Sustained National Deworming in Korea 1969-1995

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Asia Regional Think Tank Forum
November 2014
Walter Cunningham’s face told everybody in the first grade he had hookworms. His absence of shoes told us how he got them. People caught hookworms going barefooted in barnyards and hog wallows.  

(To Kill a Mockingbird, Harper Lee)
Roundworms (A. lumbricoides)

Estimated 0.8 to 1.2 billion people infected
Heavy infections concentrated in SSA, Latin America, and Asia

Source: http://en.wikipedia.org/wiki/Ascariasis
Life cycle of schistosomes

- About 210 million people infected
- About 700 million people live in areas where infection is common in SSA, Asia, and Latin America
- May cause liver and kidney failure and premature death
- Second greatest economic cost after malaria

Source: http://en.wikipedia.org/wiki/Schistosomiasis
Cost effectiveness

FIGURE 4: COST-EFFECTIVENESS AT INCREASING TIME IN SCHOOL

- **Additional School Years Gained per $100 Spent**
  - INFORMATION ON RETURNS TO EDUCATION, FOR PARENTS (MADAGASCAR): 20.7 YRS
  - DEWORMING THROUGH PRIMARY SCHOOLS (KENYA): 13.9 YRS
  - FREE PRIMARY SCHOOL UNIFORMS (KENYA): .71 YRS
  - MERIT SCHOLARSHIPS FOR GIRLS (KENYA): .27 YRS
  - CONDITIONAL CASH TRANSFER FOR GIRLS’ ATTENDANCE (MALAWI): .09 YRS
  - UNCONDITIONAL CASH TRANSFER FOR GIRLS (MALAWI): .02 YRS

Source: J-PAL Bulletin March 2012
Copenhagen Consensus 2004

Copenhagen Consensus 2004 was the very first Copenhagen Consensus project. The basic idea was to improve prioritization of the numerous problems the world faces, by gathering some of the world's greatest economists to a meeting where some of the biggest challenges in the world would be assessed.

Source:
http://www.copenhagenconsensus.com/copenhagen-consensus-2004
Sustained national deworming in Korea: trends in infection rates among children
Worm epidemiology and “breakpoint”

\[ x_t = (\beta + (1 - \beta) \alpha^2 x_{t-1}^2) x_{t-1} + \alpha^2 x_{t-1}^2 (1 - x_{t-1}) \]

Break point

\[ x_t = x_{t-1} \]
Reduction in worm infection and changes in high school graduation rates
“Full exposure” to the deworming campaign in childhood assuming 100% prevalence

Raised years of schooling by 0.6 years for men and by 1.3 years for women,

Increased the probability of high school graduation by 12.2% for men and by 26.2% for women, and

Increased adult wage by 2.3% for men, and by 18.7% for women.

Benefit is to be enjoyed by all generations, current and to come.
**Exposure to deworming and educational attainment (regressions)**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
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</thead>
<tbody>
<tr>
<td>Completed Years of Schooling</td>
<td>All</td>
<td>Male</td>
<td>Female</td>
<td>All</td>
<td>Male</td>
<td>Female</td>
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<tr>
<td>Exposure</td>
<td>0.9460</td>
<td>0.5685</td>
<td>1.3104</td>
<td>0.1956</td>
<td>0.1221</td>
<td>0.2622</td>
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<tr>
<td>× Infection Rate</td>
<td>(0.1162)***</td>
<td>(0.1711)***</td>
<td>(0.1510)***</td>
<td>(0.0141)***</td>
<td>(0.0207)***</td>
<td>(0.0188)***</td>
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<tr>
<td>Female</td>
<td>-1.4221</td>
<td>-0.1266</td>
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<tr>
<td></td>
<td>(0.0082)***</td>
<td>(0.0010)***</td>
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<tr>
<td>$R^2$</td>
<td>0.36</td>
<td>0.19</td>
<td>0.48</td>
<td>0.33</td>
<td>0.21</td>
<td>0.42</td>
</tr>
<tr>
<td>No. of Obs</td>
<td>541,184</td>
<td>263,770</td>
<td>277,414</td>
<td>541,184</td>
<td>263,770</td>
<td>277,414</td>
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</table>
Exposure to deworming and productivity (regressions)

<table>
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<tr>
<th>Dependent variable: log real wage</th>
<th>(1)</th>
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<th>(3)</th>
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<tr>
<td>All</td>
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<tr>
<td>Exposure × Infection Rate</td>
<td>0.0496</td>
<td>0.0230</td>
<td>0.1872</td>
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<td></td>
<td>(0.0273)*</td>
<td>(0.0309)</td>
<td>(0.0449)***</td>
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<tr>
<td>Female</td>
<td>-0.3582</td>
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<tr>
<td></td>
<td>(0.0019)***</td>
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<td>$R^2$</td>
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<td>No. of obs.</td>
<td>185,526</td>
<td>118,838</td>
<td>66,688</td>
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</table>
Under the management philosophy of "For the health of the people", Shin Poong Pharm. Co., Ltd. specializes in manufacturing remedial drugs with sincere efforts put into producing every single pill of life-saving drugs ranging from ingredients to finished products based on our state-of-the-art manufacturing facilities and quality assurance system.

We are committed to fulfilling the spirit of Shin Poong IV (Union, Victory and Victory) with top-notch competitiveness (based on in-house ingredient synthesizing techniques obtained through rigorous R&D efforts) and to further developing the company into the one that receives confidence from our customers and that contributes to the well-being of human beings.

Shin Poong Pharm. Co., Ltd. will sustain its efforts to contribute to promoting public health of people around the world by globalization of domestic pharmaceutical products while fulfilling the corporate goal of developing cutting-edge technologies for public health of our people to become a world-class Shin Poong.

http://www.shinpoong.co.kr/company.intro.asp
Generous help from the Japanese Overseas Technical Cooperation Agency (precursor to JICA) was essential for the kick-off

- Microscopes, centrifuges, refrigerators, and vans
- Medicine to be given to all school children who tested positive for three years,
- Training of inspectors

...thanks to the cooperation of our partner, KAPE, with its unsurpassed passion for self-help, integrity in its organization, and consistency in its strategy and implementation, and thanks also to the sincerity of experts and relevant agencies in the country for serious collaboration... set the standard for all technical cooperation projects to aspire to in the future.
<table>
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<th>시</th>
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<td>1,047</td>
<td>660</td>
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서울

불포는 분화가 기생충: 천황 애벌레에 의하여 전국 축목학회 아동 및 동물명학회 학생을 대상으로 하여 1969년도 후기에 실시한 기생충 검사기자재 점검이다.

이번 점검은 보건사회부 및 문교부의 지시에 의한 사례시청 및 요법을 확보, 전국적인 조치를 수립, 본회의 부부 및 시부의 검사소를 하여의 검사 돌연히 캐릭터 및 환경의 확보가 검사에 힘들었고 도로는 전 확보가 한 사람도 쫑 rencont리 직원에 참여할 수 있는 점을 이용하였다.

검사방법에 있어서도 총력의 바닐 포함법을 사례 하여 기생충의 진료이 가정 전자력을 새로운 두

층 포함법으로 통일, 기생충 검사를 실시하였다.

그러나 총력의 소수자리 활동방법을 통일하기 위한 것도 있어 우건으로, 경직하다 1970년도 부

두는 편성 통일된 검사방법에 의하여 과학적인 기생

충 검사가 실시될 것이다.

본 통계에 있어서 검사를 기해거져 세심한 수의

문 청주하였으며 심도한 정에 대하여는 문서에 관

임을 가지산 분합의 지도를 받아 점검 결과에

거하여 이 통제가 사례발견을 의의지 수워도

적용가 되기전 다양한 사례로 실시하였다.

본 통계에서 나타낸 기생충의 기록 관점 차에 대하여는 전문 운문 도로 두루를 실시하였으며

1970년도 부터는 국교육신학 협성이 하지 두물

두로를 실시하고자 한다.

결과로 학도 기생충 관리사업을 위하여 중앙 방

면으로 지원해 주신 문교부, 보건사회부, 과학기술

원장 및 각지 교육관리에 각 교육청, 각 교육기, 각 동물고기 관

전관 및 각지 교육문화 관계장 일본 O. T. C. A.

결과와 전문 기생충 예방회 여론부에게 같은 참사

을 드리며, 민간에서 세력에 적정 정책과 검사

요령, 여론부의 노무에 대하여 치하를 드리는 바이다.

1969년

서울

한국 기생충학 박물관

협상 이 종 전
KICHOCHO

1. Use of water
2. Source of water
3. Purification of water

KICHOCHO

1. Use of water
2. Source of water
3. Purification of water

KICHOCHO

1. Use of water
2. Source of water
3. Purification of water
Deworming collaboration overseas by Korea,

Neither national nor sustained! Maybe good, but great?
What do we learn, why should we care

1. Public policy perspective: good public investment can be made great (sustained, national)
2. Governance perspective: why don’t governments do the obviously good things?
3. Public management perspective: government-civil society cooperation, dedication and nimbleness of CSO (KAPE with 150 people and lean budget)
4. Aid effectiveness
5. Spearhead human capital, private enterprise, and development (KAPE and Shinpoong Pharmaceuticals)

www.kdevelopdia.org