.
- **Results**
- **Interpretation**

Background - 1

- **Most LDCs not on track to meet health-related MDGs;**
- **At current pace, Sub-Saharan Africa is projected to reach MDG4 in 2165;**
- **Region is characterised by fragile and fragmented health systems;**

Background - 2

- **Reported pockets of improvements in childhood mortality,**
 - e.g. DHS data showed significant gains in child survival in Tanzania between 1999 and 2004.
- **Under-5 mortality levels in West Africa remain exceptionally high despite recent improvements in the continent;**

Background - 3

- **Scarcity of accurate demographic data hampers measurement of progress towards MDG attainment.**
- **Birth histories from national DHSs are characterised by recall and reporting biases; and do not establish causes of death.**

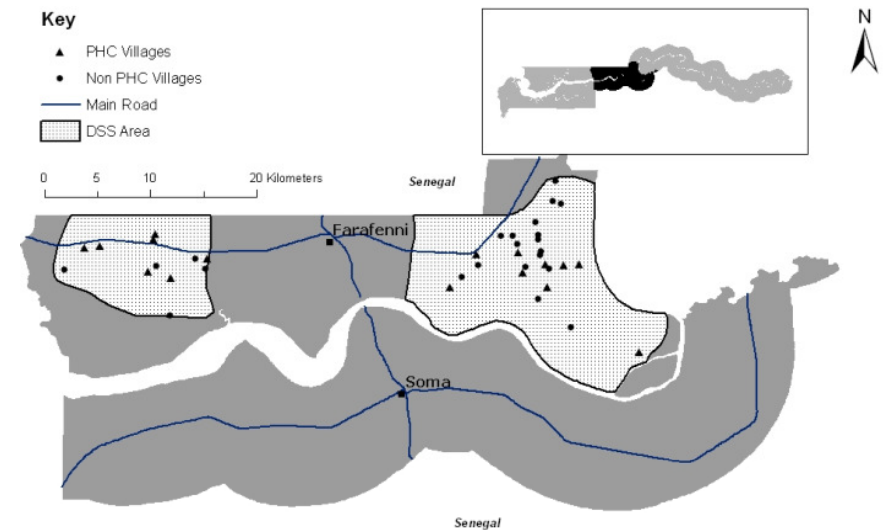
Background - 4

- **The HDSS provides an alternative approach**
 - Records death prospectively for a defined population;
 - Ascertains causes of death through Verbal Autopsy.
- **Data from Farafenni HDSS is used to demonstrate this approach and describe childhood mortality reductions.**

Methods – 1

Study Area and Population

- FHDSS established in North Bank region of The Gambia in October 1981;
- Biennial census updates until 1989, and quarterly demographic update rounds from April 1989;
- Residents generally poor with low cash incomes;
- Majority are subsistence farmers and Muslim;
- Main ethnic groups are Wollof, Mandinka and Fula.



- Served by 1 Referral Hospital, 5 Health Centres, and 16 PHC Outlets;
- Population on 30th September 2008 was 17,483

Methods – 2

Verbal Autopsies

- **A VA administered for every dead child from 1998;**
- **Questionnaires evolved to the INDEPTH Network standard VA instruments;**
- **Standard VA coding methodology adopted using ICD 10;**
- **Only immediate (direct) causes of death are presented.**

Methods – 3

Data and Statistical Analyses

- Study follow-up time is from 1st April 1989 to 30th September 2008 — 19.5 years;
- Divided into five periods: defined *a priori* as one 3.5-year period, and four subsequent 4-year periods.
- Mortality rates calculated as number of deaths per 1,000 person-years.
- Kaplan-Meier survival probabilities used to derive rates per 1,000 live births.

Methods – 4

Data and Statistical Analyses

- **Conventional age brackets adopted:**
 - < 1 month (Neonatal);
 - 1-11 months (Post-neonatal);
 - < 1 year (Infant);
 - 1-4 years (Child);
 - <5 years (Under-5).

Methods – 5

Data and Statistical Analyses

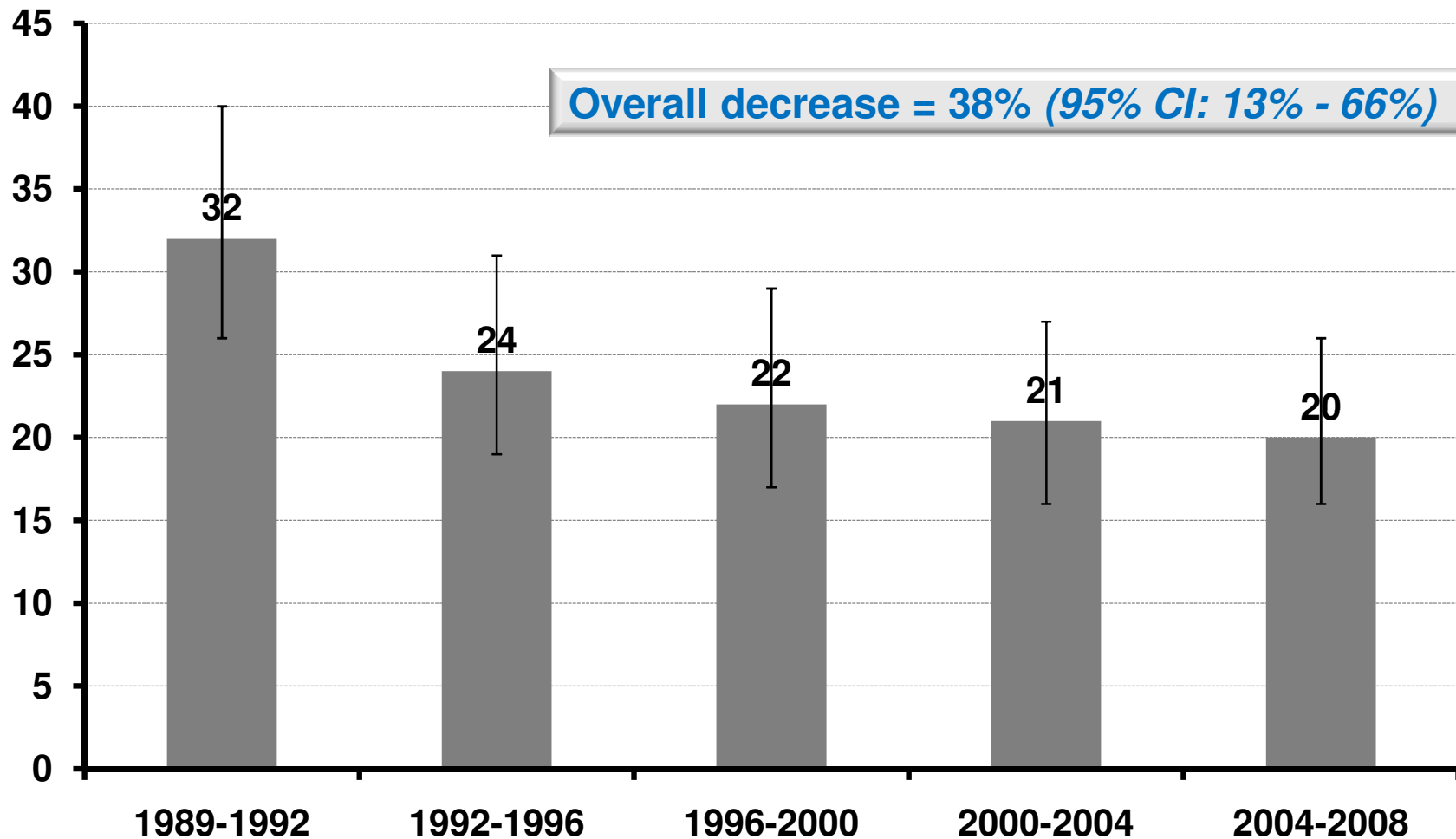
- **Likelihood Ratio Tests used to assess Statistical significance.**
- **Poisson Regression used to investigate changes in cause-specific deaths rates between the periods 1998-2000 and 2004-2008.**

Results

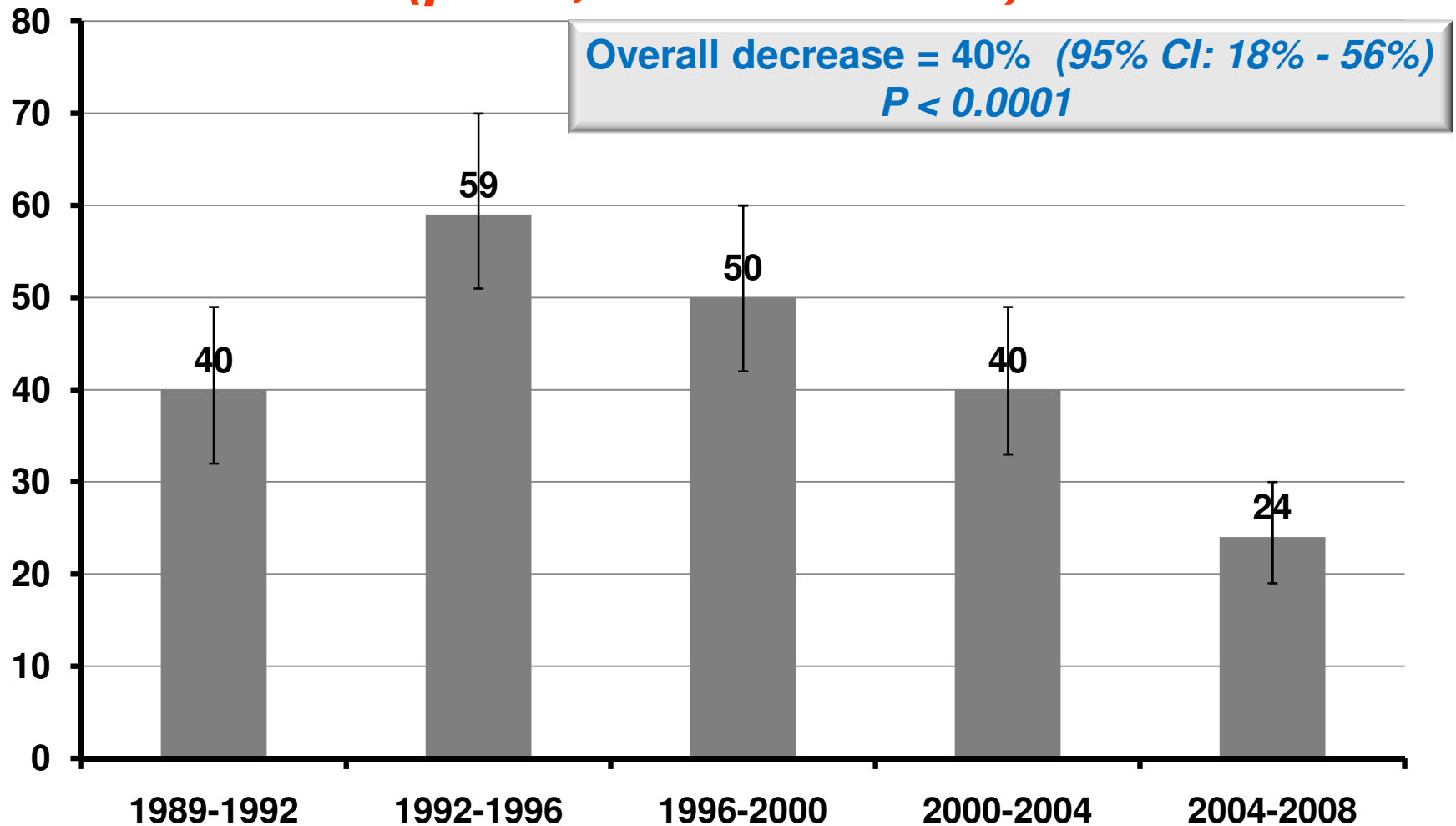
	1989-1992	1992-1996	1996-2000	2000-2004	2004-2008
Mid-term population	15,692	16,050	16,880	18,004	17,330
Number of live births	2,280	2,504	2,513	2,614	2,950
Crude birth rate per 1,000 per annum (95% CI)	42 (40-43)	39 (38-40)	37 (36-39)	36 (35-38)	43 (41-44)

- **1,860 deaths among children under 5 years.**

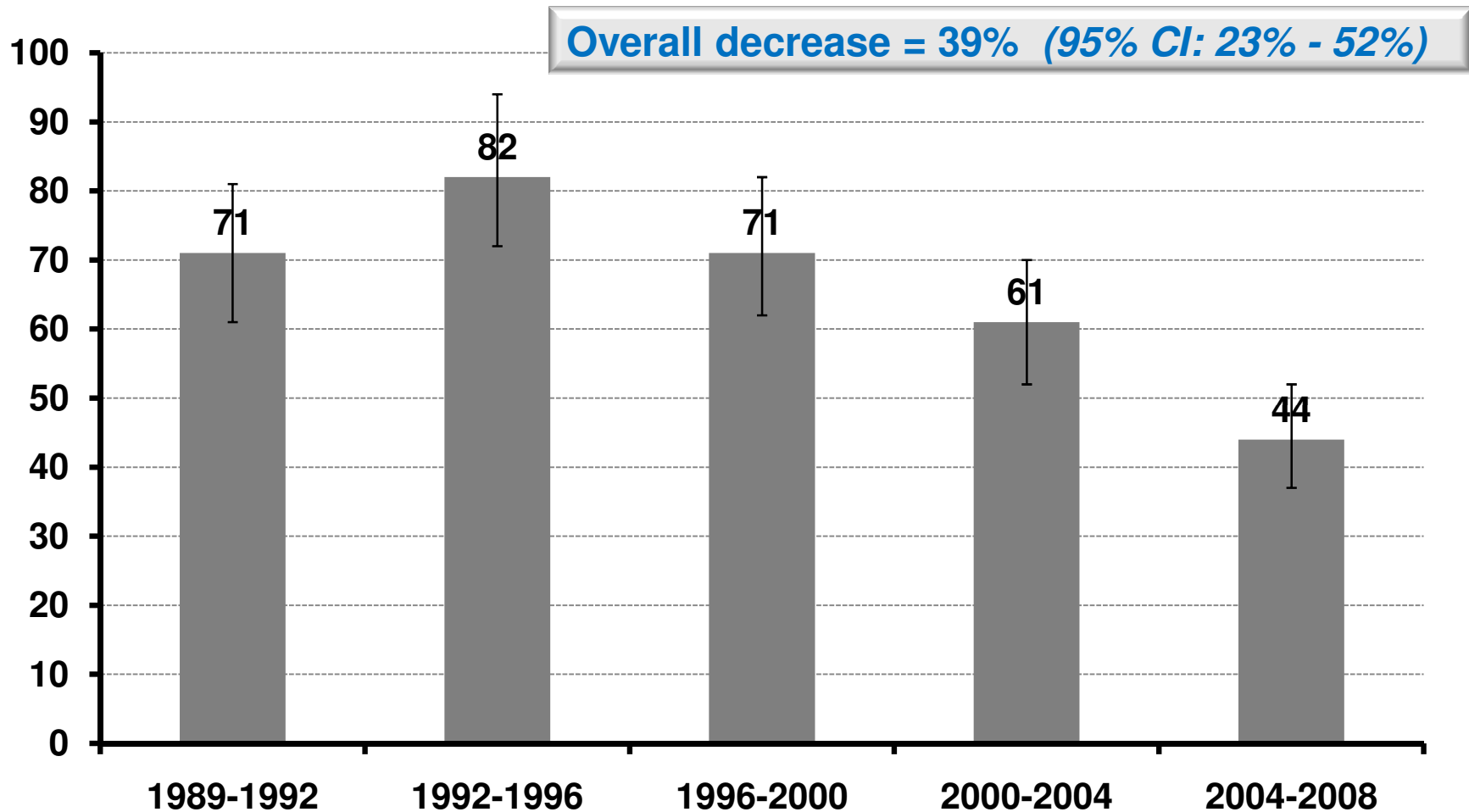
Neonatal Mortality Rate (0-1 Month) (per 1,000 live births)



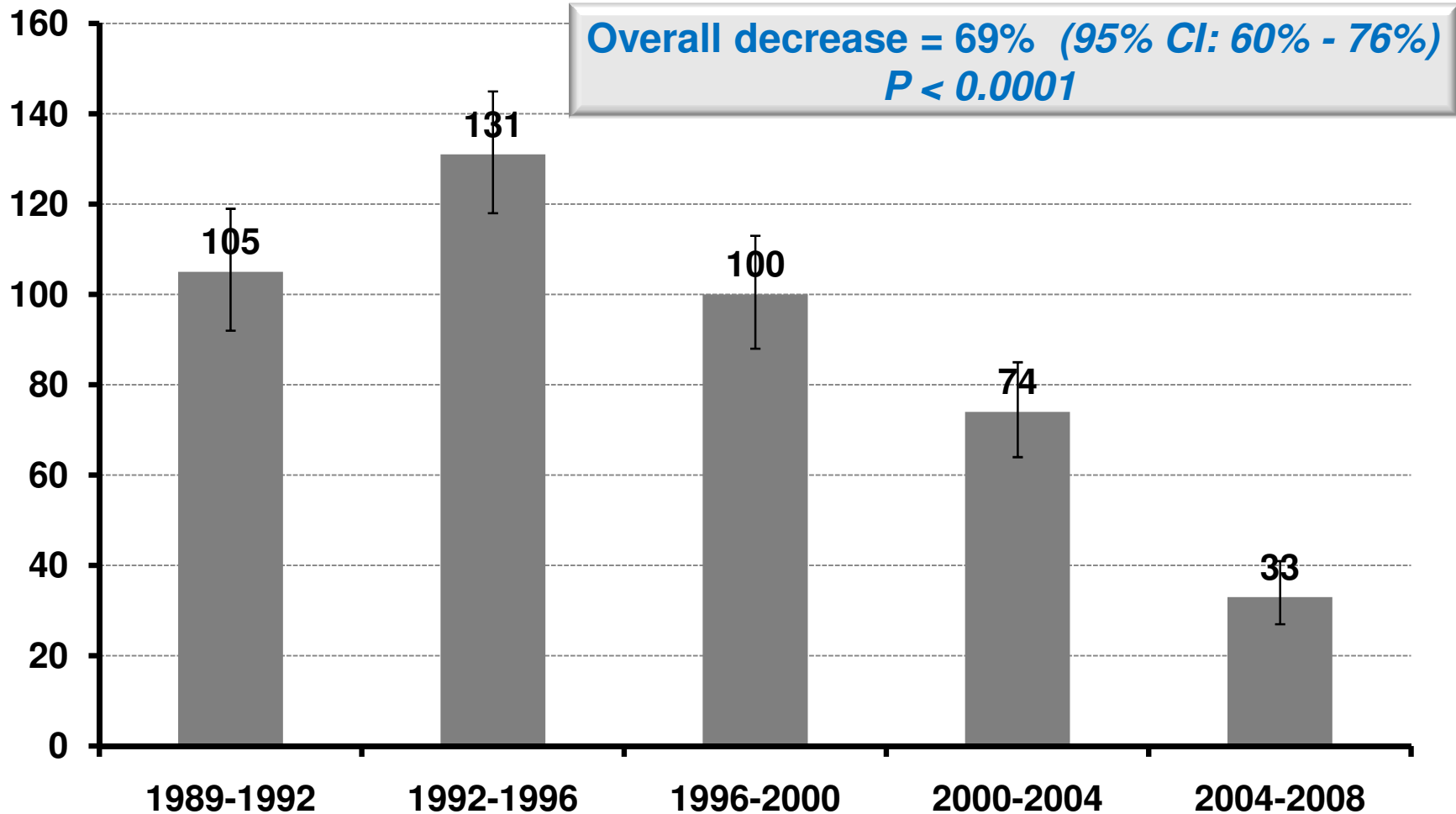
Post-neonatal Mortality Rate (1-11 Months) (per 1,000 live births)



Infant Mortality Rate (0-11 Months) (per 1,000 live births)



Child Mortality Rate (1-4 Years) (per 1,000 population)



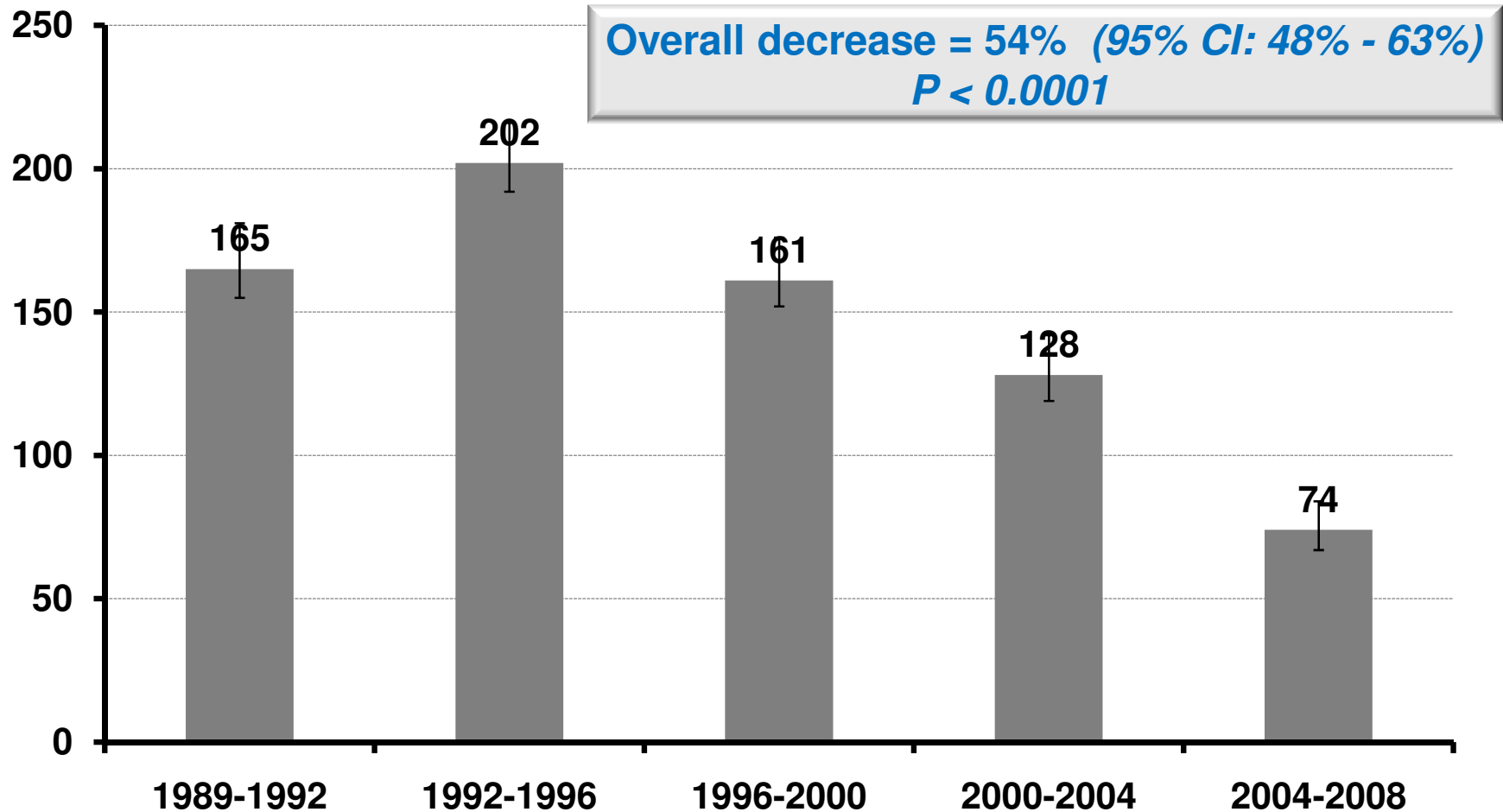
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Under-5 Mortality Rate (0-4 Years) (per 1,000 live births)



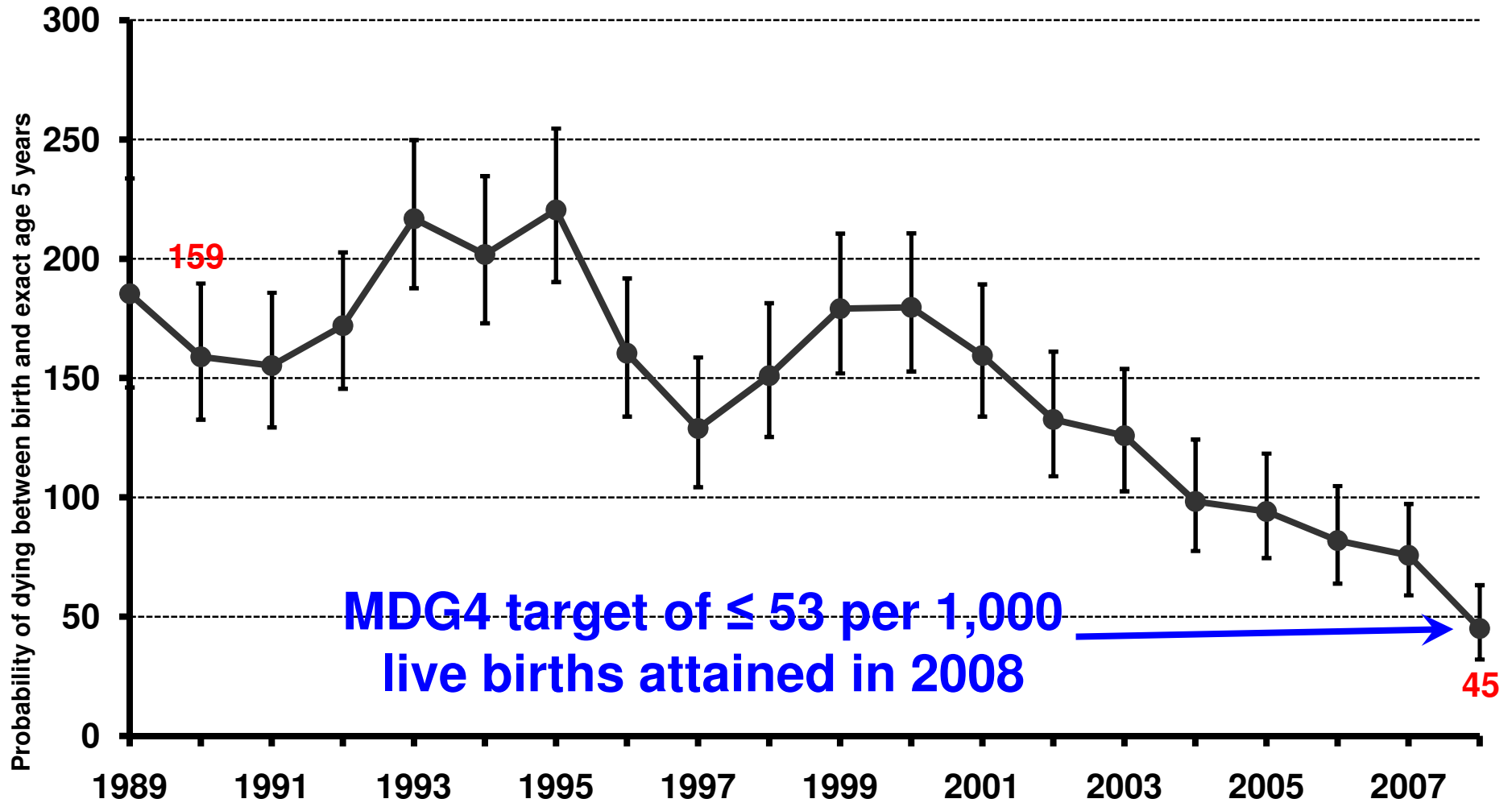
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Trend in Under-5 Mortality



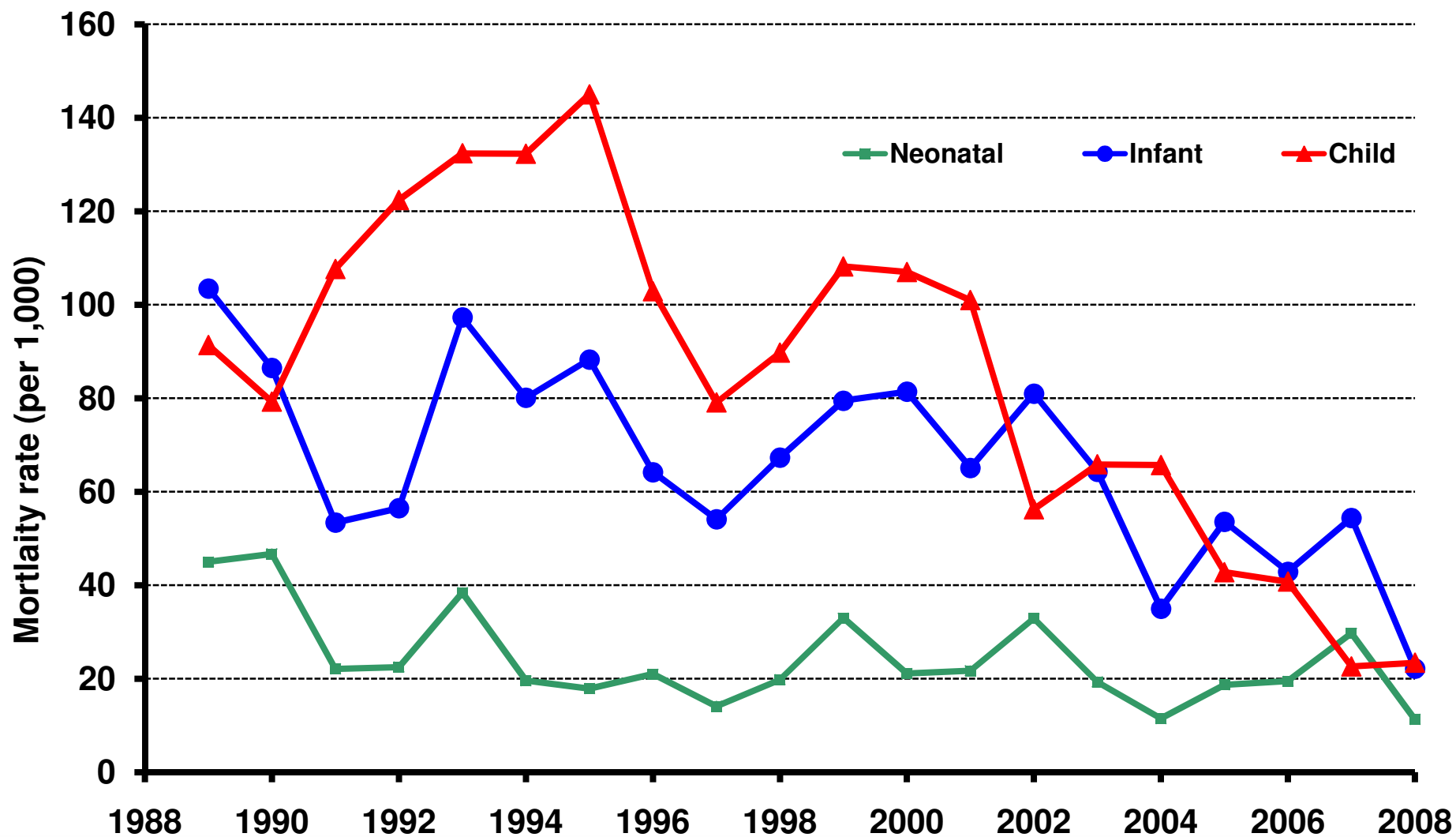
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Pattern of Childhood Mortality



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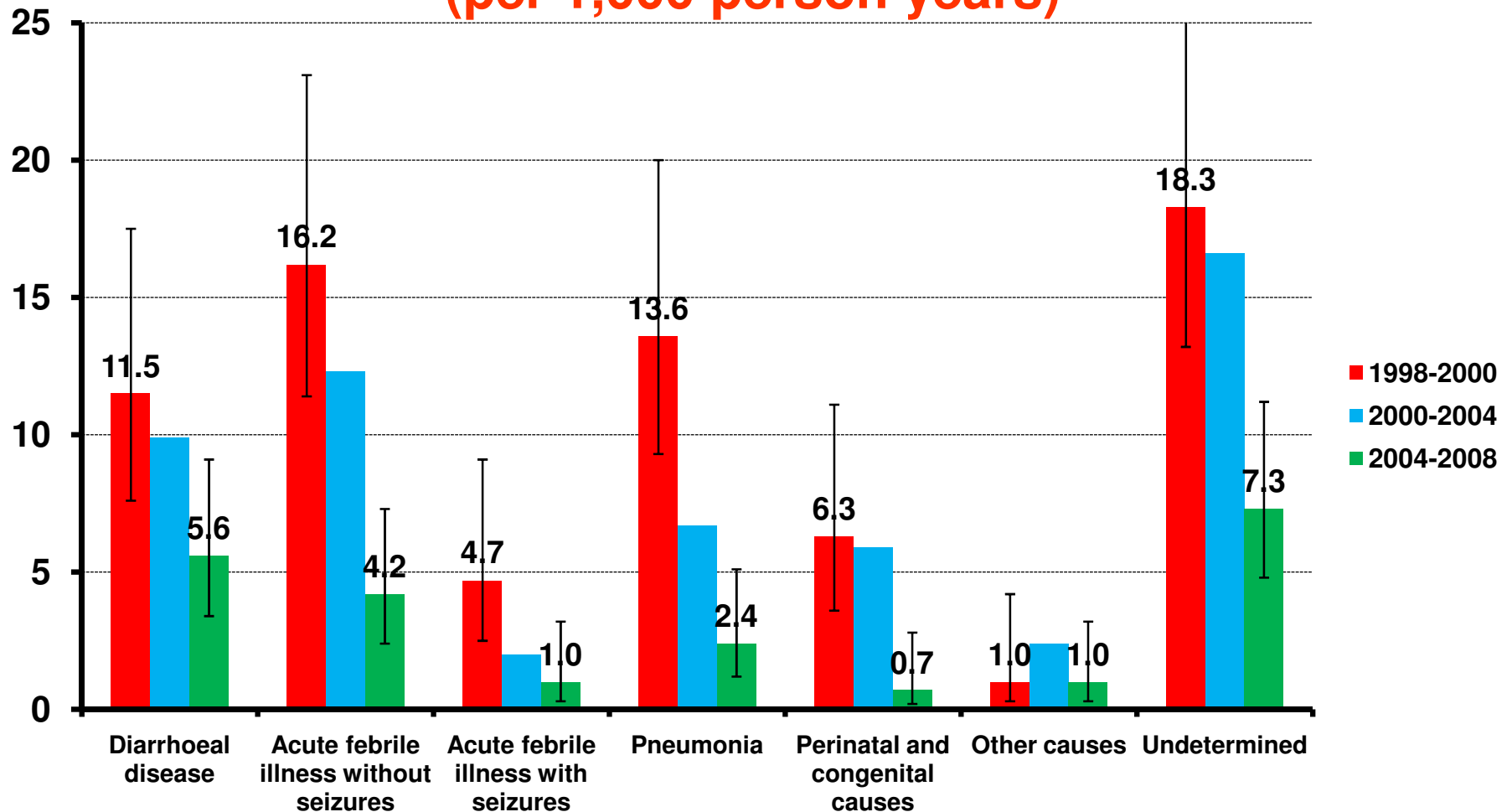
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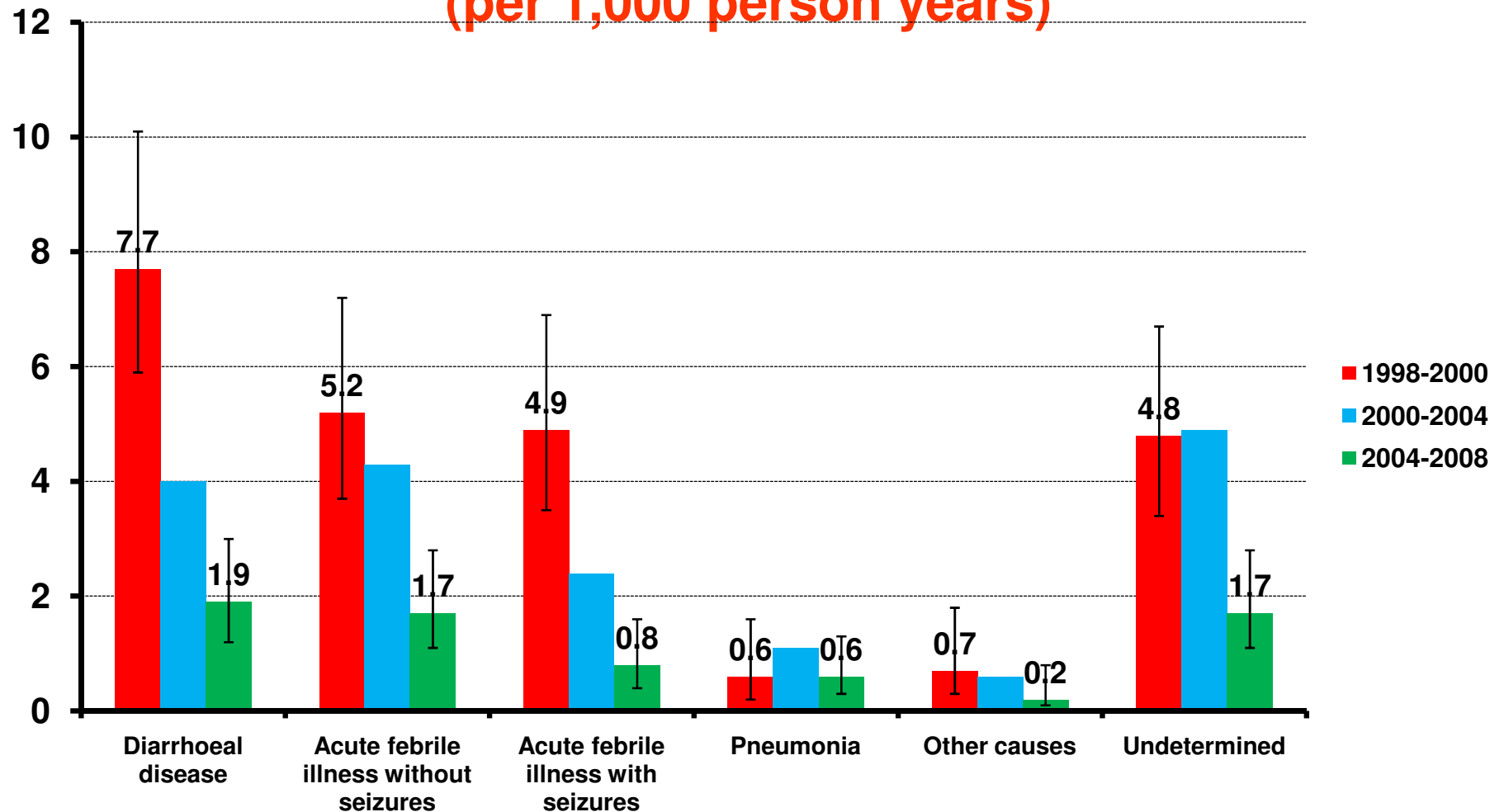
Cause-Specific Mortality Rates Among Infants Aged 0-11 Months

(per 1,000 person years)



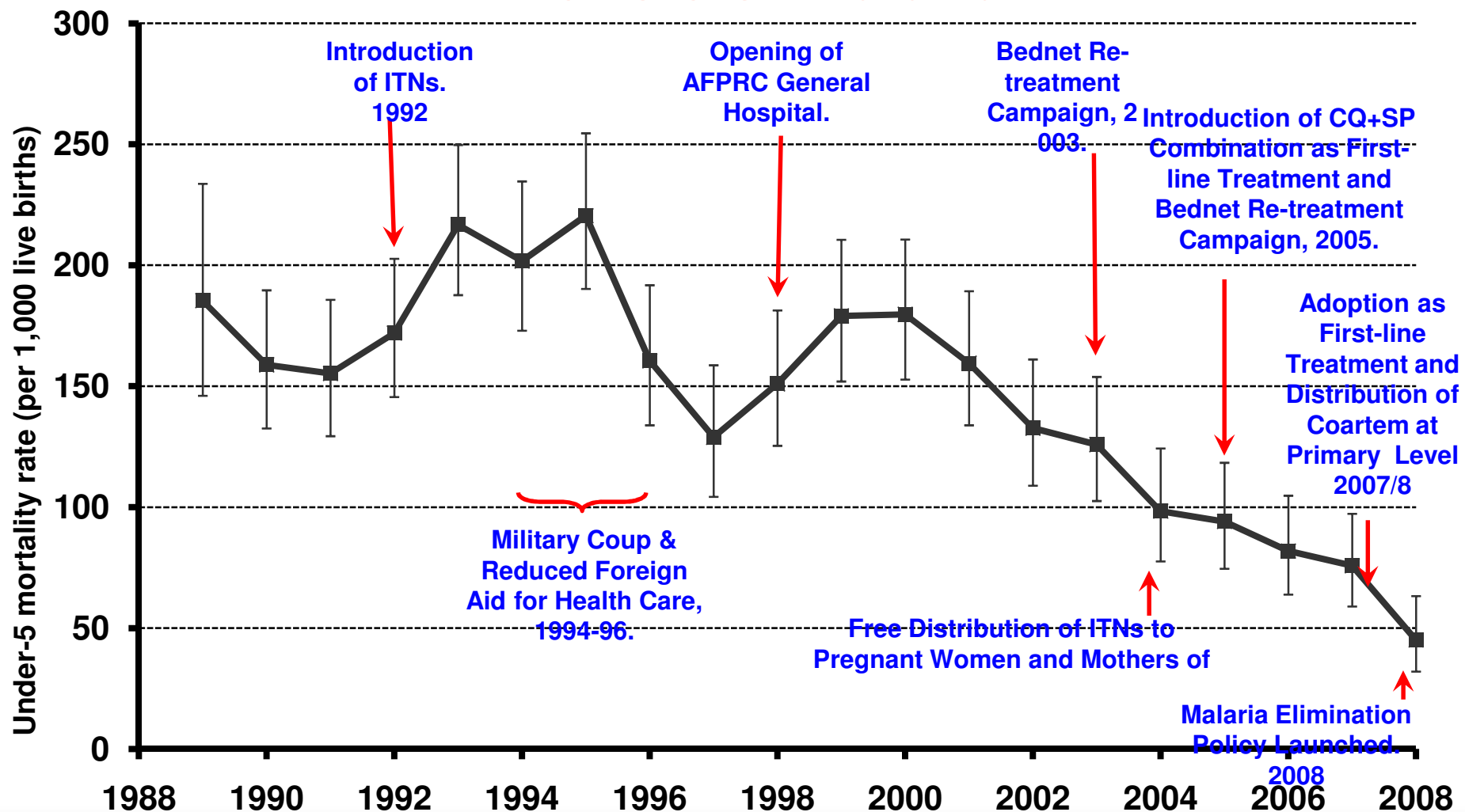
Cause-Specific Mortality Rates Among Children Aged 1 - 4 Years

(per 1,000 person years)



What accounts for the decline?

The role of malaria



Other Malaria Indicators

Indicator	Kerewan Local Government Area		The Gambia	
	2000	2006	2000	2006
Proportion of children under 5 years with fever in last 2 weeks and received any appropriate anti-malarial drug.	41%	65%	56%	63%
Proportion of children under 5 years old who slept under a bed net[§]	46%	63%	42%	63%
Proportion of bed nets that were treated with insecticide.	49%	54%	35%	49%

§ Reference is the night prior to survey interview.

Sources: The Gambia MICS 2000 and 2005/2006 Reports.

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Any Effect From Immunisation?

Indicator	Kerewan Local Government Area		The Gambia	
	2000	2006	2000	2006
Proportion of children aged 12-23 months who received all EPI vaccines*.	65%	68%	62%	75%
Proportion of children aged 12-23 months who received measles vaccine.	87%	93%	88%	92%
Proportion of children aged 12-23 months who received DPT3 vaccine.	76%	78%	72%	87%

* The range during this period was BCG, DPT 1-3, Polio 0-3, Measles, HepB 1-3, Yellow Fever, Vit A and Hib.
Sources: The Gambia MICS 2000 and 2005/2006 Reports.

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Other Factors.....

Indicator	Kerewan Local Government Area		The Gambia	
	2000	2006	2000	2006
Proportion of children under 5 years old with acute respiratory infection†.	11%	6%	8%	6%
Proportion of females aged 15 years and over who are literate‡.	17%	30%	25%	43%

† Reference period of two weeks prior to each survey interview.

‡ The estimates for 2006 refer to females aged 15 – 24 years only.

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Conclusion

- **Decline in childhood mortality became pronounced with a marked fall in malaria prevalence;**
- **The decline in malaria incidence resulted from scaling up of simple effective control strategies.**

Thank You!!!

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