What can we learn from impact evaluation?

Emmanuel Bakirdjian
Mary Ann Bates
Anna Yalouris

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ABDUL LATIF JAMEEL
Poverty Action Lab

TRANSLATING RESEARCH INTO ACTION

OUTLINE

Important to measure the causal impact of a program

- Rigorous evaluations, including randomized evaluations, are very useful.

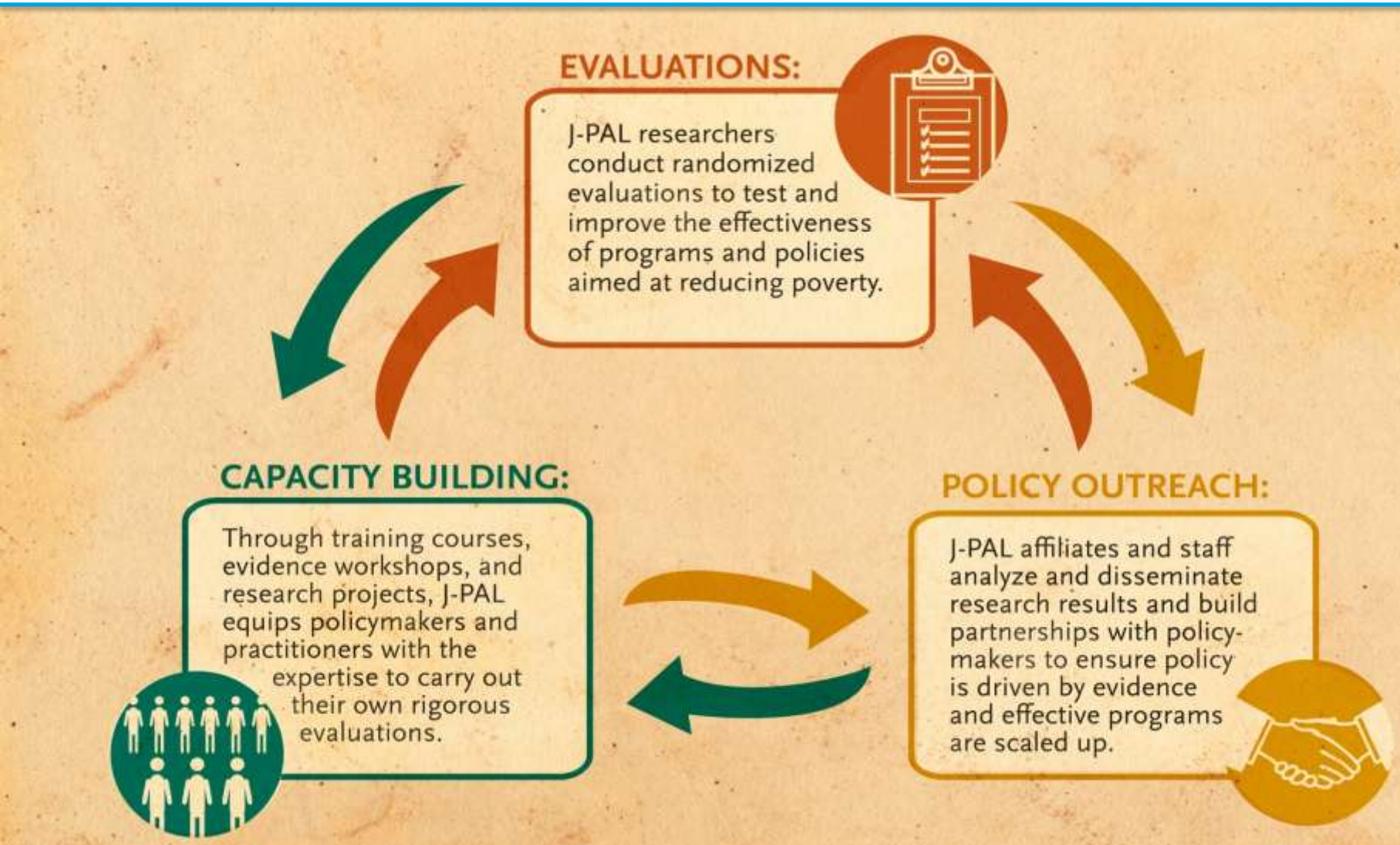
Costs matter too

- Cost-effectiveness analysis provides clear comparisons

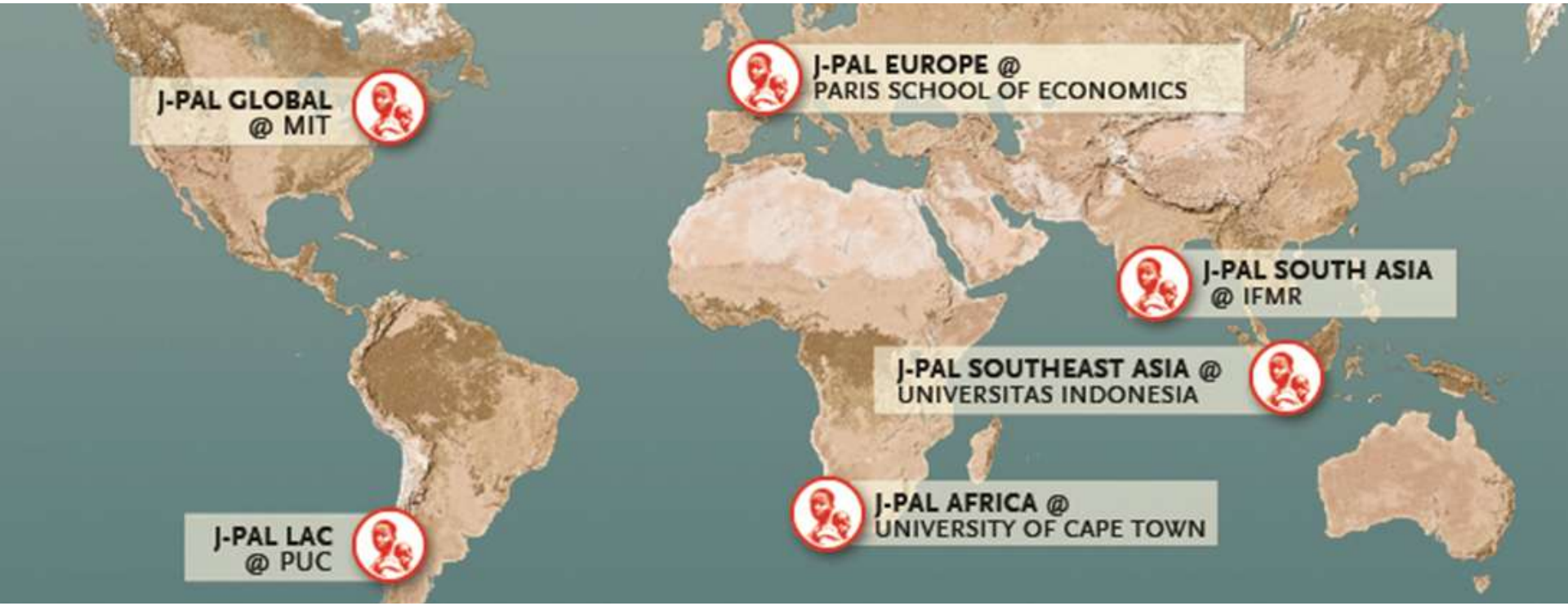
A host of evidence is available

- See related resources

J-PAL started as a center in the economics department at MIT and works to reduce poverty by ensuring that policy is based on scientific evidence



We have 5 regional offices based at universities around the world.

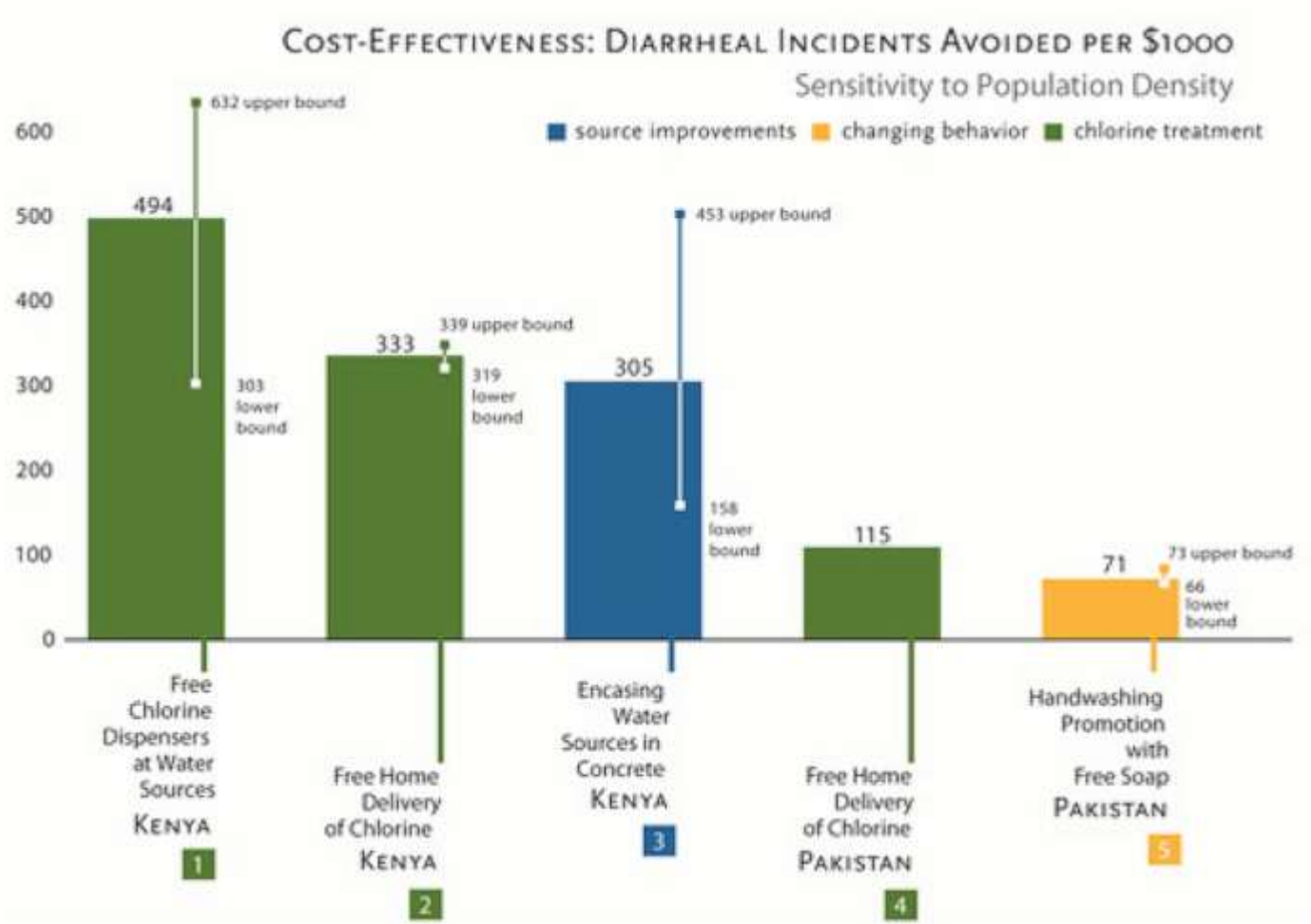


We have over 350 ongoing and completed evaluations across 7 program areas in 52 countries—With 126 evaluations in 21 African countries

Diarrheal disease is a leading cause of death for children under 5, but what is the best way to decrease diarrheal incidents?

- Infrastructure improvements: piped water
- Protecting water sources to reduce contamination
- Chlorine treatment
  - Free chlorine dispensers at the source
  - Free chlorine delivered to homes
- Changing behavior
  - Hand washing promotion
  - Free soap

Rigorous evaluations can provide surprising insights to help inform policy



Why evaluate?

- **Understand the impact caused by the program**
  - Are the people better off than they would have been otherwise?
  - What are the reasons for success / failure?
- **Compare programs and choose the best**
  - What is the most effective way to achieve an outcome?
  - Are there common strategies that will succeed across fields?
- ***Ultimate Goal***
  - Bigger impact on poverty due to more effective programs

Different Types Of Evaluation

Needs assessment

Process evaluation

Impact evaluation

Example: Chlorine dispensers

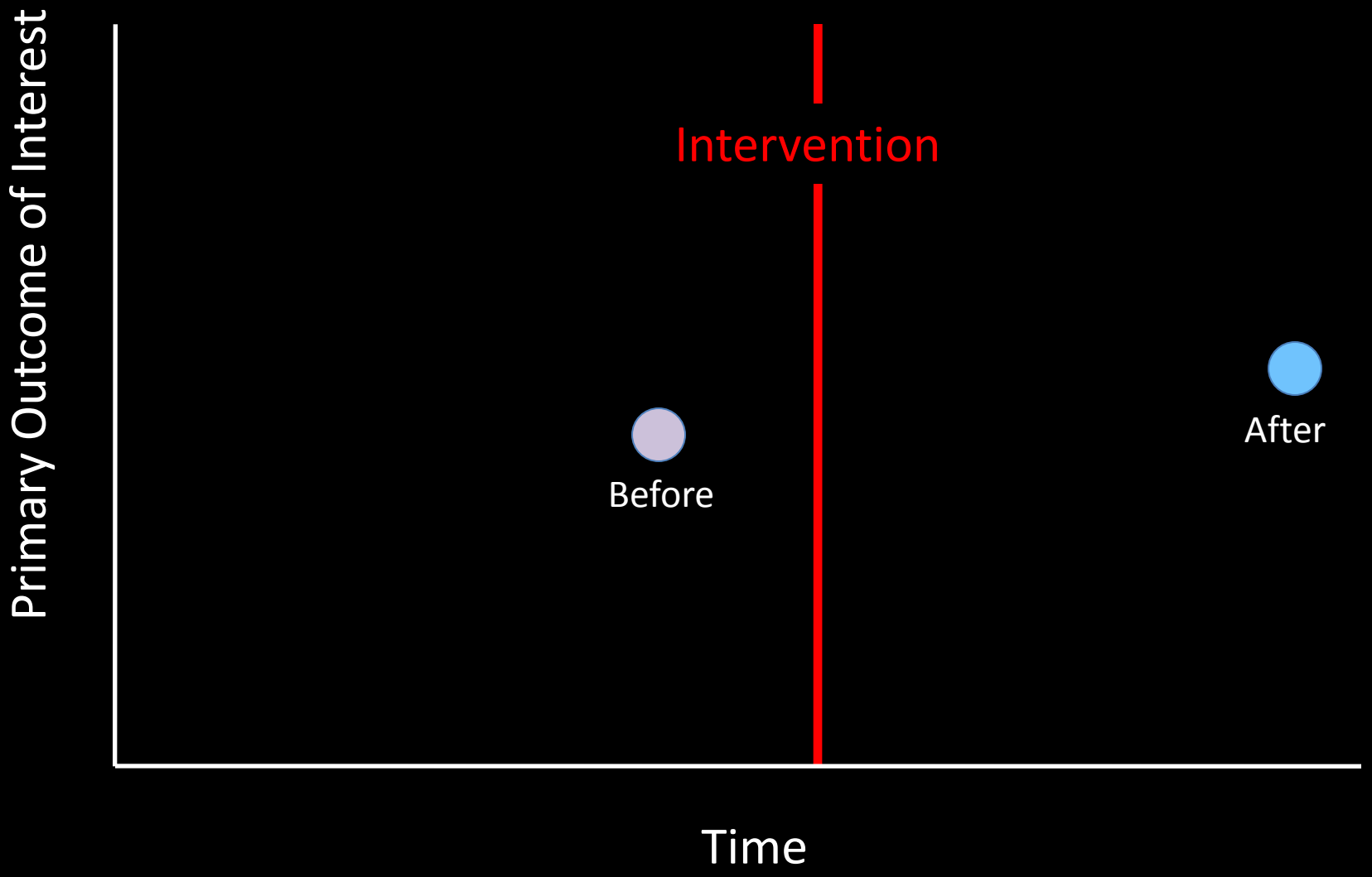
Needs	Logical Framework				Long-term Goal
	Input	Output	Outcome	Impact (primary outcome)	
Lack of access to clean water leads to diarrheal illness, especially for children.	Start a program to install chlorine dispensers at community water sources	Dispensers are sourced, purchased, and installed with chlorine in communities.	Families dispense chlorine in their water containers when they fill them.	Diarrheal illness is reduced because children drink cleaner water.	Children's health improves.

Needs assessment *Process evaluation*

Impact evaluation

We want to measure our program's impact,
but what exactly is impact?

What can we learn from this?



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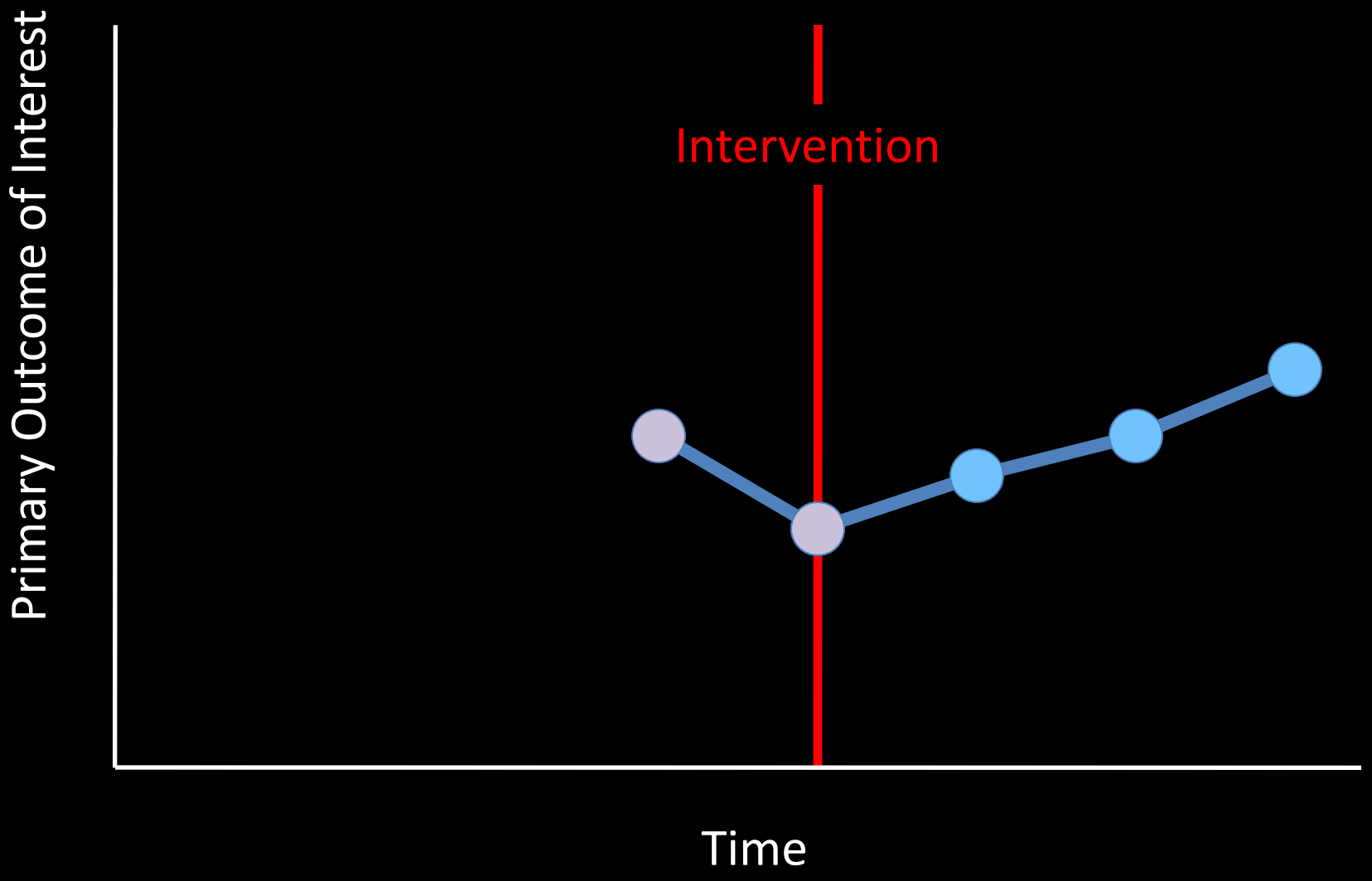

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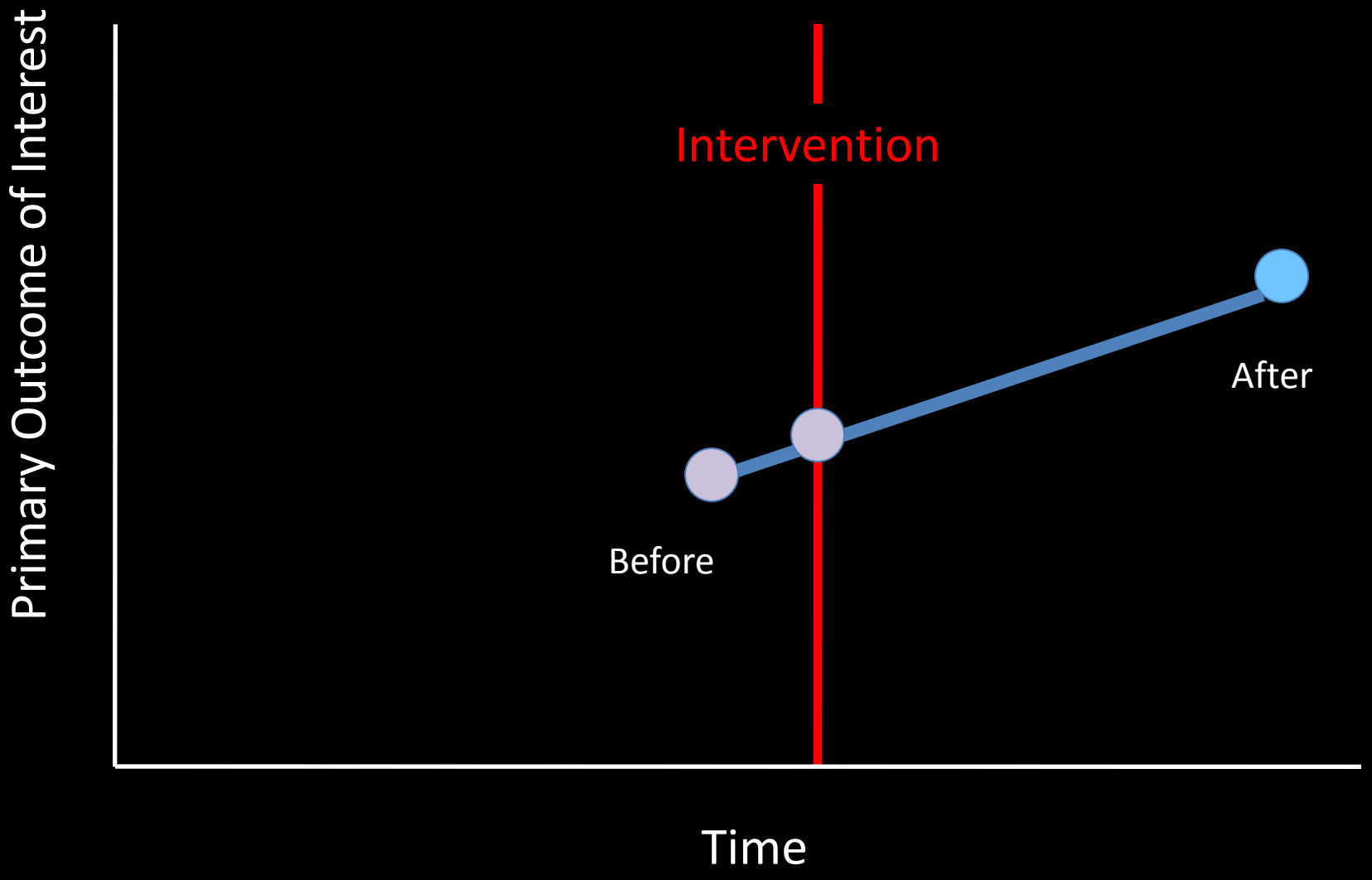

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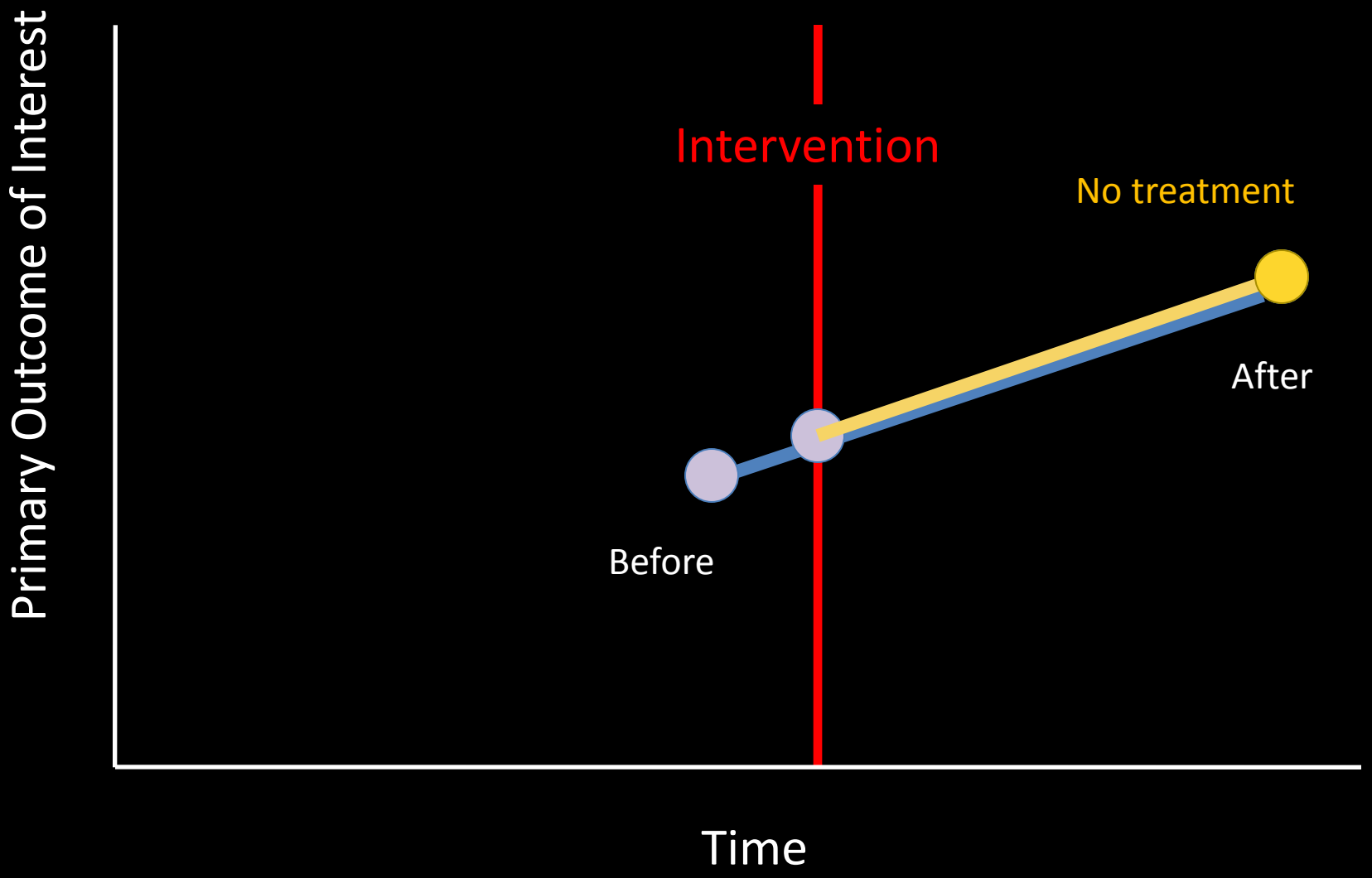

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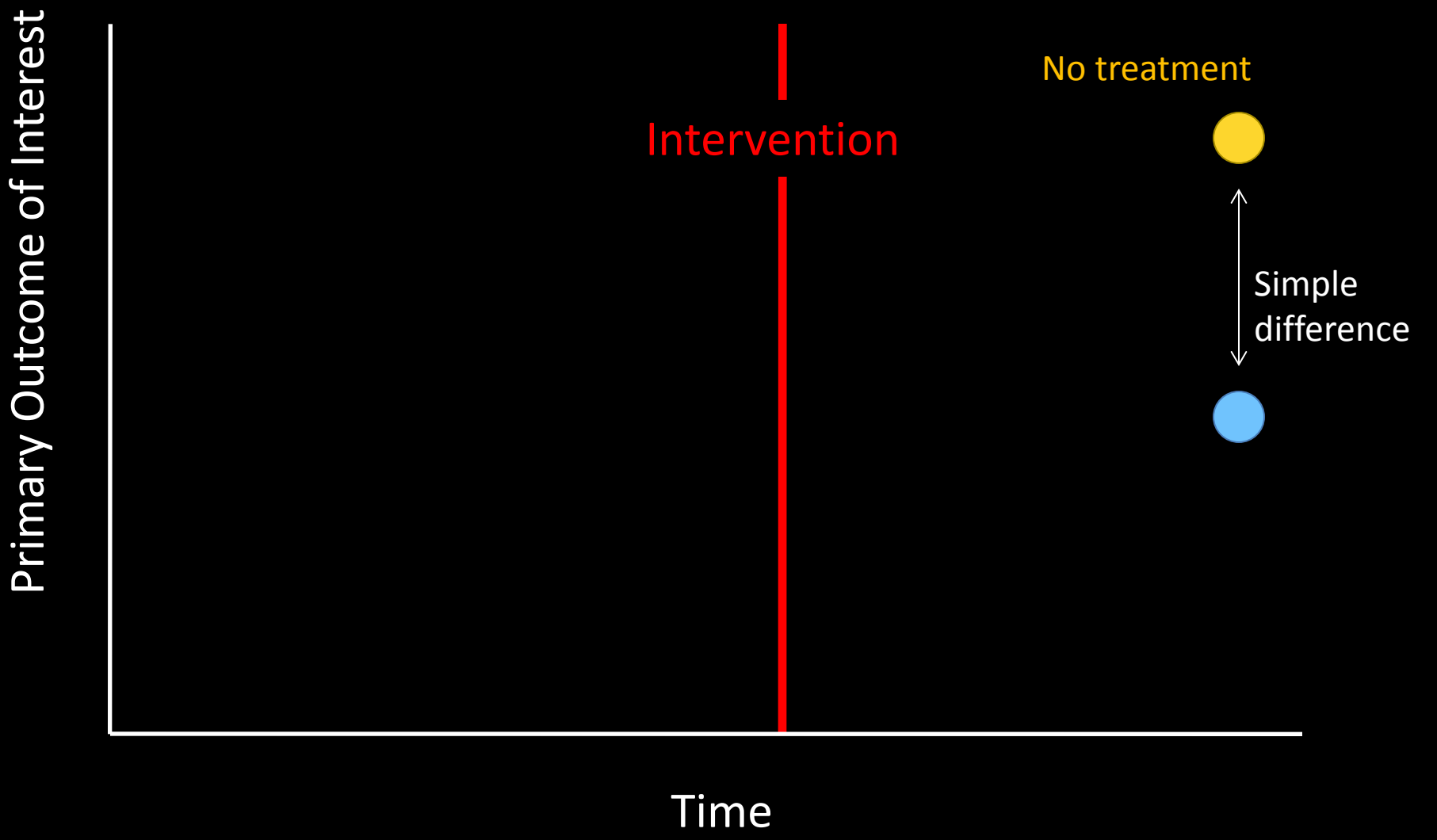

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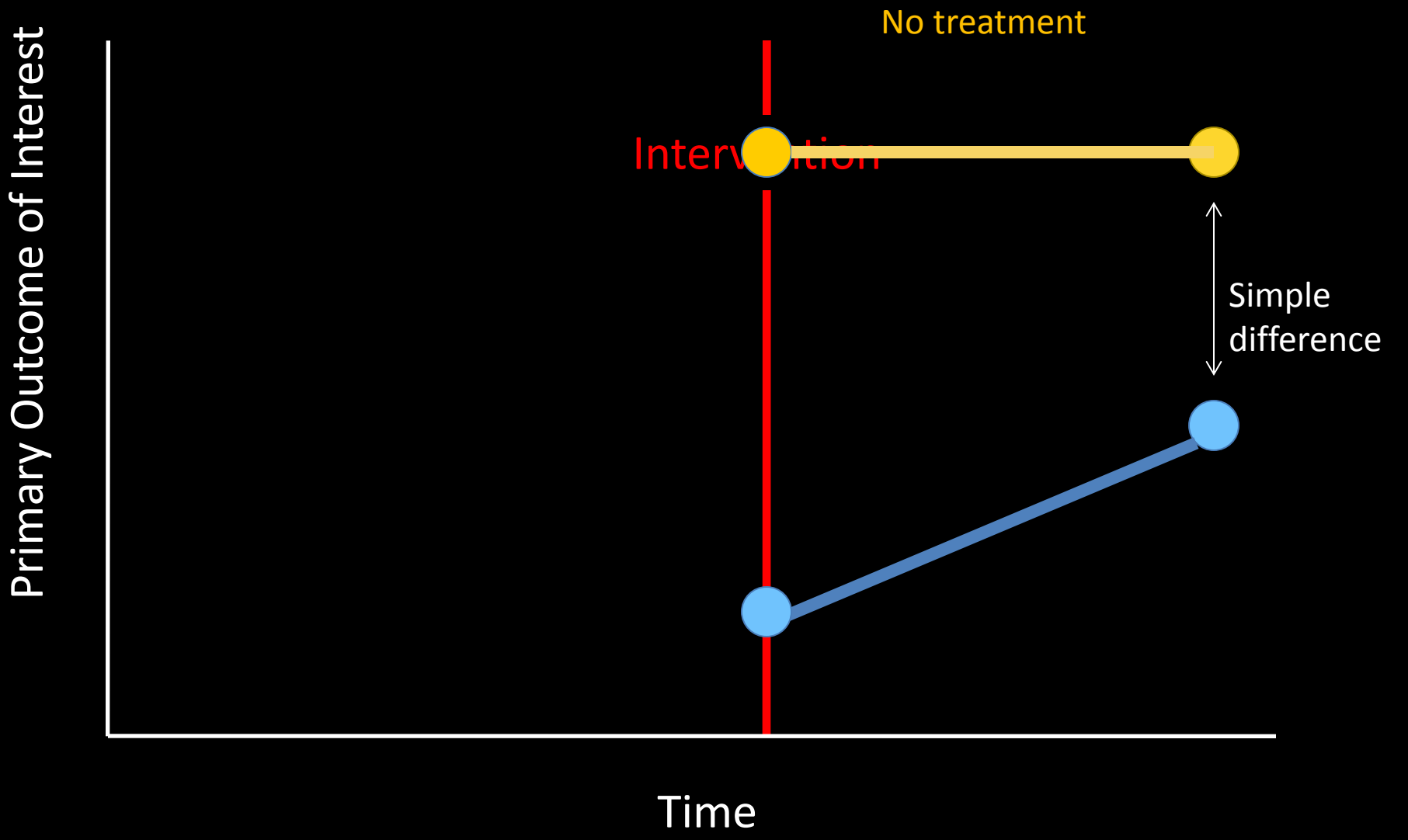
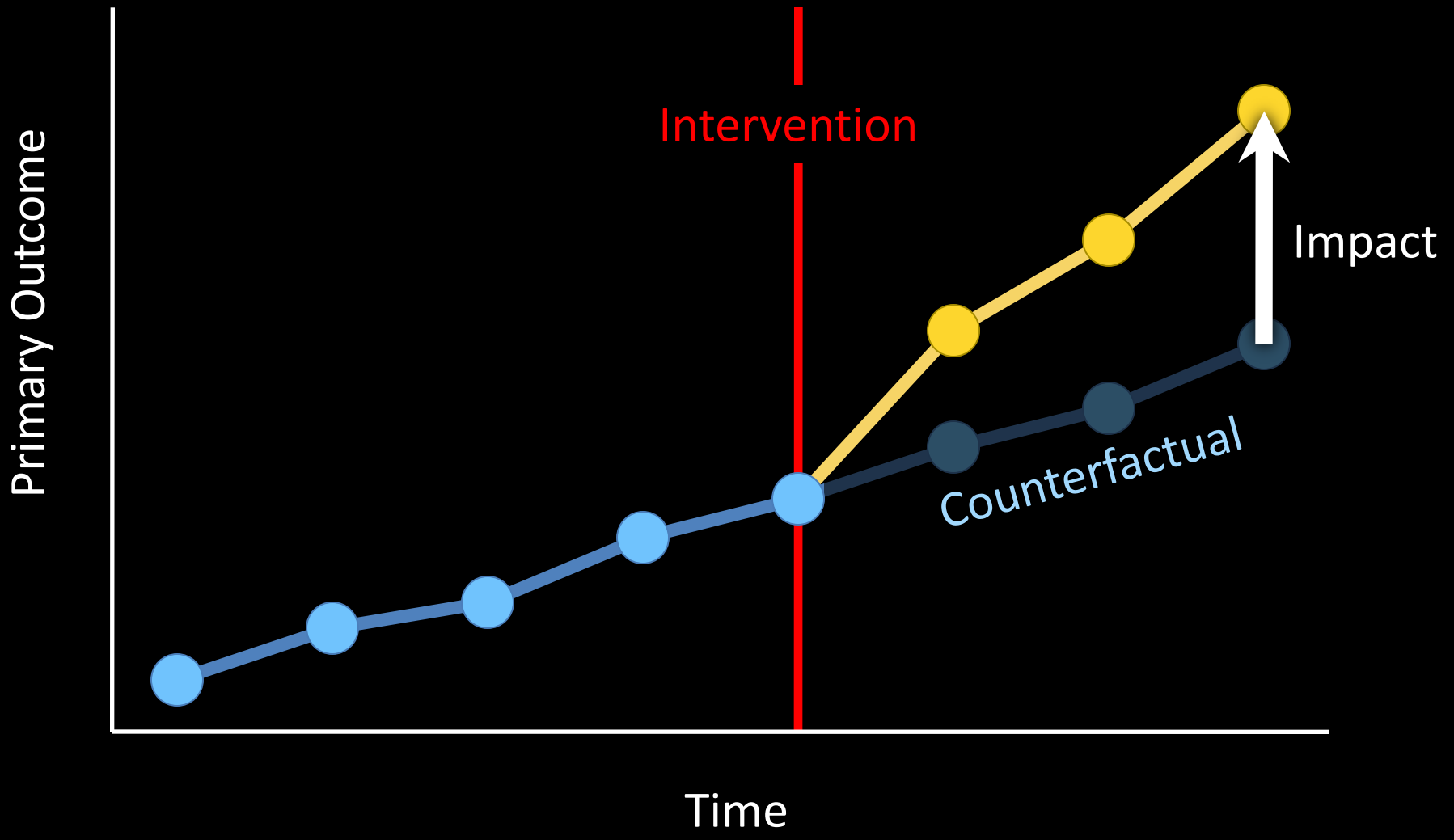
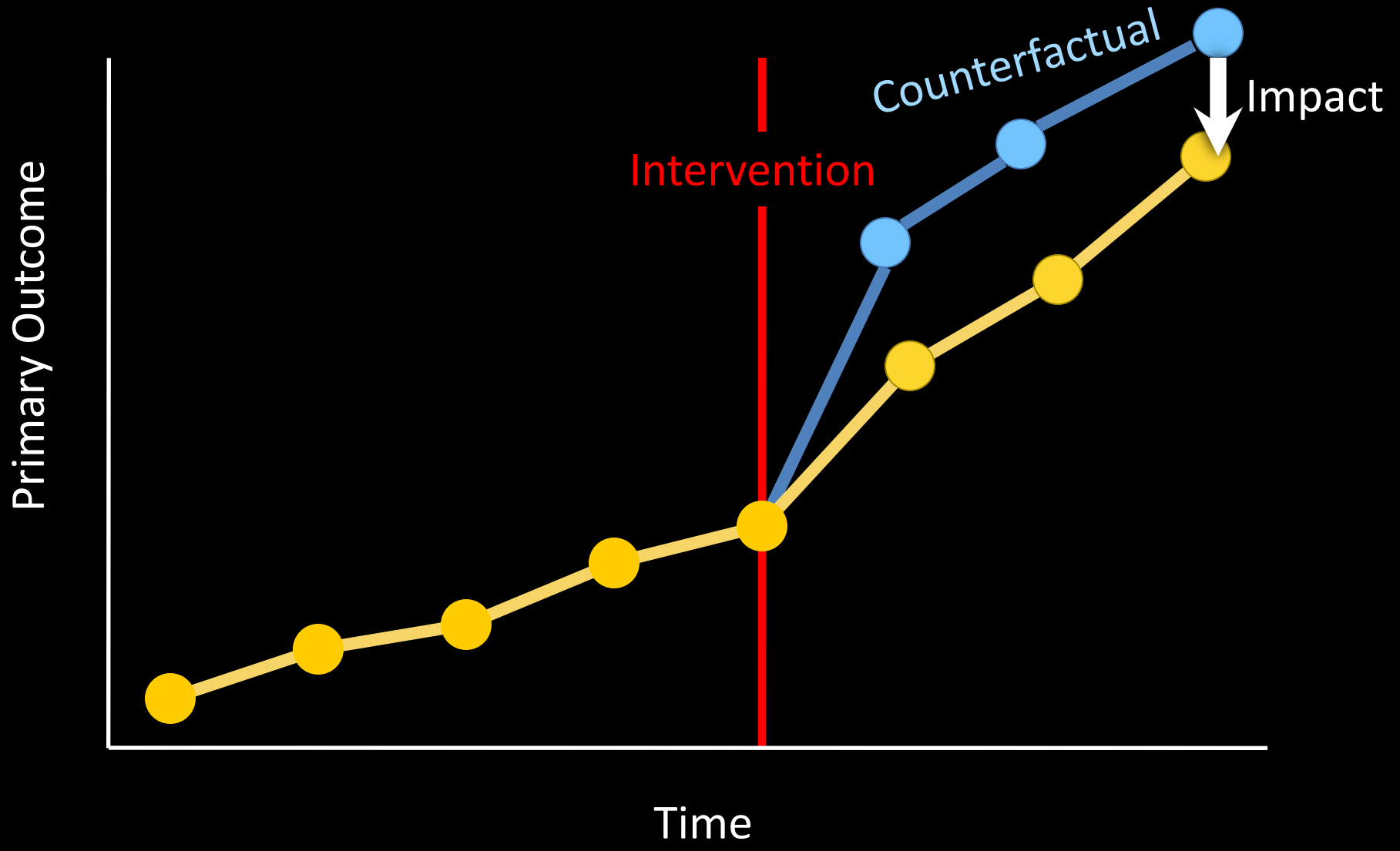


Impact: What is it?



Impact: What is it? And What is the Counterfactual?



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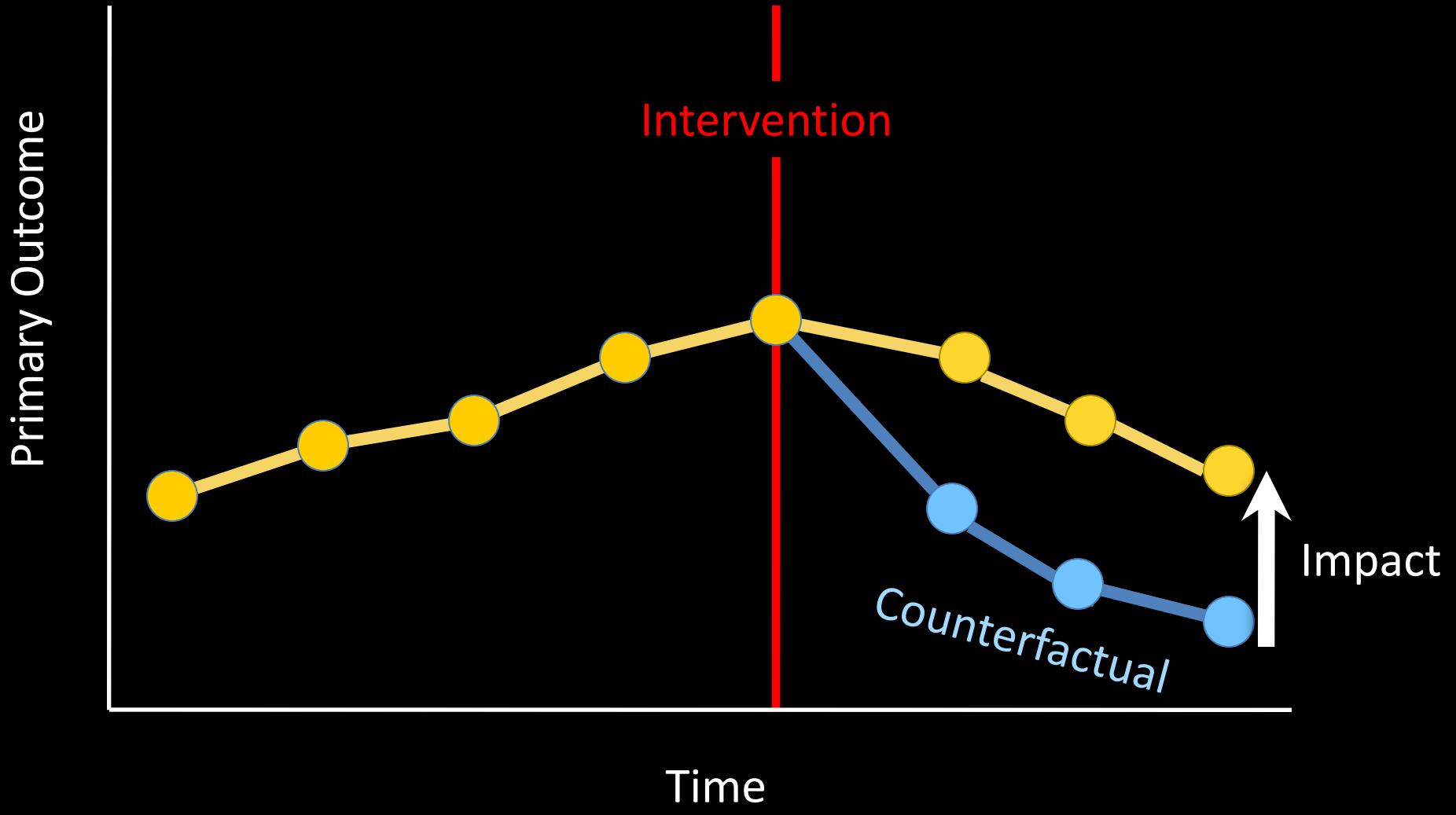


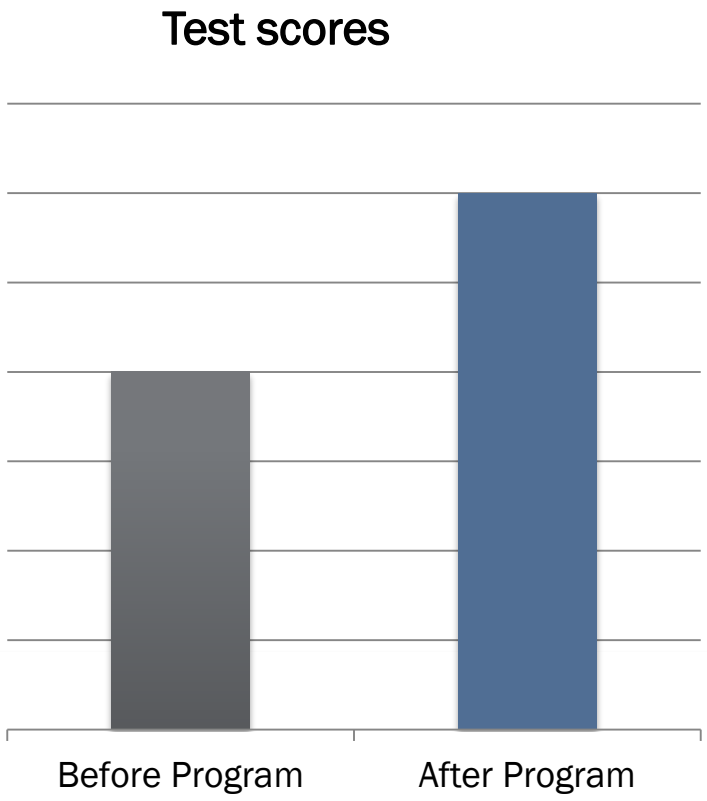
Measuring Impact – *Compare Outcomes "Before" To "After" A Program Is Introduced*

What is the impact of an education program?

– Potential Problems?

How do you disaggregate impact of program from other changes that occurred over time?

- Other factors may have led to the increase
- Children learn over time



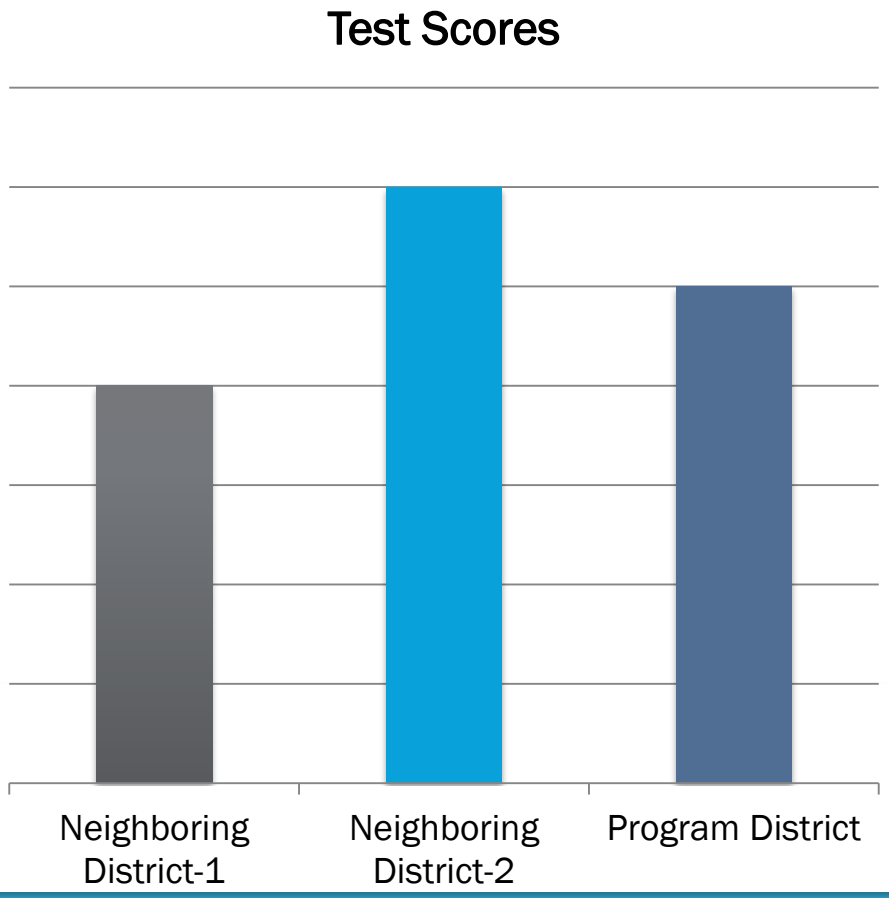
Measuring Impact – *Simple Difference Between Outcomes With "Program" Vs. "No Program"*

What is the Impact here?

– Potential Problems?

The districts that received the program are likely systematically different from those that didn't

- Program targets most at-risk areas
- Program targets areas where they worked previously



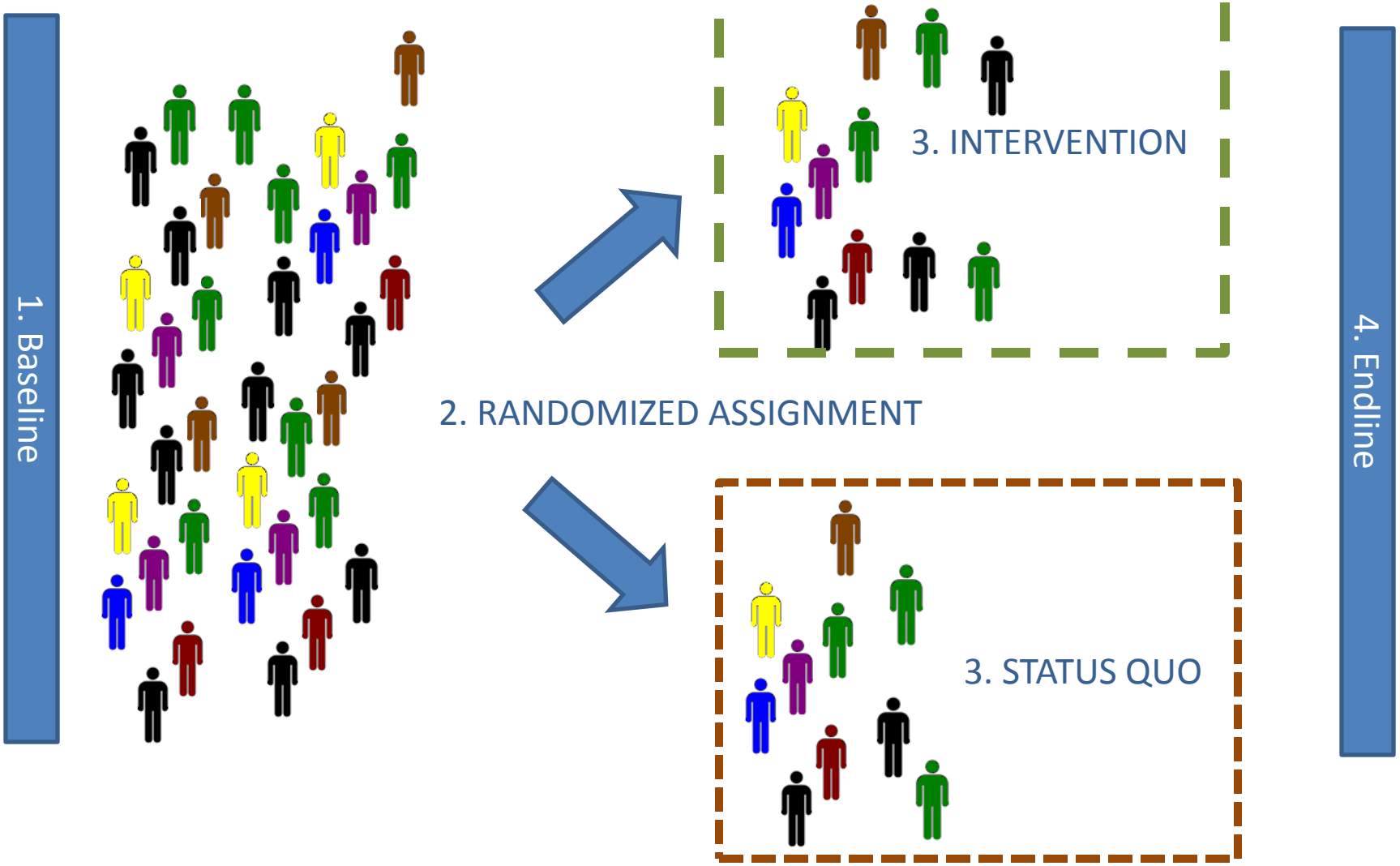
We want to measure our program's impact *but what exactly is impact?*

Impact is defined as the difference between:

1. The outcome some time after the program has been introduced for group of people
2. The outcome at that same point in time had the program not been introduced for the same group of people

→ The *"counterfactual"*

How does randomization work?



Clean Cook Stoves In India

Problem: Indoor cooking fires using biomass fuel.

- Indoor air pollution is a serious health concern.
- Contributes to climate change (CO_2, black carbon, deforestation)

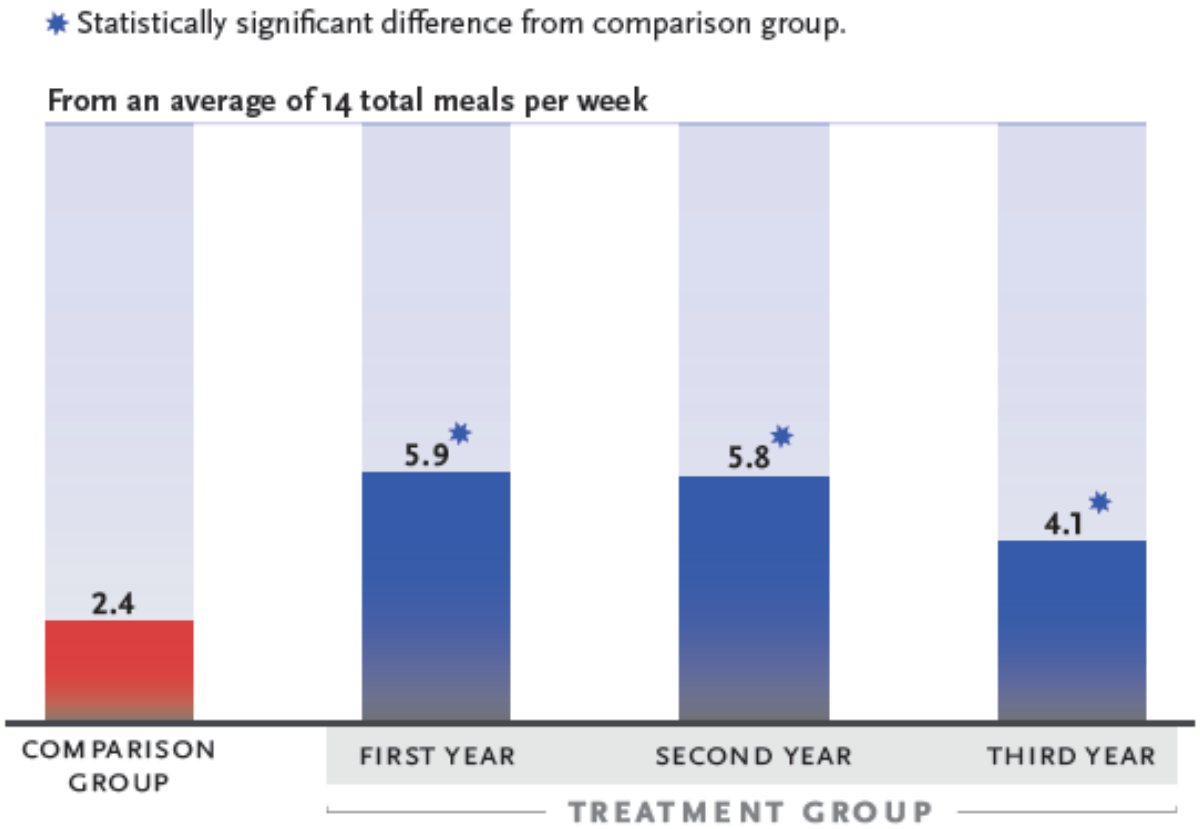
Are improved cook stoves the solution?

- Promising lab tests
- $$$ already spent by international development organizations

Researchers:
Esther Duflo, Michael Greenstone, Rema Hanna

Clean Cook Stoves In India

FIGURE 1: MEALS COOKED ON ANY GOOD CONDITION, LOW-POLLUTION STOVE (PER WEEK)



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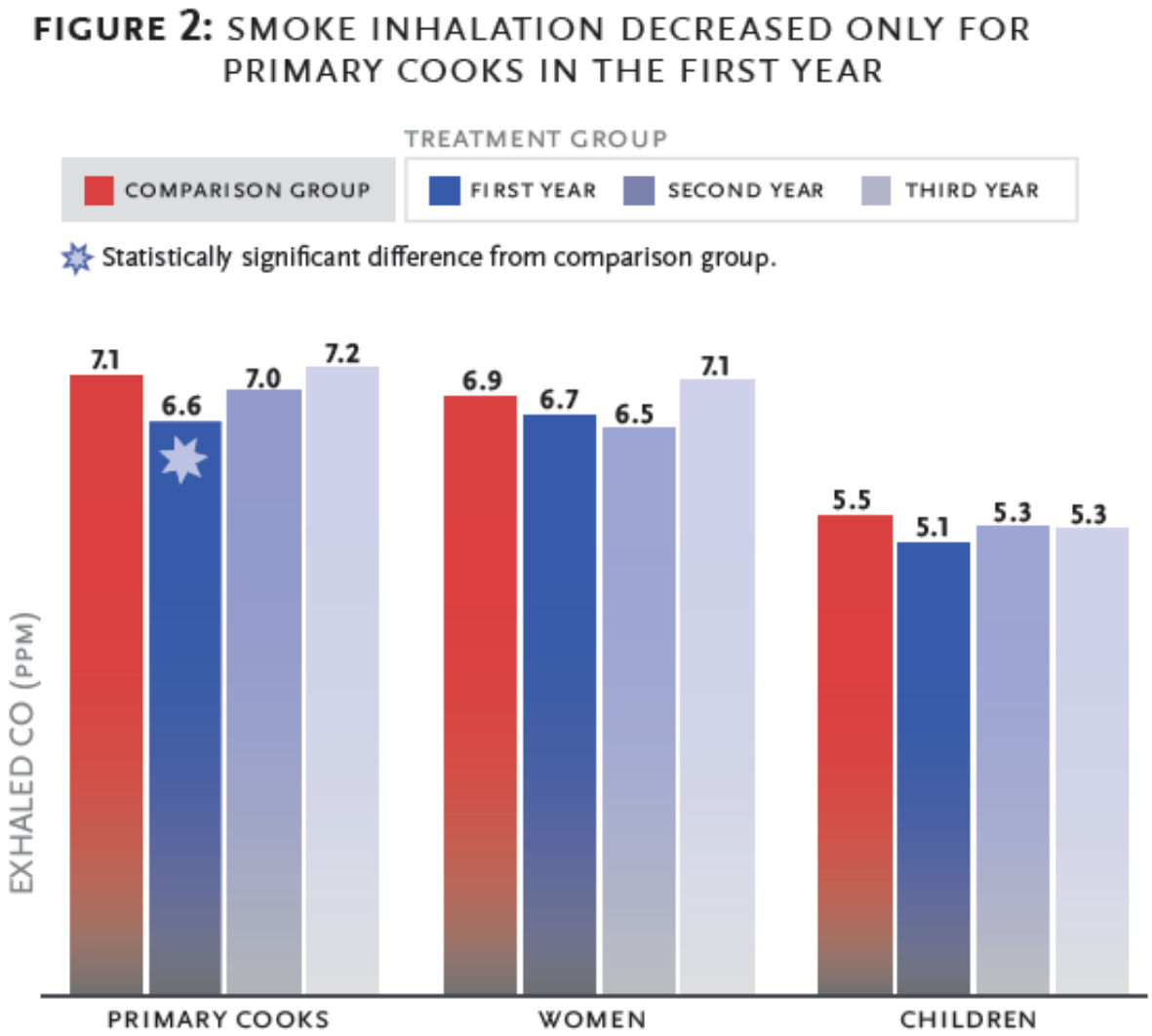


Evaluating Immunization Camps And Incentives In Udaipur, India – Supply Side

Immunization is really low in Rajasthan (less than 5% in Udaipur)

One possibility is that the supply channel is the problem:

- Hilly, tribal region with low attendance by city based health staff to local health clinics (45% absenteeism)
- Conducted monthly immunization camps in 60 villages: regular camps held rain or shine from 11a-2p (95% held)
- Camera Monitoring

The Demand Side Of Immunization

Second possibility:

There is a problem of demand

- People not interested in immunization, scared?
- Opportunity cost of going for 5 rounds of vaccination
- Can demand be affected?

Incentivizing Demand

Extra incentive: provided one kilogram of lentils for each immunization (Rs. 40 – one day's wage) plus thali set for full course

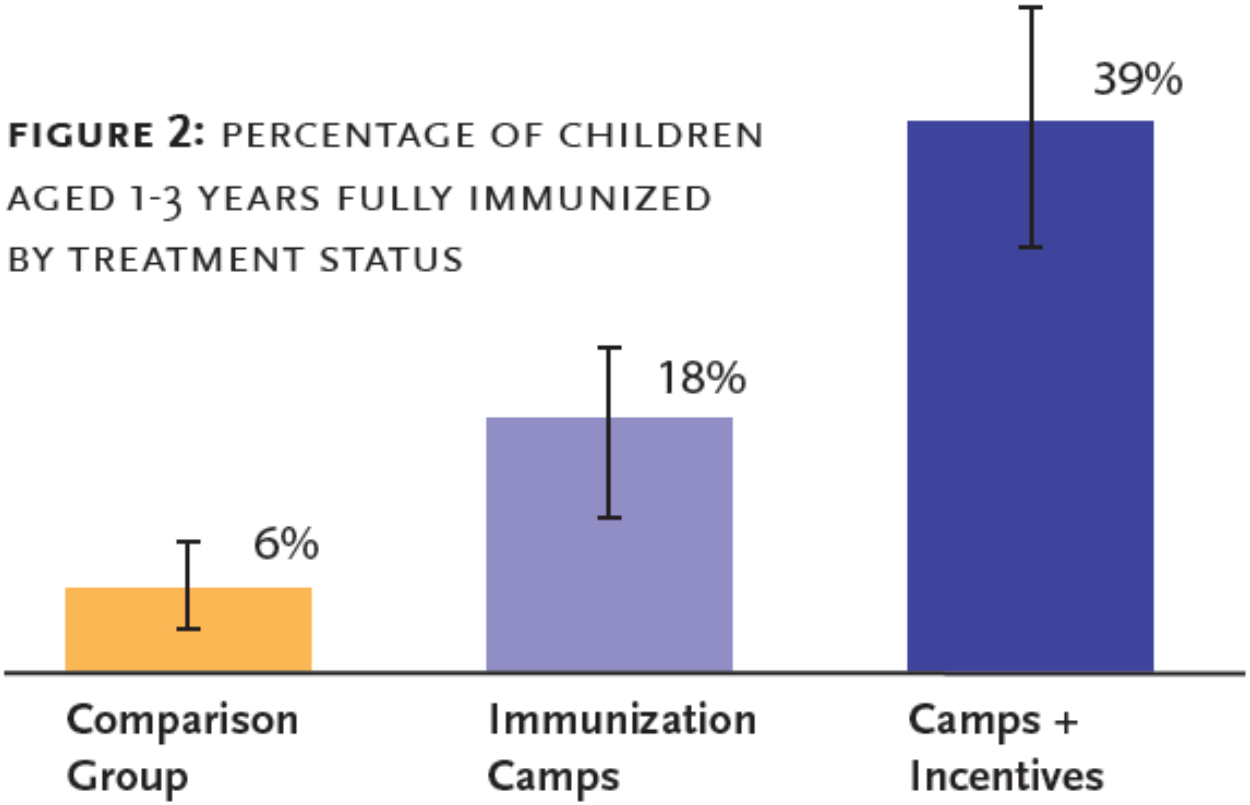
Treatment 1: Reliable camps
- 30 villages

Treatment 2: Reliable camps + incentives
- 30 villages

Control group
- 60 villages

Collected data on immunization rates

Regular Supply Increased Immunization, Incentives Helped it Even More



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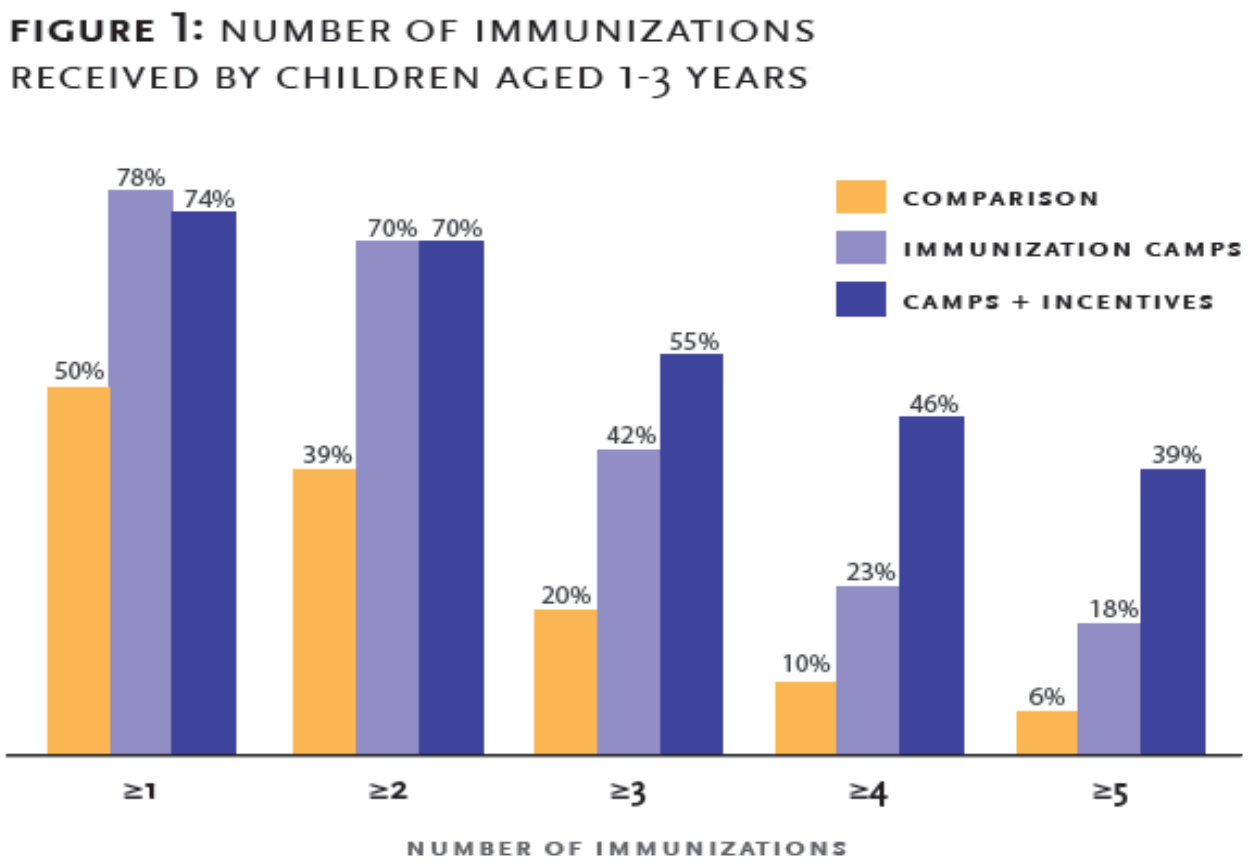


Which Treatment Was More Cost-effective?

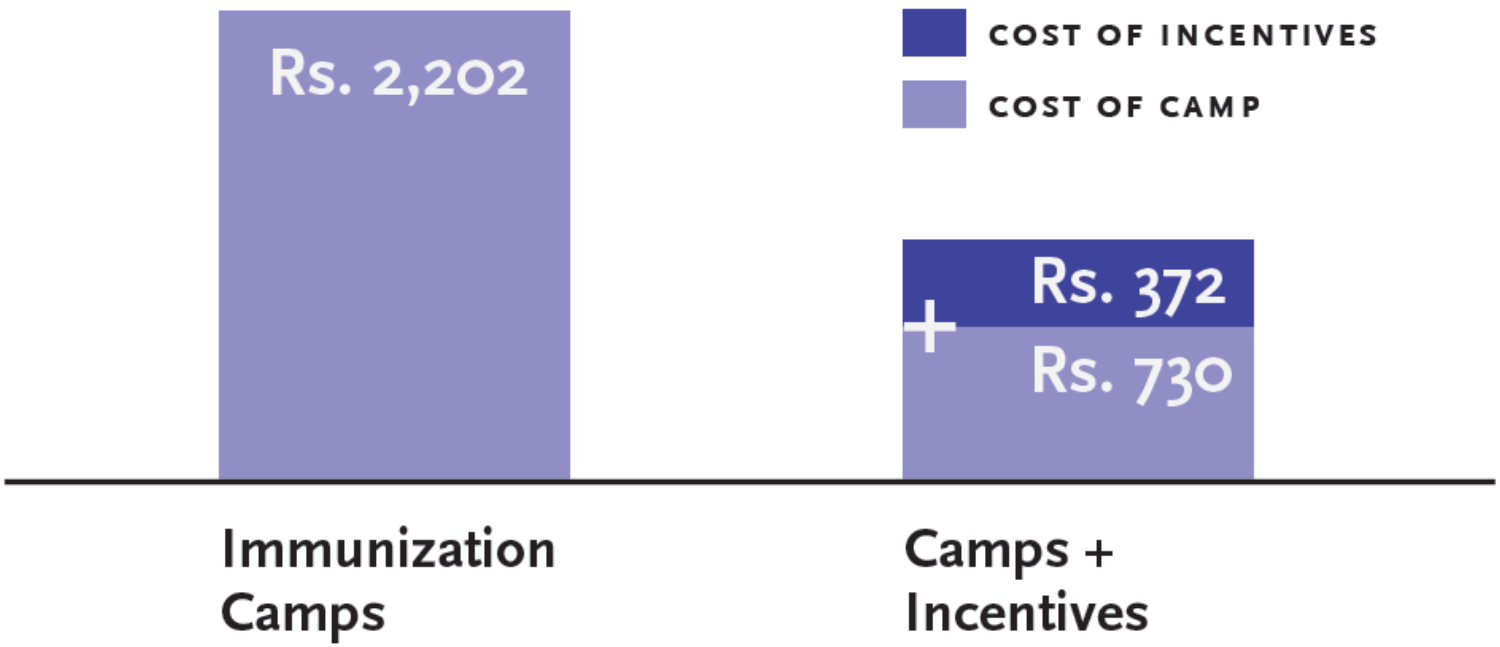
A) Reliable camps

B) Reliable camps + Incentives

C) Could go either way

Giving incentives was twice as cost-effective

FIGURE 3: COSTS PER FULLY IMMUNIZED CHILD



WHAT IS COST-EFFECTIVENESS?

$$\text{CE Ratio} = \frac{\textit{Impact of a program on outcome}}{\textit{Cost of implementing the program}}$$

- CE is a ratio of program effectiveness to program costs

Advantages Of Doing CEA

- ➔ Summarizes complex program as simple ratio of costs to effects
  - ➔ Advantage of CEA is its simplicity – objective outcome measure, no need to make judgments on monetary value of outcome
- ➔ Useful way to help policymakers synthesize information from multiple evaluations
  - ➔ Shows comparative effectiveness that would be difficult to predict from theory

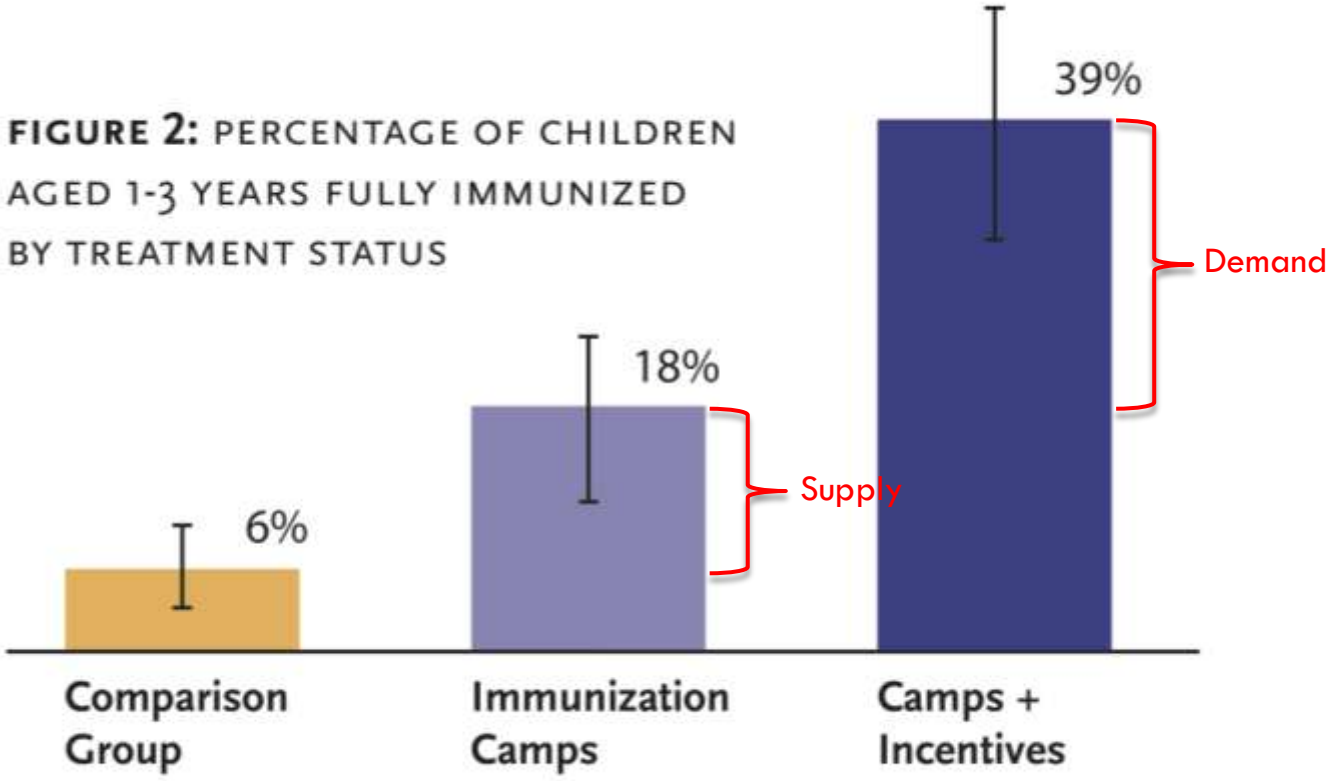
Calculating CEA

Step 1: Measure program impact

Step 2: Gather program costs

Step 3: Divide impacts by costs

Step 1: Measure Impact



Step 2: Gather cost of the program – ingredients method

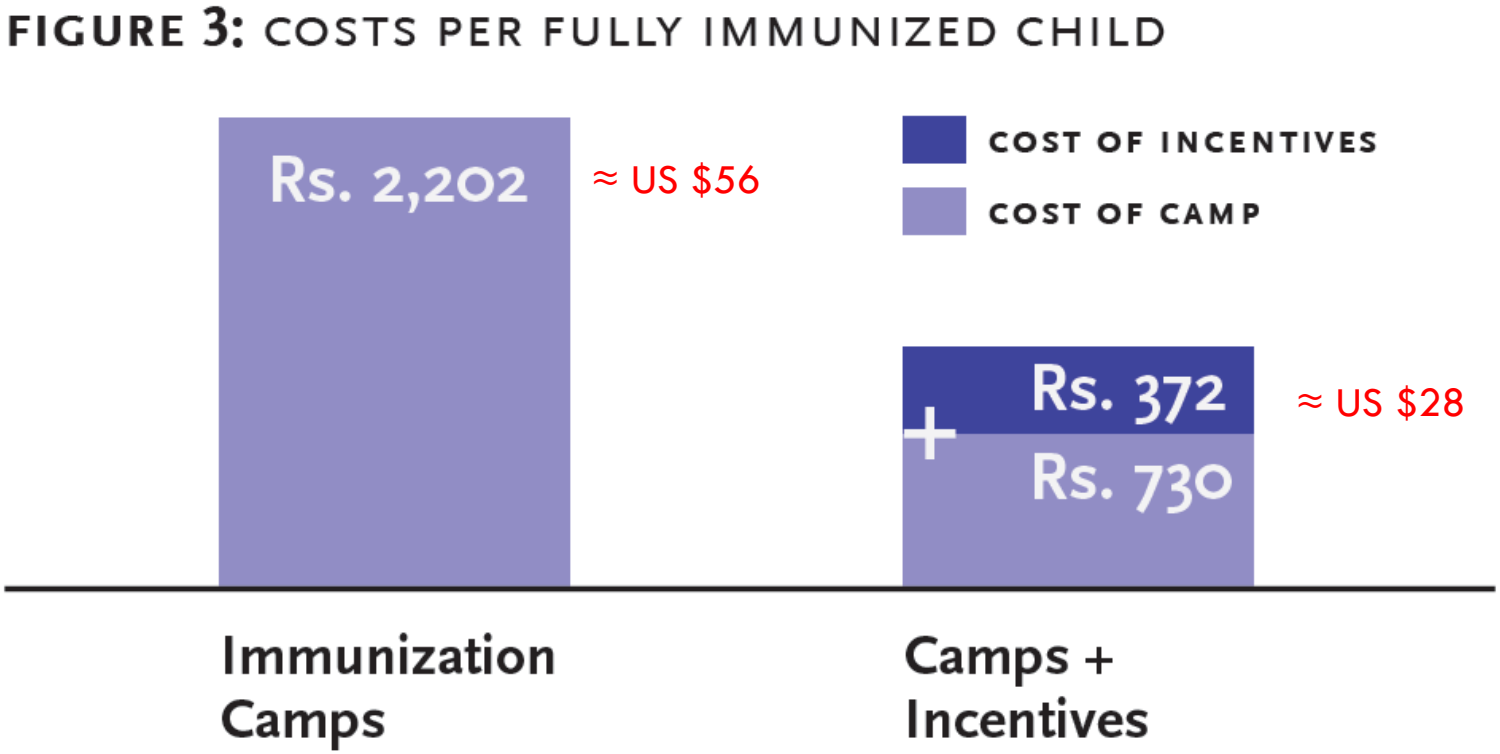
Cost Components	Details	Camps with Incentives	% of Total	Camps without Incentives	% of Total
Salary	Team of 4 GNMs and 4 GNM Assistants + Coordinators Salary	558,500	29%	558,500	46%
Travel	Staff and Incentive transport to camps	171,460	9%	63,460	5%
Honourarium	*USD 0.26 per child under 2 yrs per shot , given to village workers.*	*119,580*	*6%*	*62,370*	*5%*
Daily allowance	USD 1.10 for attending bi monthly meetings, given to village workers.	19,500	1%	19,500	2%
Consultancy fees	Paid for training of nurses and assistants.	2,200	0%	2,200	0%
Lodging & boarding	Expenses incurred during trainings.	7,333	0%	7,333	1%
Travel	For village worker's transport to trainings	4,645	0%	4,645	0%
Training Material	Office supplies disbursed during trainings.	1,500	0%	1,500	0%
Medicines	Includes paraceptemol, syringes and needles, needle cutters, blood pressure instruments, and stethoscopes.	43,925	2%	15,320	1%
Refrigerators	Four for vaccine storage.	25,178	1%	25,178	2%
Cost of Monitoring	Includes cameras, film, and manpower required for monitoring camps, entering, and analyzing data.	446,480	23%	446,480	37%
Incentive	*Utensils and lentils (includes storage boxes)*	*550,164*	*28%*	-	*0%*
Total		**1,950,465**	100%	**1,206,486**	100%

STEP 3: CALCULATE COST-EFFECTIVENESS

Divide the costs by the number of fully immunized children to get the cost-effectiveness of camps and incentives

$$\text{CE Ratio} = \frac{\textit{Number of fully immunized children}}{\textit{Total cost of implementing immunization camps}}$$

Giving incentives was twice as cost-effective



Central Policy Challenge

Policymakers may face multiple options for programs that address a policy goal

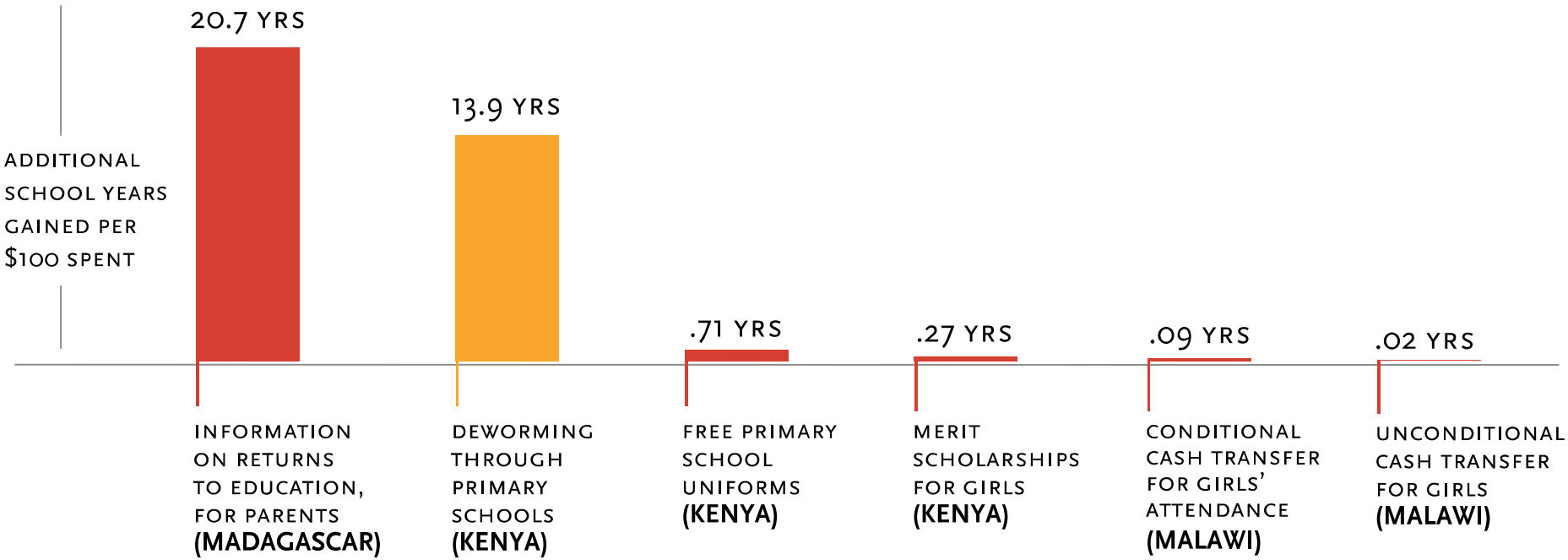
- E.g. Improve student attendance at school

There is huge variety in program scope and strategy, and in measured (or anticipated) impact

How do you choose the best option?

CEA is a starting point for discussion on evidence based policy

Cost-Effectiveness: Additional Years of Student Participation per $100 Spent



When to do an impact study?

When there is an important question you want/need to answer

- Common program, but little evidence
- Uncertainty about which alternative strategy to use
- Key question that underlies a lot of different programs
- About to roll out a big new program, important design questions

Timing—not too early and not too late

- Test once basic kinks have been taken out
- Before rolled out on a major scale

Program is representative of what could be scaled up

Time, expertise, and money to do the evaluation well

When does randomization make sense?

- When **budgets** are **limited** (not all eligible people can be immediately served).
- When a program is in a **pilot** stage (and we're still learning whether it works).
- When programs are **phased in over time** (we select who gets it first).
- An "encouragement design" to take-up an existing program.

Often randomization is considered the fairest way to select who receives a program.

Choosing the outcome or impact measures

- Observable and measurable
  - “Women’s empowerment”
  - Number of times women speak up in a town meeting
  - Number of women elected to local government positions
- Detectable
  - Need to happen with sufficient frequency
- Comprehensive
  - E.g. Measuring increases in savings needs to include more than deposits in a bank
- Reliable
  - Forgetting (Be specific, recent)
  - Misrepresenting (Proxies, observe behavior)

Key Points

Important to measure the causal impact of a program

- Rigorous evaluations, including randomized evaluations are very useful.

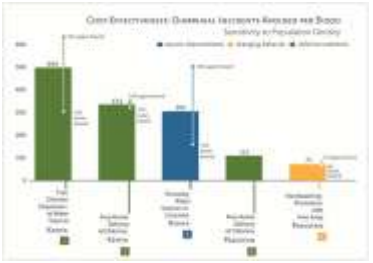
Costs matter too

- Cost-effectiveness analysis provides clear comparisons

A host of evidence is available

- See related resources

Links To J-PAL Resources



Current cost-effectiveness analyses:

www.povertyactionlab.org/policy-lessons

Policy publications:

www.povertyactionlab.org/policy-lessons/publications

J-PAL evaluation database:

www.povertyactionlab.org/evaluations

Thank You!

Questions?

ebakirdjian@povertyactionlab.org
yalouris@povertyactionlab.org
mbates@mit.edu

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