Informatics and the Future for Global Health

Dr. David A. Ross
President & Chief Executive Officer
Overview

• The Task Force for Global Health
• Global context
• Impacting health through data, information and informatics
1984: The Task Force for Child Survival

Founder:
Dr. William Foege,
former CDC Director

One Goal:
Raise rates of global
childhood immunization

Founding Partners:
The World Health Organization, UNICEF,
the Rockefeller Foundation, the World Bank, and
the United Nations Development Programme
We take on big problems.
We have real impact.
<table>
<thead>
<tr>
<th>We Eliminate Diseases</th>
<th>We Protect Populations</th>
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</thead>
<tbody>
<tr>
<td>Intestinal Worms</td>
<td>Disease Surveillance</td>
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<tr>
<td>Leprosy</td>
<td>Information Systems</td>
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<tr>
<td>Lymphatic Filariasis</td>
<td>Medicines, Medical Equipment &amp; Supplies</td>
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<td>Polio</td>
<td>Operational Research</td>
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<td>River Blindness</td>
<td>Outbreak Response</td>
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<tr>
<td>Schistosomiasis</td>
<td>Seasonal Influenza &amp; Pandemic Preparedness</td>
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<tr>
<td>Trachoma</td>
<td>Vaccines</td>
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<td>Viral Hepatitis</td>
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Powerful Partnerships

Powerful Results.
The Task Force for Global Health Today
What We Do

- TEPHINET
- African Healthcare Workforce Project
- MedSurplus Alliance
- Coalition for Global Hepatitis Elimination
- Influenza & Pandemic Response
- Immunization Advocacy & Education
- Polio Eradication Support Center
- Global Partnership for Zero Leprosy
- Neglected Tropical Diseases Support Center
- Children Without Worms
- International Trachoma Initiative
- Mecitzan Donation Program

Neglected Tropical Diseases
Vaccine Equity
Health Systems Strengthening
Global Context: Dynamics of Economies and Populations
• Economies Growing
• Populations Growing
• Life Expectancy Increasing
• Trend to Longer Lives
• Smaller Families
• Tremendous Changes in Asia
• Changes in Africa - minimal
Which country has highest child mortality?

<table>
<thead>
<tr>
<th>Country</th>
<th>Estimate (mean + CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sri Lanka</td>
<td>1.8 ± 0.4</td>
</tr>
<tr>
<td>Turkey</td>
<td>2.5</td>
</tr>
<tr>
<td>Poland</td>
<td>2.4 ± 0.4</td>
</tr>
<tr>
<td>South Korea</td>
<td>2.5</td>
</tr>
<tr>
<td>Malaysia</td>
<td>2.4 ± 0.4</td>
</tr>
<tr>
<td>Russia</td>
<td>2.5</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1.8 ± 0.4</td>
</tr>
<tr>
<td>Vietnam</td>
<td>2.5</td>
</tr>
<tr>
<td>Sweden</td>
<td>2.4 ± 0.4</td>
</tr>
</tbody>
</table>

Swedish students: mean + CI = 1.8 ± 0.4

Chimpanzees: mean = 2.5

Swedish professors: mean + CI = 2.4 ± 0.4
Public Health Context
Climate Crisis
HIGHLY CONTAGIOUS, NO CURE, A THREAT TO PUBLIC HEALTH. THIS IS ONE SCARY EPIDEMIC

MEASLES? EBOLA?

STUPIDITY

MEASLES RESURGENCE BLAMED ON FALLING VACCINATION RATES

ANTI VACCINATION PROONENTS IGNORING SCIENTIFIC EVIDENCE IN FAVOUR OF DUBIOUS RESEARCH AND WEBSITES
Outbreaks

Cholera, Malaria, Smallpox, Polio, Ebola, HIV/AIDS, Tuberculosis
Impacting Health through Data, Information and Informatics
What is informatics?
The Case
Sierra Leone

- **Problem:**
  2005 - High infant and maternal mortality. The Minister of Health knew that many babies and mothers died at childbirth but had virtually no concrete data upon which to base decisions.

- Few doctors and nurses and few health facilities. Sierra Leone was in the early stages of recovering from their civil war.

- The minister wanted to base decisions on information derived from accurate and timely data. New resources to support building a health system were becoming available.

- **Minister’s Asked:**
  Can I identify the hot spots for infant mortality? Can information help me allocate resources?
The Case

• **Requirements:**
  - capture essential birth data for every village – summarize by district
  - produce accurate weekly reports, visualization and trends
  - use existing workforce
  - Implement within 6 months
  - Budget <$1000
  - Training needs to be quick and easy
  - Data entry and recording must lead to accurate and timely reporting at village, district and provincial levels
The Case

• **Constraints:**
  • >80% babies born in the village
  • Most births attended by traditional birth attendant, many of whom are illiterate
  • Most villages lack electric power
  • At the time, cell service was non-existent or spotty at best
How do you even begin to develop an answer or approach to the Minister’s challenge?

How do you proceed in developing an information solution?

Is this an informatics problem?
Traditional Birth Attendant
Sierra Leone’s Infant Mortality Solution
Innovation and Big Impact
Global Trachoma Mapping
CHAMPS
The Informatics Approach to CHAMPS

Scope:
20-25 sites over a 20-25 year time frame

Geographic focus:
South Asia and Sub-Saharan Africa
Cause of Death → Analysis → Action

- Congenital heart disease, 1
- Cerebral palsy, 1
- Gastroenteritis, 1
- Herpesviral infection, 1
- Liver disease, 1
- Metabolic disorder, 1
- Prematurity, 1
- Tuberculosis, 1
- Malnutrition, 2
- HIV, 4
- Undetermined, 4
- Pneumonia, 7
CHAMPS Objectives for Informatics

• **Primary Objectives**
  • High quality **standardized data across a network of sites**
  • Aggregate data in a **central repository**
    • Assemble complex data sets into a package of artifacts to support
determination of cause of death by a panel of experts
  • Provide **rapid global access to data**
  • Respect data **privacy and ownership**
    • At the country level
    • At the site level
    • At the individual participant level

• **Secondary Objectives**
  • **Build** local IT capacity
    • Considering products and infrastructure
  • **Leverage** existing local systems and infrastructure
CHAMPS Data Families

Social Behavioral

Biobanking

Verbal Autopsy

Maternal Health

Child Clinical

DeCoDe

Death Notification

Consent Tracking

Specimen Collection Lab/Pathology

Pathology Images
Closing Thoughts
• Put the logical before the physical
• Information is power. Information should inform action.
• Data is nothing, it yet can be joined with other data to create information that can become change.
• Good informatics requires us to think about cost effective investment → consequences of failed investment.
• Our final mile orientation requires us to think about long term sustainability.
Q&A
Internship and Fellowship Overview

• The Task Force offers year-round internship opportunities to undergraduate and graduate students.

• We also offer graduate student fellowships through GlaxoSmithKline and Hilton Prize Coalition.

• Initial assignments range from six weeks to nine months (with the possibly of extension).

• Internships are paid or unpaid depending on academic credit requirements.

• In the past year, over twenty interns and fellows have developed skills in programmatic and operational areas by working on varied projects involving data analysis, research, literature reviews, information technology, health communications, etc.
Internship and Fellowship Benefits

Interns and Fellows will have an opportunity to:

• Work as part of an ongoing Task Force program/department

• Become exposed to pressing issues in global health

• Become familiar with working with coalitions and collaborative concepts

• Work with a supervisor who is interested in mentoring

• Transition into a regular or temporary role (To date, five interns have been hired into regular roles)
Internship and Fellowship Opportunities

- Currently, we have seven Emory graduate internship positions available, and one Hilton Prize Coalition Fellowship position available. We also anticipate more open positions in the future.

- The application process entails submitting an internship application, resume, cover letter and two reference letters to askhr@taskforce.org.

- For more information about the application process visit https://www.taskforce.org/internships.

- You may also contact Nathalie Joseph, Internship Program Manager at njoseph@taskforce.org.