GUIDELINES ON SANITATION AND HEALTH

“Sanitation prevents disease and promotes human dignity and well-being, making it the perfect expression of WHO’s definition of health, as expressed in its constitution, as “A state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity...”

The guidelines recognize that safe sanitation systems underpin the mission of WHO, its strategic priorities and the core mission of ministries of health globally.”

WHO Director-General, Dr Tedros Adhanom Ghebreyesus, 1 October 2018
Why are new Guidelines needed?

- Evidence on sanitation shows less health impact than expected
- Ministries of health role in sanitation has declined over the last 50 years
- There is a lack of public health guidance on how to maximize health gains from sanitation
# Guidelines Structure

<table>
<thead>
<tr>
<th>Section</th>
<th>Chapters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction, scope and objectives</td>
<td>Chapter 1: Introduction</td>
</tr>
<tr>
<td>Recommendations and actions</td>
<td>Chapter 2: Recommendations and good practice actions</td>
</tr>
</tbody>
</table>
| Implementation guidance                     | Chapter 3: Safe sanitation systems  
Chapter 4: Enabling safe sanitation service delivery  
Chapter 5: Sanitation behaviour change       |
| Technical resources                          | Chapter 6: Microbial aspects  
Chapter 7: Methods  
Chapter 8: Evidence on the effectiveness and implementation of sanitation interventions  
Chapter 9: Research needs  
Annex I: Sanitation system factsheets  
Annex II: Glossary of sanitation terms       |
Highlights
X Insert according to audience X

- X
- Insert according to audience
- X
Introduction Scope and Objectives
Chapter 1: INTRODUCTION

Objectives
➢ Maximise the health impacts of sanitation interventions
➢ Articulate the role of health sector in sanitation

Audiences
➢ Health and non-health actors involved in sanitation
➢ National and international organizations responsible for developing policies, standards or guidelines, and programmes on sanitation
# Table 1.1 The health impact of unsafe sanitation

<table>
<thead>
<tr>
<th>Direct impact (infections)*</th>
<th>Sequelae (conditions caused by preceding infection)</th>
<th>Broader well-being</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Faecal-oral infections</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Diarrhoeas (incl. cholera)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Dysenteries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Typhoid</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Helmint infections</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ascariasis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Trichuriasis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Hookworm infection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Cysticercosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Schistosomiasis</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Insect vector diseases</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(vectors breed in faeces or water contaminated with faeces)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Lymphatic filariasis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• West Nile Fever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Japanese encephalitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Trachoma</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Immediate:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Stunting/ growth faltering</td>
<td>- related to repeated diarrhea, helminth infections, environmental enteric dysfunction</td>
<td></td>
</tr>
<tr>
<td>• Consequences of stunting</td>
<td>- obstructed labour, low birthweight</td>
<td></td>
</tr>
<tr>
<td>• Impaired cognitive function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pneumonia</td>
<td>- related to repeated diarrhea in undernourished children</td>
<td></td>
</tr>
<tr>
<td>• Anaemia</td>
<td>- related to hookworm infections</td>
<td></td>
</tr>
<tr>
<td><strong>Long-term:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• School absence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Poverty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Decreased economic productivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Anti-microbial resistance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A new F-diagram

GUIDELINES ON SANITATION AND HEALTH
Recommendations and Good Practice Actions
Chapter 2:
RECOMMENDATIONS…..

Derived from comprehensive evidence review and wide expert, and end user input

1. Universal safe toilets that contain excreta
   • Entire community coverage with a minimum level of service
   • Equitable progress
   • Using demand side and supply side approaches concurrently
   • Shared/public if necessary to reach everyone
   • All settings (schools, HCF, etc)

2. Safe sanitation chain
   • Containment, transport, treatment, end use/disposal
   • Context specific technologies and services (i.e. technology agnostic)
   • Incremental improvement based on local level risk assessment
   • Protection of sanitation workers

3. Sanitation as part of local services
   • Efficiency with other local services (solid waste, transport, etc).
   • Sustainability and health impacts through coordination with other interventions, water supply, hygiene, animal waste, child faeces

4. Role of the health sector
   • Increasing health sector engagement in core functions (but not taking on functions that are better done by others)
Role of the health sector

- Contribution to sanitation sector coordination
- Health in sanitation policies
- Health protective norms and standards
- Health surveillance
- Health programme delivery
- Sanitation behaviour change
- Healthcare facilities
Chapter 2:

...AND GOOD PRACTICE ACTIONS

➢ Define *government-led multi-sectoral sanitation policies*, planning processes and coordination
➢ Ensure *health risk management is properly reflected in sanitation legislation, regulations and standards*
➢ Sustain the engagement of the health sector in sanitation through *dedicated staffing and resourcing*, and through action on sanitation within health services
➢ Undertake *local health-based risk assessment to prioritize improvements* and manage system performance
➢ *Enable marketing of sanitation services* and develop sanitation services and business models
➢ *Management of special risks* (emergencies, outbreaks, HCF)

(➔ Chapter 4)
Implementation Guidance
Chapter 3: 
SAFE SANITATION SYSTEMS

What does safe mean?

Definitions for safe management

- Design & construction
- O&M
- Incremental measures
<table>
<thead>
<tr>
<th>Service level</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safely managed</td>
<td>Use of improved facilities which are not shared with other households and where excreta are safely disposed in situ or transported and treated off-site</td>
</tr>
<tr>
<td>Basic</td>
<td>Use of improved facilities which are not shared with other households</td>
</tr>
<tr>
<td>Limited</td>
<td>Use of improved facilities shared between two or more households</td>
</tr>
<tr>
<td>Unimproved</td>
<td>Use of pit latrines without a slab or platform, hanging latrines or bucket latrines</td>
</tr>
<tr>
<td>Open defecation</td>
<td>Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches and other open spaces or with solid waste</td>
</tr>
</tbody>
</table>

**GUIDELINES**

**ON SANITATION AND HEALTH**

VS

**GUIDELINES**

**Normative definitions**

- Normative definitions provide more detail to guide implementation
- Aligned with measurable definitions in SDG monitoring
Chapter 4:
ENABLING SAFE SANITATION SERVICE DELIVERY

➢ Policy & planning
➢ Legislation, regulations, standards, guidelines
➢ Roles and responsibilities
➢ Role of health authorities
➢ Delivering sanitation at the local level
➢ Developing sanitation services and business models
➢ Fostering the sanitation services market
➢ Management of special risks (emergencies, outbreaks, HCF)
Chapter 5: BEHAVIOUR CHANGE

- Sanitation behaviours and determinants
- Approaches & intervention design
- Institutional responsibilities
- Monitoring & learning

Table 5.2: Stages in behavior change strategy design

<table>
<thead>
<tr>
<th>Documenting existing behaviour</th>
<th>Understanding behavioural drivers</th>
<th>Developing the intervention</th>
<th>Testing intervention delivery</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Situation analysis</td>
<td>• In-depth interviews</td>
<td>• Engagement of relevant specialists and stakeholders</td>
<td>• Behavioural trials/trials of improved practice</td>
<td>• Delivery of intervention at the desired scale</td>
</tr>
<tr>
<td>• Surveys nationally-representative data sets</td>
<td>• Direct observations</td>
<td>• Content development and pre-testing</td>
<td>• Pilot projects</td>
<td>• Regular review and adaptation</td>
</tr>
<tr>
<td>• Stakeholder and key informant engagement</td>
<td>• Interactive methods</td>
<td>• Definition of activities and protocols</td>
<td></td>
<td>• Evaluation</td>
</tr>
</tbody>
</table>

GUIDELINES ON SANITATION AND HEALTH
Technical Resources
Chapter 7.
METHODS

Figure 7.1 Conceptual framework for guidelines development

IMPLEMENTATION
(policy and regulation, finance, organization)

SANITATION INTERVENTION
(behaviour, technology)

Access
Use and sustained use

Faecal load in the environment

Health
Infectious disease and nutritional outcomes:
Diphtheria
tuberculosis
Intestinal parasites
Soil transmitted helminth infections

toxoplasmosis
Schistosomiasis
Nutritional status

Socio-cultural, political, legal, ethical

CONTEST

Health

Educational outcomes

Mental and social well-being

Privacy
Safety
Dignity

GUIDELINES ON SANITATION AND HEALTH
Chapter 7. METHODS

- Guidelines development process

Scoping of the document

- Setting up guidelines development group and external review group
- Disclosure and management of secondary interests
- Formulation of questions (PICO) and choice of the relevant outcomes
- Evidence retrieval, assessment and synthesis (systematic reviews)
- GRADE evidence profiles

Formulation of recommendations (GRADE) Including explicit consideration of:

- Dissemination, implementation (adaptation)
- Evaluation of impact
- Plan for updating

Approval of guideline development proposal

Approval final guidelines

GUIDELINES ON SANITATION AND HEALTH
Chapter 6.
EXCRETA RELATED PATHOGENS

- An updated F-diagram
- Sanitation related pathogens
- Treatment and control
- Focus on emerging Antimicrobial resistance

GUIDELINES ON SANITATION AND HEALTH
# Chapter 6.

**EXCRETA RELATED PATHOGENS**

## Table 6.1 Excreta-related pathogens (main source: Mandell, Bennett & Dolin, 2000)

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Health significance</th>
<th>Transmission pathways</th>
<th>Important animal source</th>
<th>Likely importance of sanitation for control</th>
<th>Concentration excreted in faeces</th>
<th>Duration of excretion</th>
<th>Additional references</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BACTERIA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campylobacter spp.</td>
<td>Most common bacterial</td>
<td>Predominantly food and water</td>
<td>Poultry and other</td>
<td>Low</td>
<td>106 – 109 / g</td>
<td>Up to 3 weeks</td>
<td></td>
</tr>
<tr>
<td><strong>VIRUSES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adenoviruses</td>
<td>A large group of distinct viruses</td>
<td>Person-to-person, through both</td>
<td>None – strict human</td>
<td>Low</td>
<td>10^3 / g (lower with)</td>
<td>Months after</td>
<td></td>
</tr>
<tr>
<td><strong>PROTOZOA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cryptosporidium spp.</td>
<td>One of the most common causes of diarrhoea in</td>
<td>Person-to-person, and through faeces</td>
<td>None – strict human</td>
<td>High</td>
<td>—</td>
<td>—</td>
<td>Hunter &amp; Thompson, 2005</td>
</tr>
<tr>
<td><strong>HELMINTHS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ascaris lumbricoides (roundworm)</td>
<td>One of the most common human helminth infections globally. Largely asymptomatic. Can lead to bowel/ intestine obstruction, etc.</td>
<td>Via consumption of contaminated soil and food, and hand contamination</td>
<td>No (animal roundworm species not thought to be pathogenic to human).</td>
<td>High</td>
<td>10^6 eggs/g</td>
<td>While infection persists</td>
<td>Bethony et al., 2006</td>
</tr>
</tbody>
</table>
Chapter 8.
EVIDENCE ON THE EFFECTIVENESS AND IMPLEMENTATION OF SANITATION INTERVENTIONS

Brief overview:

➢ *Limited increase in coverage and use leads to limited impact* on transmission
➢ Evidence of a *protective effect of sanitation on infectious diseases and nutrition*.
➢ Evidence of association with *wider health outcomes*, including *cognitive development, personal wellbeing*, especially among women and girls.
➢ *Strength of the evidence is generally low*, though this may be due in part to limited studies and is common for environmental interventions.
➢ *Significant gaps* remain in epidemiological, implementation and other areas of sanitation research.
Chapter 9.
RESEARCH NEEDS

➢ Strategies for encouraging governments to prioritize, encourage and monitor
➢ Improving coverage and securing correct, consistent, sustained use
➢ Estimating health impacts from sanitation interventions
➢ Methods for assessing presence of and exposure to sanitation-related pathogens in the environment
➢ Leakage and fate of faecal pathogens in the environment
➢ Alternative designs and services
➢ Culturally-appropriate interventions respect human dignity and rights
➢ Mitigating occupational exposures
➢ Links between sanitation, animals and their impact on human health
➢ Ecological effects
➢ Sanitation and gender
Annex 1.

SANITATION SYSTEM FACT SHEETS

- 11 system fact sheets covering applicability, design considerations and measures to protect public health
- Accompanying sanitary inspection forms

GUIDELINES ON SANITATION AND HEALTH
…Also coming soon:

EXCRETA RELATED PATHOGEN FACT SHEETS

➢ Harmonized with Drinking water quality factsheets and the global water pathogens project (GWPP)

11.1 Bacterial pathogens
Most bacterial pathogens potentially transmitted by water infect the gastrointestinal tract and are excreted in the faeces of infected humans and animals. However, there are also some waterborne bacterial pathogens, such as Legionella, Burkholderia pseudomallei and atypical mycobacteria, that can grow in water and soil. The routes of transmission of these bacteria include inhalation and contact (bathing), with infections occurring in the respiratory tract, in skin lesions or in the brain.

Acinetobacter

General description
*Acinetobacter* spp. are Gram-negative, oxidase-negative, non-motile coccobacilli (short plump rods). Owing to difficulties in naming individual species and biovars, the term *Acinetobacter calcoaceticus baumannii* complex is used in some classification schemes to cover all subgroups of this species, such as *A. baumannii*, *A. iwoffii* and *A.ジュニィ*.

Human health effects
*Acinetobacter* spp. are usually commensal organisms, but they occasionally cause infections, predominantly in susceptible patients in hospitals. They are opportunistic pathogens that may cause urinary tract infections, pneumonia, bacteraemia, second-
NEXT STEPS

• Insert according to time & audience
THANK YOU!

GUIDELINES ON SANITATION AND HEALTH

World Health Organization