

# GENBMT HCW/ PATIENT/ ENVIRONMENTAL SURVEILLANCE (AKA COPPER STUDY) ON THE BONE MARROW TRANSPLANT WARD

**T. WOZNOW** <sup>1,2</sup>, **T. WONG** <sup>1,2,3</sup>, **A. STEFANOVIC** <sup>1,2,3</sup>, **L. HOANG** <sup>3,4</sup>, **M. CROXEN** <sup>4</sup>,  
**R. BROADY** <sup>2,3,5</sup>, **R. DIXON** <sup>6</sup>, **E.A. BRYCE** <sup>1,2,3</sup>

1. Division of Medical Microbiology and Infection Prevention and Control, 2. Vancouver Coastal Health, B.C., 3. University of British Columbia, 4. B.C. Public Health Microbiology and Reference Laboratory, Provincial Health Services Authority, 5. Leukemia/Bone Marrow Transplant Program, 6. Coalition for Health Acquired Infection Reduction (CHAIR) Canada

Biomerieux

Merck

Ondine

Pfizer

Steriliz

Theravance

Teck

Generic drug names  
will be used

No company  
sponsored trials will  
be mentioned



# DISCLOSURE



Consented patients

CHAIR Canada

Industry Partners:

Aereus Technologies,

American Standard,

CDC Construction,

Chem Aqua

Environmental

Services

Class 1 Inc., Deb Med,

Franke, Green Earth

Nano Science Inc.,

Trimco Hardward

Nurses, Coordinators,

Rxt's on BMT &

Leukemia ward

Genome BC

UBC & VGH hospital

foundation

George Poling

BCCDC PHL (AK)

VGH Med Micro

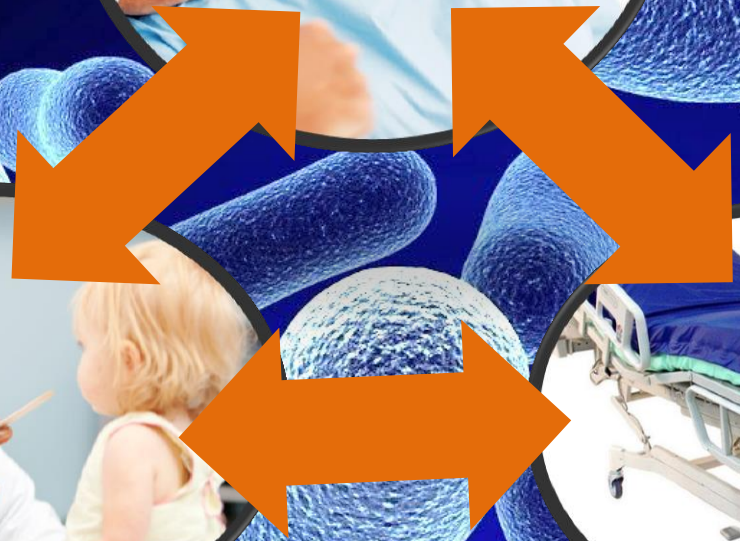
VGH Infection Control

VGH Maintenance

VGH Environmental

Services

**ACKNOWLEDGEMENTS**





**OUR LABORATORY**



RE-  
ENGINEERED  
BMT ROOM

HCW, PATIENT  
SURVEILLANCE

ENVIRONMENT  
SURVEILLANCE

HCW, PATIENT,  
ENVIRONMENT  
RELATIONSHIP

# PILOT KEY FINDINGS



1

Low ARO colonization in healthcare workers

2

High VRE, *C. difficile* colonization in patients

3

High compliance for ARO surveillance

4

Lower microbial counts on re-engineered rooms



THESE SURFACES WERE TESTED FOR MICROBIAL BIOBURDEN IMPACT



**REENGINEERED**  
**PATIENT ROOM**





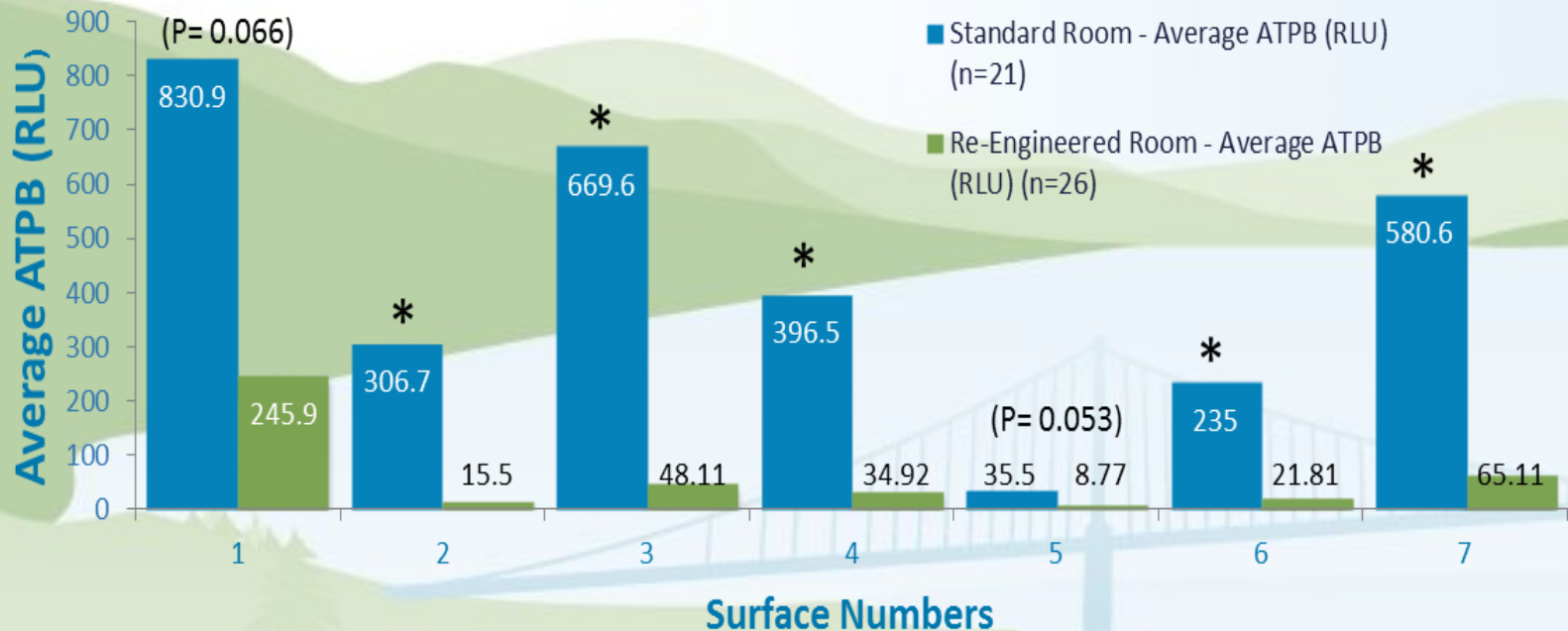
**THESE INSTALLATIONS WERE NOT ASSESSED FOR MICROBIAL BIOBURDEN REDUCTIONS DUE TO TECHNICAL LIMITATIONS**

**REENGINEERED  
PATIENT ROOM**

**TABLE 1: Microbial Bio-Burden Standard vs Re-Engineered Rooms**

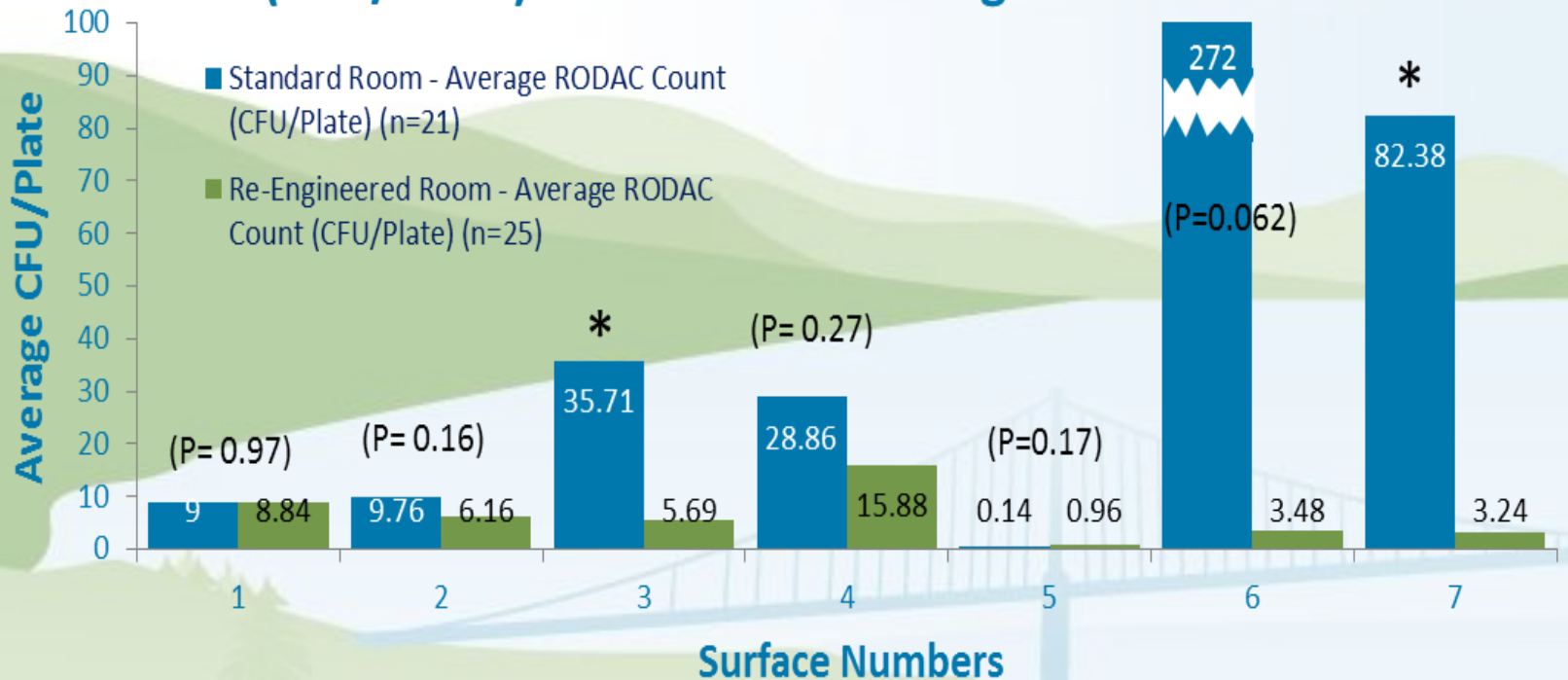
<i>Environment</i>	<i>Units</i>	<i>Standard Room</i>	<i>Engineered Room</i>	<i>p-Value</i>
<i>Surfaces</i>	Average CFU/Plate	62.6 (n=147)	6.32 (n=175)	0.0083
	Average RLU	434.4 (n=147)	62.9 (n=182)	0.0001
<i>Water</i>	Average CFU/plate	26.5 (n=20)	0.08 (n=25)	0.0007
<i>Air</i>	Average CFU/plate	14.2 (n=21)	15.6 (n=25)	0.8145

## Average ATPB (RLU): Standard vs Re-engineered Room



1. Overbed table
2. Bedside table
3. Visitor chair armrest
4. Bedrail
5. Wall console
6. Toilet seat
7. Bathroom Sink

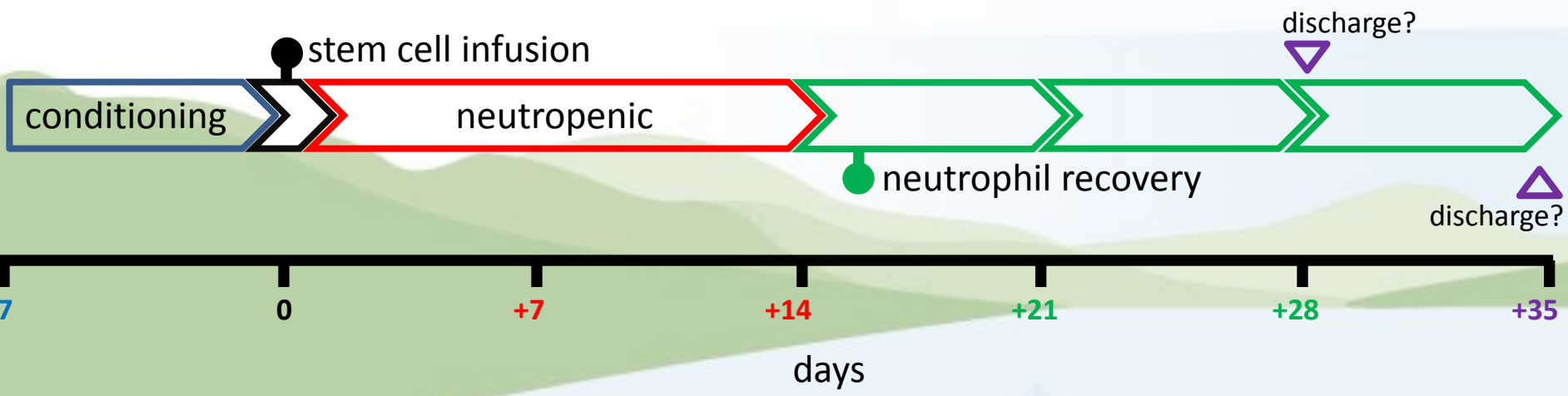
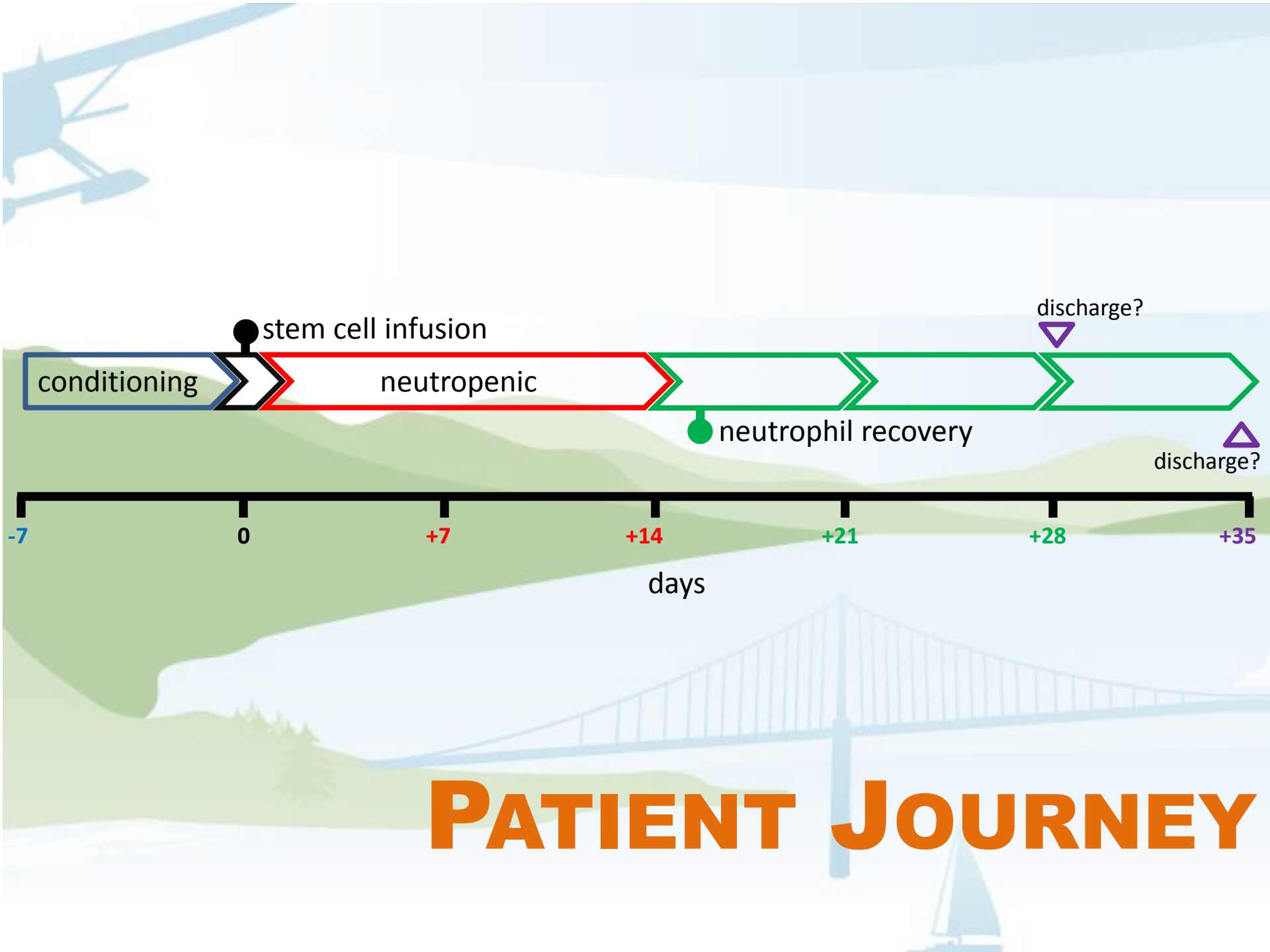
## RODAC (CFU/Plate): Standard vs Re-Engineered Room



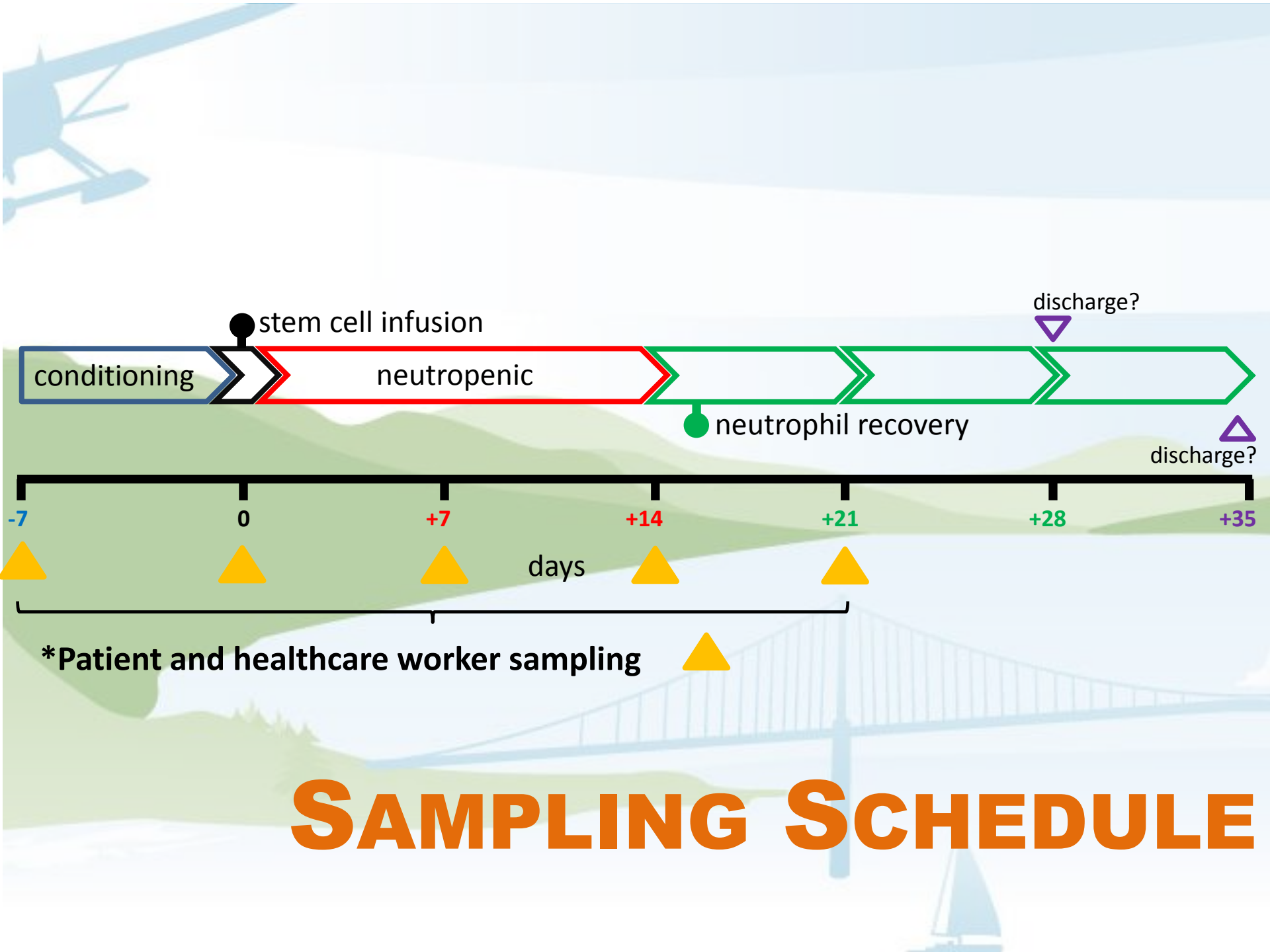
1. Overbed table
2. Bedside table
3. Visitor chair armrest
4. Bedrail
5. Wall console
6. Toilet seat
7. Bathroom Sink

# **Re-Engineered Rooms**

**Lower mean ATP readings**  
**Lower mean surface CFU**



# PATIENT JOURNEY



# SAMPLING SCHEDULE

## Patient

- Baylor Wash
- Axillae
- Stool

## Healthcare Worker

- Nares
- Hands
- Perineum

1. Conventional microbiology identification for **target organisms** at VGH MM

2. **Magical genomics** at BCCDC PHL with Linda and Matt (*\*in progress*)





HCWs

311/352 (88%) opportunities

Patients

129/144 (90%) opportunities

**SAMPLING COMPLIANCE**



**HCWs**

**9/32 (28%) - positive**

5/9 persistently colonized

2/9 transiently colonized

(\* 2/9 HCWs were only tested once so it is unknown if colonization is transient or persistent)

**Patients**

**2/9 (22%) positive**

**MSSA**

A dark, atmospheric photograph of a narrow street in a city, possibly in Asia, shrouded in fog or mist. The street is paved with large, rectangular tiles. On the right, there are multi-story buildings with traditional architectural features like tiled roofs and windows with metal grates. A person is walking away from the camera in the middle ground. A trash bin is visible on the right side of the street. The overall mood is somber and mysterious.

**HCWs**

**1/32 (3%) positive**

- this HCW was transiently colonized

**Patients**

**(0%) positive**

**MRSA**



**HCWs  
(0%) positive**

**Patients  
4/9 patients (44%) positive**

- all were acquired PRIOR to admission to BMT unit
- one patient had VRE bacteremia

**VRE**

HCWs  
(0%) positive



Patients  
6/9 patients (67%) positive

- 1 was hospital acquired, with clinical PCR positive as well as compatible symptoms; treatment for CDI

***C. DIFFICILE***

# **HEALTHCARE WORKERS**

**Compliant w/ ARO surveillance**  
**Low ARO colonization**

# **PATIENTS**

**Compliant w/ ARO surveillance**  
**High VRE, *C. difficile***  
**colonization**

An iceberg floating in the ocean. The tip of the iceberg is visible above the water surface, while the much larger, submerged part is visible below. The sky is blue with a few birds flying. The water is a deep blue. The background of the text is a dark blue gradient.

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An iceberg floating in the ocean. The tip of the iceberg is visible above the water surface, while the much larger, jagged base is submerged below. The sky is blue with a few birds flying. The water is a deep blue. The background of the slide is a dark blue gradient.

# LIMITATIONS

## NEXT STEPS

1

small pilot study

2

surveillance compliance  
was not 100%

1

BCCDC PHL analysis of  
genomics data (LH, MC, AK)

2

Take lessons learned to  
inform larger, multi-center  
study



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**ACKNOWLEDGEMENTS**



THANKS FOR YOUR ATTENTION



Titus Wong, BScPharm, MHSc, MD, FRCPC  
titus.wong@vch.ca; 604-875-8228  
JPPN1 Room 1116, Microbiology