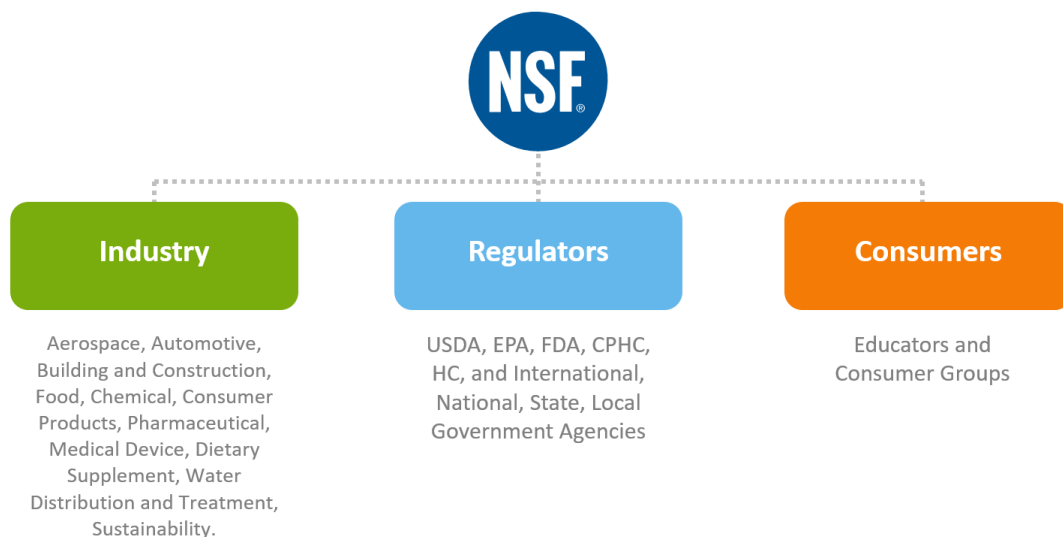




A GLOBAL LEADER IN PUBLIC HEALTH AND SAFETY

NSF International is dedicated to being the leading global provider of public health and safety-based risk management solutions while serving the interests of all stakeholders, namely the public, the business community and government agencies.

Bringing Industry, Regulatory and Consumers Together



Developer of over **90** national consensus standards



Steadfast ties with key associations and government agencies



Pan American Health Organization/World Health Organization Collaborating Center on Food Safety, Water Quality and Indoor Environment



Service provider to thousands of organizations in **167 countries**

NSF operates 44 offices and laboratories across the world



NSF laboratories are ISO/IEC 17025 accredited (testing and calibration)



THE APPLIED RESEARCH CENTER

MISSION

Advancing public health through innovation, collaboration, validation and publication.



Programs

Sanitation and Contamination Control

Bioanalytical

Government & Professional Services

Applied Genomics



Industries Served

Healthcare

Food Safety

Water

Biotech

Environmental Safety

More!

SANITATION & CONTAMINATION CONTROL



Customized Research Studies

- Product compatibility studies
- Biofilm treatment and prevention studies
- Validation of cleaning protocols
- Grant Writing/white papers/publications
- Emerging pathogens method development

Special Projects

- Hygiene related standards writing
- Contamination monitoring
- STAT environmental services
- GLP and non-GLP claims testing
- Packaging/textiles antimicrobial efficacy tests



Publication

Collaboration

Innovative Science

CATALYST for CHANGE

HEALTHCARE INFECTION TRANSMISSION SYSTEMS (HITS)

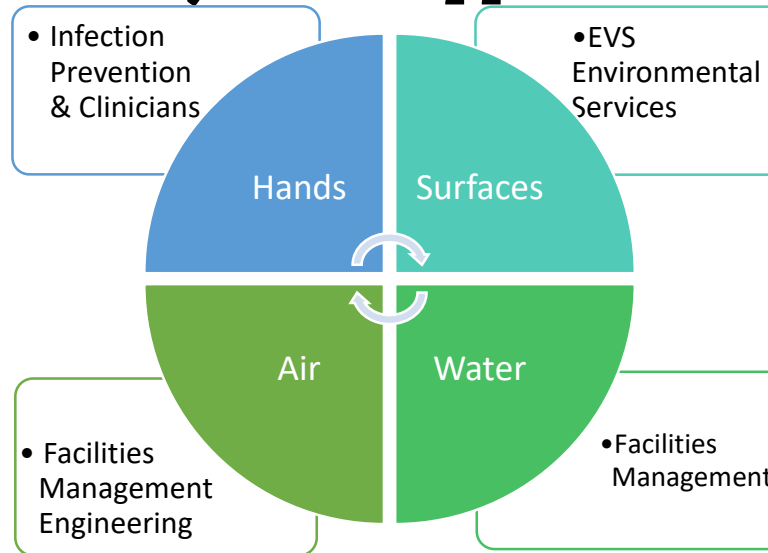
www.hitsconsortium.org

#HITS2018

Involvement of all Stakeholders

- Industry
- Regulators
- Consumers
- Academia

Systems Approach



Research Groups

- 1 New Innovation Adaption
- 2 Risk Assessment
- 3 Surface Transmission: Floors
- 4 Surface Transmission: Genomics
- 5 Water Transmission
- 6 Air Transmission
- 7 Hospital Construction and Design
- 8 Hand Hygiene

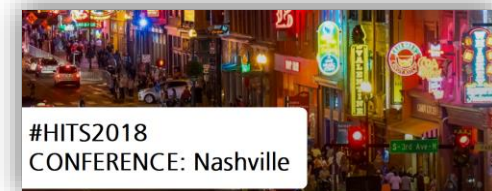
Communicate & Engage

- Conferences
- Working groups

Ann Arbor 2017



Nashville 2018



Research on Biofilms, Water quality and Human health

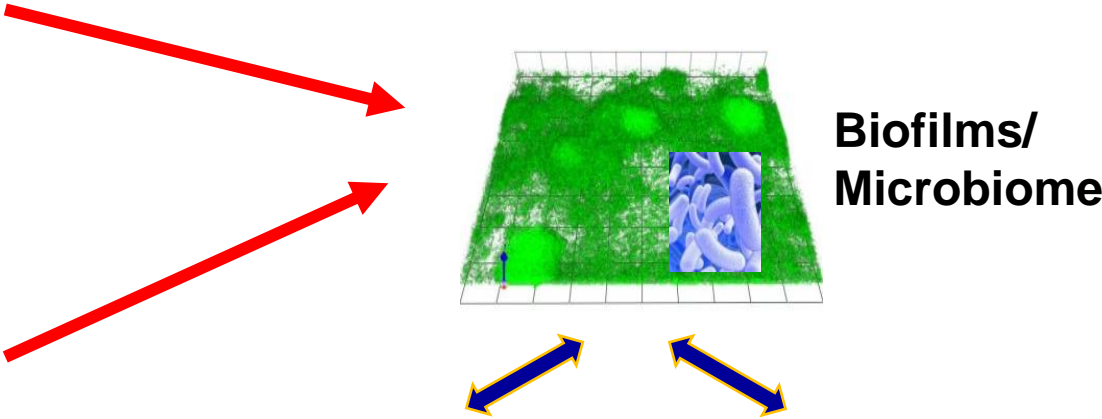
Chuanwu Xi, Ph.D. Professor
Environmental Health Sciences & Global Public Health
University of Michigan School of Public Health
cxi@umich.edu

Biofilm Development

- extracellular DNA
- ATP signaling

Biofilm Control

- Nanoparticles
- Small chemicals
- Natural extracts
- STAMP polymer coatings
- Nitric Oxide (NO)
- Physical methods
- **Enzymes**



Human Health

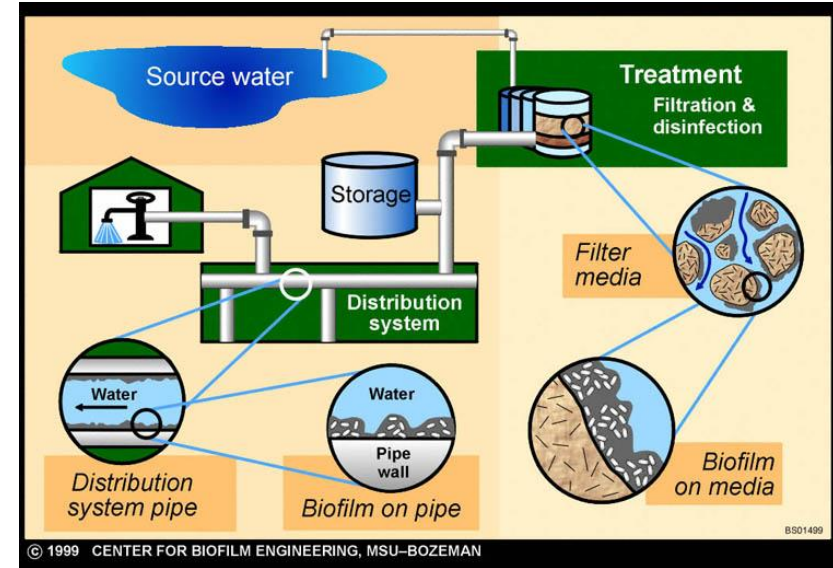


Water Quality Treatment

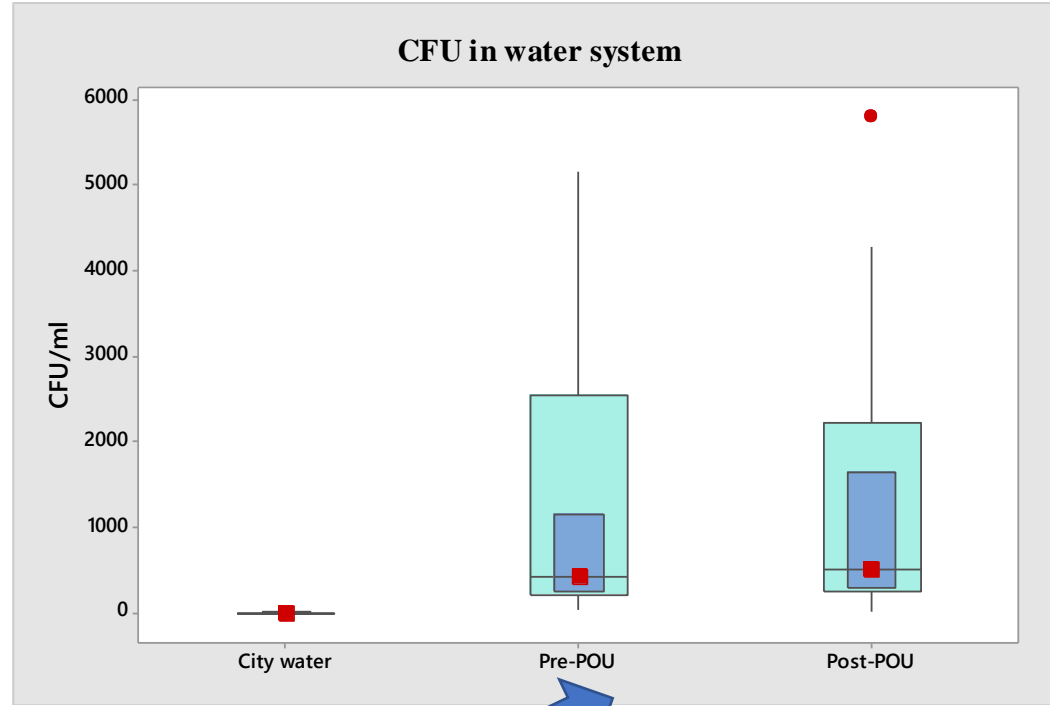


Ongoing research projects

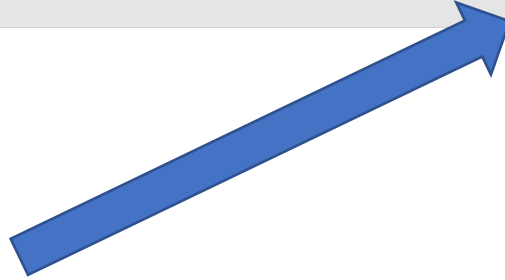
- Spread of antibiotic resistance in the urban water cycle
- Water contamination of *H. pylori* in Lima Peru: Gastric cancer
- The impact of desalinated water on water quality in Doha, Qatar
- The role of environmental transmission in hospital acquired infections



Certain alarming factors



Organic matters concentrated
Residual chlorine removed
High temperature
....



CATALYST *for* CHANGE

HEALTHCARE INFECTION
TRANSMISSION SYSTEMS (HITS)

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Water Transmission Working Group

Water Transmission Workgroup
HITS Consortium #HITS2018



PROGRESS:

Study development to evaluate disinfection rotation in premise plumbing and the impact this has on total organic carbon. The working group study will also characterize the biofilm, with a focus on the detached biofilm population and the disinfectant cycling impact on particle distribution.