# GWPP Quantitative Data:
# Meeting Sanitation Goals

The Global Water Pathogen Project (GWPP) aims at developing a knowledge resource to reduce mortality linked to water pathogens and the lack of safe drinking water and basic sanitation.  This goal will be accomplished by the creation of a state-of-the-art knowledge hub on water-related disease risks and intervention measures, including new and emerging pathogens and updated scientific data replacing the current benchmark reference work of Feachem et al.1983.

The GWPP focus is on pathogens and pathogen risks from excreta. This resource will provide an updated review of the efficacy of sanitation technologies and serve as a compendium of waterborne pathogen information and quantitative data to support risk assessment to protect water safety.
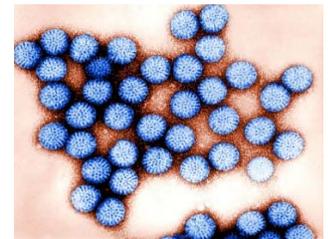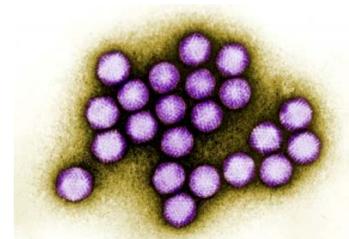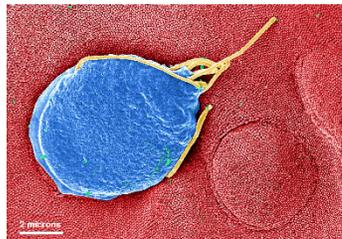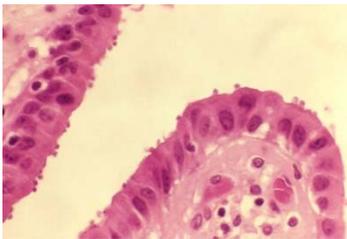
**The major sections of the GWPP resource includes**:
*Sanitation and Health An Imperative*
*Indicators and Microbial Source Tracking*
*Bacteria, Viruses*, Protists, *Helminths (40 Pathogens)*
*Persistence*
*Sanitation Technology and Disinfection*
*Risk Assessment*

In the future communities, states and countries will be trying to determine which technologies should be used to treat fecal wastes/solid excreta and sewage.  What is the goal? Ultimately to reduce pathogen risks and risks from waterborne disease.   GWPP data are being used to evaluate the risk and the comparative efficacy of treatment technologies.   Data on concentrations of various model pathogens in excreta and sewage represented by four specified key groups of organisms (bacteria, viruses, protozoa. and helminths) all which are removed differently by treatment are found in the GWPP.   As shown in the table below  99% to >99.999% of the  large concentrations of pathogens need to be reduced to allow for safe discharge of effluents and promote reuse.

| Pathogen | Concentrations/g In feces | Average Concentrations/L In raw sewage |
|---|---|---|
| *Cryptosporidium* | $10^6$ to $10^7$ | 10 to $10^2$ |
| *Giardia* | 56 to $5x10^6$ | $1.4x10^4$ |
| *Ascaris* | $2x10^3$ to $6x10^3$ | 46 to $2x10^2$ |
| Adenoviruses | $10^{11}$ | $9.1x10^9$ |
| Rotavirus | $10^{10}$ to $10^{12}$ | $5.9x10^7$ |

More information can be found at:  www.waterpathogens.org