

WHO Guidelines for Drinking Water Quality and Water Safety Plans

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Water - Two Perspectives on International Developments

Minimum water for those that need it
most

Improving drinking water quality and
reducing disease

Complacency?

More than 100 years progressive “success” in outbreak control but:

- Outbreaks continue
- Residual 'background' disease burden
- Emerging pathogens
- In-building hazards (e.g. *Legionella*)
- Lead, arsenic, ...
- Small community supplies

Emerging waterborne pathogens

- *Giardia*
- *Cryptosporidium*
- *E coli* O157
- *Legionella*
- Toxic cyanobacteria
- ? *Helicobacter pylori*

Problems – why?

- Treatment fallible, 'events'
- End-point testing is too-little-too-late
- ... and indicators don't reflect risk

Treatment fallibility

- Milwaukee (1993) demonstrated vulnerability of 'adequate' treatment to 'events'
- 403,000 individuals contracted cryptosporidiosis
- Treated water contained no *E.coli*

INDICATORS

Absence of indicators does *not* mean absence of risk

- 1978-1986, 502 outbreaks of waterborne disease in the USA - most had no total coliforms or *E. coli* (Sobsey, WST, 1987)
- 1/3 of outbreaks in USA did not have coliforms detected (Craun, JAWWA, 1997)

Response - WHO Guidelines for Drinking-water Quality

- New guidelines have involved input from more than 500 people representing over 90 countries
- Risk-based from catchment-to-consumer
- Moving away from reliance on *output* monitoring - measuring parameters in final water
- More *input* monitoring - measuring parameters that show that the system is working
- Aim to detect short-term quality changes
- Need for transparency openness, inter-agency

WHO Framework for Drinking-water Safety

Health Based Targets

Water Safety Plans

- 1 System Assessment
- 2 Monitoring of Control Measures
- 3 Management Plans

Independent Surveillance

Health based targets

System assessment

Monitoring of control
measures

Management Plans

Independent
"surveillance"

Health-based Targets

*Targets based on public health protection and
disease prevention*

- Benchmark for water supplies
- Public health benefit
- Local circumstances
- Quantitative risk assessment
- From simple to complex

Health based targets

System assessment

Monitoring of control measures

Management Plans

Independent "surveillance"

WSP Overview

Preventive risk management system to provide continuous quality assurance for drinking water supplies

- Risk management approach
- Purpose designed for drinking water
- Based on existing systems including the multiple barrier approach, HACCP *etc*

Health based targets

System assessment

Monitoring of control
measures

Management Plans

Independent
"surveillance"

WSP part 1: System Assessment

*To determine whether the water supply chain
as a whole can deliver water that meets the
health-based targets*

- Reality check
- Identifying what reduces and prevents contamination – control measures
- Validation of processes
- Identifies system improvements

WSP part 2: Monitoring control measures

*Monitoring the control measures of particular
importance in securing water safety*

- Monitoring barriers identified in system assessment
- Aim is to ensure continual effectiveness of barriers
- Simple parameters, from results to action quickly

Health based targets

System assessment

Monitoring of control
measures and actions

Management Plans

Independent
"surveillance"

WSP part 3: Management Plans

*... describing actions to be taken; documentation
and communication*

Documented:

- system assessment
- control measures
- monitoring plan
- management responses
- communication plan
- supporting programmes (SOPs, training)

Health based targets

System assessment

Monitoring of control
measures and actions

Management Plans

***Independent
surveillance***

Independent Surveillance

*Systematic independent surveillance that
verifies that the above are operating
properly*

- Audit of Water Safety Plan
 - shows WSP is being adhered to
- Verification
 - end-product final check

Guidelines settings

- vendor supplied water, protected wells and springs, rainwater
- complex piped water supplies, small community piped supplies
- emerging types of supply
 - desalinated water
- special situations
 - emergencies
 - health care facilities

Guidelines future: rolling revision

- Rapid priority assessment for chemicals.
- Short-term/emergency guidance.
- *Legionella*
- 'Additives'
- Safe plumbing practices
- Emerging issues initiative
- Vulnerable groups
- Nutrient minerals

Conclusions

- Water is a real issue
- There is much to be gained from managing water better
- There have been major recent developments
- Commitments now need to be turned into actions

Finding the Guidelines

[Http://www.who.int/water_sanitation
health/GDWQ/index.htm](http://www.who.int/water_sanitation_health/GDWQ/index.htm)