Swish Experts in complete cleaning solutions

Infection Prevention & Control In The Recreation Facility Setting

ARFPA RFP RECREATION FACILITY PERSONNEL

Before I had kids, I thought I had a great immune system, but it turns out I was just really good at staying away from the type of people who sneeze directly into your eyeballs while telling you a story.

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WELCOME AND A HUGE THANKS

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OUR GOAL FOR TODAY'S SESSION

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TAKE LEARNINGS FROM HERE

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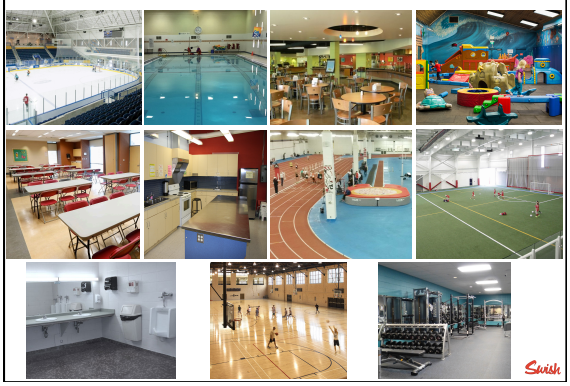
AND APPLY THEM HERE



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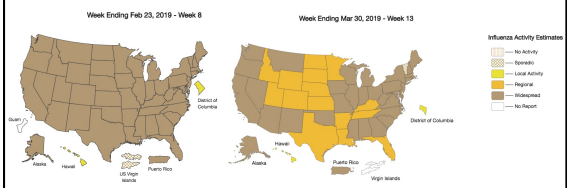
BEFORE WE GET STARTED…

- ✦You Will Not Be The Same By The End of Today's Session
- ✦Ever-Evolving Nature of IP&C
- ✦There Is No "One-Size-Fits-All" Approach or "Magic Bullets"
- ✦Dialogue > Monologue
- ✦Leave your phone **ON**

THE CASE FOR MORE IP&C AWARENESS IN OUR EVERYDAY LIVES

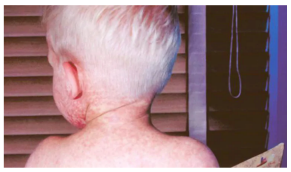


Calgary

AHS warns of possible measles exposure at locations in Calgary and Cochrane

Preventive immunization available for those exposed Tuesday who never got vaccine

CBC News · Posted: Mar 14, 2019 1:17 PM MT | Last Updated: March 14



Symptoms of measles include fever of 38.3 C or higher, and a cough, runny nose and/or red eyes, and a red blotchy rash. (U.S. Centre for Disease Control and Prevention)

Global NEWS | Calgary Change Location | News & Radio Programs Newscasts, Radio, and Videos

World Canada Local Politics Smart Living Money Entertainment Health Video Podcast

HEALTH March 20, 2019 4:53 pm Updated March 20, 2019 8:38 pm

'An extremely contagious disease': Confirmed measles case is Calgary's second in a month, AHS says

By Kaylen Small
Online Journalist Global News

Comments 2 Facebook 2.4k Twitter Email Print ...

A measles, mumps and rubella vaccine is seen on a countertop at a pediatrics clinic in Greenbrae, Calif., on Feb. 6, 2015.

THE CANADIAN PRESS/AP, Eric Risberg

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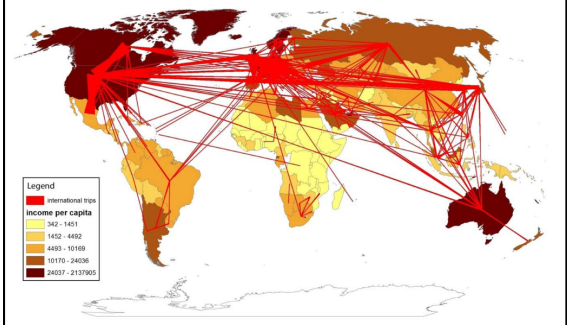

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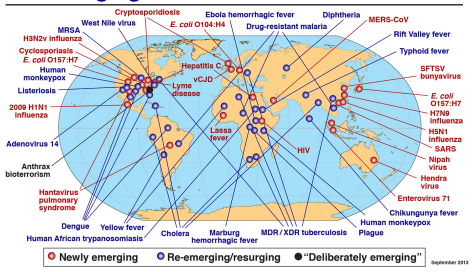
Global Examples of Emerging and Re-Emerging Infectious Diseases



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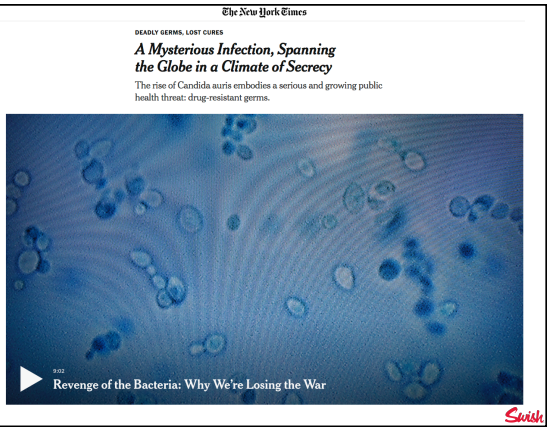


WE ARE LOSING A SILENT WAR

- HAI = Healthcare Associated Infection
  - 220K Infections, 8K Deaths Annually
  - 5 - 20% chance of infection in a Canadian Hospital
- Superbugs quickly moving outside the healthcare environment
  - VRE, MRSA, C.Diff
  - 10 M deaths / Year by 2050 If No Action Taken
- Antibiotics In Food Chain & Meds Suspected
- Overuse/Misuse of Cleaning Compounds ?

THE CASE FOR HEIGHTENED IP&C AWARENESS IN THE REC FACILITY SETTING

- ✓Public Spaces With Heavy Traffic
- ✓Regular Bodily Fluid Transmission
- ✓Plentiful Reservoirs
- ✓Plentiful Susceptible Hosts
- ✓Subject To Unprecedented Public Opinion

ON THE FRONT LINES

- ✦Little Training
- ✦Low(est) Pay
- ✦Underappreciated
- ✦Complex Roles

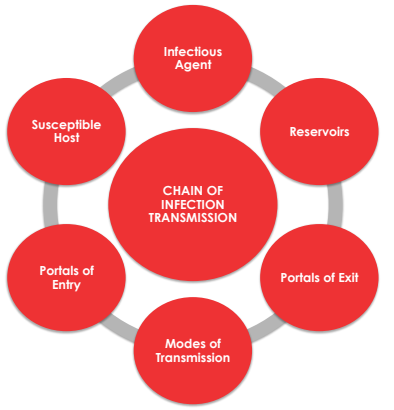
OUR FOCUS FOR TODAY'S SESSION

OUR FOCUS TODAY

- Understand Basics of IP & C
- Adaptation To Rec Facility Environment
  - Product Evaluation & Selection Criteria
  - Process Determination
- Emerging Trends & Technologies
  - Products
  - Auditing Tools
- Easy & Impactful Implementations

THE BASICS

CHAIN OF TRANSMISSION



1) INFECTIOUS AGENT - Not all microorganisms (aka "microbes") are harmful - Microbes that cause infection are known as pathogens	• Bacteria (E. Coli, MRSA) • Virus (Cold or Flu) • Fungi (Athlete's Foot)
2) RESERVOIRS - Where microbes live & grow	• People • Surfaces & Objects • Food & Water
3) PORTALS OF EXIT - How pathogens leave a reservoir	• Cut • Cough or Sneeze • Secretion or Excretion
4) MODE OF TRANSMISSION - Pathogens rely on specific modes of transmission to move from a portal of exit to a portal of entry	• Contact • Droplet • Airborne / Vapor
5) PORTALS OF ENTRY - How pathogens enter a new host	• Mucous membrane (eyes, nose, mouth) • Respiratory tract • GI tract • Broken Skin
6) SUSCEPTIBLE HOST - We are all at risk of infection everyday - Some amongst us are more vulnerable and we have a responsibility to protect those at higher risk	• Surgery • Oncology • Burns • Very Young / Very Old • Diabetes • Auto-immune diseases

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WHERE DO WE HAVE THE MOST LIKELY OPPORTUNITIES TO BREAK THE CHAIN ?

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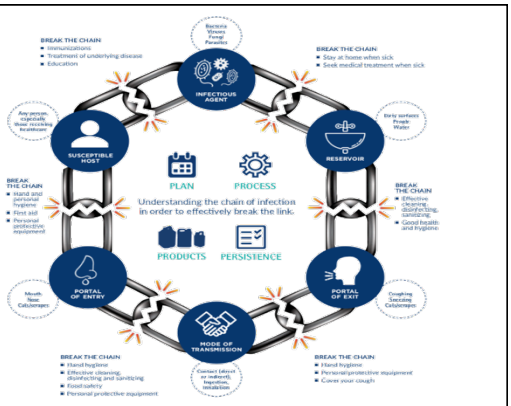
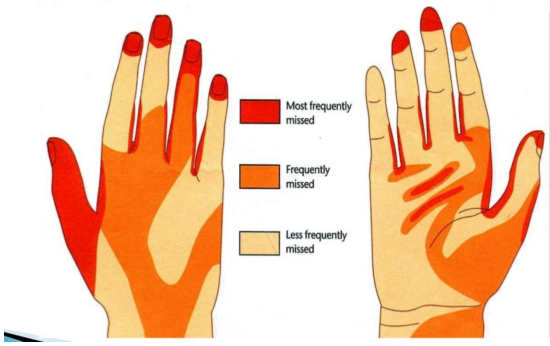


BREAKING THE CHAIN PROVES COMPLICATED FOR SEVERAL REASONS

1) WE SUCK AT HAND HYGIENE

- Estimate That 80% of Infections Are Spread By Hands
- And Yet…
  - 58% of Females (28% with soap)
  - 48% of Males (8% with soap)
- Minimum 20 Seconds
- Unfinished Business

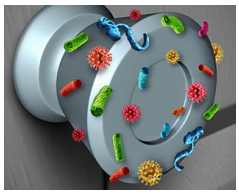


TIME

Your Cell Phone Is 10 Times Dirtier Than a Toilet Seat. Here's What to Do About It

2) A FIERCE & RESILIENT ENEMY

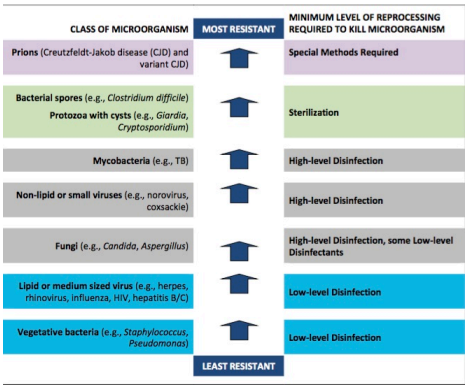
- BILLIONS of Norovirus Particles In A Single Stool Sample
- SNEEZING Can Launch Mucous @ 100 mph and Up To 30 Ft Away



- FLU Virus Has Been Observed To Make Hosts More Social In Early Stages of Incubation
- Survival Times Drastically Influenced By: Nature of Organism, Surface Material, Temp, Soil Load, Humidity, Temperature

Type of virus	Duration of persistence (range)
Adenovirus	7 days – 3 months
Astrovirus	7 – 90 days
Coronavirus	3 hours
SARS associated virus	72 – 96 hours
Coxsackie virus	> 2 weeks
Cytomegalovirus	8 hours
Echovirus	7 days
HAV	2 hours – 60 days
HBV	> 1 week
HIV	> 7 days
Herpes simplex virus, type 1 and 2	4.5 hours – 8 weeks
Influenza virus	1 – 2 days
Norovirus and feline calici virus (FCV)	8 hours – 7 days
Papillomavirus 16	> 7 days
Papovavirus	8 days
Parvovirus	> 1 year
Poliovirus type 1	4 hours – < 8 days
Poliovirus type 2	1 day – 8 weeks
Pseudorabies virus	≥ 7 days
Respiratory syncytial virus	up to 6 hours
Rhinovirus	2 hours – 7 days
Rotavirus	6 – 60 days
Vacciniavirus	3 weeks – > 20 weeks

Type of bacterium	Duration of persistence (range)
Acinetobacter spp.	3 days to 5 months
Bordetella pertussis	3 – 5 days
Campylobacter jejuni	up to 6 days
Clostridium difficile (spores)	5 months
Chlamydia pneumoniae, C. trachomatis	≤ 30 hours
Chlamydia psittaci	15 days
Corynebacterium diphtheriae	7 days – 6 months
Corynebacterium pseudotuberculosis	1–8 days
Escherichia coli	1.5 hours – 16 months
Enterococcus spp. including VRE and VSE	5 days – 4 months
Haemophilus influenzae	12 days
Helicobacter pylori	≤ 90 minutes
Klebsiella spp.	2 hours to > 30 months
Listeria spp.	1 day – months
Mycobacterium bovis	> 2 months
Mycobacterium tuberculosis	1 day – 4 months
Neisseria gonorrhoeae	1 – 3 days
Proteus vulgaris	1 – 2 days
Pseudomonas aeruginosa	6 hours – 16 months; on dry floor: 5 weeks
Salmonella typhi	6 hours – 4 weeks
Salmonella typhimurium	10 days – 4.2 years
Salmonella spp.	1 day
Serratia marcescens	3 days – 2 months; on dry floor: 5 weeks
Shigella spp.	2 days – 5 months
Staphylococcus aureus, including MRSA	7 days – 7 months
Streptococcus pneumoniae	1 – 20 days
Streptococcus pyogenes	3 days – 6.5 months
Vibrio cholerae	1 – 7 days



THE BASICS

HOW TO FIGHT

ONE POSSIBLE APPROACH….

After that first person in the office sneezes

Flu season attire for the office

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A SLIGHTLY MORE PRUDENT APPROACH…

EXPERIENCE FROM THE FIELD

- Thorough Cleaning > "At-Best" Disinfection
- Products & Process Are Very Site Specific
- Cleaning, Sanitizing and Disinfecting Are Not The Same Thing !

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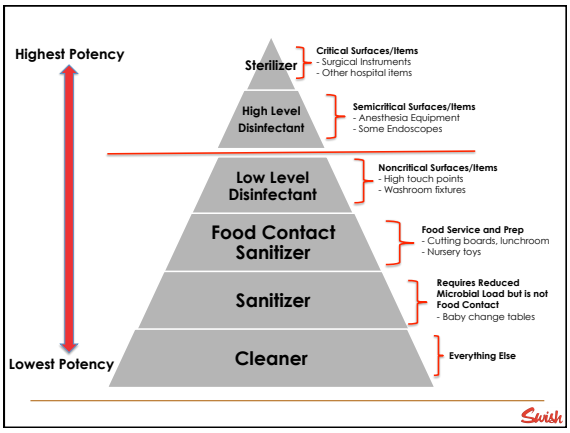

STERILIZATION
ELIMINATES & destroys all microbes
- Carried out in health-care facilities using specialized equipment

- Surgical tools & instruments that enter the body

DISINFECTING
INACTIVATES microbes on surfaces & objects
- Carried out using chemicals and/or equipment in a prescribed manner to lower the risk of transmission

- Quat/Bleach/ H_2O_2
- Steam / UV

SANITIZING
REDUCES microbe levels on surfaces & objects to a safe level as deemed by public health
- Carried out using chemicals and/or equipment in a prescribed manner to lower the risk of transmission

- Quat/Bleach
- Hand Sanitizer (Alc)
- High-Temp Dishwashers

CLEANING
REMOVES microbes & soil from surfaces & objects -
- Carried out using detergents and mechanical action to physically remove microbes from surfaces.
- Does not necessarily kill germs, but is a critical step in all IP&C practice

- Cleaners
- Soaps
- Microfibre Tools

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3 CRITICAL POINTS

- **Disinfectants/Sanitizers are intended for use on pre-cleaned surfaces**
- **Most are tested in the presence of 5% soil (allows claim of being a Cleaner/ Disinfectant) but 2-step process of "removal of gross soil" prior to disinfectant application is always the preferred method**
- **Dry Time > Dwell Time**

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RISK STRATIFICATION MATRIX TO DETERMINE CLEANING FREQUENCIES

LOW RISK SURFACE / MODERATE RISK SURFACE / HIGH RISK SURFACE

- **Contact Frequency of Surface**
  - High Touch (door handles, push panels)
  - Low Touch (floors, walls, mirrors)
- **Probability of Contamination With Pathogens**
  - Heavy (Toilet, Change Table)
  - Moderate (Sinks, Counters)
  - Light (Floor)
- **Vulnerability of Population**
  - Seniors Room
  - Childrens Area
  - Exceptional Needs
  - Immuno-Compromised (oncology, burn, auto-immune)

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MATRIX SCORING TO DETERMINE FREQUENCY AND PROCESS(ES)

For each functional area or department, the frequency of cleaning is based on the factors listed in the boxes above. A score is given if the factors are present, and the frequency of cleaning is based on the total score as derived in the following matrix:

Table 13: Risk Stratification Scores for High-Touch Surfaces (Score for Potential for Exposure = 3)

Probability of contamination with pathogens	More susceptible population (score = 1)	Less susceptible population (score = 0)
Heavy (score = 3)	7 (3+3+1)	6 (3+3+0)
Moderate (score = 2)	6 (3+2+1)	5 (3+2+0)
Light (score = 1)	5 (3+1+1)	4 (3+1+0)

Table 14: Risk Stratification Scores for Low-Touch Surfaces (Score for Potential for Exposure = 1)

Probability of contamination with pathogens	More susceptible population (score = 1)	Less susceptible population (score = 0)
Heavy (score = 3)	5 (1+3+1)	4 (1+3+0)
Moderate (score = 2)	4 (1+2+1)	3 (1+2+0)
Light (score = 1)	3 (1+1+1)	2 (1+1+0)

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BUILDING OF S.O.P's & WORKLOADING

Facility Cleaning & Disinfecting Checklist

Completed	In Progress	N/A	GENERAL FACILITIES
			Use a neutral detergent and disinfectant solution to clean and disinfect all hard surfaces, including:
			Hand rails
			Door knobs/handles
			Elevator buttons
			Sinks & faucets
			Countertops
			Window sills
			Light switches
			Equipment controls
			Cabinet and file drawer knobs/handles
			Vending machines
			Chair arms
			Copier/printer/fax control buttons
			Provide sanitizing solution or wipes to all departments and encourage all employees to sanitize surfaces that employees touch frequently:
			Telephones
			Hands-free microphones
			Radios
			Hard-hats
			Place sanitizing solution or wipes in company vehicles with a reminder to wipe down the following after each use:
			Steering wheels
			Gear shifters

Completed	In Progress	N/A	BATHROOMS
			When it is time to purchase or replace existing bathroom fixtures, consider installing hands-free devices, such as:
			Soap dispensers
			Toilet flushers
			Paper towel dispensers

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APPLICATION TO A RECREATIONAL FACILITY SETTING

PRODUCT SELECTION

CONCERNS IN REC SETTING

BACTERIA

- Salmonella
- Listeria
- E.Coli
- Chlamydia
- MRSA
- VRE
- CDiff

VIRUS

- Respiratory (vapour)
  - COLD (rhino / corona)
  - FLU (Influenza)
- G.I. (fecal – oral)
  - Norovirus
  - Rotovirus
  - Hep A
  - Polio
- Bloodborne / Bodily Fluids
  - Hep B
  - HIV
  - CMV (Cytomegalo)
  - Herpes (HSV 1&2)

FUNGI

- Athlete's Foot
- Molds

What's The Best Disinfectant?

Table 2. Properties of an ideal disinfectant

CDC Centers for Disease Control and Prevention

- Broad spectrum: should have a wide antimicrobial spectrum
- Fast acting: should produce a rapid kill
- Not affected by environmental factors: should be active in the presence of organic matter (e.g., blood, sputum, feces) and compatible with soaps, detergents, and other chemicals encountered in use
- Nontoxic: should not be harmful to the user or patient
- Surface compatibility: should not corrode instruments and metallic surfaces and should not cause the deterioration of cloth, rubber, plastics, and other materials
- Residual effect on treated surfaces: should leave an antimicrobial film on the treated surface
- Easy to use with clear label directions
- Odorless: should have a pleasant odor or no odor to facilitate its routine use
- Economical: should not be prohibitively high in cost
- Solubility: should be soluble in water
- Stability: should be stable in concentrate and use-dilution
- Cleaner: should have good cleaning properties
- Environmentally friendly: should not damage the environment on disposal

- ✓DIN Registered
- ✓Broad Spectrum Kill Claims Specific To Your Requirements
- ✓Dwell Time (Sanitize & Disinfect Claims?)
- ✓Shelf Life (Concentrate & RTU)
- ✓Dispensed / On-Site Production
- ✓Verifiable Concentration Testing
- ✓Cost Per Use
- ✓Others ?

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What's The Best Disinfectant?

Active Ingredient	Broad Spectrum	Fast Acting	No Interactions	Non Toxic	Corrosive	Residual Effect	Simple S.O.P	Odour	Cost	Water Soluble	Stable
Alcohol	X	✓	✓	✓/X	✓/X	X	✓	X	✓	✓	✓
Chlorine	✓	✓	X	✓/X	X	X	✓	X	✓	X	✓/X
Hydrogen Peroxide (Enhanced Action/ Accelerated)	✓	✓	X	✓/X	X	X	✓	✓	X	✓	✓/X
Peracetic Acid	✓	✓	✓	✓/X	X	X	✓	X	✓	✓	X
Quaternary Ammonium Compounds	✓/X	✓/X	X	✓/X	✓	X	✓	✓	✓	✓	✓

Not listed: Iodophors, Formaldehyde, Glutaraldehyde, Ortho-phthaladehyde (OPA), Phenolics, Acid/Base,

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Active Ingredient	Surface Interactions and Notes	
Alcohol	• Can dull and damage finished, painted or dyed surfaces • Can have negative affect on polymer based materials • Caution highly flammable • Volatile can cause issues with workers inhaling	• No corrosive effects on most surfaces • Volatile no residual
Chlorine	• Can dull and damage finished, painted or dyed surfaces • Can damage metals especially soft metals • Usually very high pH >11.5 • Oxidizer • Notable health and safety issues	• Go-to chemical for virtually every health unit • Go-to chemical for anything new or unknown • Term represent broad range of chemistries
Hydrogen Peroxide (Enhanced Action/ Accelerated)	• Can dull and damage finished, painted or dyed surfaces • Can damage metals especially soft metals • Often very low pH <2.5 • Extremely powerful oxidizer	• Excellent marketing • Good environmental story • Term represent broad range of chemistries
Peracetic Acid	• Can dull and damage finished, painted or dyed surfaces • Can damage metals especially soft metals • Acidic pH concentration dependent • Unstable	• Effective in the presence of organic matter • Effective at low temperatures
Quaternary Ammonium Compounds	• Can be absorbed by certain wiping materials • Recent studies question worker health and safety	• Compatible with most finished surfaces (neutral versions) • Term represent broad range of chemistries

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APPLICATION TO A RECREATIONAL FACILITY SETTING

PROCESS DETERMINATION

BUILDING OF S.O.P's & WORKLOADING

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Complete	In Progress	N/A	GENERAL FACILITIES
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			Window sills
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			Vending machines
			Chair arms
			Copier/printer/fax control buttons
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			Hard-hats
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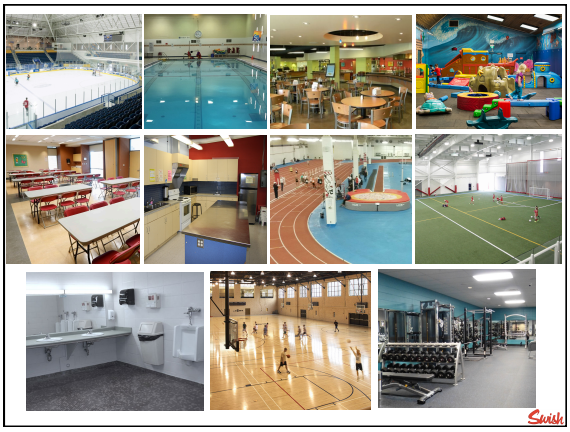
Complete	In Progress	N/A	BATHROOMS
			When it is time to purchase or replace existing bathroom fixtures, consider installing hands-free devices, such as:
			Soap dispensers
			Toilet flushers
			Paper towel dispensers

TRANSMISSION POINTS & RESERVOIRS TO CONSIDER IN YOUR FACILITIES ?



TRANSMISSION & RESERVOIRS

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

NEW & EMERGING TECHNOLOGIES

NEW SURFACE TECHNOLOGY

- Impregnated Materials
  - Silver Ions

BioCote

- Surface Compounds
  - Copper & Copper Alloys
  - Silver & Silver Alloys

- Self Cleaning Materials
  - Nano-Septic

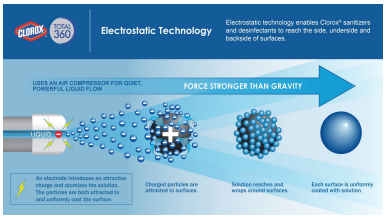
NEW PRODUCT TECHNOLOGY

- Robotics & IoT
  - Re-Allocation of Labour
  - Smart Dispensers

- UVC Light
  - Destroys Cell Wall, Disrupts DNA
  - Already Used In Water

NEW PRODUCT TECHNOLOGY

- Electrostatic
  - Negative Charge

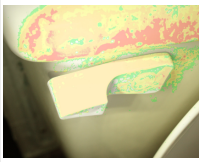


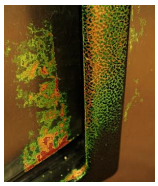
NEW PRODUCT TECHNOLOGY

- New (ish) Chemistry
  - Aquaeous Ozone Generation
  - Hypochlorous Acid
  - Steam

AUDITING TECHNOLOGY

- ATP Monitors
- Glo Germ
- Surface Imaging Technology



SOME EASY PLACES TO START WHEN YOU GET BACK

EMERGENCY & OUTBREAK RESPONSE

DAILY CLEANING VS. OUTBREAK

GENERAL CLEANING

- Clean / Remove Soil
- Disinfect Key Spots
- Preventative
- Reusables

OUTBREAK

- Clean / Remove Soil
- Disinfect Everything
- Reactive
- Disposables

SAMPLE KIT CONTENTS

- Oxivir®
- 6 pairs of safety glasses
- 2 Pack Respirators
- 3 box glove
- 1 case MF cloth
- 1 case pads
- 4 coveralls (size L, XL, 2XL, 3XL)

SIMPLIFY
COLOUR CODE
AUTOMATE

SIMPLIFY

COLOUR CODE

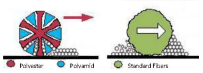
Microfibers are tiny threads which are 10 times finer than silk, up to 30 times finer than cotton, 40 times finer than wool and 100 times finer than a human hair. Many microfibers are woven together to create a single strand, many of which are then woven into yarn or textiles. When polyester and polyamide are combined and then put through a splitting process, microscopic channels are created to capture and hold debris. Polyester provides scrubbing properties, Polyamide allows for absorption and quick drying.

Typical combinations are 70 to 90% polyester and 10 to 30% polyamide.

Microfiber in front of a human

Microfiber thickness compared to other fibers

Microfiber magnified to show both, polyester and polyamide as well as the split



Standard fibers rely on the moisture and chemicals to hold dirt where microfiber actually holds particles without chemical stickiness, so it rinses clean. Since microfiber is a man-made material, it also will not provide a food source for bacteria and break down. This allows for longer usable life.

AUTOMATE

VS.

- Wet Floor = Slip Liability
- Dirty water after the first pass
- Repetitive motions = OH&S issues
- Productivity = 2100 sq. ft / hr

- Scrub & Dry in One Pass
- Clean Water / Dirty Water Separate
- Easy on operator = consistent clean
- Productivity = 15,000 sq. ft / hr

Swish

OTHER WAYS TO PLAY

OUR PART

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WAAAAAAAAAAAAASH HANDS

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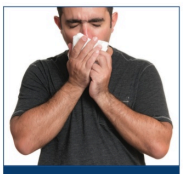
HAND HYGIENE MOMENTS

Moment	Hand Sanitizer	Soap & Warm Water
When hands are visibly soiled	No	Yes
After contact with bodily fluids	Yes	Yes*
After cleaning procedures	Yes	Yes*
Before & after handling toys	Yes	Yes*
Before, during & after handling food	No	Yes
Enter/Leave School	Yes*	Yes
Before & after touching eyes, ears, nose & mouth	No	Yes
After using washroom	Yes	Yes*

Swish

COVER YOUR COUGH



Cover your mouth and nose with a tissue when you cough or sneeze.

OR

Cough or sneeze into your upper sleeve, not your hands.

Dispose of used tissues immediately into waste receptical.

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SAFE GLOVE REMOVAL

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SOME FINAL THOUGHTS

- **Consider IP&C At Procurement Stage**
  - smooth / non-porous / easy to clean
- **Establish cleaning logs within your team for accountability & efficiency purposes**
- **Read & Get Educated**
  - PIDAC / IPAC Canada / Others?
- **Small Adjustments In Behaviour Can Have Major Impacts On Outcomes**
  - Be conscious of your hands
  - Identify windows for IP&C in existing routines

ONE GOOD CUSTODIAN CAN PREVENT MORE INFECTIONS THAN A DOZEN DOCTORS CAN CURE

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Q & A

GROUP DISCUSSION

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Swish | Experts in complete cleaning solutions

mark.ambler@swishclean.com

www.swishclean.com

Twitter : @swishcleanAB

YouTube : Swish Maintenance Limited

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