International Scientific Forum on Home Hygiene (www.ifh-homehygiene.org**)**

Newssheet: December 2015

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1. Latest from IFH

Restoring public confidence in hygiene: IFH/RSPH conference Thurs Feb 11th 2016

Book by 17th Dec to take advantage of "early bird" registration for as little as £79

Evidence now shows that the hygiene hypothesis is a misnomer. Despite this, the ongoing publicity, and the idea that we are "too clean for our own good" continue to undermine public confidence in hygiene. This is happening at a time when issues such as the threat of global pandemics and antibiotic resistance mean that hygiene is becoming more rather than less important.

Experts still agree that microbial exposure is key to regulating our immune system and reducing the risks of allergies and other diseases, but now realise that the exposures we need are not infections, but the largely non-harmful species that populate and share our world. It also seems that the problem has arisen, not as the result of hygiene and cleanliness as the public perceive it, but as the inadvertent consequences of a whole range of what we consider to be beneficial lifestyle, medical, nutritional and public health changes which have occurred in our modern lives.

The key questions that this conference will examine are, "How can we develop an approach to hygiene, which protects us against infectious disease whilst also adopting lifestyles and health policies (such as natural childbirth, breastfeeding, dietary changes, outdoor activity, reduced use of antibiotics) which reconnect us with vital microbials?" Also, "How can we reframe the so-called hygiene hypothesis so that it is no longer seen as an issue related to cleanliness and hygiene?"

For more details and booking form go to: https://www.rsph.org.uk/en/courses-conferences-and-events/index.cfm/are-we-too-clean-reframing-the-hygiene-hypothesis

2. Launch of 'iNternational Resource for Infection Control' (iNRIC)

The UK National Resource on Infection Control has been relaunched as the 'iNternational Resource for Infection Control' (iNRIC). The resource is still found at www.nric.org.uk.

The evidence-based iNRIC portal has been upgraded and expanded to reach an international audience, in particular, infection prevention and control professionals in Africa through a joint collaboration with ICAN. iNRIC brings together the best available on-line, evidence-based resources on infection prevention and control.

The new website went live during International Infection Prevention Week 19–24 October 2015. It is aimed at Infection Prevention and Control professionals, trainees and all healthcare staff who require up-to-date, evidence-based information in infection prevention and control and the infectious disease domain. It remains freely available to all.

3. Other news and new research

Handwashing and community management of infections

In the Oct 24th edition of the *Lancet* (2015;386:1603-4) van Weel looks at managing infection in the home and everyday life, and the importance of community engagement in managing outbreaks. He says, "Influenza has strong potential to transfer, and encounters in everyday life are important in population spread. Wherever people meet there is risk of transmission, suggesting that the community is where protection against further spread needs to be orchestrated. Vaccination, personal hygiene (including handwashing), and measures against crowding are recommended measures".

He reviews the study by Little et al 2015, of an internet-based handwashing promotion in 16,000+ UK households. After 16 weeks, 51% of individuals reported one or more episodes of respiratory-tract infections in the intervention group compared with 59% in the control group. Importantly, this reduction was accompanied by lower demand for professional care (11%) *vs* 10%), and fewer antibiotic prescriptions (617 *vs* 535).

Use of the internet to reach households is innovative, with households as the key focus, and empowerment of people to care for their own health a core objective. The study not only recruited substantial participation, representative of the primary care population, but also retained commitment to self-care over time.

Protection of individuals (particularly those at high risk), prevention of community spread, and early identification of individuals in need of treatment are key to management of outbreaks. Processes managed by communities do not add to the burden of professional healthcare – a particular issue during influenza pandemics. Equally, the small effects on individual risk and decreased demand on primary care services could add up to a substantial benefit. Influenza, of course, is only one of the infectious diseases that affect populations.

Van Weel concludes, “An exciting way forward to support communities in coping better with various infectious diseases might therefore be in promotion of the intervention through a community participation approach”.

Thousands of microbes found in house dust

Researchers from the University of Colorado analysed the dust from 1,200 households across the USA. The average household had more than 2,000 different types of fungi. These included *Aspergillus, Penicillium, Alternaria* and *Fusarium.* Most fungi appeared to be coming from outside the home, probably entering on clothing, or through open doors and windows. Researchers also discovered an average of 7,000 different types of bacteria per household. Some, such as *Staphylococcus* and *Streptococcus,* were commonly associated with human skin. Others, such as *Bacteroides* and *Faecalibacterium,* were linked to faeces. But here, the species varied according to who – or what – was living in the house.

Since some kinds of bacteria are more common on women's bodies than on men's, it was hardly surprising that there were distinctions between homes that included women and homes that were male-only. Pets also had a significant effect on the bacteria found in the homes. The researchers now want to find out how sharing our homes with these organisms could affect human health. While some microbes may be linked to disease and allergies, they say most are probably harmless – and some may even be beneficial.

The study is published in: Proceedings of the Royal Society B, Published 26 August 2015.
DOI: 10.1098/rspb.2015.1139

Risks of legionella infection from household plumbing?

A new review looks at the infection risks associated with organisms such as *Legionella pneumophila*, *Mycobacterium avium* and *Pseudomonas aeruginosa,* which can persist and grow in household plumbing.

Water travels through the public water system to the home, where it is distributed through the pipes, water taps, shower heads, and the hot water heater. Harmless microbes that present no health risks grow freely in household plumbing, but under the right conditions, potentially harmful pathogens such as *Legionella* and *Pseudomonas aeruginosa* can also grow and flourish. These microbes are referred to as “opportunistic pathogens”, which present little or no risk until they multiply in large numbers in places where stagnant water accumulates, such as shower heads and the sediment in hot water heaters. They can then cause infection if they are ingested, or inhaled as droplets from the shower head. Those with compromised immune systems are at higher risk from these opportunistic pathogens.

The review concludes that the frequency of these infections is rising and will likely continue to rise, due to the fact that the number of at-risk individuals is increasing. However, it is possible to take measures (e.g. raise hot water heater temperatures and filter water) to reduce home exposure. Flushing the toilet in the early morning is advisable – one toilet flush can take care of a good deal of that older water sitting around overnight in the plumbing system. Allowing the shower to run for a few minutes before taking a shower will clear any organisms which have grown in the stagnant water of the shower head since the previous use.

The review can be found at Environ Health Perspect 123:749-758; http://dx.doi.org/10.1289/ehp.1408692.

Also find more at: http://www.waterandhealth.org/potentially-harmful-pathogens-home/

Study shows larger families have more infections

A study from the University of Utah reveals that big families have viral infections for 87% of the year. The study is one of the first long-term studies to use modern diagnostics to track common viruses in kids and their families. The year-long research project kept track of influenza, parainfluenza and rhinovirus. The team found that people living in childless houses are infected with viruses just 3–4 weeks per year. Adding a single child to the household increases the figure to 18 weeks – 35% of the year – and a second to 29 weeks. In a family with 6 children, there is a virus in the household for up to 45 weeks per year.

The correlation is clear, but the cause is uncertain. The researchers found that young children may be to blame: those under five had viruses in their nasal mucus for 50% of the year, and when infected were 1.5 times more likely to display symptoms, such as coughing that would spread the infection. The study also shows, however, that only half of people who tested positive for viral infections actually displayed symptoms such as coughing and fever.

The results are published in *Clinical Infectious Diseases* 2015, Aug 4th, DOI: 10.1093/cid/civ486

It's transmission doc, but not as we know it

In an interesting blog posted by Jon Otter in "Reflections on Infection Prevention and Control", he describes a new study that provides new insights into the transmission of bacteria in the Intensive Care Unit setting using Whole Genome Sequencing (WGS). The authors performed WGS on virtually all bacterial isolates from ICUs in a USA hospital for a year. The first surprise was that 12% of the bacteria considered clinically relevant were previously undescribed. The next surprise was that, whilst transmission of the usual suspect pathogens (MRSA, VRE etc.) was rare, 9% of the other bacteria were shared by multiple patients, often with overlapping hospital admissions. This suggests that there is a significant transmission going on undetected in the ICU setting. The blog can be found at: http://reflectionsipc.com/2015/08/13/its-transmission-doc-but-not-as-we-know-it/ - comments

The study can be found at: http://journals.plos.org/plosgenetics/article?id=10.1371/journal.pgen.1005413

MRSA infection remains a back to school risk

USA Today reports that a private Washington school is one of the latest schools to be hit by MRSA infections, which are most commonly thought to affect elderly hospital patients. Two of the high school football team's players had skin infections caused by MRSA, (Methicillin-resistant *Staphylococcus aureus*). The outbreak illustrates just how vulnerable young athletes can be to MRSA, which is both difficult to treat and highly contagious.

The report says, "It's not unusual to see outbreaks of skin infections. Prince William County, VA. public school system reported a confirmed case in January, March and May of this year". "Unfortunately, it has gotten to the point where it has gotten more and more common,"

says Kevin Kavanagh, a physician and superbug expert who runs a Kentucky-based patient advocacy organization called Health Watch USA.

CDC says 2% of people carry MRSA, although most of them aren't infected. A much higher percentage of Americans – about 30% – carry staph, but not all are resistant to antibiotics. Among staph cultures from outpatient settings, 51% were resistant to Methicillin nationally, and the number was higher in some regions.

These latest reports stress that anyone playing sports or exercising should be sure to clean mats or equipment, since MRSA discharge on a surface or clothing can infect another person. While "skin is a good barrier," people may not realize that even a small open skin wound (such as those occuring with contact sports) can make them susceptible to infection. Effective laundering of sports clothing is also key to prevent onward transmission e.g. to family members.

The USA Today report can be found at:
http://www.usatoday.com/story/news/2015/09/01/mrsa-superbug-back--school-risks-st-albans/71489354/

Interventions to improve water quality and prevent diarrhoea

A new Cochrane review evaluates trials of interventions to improve water quality. It includes 55 studies and >84,000 participants. Most were conducted in low- or middle-income countries (50 studies), with unimproved water sources (30 studies), and unimproved or unclear sanitation (34 studies).

On average, distributing disinfection products for use in the home may reduce diarrhoea by around one quarter in the case of chlorine products (*low quality evidence*), and around a third in the case of flocculation and disinfection sachets (*moderate quality evidence*). Water filtration at home probably reduces diarrhoea by around a half (*moderate quality evidence*), and effects were consistently seen with ceramic filters (*moderate quality evidence*), biosand systems (*moderate quality evidence*) and LifeStraw® filters (*low quality evidence*). Plumbed-in filtration has only been evaluated in high-income settings (*low quality evidence*). In low-income settings, distributing plastic bottles with instructions to leave filled bottles in direct sunlight for at least six hours probably reduces diarrhoea by around a third (*moderate quality evidence*).

Overall the authors concluded that point-of-use interventions may be important interim measures to improve drinking water quality until reliable, in home, piped-in water connections are available. Comparisons between estimates do not provide evidence of superiority of one intervention over another, since study setting, design, and population confound such comparisons.

The review can be found at: http://www.cochrane.org/CD004794/INFECTN_interventions-improve-water-quality-and-prevent-diarrhoea

4. Do we know the difference between hygiene and cleanliness – editor's opinion

Darrel Hicks in the USA has been trying to promote discussion on this issue, which I happen to believe is causing a lot of confusion at all levels, from infection control practitioners to cleaning personnel, to the public. He talks about this on his website at: http://darrelhicks.com/what-do-we-mean-by-cleaning-and-disinfection and he has also been

putting it forward on internet IP sites http://outbreaknewstoday.com/what-do-we-mean-by-clean-and-disinfection-89136/ and on the APIC IP and Hospital infection control linked in discussion sites

I absolutely agree with his sentiments. So long as the term "clean" continues to be used without specifying whether we are referring to visibly/socially clean or microbiologically clean (fit for purpose) we will continue to reinforce the public view that if it's visibly clean it is also microbiolgically clean. Although we can see if a surface is visibly clean, the problem is, "How do we see whether a surface is hygienically clean?" The answer to this is "we can't". We have to get the public to understand that, the only way we can know this is by being confident we have applied the prescribed process e.g. we have washed our hands in the prescribed manner.

The problem is finding a universally acceptable term to describe "microbiologically clean/fit for purpose". "Processed" or "decontaminated" seems fine for hospitals, but not for the public? Sanitised is another word that we use. I think the best we could ever do is achieve universal acceptance that the term "clean" should not be used without a descriptor which makes it clear whether we mean visibly or microbiologically clean.

Are soaps and detergents microbiocidal?

In two recent media reports, experts were quoted (or misquoted) as saying that they are. In an article about antibacterial wipes the expert was quoted as saying "wipes that contain old fashioned soap work, because the soap is antibacterial, helping to destroy fats in the cell wall of bacteria and viruses. Another quote was, "I don't use antibacterial wipes or gels for washing my hands as soap and water is much more effective; the detergent kills bacteria whilst scrubbing physically gets them off". I have been searching for data on the microbicidal efficacy of soaps or detergents but can find none published. Can anyone help?

Even if it was a journalist's misquote, it shows we just don't seem to understand the basic principles of how to get surfaces (including hand surfaces) hygienically fit for purpose where there is infection risk. Several times in conversations with journalists, I find that they believe that, during handwashing, the soap "gets rid" of the microbes, whilst the rinsing is just to remove the soap from our hands. The whole thing gets more and more confusing for consumers and everyone else to understand.

What's the best method for "cleaning" hospital rooms?

A new review about cleaning of hospital room surfaces to prevent infection illustrates that misleading terminology problems also afflict hospitals. In the introduction, the authors say, "Environmental cleaning is a complex, multifaceted process and involves the physical action of cleaning surfaces to remove organic and inorganic material, followed by application of a disinfectant. What this is saying is that "cleaning" is "cleaning and disinfection"!!

The review is summarised in an internet news site that continues the confusion. They say, "Very little research addresses the best ways to **disinfect** and **sanitise** hard surfaces in a hospital room. The investigators found only 5 randomized, controlled trials that explored the best ways to **disinfect** surfaces. Fewer than 35% of the studies focused on spread of disease due to **unclean surfaces** and most studies only examined the effectiveness of a single **cleaning** product or method, rather than comparing it against others.

Han JH, et al. Cleaning Hospital Room Surfaces to Prevent Health Care–Associated infections. Annals of Internal Medicine 2015 Aug 11 issue.

http://www.philly.com/philly/health/hospitals/HealthDay702191_20150810_What_s_the_Best_Method_for_Cleaning_Hospital_Rooms_.html#Z8rk3M6YQhQes7Xk.99

Send responses to: sallyfbloomfield@aol.com

5. New resources

Communal yoga mats and infectious diseases: IFH hygiene advice sheet

This hygiene advice sheet has been put together to provide background information and advice on infection risks from communal yoga mats and how to prevent them. This briefing document has been produced for those who work in healthcare professions, the media and others (including the public) who are responsible for providing guidance or wish to obtain guidance. A number of different infections have the potential to be transferred via communal yoga mats including athlete's foot, staphylococcus skin infections, warts and gastrointestinal infections. We all shed skin particles all the time, particularly when we are active. Microbes on our skin become attached to these particles and are thus deposited onto the mats. This risk is greater if the mats are not cleaned after each use and are stored in such a way that any sweat or moisture remaining on the mat does not dry out as quickly as possible.

The resource can be found at: http://www.ifh-homehygiene.org/factsheet/communal-yoga-mats-and-infection

Top tips for kitchen hygiene in the home at Christmas

Christmas is traditionally a time to invite friends and family around for a festive celebration! One Christmas present we can all do without is a bout of food poisoning. Yet statistics reveal that there is always a rise in food borne infections around the Christmas period.

This IFH advice sheet has been put together to give practical advice on how to prevent food poisoning at Christmas.

The resource can be found at: http://www.ifh-homehygiene.org/factsheet/top-tips-kitchen-hygiene-home-christmas