Health: Low hanging fruit?

14.73 lecture 8
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Preventive care: the Low Hanging Fruit

• There are some technologies that are known to be effective and cheap ways to promote good health:
  – Bed nets for malaria
  – Immunization
  – Breast feeding
  – ORS
  – Bleech
High returns?

• These health interventions have high financial returns:
  – We have already seen the high financial returns to deworming in a previous lecture
  – Same argument has been made about preventing malaria.
    • Jeff Sachs: countries which have lots of malaria are poor.
    • Controlling for other factors, malarial countries GDP is 30% lower than non-malarial countries
Malaria, 1965

Malaria Index 1965

Malaria index 1965

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Does malaria cause poverty or the other way around?

• Sachs conclude that malaria cause poverty
• However one could argue the opposite:
  – Why did Latin America largely eradicated malaria but not Africa?
  – Why did malaria index increased in India but not Sri Lanka?
  – Countries which have not eradicated malaria may also have other problems
Evidence from the Eradication Campaigns

- Hoyt Bleakley: exploits decrease in malaria due to DDT spraying campaign in several countries in the Americas (US South, and several Latin American Countries).
- Campaign started around 1955 in latin america
- Regions that had the largest prevalence of malaria had the largest reduction in malaria
- ... and the largest increases in income across cohorts
Example: Malaria in Colombia

Large reduction in malaria when spraying started

The reduction was largest in places that had more malaria to start with

<table>
<thead>
<tr>
<th>Year</th>
<th>Pre-eradication malaria cases</th>
<th>Reduction post=pre campaign</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>800</td>
<td>0</td>
</tr>
<tr>
<td>1955</td>
<td>600</td>
<td>20</td>
</tr>
<tr>
<td>1960</td>
<td>400</td>
<td>40</td>
</tr>
<tr>
<td>1965</td>
<td>200</td>
<td>60</td>
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Pre-eradication malaria cases

Courtesy of Hoyt Bleakley. Used with permission.
Example: Malaria and income in Brazil


Pre-campaign malaria intensity

Courtesy of Hoyt Bleakley. Used with permission.
Brazil: Do younger cohorts show larger gains in malaria infected region

Each dot indicates the strength relationship between pre-campaign malaria index in region of birth and income, for those born in various cohorts: for pre-campaign cohorts, malaria is associated with lower income. The relationship become less and less strong for younger cohorts, and is about zero for the youngest cohorts.
The Bottom Line

• A child not exposed to malaria in Childhood would have an income 50% higher for all their life-time than a child exposed to malaria

• High but not absurdly high if you consider the effect of deworming.

• Investments in malaria control measures seem highly cost effective:
  – Why are countries not doing it?
  – Why are people not doing it?
Low Demand for preventive Care

• We have already seen that preventive care seems to exhibit:
  – Low level of demand
    • See graphs from various price experiment
  – High sensitivity to prices, either positive... or negative (small incentives).
    • See graph from an experiment in udaipur offering a kilo of lentil for each immunization received in a camp (compared to just the camp).
Figure 1: Demand for Preventive Healthcare Products Based on Price

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Effect of a small incentive for immunization

Num. of Imm. Received by Children 1 to 3 Yrs

Percentage

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<tr>
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<th>Intervention A Main Hamlets</th>
<th>Intervention B Main Hamlets</th>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td></td>
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<tr>
<td>4</td>
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<tr>
<td>5</td>
<td></td>
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</table>
Why is this surprising?

- These technologies have very high benefits.
- So if people do not want to pay for them, is it because they think there is something bad with these technologies (the “culture” argument)?
- But in this case, we would not see such high response to prices... So what can it be?
Do people care about their health?

• Yes, they do:
  – Large amount of money spent on health care (up to 7% per month in the Udaipur survey)

• But most of these is spent on curative care.
  – Large expenses
  – Often for care that is very invasive and of poor quality: too much treatment.
Are governments to blame?

• In a certain measure, yes:
  – Nurses are often absent: 35% on average in a survey conducted by the world bank.
  – Even when they are there, governments doctors and nurses do not treat patient very well
    • 3 minutes, 3 questions, 3 medicines!

• But even when services are good, people do not always get them: for example in the immunization camps, only 12% of people got all the shots: there is something about demand, not only about supply!
Why the low demand

• Two difficulties with preventive care:
  – It is difficult to learn what works
  – Benefits are in the future, and the cost is now.
Learning about Health Care

• Most diseases are self-limiting: they get better after being worst.
• If you start from the theory that a shot is needed, and someone is willing to give you that shot, then you will usually feel better, and attribute it to the shot.
• It will be harder to attribute it to nothing... tendency to overmedicate is always present (in rich and poor countries), and needs to be regulated away.
Preventive care is worst

• You take an action that *prevents* something from happening.... A long time after the fact. Drawing the link is difficult

• If this is against a contagious disease, you may see many non-immunized children who are not falling sick either (same effect as with the deworming).

• You need to trust what you are told, and this trust is fragile:
  – MMR vaccine and autism in the US
  – Polio vaccine and sterilization in India
Now or later

• Another problem is that preventive health care costs are incurred today, but benefits are in the future.
• Human beings tend to put too much weight on the present, relative to the entire future:
  – You have no time to do your essay for this deadline
  – .... But you will (surely) have time later in the semester
  – Same thing for exercising, savings, etc.
• Same problem with preventive care: parents may feel every month that they will get the immunization next month…. But something else comes up, and they don’t end up doing it.
What this means for policy

• Large benefits from making things easy/automatic for people:
  – Free Chlorin dispenser right where you collect your water
  – Small incentives for immunization/compulsory immunization if you can pull it off...
  – In many cases, the superficial cost benefit analysis gives you the wrong answer.
    • Charging a small amount may be counter-productive
    • Giving people small incentives may save you money
Sustainability is not what you think it is

<table>
<thead>
<tr>
<th></th>
<th>100% Subsidy</th>
<th>90% Subsidy</th>
<th>With Lentils</th>
<th>Without Lentils</th>
<th>No Cost Sharing</th>
<th>With cost sharing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bednets: cost per life saved ($)</td>
<td>284</td>
<td>339</td>
<td>28</td>
<td>56</td>
<td>1.4</td>
<td>4.26</td>
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<tr>
<td>Immunization: Cost per immunization ($)</td>
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<tr>
<td>Deworming: Cost per Child treated ($)</td>
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What this means for policy

• The role of learning and trust is key
  – There can be further benefit to early subsidies, if this leads to learning about benefits.
  – For example bednets (Dupas, 2010)
    • People who got them were more likely to pay for a second one in the future
    • Neighbors of people who got one for free were more likely to pay for one if they had to pay.
  – Because preventive care is hard to teach, need to maintain trust: important for governments to chose their battles. India lost credibility by lying to people about sterilization, and recovering from this is very difficult.
14.73 The Challenge of World Poverty
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