

Closing the Gap: A Research Agenda to Drive Human Capital Investment

Adam Wagstaff

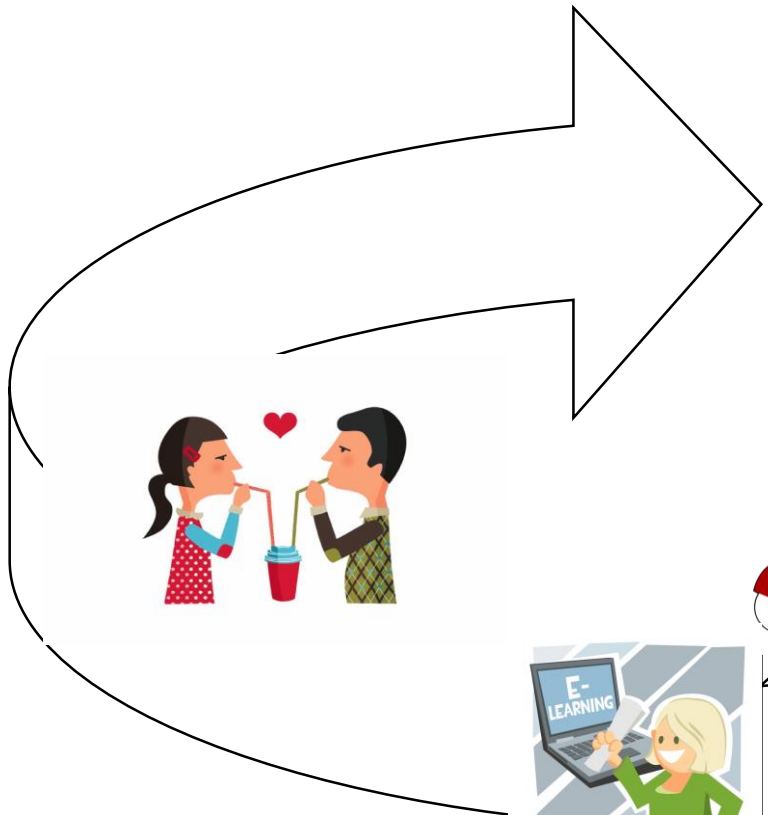
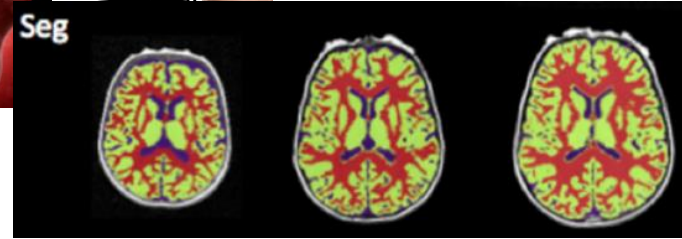
Research Manager, Development Research Group



Family Poverty Affects the Rate of Human Infant Brain Growth

Jamie L. Hanson^{1,2*}, Nicole Hair^{3,4}, Dinggang G. Shen^{5,6,7}, Feng Shi^{5,6,7}, John H. Gilmore⁸, Barbara L. Wolfe^{3,4,9}, Seth D. Pollak^{1,2}

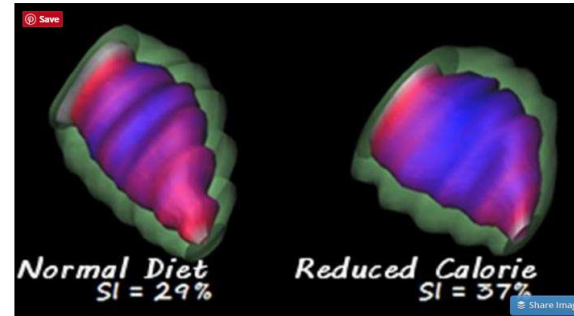
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Home > Health > November 7, 2016

Poor nutrition during pregnancy can cause early aging of baby's heart

November 7, 2016, The Physiological Society

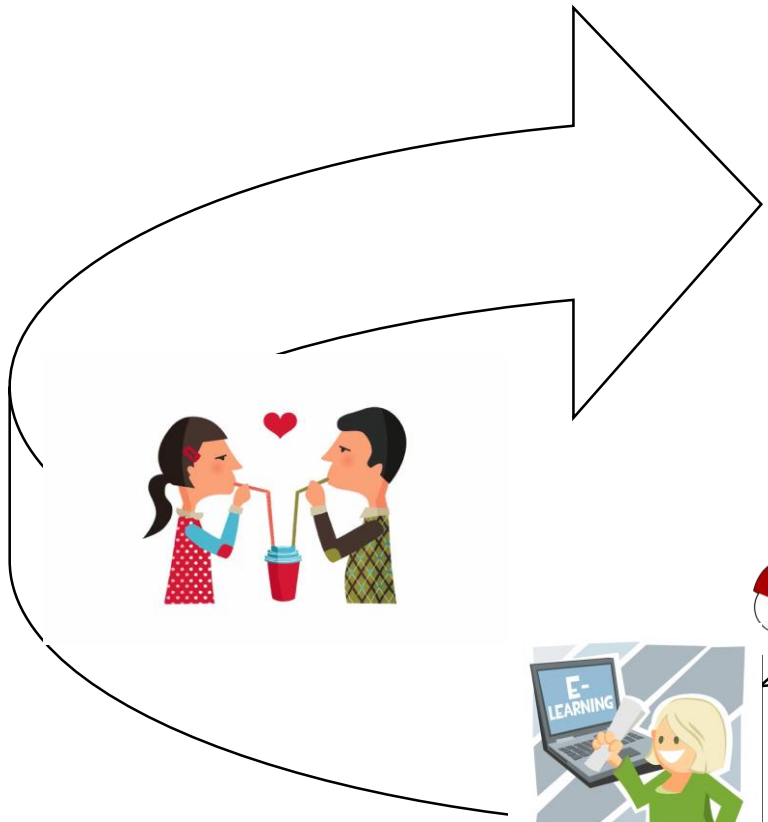


Offspring of undernourished mother has more spherical shaped heart than control. Credit: Dr. Peter Nathanielsz and Dr. Geoffrey Clarke

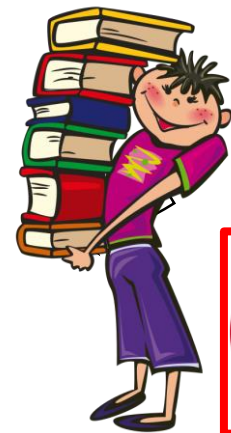
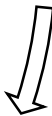
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Building human capital across the lifecycle



Welcome to
Preschool



Losing Human Capital



Human Capital Index foci

Stunting among under-5s



Under-5 mortality rate

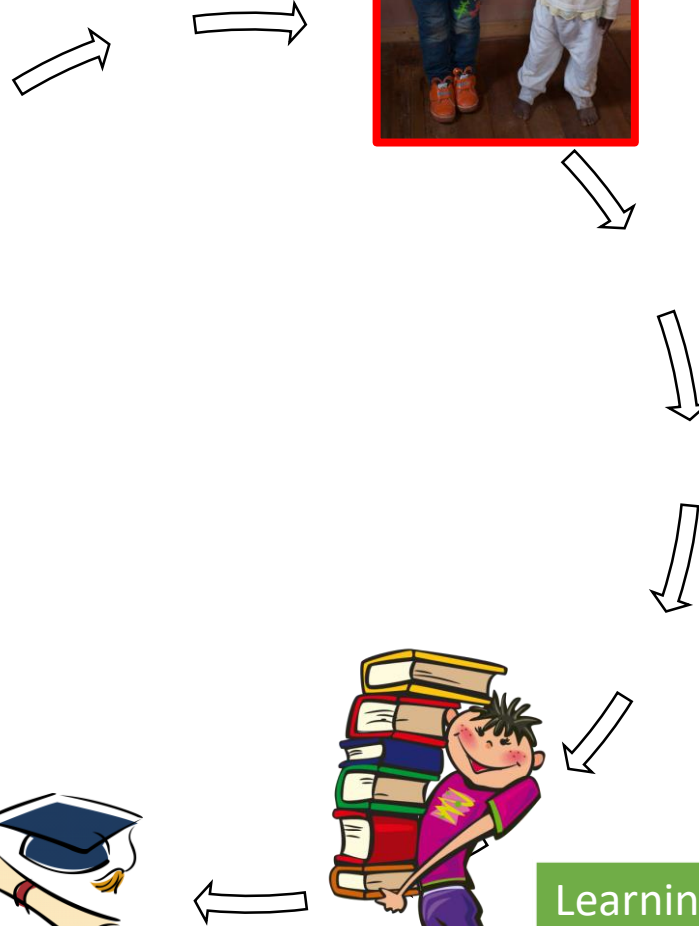
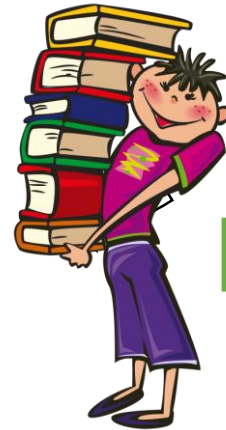
% 15-year olds surviving to 60








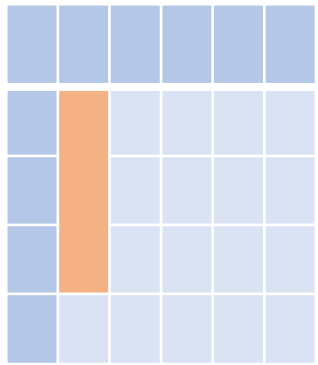
Years of schooling by age 18



Learning among school-children



	Health			Education	
					
Mastering metrics					
Finding (and explaining) facts					
Probing policies & programs					
Trialing and testing					



The dollars and cents of childhood stunting

A backward-looking calculation

- What's the reduction in per capita income today due to some of today's workers being stunted in childhood?

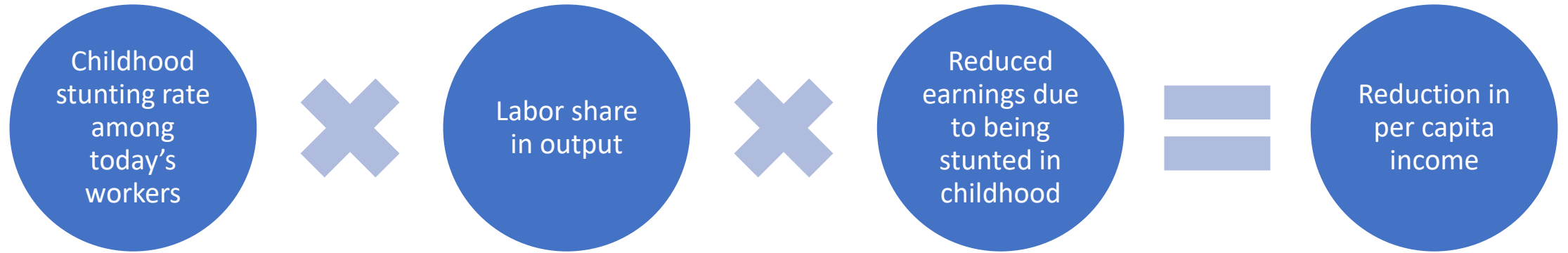
A forward-looking calculation

- What's the rate of return to implementing today a program designed to reduce stunting among tomorrow's workers?



Looking backwards

Computing income reduction from stunting

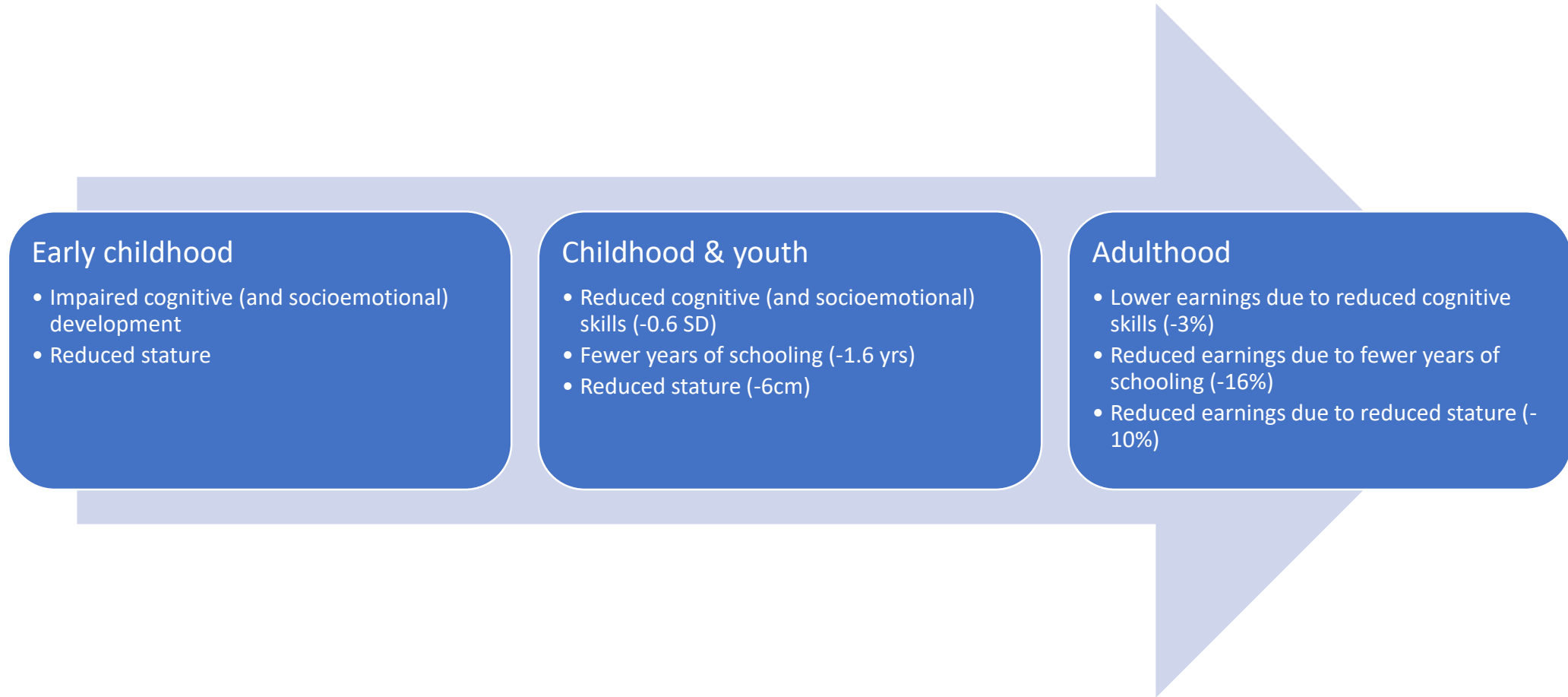


Calculate average age of today's workers.
Estimate stunting when they were 2½ years old

Assume = 2/3

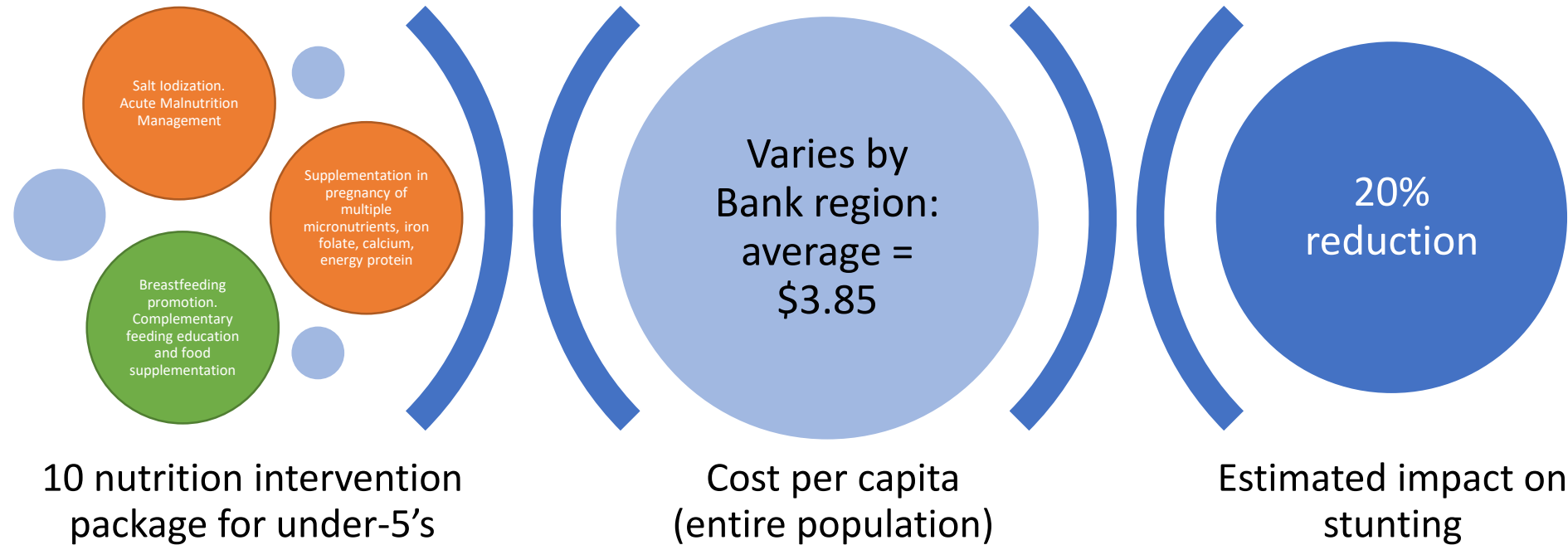
It's (a bit more) complicated...

Computing reduced earnings due to being stunted in childhood

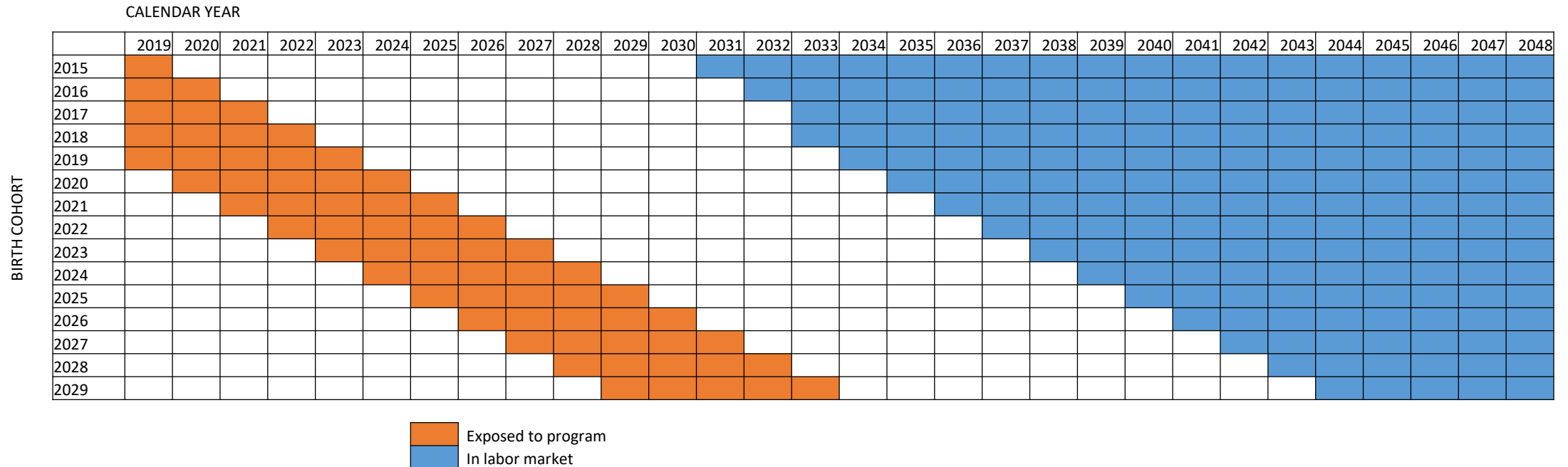


Looking forwards

A 10-intervention nutrition program for under-5s



Timing of costs and benefits of the 10-intervention nutrition program

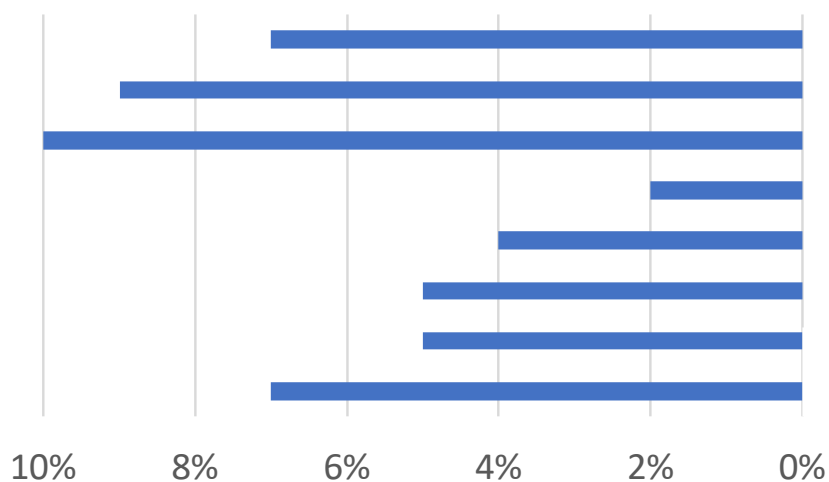


- Only children aged 0 or not yet born will get a full 5 years of exposure to the program
- Costs are incurred now. Benefits (lower earnings) start accruing only in 2031. Discount!
- Need to factor in that stunting is falling anyway
- Earnings are rising – the % increase on earnings is on earnings at the time

Galasso, E. and A. Wagstaff (2018). The aggregate income losses from childhood stunting and the returns to a nutrition intervention aimed at reducing stunting. Policy Research Working Paper 8536. Washington DC.

Looking backwards

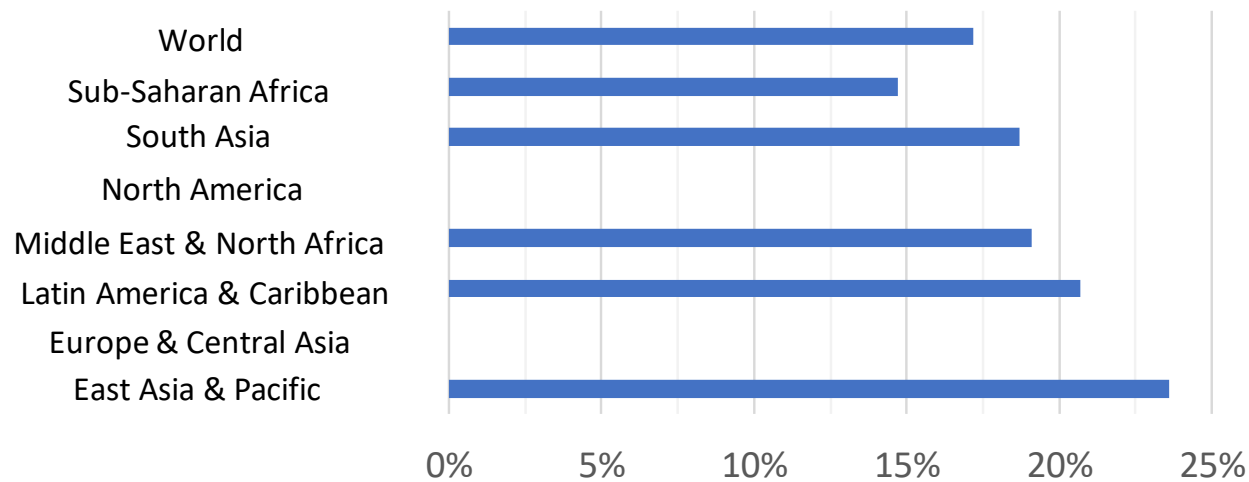
What's the reduction in per capita income today due to some of today's workers being stunted in childhood?



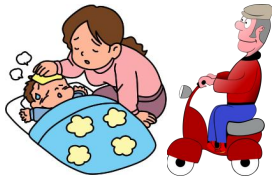
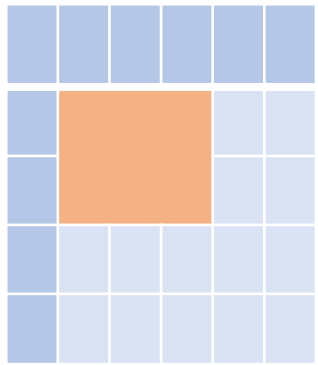
Calculations for 140 countries

Looking forwards

What's the rate of return to implementing today a program designed to reduce stunting among tomorrow's workers?



Calculations for 32 countries with highest stunting burden



Effective health coverage: Getting at quantity and quality

“If we’re serious about improving health outcomes in the developing world, we desperately need to increase people’s use of health services”.

“Everyone knows the quality of health services is terrible. If we’re serious about improving health outcomes, we need to improve the quality of health services before we start getting people to use them more.”



Getting to effective coverage



Utilization

- ◆ % population using a service
- ◆ E.g. % children taken to a health provider
- ◆ But does everyone need a consultation?



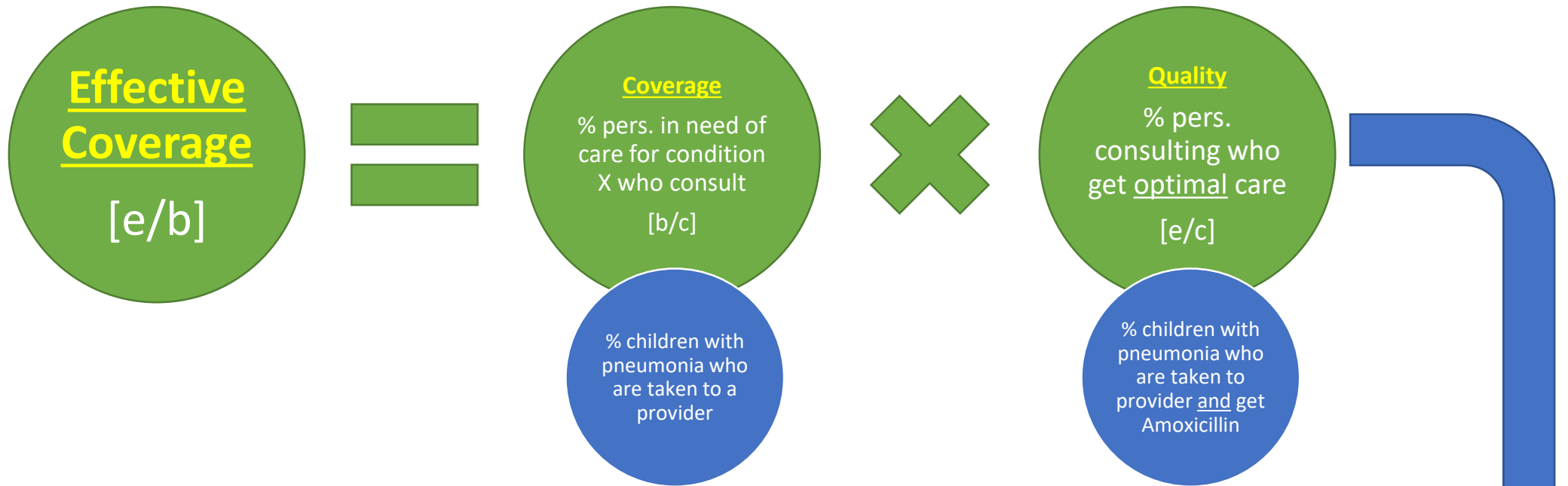
Coverage

- ◆ % population in need using a service
- ◆ E.g. % children with acute respiratory infection (ARI) taken to a health provider
- ◆ But do children get the correct treatment?



Effective coverage

- ◆ % population in need using a service and getting the optimal treatment
- ◆ E.g. % children with ARI taken to a provider and getting Amoxicillin



==== Getting at quality =====

Household surveys

- In principle, gets at care actually delivered
- Caregiver may not know, may forget
- Hard to establish exact needs of patient ex post and based on caregiver's recall

Facility assessments

- Vignettes (hypothetical cases – paper or video)
- Standardized ('fake') patients
- Direct observation. NB Hawthorne effect

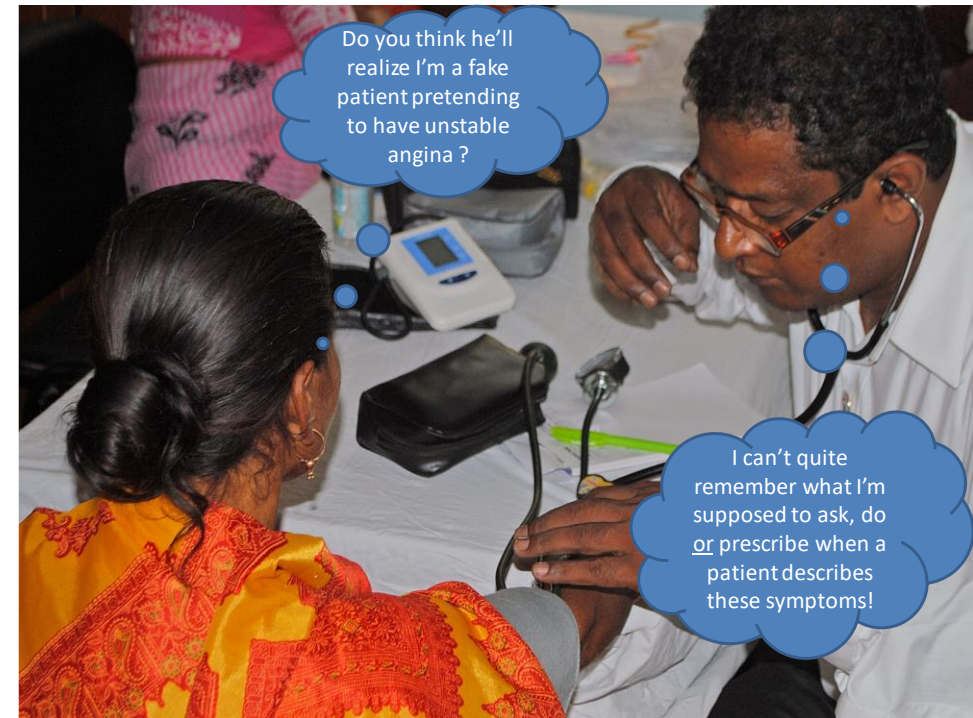
Vignette = hypothetical patient

Two video vignettes:
non-poor (left) and poor (right)



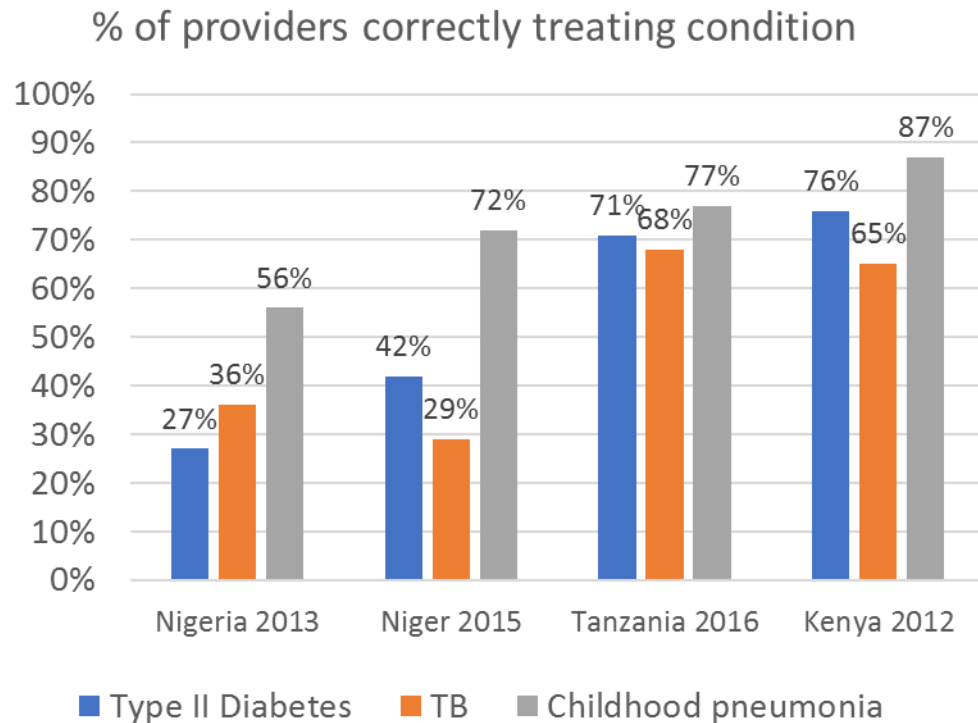
Standardized patient = actor pretending to be sick

A standardized (fake) patient interaction



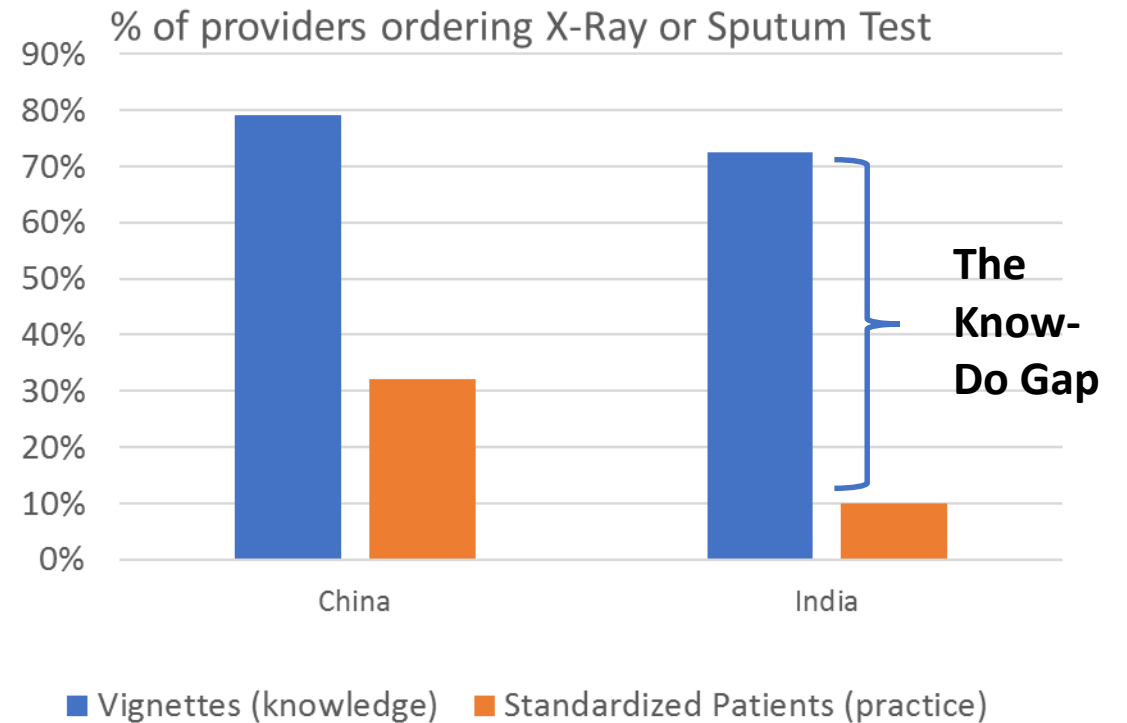
Health providers don't always know a lot...

Testing knowledge through vignettes



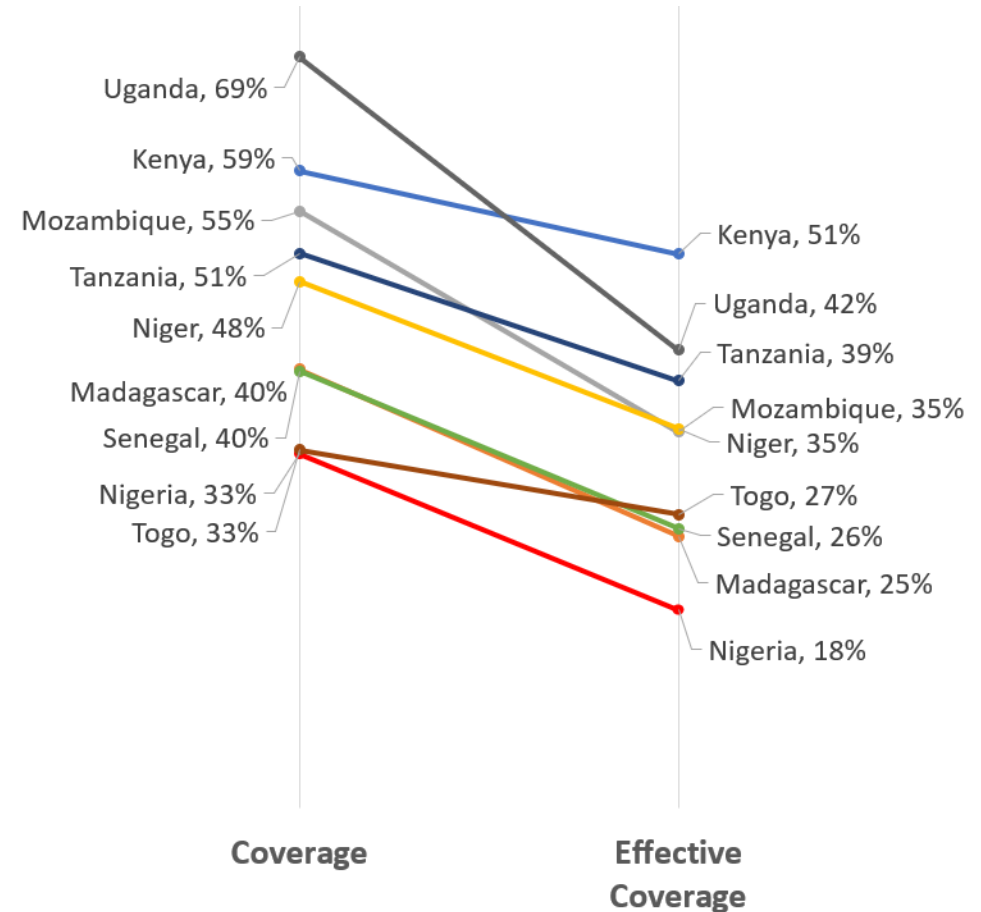
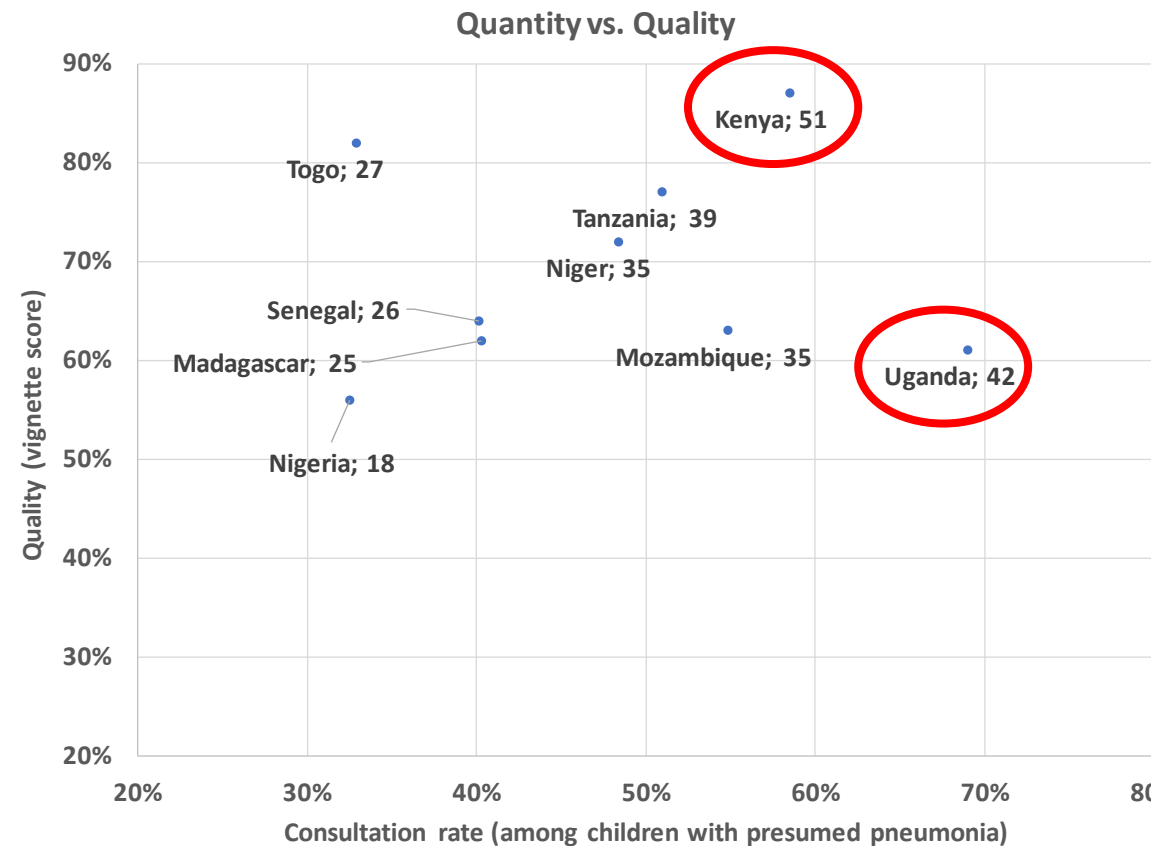
And they don't always do what they know...

Vignettes vs. the "real" thing (SP)



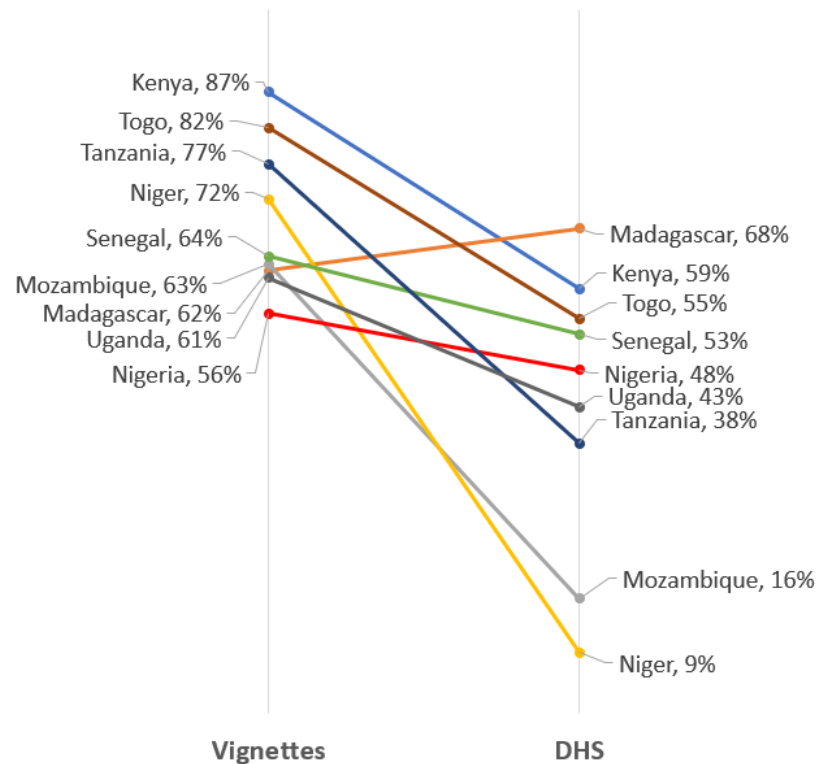
Factoring in quality makes a (big) difference

Child pneumonia, quality measured via vignettes

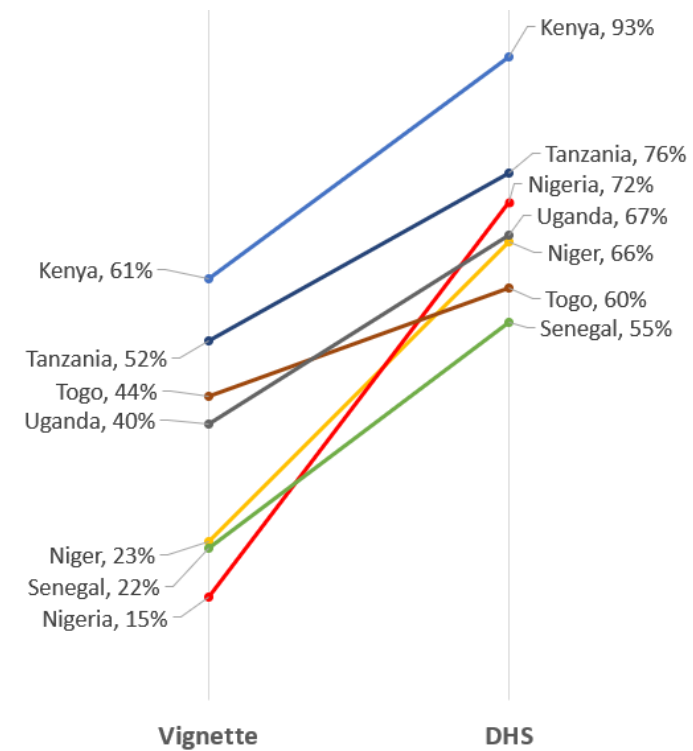


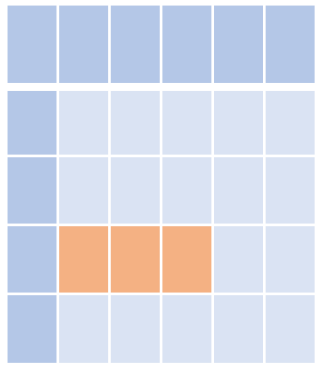
Are vignettes overoptimistic about what children (taken to a provider) actually get?

Vignette (child with non-severe pneumonia)
vs. DHS (child with **presumed** pneumonia)
% getting correct treatment



Vignette (severely dehydrated child with diarrhea)
vs. DHS (severely dehydrated child with diarrhea)
% getting correct treatment





Demand- and supply-side incentives in health. Do they work?

A Mega Meta-Analysis

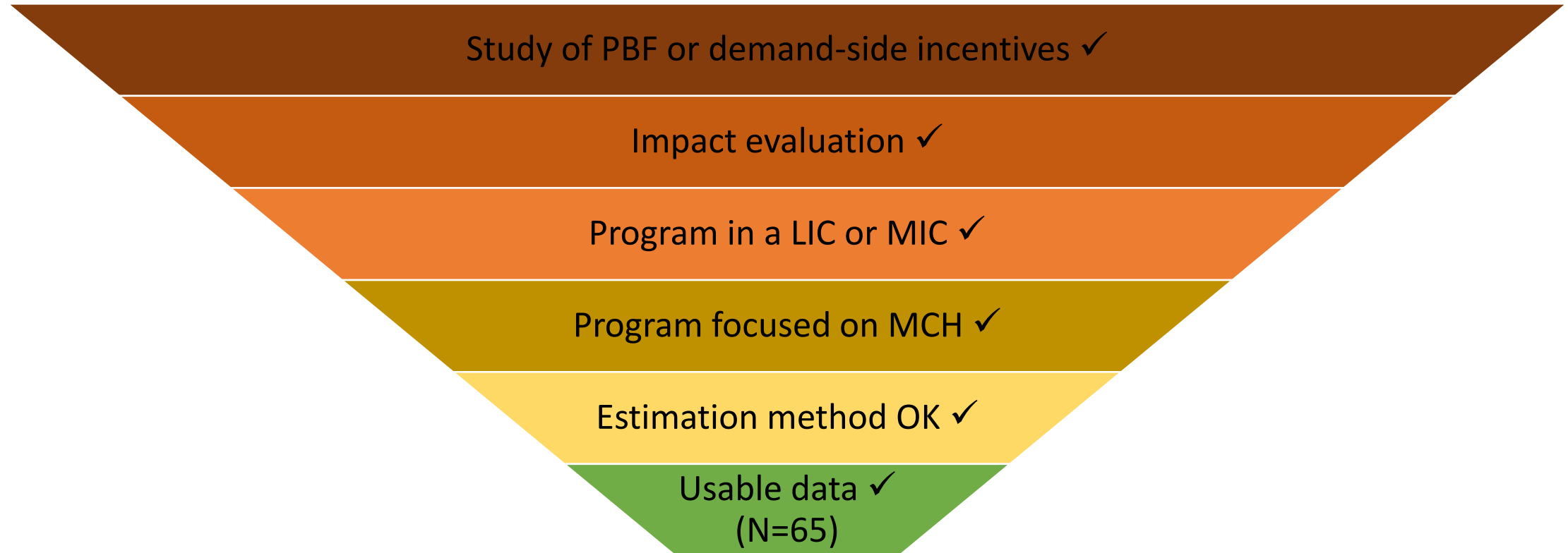
Why look at demand- and supply-side financial incentives in health?

- 2/3 of IDA HNP projects try to increase coverage of maternal and child health (MCH) interventions by **using financial incentives to health providers** – performance-based financing (PBF)
- Does PBF work?
- Does it work better than financial incentives targeted at health care users, e.g. CCTs?
- Are there some services where one type works better than the other?

The Study

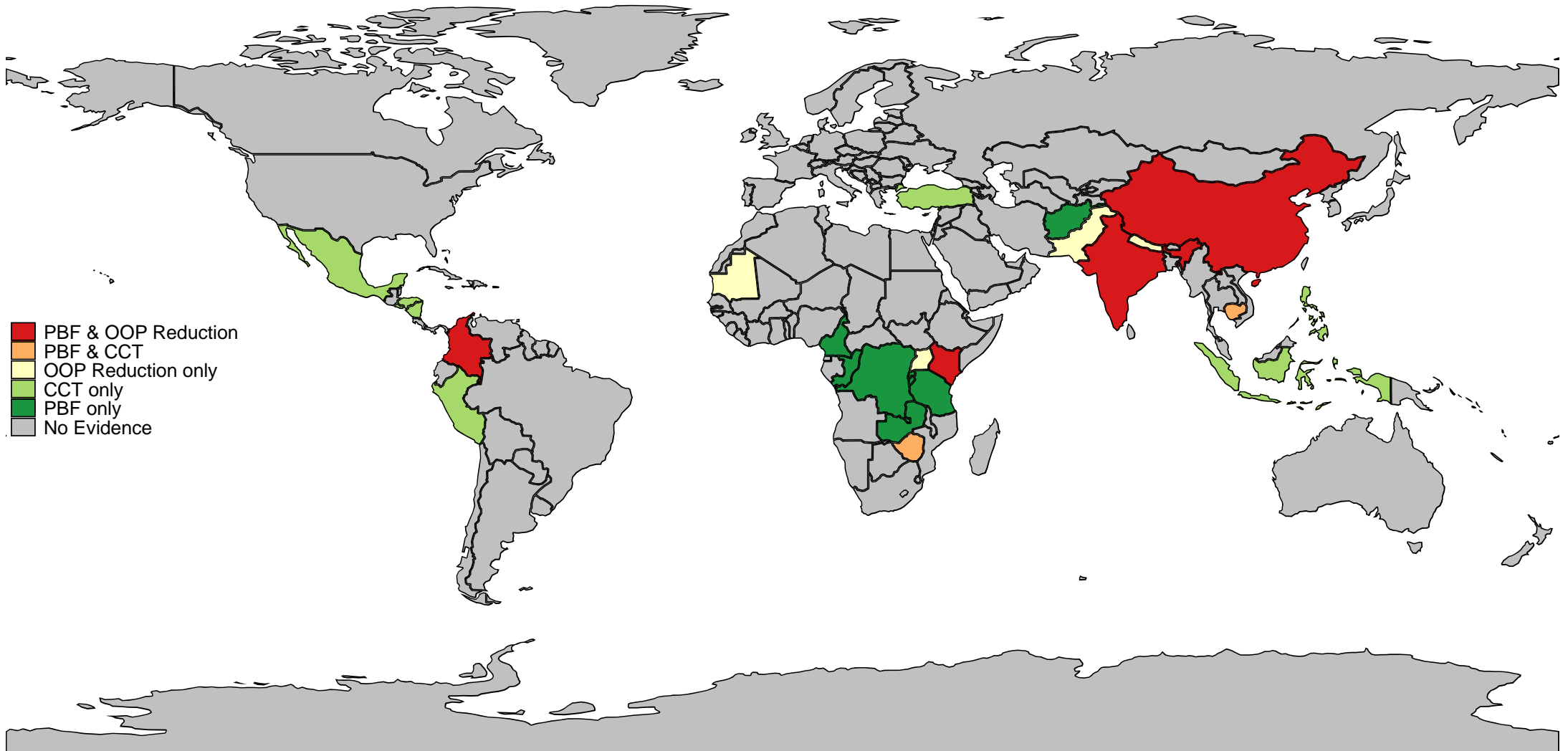
- A lot of potentially relevant studies – not all actually relevant, and not all high quality
- Some programs have been evaluated by several studies
- Use meta-analysis to synthesize the evidence

Whittling down the evidence base

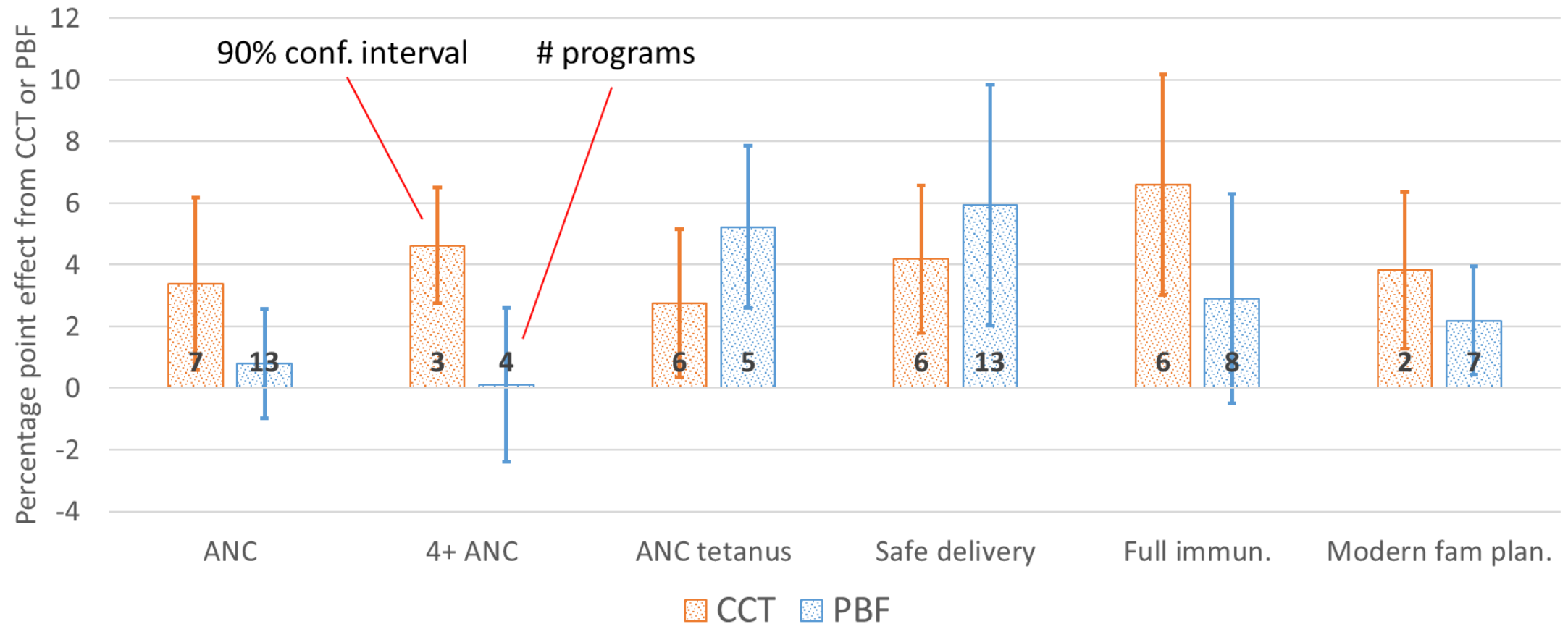


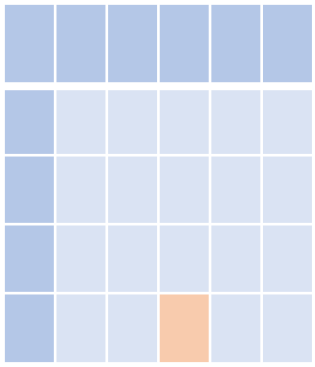
Three literature searches – 2016, 2017 and 2018. In 2016, 20,255 articles were found

Countries with credible evidence on supply- and/or demand-side incentives for MCH



The emerging evidence on demand- and supply-side financial incentives in health





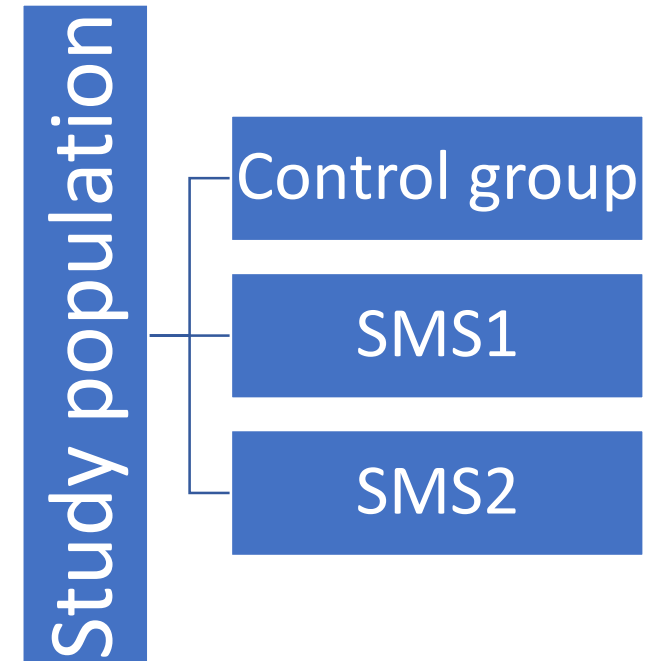
Three (tested) nudges to improve adult health



Nudge #1: Using SMS nudges to reduce TB treatment delay and treatment non-initiation

- TB is curable. Yet South Africa has one of the world's highest TB mortality rates
- TB "journey" has a series of steps. Delays and drop-off occur at each stage, especially at treatment initiation
- Patients who have tested for TB either don't return to get their results / start treatment, or delay their return
- HIV+ patients esp. vulnerable – TB develops more quickly
- RCT tested 2 SMS nudges in 3 Cape Town clinics
 - **SMS1:** A simple reminder – aimed at getting returning to clinic to "top of mind". *"Don't forget to collect your results from the clinic tomorrow."*
 - **SMS2:** A scary reminder – aimed at overcoming "optimism bias". *"Don't forget to collect your results from the clinic tomorrow. 96,000 South Africans die every year from TB. This should not be – TB can be cured"*.

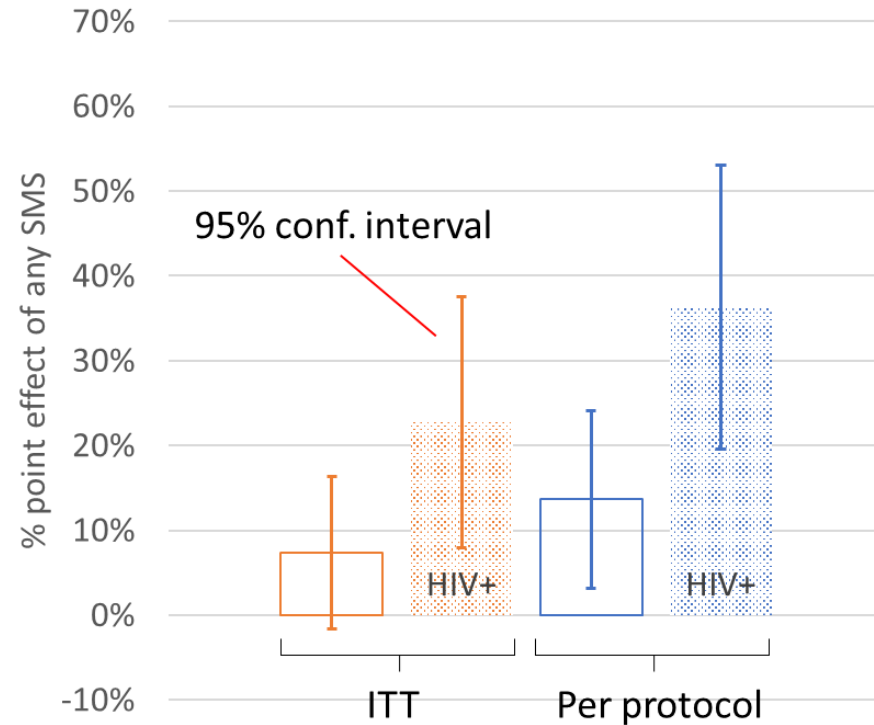
Randomization process in each clinic



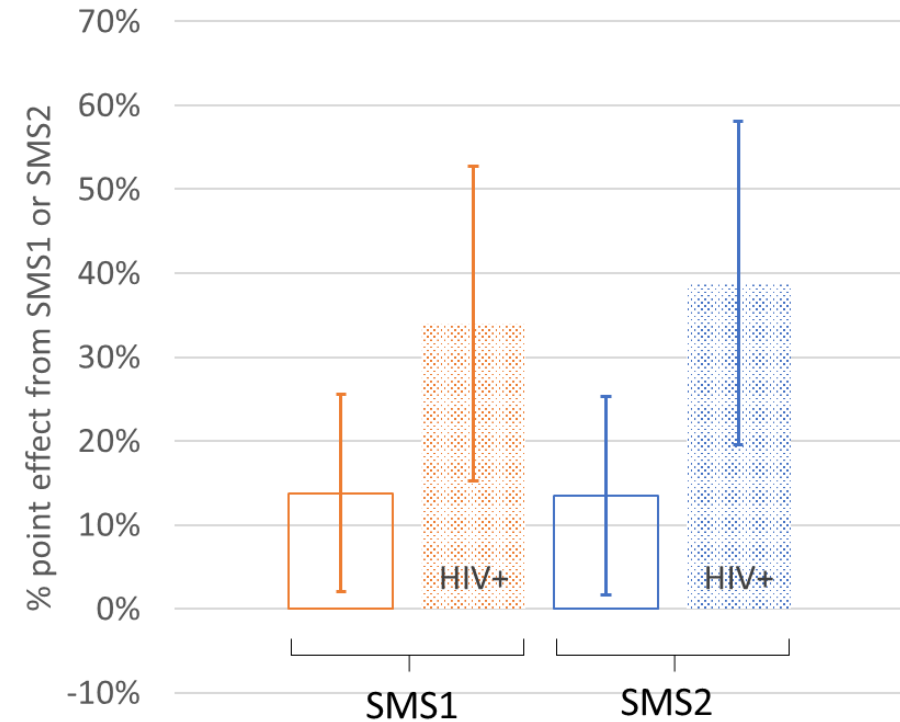
Effects of SMS on returning to clinic on requested day

Per protocol = effect on treated, i.e. people with phone getting intended SMS

Any SMS reminder



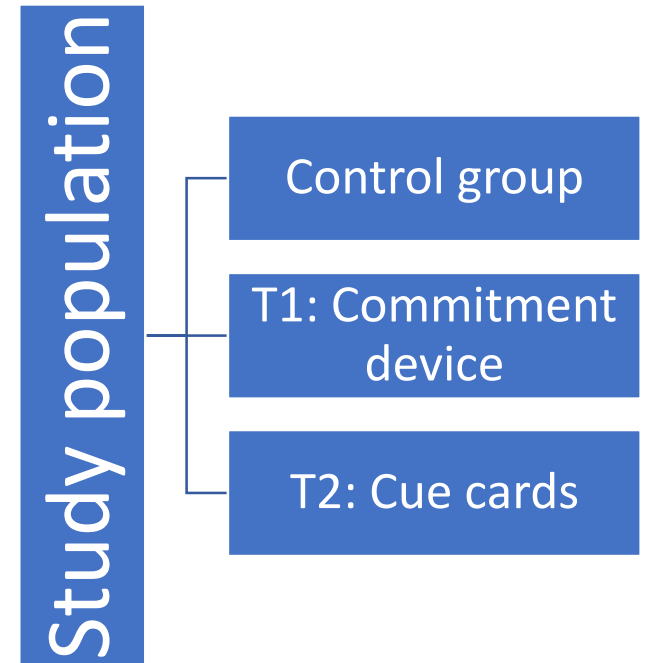
Per-protocol / Effects on treated



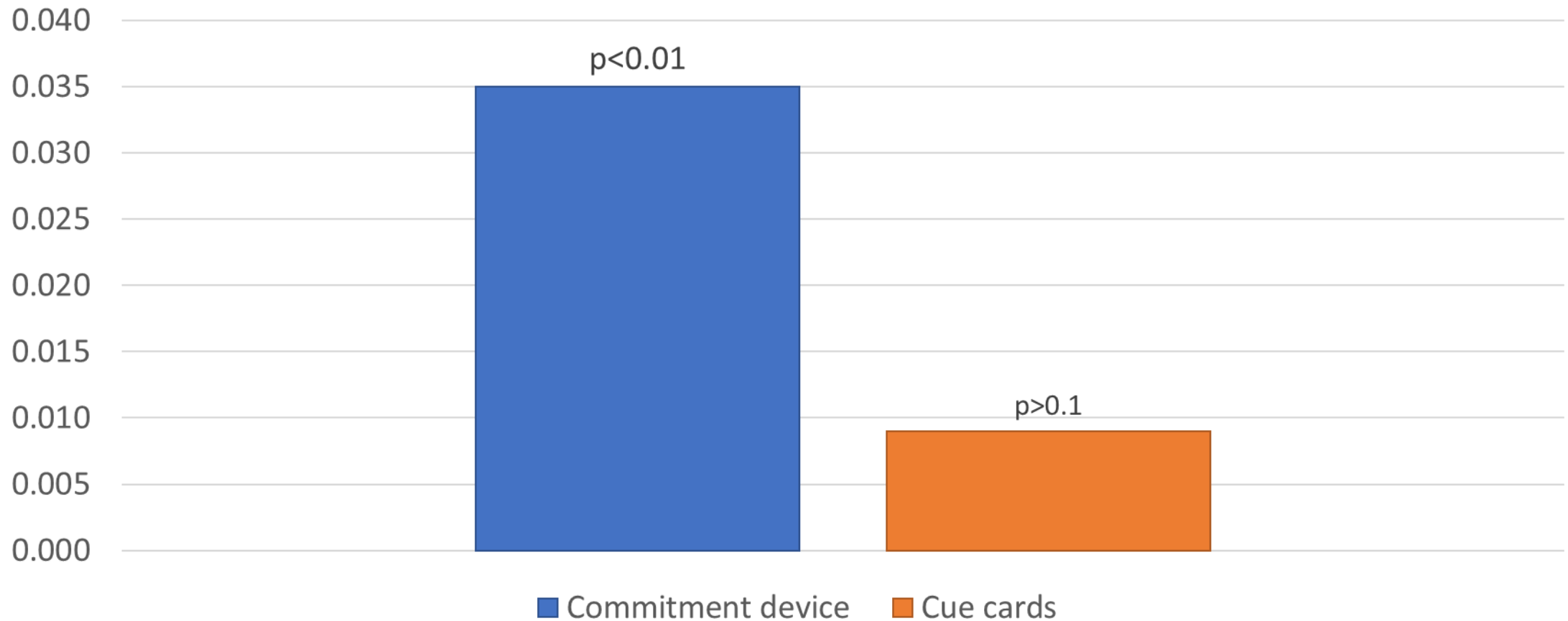


Nudge #2: Using a commitment device to encourage people to quit smoking

- Time preference is the idea that people are impatient
- **Time-inconsistent preferences** (TIP) mean people are more impatient in near-term trade-offs than in longer-term trade-offs
- TIP helps explain why people find it hard to quit smoking
- TIP imply a preference for a **commitment device** – a way to voluntarily constrain one's future consumption choices
- Could the offer of a commitment device help people quit smoking?
- Smokers selected randomly were offered the opportunity to voluntarily sign a commitment contract to stop smoking
 - Smoker commits to paying own money into a fund each week and to passing a urine test after 6 months. If does so, gets his money back. If not, fund is donated to charity
- 2nd treatment group received “cue cards” about the health risks from smoking



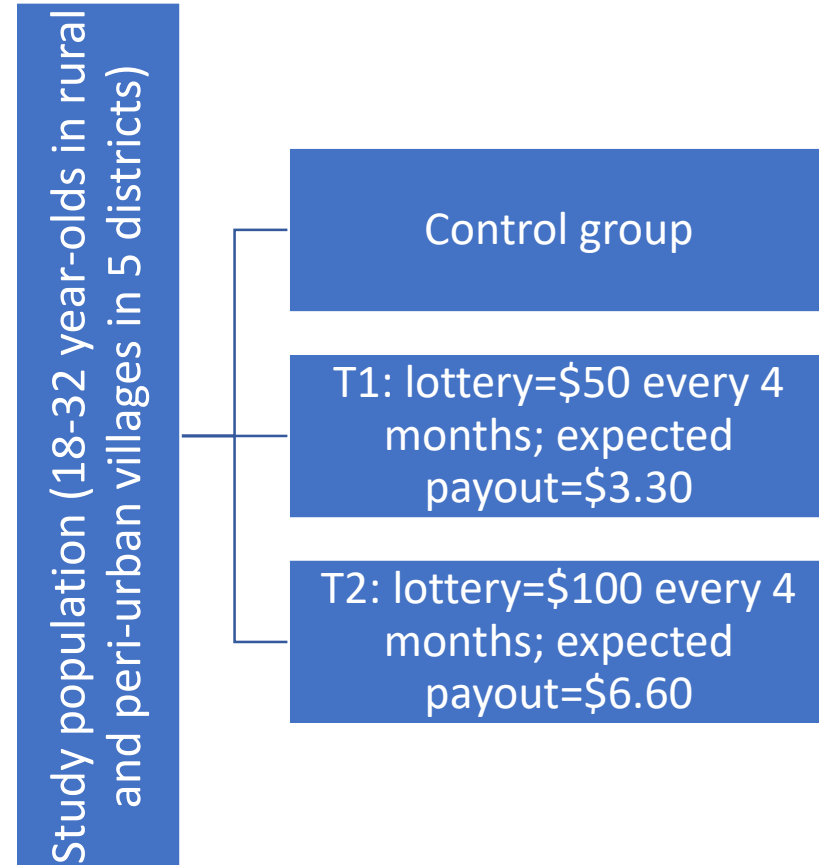
Commitment device and cue card (ITT) effects on passing (nonsmoking) urine test 12 months later



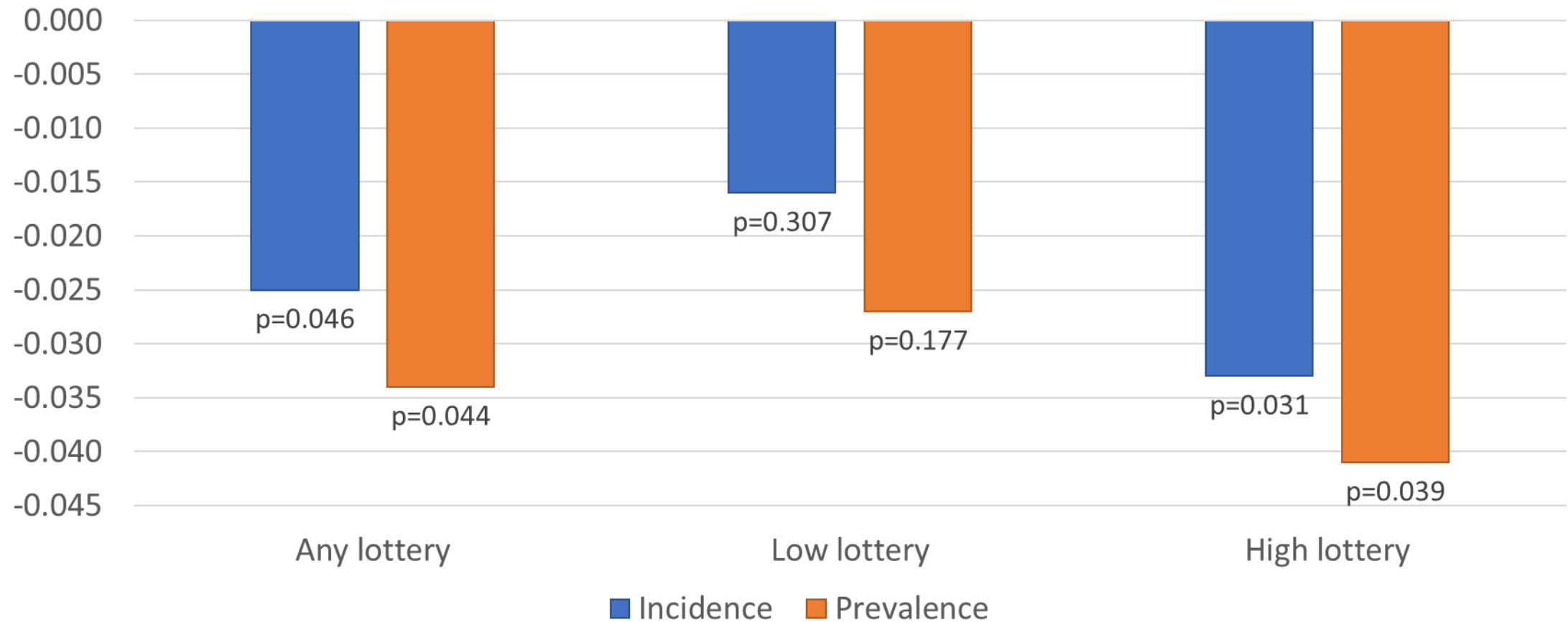


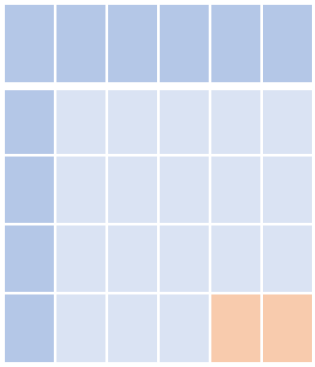
Nudge #3: Incentivizing Safe Sex – Lotteries and HIV in Lesotho

- In 2016, 1.2m new HIV infections in Africa, adding 26m new people living with HIV
- Could financial incentives to stay free from sexually transmitted infections via a lottery help reduce HIV?
- RCT with low expected payments (but high payments to lottery winners) conditional on testing negative for 2 curable sexually transmitted infections (syphilis and trichomoniasis)



Results of incentives on HIV incidence and prevalence



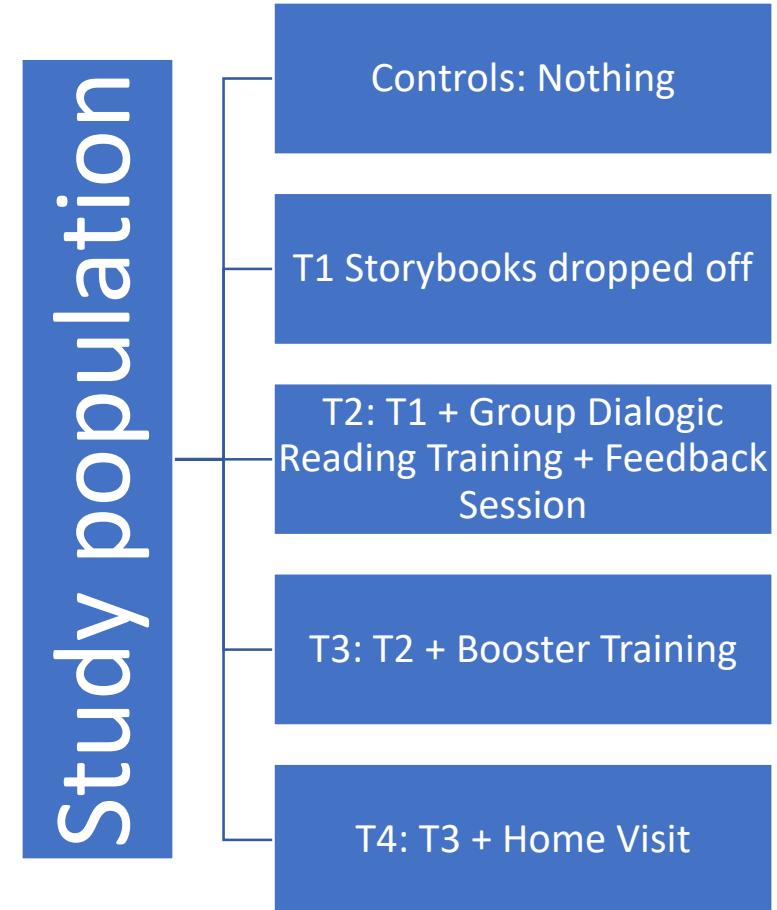


Three (tested) ideas to improve children's learning

Idea #1: Storybooks, language development and getting ready for school

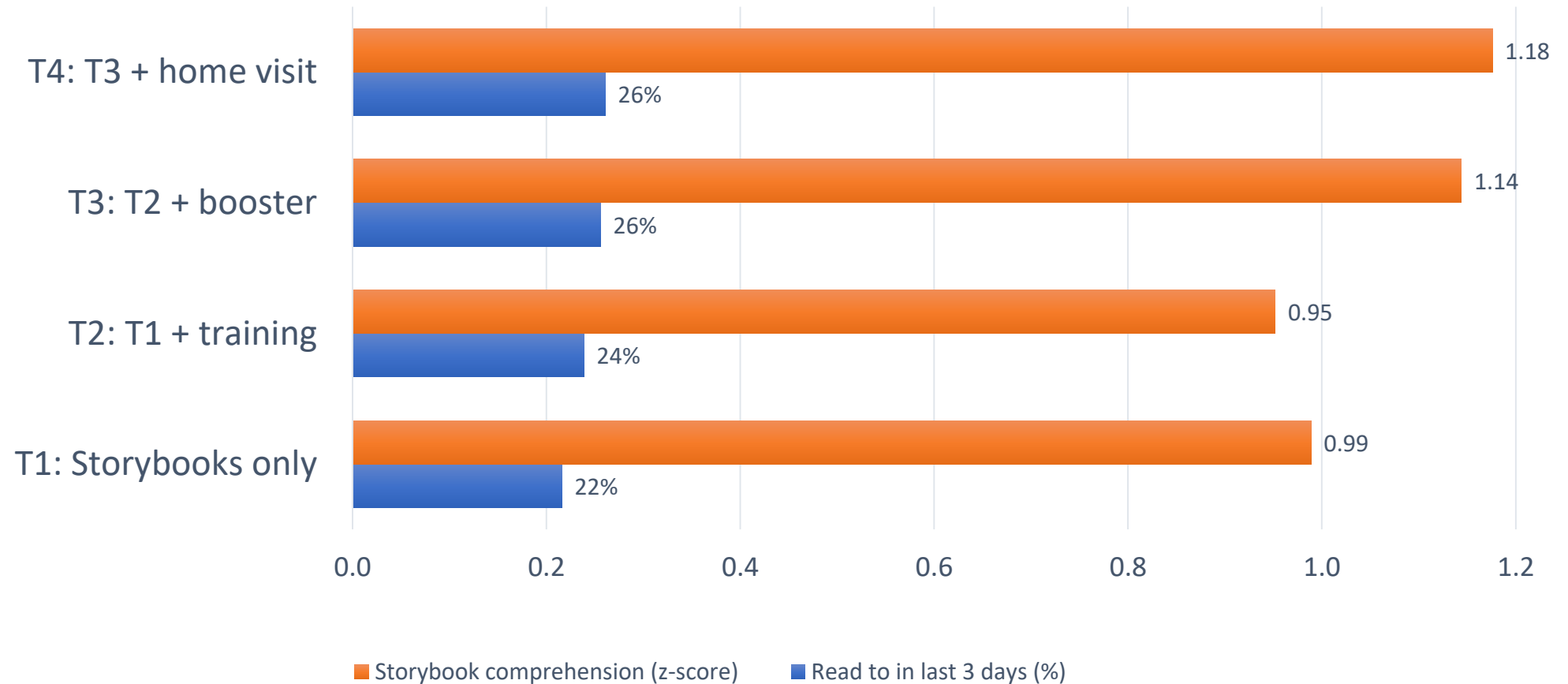


- 250 million under-five children at risk of failing to meet their developmental potential – partly because of inadequate cognitive stimulation in early childhood
- Parent support programs yield significant benefits... but they're expensive
- Could giving (culturally- and linguistically-appropriate) storybooks to families help? Would training, feedback and home visits also help?



Storybooks increase reading and comprehension

Extra support adds little

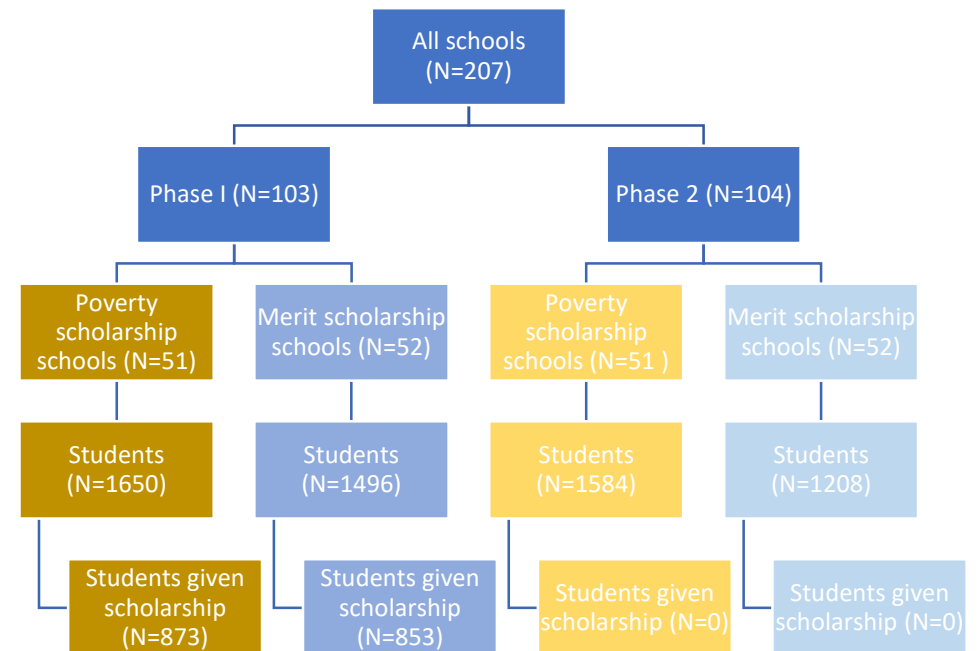




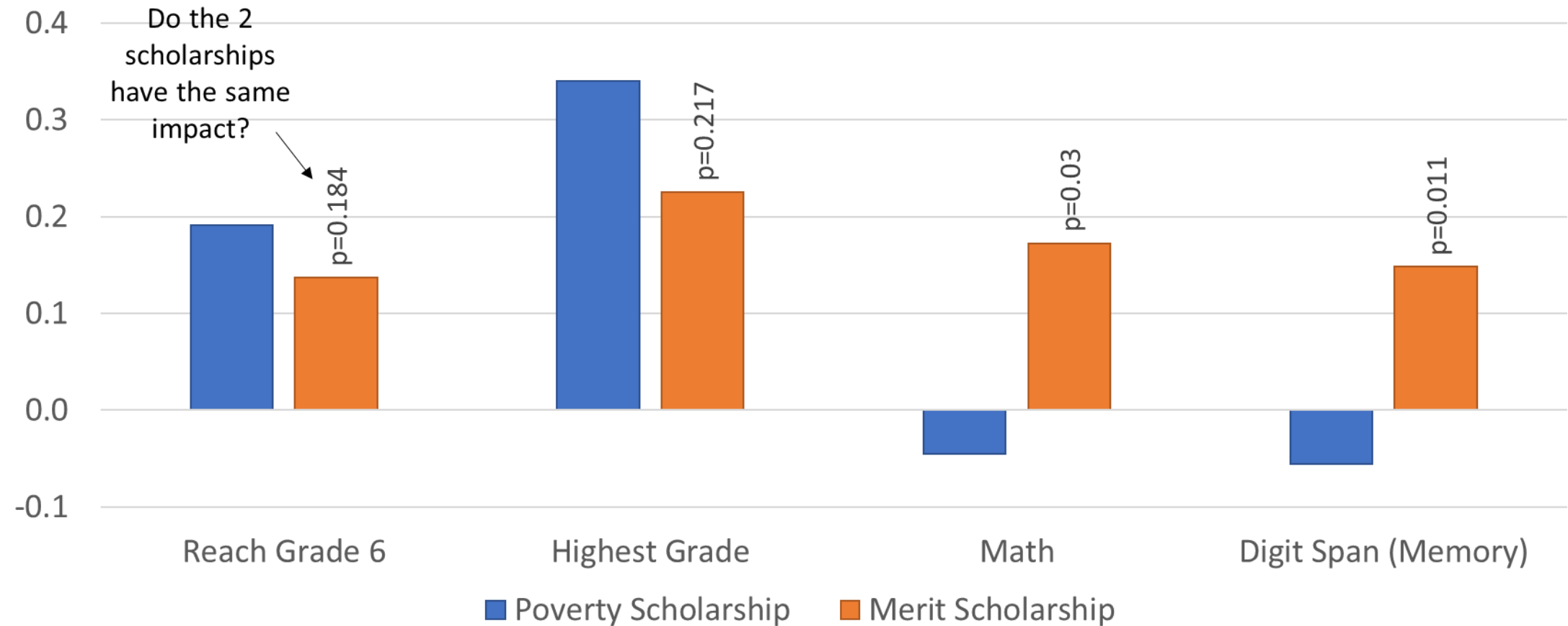
Idea #2: Incentivizing learning through scholarships

Does how a scholarship is labeled make a difference?

- Cambodia piloted a scholarship program for upper primary schoolers – grades 4-6 – in 3 provinces
- Free schooling plus \$20 p.a. per pupil
- Schools randomly assigned to Phases 1 and 2
- Within each phase, schools randomly assigned to be **poverty scholarship schools** or **merit scholarship schools**
- *Did the scholarships work?*
- *Did the 2 types work equally well? Did the label make a difference?*



Scholarships worked equally well for enrollment. Only merit scholarships increased learning

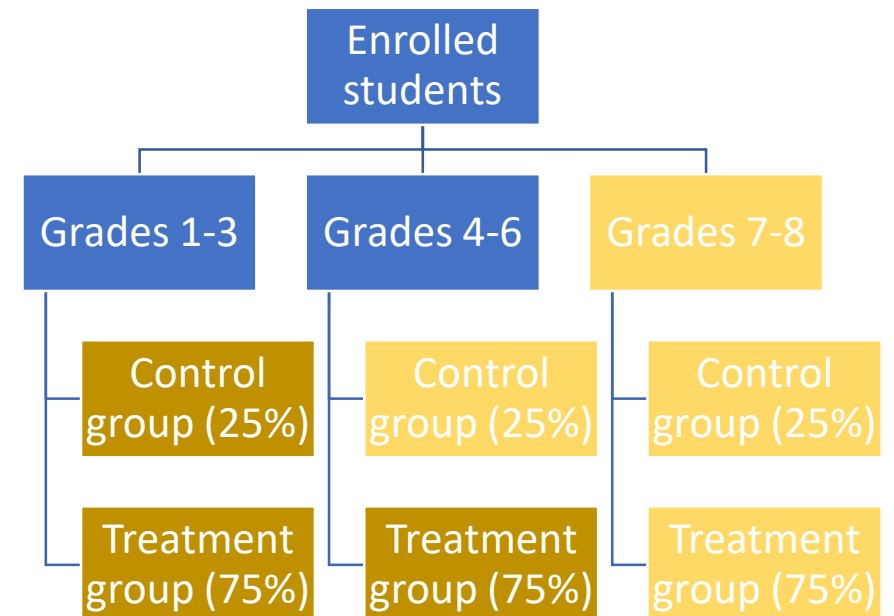


Idea #3: After-school programs in El Salvador's violent schools

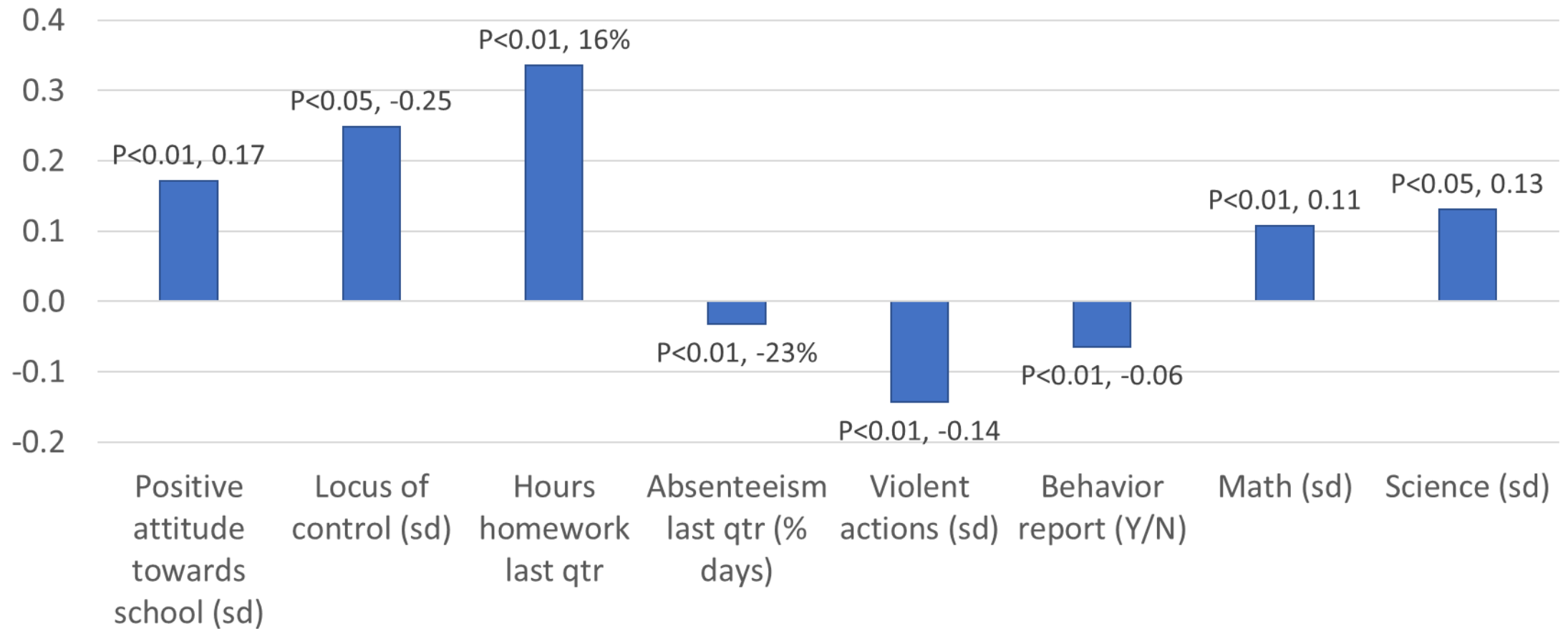


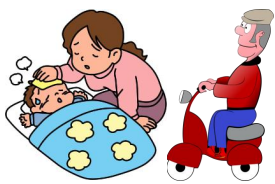
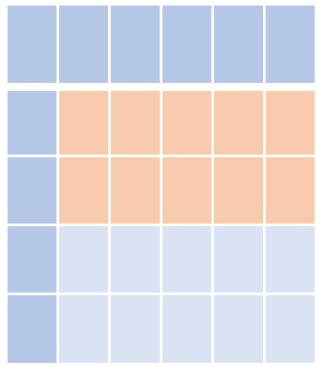
- El Salvador's gang violence is having negative effects on education – a 13% decrease in enrollment
- Could an after-school program (ASP) – aimed at students in the age range targeted by gangs, and living in the most violent communities – help?
- RCT in 5 schools in El Salvador's most violent communities
- Two 90-minute ASP sessions per week – enrolled children selected at random were invited to participate; the rest became the control group
- Two components to each ASP session:
 - Club activities – e.g. scientific experiments, artistic performances, etc.
 - Cognitive behavioral therapy (CBT) – concrete methods for regulating participants' violent behavior
- Data from school, self-reports, psychometric tests and electronic brain monitoring used to measure impacts on absenteeism, behavioral reports, grades, etc.

Randomization process in each school

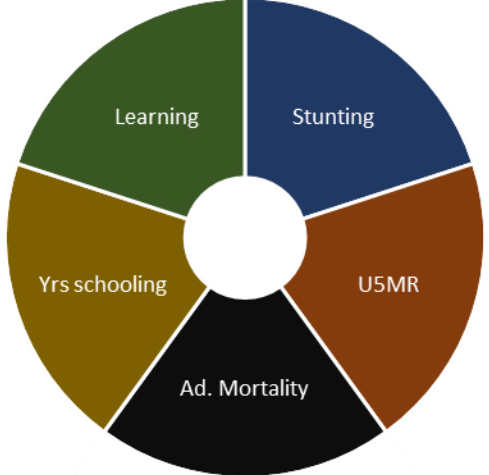


After-school program (ITT) effects





Anticipating changes in the HCI – globally



School enrollment

HDI

U5MR

Multinomial

HDI (adjusted for inequality)



Figure 1: Data sources for indicators





Your HCI Will Load Shortly

Just Kidding 😊

A barometer to help us anticipate HCl changes?



Lots of frequently collected indicators that either mimic or “lead” the HCl

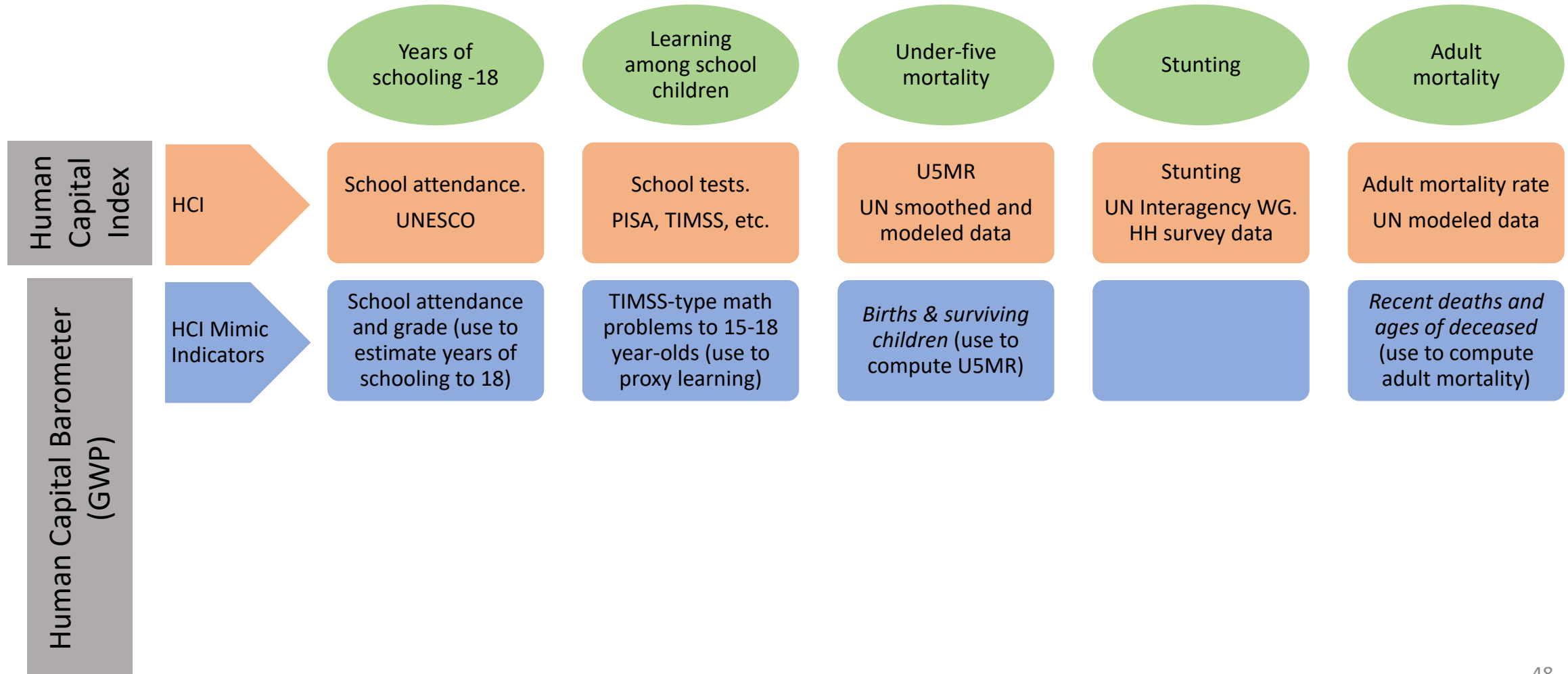
5 slow-moving indicators

Use Gallup World Poll (GWP) to collect data for the barometer?

- Gallup does GWP (usually) every year
- 160+ countries
- $N \approx 1,000$
- Interviews face-to-face in LICs and MICs; by phone in HICs
- DECRG has already partnered successfully with GWP to collect data on financial inclusion – FINDEX
- Some questions relevant to HCI are in GWP already
- Others could be added à la FINDEX
- Can think of HCI *mimic indicators* and HCI *leading indicators*

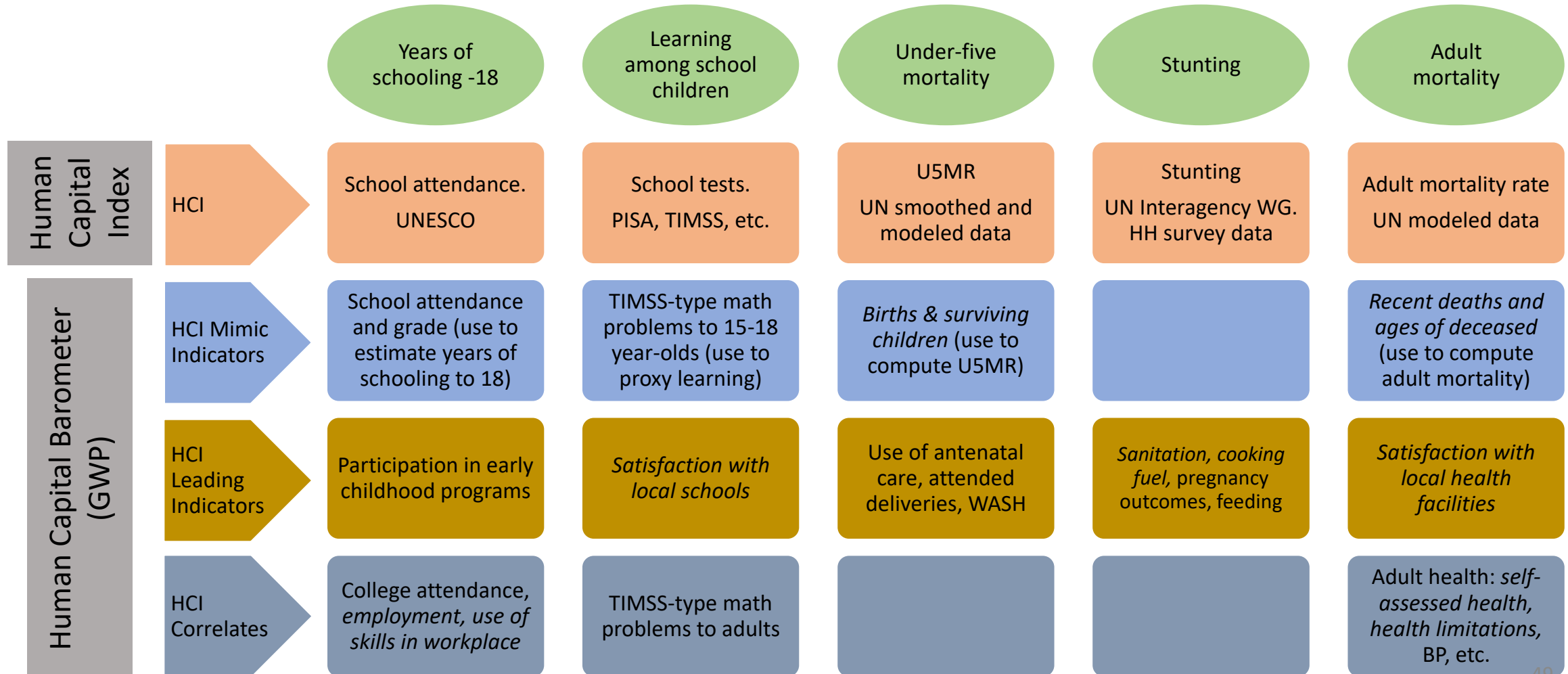
What indicators to collect for the barometer?

Italicized indicators already available in GWP

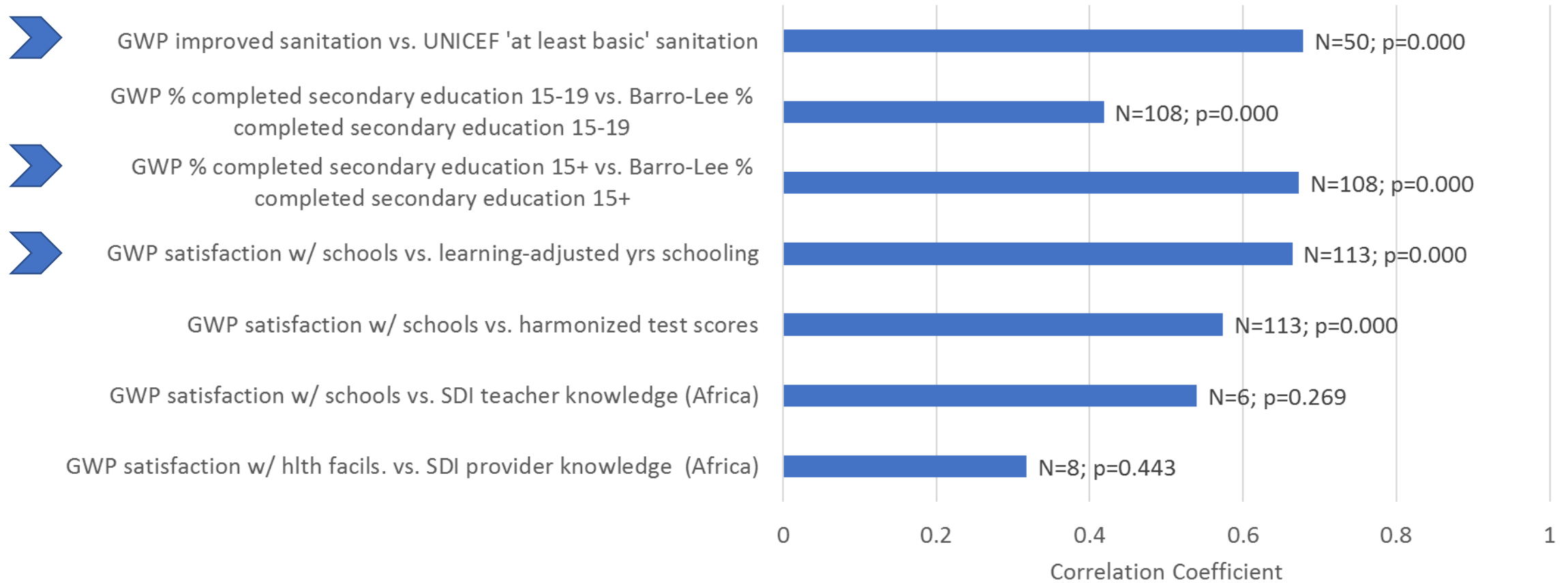


What indicators to collect for the barometer?






Italicized indicators already available in GWP



Correlations between GWP indicators and other data (with # datapoints)



In conclusion...

					
Mastering metrics	The dollars and cents of childhood stunting	Health coverage: Getting at quantity and quality			
Finding (and explaining) facts					
Probing policies & programs		Demand- and supply-side incentives in health. Do they work?			
Trialing and testing			Three (tested) nudges to improve adult health	Three (tested) ideas to improve children's learning	

