

**INTERNATIONAL WATER ASSOCIATION
HEALTH-RELATED WATER MICROBIOLOGY**

Web page: www.iwa-microbiology.org

NEWSLETTER

August 2003

SYMPOSIUM ISSUE

HRWM 2003 CAPE TOWN

REGISTER NOW!

- [Final oral and poster programme](#)
- [WHO Seminar details](#)
- [Minutes of the Melbourne Open Meeting and agenda for Cape Town](#)

The final oral and poster programmes are given below which hopefully will encourage you to register for this most important Symposium! Delegates and presenters are advised to check their documentation when they arrive in Cape Town and *register at the convention centre* for the latest in any changes.

Registration details can be found on the Symposium web page at

www.iwaconferences.co.za/water/Health_1.html

If you have any difficulties with the site please contact Willie Grabow at grabow@med.up.ac.za.

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PLATFORM PRESENTATIONS

SUNDAY 14 SEPTEMBER 2003-07-21

Registration at Convention Centre
Opening Ceremony
Welcome Reception

MONDAY 15 SEPTEMBER 2003

- 0900 Welcome
Joan Jofre - Group Chair
- 0910 **Presidential address - 25 years of water virology**
Willie Grabow (South Africa)
- Session 1 **INTERVENTION STRATEGIES
WASTEWATER TREATMENT**
Chair: Joan Jofre (Spain)
Related posters: 1 - 3, 103
- 0950 Paper 1: **Pathogen removal efficiency from USB+BF effluent using conventional and UV post-treatment systems**
Regina Keller, RF Passamani-Franca, F Passamani, L Vaz, ST Cassini, N Sherrer, K Rubim, TD Sant'Ana & FR Gonçalves (Brazil)
- 1010 Paper 2: **The development of a quantitative RT-PCR assay for the detection of norovirus in wastewater and its application to studies on virus removal during sewage treatment**
Kathy Henshilwood, L Cross & DN Lees (UK)
- 1030 Coffee
- Session 2 **MICROBIAL ECOLOGY**
Chair: Nick Ashbolt (Australia)
Related posters: 4 - 20
- 1100 Paper 3: **Dispersion and transport of Cryptosporidium oocysts from faecal pats under simulated rainfall events**
Cheryl M Davies, C Kaucner, CM Ferguson, N Altavilla, D Deere & NJ Ashbolt (Australia)
- 1120 Paper 4: **Genotypic analyses of Escherichia coli isolated from tropical soils**
Clarivel Lasalde, H Smith & GA Toranzos (Puerto Rico; US Virgin Islands)
- 1140 Paper 5: **Indigenous soil bacteria and low moisture may limit but allow faecal bacteria to multiply and become a minor population in tropical soils**
M Byappanahalli & Roger Fujioka (USA)
- 1200 Paper 6: **Sources and occurrence of Campylobacter spp in impoundment reservoirs used for drinking water production**
Gertjan J Medema, L Heijnen & HAM Ketelaars (The Netherlands)
- 1220 Paper 7: **Prevalence of human adenoviruses in raw and treated water**
Juanita van Heerden, MM Ehlers, WB van Zyl & WOK Grabow (South Africa)
- 1240 Lunch
- Session 3 **WATERBORNE DISEASE**
Chair: Paul Hunter (UK)
Related posters: 21 - 24

- 1400 Paper 8: ***Outbreaks associated with private water supplies in England and Wales***
Bengü Said, F Wright, GL Nichols, M Reacher, W Smerdon & M Rutter (UK)
- 1420 Paper 9: ***Norovirus outbreak among primary school children after playing in an interactive recreational water fountain***
Ana Maria de Roda Husman, CJPA Hoebe, H Vennema & YTHP van Duynhoven (The Netherlands)
- 1440 Paper 10: ***Detection of noroviruses in waterborne outbreaks***
L Maunula, I Miettinen, Carl-Henrik von Bonsdorff (Finland)
- 1500 Paper 11: ***Genetic analysis of norovirus (NV) taken from patients of gastroenteritis, river water and oysters***
You Ueki, K Akiyama, T Watanabe & T Omura (Japan)
- 1520 Paper 12: ***Investigation of factors influencing the 2001 cholera epidemic in South Africa - development of a predictive risk model using GIS technology***
Shannon Rushworth & IW Bailey (South Africa)
- 1540 Coffee
- Session 4 **MANAGEMENT OF DRINKING WATER SAFETY**
Chair: Ian Bailey (South Africa)
Related posters: 25 - 28
- 1610 Paper 13: ***Application of HACCP principles as a management tool for monitoring and controlling microbiological hazards in water treatment facilities***
Corinne Jagals & P Jagals (South Africa)
- 1630 Paper 14: ***HACCP as a tool for assuring microbiologically safe drinking water: the Vivendi Water experience***
Laurence de Beir, M-C Müller, H de Mascureau & J-C Joret (France)
- 1650 Paper 15: ***Investigation of opportunistic pathogens in municipal drinking water under different supply and treatment regimes***
M Pryor, Susan Springthorpe, S Riffard, T Brooks, Y Huo, G Davies & SA Sattar (USA; Canada)
- 1710 ***Meeting of the HRWM Group Steering Committee***

TUESDAY 16 SEPTEMBER 2003

- Session 5 **INTERVENTION STRATEGIES
EFFECTS ON DISEASE CONTROL**
Chair: Maureen Taylor (South Africa)
Related posters: 29
- 0850 Paper 16: ***The impact of introducing treated water on aspects of community health in a rural community in KwaZulu-Natal, South Africa***
Ian W Bailey & L Archer (South Africa)

0910 Paper 17: ***Are waste stabilisation ponds sources or barriers for toxigenic Vibrio cholerae? Efficiency of recovery and preliminary performance data***
S Islam, SB Neogi, S Islam, M Barer & Thomas P Curtis
(Bangladesh; UK)

0930 Paper 18: ***The effect of engineering and educational interventions on the microbiological quality of container-stored water in developing world households***
Ntombifuthi P Nala & P Jagals (South Africa)

SHELLFISH

Related posters: 30 - 33

0950 Paper 19: ***Sewage impact on microbial contamination in a shellfish harvesting area***
Monique Pommepuy, MP Caprais, F Dumas, P Camus,
C Le Mennec, S Parneaudau, B Sarrette, P Vilagines,
E Kholi, R Brachet & F Le Guyader (France)

1010 Paper 20: ***Viral clearance during depuration at elevated temperatures determined by an index organism and direct quantitation of norovirus***
William J Doré, K Henshilwood & DN Lees (UK)

1030 Coffee

Session 6

INTERVENTION STRATEGIES

WATER TREATMENT

Chair: Mark Sobsey (USA)

Related posters: 34 - 42

1100 Paper 21: ***Elimination of viruses, bacteria and protozoan oocysts by slow sand filtration***
Wim AM Hijnen, JF Schijven, P Bonné, A Visser
& GJ Medema (The Netherlands)

1120 Paper 22: ***Removal of F-specific RNA bacteriophage in artificial recharge of groundwater: a field study***
RM Niemi, A Kytövaara, J Pääkkönen & Kirsti Lahti (Finland)

1140 Paper 23: ***Microbicidal efficacy of advanced oxidation process using ozone/hydrogen peroxide in water treatment***
Regina Sommer, W Pribil, S Pflieger, T Haider, P Gehringer
& M Werderitsch (Austria)

1200 Paper 24: ***Aerobic bacterial spores as process indicators for protozoan cysts in water treatment plants***
B Galofré, S Israel, J Dellundé & Ferran Ribas (Spain)

1220 Paper 25: ***Using ultra violet light for disinfection of finished water***
Zia Bukhari, F Abrams & M LeChevallier (USA)

1240 Lunch

Session 7

TRACING SOURCES OF MICROBIAL CONTAMINATION

Chair: Paul Jagals (South Africa)

Related posters: 43 - 50

- 1345 Paper 26: ***Determining the origin of faecal pollution source in waters by selective detection of Bifidobacterium spp***
Anicet R Blanch, X Bonjoch, F Lucena & J Jofre (Spain)
- 1405 Paper 27: ***A simplified low-cost approach to antibiotic resistance profiling for faecal source tracking***
James E Ebdon, JL Wallis & HD Taylor (UK)
- 1425 Paper 28: ***Pathogenic Escherichia coli isolates from environmental and human sources in the Limpopo region of South Africa***
C Larry Obi, E Green, PO Bessong, E Igumbor & N Potgieter (South Africa)
- 1445 Paper 29: ***Escherichia coli O157:H7 isolated from private drinking water supplies in the Netherlands***
Ciska Schets, M During, JFM Versteegh, L Heijnen, FAM Swinkels & AM de Roda Husman (The Netherlands)
- 1505 Paper 30: ***Tracking Campylobacter in the environment***
M Devane, JA Hudson, M Baker, N Garret, JK Klena, C Nicol, P Scholes, D Williams & Marion Savill (New Zealand)
- 1525 Coffee
- Session 8 **MICROBIAL INTERACTIONS WITH BIOFILMS**
Chair: Maggy Momba (South Africa)
Related posters: 51 - 53
- 1600 Paper 31: ***Biofilms, thermophilic amoebae and legionellae: a quantitative risk assessment for distributed water***
Michael V Storey, NJ Ashbolt & T-A Stentröm (Sweden; Australia)
- 1620 Paper 32: ***Control of Legionella in biofilms: evidence for disinfection inefficiencies in a pilot hot water distribution system***
Sebastien Saby, A Vidal, J Kittel, S Giloupe & M Lotierzo (France)
- 1640 Paper 33: ***Interaction of Cryptosporidium oocysts with drinking water biofilms***
J Chandy, M Warnecke & Mark Angles (Australia)
- 1700 Paper 34: ***Investigation of Helicobacter pylori by culture and PCR in potable water and biofilm samples from water distribution systems in England***
Claire L Watson, RJ Owen, S Lai, JV Lee, S Surman, G Nichols, B Said, D Drury & A Lloyd (UK)
- 1720 ***Open meeting of the Health-related Water Microbiology Group***

WEDNESDAY 17 SEPTEMBER 2003

- Session 9 **VIRUSES**
Chair: Ana-Maria de Roda Husman (The Netherlands)
Related posters: 54 - 61
- 0850 Paper 35: ***Adequacy of membrane specifications for predicting the removal of infectious viral agents in drinking water systems***
Debra Huffman, J Bae, J Seiter, T Idocks, A Madec, J Jacangelo & K Schwab (USA)

- 0910 Paper 36: ***National sample survey of viruses and the influences on the Korean water supplies***
Hyenmi Chung, Y Rim & DK Rhee (Korea)
- 0930 Paper 37: ***Indicator of viral contamination in river water***
S Skraber, L Schwartzbrod & Christophe Gantzer (France)
- 0950 Paper 38: ***Development and evaluation of methods to detect coliphages in large volumes of water***
Mark D Sobsey, SD Pillai, A Margolin, D Batigelli, S Goyal, MV Yates, F-C Hsu, G Lovelace & N Nwachuku (USA)
- 1010 Paper 39: ***Potential transmission of human polyomaviruses through water or food contaminated with urban sewage***
S Bofill-Mas, N Albiñana-Giménez, M Formiga-Cruz & Rosina Girones (Spain)
- 1030 Coffee
- Session 10 **CRYPTOSPORIDIUM**
Chair: Debra Huffman (USA)
Related posters: 62 - 70
- 1100 Paper 40: ***Die-off of Cryptosporidium spp in tapwater, in seawater and in soil: comparison between infectivity and viability***
Abid M Nasser, E Teuto, L Tenenbaum & Y Netzan (Israel)
- 1120 Paper 41: ***Cryptosporidium distribution among HIV patients in Rostov region (southern Russia) and detection of oocysts in tap water samples***
V Kartashev, R Mitov, C Kourenti, S Gusarev, Y Ponomarenko, L Kushnir, Y Ambalov & Panagiotis Karanis (Russia; Germany)
- 1140 Paper 42: ***Giardia and Cryptosporidium in source waters of São Paulo State, Brazil***
EM Hachich, Maria IZ Sato, AT Galvani, JRN Menegon & JLN Mucci (Brazil)
- 1200 Paper 43: ***Case control study of sporadic cryptosporidiosis with genotype analysis***
Paul R Hunter, S Hughes, Q Syed, S Woodhouse, R Chalmers & N Verlander (UK)
- 1220 Lunch
- Session 11 **RISK ASSESSMENT**
Chair: Gertjan Medema (The Netherlands)
Related posters: 71 - 74
- 1400 Paper 44: ***A monitoring system of Cryptosporidium proposed from the quantitative risk assessment from the counted data in purified water in Japan***
Yoshifumi Masago, H Katayama, T Hirata & S Ohgaki (Japan)
- 1420 Paper 45: ***Assessment of microbial infection risks posed by ingestion of water during domestic water reuse and full-contact recreation in a mid-southern African region***
Maronel Steyn, P Jagals & B Genthe (South Africa)

BATHING WATERS AND HEALTH

Related posters: 75 - 81

- 1440 Paper 46: ***A marine water quality and health study in South Africa: a summary***
Bettina Genthe & N Strauss (South Africa)
- 1500 Paper 47: ***Area-integrated sampling and calculation of time-integrated quality scores: proposal for a new way of monitoring and classifying fresh and sea water bathing sites based on epidemiological evidence***
Albrecht Wiedenmann & K Botzenhart (Germany)
- 1520 Paper 48: ***Hepatitis A virus in surface recreational water in South Africa: what is the risk?***
Ilze Venter, JC Vivier, WOK Grabow & MB Taylor (South Africa)
- 1540 Coffee
- 1700 ***Symposium dinner***

THURSDAY 18 SEPTEMBER 2003

- Session 12 **IDENTIFICATION OF MICROBIAL CONTAMINANTS**
Chair: Bettina Genthe (South Africa)
Related posters: 82 - 91
- 0850 Paper 49: ***Evaluating real-time PCR for the quantitation of distinct pathogens and indicator organisms in environmental samples***
Michael Lebuhn, M Effenberger, A Gronauer & PA Wilderer (Germany)
- 0910 Paper 50: ***Detection, isolation and characterisation of stx₂ phages in sewage***
Maite Muniesa, C García-Aljaro, AR Blanch & J Jofre (Spain)
- 0930 Paper 51: ***Investigation of faecal pollution detection techniques for enumeration and presumptive identification of coliforms and Clostridium perfringens in different aquatic habitats in a tropical country, Uganda***
Denis Byamukama, RL Mach, F Kansiime, M Manafi & AH Farnleitner (Uganda; Austria)
- 0950 Paper 52: ***Development of a multiplex-PCR assay for the detection of enterohaemorrhagic E coli and E coli O157:H7 virulence factors from water sources and faecal samples***
Etienne E Müller, MM Ehlers & WOK Grabow (South Africa)
- 1010 Paper 53: ***Development of a TaqMan^R RT-PCR for the detection and quantitation of viable Campylobacter jejuni in environmental waters***
S Lin, B Gilpin & Marion Savill (New Zealand)
- 1030 Coffee
- Session 13 **LEGIONELLA**
Chair: Susanne Surman (UK)
Related posters: 92

- 1100 Paper 54 ***Is Legionella a threat in South Africa?***
Estelle le Roux & P Coubrough (South Africa)
- 1120 Paper 55 ***Molecular typing of the Legionella pneumophila population isolated from several locations in a contaminated water network***
Anne-Sophie Lepeuple, M Jovic & M-R de Roubin (France)
- 1140 Paper 56 ***Pathogenic Legionella species in dental unit waterlines***
Tanusha Singh & MM Coogan (South Africa)
- MOLECULAR STUDIES**
Related posters: 93 - 95
- 1200 Paper 57 ***Rotavirus VLPs as tracers in studies of virus persistence in the environment***
Albert Bosch, S Caballero, FX Abad, J Cohen, F Le Guyader & RM Pintó (Spain; France)
- 1220 Paper 58 ***Assessment of virulence-factor activity relationships (VFARs) for waterborne disease***
TM Jenkins, TM Scott, JR Cole, SA Hasham & Joan B Rose (USA)
- 1240 Lunch
- Session 14 **INTERVENTION STRATEGIES**
CONTROL AT POINT OF USE
Chair: Bruce Keswick (USA)
Related posters: 96 - 103
- 1400 Paper 59 ***Toward a new water and sanitation paradigm: the role of point-of-use water quality interventions in the prevention of diarrhoea***
Rob E Quick (USA)
- 1410 Paper 60 ***A randomised health outcome trial of a household-based flocculant disinfectant for drinking water treatment***
Steve Luby, TM Chiller, CE Mendoza, MB Lopez, M Alvarez, R Hoekstra & BH Keswick (USA; Guatemala)
- 1430 Paper 61 ***A trial of point-of-use chlorination and safe water storage for diarrhoea prevention in a high risk rural Kenyan population***
P Makutsa, V Garrett, P Ogotu, P Barasa, Samwel Ombeki, A Mwaki, G Aluoch & R Quick (Kenya; USA)
- 1450 Paper 62 ***Comparison of the effectiveness of two point-of-use water treatment systems in the developing world***
Daniele S Lantagne (USA)
- 1510 Paper 63 ***The impact of a safe water system (SWS) on household water quality and diarrhoea among persons with and without HIV in rural Uganda***
John R Lule, J Mermin, S Malamba, A Coutinho, F Kizito, D Nakanjako, P Ekwaru, B Waiswa, R Ransom & R Quick (Uganda; USA)
- 1530 Discussion and conclusions
- 1540 Coffee

Session 15	MISCELLANY Chair: Joan Rose (USA)
1610	Paper 64 <i>Inactivation of pathogens and indicator organisms in drinking water stored in rural household containers</i> <u>Natasha Potgieter</u> , MM Ehlers & WOK Grabow
1630	Paper 65 <i>Bioaerosols from the land application of biosolids in the desert southwest USA</i> <u>John Brooks</u> , B Tanner, K Josephson, CP Gerba & I Pepper (USA)
1650	Paper 66 <i>Evaluation of electrochemically generated ozone for the disinfection of water and wastewater</i> <u>Benjamin D Tanner</u> , S Kuwahara, CP Gerba & KA Reynolds (USA)
1710	Paper 67 <i>Application of a molecular method for the detection of group A rotaviruses in raw and treated water</i> <u>Walda B van Zyl</u> , PJ Williams, WOK Grabow & MB Taylor (South Africa)

World Health Organization (WHO) Seminar on Water and Health Friday 19 September 2003 Cape Town

Introduction

Water is essential for life, a basic human right and a critical element of a healthy and sustainable society. Yet water continues to be a major route of transmission of infectious diseases and a major contributor to the global burden of disease.

Consistent with the broad scope of this Health-related Water Microbiology Symposium and the theme of "Water as the Key to Sustainable Development in Africa", this 1-day seminar focuses on four main topics that address water and health in the developing and developed World:

- The newly revised, broadened and health risk-based WHO Guidelines for Drinking-water Quality,
- Emerging waterborne infectious diseases and approaches to their prevention and control,
- Household water treatment and safe storage to improve microbial quality and reduce drinking waterborne infectious disease, and
- Recreational water quality, with a focus on international guidelines and improved management systems

Schedule of Seminar Topics, Presentation Titles and Speakers

8:30-8:45: Welcome, Opening Remarks and Introduction

- J Bartram

8:45-10:25 WHO Guideline for Drinking-water Quality: Health risk-based rolling revisions, 2003

- 8:45-9:10 Introduction, overview and highlights, emphasizing the Stockholm Framework, the integrated, risk-based approach, the relationship of drinking water to sanitation, and incremental improvements to water quality and its management.
T-A Stenström, session moderator
- 9:10-9:35 Catchments and source protection
M Savill
- 9:25-10:00 Treatment and Distribution
Z Bukhari (for M LeChevallier)
- 10:00-10:25 Water Safety Plans
G Medema

Break: 10:25-10:45

10:45-12:30 Emerging Waterborne Pathogens and their Infectious Disease Risks

- 10:45-11:00 Overview, Introduction and Background
J Bartram, session moderator
- 11:00-11:20 New technologies and water supply practices influencing pathogen occurrence, control and proliferation

S Ohgaki

- 11:20-11:40 New microbial detection technologies for pathogens and microbial water quality indicators
G Toranzos
- 11:40-12:00 Changing human ecology in relation to environmental change and socio-political and economic disruption
Speaker to be Named
- 12:00-12:30 Panel discussion; questions and comments

LUNCH 12:30-13:30

13:30-15:30 Household Water Treatment and Safe Storage of Drinking Water for Health

- 13:30-13:50 Introduction, Overview and Network Description
M Sobsey, session moderator
- 13:50-14:10 Sources and Safe Storage for Disease Reduction
P Jagals
- 14:10-14:30 Treatment Methods and Disease Reduction
T Clasen
- 14:30-14:50 Assessing microbial quality and treatment efficacy
W Grabow
- 14:50-15:10 Education, Behavior, Sustainability and Dissemination
R Quick
- 15:10-15:30 Panel discussions, questions and comments

BREAK 15:30-15:50, 20 minutes

15:50-18:00 Recreational Water Quality and Health

- 15:50-16:10 Introduction and WHO Guidelines Development (Annapolis Protocol)
N Ashbolt, session moderator
- 16:10-16:30 Microbial indicators of recreational water quality
R Fujioka
- 16:30-16:50 Epidemiological studies of recreational water quality; evidence base
B Genthe
- 16:50-17:10 Water quality monitoring for management decisions
Speaker to be Named
- 17:10-17:30 Panel Discussions, questions and comments

17:30-17:45 Summary and Close

- J Bartram

POSTER PRESENTATIONS

Poster 1:

Disinfection of sludge using lime stabilisation and pasteurisation in a small wastewater treatment plant

R Keller, RF Passamani-Franca, ST Cassini & FR Goncalves

- Poster 2: ***The effects of sanitation management in expanding urban areas on the microbiological water quality of the Modder River - what does ten years of monitoring tell us?***
M Griesel & P Jagals
- Poster 3: ***Feasibility study of the use of effluent from an Anaerobic Baffled Reactor (ABR) for irrigation in a peri-urban community (Cato Manor, Durban)***
N Mackay, A Smith, N Rodda & C Buckley
- Poster 4: ***Occurrence of pathogens in surface water***
F Dangendorf, A Queste, I Stalleicken, T Kistemann & M Exner
- Poster 5: ***Effects of rainfall and animal faeces on the microbiological quality of small rural water supplies in the United Kingdom – implications for water quality monitoring***
R Morris, K Shepherd, J Watkins & AP Wyn-Jones
- Poster 6: ***Survival of microorganisms in soil amended with sewage sludge and their subsequent persistence in crops***
B Chale-Matsau & H Snyman
- Poster 7: ***Quality of source water in a rural area of Guatemala***
B López, M Álvarez, C Mendoza, CP Gerba, J Naranjo, S Luby & R Klein
[WITHDRAWN](#)
- Poster 8: ***Detection and quantification of Microcystis in Florida lakes through microbiological methods***
MR Woodall, TM Scott & JB Rose
- Poster 9: ***First records of the recent species Aeromonas culicicola in drinking water***
MJ Figueras, A Suarez-Franquet, MR Chacón, L Soler, M Navarro, C Alejandre, B Grasa & J Guarro
- Poster 10: ***Antibiotic resistance of bacteria in surface water and wastewater***
FF Reinthaler, G Wüst, J Posch, G Feierl, D Haas, F Mascher, F Pichler-Semmelrock, O Feenstra & E Marth
- Poster 11: ***Bacteria present in hospital water supplies***
M Gomila, J Gil, J Gascó & J Lalucat
- Poster 12: ***A study of the microbial contamination in non-sterile pharmaceuticals by culture and polymerase reaction***
A Abdulraheem
- Poster 13: ***Salmonella enterica subsp enterica survives in, and is readily released from, river sediments***
I Kgotlagomang, LM Burke, VS Brözel & SN Venter
- Poster 14: ***Adhesion of Enterococcus faecalis in the non-culturable state to zooplankton is the main mechanism responsible for its persistence in both lake and seawater***
C Signoretto, G Burlacchini, M del Mar Lleò, G Franzini, C Pruzzo, L Pane & P Canepari

- Poster 15: ***Persistence of adhesive properties in Vibrio cholerae after long-term exposure to seawater***
C Pruzzo, R Tarsi, P Canepari, C Signoretto, RR Colwell & M del Mar Lleò
- Poster 16: ***Environmental Aeromonas and Vibrio spp isolated from Mai Po Nature Reserve and Inner Deep Bay of Hong Kong, and their responses to environmental factors***
Y Wang, MY Lai & J-D Gu
- Poster 17: ***The role of aquatic eco-systems as reservoirs of antibiotic resistant bacteria and antibiotic resistance genes***
PT Biyela & J Lin
- Poster 18: ***Persistence of E. coli in deep backshore sand of two Southern Lake Michigan beaches***
R Whitman, D Shively, M Nevers & M Byappanahalli
- Poster 19: ***Seasonal variation of faecal pollution in the Plankenbrug River using Escherichia coli as indicator organism - interpretational difficulties when assessing sanitation interventions***
JM Barnes, MM Slabbert, A Huisamen, PD Haasbroek & L Liebowitz
- Poster 20: ***The microbiological quality of ice for human consumption from food and drink premises in London***
S Surman, L Gordon & S Platt
- Poster 21: ***Waterborne gastroenteritis outbreak in Albania***
M Divizia, R Gabrieli, D Donia, A Bosch, S Guix, C Villena, RM Pintó, L Palombi, E Buonomo, F Cenko & S Bino
- Poster 22: ***The relationship between drinking-water quality and gastrointestinal disease in children***
P Weinstein, AJ Woodward, A Ball, K Grimwood, D Read, CJ Nokes, JE Gregor & C Salmond
- Poster 23: ***Linking a hospital outbreak of norovirus to its distribution in the community and presence in the environment***
J Sellwood & J Shore
- Poster 24: ***Mapping sporadic cryptosporidiosis in Wales and northwest England***
S Hughes, Q Syed, S Woodhouse, PR Hunter, I Lake, R Chalmers & K Osborn
- Poster 25: ***The surveillance of water quality for private drinking water supplies in England and Wales***
B Said, C Lane & GL Nichols
- Poster 26: ***To boil or not to boil?***
K Osborn, A Godfree & C Kerr
- Poster 27: ***Changing household knowledge, attitudes and practices towards hygienic handling of container-stored water***
M Moabi, NP Nala, P Jagals & TJ Tsubane
- Poster 28: ***Water quality in peri-urban communities: interaction of water supply devices and water use behaviours for users supplied by communal standpipes and household ground tanks in Cato Manor (Durban)***

N Arjun, M Smith, N Rodda & C Buckley

- Poster 29: ***Is it useful to disinfect the dental unit water systems? A study of the dental unit water systems of Barcelona City***
RM Araujo & N Contreras
- Poster 30: ***Probing Norwalk-like virus presence in shellfish with artificial neural networks***
G Brion, S Lingeriddy, TR Neelakantan, M Wang, R Girones, DN Lees, A Allard & A Vantarakis
- Poster 31: ***Comparison of different primer sets for the RT-PCR detection of hepatitis A virus and astrovirus in mussel tissues***
JL Romalde, C Ribao, L Vilariño & JL Barja
- Poster 32: ***Virological analysis of shellfish for food safety and control***
A Carducci, N Lucchesi, B Casini, F Mazzoni & M Verani
- Poster 33: ***Environmental factors influencing human viral pathogens and their potential indicator organisms in the Blue Mussel, *Mytilus edulis*: first Scandinavian report***
BE Hernroth, A-C Conden-Hansson, A-S Rhenstam-Holm, R Girones & AK Allard
- Poster 34: ***Evaluation of the efficiency of removal of *Giardia* cysts and *Cryptosporidium* oocysts by slow sand filtration processes in pilot units***
MBCM Vieira & L Heller
- Poster 35: ***Microbiological quality of ground and surface water used for domestic purposes in rural areas of South Africa***
MA Vrey, MM Ehlers, WB Van Zyl, MB Taylor, DN Pavlov, J Van Heerden, JME Venter, JC Vivier, JC De Villiers, E Van Zyl & WOK Grabow
- Poster 36: ***Evaluation of the microbial quality of water supplies to municipal, mining and squatter communities in the Bindura urban area, Zimbabwe***
H Nyati
- Poster 37: ***Repressive effects of yeast extract on photoreactivation of *Escherichia coli****
K Oguma, H Katayama, H Mitani & S Ohgaki
- Poster 38: ***Microbicidal effect of hydrogen peroxide, silver and the combination of both in water***
W Pribil, S Pflieger & R Sommer
- Poster 39: ***Evaluation of factors affecting the performance of small water supplies for the removal of indicator bacteria in rural developing areas of South Africa: case study - Alice WTP***
MNB Momba, N Makala & B Brouckaert
- Poster 40: ***Water quality monitoring at Blantyre Water Board, Malawi***
AD Kalea
- Poster 41: ***Removal efficiencies of endocrine disruptors in drinking water treatment plants and incidence of microbial contaminants in Arizona, USA***

A Alum, H Ryu & M Abbaszadegan

- Poster 42: ***Microbial quality of reclaimed water distribution systems and treatment efficacy***
M Abbaszadegan, H Ryu, A Alum & J Brereton
- Poster 43: ***Differentiation of faecal Escherichia coli from humans and animals by Random Amplified Polymorphic DNA-PCR (RAPD-PCR)***
D Venieri, A Vantarakis & M Papapetropoulou
- Poster 44: ***F-RNA coliphages and faecal sterols used as indicators in tracing the source of faecal pollution to either animal or human origin in the Umgeni water catchment area***
A Sundram, N Jumanlal, W John, IW Bailey, MM Ehlers & WOK Grabow
- Poster 45: ***Detection of animal enteric viruses in water samples***
V Ley, MA Jiménez-Clavero, N Gomez & JC Sáiz
- Poster 46: ***The utility of a novel bacterial ratio for watershed management: a case study***
J Booth & GM Brion
- Poster 47: ***The generation and evaluation of an E. coli ribotype Library for Tampa Bay***
TL Berg, VJ Harwood & JB Rose
- Poster 48: ***Detection of adenovirus by PCR for tracing the source of faecal contamination from human, swine or bovine/ovine origin***
CM de Motes, P Clemente-Casares, A Hundesa, M Martín & R Girones
- Poster 49: ***Tracing and quantifying turbidity and suspended particles in protected catchments***
K Cinque, M Stevens, S Haydon, D Roser, N Ashbolt & R Leeming
- Poster 50: ***Determining contamination sources of coastal bathing sites in northern Germany by application of biological and chemical tracer substances***
C Höller & E-A Heinemeyer
- Poster 51: ***Biofilm process in constructed wetlands characterisation modelling and optimisation***
SMS Qasem, SR Ragusa, D McNevin & C Mitchell
- Poster 52: ***Occurrence of non-TB Mycobacterium in biofilms of drinking water distribution systems in South Africa***
SM September, FA Els, SN Venter & VS Brözel
- Poster 53: ***Construction and evaluation of a GFP labelled environmental Aeromonas hydrophila for use in biofilm studies***
SM September, SN Venter & VS Brözel
- Poster 54: ***Detection of enteroviruses in raw and treated drinking water supplies in South Africa***
MM Ehlers, WOK Grabow & DN Pavlov
- Poster 55: ***Series of surveys for enteric viruses and indicator organisms in Tokyo Bay after an event of combined sewer overflow***
H Katayama, K Oguma, H Furumai & S Ohgaki

- Poster 56: ***Evaluation of virological quality of sewage from four biological treatment plants by a nested-PCR technique***
G Komninou, A Vantarakis & M Papapetropoulou
- Poster 57: ***Identification of cytopathogenic isolates from environmental matrices: application of analytical protocols***
B Casini, L Stefani, A Giuntini, M Verani & A. Carducci
- Poster 58: ***Application of integrated-cell culture RT-PCRs to determine the occurrence of enteric viruses in irrigation water and associated minimally processed foods***
MB Taylor, S Nadan, WB van Zyl, JME Venter, D Pavlov, N Potgieter & JM Barnes
- Poster 59: ***Seasonal variation of total culturable viruses and indicator bacteria in drinking water sources***
H-M Chung, S-H Oh, Y-J Jang, H-K Lee, Y-S Jeong & Y-H Chung
- Poster 60: ***Detection of infectious pathogenic viruses in water and wastewater samples from urbanised areas in Japan***
D Sano, T Watanabe, T Matsuo & T Omura
- Poster 61: ***Poliovirus vaccine strains in sewage and river water in South Africa***
DN Pavlov, WB van Zyl, WOK Grabow & MM Ehlers
- Poster 62: ***Validation of a flatbed membrane concentration method for Cryptosporidium oocysts and Giardia cysts using US EPA Method 1623 as reference***
M du Preez, G Idema & N Ramgopaul
- Poster 63: ***The search for Cryptosporidium oocysts and Giardia cysts in source water used for purification***
M Grundlingh & CME De Wet
- Poster 64: ***The fate of Cryptosporidium oocysts and Giardia cysts during a treatment process***
M Grundlingh, CME De Wet, JC Geldenhuys, E van der Walt & H Enslin
- Poster 65: ***Validation and implementation of Method 1623 at Rand Water***
M Grundlingh & CME De Wet
- Poster 66: ***Detection of infectious Cryptosporidium parvum oocysts in untreated and treated wastewater***
AL Gennaccaro, MR McLaughlin, W Quintero-Betancourt, JB Rose & DE Huffman
- Poster 67: ***A comparison of Envirocheck™ and Filta-Max™ filtration systems for Cryptosporidium oocysts and Giardia cysts detection by USEPA Method 1623***
PMR Machada & DA Cerqueira
- Poster 68: ***Full-scale balance between disinfection and disinfection by-product: achieving bromate standards while assuring Cryptosporidium inactivation***
C Bourny, C Galey, D Gatel, L Herremans & J Cavard

- Poster 69: ***Removal of Cryptosporidium oocysts at a Yorkshire Water treatment works***
JG O'Neill, C Ridsdale & A Hockin
- Poster 70: ***Occurrence of Giardia, Cryptosporidium and enteroviruses in source waters of the Ribeira do Iguape watershed, São Paulo, Brazil***
MIZ Sato, JVD Souza, A Cabral, JA Padula, SC Garcia, VMS Bonanno & MAF Pires
- Poster 71: ***Microbial risk assessment: small water systems in Taiwan***
B-M Hsu, Y-L Huang, N-M Wu, W-H Hsu & H-D Jang
- Poster 72: ***Associations between Giardia duodenalis genotypes and potential risks***
H Yip, H Wickins, J McLaughlin, G Nichols, C Amar, C Lane & B Said
- Poster 73: ***Improved risk assessment of piped systems using Geographical Information Systems (GIS)***
S Godfrey & G Howard
- Poster 74: ***HIV/AIDS and groundwater: a grave concern for South Africa?***
LM Webber & MB Taylor
- Poster 75: ***Survival and re-growth of enterococci in coastal environments***
HD Taylor & O Gvozdyak
- Poster 76: ***Incident management protocol for cyanobacteria and their associated toxins***
L van Baalen, HH du Preez & A Maritz
- Poster 77: ***Characterisation of microbial water quality in recreational waters from Puerto Rico and St. Thomas, US Virgin Island***
EE Sánchez, GA Toranzos, M Suárez, R Harrigan & H Smith
- Poster 78: ***Importance of phytoplankton populations of Loch Vaal for recreation***
AJH Pieterse & L van Baalen
- Poster 79: ***Evaluation of microbiological quality of Greek coastal waters***
A Vantarakis, A Tsibouxi, A Thanassiadou & M Papapetropoulou
- Poster 80: ***A model for risk assessment for small-scale bathing ponds***
F Mascher, FP Pichler-Semmelrock, H Friedl, F Reinthaler, M Köck, O Feenstra & E Marth
- Poster 81: ***Preliminary results from a survey of spa pool water quality in London***
S Surman, JV Lee, S Lai, L Gordon & S Platt
- Poster 82: ***Sensitive detection of pathogens in environmental water samples using magnetic capture hybridisation combined with PCR or real-time PCR***
DE Thompson, VB Rajal & S Wuertz
- Poster 83: ***The use of F-RNA coliphage serotyping to determine the origin of faecal contamination in drinking water stored in rural household containers***
N Potgieter, CL Obi, FMG Mushau, PO Bessong, EO Igumbor

& WOK Grabow

- Poster 84: ***Biolog identification of Escherichia coli O157:H7 and other sorbitol-negative bacteria isolated from river water and sewage samples***
MM Ehlers, WOK Grabow & EE Müller
- Poster 85: ***Combining direct viable count (DVC) and fluorescent in situ hybridisation (FISH) to enumerate viable E. coli in rivers and wastewaters***
TG Armisen & P Servais
- Poster 86: ***Comparison of agar based methods for the isolation and enumeration of heterotrophic bacteria with the new multidose Idexx™ SimPlate method***
M Vulindlu, A Charlett, S Surman & JV Lee
- Poster 87: ***Real-time monitoring of pathogenic microorganisms in the aquatic environment - new developments in cytometry and fluorescent probes***
P Lebaron, J Baudart & P Catala
- Poster 88: ***Development of procedures for rapid detection of E. coli O157:H7 from source and finished water samples***
Z Bukhari, J Weihe & M LeChevallier
- Poster 89: ***Validating the verification procedure of total coliform bacteria and E. coli***
LY Liew, CME de Wet & AG de Wet
- Poster 90: ***Demonstration of a rapid microbial monitor for water quality monitoring***
AM Prescott, J Massanet-Nicolau & D Holt
- Poster 91: ***16S rDNA based identification of heterotrophic bacteria isolated from domestic water supply systems in Lebanon***
S Tokajian & F Hashwa
- Poster 92: ***Comparison of the use of natamycin in place of cycloheximide in the selective isolation medium for the isolation of Legionella species from environmental samples***
JV Lee, SB Surman & A Bouwer
- Poster 93: ***Evaluation of a rapid polymerase chain reaction based detection technique for Vibrio cholerae isolates***
WJ le Roux, D Masoabi, CME de Wet & SN Venter
- Poster 94: ***Development of a sensitive PCR method for the detection of Toxoplasma gondii in water***
C Kourenti & P Karanis
- Poster 95: ***Construction and evaluation of GFP-tagged Salmonella isolates for use in survival and dissemination studies***
LM Burke, VS Brözel & S Venter
- Poster 96: ***Pilot field comparison of impact of traditional alum flocculation, chlorination, and combined flocculation-chlorination point-of-use water treatment on drinking water quality in Western Kenya***
JA Crump, GO Okoth, L Slutsker, BH Keswick & SP Luby

- Poster 97: ***Safe household water treatment and storage using ceramic drip filters: a randomised controlled trial in Bolivia***
T Clasen, J Brown, O Suntura & S Collin
- Poster 98: ***Inactivation of enteric microbes in home water by electrochemical oxidant from brine (NaCl) and free chlorine***
LV Venczel, CE Robinson & MD Sobsey
- Poster 99: ***Evaluation of the purification capacity of nine portable, small scale water purification devices***
A Hörman, R Rimhanen-Finne, L Maunula, C-H von Bonsdorff, J Rapala, K Lahti & M-L Hänninen
- Poster 100: ***Combined flocculation/disinfection treatment for microbial and chemical contaminant removal on a point-of-use basis in developing countries***
BH Keswick, PF Souter, GD Cruickshank, MZ Tankerville, B Ellis, D Langworthy, K Metz, J Perry, MR Appleby, N Hamilton & AL Jones
- Poster 101: ***Providing safe water using a market-based approach to reduce paediatric diarrhoeal illness in areas of microbiologically contaminated water***
GS Allgood & BH Keswick
- Poster 102: ***Improvement of microbiological quality in low-income households in New Delhi, India, through social marketing and behaviour change communications***
K Jafa
- Poster 103: ***Point-of-use water treatment units: new procedure for assessment of the elimination of microorganisms***
PJ Williams, EE Müller, DN Pavlov & WOK Grabow
- Poster 104: ***Monitoring microbial load removal for safe reuse of effluents in Cyprus***
C Kourtis, M Hadjirossos, K Antoniou, N Pissarides & G T Papageorgiou
- Poster 105: ***Quantitative real-time PCR for the determination of adenoviruses in sewage and recreational waters***
P Wyn-Jones & M Laverick

OPEN MEETING OF THE HRWM GROUP Tuesday 16 September 2003 at 1720

Draft Agenda

1. Apologies
2. Minutes of the Melbourne Open Meeting
3. Matters arising not on the agenda
 - Journal of Water and Health (Joan Jofre)
4. Group Constitution
5. IWA Strategic Council (Willie Grabow)
6. Results of election of new Group Chair
7. Marrakech 2004 (Joan Rose)
8. Swansea 2005 (Ray Morris)
9. 2007 venue

10. Any other business
11. Next Group Open Meeting

[Please note that this is an interim agenda - a final agenda will be displayed at the Open Meeting following the deliberations of the Group Steering Committee]

MINUTES OF THE MELBOURNE OPEN MEETING April 9 2002

Present:

Steering Committee members (Nicholas Ashbolt, Willie Grabow, Konrad Botzenhart, Bella Ho, Mark Sobsey, Joan Jofre, Gertjan Medema, Tatsuo Omura, Gary Toranzos) and approx. 50 Group members.

Agenda

- Steering Committee
- Group opinion statements
- Journal
- Future meetings
- Other business
- Website

Steering Committee

- Ray Morris has been re-elected as secretary. Joan Jofre proposes to appoint Gertjan Medema as assistant secretary to share the workload. The Steering Committee has agreed and also the group agrees.
- It was also suggested to appoint a chairman-elect. The group also agrees.
- As recognition of all the effort that Willie Grabow has put into our Group for many years, Joan Jofre suggests that he is elected as Honorary President of the Group. The Group agrees with an ovation.

The Group started in 1978 as Water Virology symposium. That means the Group has its 25 anniversary in 2003. It was suggested to organise a Virology session at the Cape-Town symposium in 2003 with some form of celebration. This will be discussed between Steering Committee and Symposium organisers. Group members are requested to nominate topics/papers to microbe@ntlworld.com

To bring new blood and enthusiasm to the Group's activities, the idea is to invite people to nominate topics that they would like to be involved in. The idea is to expand the Steering Committee with people that want to put some time into activities that support the Group. New energy is needed, as there is now increased awareness on water quality issues. It was agreed to put this forward to the Group and to solicit ideas from the Group on the type of activities. Group members that would like to be involved and/or have ideas about activities are asked to contact one of the Steering Group members.

There are also opportunities for additional funding. One of the areas is Water Utilities that are interested in health-related water microbiology. To increase the sustainability this could be organised as a fund. The Steering Committee solicits somebody that organises this fund. This was discussed also in the last Group meeting in Paris. Colin Fricker was asked to do organise this, but he found no time/possibility to do so. Hence, a new Group member is sought for this task.

Group opinion statements in Water 21

The Steering Committee suggested to make Group opinion statements, according to the ASM example: they have a scientific and public affairs board. This will promote visibility of the Group in other areas and allow the Groups microbiologists to share their microbiological view on important topics. A small group should be selected that is responsible for selecting topics to be published and solicit the scientists to write this or will be interviewed by Water 21. The document should be approved by the Steering Committee and presented to Group members. A

system was discussed to ensure that the publication can be regarded as Group opinion. It was decided that this would be done by e-mail consultation of the Group members with acceptance as Group opinion when <25% of the respondents disapprove.

Potential topics: Climate change, Microbial source tracking etc. The Group members are asked to bring in ideas (microbe@ntlworld.com).

Journal

The Steering Committee has been discussing on a journal dedicated to health-related water microbiology. The general consensus was that this was a welcome addition to the available scientific journals. Michael Dunn (IWA publishing) is enthusiastic about publishing a journal on water & health.

The question was raised if there are no journals at present that could serve the function of "Group platform". If this is restricted to IWA journals it is felt that there are no journals that could serve this purpose. One important aspect to consider for a new journal is that the impact factor should be high enough to attract high quality papers. Maybe Water Research could be an option as this has a high impact factor, but IWA has less control over this journal. People will be solicited for the editorial board. Charles Gerba (Univ. of Arizona) was proposed as editor-in-chief. 3 other regional editors will be sought by the Steering Committee. Members for the editorial board (approx. 30 people) will be solicited through IWA-publishing. Editors should not only review papers but should also try to solicit papers and critical review articles on selected topics.

The Group supported the idea of a "Group-journal" and stressed the need for a high impact factor to make the journal attractive. The Group also suggested it could be the forum for the publication of the Group's symposia.

During the Melbourne symposium a meeting is arranged with Michael Dunn by Joan Jofre, Nick Ashbolt, Mark Sobsey and Gertjan Medema. Also WHO is very supportive of this journal, so Jamie Bartram will be asked to participate in the meeting with Michael Dunn.

Future Group meetings

IWA Strategic Council

IWA is now more than ever aware of the relevance of the Specialist Groups. They have decided on several actions to support Specialist Groups. One of the actions is to support the organisation of Group symposia and help in the organisation. Discussed was also to give the Specialist Groups the incentive to do this, in the sense that if you make money with symposia this will be earmarked as Specialist Group money to be used for future symposia of the Group. Another idea is to apply this money to support position papers of the Group. Hence, we are well positioned in organising our own Group meetings.

Keith Robertson is the IWA contact for Group matters.

Future meetings

The Steering Committee proposes that the next 2 biennial meetings will be Group meetings, rather than symposia in conjunction with the IWA World Water Congress. The Steering Committee feels that the organisation of separate symposia with relatively low fees is preferable over combined symposia with high fees. This was agreed by the Group.

Three proposals were presented to the Group:

- 2003: Cape Town, South Africa by Willie Grabow. This meeting is combined with an international symposium on microbial ecology (ISME). It is a little over 1 year after the Melbourne meeting, but the combination with the other symposia makes it possible to offer low fees in a very new venue and offers some exchange possibilities with the other symposia in a country with a high number of active group members. The Group accepted this proposal with content.

The Group also accepted the biennial scheme of 2003 and 2005; so we have biennial meetings in the years in between the IWA biennial meeting years.

- 2005: Tokyo, Japan by Tatsuo Omura. This venue at the university also offered low prices and good accommodation in an area where the Group has not organised symposia before.

- 2005: Swansea, UK. Due to the absence of the organisers only the slides were presented to the Group. Again, this University venue offers low prices and a good venue.

There was discussion on the voting for the 2005 venue. It was decided that, since the announcement of this Group meeting indicated only voting for the next venue (South Africa), the Group members that were not present should be given the opportunity to vote. The voting is to be arranged through the Group's website and members will be notified through the Newsletter.

Other business

The IWA AWWA meeting on waterborne pathogens (in Portugal in September 2002) has very similar content as the Group meetings. As they follow a triennial scheme, we will make contact with the organisers to discuss the place of the different meetings on health-related water microbiology.

Encouragement of student participation in the Group's meetings and other activities will be done by special fees for the Group's meetings.

Group's website

Gertjan Medema presented the Group's own website with information on the Group's activities (past and future symposia, publications, newsletter) and some useful microbiology links and a discussion forum. The url for this website is:

<http://www.iwa-microbiology.org>

Next Group meeting

This will be organised at the Cape Town symposium in 2003.

[Minutes prepared by Gertjan Medema]

**Next issue deadline
30th September 2003**

Please send contributions to Ray Morris at microbe@ntlworld.com