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IFH Newsheet ([www.ifh-homehygiene.org](http://www.ifh-homehygiene.org))

## INDEX OF CONTENTS

*Note that by clicking on each topic listed here, you will be taken directly to the section of interest*

1. [News](#)
2. [Conferences & Meetings](#)
3. [Opinion](#)
4. [Highlights of Recent Publications](#)
5. [Library of Recent Publications](#)

## 1. NEWS

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### IFH in 2010

2010 has been another successful year for IFH. In 2010 IFH produced a **consensus report entitled “Preventing the spread of infectious Diseases in the European Union – targeted hygiene as a framework for sustainable hygiene”**. The report was released in April. Using this report IFH has taken advantage of a number of opportunities, firstly to lobby for more investment in public hygiene, and secondly to put forward the IFH targeted hygiene approach as a potential solution to the increasing concerns about environment, allergy, resistance etc. **In April 2010 IFH was invited to present at a workshop in the European Parliament**. The workshop on “biocides” was organised by the European Parliamentary Committee on Environment, Public Health and Food Safety (ENVI) to brief members on the issues associated with biocide use. IFH has also been using the report to lobby government health and regulatory agencies in Europe and the U.S. about the importance of hygiene and the adoption of targeted hygiene as a sustainable approach.

One of the things which IFH has focussed on in 2010 has been **making our materials as widely available as possible through the internet**. Our materials fulfil an unmet need and this is clearly demonstrated by the fact that, in 2010, the website attracted **some 34,000 visitors and 100,000 page views**. The most downloaded document was the IFH 2009 review of the global burden of infectious disease which attracted 719 views. We have also been working to publicise the IFH website worldwide to other agencies who support promotion of hygiene in home and community settings. As the extent to which healthcare is delivered at home increases, the demand for materials which give guidance on infection prevention at home increases. We estimate that currently around 30 sites offering healthcare advice to health workers and consumers feature hyperlinks to the IFH website and IFH materials. IFH has inserted an entry on “hygiene in home and everyday life settings” into the Wikipedia entry on hygiene. Wiki stats indicate that up to 1,700 people per day enter the term “hygiene” into Wikipedia.

As part of this year’s work we have been **updating our 2002 IFH paper which reviews the evidence base for the IFH targeted approach to hygiene**. The document is now under review and will be completed and published in 2011. The review reflects the very large amount of published data which has become available since 2002, including some intervention and case:control studies which add another dimension to our understanding of the important role of hygiene in prevention of infectious disease.

## Evaluation of e-Bug in the Czech Republic, France and England



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\* e-Bug

e-Bug is the European DGSANCO-sponsored project that has been developed to disseminate a school education resource across Europe about prudent antibiotic use and hygiene. It comprises a booklet of lesson plans on microbes, hygiene, antibiotics and vaccines, and a website hosting complementary games, presentations and graphics. The project is led by the HPA Primary Care Unit in Gloucester and involves a consortium of 10 countries (Belgium, Czech Republic, Denmark, France, England, Greece, Italy, Poland, Portugal and Spain) and eight collaborating partner countries (Croatia, Finland, Hungary, Ireland, Latvia, Lithuania, Slovakia and Slovenia) accounting for 62% (334 million) of the European population. The project team have now carried out a study to evaluate the effectiveness of the e-Bug pack in improving children's knowledge, when used within the National Curriculum in England, France and the Czech Republic. For the study, junior (9–11 years) and senior (12–15 years) school classes were divided into either control or intervention groups. Students completed identical knowledge questionnaires at three timepoints (before, immediately after and 6 weeks after teaching), to assess knowledge change and retention. The junior e-Bug teaching pack demonstrated a significant improvement in students' knowledge in all sections and there was no significant decrease in student knowledge observed after a 6 week period. Knowledge improvement with the senior e-Bug pack varied between regions, although consistent improvement was observed for Gloucestershire (England) and Ostrava (Czech Republic). The authors concluded "Although a success, modifications are required to further improve student knowledge and make the packs more appealing". The report is published in *Journal of Antimicrobial Chemotherapy* 2010;65:2674–2684.

### How's your hygiene? - a new interactive assessment tool

A new interactive tool to assess your standards of hygiene has been launched on the UK NHS choices site at <http://www.nhs.uk/Tools/Pages/Healthyhome.aspx>. The tool enables consumers to find out what they know about hygiene and improve their knowledge and understanding about "germ hotspots" in the home and in everyday life ranging from food hygiene to hand hygiene to respiratory hygiene. The UK NHS website "NHS choices: your health, your choices" aims to provide UK consumers with a comprehensive source of information about diseases and about healthy living choices. To see more about infectious disease prevention and home hygiene go to:

<http://www.nhs.uk/Livewell/Homehygiene/Pages/Homehygienehub.aspx>

### Growing hygiene efforts in Denmark

Since 2008 the Danish Council for Better Hygiene has been working for higher visibility in the hygiene field - with increasing success. In 2011 this will include - among many other activities - public-centered activities in app. 25% of Danish municipalities with events in daycare centers, nursing homes, hospitals, public squares and civic centers. Week 38 - falling roughly at the start of the sadly aptly-called flu-season - has been targeted as an annual campaign week, The Hygiene Week. Companies, institutions, municipalities coordinate a joint effort to inform, inspire and influence the public and key decision makers to increase their focus on hygiene in general - and hand hygiene especially - as it simply makes for clean common sense. Other activities include a Facebook-centered campaign, the annual Hygiene Award, and both print and downloadable material with information on better school toilet facilities. It also includes free downloadable campaign material for employers to work towards lower sickness among employees, and handwashing events in Copenhagen and Aarhus. For more see [www.bedrehygiejne.dk](http://www.bedrehygiejne.dk) - or contact Project Manager Lars Mønter at +45 6126 2621.

## **Handwashing on the rise in the US – a new survey shows we are getting better**

A new observational study sponsored by the American Society for Microbiology and the American Cleaning Institute has shown that 85% of adults in the United States washed their hands in public restrooms, compared with 77% in 2007. The 85% total was actually the highest observed since these studies began in 1996. The results were announced at the annual ASM Conference on Antimicrobial Agents and Chemotherapy. In a separate telephone survey, 96% of adults say they always wash their hands in public restrooms, a percentage that has remained relatively constant over the years. In August 2010, 6,028 adults in public restrooms were discreetly observed to note whether or not people washed their hands. Researchers returned to six locations in four cities where two previous studies were conducted: Atlanta (Turner Field), Chicago (Museum of Science and Industry, Shedd Aquarium), New York City (Grand Central Station, Penn Station), and San Francisco (Ferry Terminal Farmers Market).

## **News from the Global Public Private Partnership (PPP) Handwashing**

Over 50 professionals from the water, sanitation, and hygiene sectors shared knowledge and best practices at the University of Handwashing in Nairobi, Kenya, from July 12 -14. As a leading global forum on handwashing and hygiene promotion the University brought together experts and practitioners from public organizations, governments, NGOs, private companies, and academic centers. Participants came from 23 different countries, representing 18 international and national organisations. More information on the meeting and activities of the global PPP Handwashing can be found in the October 2010 newsletter at:

[http://www.globalhandwashing.org/sites/default/files/SoapBox\\_newsletter\\_October\\_2010\\_web\\_ready.pdf](http://www.globalhandwashing.org/sites/default/files/SoapBox_newsletter_October_2010_web_ready.pdf)

## **Clean the World - recycle soap and saves lives**

Every day, thousands of hotels discard millions of pounds of soap and shampoo. These products often end up in already overflowing landfills and contaminate fragile groundwater systems. Clean the World is a NGO which is working to distribute recycled soap products obtained from these sources, along with appropriate educational materials, to impoverished countries worldwide, and to domestic homeless shelters. For more information go to: <http://www.cleantheworld.org/default.asp>

## **Integrating water, sanitation and hygiene into HIV programmes**

WHO has prepared a comprehensive guide to integrating WASH practices into HIV care, written in response to requests from Member States for clear instructions on how to develop care programmes at the national level. It contains guidance on implementing priority WASH practices, including WASH in global and national HIV/AIDS policies and guidance, and integrating WASH and HIV programmes. More information can be found at: [http://www.who.int/water\\_sanitation\\_health/publications/9789241548014/en/index.html](http://www.who.int/water_sanitation_health/publications/9789241548014/en/index.html)

## **Foodborne illness in the United States costs \$152 billion annually**

A study published in November 2010, by a former U.S. FDA economist estimates the total economic impact of foodborne illness across the nation to be a combined \$152 billion annually. This is based however on the 1999 estimates that approximately 76 million new cases of food-related illness (with 5,000 deaths and 325,000 hospitalizations) occur in the United States each year. The report uses an FDA cost-estimate approach: health-related

costs are the sum of medical costs (physician services, pharmaceuticals, and hospital costs) and losses to quality of life (lost life expectancy, pain and suffering, and functional disability). The report also estimates the cost of illnesses associated specifically with produce, which is linked to the largest number of outbreaks involving FDA-regulated foods. For example, E. coli O157:H7 cases in produce accounted for 39 percent of outbreaks and 54 percent of illnesses. Using CDC data, the report estimates that foodborne illness costs related to produce alone are almost \$39 billion per year in the U.S. To obtain a copy of the report, visit [www.MakeOurFoodSafe.org](http://www.MakeOurFoodSafe.org).

### **Waterborne Diseases could Cost over \$500 Million Annually in U.S.**

Hospitalizations for 3 common waterborne diseases cost the U.S. health care system as much as \$539 million annually, according to research from the Center for Disease Control and Prevention presented at the International Conference on Emerging Infectious Diseases. Currently, there are no well-documented data on the total health care costs associated with all waterborne diseases, but by using data from a large insurance claims database between 2004 and 2007, CDC estimated hospitalization cost of Legionnaires' disease, cryptosporidiosis and giardiasis. Total estimated costs for hospitalization for the 3 diseases was \$154-539 million, including \$44-147 million in direct government payments for Medicare and Medicaid. Estimated annual costs for the individual diseases were: giardiasis, \$16-63 million; cryptosporidiosis, \$37-145 million; and Legionnaires' disease, \$101-321 million. Inpatient hospitalization costs per case averaged more than \$34,000 for Legionnaires' disease, approximately \$9,000 for giardiasis and more than \$21,000 for cryptosporidiosis. <http://www.cdc.gov/media/pressrel/2010/r100714.htm>

## **2. CONFERENCES & MEETINGS**

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### **Symposium on home hygiene in Rome, Italy**

An international symposium on Home Hygiene was organised by the Italian Society of Hygiene last January 26th in Rome. In the first part of the symposium, Professor Exner from the University of Bonn presented an evaluation of the global burden of infectious disease, and the factors which govern changing trends. Other presentations examined specific disease risks such as Legionella which is of real concern in Italy in relation to the home. The second part of the symposium started with a presentation by Professor Sally Bloomfield from the London School of Hygiene and Tropical Medicine, on targeted hygiene as a sustainable approach to disease prevention. She also discussed how the work of IFH and the e-Bug project is being developed in Italy to support hygiene promotion. Other papers examined specific issues such as hand hygiene. Dr Ira Pasquerella concluded "Infectious diseases in the home and community are still a significant concern in the European Union and pose a heavy burden on public health, healthcare systems and the economy. The irrational and excessive use of antibiotics, the emergence of bacterial resistance, the growth of "at risk" groups, and the often improper behaviour of the population represent the main risk factors for the spreading of these diseases, which could be significantly reduced if better standards of hygiene were adopted. For example, improvements in hand hygiene can result in a 31% reduction of gastrointestinal illnesses and 21% reduction of respiratory illnesses. Nevertheless, according to a recent Italian survey, handwashing behaviour is very variable and in some contexts is still poor. A better strategy needs to be identified and applied to increase the public's awareness on proper hygiene practices and develop a targeted approach to home hygiene".

## **PLoS series on hygiene, sanitation and drinking-water**

An event at the London School of Hygiene and Tropical Medicine on 16 November marked the release of a publication by PLoS Medicine comprising 4 reviews on water, sanitation and hygiene. The first review by Jamie Bartram and Sandy Cairncross outlines the current situation regarding infectious disease and the role of water, sanitation and hygiene. Reviews 2 and 3 examine water supply and sanitation issues, whilst the final review considers what needs to be done. The papers can be downloaded from:

<http://www.ploscollections.org/article/browseIssue.action?issue=info:doi/10.1371/issue.pcol.v07.i11>

## **Meeting of the Household Water Treatment Network**

At the Water & Health 2010 conference in Chapel Hill, USA in October, a general meeting of the HWTS Network was held to present the Network strategy for the six-year period 2011-2016 and discuss key topics of concern to the HWTS community. A summary report of meeting activities is available from [http://www.who.int/household\\_water/resources/en/](http://www.who.int/household_water/resources/en/) under the heading "Meeting reports".

## **3. OPINION**

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### **Does microbial resistance or adaptation to biocides create a hazard in infection prevention and control?**

In a new paper in the Journal of Hospital Infection, Meyer and Cookson review the data on cross-resistance between biocides used as disinfectants etc, and other biocidal or antimicrobial agents. From their review of the data they conclude that much of the literature lacks clear distinctions between adaptation following exposure to biocides, which reverses upon removal of the biocide, as opposed to resistance, and that this lack of clear definitions complicates the evaluation of the relevance of these phenomena in practice. In this review they propose definitions of adaptative processes and biocide resistance namely:

- Resistance is the ability of a microbial strain or species to demonstrate significantly lower microbial reduction than standard test organisms in a treatment that is regarded as microbicidal against the corresponding microbial group according to generally accepted, standardised, quantitative kill tests, e.g. tests defined by EN 14885
- 'low level resistance' based on MIC determination should explicitly be referred to as 'increased MIC'.

From a survey of the literature according to these definitions, they conclude that the current risks to healthcare delivery caused by resistance related to biocides are low, provided that biocides are used under appropriate conditions and that reports on resistance should not discourage the appropriate and correct use of disinfectants and antiseptics. The review can be found in the Journal of Hospital Infection 2010;76:200-205.

### **Control of Transmission of Infection in Hospitals Requires More than Clean Hands**

In an article in ICHE, Stephanie Dancer, once again, questions the priority afforded to hand hygiene and its enforcement in healthcare settings and asks whether we should reconsider additional infection control strategies rather than threaten staff over hand hygiene practices. She says "The focus on hand hygiene appears timely, given the problems that we have with transmission of infection in our hospitals. Unfortunately, people do not always clean their hands when they should, and even if they do, there are other factors that contribute to the acquisition of infection". Nonadherence to hand hygiene is now being targeted by the introduction of more rigorous assessment in healthcare environments. The article can be found in Infection Control and Hospital Epidemiology 2010;31:958-960

## 4. HIGHLIGHTS OF RECENT PUBLICATIONS

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### **The role of classroom hygiene in the spread of infectious diseases**

Bright, Boone and Gerba *et al.* report a 6 week intervention study of the impact of hygiene in 6 (3 intervention, 3 control, 148 students) classrooms in a school in Seattle, USA. For the intervention group, test surfaces were cleaned with a disinfectant wipe each morning before the arrival of students. Surfaces were sampled in the afternoon on 4 study days, and mean heterotrophic bacterial counts determined. Teachers collected information on the incidence of gastrointestinal and respiratory tract illnesses (self-reported coughing, sneezing, fever, headache, sinus problems, sore throat, vomiting, abdominal pain, diarrhoea) leading to absenteeism. Although there was a reduction in the bacterial counts in intervention classrooms, the results were not statistically significant. Water fountain toggles, pencil sharpeners, computer keyboards, and faucet handles were the most bacterially contaminated. Influenza A virus and norovirus was also detected on 24% (13 of 54) and 16.4% (9 of 55) of control classroom surfaces, respectively. During 2 weeks prior to viral sampling, from 3 to 6 children had been absent from control classrooms due to illness. Despite no significant reduction in bacterial counts on surfaces, children in control classrooms were 2.32 times more likely to become ill than children in intervention classrooms ( $p=.026$ , 95% CI 1.03–5.28). In control classrooms, 26 of 74 children (35.1%) became ill (GI or RT symptoms) with a total of 57 days absent, whilst 14 of 74 children (18.9%) became ill in the intervention classrooms with 22 days absence. The report can be found in the *Journal of School Nursing* 2010;26:33-41.

### **The Prevalence of Human Parainfluenza Virus 1 on indoor Office surfaces**

In another study, this time in adult office settings, Boone and Gerba evaluated the potential role of surfaces in human parainfluenza virus 1 transmission. A total of 328 surfaces from 12 office buildings in 5 US cities were evaluated including 76 telephone receivers, 62 computer mice, 51 office and cubical desktops, 26 conference room table tops, 50 chair arms, 42 door knobs or door handles, 21 light switches. HPIV1 was detected on 37% of all office surfaces. It was detected more often on the desktops (47%), the computer mouse (46%), and the phone (45%). Viruses were isolated least often on door handles (26%) and light switch (19%). The report can be found in *Food and Environmental Virology*. 2010;2:41-46.

### **Microbial contamination in kitchens and bathrooms of rural Cambodian village households**

In a further paper published in 2010, Sinclair and Gerba present a study which evaluates hygiene in developing country situations. With the 2015 Millennium Development Goal fast approaching, it is apparent that some south-east Asian regions will come close to reaching their sanitation and water targets. Many villages in Kompong Thom province of Cambodia are on track to meet targets for safe drinking water and basic sanitation i.e they have installed protected wells and improved latrines. Sinclair and Gerba set out to establish whether households in a developing country which have an improved latrine may have different concentrations of microbes than households in industrialized countries. To this end they monitored faecal coliforms, total coliforms, *E. coli* and heterotrophic plate count bacteria on surfaces in 8 homes that possess improved latrines (i.e a pour-flush latrine) in a rural village of Cambodia, and compared the results with similar data from homes in the US and Japan. Surfaces included the dipping ladle for sink water, the table or counter for food preparation, the floor surface near the kitchen sink, the cutting board, the handle of the ladle for anal cleansing, the top of the toilet (squat style) and the floor surface around the base of

the toilet. Faecal coliform levels in Cambodia were highest on moist locations such as the plastic ladle used for sink water, the toilet seat surface and the cutting board surface. Levels of faecal coliform bacteria were also 100-fold higher than the U.S. and Japanese studies. They found that the top of the squat-style toilet was highly contaminated with faecal coliforms. These ceramic pour-flush bowls are manufactured with two positions on either side of the toilet bowl for the user's feet. Although made from the same smooth ceramic material as the bowl, the tread positions have grooves where water can pool allowing the area to be moister than the surrounding floor. On the basis of the evidence, which suggests that surfaces can have a significant role in transmission of infections, the authors conclude that their results indicate that a latrine barrier alone is only partially effective for household sanitation. When compared to homes in Cambodia, homes in industrialized countries (U.S. and Japan) have additional environmental barriers that may control surface contamination including the chlorinated water distribution system, a solid waste disposal system, a more elaborate home construction with easily washable surfaces and cleaning product availability. Homes in these countries also have indoor climate control systems and lower relative humidity than tropical Cambodia. The authors suggest that efforts should be made to include as many pathogen control points as possible in hygiene and sanitation improvement programmes. The paper can be found in *Letters in Applied Microbiology* 2010;52:144-9.

### ***Clostridium difficile* infection in Hospitalized Children in the United States is increasing**

To evaluate the trends of *C difficile* infection in children in Bethesda USA, Nylund *et al.* analyzed records of hospitalized children in a national database covering 1997, 2000, 2003 and 2006. The database included about 10.5 million patients, of whom 21,274 (0.2 percent) had *C difficile* infection. They found that the number of cases increased about 15 percent each year, from 3,565 in 1997 to 7,779 in 2006. The authors concluded that increased risk of *C difficile* infection may be due to a widespread dissemination of a more virulent strain of the bacteria, although increasing awareness among health care providers, leading to increased testing in symptomatic patients may be occurring. The report can be found in *Archives of Pediatrics & Adolescent Medicine*. Published online January 3, 2011. doi:10.1001/archpediatrics.2010.282.

### **Four million deaths each year caused by acute respiratory infections – new atlas of respiratory infections published**

Acute respiratory infections (ARIs), a disease group that includes pneumonia, influenza, and respiratory syncytial virus (RSV), are responsible for 4.25 million deaths each year, according to the first-ever *Acute Respiratory Infections Atlas* published by the World Lung Foundation. ARIs are the third largest cause of mortality in the world and the top killer in low- and middle-income countries. Compared to the illness and mortality they cause, ARIs receive a fraction of government, donor agency, and philanthropic support. Peter Baldini, Chief Executive Officer, World Lung Foundation said "We know that at least 4 million people die from ARIs, yet the global health community does not even recognize them as a distinct disease group. The goal of the *Acute Respiratory Infections Atlas* is to demonstrate the scale of this problem and to kick-start a serious conversation about addressing it. With relatively modest resources, the means are available to save millions of lives. We simply need commitment, sound policy, and strategic investment." Collectively, ARIs cause at least 6% of the world's disability and death, according to the *Atlas*. These deaths occur overwhelmingly in the world's poorest countries, where the drivers of ARIs, including malnutrition, pollution, overcrowding and tobacco use are most prevalent. In countries such as Mali, Afghanistan, Sierra Leone and Niger the death rate from ARIs alone is ten times higher than the global median death rate from *all* causes. For more details, go to:

<http://www.worldlungfoundation.org/ht/display/ReleaseDetails/i/12503/pid/6858>

## **The hygiene hypothesis: could reduced microbial exposure be a cause of depression?**

Inflammation is increasingly recognized as contributing to the pathogenesis of depression. Most studies in search of sources for this increased inflammation have focused on factors such as psychosocial stress and obesity that are known to activate inflammatory processes and increase the risk for depression. Raison *et al.* are proposing that depression may be more prevalent in the modern world not just because proinflammatory factors are widespread, but also because we have lost contact with previously available sources of anti-inflammatory, immunoregulatory signalling. These workers set out to examine evidence that disruptions in coevolved relationships with a variety of microbes that were previously ubiquitous in soil, food, and the gut, but that are largely missing from industrialized societies, may contribute to increasing rates of depression in the modern world. They propose that loss of exposure to these so-called “old friends” may promote depression increasing background levels of depressogenic cytokines and may predispose vulnerable individuals in industrialized societies to mount inappropriately aggressive inflammatory responses to psychosocial stressors, leading to increased rates of depression.

The report can be found in Archives of General Psychiatry. 2010;67(12):1211-1224. doi:10.1001/archgenpsychiatry.2010.161

## **Study shows how flu infections may prevent asthma**

Umetsu *et al.* report that the influenza virus infection in young mice protected the mice as adults against the development of allergic asthma. In mice, influenza A infection appeared to confer its benefits by expanding an immature cell type known as natural killer T (NKT) cells, part of the innate immune system. The active infectious agents protected against asthma only if the mice were exposed when very young (2 weeks). By contrast it was found that flu infection in adult mice exacerbated the allergic reaction. Previous studies examining the hygiene hypothesis have focused on the adaptive immune system, which features immune cells that are slow to respond but are able to develop long-term memory. In contrast, this paper examines the innate immune system, which responds rapidly to infections and shapes adaptive immune responses. This study specifically focuses on NKT cells, one of the first responders to many infections. Previous work by Umetsu implicated NKT cells as a cause of asthma. In contrast, the latest study reports on a new subset of inhibitory NKT cells that seem to prevent allergic reactions in the airways - if stimulated at the right time by the right infectious agents or the right glycolipid. The authors conclude “These findings suggest what we believe to be a novel pathway that can regulate AHR, and a new therapeutic strategy (treatment with glycolipid activators of this NKT cell population) for asthma” The report can be found in The Journal of Clinical Investigation 2011;121(1):57

## **Viral respiratory infections can exacerbate asthma**

For patients at risk of asthma, or with existing asthma, viral respiratory tract infections can have a profound effect on the expression of disease or loss of control. Busse and Lemanski present new evidence that wheezing episodes early in life due to human rhinoviruses are a major risk factor for the later diagnosis of asthma at age 6 years. For those with existing asthma, exacerbations are a major cause of morbidity, can need acute care, and can, albeit rarely, result in death. There is also evidence that deficiencies in antiviral activity and the integrity of the airway epithelial barrier could make individuals with asthma more likely to have severe viral respiratory infections of the lower airway, and thus increase the risk of exacerbation. The full article can be found in The Lancet. 2010;28:826-834.

## **Methicillin-resistant *Staphylococcus aureus* (MRSA): burden of disease and control challenges in Europe.**

In a paper in *Eurosurveillance*, Koch *et al.* review the burden of MRSA infections in community as well as healthcare settings across Europe and outline the main threats caused by recent changes in the epidemiology of MRSA. They report that, within the healthcare setting alone, MRSA infections are estimated to affect more than 150,000 patients annually in the EU, resulting in attributable extra in-hospital costs of EUR 380 million for EU healthcare systems. Pan-European surveillance data on bloodstream infections show marked variability among EU Member States in the proportion of *S. aureus* that are methicillin-resistant, ranging from less than 1% to more than 50%. In the past 5 years, MRSA bacteraemia rates have decreased significantly in 10 EU countries with higher endemic rates of MRSA infections. In addition to healthcare-associated infections, new MRSA strains have recently emerged as community and livestock-associated human pathogens in most EU Member States. Prevention and control of MRSA have therefore been identified as public health priorities. The recently decreasing or maintained low-level incidence of HA-MRSA in many European countries is encouraging. In a majority of countries, these successes can be linked to implementation of multi-faceted, preventive interventions (including screening, contact precautions, decolonisation, antibiotic stewardship, or bundles of preventive measures and care). Nevertheless, the burden of HA-MRSA extends beyond acute care hospitals to long-term care facilities (LTCFs), such as nursing homes which means that effective MRSA containment in the healthcare setting must include LTCFs. Otherwise, the significant MRSA reservoir that has developed in LTCFs and the transmission dynamics between LTCFs and acute care hospitals due to the transfer of patients is bound to compromise control. That this problem may be underestimated is suggested by an admittedly limited number of published investigations.

A second challenge concerns community or CA-MRSA which has now emerged across Europe. Although its prevalence is still lower than in the USA, the number of CA-MRSA infections appears to be increasing, especially in European countries where the incidence of HA-MRSA is low and surveillance of MRSA more extensive. The problem of CA-MRSA infections is not limited to the community but also affects nosocomial infections due to the introduction of CA-MRSA in healthcare settings. In addition, only a limited number of European countries have developed national strategies and no common European strategy has yet been developed for the surveillance or prevention of CA-MRSA spread.

The final challenge to tackle is the animal MRSA reservoir. For long-term success in controlling MRSA, coordinated actions between different healthcare sectors (acute, long-term, ambulatory) and veterinary care are warranted and concerted efforts at European level will be of increasing importance. The report can be found in *Eurosurveillance*. 2010;15(41):pii=19688. Available online at:

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19688>

## **Control of MRSA in the home and community is an integral part of controlling nosocomial MRSA**

Orendi *et al.* describe a fatal PVL-MRSA infection in a Filipino healthcare worker (HCW, case 1) in the UK following a caesarean section. The PVL-MRSA belonged to ST30, was protein A gene (*spa*) type t019, SCCmec IVc, *agr* 3, and resistant only to b-lactam antibiotics. Both household members (partner and child) were identified as asymptomatic carriers (cases 2 and 3). On retrospective analysis of blood cultures from 5 patients on the ward where case 1 had worked, one patient with an MRSA strain indistinguishable from the outbreak clone was identified (case 4). Screening of HCWs who worked on the ward with case 1 and where case 4 had been admitted revealed the outbreak clone in another HCW (case 5). Cases 1 and 5 had previously shared living accommodation and had cared for case 4. Case 5 lived in a household with partner and child. Both were identified as carriers

(cases 6 and 7). Case 6 was a HCW who worked on a different ward. Subsequent screening of HCWs on this ward identified a further HCW (case 8) who had a history of recurrent MRSA eye infection. However no patients discharged from the 2 medical wards where cases 1, 5 and 6 had worked were identified with the outbreak clone. Overall, representatives of the same lineage were identified in 16 individuals in community and hospital. Infections likely to be caused by PVL-MRSA had occurred in 12 cases of which 9 cases worked as nursing staff in the hospital. Eight of these had emigrated from the Philippines in the previous 5 years and were linked socially. The authors concluded “the potential for HCWs acquiring PVL-MRSA in the community with onward transmission to their patients or fellow HCWs adds a new challenge to infection control. In addition to encouraging good infection control practice, employers should instruct HCWs to report to OHD if suffering from SSTI or if MRSA has been identified in themselves or their household, since this may represent a risk to their patients and others. The report can be found in *Journal of Hospital Infection*. 2010;75:258-264.

### **The growing UK epidemic of human campylobacteriosis**

In a paper in *The Lancet*, Norval *et al.* review the current situation and future needs with regard to *Campylobacter* infections in the UK. *Campylobacter* spp are the largest cause of bacterial gastroenteritis in the developed world. The 2009 reporting rates for Scotland and England/Wales show more than 64,000 cases, representing year-on-year rises of 30% and 14%, respectively. Because there is substantial under-reporting, the actual number of cases is likely to be closer to 450,000. Further, about 10% of reported cases are hospitalised. The sequelae of this disease not only include severe stomach cramps and diarrhoea but also, in up to two-thirds of cases, musculoskeletal, joint swelling, or sensory problems and numbness are reported; additionally, *Campylobacter* spp contribute to 15% of all cases of Guillain-Barré syndrome. This burden places considerable demands on general practice and hospital services, besides the negative health issues for those infected. The authors conclude that this rise is all the more disappointing in view of some of the success stories reported from other countries. In Iceland, before 1996, all poultry was frozen as a control measure for salmonellae, which coincidentally reduced campylobacter loading with some 10 cases per 100,000 of the population reported annually. In 1996, fresh poultry was allowed to be sold and by 1999 the rate had risen to about 120 cases per 100,000. Subsequently, flocks were tested before slaughter and those that were positive were frozen. This intervention, together with on-farm measures, reduced the incidence of human campylobacteriosis close to that found before 1996. Whereas previously New Zealand had the highest reported incidence of campylobacteriosis in the world, the introduction of interventions and regulations on maximum permissible levels in fresh retail chicken has resulted in a dramatic fall in the number of reported cases from 16,000 in 2006 to less than 7,000 in 2008. This paper can be found in *The Lancet*. August 28 2010;376:665-67.

### **Re-estimating foodborne illness rates in the US**

The Centers for Disease Control and Prevention (CDC) announced in December 2010 that it has updated and improved its 11-year old estimates of the prevalence of foodborne illness in the United States. According to the new statistics, each year 48 million people, or one in six Americans, contract foodborne illnesses; 128,000 Americans are hospitalized and 3,000 die as a result of unsafe foods. CDC's 1999 estimates included 76 million annual foodborne illness cases, 325,000 hospitalizations and 5,000 deaths from foodborne sickness. The agency cautions that the old and new data are *not comparable* and that trends in foodborne illness cannot be gleaned from these data. They say that, what might, at first glance, appear to be a decline in national foodborne disease rates since 1999 is most probably attributed to improvements in the quality and quantity of the data used and new methods used to estimate foodborne-disease. For example, CDC notes that “it is now known that most norovirus is not spread by the foodborne route, which has reduced the estimate of foodborne

norovirus from 9.2 to approximately 5.5 million cases per year.” (It has been found that norovirus is spread by contaminated hands *via* food preparation and contaminated surfaces.). The largest category (80%) of estimated illnesses in both the 1999 and current statistics is “unknown.” This category includes poor investigative data on known foodborne pathogens and a failure to link the agents to the food, agents not yet recognized as causing foodborne illness and agents not yet discovered. The remaining 20% of estimated illnesses are due to 31 identified foodborne pathogens. Within the category of cases connected to known pathogens, approximately 90% of estimated illnesses, hospitalizations and deaths were due to seven pathogens: *Salmonella*, norovirus, *Campylobacter*, *Toxoplasma*, *E.coli* O157, *Listeria* and *Clostridium perfringens*. *Salmonella* was the leading cause of estimated hospitalizations and deaths, responsible for about 28 percent of deaths and 35 percent of hospitalizations due to known pathogens transmitted by food. About 90 percent of estimated illnesses, hospitalizations, and deaths were due to seven pathogens: *Salmonella*, norovirus, *Campylobacter*, *Toxoplasma*, *E.coli* O157, *Listeria* and *Clostridium perfringens*. Nearly 60 percent of estimated illnesses, but a much smaller proportion of severe illness, was caused by norovirus. The full report can be found in Emerging Infectious Diseases. 2011 Jan; [Epub ahead of print] DOI: 10.3201/eid1701.P11101

## 5. LIBRARY OF RECENT PUBLICATIONS

The following sections contain recent externally published articles, reviews, reports etc on the subject areas addressed by the IFH.

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