



World Health
Organization

The Global Burden of Foodborne Disease:
From Science to Public Health Policy

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Goal of FERAG?

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- ▶ Reduce the burden of foodborne diseases

Goal of FERGG?

- ▶ Reduce the burden of foodborne diseases
 - ▶ Estimate the global burden of foodborne diseases
 - ▶ Use burden of foodborne disease estimates for evidence-based food safety policies

Goal of FERGG?

- ▶ Reduce the burden of foodborne diseases
 - ▶ Estimate the global burden of foodborne diseases
 - ▶ Massive burden demonstrated
 - 600M foodborne illnesses
 - 400,000 foodborne deaths
 - 40% is among children <5 years of age
 - ▶ Estimates are conservative
 - Antimicrobial resistance
 - ▶ Comparison between regions indicates interventions are possible
 - ▶ Burden will not decline without interventions

Goal of FERGG?

- ▶ Reduce the burden of foodborne diseases
 - ▶ Estimate the global burden of foodborne diseases
 - ▶ Use burden of foodborne disease estimates for evidence-based food safety policies
 - ▶ Need to go from science to public health policy to prevent illness and death

How do we go from science to public health action?

- ▶ Immediate actions
- ▶ Improve estimates

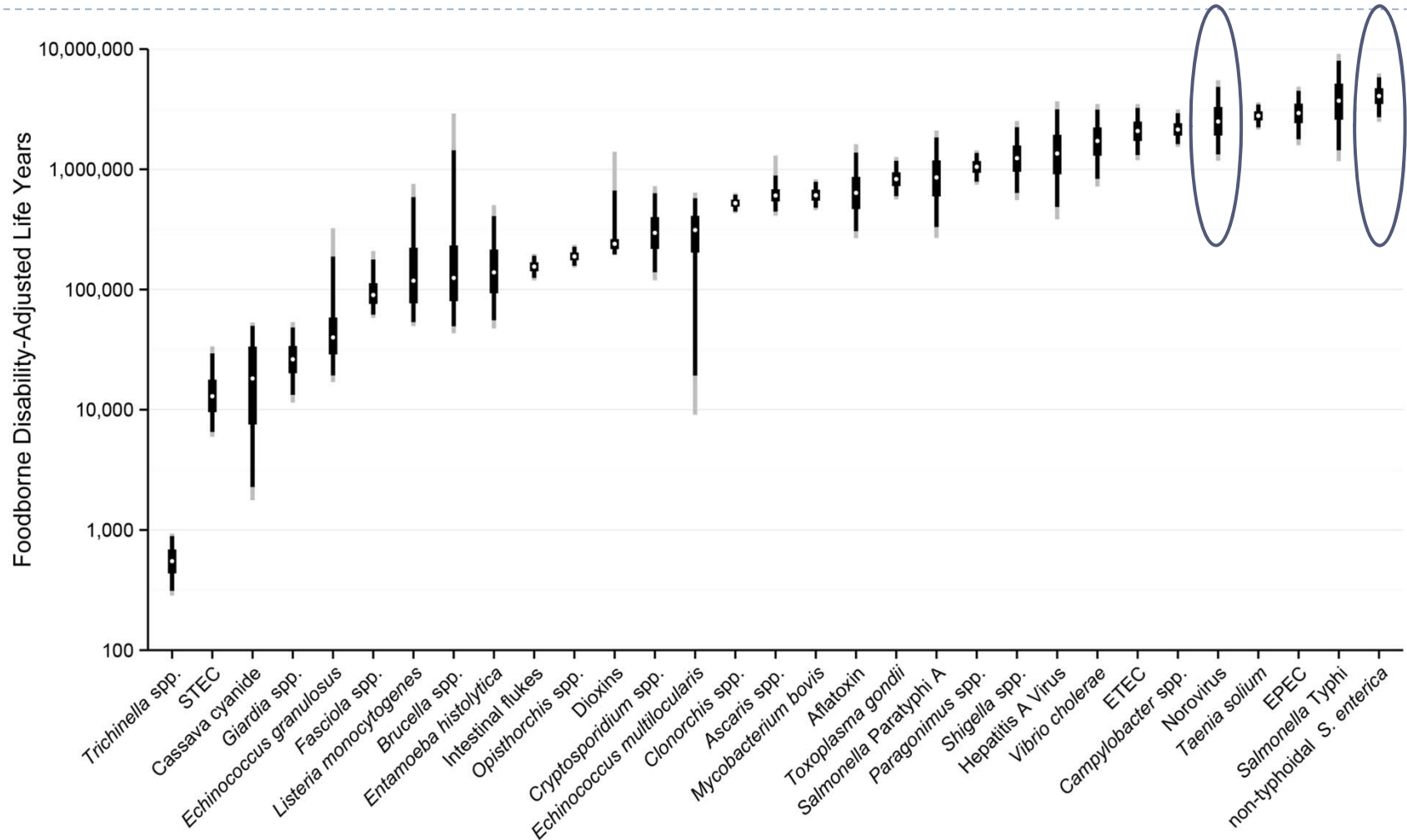
Immediate actions

- ▶ Introduce new vaccines
- ▶ Implement known control measures
- ▶ Develop novel control measures

Introduce new vaccines

- ▶ Which pathogens?

Ranking of foodborne hazards-global DALYs



Introduce new vaccines

▶ Norovirus

- ▶ 125M foodborne cases/year (20% of foodborne cases)
- ▶ 35,000 foodborne deaths/year (8% of foodborne deaths)
 - Only 18% of norovirus is foodborne
 - 685M total cases/year
 - 212,000 deaths/year
- ▶ No scientific barriers for vaccine introduction
- ▶ Practical barriers
 - ▶ Need for field demonstrations
 - ▶ Lessons from introduction of rotavirus vaccine

Introduce new vaccines

- ▶ Nontyphoidal *Salmonella* (NTS)
 - ▶ 80M foodborne cases/year (12% of foodborne cases)
 - ▶ 60,000 foodborne deaths/year(15% of foodborne deaths)
 - ▶ Multiple serotype
 - ▶ Invasive infections
 - ▶ Particular problem in Africa
 - Most important cause of invasive bacterial disease in children due to successful use of vaccines for other major causes of invasive bacterial
 - 22,000 invasive foodborne deaths (5% of foodborne deaths)
 - Only 52% foodborne
 - >50% of invasive NTS infections due to S. Typhimurium

Introduce new vaccines

- ▶ Introduction of norovirus and NTS (*Salmonella* Typhimurium) vaccine could prevent 13% of foodborne diseases
 - ▶ Potential to prevent significant additional disease
 - ▶ High priority for further study and development for Africa
- ▶ Role for pharma, regulatory agencies, public health officials at national and international levels
- ▶ **Critical role of international child health community**

Implement known control measures

- ▶ **What are the known control measures?**
 - ▶ Hygienic food processing
 - ▶ Water and sanitation
- ▶ **Need for country-specific intervention plans**
 - ▶ Understand country-specific burden of foodborne disease
 - ▶ Develop country-specific intervention plans
 - ▶ Need to sufficient surveillance to measure progress and direct interventions
 - ▶ Major public health capacity building effort
 - ▶ Need WHO's leadership
- ▶ **Role for regulatory agencies and public health officials at national and international levels**

Develop novel control measures

- ▶ **Role for academia**
 - ▶ Important parallels with development of novel control measures for water and sanitation
 - ▶ Need similar developments for food safety
- ▶ **Intervention studies?**

Improve estimates

- ▶ Need more rigorous country studies
- ▶ Role for all countries
 - ▶ Countries with FBD burden studies (7)
 - ▶ Australia, Canada, France, New Zealand, Netherlands, United Kingdom, USA
 - Improve approach, improve estimates
 - Provide technical assistance
 - ▶ Countries without FBD burden studies
- ▶ Need forum for technical assistance
 - ▶ Vital role for WHO and countries with studies

How do we go from science to public health action?

- ▶ Everyone has role
- ▶ Need WHO leadership and commitment
 - ▶ Need to re-energize capacity building programs such as the WHO Global Foodborne Diseases Network (GFN)
 - ▶ Provide tools and technical assistance to countries for burden of foodborne diseases studies

How facilitate WHO leadership and commitment?

- ▶ Countries must prioritize prevention of foodborne diseases
 - ▶ Ministries of Health through World Health Assembly
- ▶ Need estimates of the burden of foodborne diseases

How facilitate WHO leadership?

- ▶ Countries must prioritize prevention of foodborne diseases
- ▶ Need estimates of the burden of foodborne diseases
- ▶ Need FERG – more needs to done