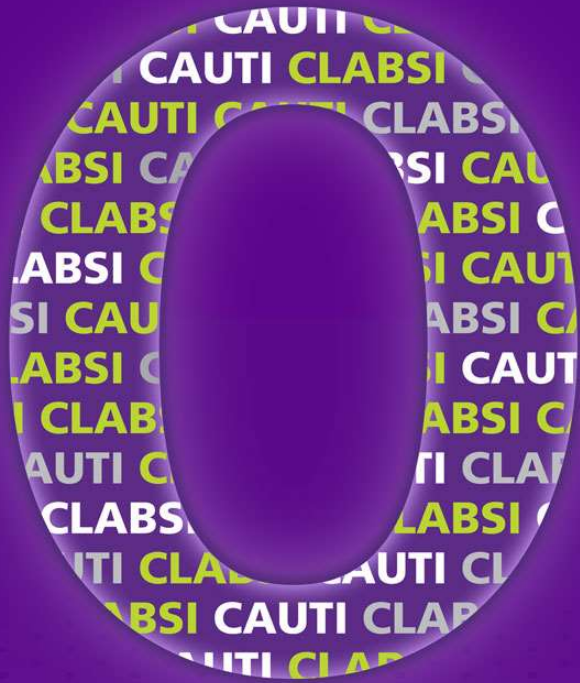




**When Human
Behavior and
Emerging Pathogens
Collide, *Who* will be
the Victor?**

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unrestricted educational grant from**



Theraworx[®]
PROTECT

Presented by Martie Moore, MAOM, RN, CPHQ



Martie Moore is an executive with over thirty-five years of experience with research and focuses on quality, patient safety, and advancing health delivery systems.

Moore has served as a chief nursing officer at the corporate, system, and magnet facility levels, focusing on advancing implementation science, cultural transformation, patient safety, and elevating organizational performance through quality, system thinking, and putting knowledge into action.

Objectives

The participant will understand the principles of human behavioral science and how designing the work environment and products utilized in the clinical care setting can achieve better outcomes.

The participant will explore how to apply the tools of human centered design to their clinical environment.

The participant will through the application of a case study, examine how partnerships beyond the walls of the organization is the key to infectious disease strategy.

Principles of Behavioral Insight for Healthcare

Reliance



**Memory,
Vigilance
Follow up intentions**

Areas where human performance is less reliable.



Principles of Behavioral Insight for Healthcare



PRINCIPLE I

Cognitive and other psychological factors underpin human behavior.



PRINCIPLE II

Environmental influences: external factors in the environment can enable or discourage healthy behavior.



PRINCIPLE III

Social and cultural contexts, and accompanying norms, values, and practices, influence behavior.



Principles of Behavioral Insight for Health



PRINCIPLE IV

Behavioral evidence and theory should be used in planning, designing and implementing health policies and programs.



PRINCIPLE V

Evaluate strategies and interventions to provide empirical evidence on what works in facilitating healthy behavior.



PRINCIPLE VI

Participatory approaches should be used in planning, designing and implementing health policies and programs.



**What does this
mean to me?**

↕ How behavioral science help improve workplace



Nudging Behavior



Human irrationality can be harnessed and steered to particular outcomes.



Nudging can help productivity, innovation, task efficiency and more altering individuals' starting positions.

Normalization

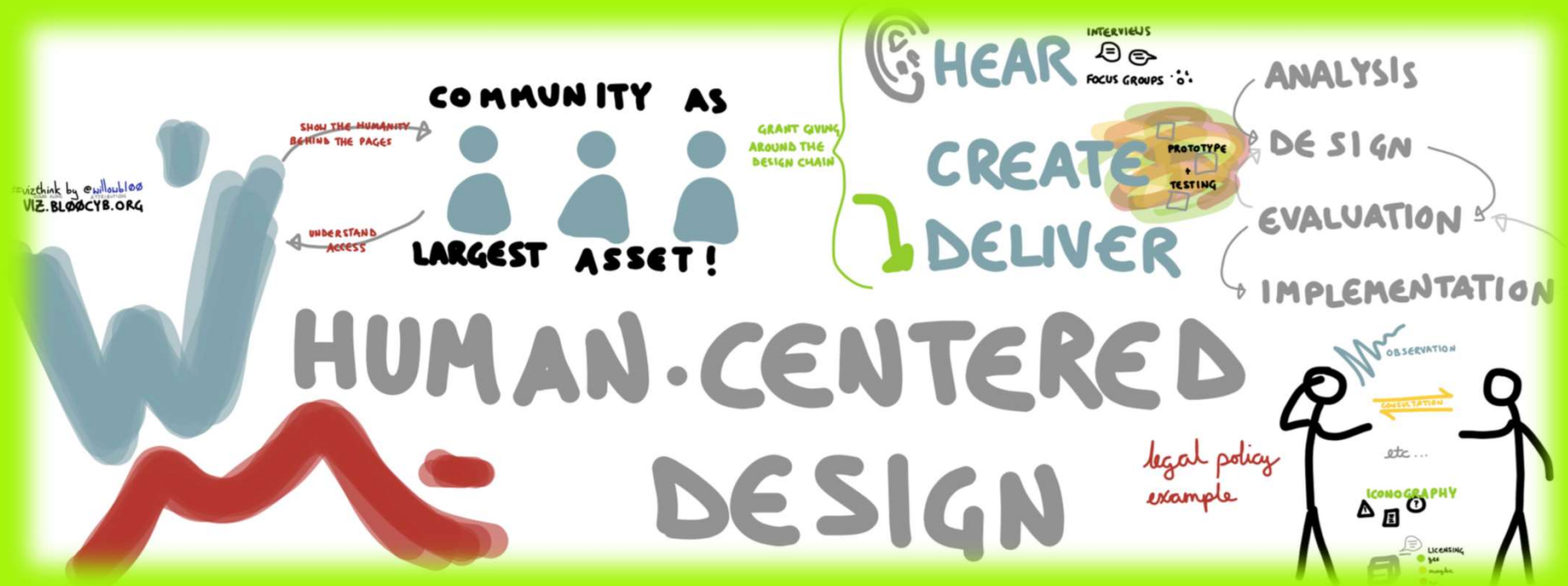
Normalization refers to social processes through which ideas and actions come to be seen as 'normal' and become taken-for-granted or 'natural' in everyday life.

There are different behavioral attitudes that humans accept as normal,



Human Centered Design

Human Centered Design



Be Where the Person Is (Finding the Human in the Process/System)

The Methodology of Human-Centered Design

Co-creative

- Engaging customers and stakeholders throughout the process

Integrated

- Drawing on the best practices and thinking from many disciplines

Experiential

- Creating experiences, visual artifacts, and tangible prototypes to bring the cutting-edge vision to life



Central line Maintenance Dressing

Human Factors

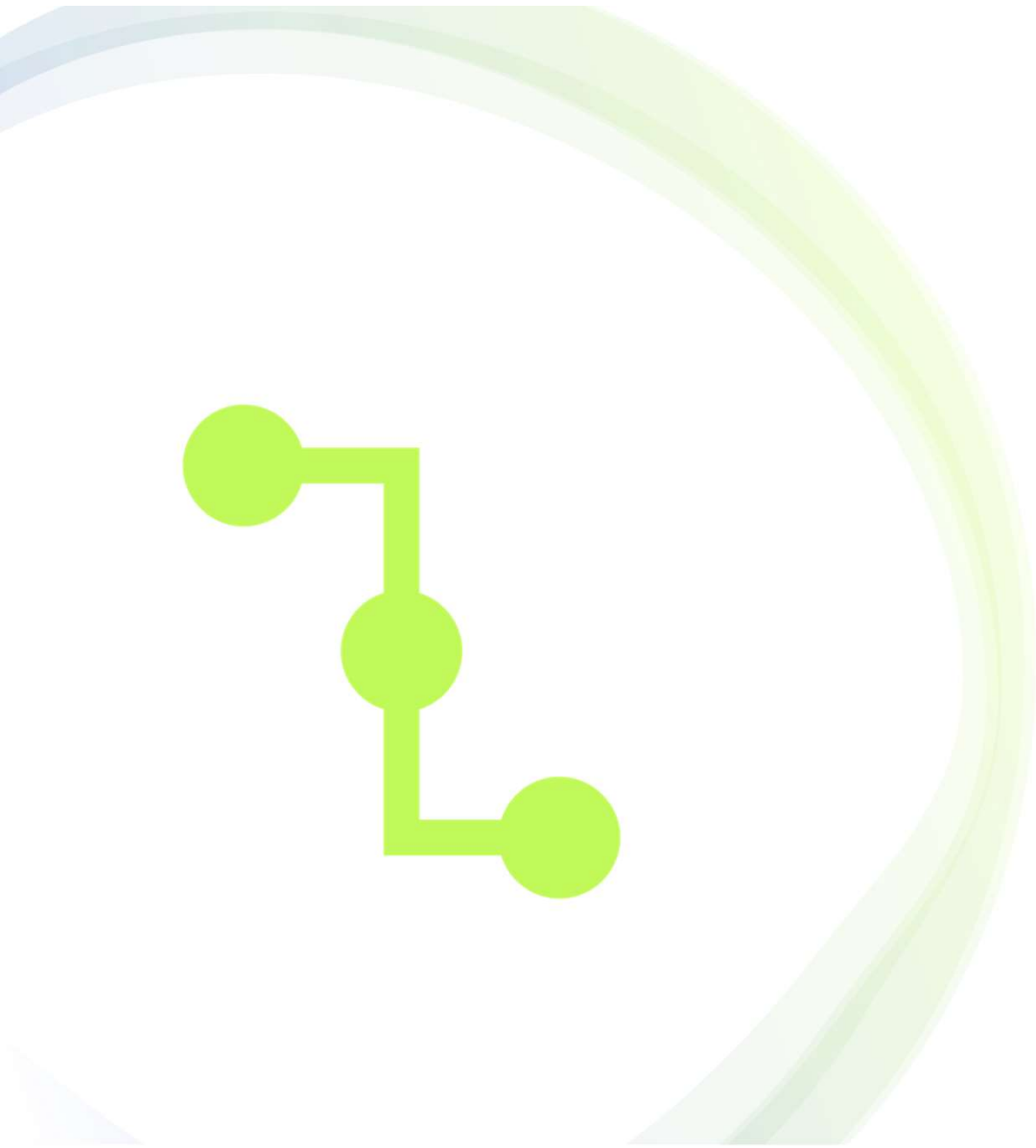
- Memory
- Vigilance
- Follow up intentions
- Variability

Human Centered Design

Co-Created – Hack –A-Thon

Integrated. -Reviewed the Evidence, Practice Mapping. With Observation

Experiential – Designed kit to drive the Right Human. Behavior, using Visual Cueing



Pulling It Together

Skin: The First Line Of Defense



Acid Mantle: Needed For All

- The acid mantle derives its name from the fact that the skin's ideal pH is slightly acidic, about 4.7 -5.0 and anything that can skew it too alkaline can disrupt its ability to function optimally.
- "When our skin has this slightly acidic pH, the barrier is healthy and intact," says Whitney Bowe, renowned New York dermatologist and author of *Dirty Looks: The Secret to Beautiful Skin*. "

"This acidic pH of the skin protects against overgrowth of pathogens—bad bugs, essentially—that thrive at a higher, more alkaline pH. The acidic pH also protects against aging"

Acid Mantle

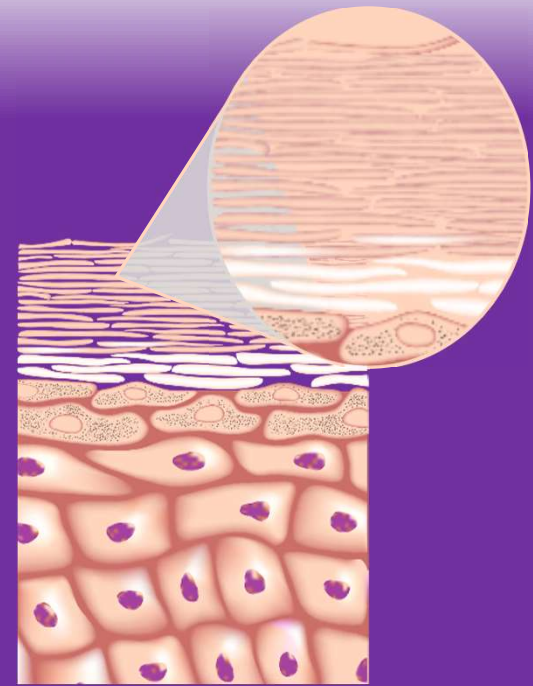
- The acid mantle is a fine layer of natural oils, amino acids, fatty acids, lactic acid, urocanic acid, sebum and sweat that cover the outermost layer of the skin.
- **It is the body's first line of defense against bacteria, viruses, pollution particles, and other foreign agents.**



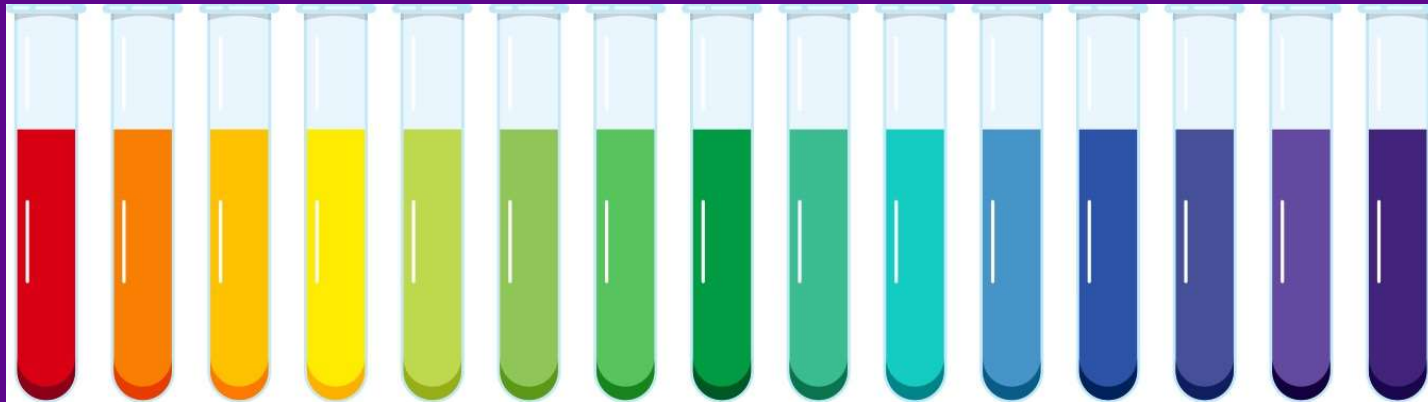


Stratum Corneum

- The nominal low pH environment in the stratum corneum also supports normal structure and development of the stratum corneum lipids, the “mortar” that provides not only additional structural protection against invasion by pathogens.
- It provides perhaps the most critical of all protections, the establishment and maintenance of the “permeability barrier” of the skin.
- It is the unrecognized weapon in the fight against infectious disease.

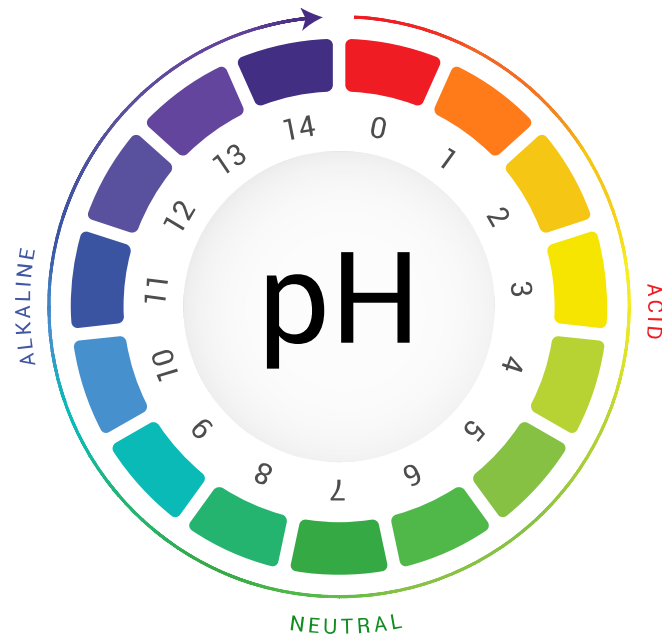


Using pH in the Fight of Human -vs- Pathogens

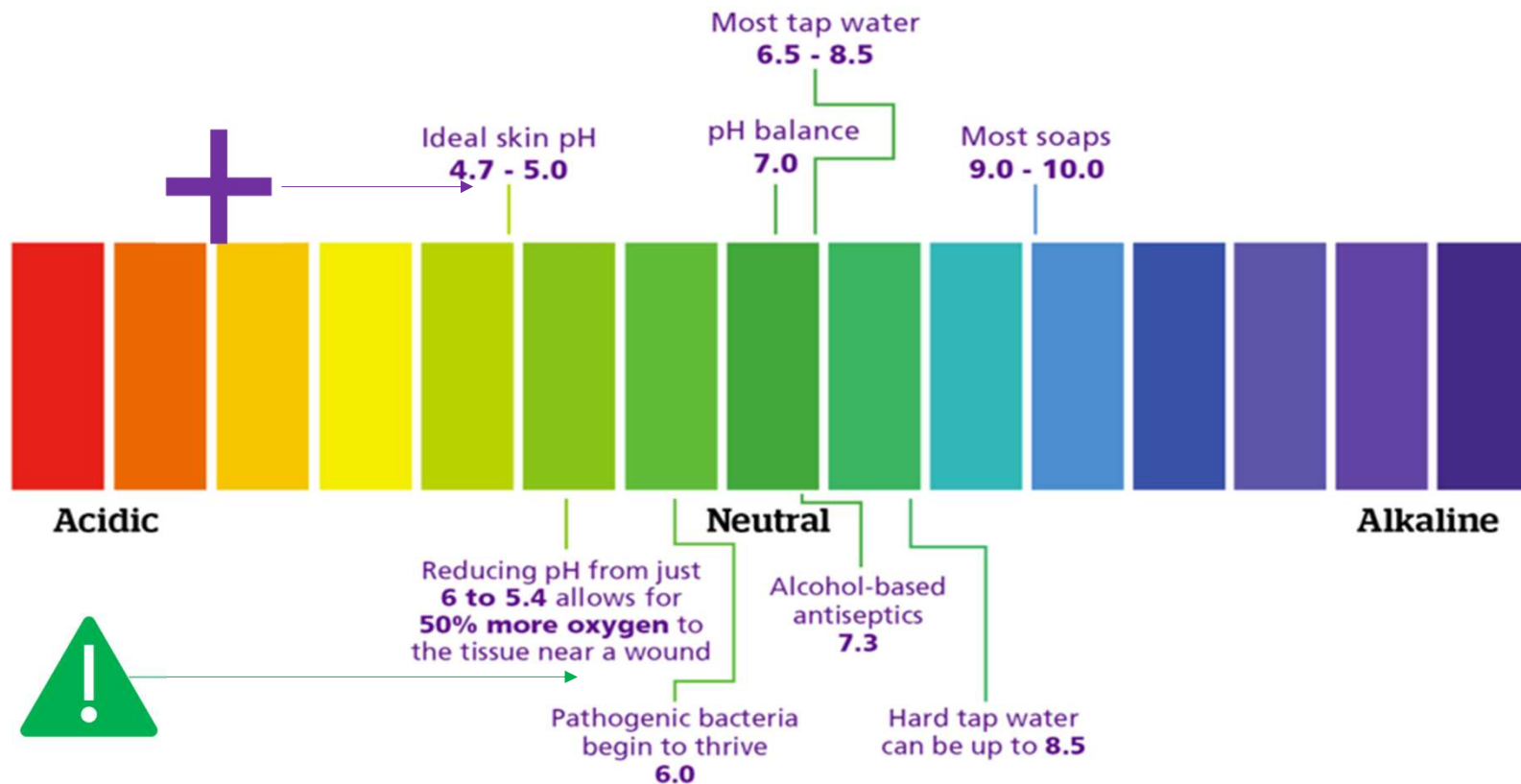


Nature Understands pH

- One of the three types of lipids, free fatty acids, has a very effective antimicrobial action.
- The importance of maintaining low stratum corneum pH is critical to the production of lipids.
- Which form the key protective element of the stratum corneum, the body's permeability barrier, and which also support the natural antimicrobial protection of the skin.



Optimal pH in the fight against opportunistic pathogens





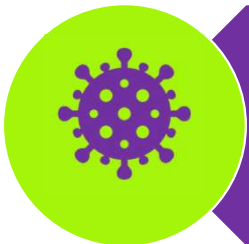
Case Study



**March 2020, Sars-CoV-2 was spreading,
I knew we were battling a formidable
foe.**



I knew time was working against me



I needed new thinking and actions

Mechanisms of Action

Effective And Safe For Use Head-to-toe, Including The Perineum And Mucosa

pH Acidic Systems:

Inhibits the colonization of pathogens.

- **Key Ingredients:** Citrus Paradisi (Grapefruit) Seed Extract, Cocamidopropyl Betaine and Lauryl Glucoside (low-pH Surfactants).

Surfactant Systems:

Lowering the surface tension on the skin making it increasingly difficult for pathogenic adherence & disruptive to biofilm.

- **Key Ingredients:** Cocamidopropyl Betaine and Lauryl Glucoside (low-pH Surfactants).

Antimicrobial Preservative Systems:

Safe for use on mucosa with effective ingredients that should not interact with mucosa.

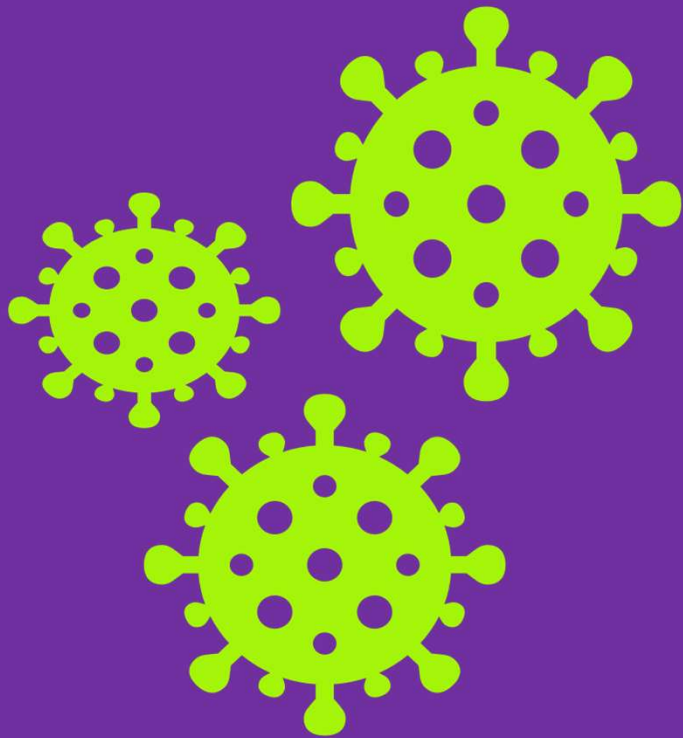
- **Key Ingredients:** Citrus Paradisi (Grapefruit) Seed Extract, Tetrasodium EDTA, Colloidal Silver, Beta Glucan, Aloe Barbadensis Leaf Juice.

Barrier Systems:

Utilizing skin as the first line of defense, assuring that skin is intact and pliable.

- **Key Ingredients:** PEG/PPG-4/12 Dimethicone, Allantoin, Tocopheryl Acetate, Glycerin.

Study 1: Activity of a novel, multimodal, silver-based skin cleanser on coronaviruses, *in-vitro*



Results: At 1 and 30 minutes, there was a 1.75 log reduction (98.22%) in SARS-CoV-2 virus. At 60 minutes, there was a 2.25 log reduction (99.44%) in virus.

Candida Auris

It is being normalized

- While the most common presentation of *Candida auris* infection occurs on the skin that leads to bloodstream infection (fungemia), it may spread hematogenously to seed different organs and cause multi-organ dysfunction.
- The mortality rate of invasive infections associated with *C. auris* is comparatively higher than that of other *Candida* species.

Efficacy: Candida Auris

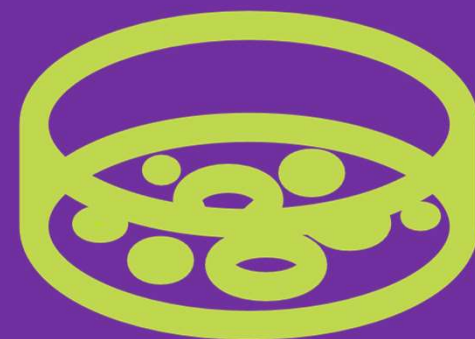
TABLE 2

Test Product: Broad Spectrum Hygiene Management (4 oz Foam)
Lot Number: 16180-1

Microorganism Species (ATCC #)	Initial Population (CFU/mL)	Exposure Time	Numbers Control Population (CFU/mL)	Post-Exposure Population (CFU/mL)	Log ₁₀ Reduction	Percent Reduction
<i>Candida auris</i> (AR-Bank #0385)	5.050 x 10 ⁹	4 hours	5.00 x 10 ⁷	1.320 x 10 ⁷	0.5784	73.6000%
		8 hours	5.150 x 10 ⁷	4.250 x 10 ⁶	1.0834	91.7476%
		24 hours	4.00 x 10 ⁷	< 1.00 x 10 ¹	6.6021	99.9999%
<i>Candida auris</i> (AR-Bank #0389)	5.10 x 10 ⁹	4 hours	5.950 x 10 ⁷	9.350 x 10 ⁶	0.8037	84.2857%
		8 hours	6.250 x 10 ⁷	3.90 x 10 ⁵	2.2048	99.3760%
		24 hours	5.750 x 10 ⁷	< 1.00 x 10 ¹	6.7597	99.9999%
<i>Candida auris</i> (AR-Bank #0390)	5.950 x 10 ⁹	4 hours	4.00 x 10 ⁷	1.4550 x 10 ⁶	1.4392	96.3625%
		8 hours	5.10 x 10 ⁷	1.4050 x 10 ⁴	3.5599	99.9725%
		24 hours	4.80 x 10 ⁷	< 1.00 x 10 ¹	6.6812	99.9999%

IN-VITRO TIME-KILL EVALUATION – RESULTS (TABLE 2)

Table 2 presents the initial populations (CFU/mL). The Numbers Control Populations (CFU/mL), and the Post Exposure Populations (CFU/mL) for the challenge microorganism, and the Log₁₀ reductions produced by the test ingredients



New Thinking: New Approaches



- Pathogens Will Continue to Influence Outcomes
- Human Factors Will Continue to Influence Outcomes.
- Skin and mucosa is the first line of defense against pathogens but needs help in maintaining acid mantle.
- Using a sustained low acidic pH creates a hostile environment against pathogen reproduction and promotes skin health.

Thank You!!

This concludes the CE portion of the
presentation

Further research and review of
clinical studies:
Please scan the QR code

Learn about Theraworx Protect's clinical data, visit
hcp.theraworxprotect.com/learn

