Antimicrobial Stuff

Jim Hutchinson
Vancouver Island Health Authority
Disclosure

- Virox sponsored this symposium including my expenses
- I have no relationship whatsoever with any companies or products mentioned
My new job

- Medical Director of the Vancouver Island Health Authority’s Antimicrobial Stewardship Program
- 50% FTE
- Organized under Quality, Research and Safety (QRS) along with Infection Prevention
What is the issue?

• Antimicrobial substances are being put in and on everyday consumer items at a very large and increasing scale
What is the issue?

- The effects (short and long term) are poorly understood.
- The antimicrobial activity of these substances may be contributing to the expanding problem of antimicrobial resistance.
A paradox

• Antimicrobial resistance fuels the market for antimicrobial products
• Antimicrobial products may fuel the problem of antimicrobial resistance
An observation

• Most antimicrobials in substances don’t protect anyone from any disease
An observation

• Most antimicrobials in substances don’t protect anyone from any disease
Another paradox

- Antimicrobial resistance is identified as a world public health crisis
- There is little regulation of antimicrobials in stuff
Another paradox

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Another paradox

- Antimicrobial resistance is identified as a world public health crisis
- There is little regulation of antimicrobials in stuff
- At least not from the antimicrobial resistance generation perspective
Biocides

• Pesticides used to prevent harmful animals, plants or microorganisms from causing detrimental effects on humans, products, animals or the environment
• Most substances are not only antimicrobial
Biocides

- Pesticides used to prevent harmful animals, plants or microorganisms from causing detrimental effects on humans, products, animals or the environment
- **Most substances are not only antimicrobial**
What is in all the stuff?

- Silver
- Copper and zinc
- Triclosan
- Many other things that it is hard to find information on
What is in all the stuff?

- Silver
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Silver

- Sanitized®
- Polygiene®
- Agiene®
- SteriTouch®
- X-Static®
- Silpure®
Silpure®

• Thomson Research Associates, Toronto, Canada
Silpure®

A simple to use process that attaches silver to textile fibers, giving long-term protection against the development of odor-causing bacteria. Tests carried out in TRA laboratories established that even on difficult fabrics such as 100% polyester, Silpure provides effective bacteria control through extensive washing cycles.

The Triclosan story

• 5-Chloro-2- (2,4-dichlorophenoxy) phenol
• An easy to produce chemical with antibacterial properties
• Has been used for more than 20 years as the antiseptic in antiseptic soaps
Easy to put into stuff

- Mixes into the matrix of many kinds of materials
- Plastics
- Ceramics
- Textiles
- Acrylics
Big brands

- Microban®
  - Antimicrobial Product Protection

- Ultrafresh
  - Freshness Protection

- Sanitized
  - More than clean
What stuff has biocides?
Cleaning products

- soaps
- hand-washes
- dish-washing products
- laundry detergents and softeners
- deodorants and antiperspirants
Personal care

- toothpaste
- mouth washes
- cosmetics and shaving creams
- acne treatment products
- hair conditioners
Textiles

- sportswear
- underwear
- shoe soles
- hats
- gloves
Textiles

- socks
- mattresses
- mattress covers
- pillows
- bedding
Textiles

- towels
- rugs
- furniture
- curtains
- fabric wall coverings
Building products

• floor and wall coatings (polyurethane, ceramic tiles, PVC, quartz etc.)
• insulation material for plumbing
• various knobs and handles
• hot tubs
• lawn furniture
Kitchen ware

- cutting boards
- food boxes
- knives
- salad bowls
- plates
- sinks
Kitchen ware

- dish brushes
- plastic bags
- refrigerators
- freezers
- dishwashers
Bathroom accessories

- shower hoses
- tiles
- bathtubs
- toothbrushes
- shower curtains
Bathroom accessories

• bath mats
• toilet paper
• toilet lids
• cat litter
Cleaning supplies

• scouring mops
• cleaning cloths
• sponges
• washing balls
• vacuum cleaners
Office supplies

- pencils
- keyboards
- computer mice
- calculators
Office supplies

- stamps
- headsets
- iPod and mobile phone accessories
Child care articles

- teddy bears
- baby bottles
- nursing pads
- changing stations
- diapers
- children's scissors.
The Triclosan story

- Public pressure pushed regulators in many countries
- Environmental lobbies
- Medical Groups
The Triclosan story

- Dr. Stuart Levy of the Alliance for Prudent Use of Antibiotics (APUA)
- Described specific mechanism of action similar to an anti-TB drug
- Resistance generation is easy in the laboratory
Triclosan in people

- CDC National Health and Nutrition Examination Survey (NHANES) 2003-2004
  - 75% had measurable levels
  - Mean 13µg/L
  - 95 percentile 461 µg/L
EU Review 2002

“there is no convincing evidence that triclosan poses a risk to humans or to the environment by inducing or transmitting antibacterial resistance under current conditions of use.”
Hence, overall, the new studies available since the EU review provide no evidence that triclosan poses a risk to humans or to the environment by inducing or transmitting antibacterial resistance under current conditions of use. Though the recent limited number of studies do not resolve specific technical/use issues identified by the SSC (see EC Health & Consumer Protection Directorate-General, 2002a), and therefore the relationship between the use of biocides and the development of clinically relevant antimicrobial resistance should be kept under regular review.
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What is Canada doing?

- Very recent report
What is Canada doing?

Preliminary Assessment

Triclosan

Chemical Abstracts Service Registry Number
3380-34-5

Health Canada
Environment Canada

March 2012
Three regulatory acts

- Canadian Environmental Protection Act 1999 (CEPA 1999)
- Pest Control Products Act (PCPA)
- Food and Drugs Act
Government position

“The Government of Canada is proposing that triclosan is safe for human health within identified maximum limits, but can be harmful to the environment.”
Therefore, PMRA proposes to conclude that the use of pest control products containing triclosan does not pose an unacceptable risk to the environment. No further risk mitigation measures will be required at this time, as the current registrant of triclosan has chosen not to maintain its Canadian registration. Should a registrant seek to re-enter the Canadian market, further data may be required to supplement the current risk assessment.
Pest Control Products Act

• “No further risk mitigation measures will be required at this time, as the current registrant of triclosan has chosen not to maintain its Canadian registration.”
## Triclosan Products Registered under the Pest Control Products Act

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomson Research Associates</td>
<td>Ultra-Fresh 300DD Non-ionic Liquid</td>
</tr>
<tr>
<td>Sanitized Inc.</td>
<td>Sanitized Brand Bacteriostat S-2 Liquid</td>
</tr>
<tr>
<td>Sanitized Inc.</td>
<td>Sanitized Brand Bacteriostat T 96-21 Liquid</td>
</tr>
<tr>
<td>Sanitized Inc.</td>
<td>Sanitized Brand Bacteriostat SN Liquid</td>
</tr>
<tr>
<td>Thomson Research Associates</td>
<td>Ultra-fresh NM Germistat Concentrate</td>
</tr>
<tr>
<td>Ciba-Geigy</td>
<td>Irgasan DP-300R Technical Powder</td>
</tr>
</tbody>
</table>
CUSTOME ORTHOTIC
INSOLE™

Provides structured support and custom fit for full-foot comfort. The Custom Orthotic Insole™ provides:

- **SOF MEMORY FOAM**
  custom memory foam instantly forms to your foot, providing personalized fit and cushioning.

- **MOUSSE VISCOÉLASTIQUE SOF**
  la mousse viscoélastique prend immédiatement la forme de votre pied, vous assurant ainsi un ajustement et un coussin sur mesure.

- **ORTHOTIC SUPPORT**
  composite plate provides support, stability and shock absorption for enhanced all day comfort.

- **SUPPORT ORTHOPÉDIQUE**
  la plaque de matériau composite offre un support, une stabilité et un amortissement des chocs pour un plus grand confort toute la journée.

- **GEL HEEL CUSHION**
  gel impact zone absorbs shock, resulting in all day comfort.

- **COUSSIN DE GEL POUR TALON**
  la zone d’impact en gel absorbe les chocs et procure ainsi un confort pendant toute la journée.

Microban®

Custome Orthotic Insole™

Cheese and Boots • Chaussures de travail et bottes
What now?

• Precautionary principle
• Antimicrobial resistance is real and is serious
• Health Care Workers must be advocates
• Lets reserve the antimicrobials for the people with infections
The role of government

- This is very obviously (to me) a function of government
- We must lobby for continued and enhanced legislation, regulation and monitoring
Therapy Guidelines

Most of these recommendations are based upon the Vancouver Island Health Authority’s Cowichan District Hospital "Guide to Antimicrobial Empiric Prescribing Guideline for Adults 2011 edition." This document was created in conjunction with the VIHA Antibiotic Review Subcommittee as part of a System Wide Initiative in Antimicrobial Stewardship. See the full pdf document here Complete_2ndEdition

Others are the work of the Antibiotic Review Subcommittee on their own.

You may also be interested in this Introduction to Antibiotics – how they work, why they sometimes don’t etc. And these Antibiotic Therapy Principles may be pondered. Brief descriptions of the antibiotics commonly used in Canada can be found here – Antibiotics.

Acute Bronchitis
Acute Exacerbation of Chronic Bronchitis (AECB)
Bacteremia
Cellulitis therapy
Cholecystitis / Cholangitis
Cirrhotic patients with active upper GI bleeding
Clostridium difficile management