Health and Development: the African Context

Carleton University,
ECON 3510: African Economic Development

May 20 and 22, 2014
A. R. M. Ritter

[See Text, Chapter 9]
Outline:

1. Some General Features of Health in Africa: History, Ecology and Epidemiology
2. What is Health: Definition and Measurement
3. Some Health Indicators for Sub-Saharan Africa
4. Determinants of Health Levels
5. Interrelations between Health & Development
6. Global Trends and Transitions
7. Policies
1. Some History

Pre-Colonial Era

– Traditional healing

Colonial Era:

– Formal health systems designed originally to meet demands of European communities
– Consideration of public health measures when necessary to prevent epidemics from hitting the European populations
– Missionary led broadening of medical attention to African population
– Some but limited development of formal medical system for African populations
Post-Independence Systems

- Beginning from low bases;
- Variation among countries: differing emphases on public and private delivery, and on market vs. government;
- Rapid expansion of public expenditures on health

<table>
<thead>
<tr>
<th>Year</th>
<th>Per Cent of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>0.7%</td>
</tr>
<tr>
<td>1990</td>
<td>2.4</td>
</tr>
<tr>
<td>2006</td>
<td>5.7</td>
</tr>
</tbody>
</table>

- Institution Building
- Personnel upgrading
- Problems from rapid expansion and resource insufficiencies
# Major Diseases Affecting Africa

1. **Malaria:** 270 million infected; mortality: 500,000 to 1,200,000 per year, mainly children
2. **Bilharzia or schistosomiasis;**
3. **Measles**
4. **Diarrhea**
5. **Tuberculosis**
6. **Elephantiasis**
7. **River blindness**
8. **Leprosy**
9. **HIV/AIDS**
10. **Neglected Tropical Diseases**
Wild Poliovirus*, 09 Jan 2007 – 08 Jan 2008

- Wild virus type 1
- Wild virus type 3
- Wild virus type 1 & 3
- Endemic countries
- Case or outbreak following importation (0 - 6 months)
- Case or outbreak following importation (6 - 12 months)

As of 01 January 2006, Egypt and Niger were reclassified as non-endemic countries.

*Excludes viruses detected from environmental surveillance and vaccine derived polio viruses.

Data in WHO HQ as of 08 Jan 2008

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Leprosy: Global Incidence
A global view of HIV infection
39.5 million people [34.1-47.1] living with HIV in 2006

Adult prevalence rate

- <0.1%
- 0.1 - <0.5%
- 0.5 - <1.0%
- 1.0 - <5.0%
- 5.0 - <15.0%
- 15.0 - 34.0%
- Data not included

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Data Source: WHO / UNAIDS
Map Production: Public Health Mapping and GIS
Communicable Diseases (CDS)
World Health Organization

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Hans Rosling unveils new data visuals that untangle the complex risk factors of one of the world's deadliest (and most misunderstood) diseases: HIV.

He argues that preventing transmissions -- not drug treatments -- is the key to ending the epidemic.

Hyperlink:
Neglected Tropical Diseases: Summary

• A Group of 13 parasitic and bacterial infections
• Affect over 1.4 billion people.
• High incidence in Africa
• The NTDs are diseases of poverty, afflicting the world's poorest and trapping them in a cycle of poverty.
• The global burden: equivalent to at least half of the combined global burden of HIV/AIDS, TB and malaria.

Source: Global Network of Neglected Tropical Diseases
Neglected Tropical Diseases: Summary

- Control of NTDs would greatly reduce both malaria morbidity and mortality, as well as HIV/AIDS transmission.
- NTDs are controllable and possibly eradicable by safe and effective drugs already in existence.
- With public-private partnerships, the integrated control of NTDs can be implemented at marginal costs - approximately 50 cents per person per year.

Source: Global Network of Neglected Tropical Diseases
Neglected Tropical Diseases (NTDs)

Over 90% of NTD burden is in Africa
Neglected Tropical Diseases (NTDs)

1. Hookworm

2. Trichuriasis
   A parasitic infection primarily in the tissue of the cecum, appendix, colon and rectum that is caused by an intestinal nematode (roundworm) called *Trichuris trichiura*.

3. Elephantitis
5. River Blindness
Approximately 140 million people in Africa are at risk of infection.
Caused by a worm that breeds in fast-flowing rivers.
Major cause of blindness in Africa.
Sightsavers is combating it with the drug Mectizan®.

6. Trachoma (Ancient Greek: "rough eye") is an infectious eye disease, and the leading cause of the world's infectious blindness
Smoking: not yet a great problem in Africa
2. What is Health: Definition and Measurement

A. Definition:

World Health Organization’s definition:

“A state of complete mental, physical and social well-being”

(not just the absence of disease)
B. Measures

How does one measure health?
B. Measures

- Life Expectancy
- Mortality
  - Infant mortality
  - Under 5 mortality
  - Maternal mortality
- Morbidity:
  - Sickness rates;
  - Disability rates;
  - Stunting of Children
- Health Services Coverage:
  - childhood immunization
  - availability of public health facilities

- Health System: Personnel and Inputs
  - doctors & nurses per 1,000 people
  - hospital beds per 1,000 people
  - medical costs as % of GDP

- Nutrition measures

- Environmental Risk Factors:
  - access to water & sanitation
  - pollution measures
3. **Some Health Indicators for Sub-Saharan Africa: I**

<table>
<thead>
<tr>
<th>Health Systems Measures</th>
<th>Africa</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Expenditure as % of GDP</td>
<td>5.7%</td>
<td>10.0</td>
</tr>
<tr>
<td>Public as % of Total</td>
<td>41.6%</td>
<td>70.4</td>
</tr>
</tbody>
</table>

| Expenditure per Capita $US PPP           | $US PPP 224     | $US PPP 4,651 |

| Access to Improved Water Source:        |                 |         |
| 1990                                     | 49%             | 100%    |
| 2006                                     | 58%             | 100%    |

| Access to Sanitation                     |                 |         |
| 1990                                     | 26%             | 100%    |
| 2006                                     | 31%             | 100%    |

World Bank, World Development Indicators, 2009
Some Health Indicators for Sub-Saharan Africa: II

<table>
<thead>
<tr>
<th>Health Systems Measures 2006</th>
<th>Africa</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Expectancy, years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1960</td>
<td>43</td>
<td>na</td>
</tr>
<tr>
<td>1990</td>
<td>50</td>
<td>77</td>
</tr>
<tr>
<td>2010</td>
<td>52.7</td>
<td>81</td>
</tr>
<tr>
<td>Infant Mortality (per 1000 live births)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>108</td>
<td>7</td>
</tr>
<tr>
<td>2010</td>
<td>76</td>
<td>5</td>
</tr>
<tr>
<td>Maternal Mortality (per 1000 live births)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>5</td>
<td>.07</td>
</tr>
</tbody>
</table>

World Bank, World Development Indicators, 2009
## Some Health Indicators for Sub-Saharan Africa: III

<table>
<thead>
<tr>
<th>Health Systems Measures, 2006</th>
<th>Africa</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undernourishment</td>
<td>29%</td>
<td>&lt; 5%</td>
</tr>
<tr>
<td>Low Birth Weight babies</td>
<td>14%</td>
<td>n.a.</td>
</tr>
<tr>
<td>Child Malnutrition Rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stunting</td>
<td>44.3%</td>
<td>n.a.</td>
</tr>
<tr>
<td>Child Immunization Rate</td>
<td>73%</td>
<td>94%</td>
</tr>
</tbody>
</table>

*World Bank, World Development Indicators, 2009*
**HALE: Health Adjusted Life Expectancy:**

- *adjusts life expectancy by the years spent with disabilities*
- *weighted according to severity and duration*

<table>
<thead>
<tr>
<th>Country</th>
<th>Life Expectancy</th>
<th>HALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sierra Leone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>37</td>
<td>27</td>
</tr>
<tr>
<td>F</td>
<td>39</td>
<td>30</td>
</tr>
<tr>
<td>Denmark</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>75</td>
<td>69</td>
</tr>
<tr>
<td>F</td>
<td>80</td>
<td>71</td>
</tr>
</tbody>
</table>
Under-five mortality rate, 2003

Rate per 1000 live births
- <25
- 25-49.9
- 50-99.9
- 100-150
- >150
- Not available

Data source: World Health Statistics 2005
Map production: Public Health Mapping and GIS, Communicable Diseases (CDS)
World Health Organization

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Percentage of Children Under the Age of Five Suffering From Stunting
Population Pyramids

Source: U.S. Census Bureau, International Data Base.
Country | Life Expectancy | HALE
--- | --- | ---
Sierra Leone M | 37 | 27
F | 39 | 30
Denmark M | 75 | 69
F | 80 | 71

FIGURE 9–1. Distribution of Age at Death in (a) Denmark and (b) Sierra Leone, 2005 (values in graphs are projections)
Total expenditure on health per capita, 2004 (in International $)

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Data Source: National Health Accounts unit, Evidence and information for policy, World Health Organization
Map Production: Public Health Mapping and GIS Communicable Diseases (CDS), World Health Organization
4. Determinants of Health Levels and the African Situation
Continued

   • Thence, good agriculture and/or a strong economy to generate food imports: **Improving**
   • Reasonable income distribution and low poverty levels: **Problematic but perhaps improving**

2. Clean Water: **Weak coverage**

3. Sanitation: **Weak coverage**
4. Determinants of Health Levels and the African Situation
   (but note country divergences)

4. Self-Help within the home, especially supportive of Children:
   Reasonably strong within resource constraints

5. Education re health, esp. for Mothers: Improving

6. Medical System:
   • Personnel: Improving, major expansion required
   • Institutions: hospitals, dispensaries, medical schools:
     Improving, major investments required

7. Public health organizations: Improving
5. Health and Development

Does “Development” promote health or does health promote development?

How?
Health: an obvious central element of human well-being;
   Included in UNDPs “HDI”

“Development” (higher incomes well-distributed) promotes health:

Higher family incomes permit
   – Better nutrition: more and better food
   – Better basic sanitation, water and shelter
   – Better access to medicines and self-help medical care
   – Better treatments (mosquito nettings)

Higher National Income permits:
   – Better public health
   – Better water & sanitation and pollution control
   – Better health systems

Importance of Equity of Income Distribution and Poverty Elimination for achieving Health objectives
Better Health promotes “Development”

- Good Physical and Mental Health: ends in themselves
- Healthy people are more productive
  - note impacts of AIDS, Malaria, River Blindness etc. in Africa
    (Reduce work time, energy on the job, productive lives)
  - Health and physical & mental energy
  - Healthy people live longer & have longer productive lives
  - Spend less on treatment and more on other things
– Good Health improves children’s learning
– Good Health increases life-time earnings,
  • and therefore life-time savings and investment
– Bad Health promotes personal, family and national Impoverishment
– Bad health worsens income disparities
  – (the health of the poor is worse than that of the better off.)
6. Global Trends and Transitions

Life Expectancy

The “Epidemiological Transition”

1. Age of Pestilence and Famine
   • Stage 1, Theory of the Demographic Transition (and the Malthusian trap)

2. Age of “Receding Pandemics”
   • Stages 2 and 3, Theory of D.T.

3. Age of Human and Man-Made Diseases

4. Re-entry into an Age of Disease???
   • Ebola, HIV/AIDS, SARS, MERS........
   • TB & malaria etc resistant to anti-biotic treatment?
World Population

Age 1

Age 2 and 3

Age 4?
Where would the countries of Africa be in this schema?
7. Policies

1. International Actions
   • halt international contagions;
   • deal with international scourges such as AIDS/HIV, Malaria, TB, and neglected tropical diseases
   • support health budgets of lower income countries

Roles for UN, WHO, PAHO, Donor Agencies, Foundations, NGOs
2. National Level: Foster an Enabling Environment

- Poverty reduction & income increases so that people can help themselves more effectively
- Promote agriculture and food availability
- Formal education & economic opportunity, esp. for women;
- Use of the media

3. National Level:

- Nutrition Emphases
- Water & sanitation priorities
4. National level: Public Health Programs

– Prevention: promoting healthy behavior (smoking, drugs, & alcohol....)
  • Immunization systems
  • Taxes & price controls (cigarettes & alcohol)

– Integrated maternal health, reproductive health and early childhood care

– Build Institutions at all levels:
  rural dispensaries & nursing stations; a hierarchy of facilities, medical schools....
5. Focus on equitable coverage, rural/urban, gender, regional, covering all income groups

- Emphasize cost effective basic prevention and treatment for all;
- De-emphasize high-cost high-tech medical specialities in the short term;
- De-emphasize high-cost high-tech service for the elites
Some Success Stories:

1. Expansion of health care in Africa since Independence
2. General improvements in health indicators in Africa – though slow
3. Global Small-Pox eradication
4. Improving Diarrheal Dehydration Death Prevention
5. Slowing AIDS in Uganda and to some degree elsewhere

But there is still a long way to go.
The Future:

Grounds for optimism:

- Containment of HIV/AIDS;
- Elimination of small pox; near-elimination of polio;
- Progress on Malaria and “Neglected Tropical Diseases;”
- Strengthened efforts in most countries;
- Return to economic expansion permits greater resource allocations to health;
- Strong Improvements in health indicators for many countries.

And pessimism:

- Possible climate change may impact harm health directly, and may worsen agriculture.
- Dimension of task is daunting.