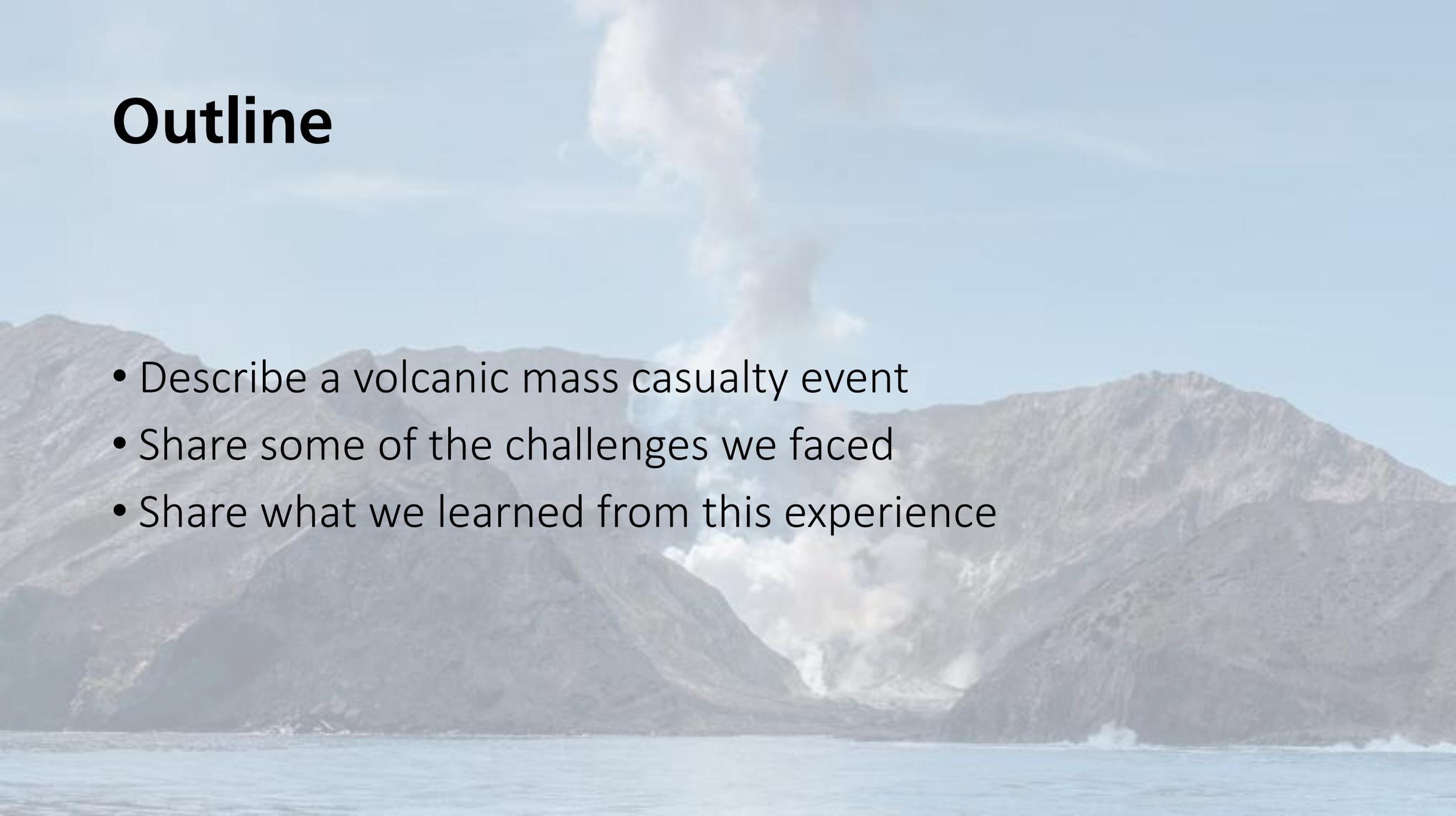


A photograph of a volcanic eruption. A large, dark, billowing plume of ash and smoke rises from a mountain, reaching high into a clear blue sky. The mountain's slopes are covered in dark ash and volcanic rock. In the foreground, the dark blue water of the ocean is visible. The overall scene is dramatic and powerful.

The Extraordinary is Built on the Everyday

Dr Carl Horsley
Middlemore Hospital

Outline

A photograph of a volcanic eruption. A large, billowing plume of white ash and smoke rises vertically from a mountain range in the background. The mountains are dark and rugged, with some snow or light-colored rock visible. The foreground shows a calm blue body of water, likely the ocean, with a small white wave visible on the right side. The sky is a clear, pale blue.

- Describe a volcanic mass casualty event
- Share some of the challenges we faced
- Share what we learned from this experience



1

Emergency

Kids First

Birthing Unit

Main Entrance

Main Entrance

Information icons: i, P, and a wheelchair icon.

DIABETES

EAT MORE VEGES FOR DINNER



Main Entrance

St John's
AMBULANCE
A58

ROAD WORK AHEAD

Woolworths

A photograph capturing a powerful volcanic eruption. A massive, dark grey plume of ash and smoke billows upwards from a mountain, dominating the left side of the frame. The sky is a clear, bright blue. In the foreground, a rocky beach is scattered with large, dark boulders. A group of people is gathered on the right side of the beach, observing the scene. The water in the foreground is a pale, milky green color. The overall scene conveys the scale and power of the volcanic event.

And then...



White Island Crater Rim

2019 Dec 09 02:10 pm NZDT

© Institute of Geological and Nuclear Sciences

Initial Disposition





WTF?







COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins

Global Cases

21,582,345

Cases by
Country/Region/Sovereignty

5,400,180 US

3,340,197 Brazil

2,589,682 India

920,719 Russia

587,345 South Africa

525,803 Peru

517,714 Mexico

456,689 Colombia

385,946 Chile

343,203 Iran

Admin0

Last Updated at (M/D/YYYY)
8/17/2020 10:27:36 a.m.

188
countries/regions



Cumulative Cases



Lancet Inf Dis Article: [Here](#). Mobile Version: [Here](#). Data Sources: [Full list](#). Downloadable database: [GitHub](#), [Feature Layer](#).
Lead by [JHU CSSE](#). Technical Support: [Esri Living Atlas team](#) and [JHU APL](#). Financial

What lessons did we learn?



Lesson 1:

The ability to adapt and change the plan is as important as the plan.

**National Health
Emergency Plan:**
Multiple Complex Burn
Action Plan

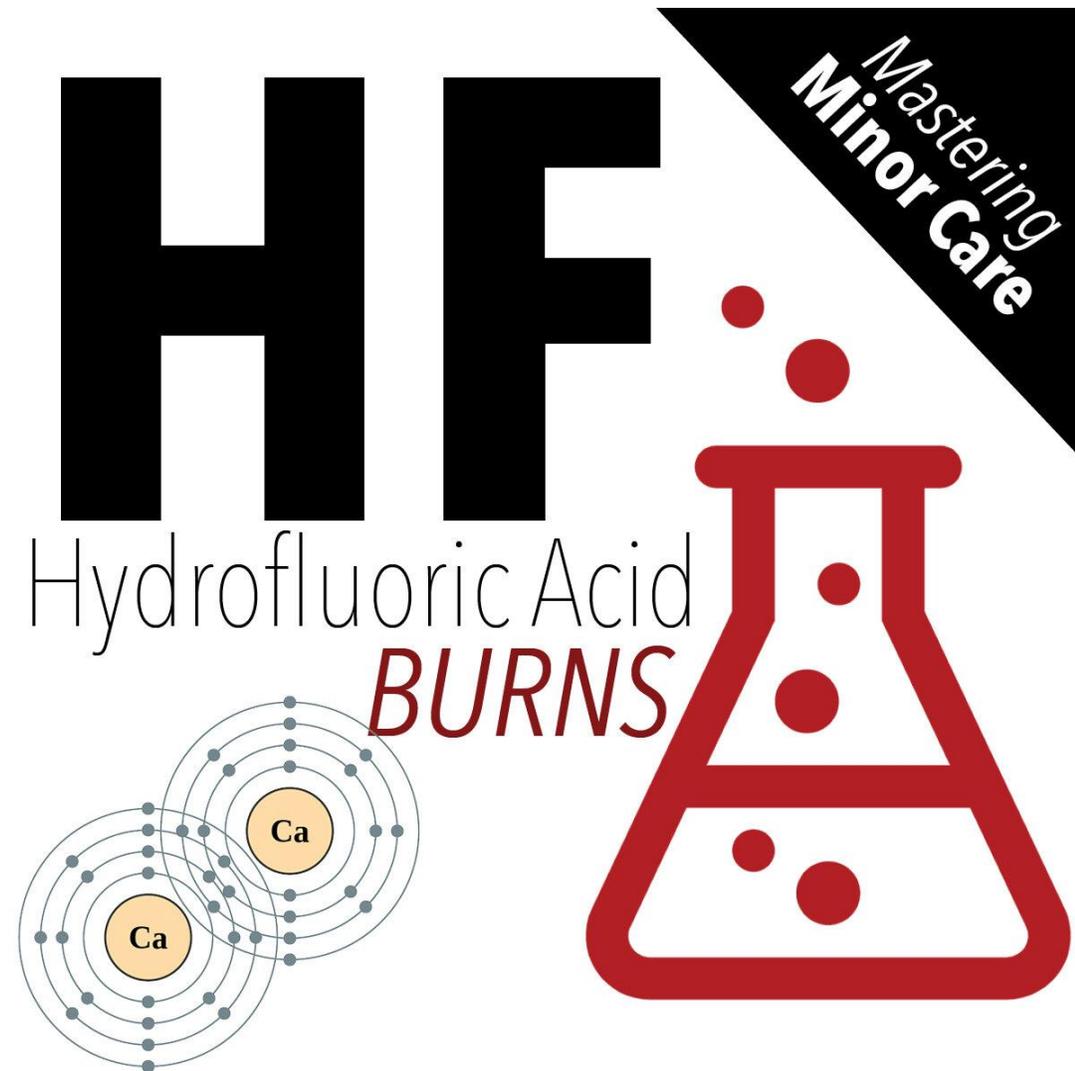
2011

“Everyone has a plan until they get punched in the mouth”

Mike Tyson

"In complex environments, resilience often spells success, while even the most brilliantly engineered fixed solutions are often insufficient or counterproductive."

Gen Stanley McChrystal *Team of Teams* 2015



Lesson 2:

Adaptation must occur at all levels

Resilient Healthcare

“the capacity to adapt to challenges and changes
at different system levels,
to maintain high quality care.”

Wiig et al.. **Defining the boundaries and operational concepts of resilience in the resilience in healthcare research program**

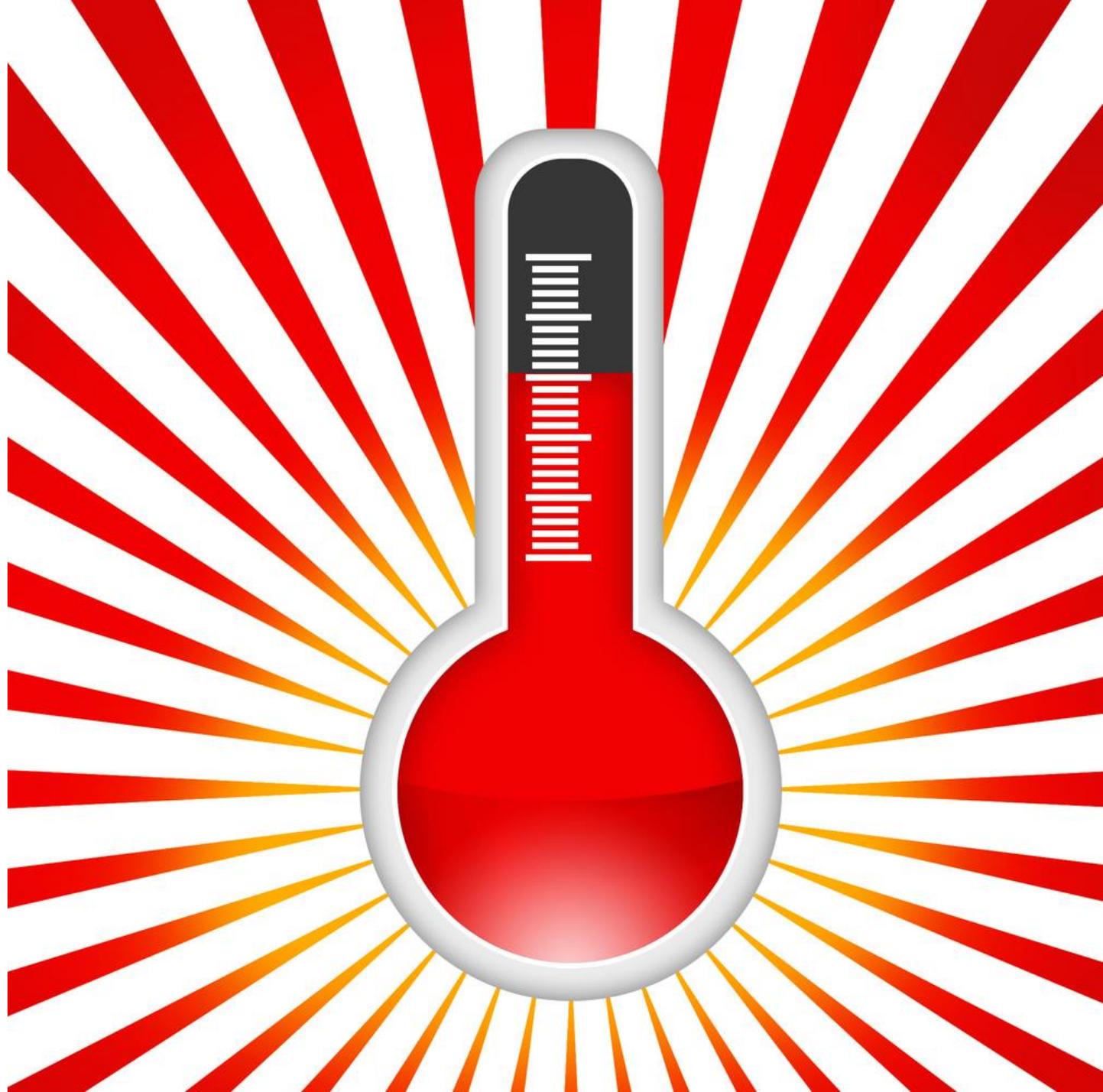
[BMC Health Services Research](#) volume 20, Article number: 330 (2020)

National and International Response



Unit Response

- Heating
- Equipment
- Fluids
- PPE



Staff Response

- Double SMO staffing
- Maintaining days off
- Food
- Psychological support



Lesson 3

The adaptive work of the present is built on
the relationships and capacities from the
everyday

Team Resilience

'Training for resilient performance since 2015'

1. Does everyone know what is going on ?



2. Does everyone know who is doing what ?

- ROLE CLARITY
- LEADERSHIP + ACTIVE FOLLOWERSHIP

3. Are we clear in our communication ?

- NAMED PERSON
- READ BACK
- CLOSED LOOP

4. How do we ensure we reach our goals ?

Even when things change

- ANTICIPATE
- MONITOR
- RESPOND
- LEARN

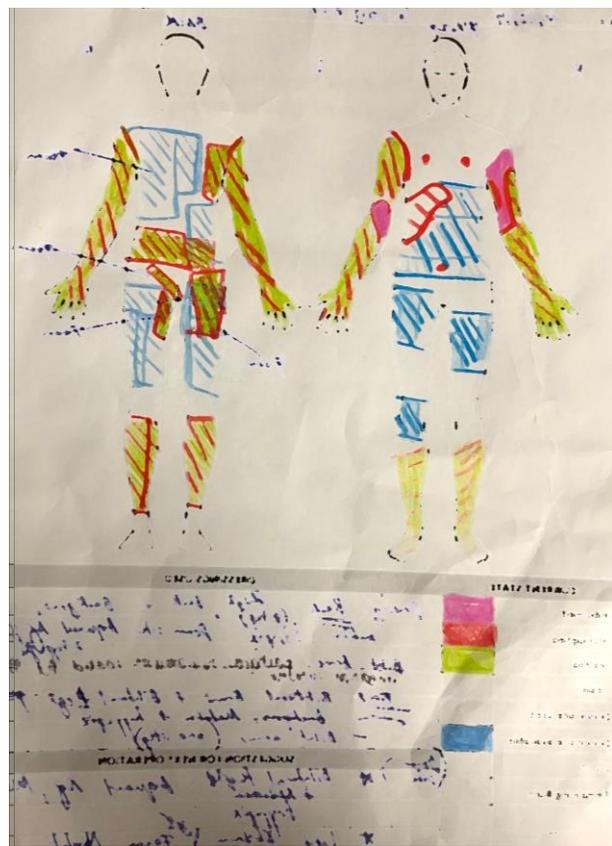
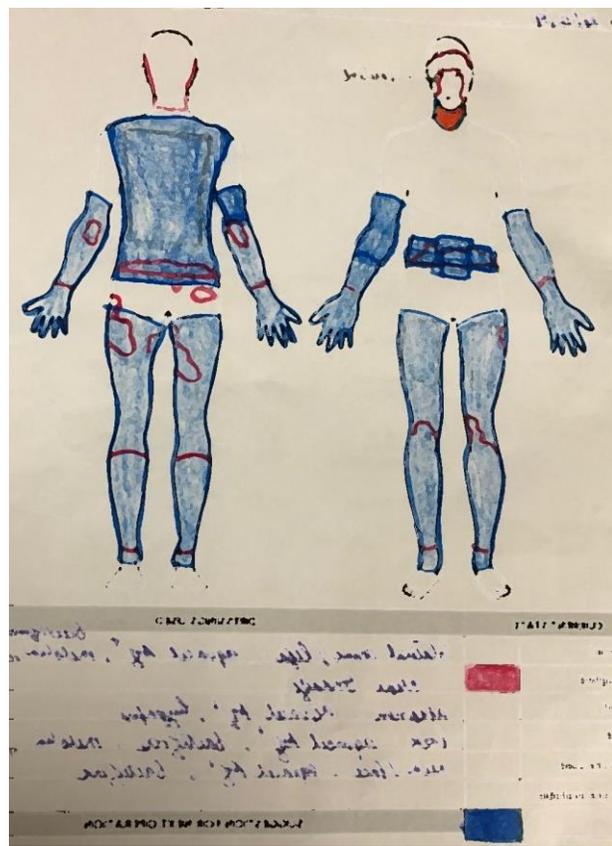
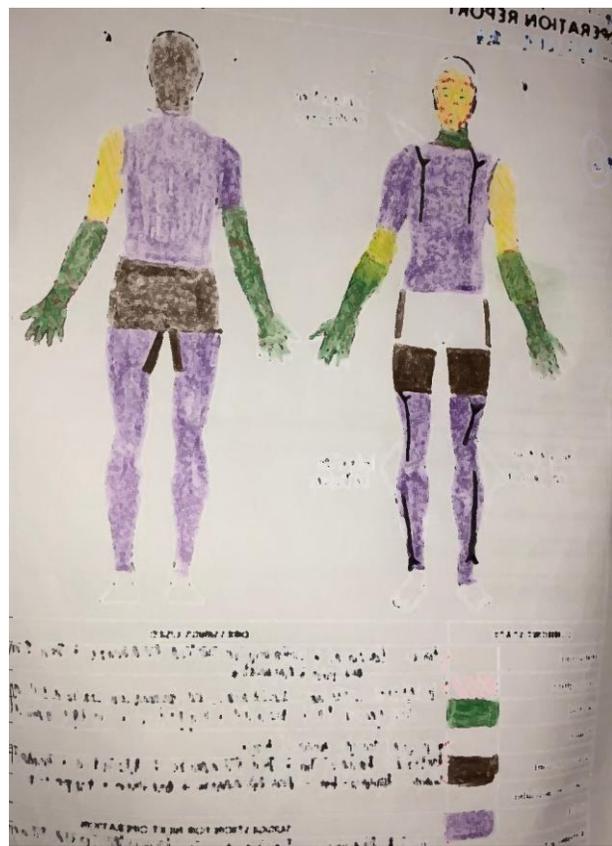
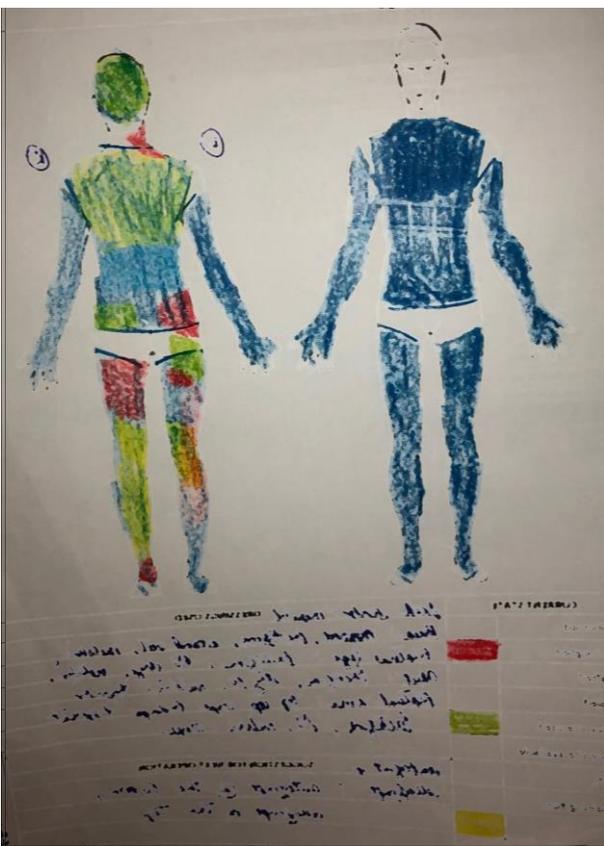
5. How do we speak up if we have concerns ?

- ENQUIRE
- ADVOCATE
- ASSERT

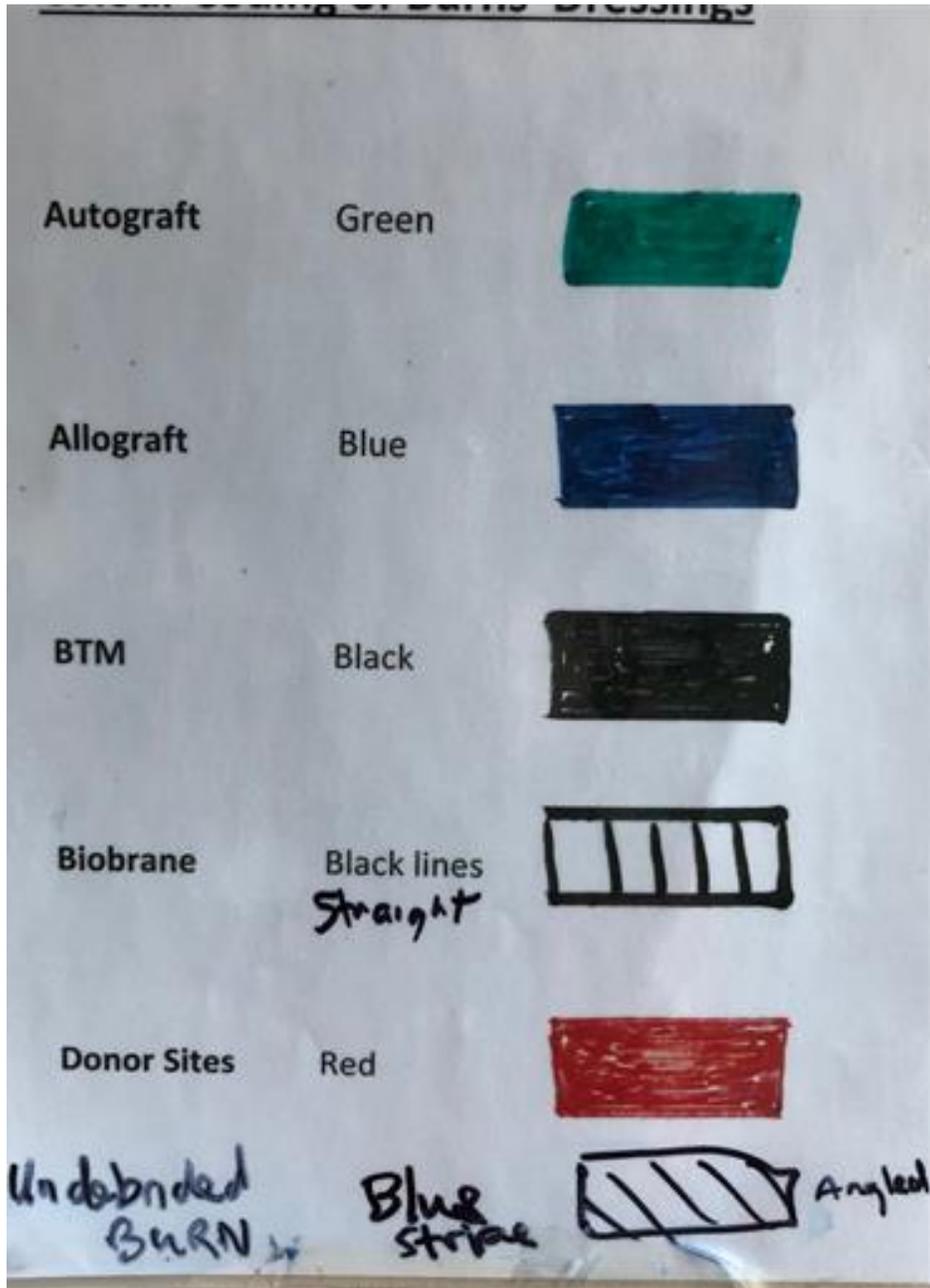
6. How do we make it safe to speak up?

- REDUCING HIERARCHIES
- VALUING SPEAKING UP
- FOCUS ON LEARNING





Variability is not always good



Artifact design

Standardisation supported the ability to recognise and respond to change

→ resilient performance



	<p>Tour guide. Friends who died. Has mum and dad here.</p>
03	<p>30% burn : volcano. Epilepsy USA - husband in ChCh. Parents in Akl</p>
DE	<p>53% TBSA volcano Airway, face, eyes, lower chest, abdo, back, both arms, lower leg Chemocis</p>

Current treatment: Nil

Recent treatment:

Meropenem started 16/1 (plan for 7 days), stopping 22/1/20. Gent stopped 20/1/20 because both blood isolates S to mero and because not clearing gent well. Vanc added 17/1 (stop if E. faecium S amox); vanc stopped 20/1/20. Ceftazidime stopped 6/1/20. Fluconazole stopped 3/1/2020

Deterioration plan:

Meropenem + tobramycin 350mg, add ciprofloxacin 800mg IV Q8hrly (watch QTc as on methadone)

Need to watch tobra levels: if treatment for sepsis needed give tobra, dose 350mg, check levels 1-3 hour post dose, and 6-12 hours post dose. Clinical pharmacology in Chch have been consulted.

(Lab is checking for colistin susceptibility in case needed for MRP)

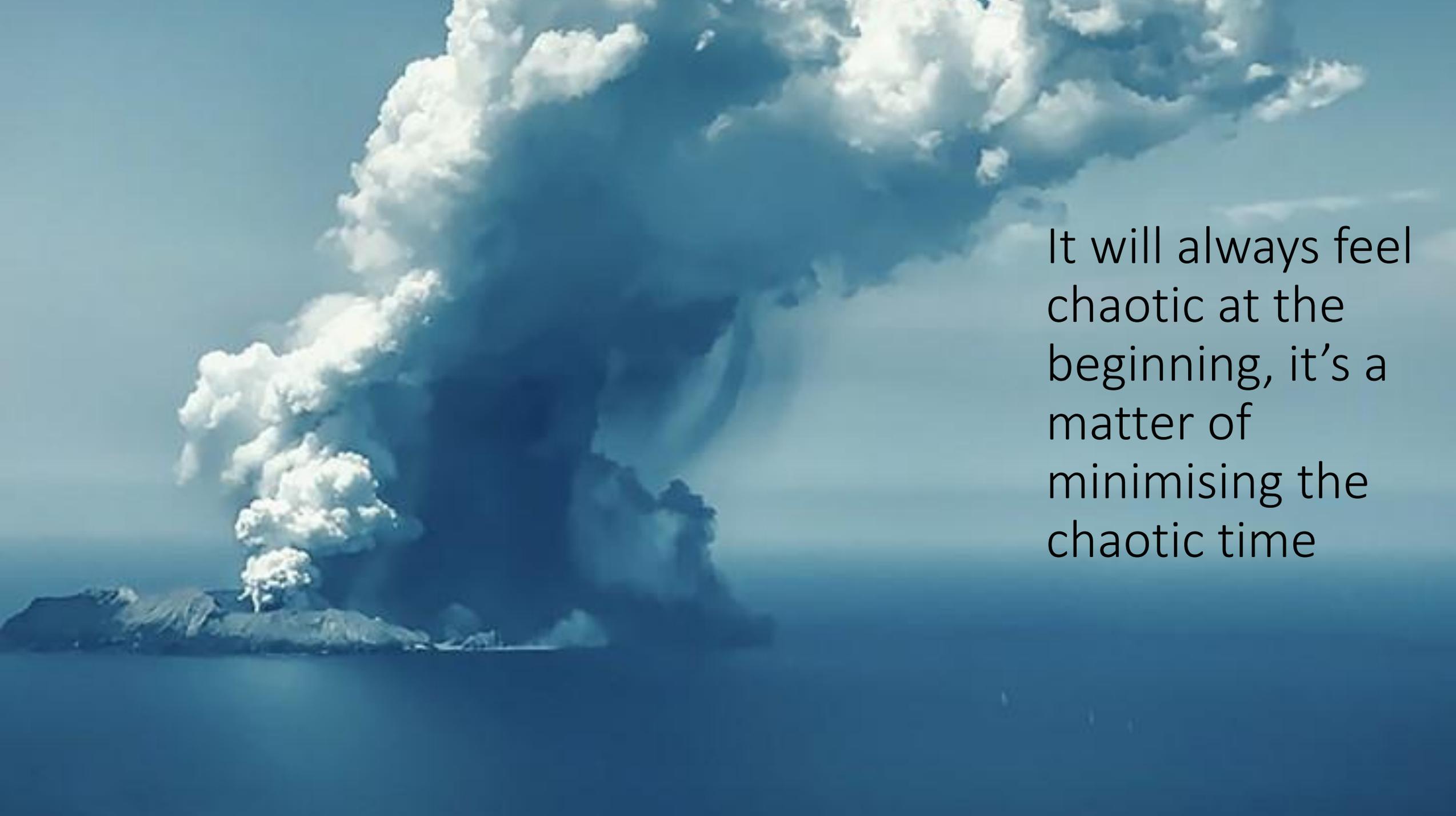
Surgical prophylaxis (if potentially bacteraemic procedure):

Amoxicillin plus Cephazolin plus Ciprofloxacin 800mg IV. Please check a peak cipro level (within 10 minutes of the end of the infusion) and trough level (18-24 hours later).

(Gave meropenem as proph agent 4/2 because concerned about both tobra clearance and total aminoglycoside exposure)

Summary

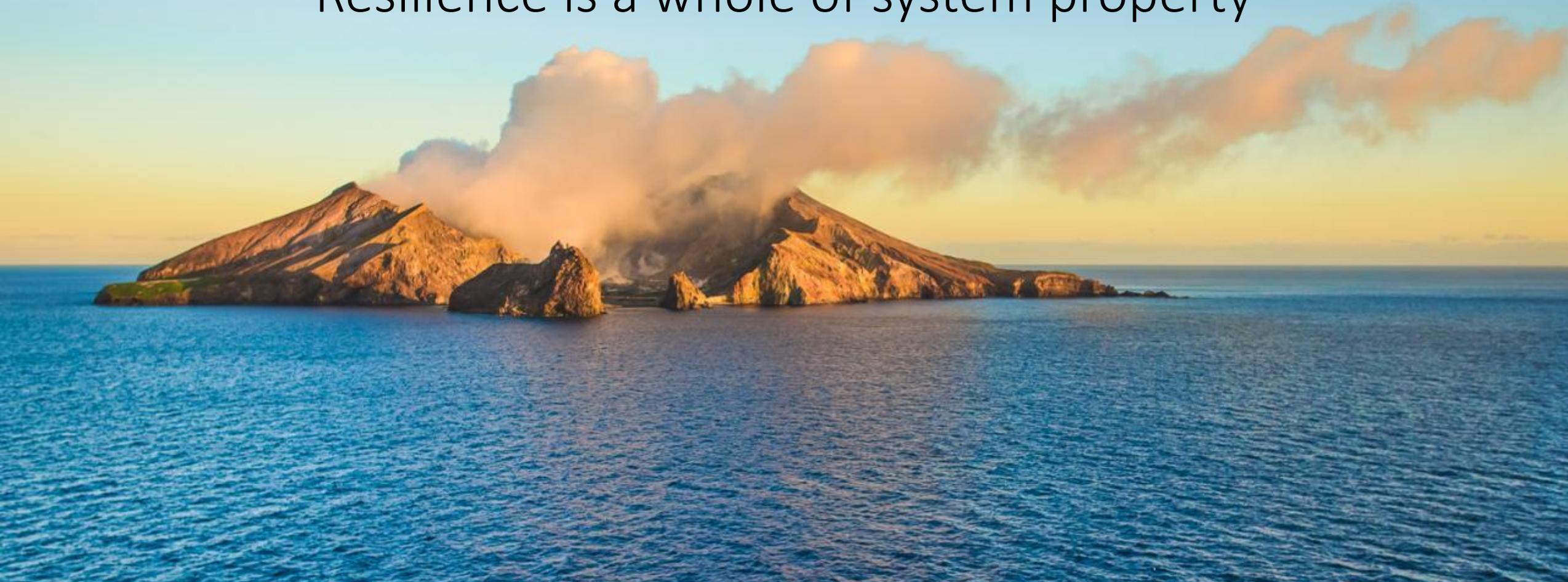




It will always feel
chaotic at the
beginning, it's a
matter of
minimising the
chaotic time

Adaptation needs to occur at all levels
- not just the frontline

Resilience is a whole of system property



A close-up shot of a car's side-view mirror. The mirror's frame is black and curved. Inside the mirror, a landscape is reflected: a two-lane asphalt road with a white dashed center line curves through a valley. The valley floor is covered in dry, yellowish-brown grass. In the background, a large, dark mountain range stretches across the horizon under a pale sky. The car's body is visible on the right side of the mirror's frame.

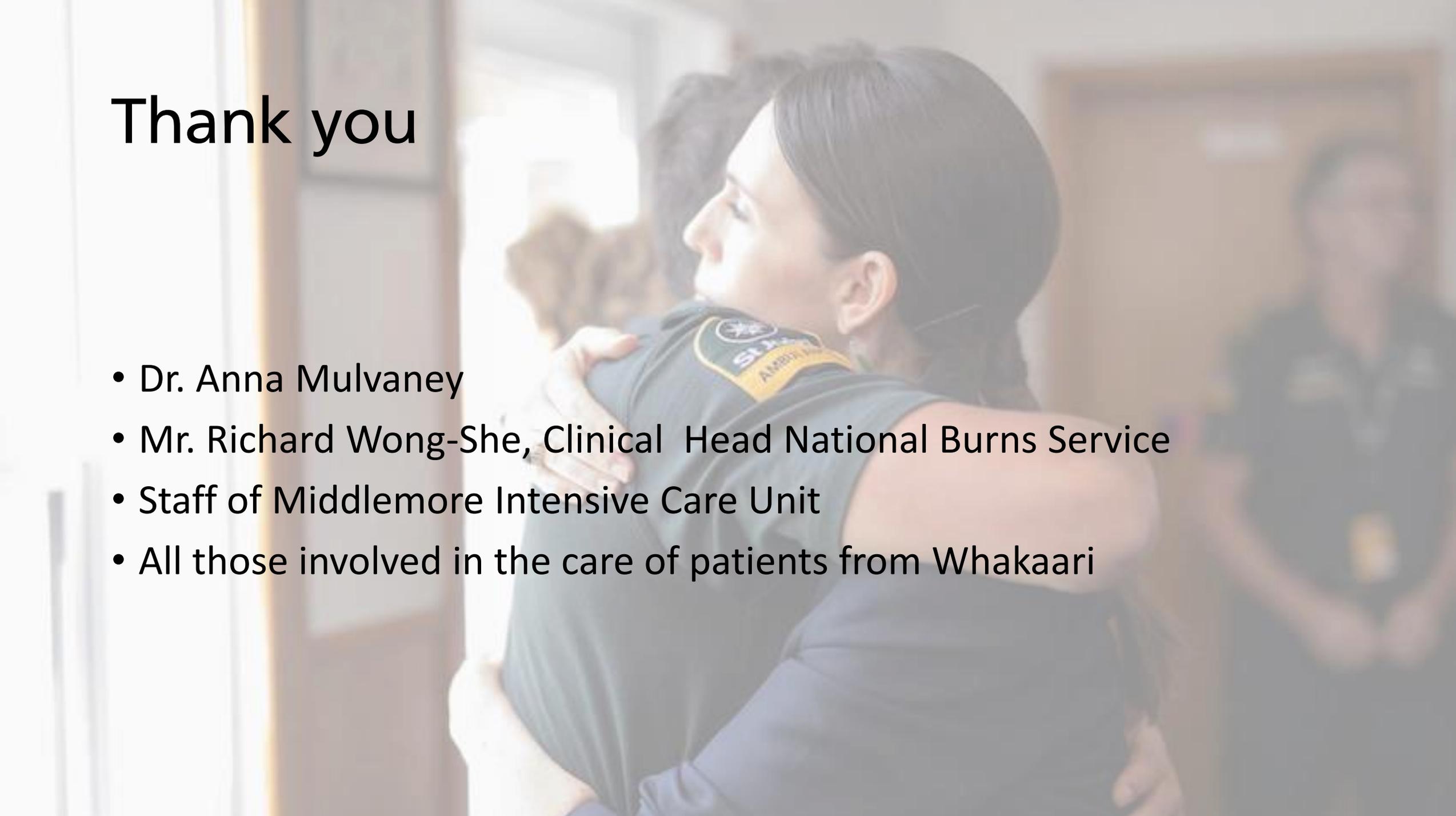
Things that never
happened before,
happen all the time

Scott Sagan

An aerial photograph of a volcanic eruption. A large, billowing plume of white ash and smoke rises from a central vent, spreading across the crater floor. The surrounding landscape is rugged and rocky, with some green vegetation visible on the slopes. The sky is a clear, deep blue.

The exceptional work in a crisis
is built on the everyday

Thank you



- Dr. Anna Mulvaney
- Mr. Richard Wong-She, Clinical Head National Burns Service
- Staff of Middlemore Intensive Care Unit
- All those involved in the care of patients from Whakaari