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Improving Provider Performance

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- After listening to, viewing, and studying the lecture materials in this course, you will be able to do the following:
 - Understand the problems of inappropriate timing and missed opportunities for vaccination
 - Utilize the CASA Program to analyze immunization provider efficiency



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Section A

The Efficiency Problem

- Some children utilize health services but remain unimmunized
- Some possible reasons
 - Low vaccine efficacy
 - Vaccines, supplies out of stock
 - Parental rejection
 - Provider inefficiencies

Framing the Efficiency Problem

- System level
 - Vaccine failures are almost always due to poor cold chain management
 - Stock outages reflect weak logistical systems
 - Vaccination norms and procedures may be out of date
 - Supervision may be inadequate

Framing the Efficiency Problem

- Local level
 - Health workers do not know best immunization practices
 - Health workers do not follow program norms and procedures
 - Health workers do not correctly utilize available information
 - Health workers do not educate parents
 - Health workers are unmotivated

Framing the Efficiency Problem

- System-level program inefficiencies require system-level solutions
- Most local-level problems can be framed in terms of health worker performance
 - Easier to solve
 - Requires supervision and feedback
 - May require retraining, reallocation of program tasks

- *Missed opportunity*: a health care encounter in which a person is eligible to receive a vaccination but is not vaccinated completely
- *Inappropriately timed vaccination*: a child receives one or more vaccinations before or after the recommended age
- Note: provider inefficiencies are distinct from *immunization dropout*, a health behavioral problem we will consider in a later lecture

Magnitude of the Problem

- A review of 70 observational surveys in 44 industrialized and developing countries found a median 32% of eligible women and children had experienced missed immunization opportunities (Hutchins, Jansen and Robertson 1993)
 - Industrialized: 15%
 - Developing: 41%

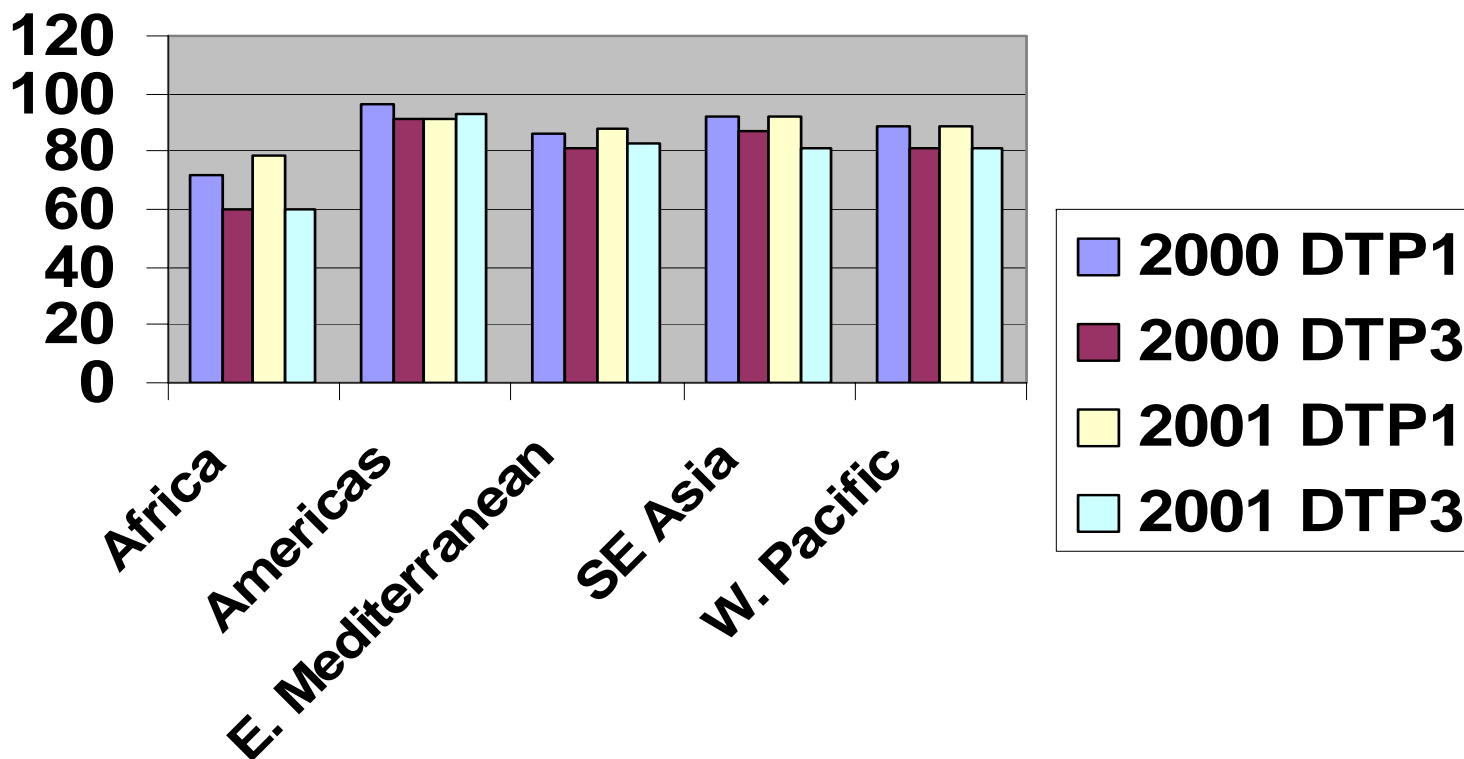
Magnitude of the Problem

- United States
 - Population-based sample of 1,163 children in Oregon and Washington
 - ▶ 60% up to date at age 24 months (Bobo et al 1993)
 - Mail and telephone survey of 1,500 employees of Johnson & Johnson
 - ▶ 65% of children born 1984–1991 up to date at age 24 months (Fielding et al 1994)

Measuring the Problem

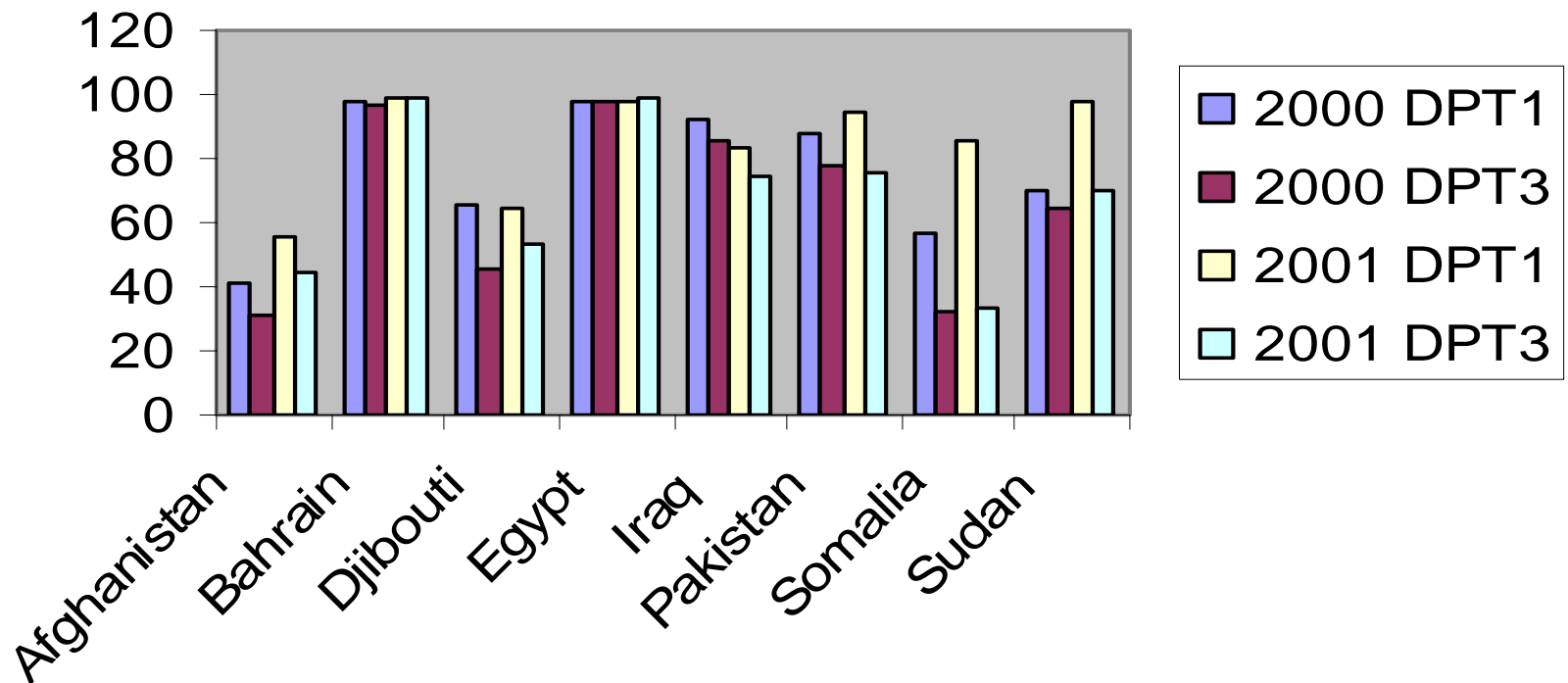
- The most common indicator of missed opportunities in the difference between DTP1 and DTP3, or TT1 and TT2 vaccination rates
- The following slides show why these indicators are most meaningful at the local level

Reported DTP1 and DTP3 Coverage by WHO Region



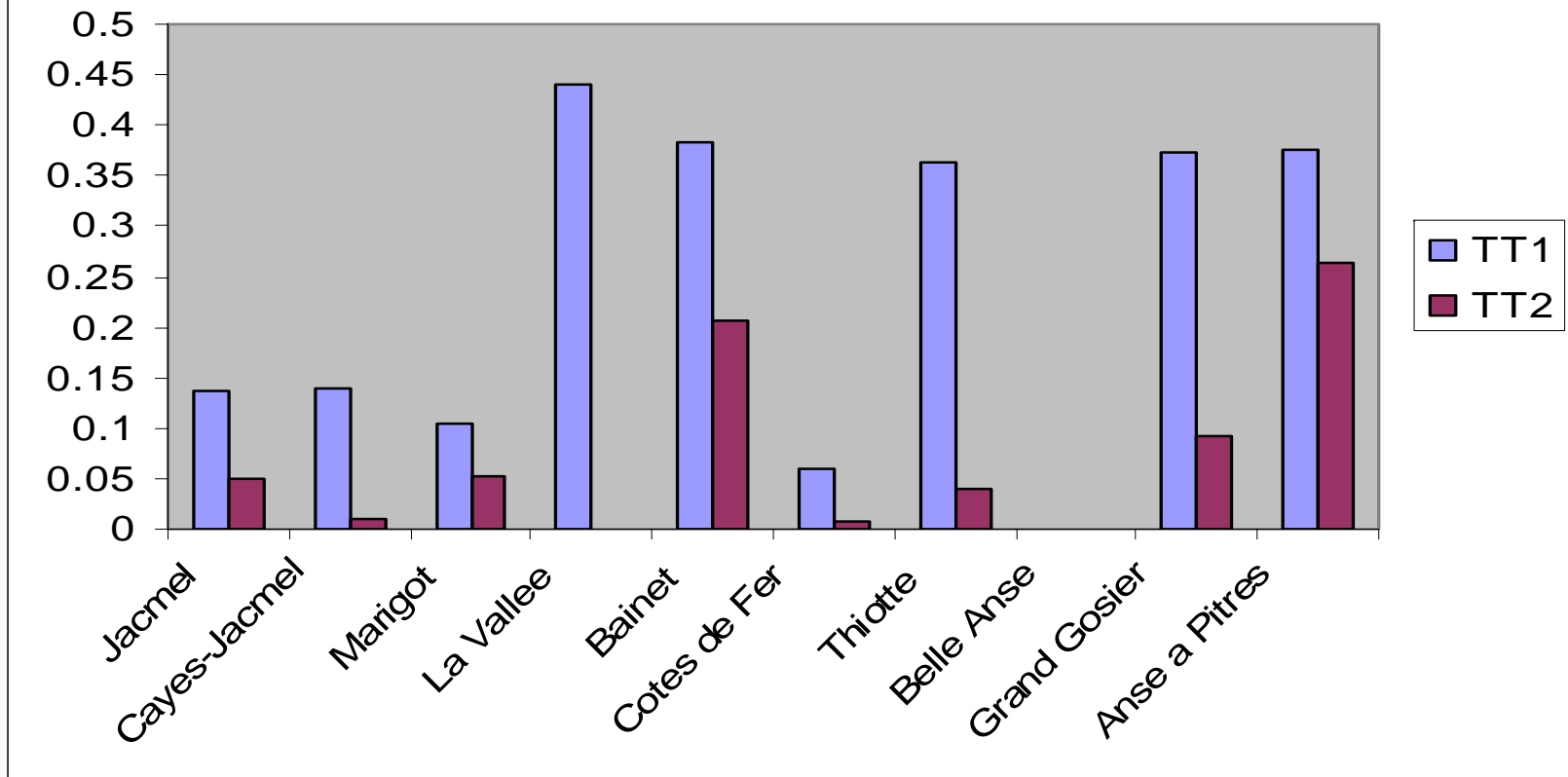
More Variation at National Level

Reported DPT1 and DPT3 Coverage, Selected EMRO Countries



And Even More at the Local Level

Percent of women ages 15-49 receiving TT1 and TT2 vaccinations in routine EPI, by health area, Region Sud-Est, Haiti, 2000-1



Causes of Missed Opportunities

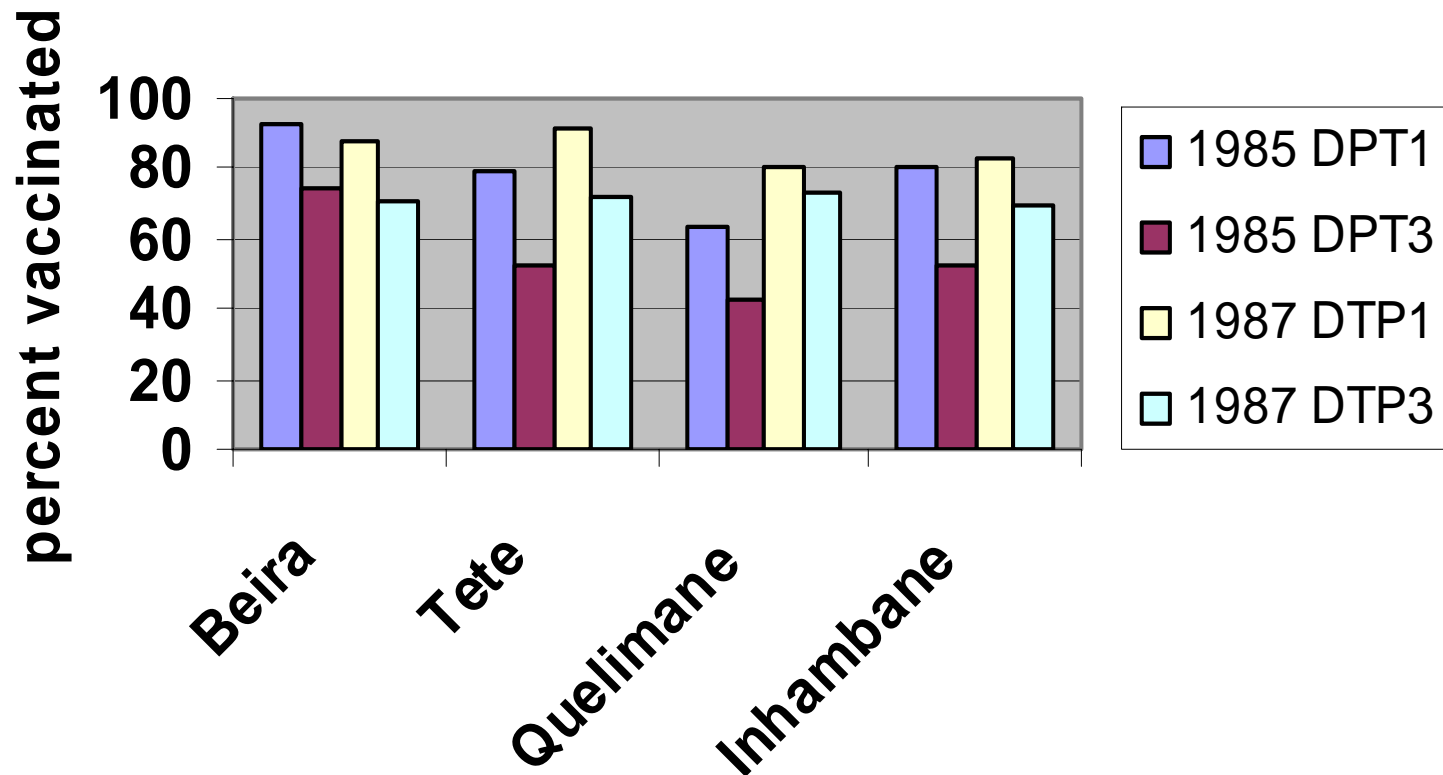
Cause	Percent of all Missed Opportunities
Failure to administer vaccines simultaneously	22
False contraindications	19
Negative health worker attitudes	16
Logistical problems	10
Parental refusal	3

Missed Opportunities in the U.S.

Reason	Impact	Fixability
Provider unaware patient is eligible	+++	+++
Provider policy not to vaccinate	+++	+++
Failure to provide simultaneous vaccinations	+	++
Inappropriate contraindications	++	+
Administrative barriers, cost	+	+++

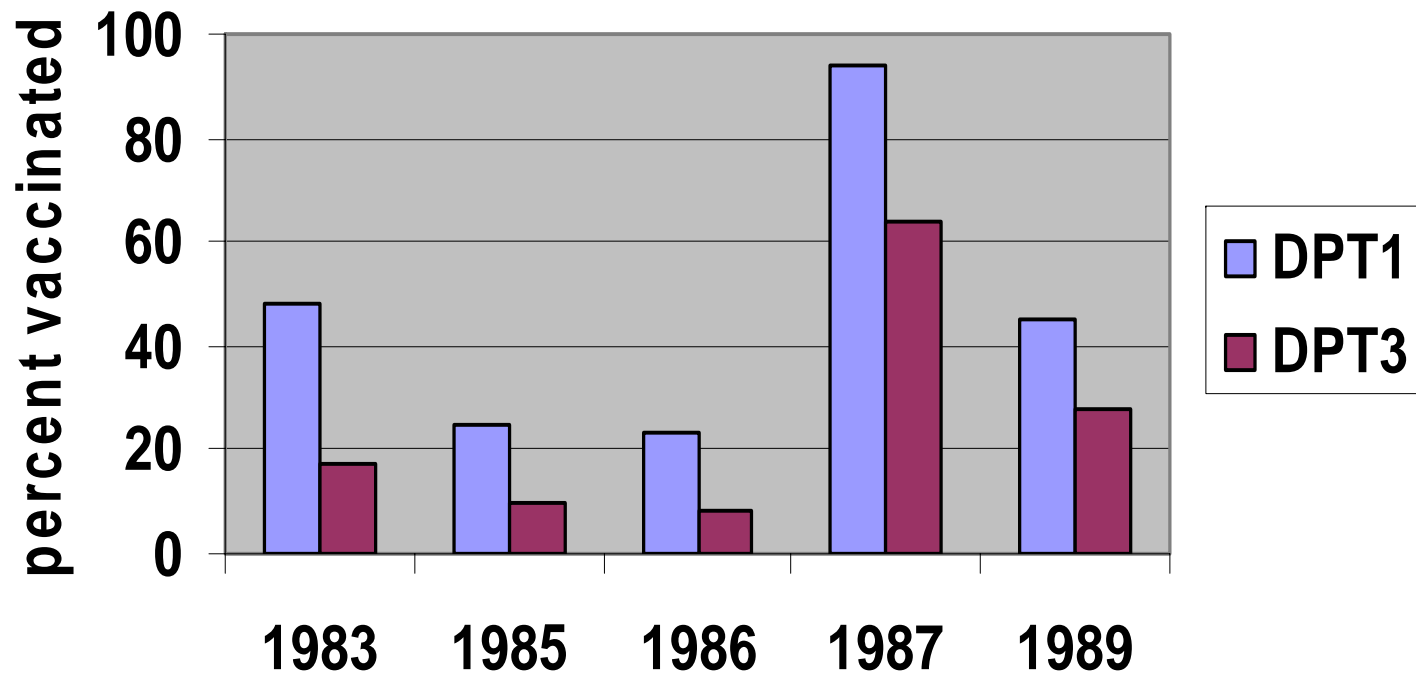
- Cutts et al (1991) studied immunization program efficiency in Guinea Conakry and four cities in Mozambique
- Methods: WHO EPI 30-cluster household surveys, clinic visits
- Results: among children with cards, inefficiencies reduced coverage by 29% in Conakry and 19% in Mozambique

DPT Coverage Rates from Eight EPI Cluster Surveys in Four Mozambican Cities (Cutts et al 1991)



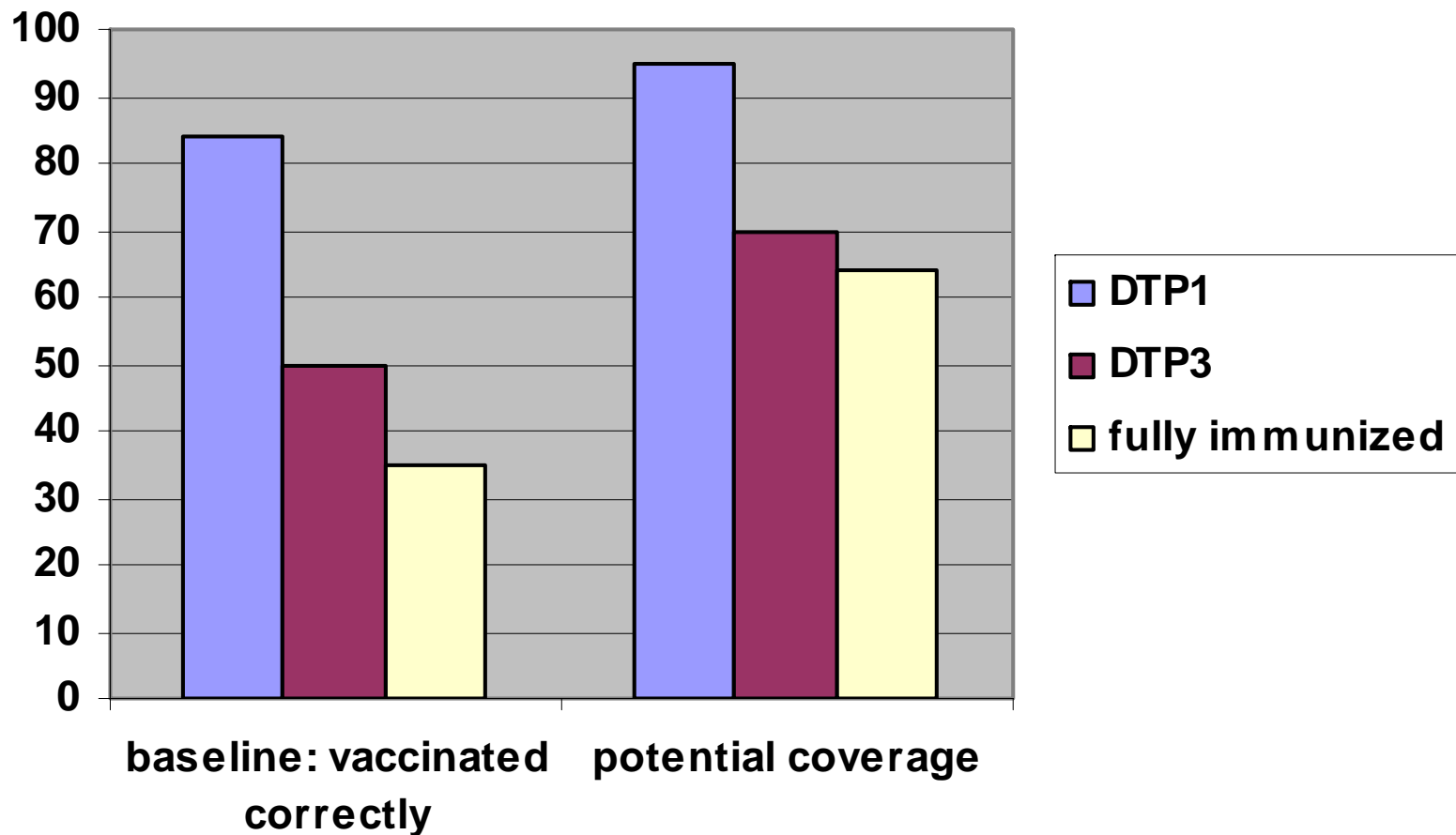
Cumulative inefficiency effects, children 12-23m with cards, Mozambique 1987		
	average 7 surveys	range
fully, correctly vaccinated	62	51-74
<i>added coverage with:</i>		
correct timing	11	6-15
simultaneous vaccination	2	1-4
vaccinate at growth monitoring	6	3-8
full efficiency	81	70-96

DPT Coverage Rates from Five EPI Cluster Surveys, Guinea Conakry (Cutts et al 1991)

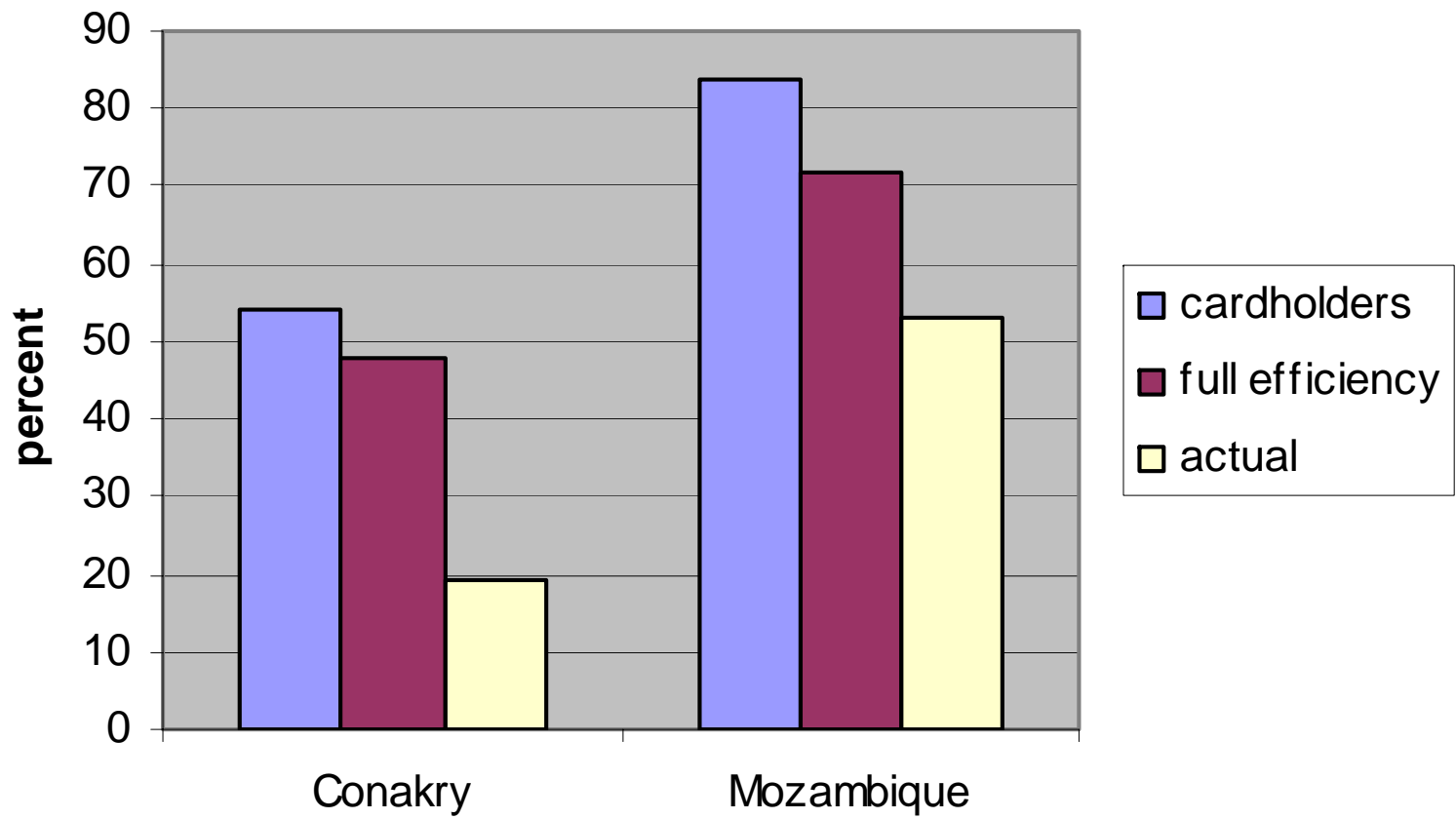


What Could Have Happened

Program Inefficiency Effects on Potential Vaccine Coverage, Conakry 1989 (Cutts et al 1991)



Percent of Children with Cards and Fully Immunized, Conakry and Mozambique (Cutts et al 1991)



- Eliminating timing errors and missed opportunities would significantly impact immunization coverage rates
- However, as Cutts et al (1991) demonstrated, high dropout rates may still depress coverage



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Section B

Improving Provider Efficiency

Improving Provider Efficiency



Strategies for Reducing Missed Opportunities

- Establish clear guidelines, standards for immunization
- Educate providers
- Provide feedback about missed opportunities and immunization rates
- Modify office practices to change standards of care
- Provide incentives

- A good supervisor
 - Focuses on *performance* problems
 - Does not threaten or confront but constructively criticizes
 - Uses established assessment criteria
 - Provides positive feedback, incentives public recognition for a job well done
 - Maintains confidentiality
- In recent years, new approaches to supervising health workers have emerged
- Here are two:
 - Peer training/supervision
 - CDC's AFIX system

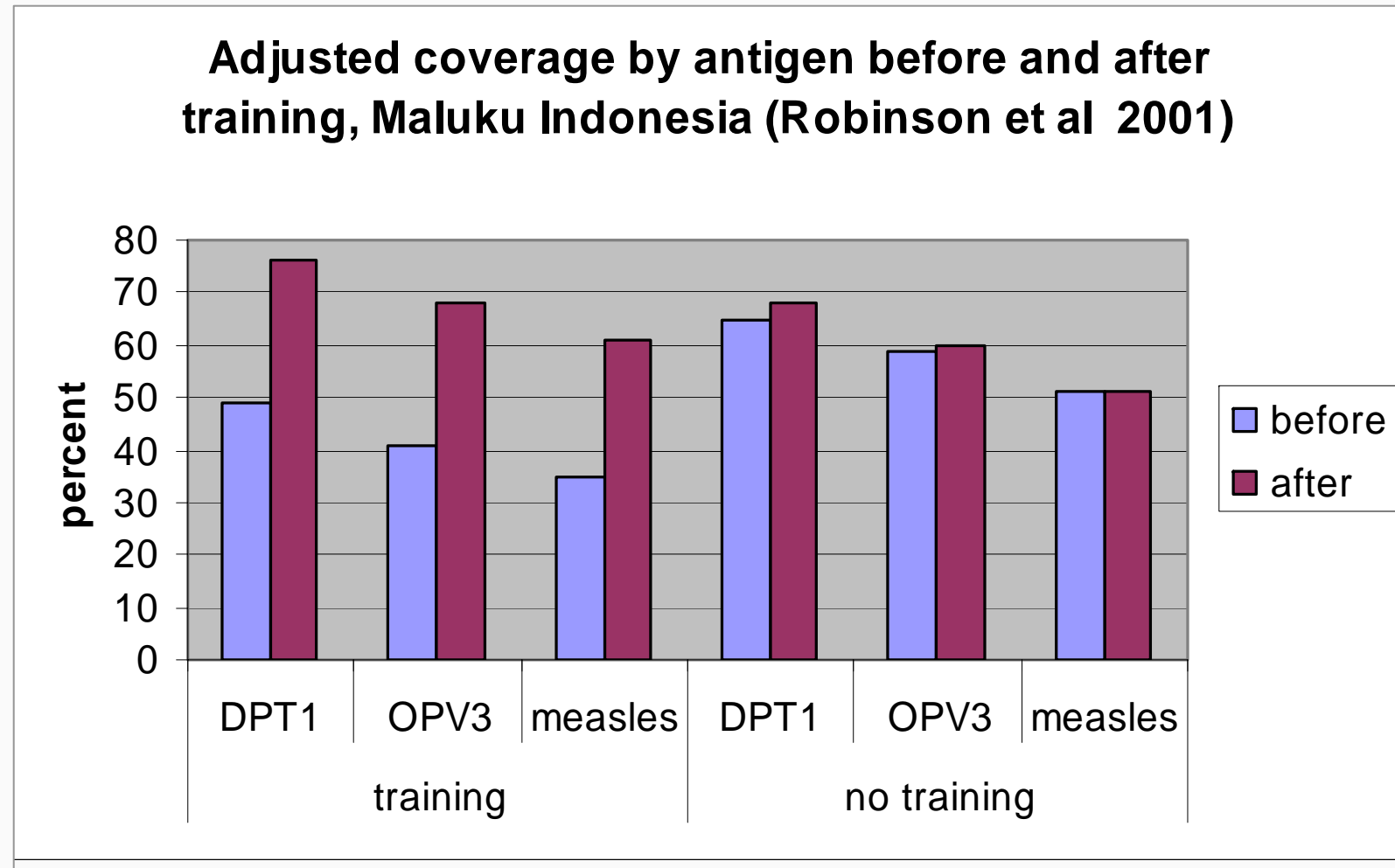
An Example of Peer Supervision

- Robinson et al (2001) studied a peer training intervention in Maluku Province, Indonesia, in 1993–1994
- Theory: peer trainers are a non-threatening supplement to hierarchical classroom training
- Intervention: immunization nurses spent 1–2 weeks with peers at 15 low-performing health centers

An Example of Peer Supervision

- Methods
 - Non-randomized case control study
 - Retrospective and prospective administrative data for each health center
 - WHO cluster sample surveys
 - Supervisory visits before and after
 - Trainers' assessments

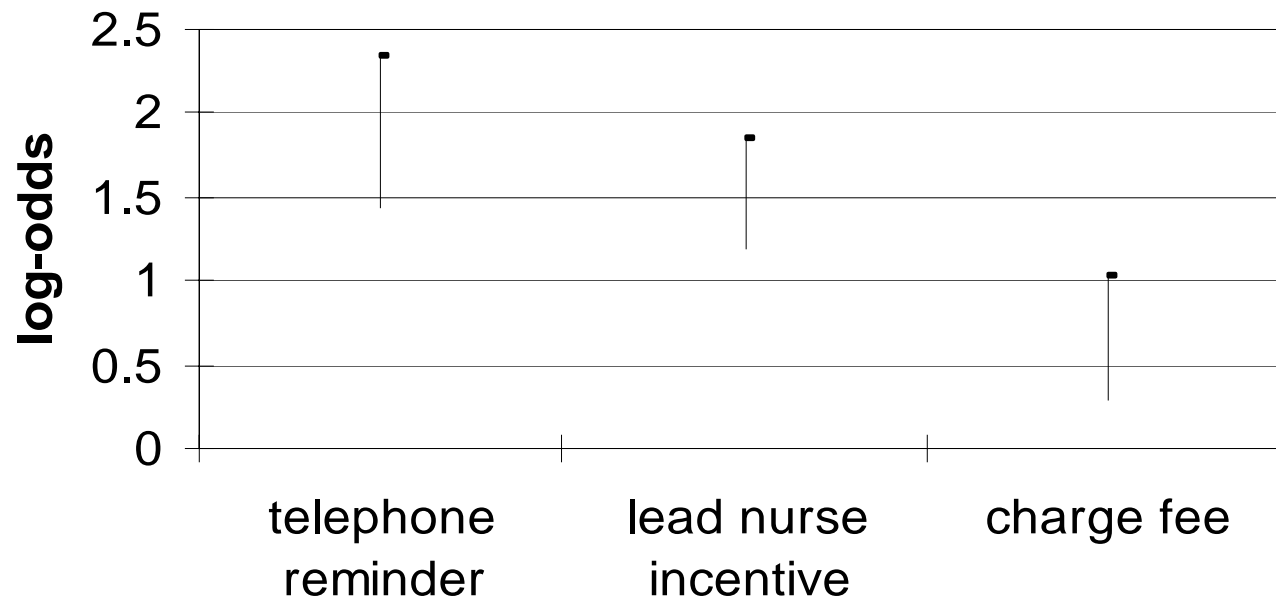
Adjusted coverage by antigen before and after training, Maluku Indonesia (Robinson et al 2001)



- 30% improvement in key immunization practice scores, especially:
 - Daily refrigerator temperature control
 - Record-keeping, on-time reporting
 - Vaccinating mildly ill children
- High acceptability among hosts, trainers
- Cost: U.S.\$53 per trainee, U.S.\$0.05 per dose

- Over the period 1988--94 the state of Georgia developed the AFIX system:
 - **A**ssessment of center performance
 - **F**eedback of assessment results
 - **I**ncentives to improve performance
 - **eX**change of performance data among centers

Adjusted effects of three clinical practices on the log-odds (95% C.I.) of a child's vaccinations being up-to-date, 227 GA public health clinics



■ Theory

- Assessment with feedback creates awareness necessary for behavioral change
- Incentives and public recognition are powerful motivators of behavioral change
- Awareness of how others are doing (reflexivity) motivates improvement

- Standardized routine collection, analysis and summary of immunization records
- Purpose
 - Diagnose delivery problems
 - Identify useful changes in policy and practice
 - Monitor, refine interventions

- Return of diagnostic information to front-line staff and decision makers
- Purpose
 - Monitor progress toward goals
 - Motivate to improve
 - Develop local solutions

- Provide extrinsic motivation to improve performance
- Purpose
 - Recognize accomplishments
 - Enhance pride in workmanship
 - Reinforce sense of organizational mission

- Comparison to peers
- Purpose
 - Compare process and outcome indicators
 - Exchange ideas among peers
 - Provide mutual support
 - Stimulate friendly competition

- Types of problems identified
 - Late starts
 - Non-adherence to recommended schedule
 - Children falling behind schedule
 - Children dropping out of system
 - Ineffective reminder/recall strategies
 - Failure to give vaccines simultaneously
 - Inadequate record-keeping

- To identify clinic-specific problems
 - Compare each variable across sites
 - Compare each variable temporally
 - Compare variables within each site
- Results are presented
 - At exit interviews with local staff
 - In conferences with decision-makers
 - At workshops with providers
 - As a challenge
 - To encourage creativity

- LeBaron et al (1999) documented the introduction of AFIX in four states and two cities
- In 1994, clinic-based coverage (4:3:1, ages 19–35m) was lower than population-based coverage (determined by National Immunization Survey)
- During 1994–96 clinic-based coverage rose an average of 11% per year
 - A rate faster than population-based coverage increases in 5/6 sites

- Most of the initial increases were due to improved clinic record-keeping
- Net of this documentation artifact, average annual improvement rate was 5%
- Average cost per site: U.S.\$49, 533/yr (U.S.\$2/child)
- Recommendation: generalize AFIX nationwide



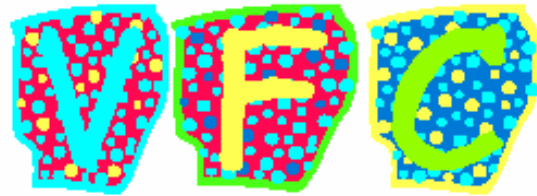
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Section C

CASA

- Main assessment tool: CASA
- Methods
 - Enter a random sample of individual vaccination records from clinic or an immunization register
 - Analyze age-appropriateness, missed opportunities for different antigen combinations, demographic sub-groups
 - Prepare specific reports
- Examples
 - Up-to-date status by age group, antigen
 - Lists of incompletely immunized children
 - Frequency, types of missed opportunities
 - Quality of documentation

- Provide feedback on
 - Key findings: coverage, practices
 - Strengths of the site
 - Areas for improvement
 - ▶ Documentation
 - ▶ Missed opportunities
 - ▶ Reminders, recalls
 - ▶ Parent, provider education
 - ▶ Vaccine handling, techniques
- Brainstorm local solutions



Update

A Publication of the Maryland Vaccines For Children Program

April 8, 2002 Volume 3, Issue 2

Selected Results of VFC Site Reviews, June 2001—January 2002

<u>Number Of Reviews</u>	<u>Number of Records</u>	<u>Percent of Children Complete</u>	<u>Percent Incomplete Due to "Missed Opportunities"</u>	<u>Percent Inadequate Vaccine Storage</u>
380	5,789	80%	10%	7%

- Create incentives for improvement
 - Examples
 - ▶ Identify local resources to tap
 - ▶ Leave free materials, upgrades
 - ▶ Offer training
 - ▶ Invite to present at conferences
 - ▶ Certificates, letters of commendation
 - ▶ Document, disseminate case studies

- Exchange experiences, best practices via
 - Lists of centers ranked by specific performance indicators
 - Documented evidence-based strategies
 - Conference presentations
 - Peer exchanges, mentoring

- Vaccine provider inefficiencies, like other performance problems, are usually remedied by good supervision and feedback