



Chlorine Dispensers

An early case study in Development Engineering

EDWARD MIGUEL | EVIDENCE TO ACTION | MAY 4, 2015

Photography by EvidenceAction

DIARRHOEA

KILLS 800,000
SOME children under 5
EACH YEAR

Diarrhoea is a **LEADING CAUSE OF MALNUTRITION** in children under 5

Diarrhoeal disease mainly **AFFECTS CHILDREN** under 2

Diarrhoea **DEPRIVES THE BODY** of **WATER** and **SALTS** that are necessary for survival. Most people who succumb to diarrhoea actually die from **SEVERE DEHYDRATION**

TRANSMISSION

- Water contaminated with faeces
- Person-to-person contact, aggravated by poor personal hygiene
- Food that is prepared or stored in unhygienic conditions

TREATMENT

Rehydration
Zinc supplements
Nutrient-rich foods

INFLUENTIAL STUDY

Cost-effective water treatment for rural households?



SUITE OF RANDOMIZED EXPERIMENTS ON SAFE WATER IN RURAL KENYA

Compare household use and willingness to pay for:

- Protected springs
- Low-cost chlorine bottles
- Free chlorine (delivered) + community promoters

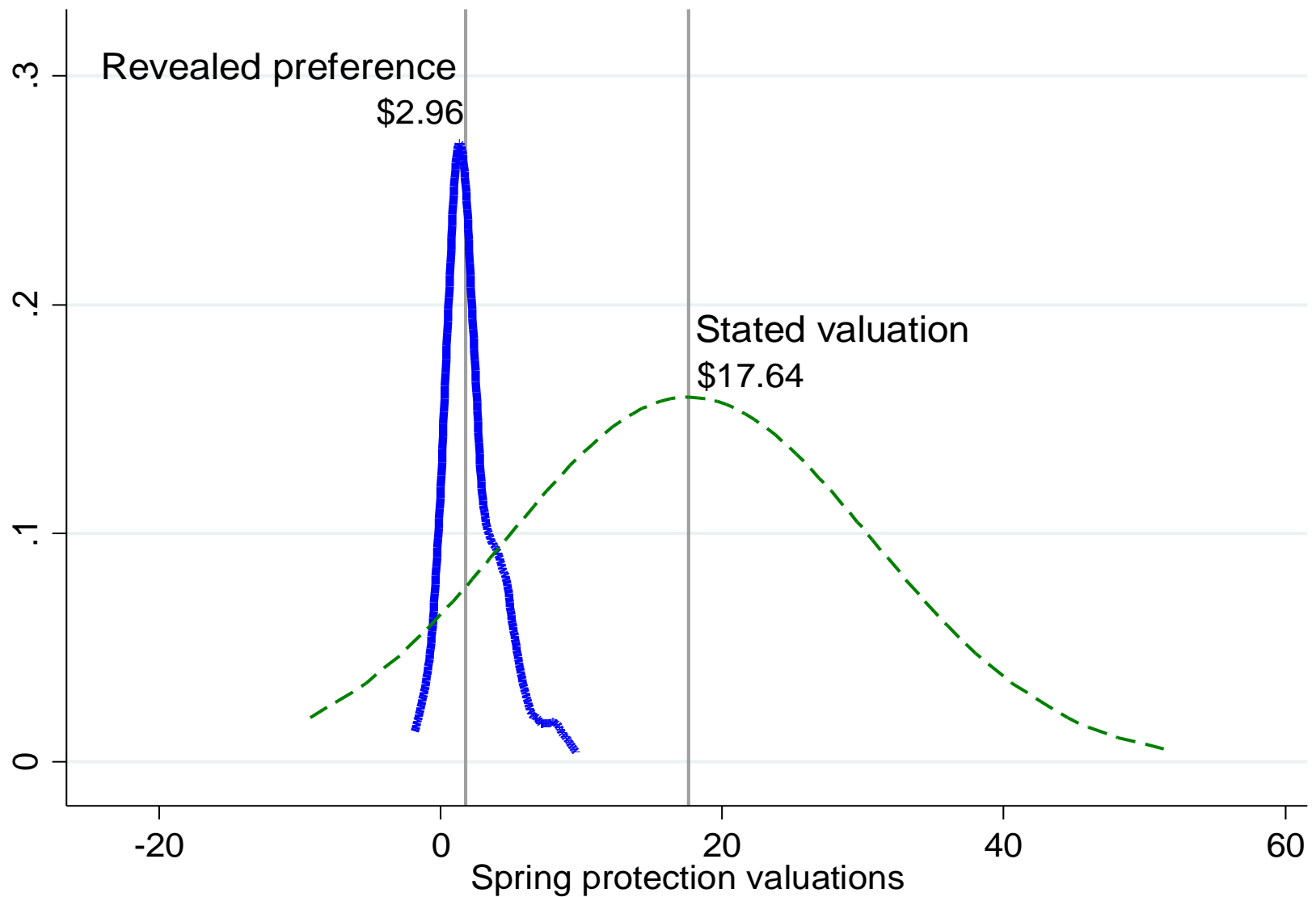


Chlorine: “Proven” Technology



- Dilute chlorine treatment provides residual protection
- Chlorine widely used in piped systems, safe, inexpensive
- RCT's show chlorine significantly reduces diarrhea
- Less than 10% use socially-marketed household product (\$0.30 per month)

WILLINGNESS TO PAY: *Protected Springs*



MEASURING DEMAND:

Are households willing to pay? And do they use?





NEXT QUESTION:

Why don't Kenyan households use chlorine to treat water?

POTENTIAL BARRIERS

- Lack of information
- Transaction costs & hassle
- Procrastination, salience
- Externalities

BACK TO THE DRAWING BOARD: *DEVELOPMENT ENGINEERING*

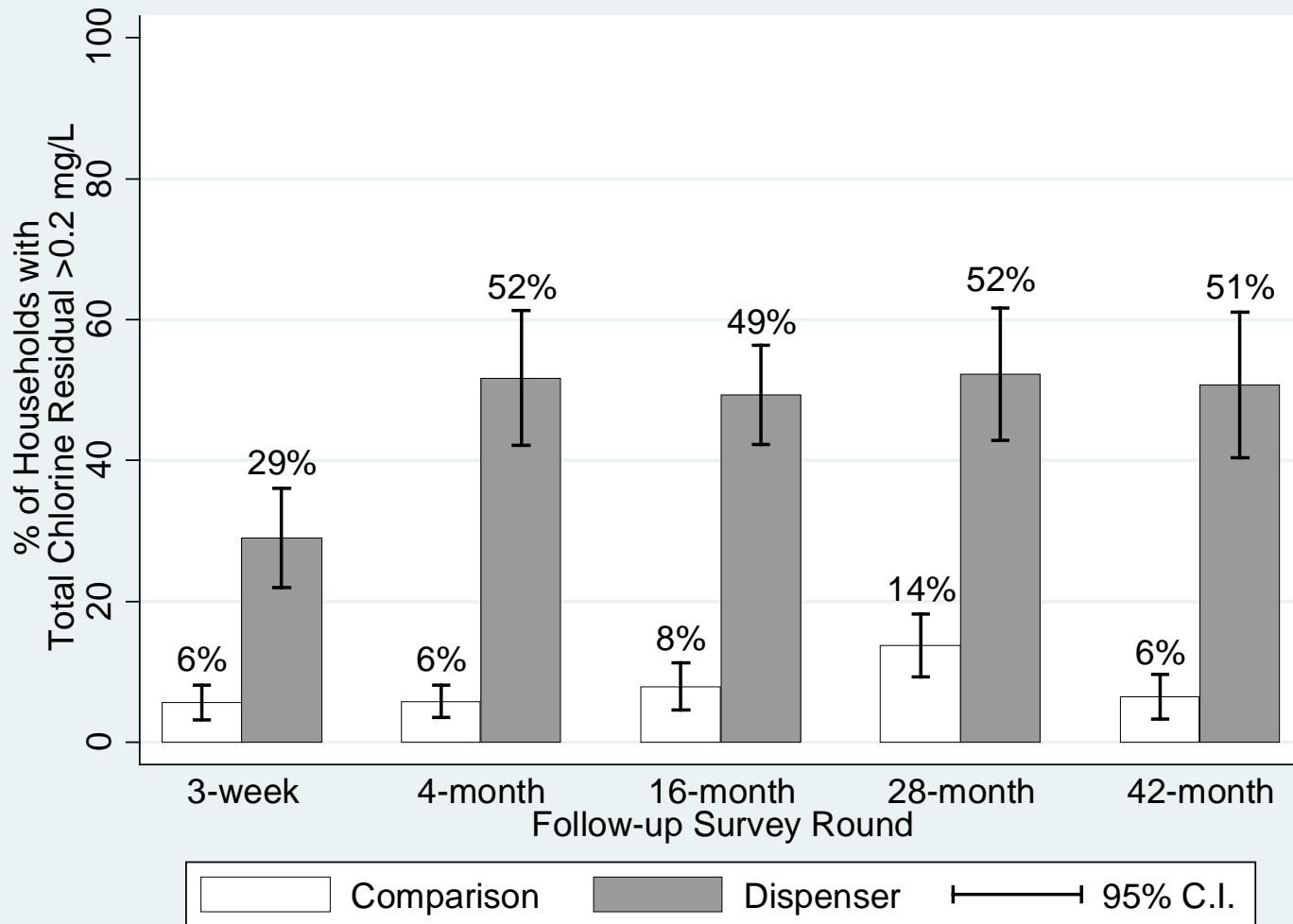
Public chlorine dispensers:

- Minimal financial cost
- Reduced transport costs
- Salient at point of water collection
- Public use → peer pressure, reinforces social norm





CHLORINE TAKE-UP OVER TIME



Increased use of chlorine dispensers reduced diarrhea by 38%

A photograph of a man and a young child looking at a blue chlorine dispenser. The man is in the background, looking down at the dispenser. The child is in the foreground, looking up at the dispenser. The dispenser is a blue metal box with a handle and a spout. The background shows green foliage and a building.

COMMUNITY CHLORINE DISPENSERS

effective, convenient, low cost, leverages peer pressure

BEHAVIORAL ECONOMICS In Engineering

Development Engineering Growing

DESIGNATED EMPHASIS



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