One Health

SECTORS and DISCIPLINES

Communication

Collaboration

Coordination

Capacity building

ONE HEALTH

Healthy ecosystems

Healthy animals

Healthy humans

SOCIETY

Rural, urban, mobile communities

Local and national

Regional and global

Inclusivity, equity and access

EcoHealth Alliance
# One Health Entry Points

<table>
<thead>
<tr>
<th>Stages of pathogen spread</th>
<th>Prevention and control</th>
<th>Pathogen spillover</th>
<th>Emergence</th>
<th>Localized transmission</th>
<th>Epidemic</th>
<th>Pandemic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathogen evolution in wild animals</td>
<td>Anticipation</td>
<td>Primary prevention</td>
<td>Early detection</td>
<td>Containment</td>
<td>Control &amp; mitigation</td>
<td>All prior measures brought to a larger scale</td>
</tr>
<tr>
<td>Direct spillover</td>
<td>Viral surveillance</td>
<td>Reduction of deforestation, agriculture, wildlife trade</td>
<td>Syndromic surveillance</td>
<td>Contact tracing isolation</td>
<td>Widespread testing quarantine scale-up health care school and business closure</td>
<td></td>
</tr>
<tr>
<td>Global spread</td>
<td>Vectors</td>
<td>Domestic animals</td>
<td>Human amplification</td>
<td></td>
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</tr>
</tbody>
</table>

Bernstein et al., 2022
One Health Factors (Drivers) of Disease Emergence over last 60 years

- Land use changes
- Food industry changes
- Human susceptibility to infection
- Agricultural industry changes
- International travel & commerce
- War & famine
- Unspecified
- Climate & weather
- Breakdown of public health measures
- Bushmeat
- Human demographics & behavior
- Medical industry changes
- Antimicrobial agent use
- Other industries

Loh et al. 2015 Vector Borne Zoonotic Dis
# Areas of Investment Focus

## Table 2: Major Global-Level Financial Resources Mobilized for Global Health Security (Funding Received or Requested)

<table>
<thead>
<tr>
<th>Program</th>
<th>Funding source(s)</th>
<th>Year(s)</th>
<th>Funding level</th>
<th>Prevent</th>
<th>Detect</th>
<th>Respond</th>
<th>Recover</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEPI</td>
<td>Welcome Trust, Gates Foundation, Japan, Germany, and Norway</td>
<td>2017–22</td>
<td>$560 million (as of 2017)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Vaccine development; $1 billion target for first 5 years</td>
</tr>
<tr>
<td>Contingency Fund for Emergencies</td>
<td>WHO member contributions (17 countries have contributed to date)</td>
<td>2015–</td>
<td>$69 million received (as of June 2018); $100 million target for 2018–19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Separately funded component of the WHO Health Emergencies Program; rapid response to health emergencies: up to $500,000 mobilized within 24 hours; $21 million utilized in 2017 in 23 countries</td>
</tr>
<tr>
<td>Gavi</td>
<td>Governments, Gates Foundation, private sector</td>
<td>2016–20</td>
<td>$9.2 billion in donor contributions and pledges</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Immunization delivery (includes health system strengthening aspects)</td>
</tr>
<tr>
<td>GHSA</td>
<td>G7 nations</td>
<td>2014–22</td>
<td>&gt;$1.44 billion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>GHSA itself does not allocate/appropriate funds; support is allocated by countries under the principles of GHSA to advance prevent, detect, and respond capacities</td>
</tr>
<tr>
<td>Pandemic Emergency Financing Facility (PEF)</td>
<td>World Bank</td>
<td>2017–22</td>
<td>$220 million (Class A pathogens: $225 million, Class B: $95 million); separate cash window</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Surge financing (insurance window + cash window) in response to activation criteria (outbreak size, spread, and growth); premiums and bonds financed by donor governments</td>
</tr>
<tr>
<td>Pandemic Preparedness Plans</td>
<td>World Bank IDA18 Replenishment</td>
<td>2017–20</td>
<td>Dependent on client country requests</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Support to 25 IDA countries to develop frameworks for governance and institutional arrangements for multi-sectoral health emergency preparedness, response, and recovery</td>
</tr>
<tr>
<td>WHO Health Emergencies Program</td>
<td>WHO member states</td>
<td>2016–</td>
<td>$485 million requested for 2016–17 (75% funded)</td>
<td></td>
<td></td>
<td></td>
<td>Core budget for essential functions, plus an appeals budget that covers additional work in response to acute and protracted health emergencies</td>
<td></td>
</tr>
</tbody>
</table>
1) Single-sector analyses may miss:
   • Full costs associated with outbreak
   • Possible cumulative multi-sectoral benefits
   • Potential trade-offs (e.g. impact on environment from certain control measures)

Impacts to non-health sectors often far exceed cost for health sector response
Examples of likely health effects from El Nino, 2015-2016. Background map of average rainfall anomalies from Dr. Assaf Anyamba, et al., PLOS Neglected Pathogens, 2012. Shades of yellow to red indicate below normal rainfall and blue to green indicate above normal.
Land use planning
Biosecurity
Investing in systems!

Sanjit Das for NPR

Pig virus turns beauty spot into ghost town

Once a sleepy village in south-western Malaysia won an award for being the most beautiful. Now Sungai Nipah is infamous as the birthplace of the Nipah virus, a deadly illness transmitted from pigs to humans. 130 people died here and nearly 1,800 pigs were slaughtered in what was once the farming area of south-east Asia.

“I live I will remember what happened here,” says Lin To Moi, whose husband and son died by the illness. “Outside this area, every time they eat pork they will remember our village.”

Prevention at Source

Sanjit Das for NPR
R&D in Social Sciences

- Trade-offs and co-benefits to stakeholders
- Community engagement
- “Nudges” and safer alternatives
- Context-specific approaches and solutions

Prevention
Detection
Response
Recovery
One Health - OHHLEP Working Definition

- **One Health** is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems. It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent.

- The approach mobilizes multiple sectors, disciplines and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems, while addressing the collective need for clean water, energy and air, safe and nutritious food, taking action on climate change, and contributing to sustainable development.