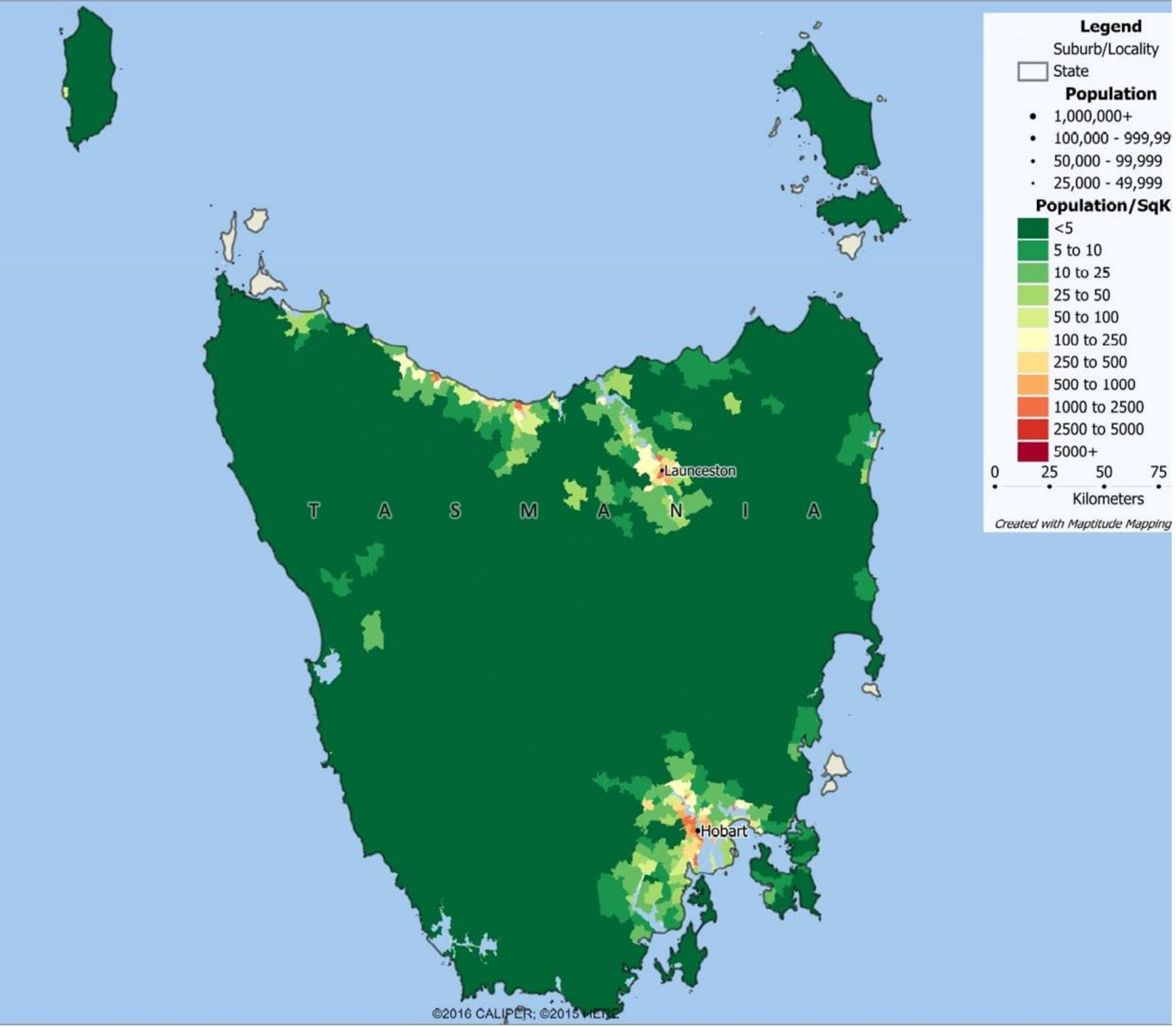
Building a new Pre-Hospital and Retrieval Medicine (PHRM) service

Prof Simon Brown[1,2,3] Dr Erica Kreismann[1]

[1]Ambulance Tasmania

[2]Royal Hobart Hospital

[3]University of Western Australia



Population

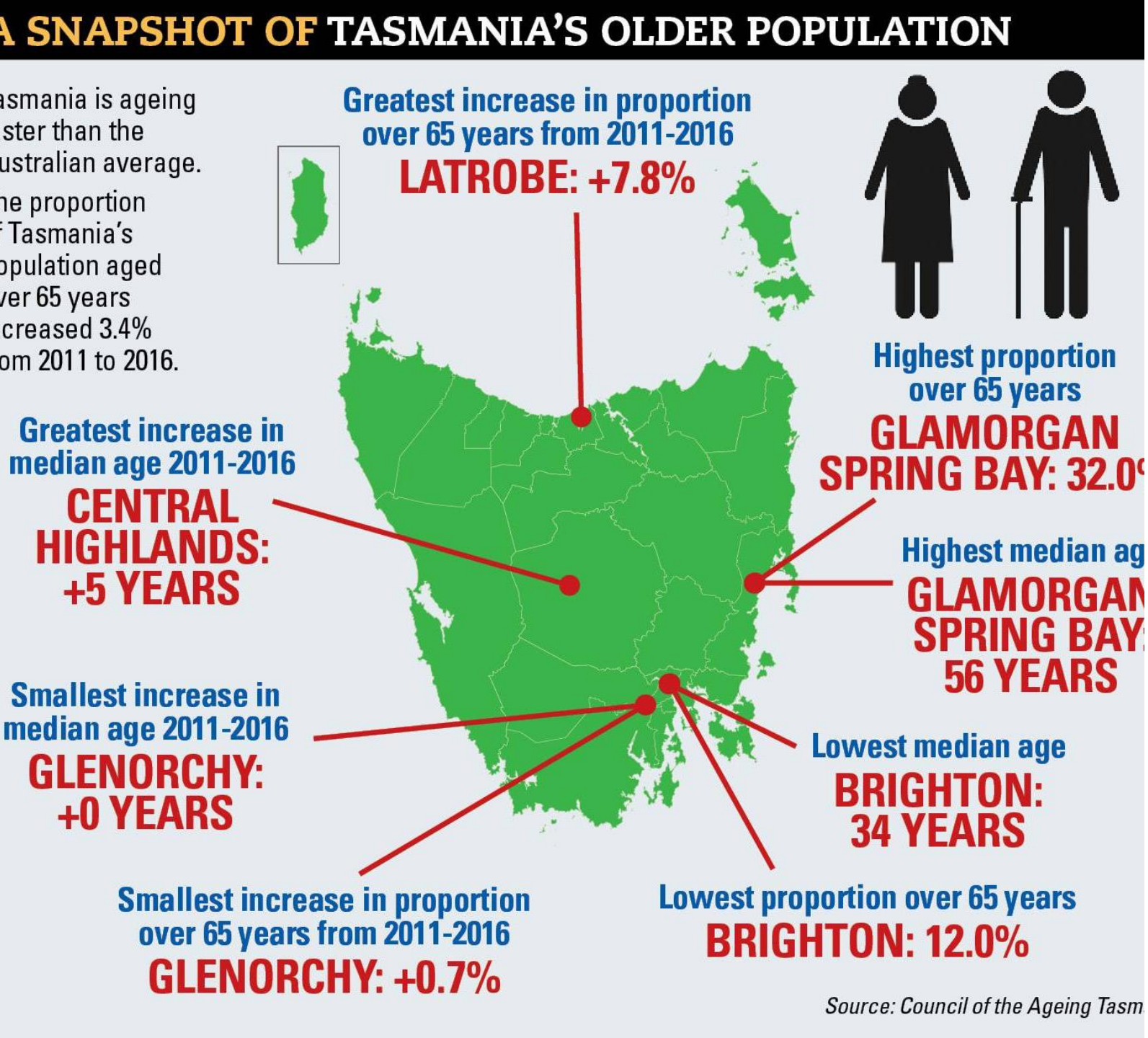
~570,000 (Sep 2020)

- ~275,000 below the line
- ~285,000 above the line

The Campbell Town Line, that is!

No ‘major’ hospital directly serves >252,000 people

This has a significant impact on the delivery of specialized services



Demographics

- Ageing population (already the oldest in Australia)
- Comorbidities

Geography

- Wilderness (& wilderness tourism!)
- Mountain ranges
- Weather
- Water


Checks
- Secure
- Ready
- Ready
- Perform
nary Checks
- Secure
- On & Secure

Helicopters don’t solve every problem

Aeromedical Capability **2016**

24/7 on call **Clinical Coordination** (non-responding doctors)

Fixed wing (North)

- 1 x Beechcraft King Air B200
- Doctor from hospital if required
- NPETS in Hobart (fly to pickup)

Helicopters (South)

- SAR only
- No clinical staff on base
- 1 x AS350 (Squirrel), 1 x BK 117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OOH Critical Care Capability **2016**

1 x medical team – slow, IFT only

1 x NPETS team – *very* slow / IFT

Consequences:

Patients always transported to nearest hospital first

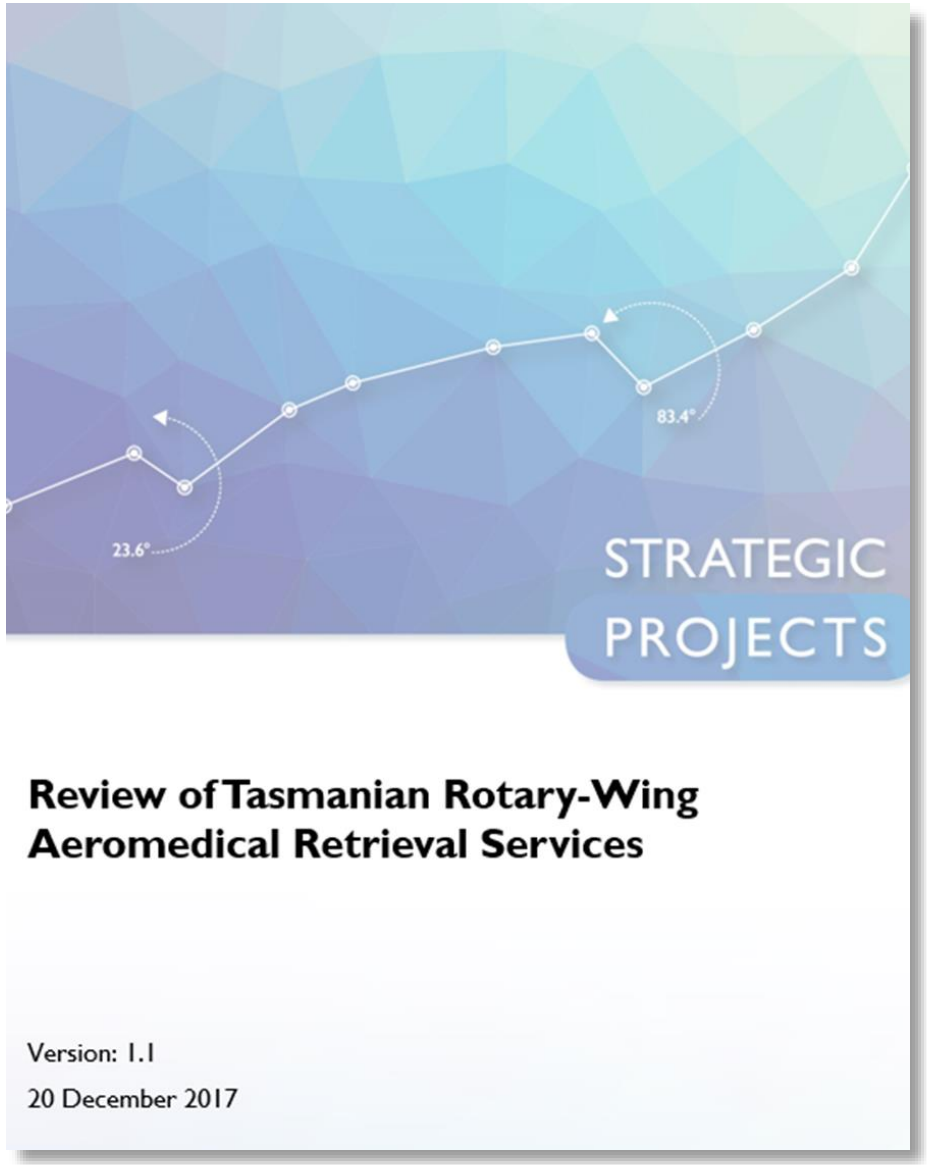
Prompt access to statewide services limited to the RHH area:

- Not good for N/NW patients
- Adverse effect on S patients too)

Deteriorations/death in flight (helo)

No capacity for >1 case at a time

+ Some well-documented SAE



Not another review

- Sharley Review (2007)
- Review of current Tasmanian Patient Transport Services (2008)
- Government response and action plan
- ORH Review of Current and Future Aeromedical Services (2011)
- THS White Paper – Delivering Safe and Sustainable Clinical Services (2015)
- Tasmanian Role Delineation Framework and Clinical Services Profile – 'Final Draft' (2017)

What's different this time?

Data challenges

- Our data
- Other People's Data
- Scientific evidence

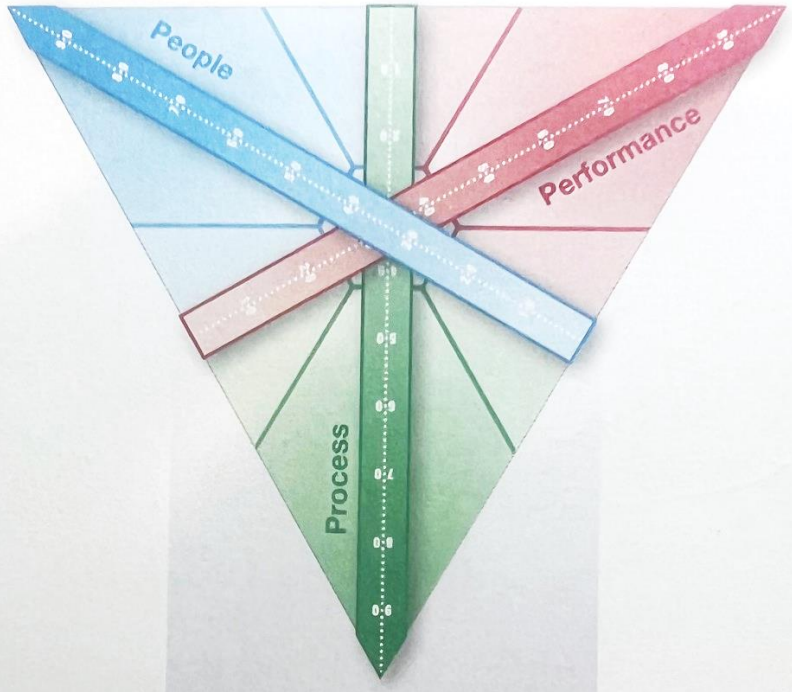
An evidence base for prehospital HEMS?

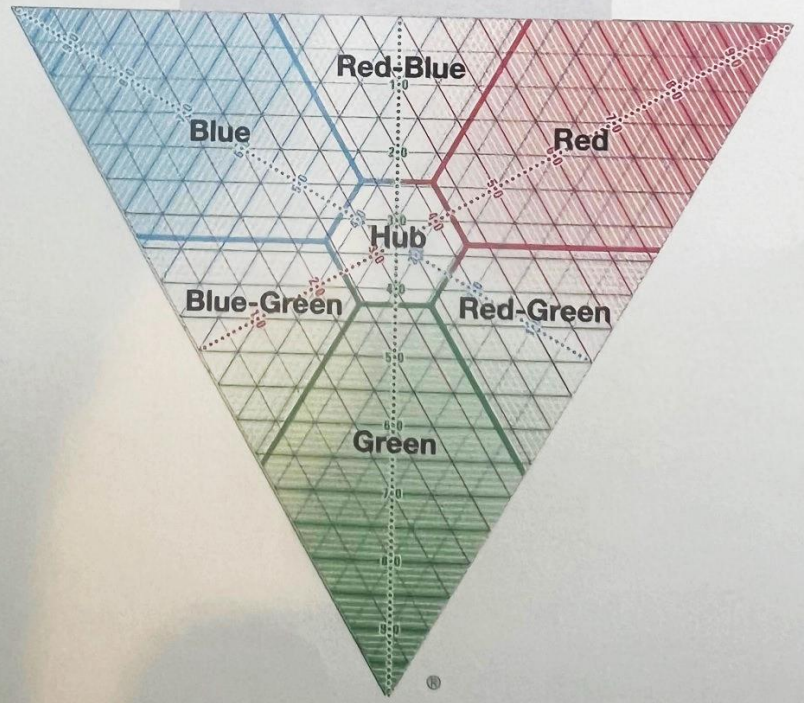
- Clear benefits are yet to be demonstrated:
  - Over metropolitan areas, with or without a higher level of care (medical team) in the helicopter
  - Where care in the helicopter is similar to ground
- Time-savings alone don't seem to have an impact on outcome
- Benefits are apparent when the HEMS provides medical team level care AND where the service facilitates bypass of local facilities for a major centre over long distances
- Overall, somewhere between 1 and 12 additional survivors with good functional outcomes for every 100 HEMS activations[1,2]

1. Ringburg AN, Thomas SH, Steyerberg EW, van Lieshout EM, Patka P, Schipper IB. *Lives saved by helicopter emergency medical services: an overview of literature* Air medical journal. 2009;28(6):298-302.
2. Ringburg AN, Polinder S, Meulman TJ, Steyerberg EW, van Lieshout EM, Patka P, et al. Cost-effectiveness and quality-of-life analysis of physician-staffed helicopter emergency medical services The British journal of surgery. 2009;96(11):1365-70.

Approach

- Good planning, training, clinical coordination, flexibility and multiple platform options (road, FW, RW) are required
- HEMS primarily to provide a service to critically ill and injured patients in wilderness, rural and northern areas (including a more timely NPETS outreach) for transport to Hobart
- Medical team care as a default brings the benefits of additional interventions, advanced decision-making, and mission flexibility
- Task-specific crewing / risk management (2:1 ratio of paramedics to Drs)
- Stuck with some very old aircraft that are no longer fit for purpose, but we will find a way to make do – focus on our people





MOTIVATIONAL VALUE SYSTEM (MVS)

Blue: Altruistic-Nurturing

Altruistic: *unselfish concern for the welfare of others*

Nurturing: *protecting, supporting, and encouraging others*

Red: Assertive-Directing

Assertive: *confidently self-assured and forceful*

Directing: *giving authoritative instruction or guidance*

Green: Analytic-Autonomizing

Analytic: *methodical examination of structures or information*

Autonomizing: *maintaining objective independence, self-governing*

Red-Blue: Assertive-Nurturing

Assertive: *confidently self-assured and forceful*

Nurturing: *protecting, supporting, and encouraging others*

Red-Green: Judicious-Competing

Judicious: *having, showing, or being done with good judgment or sense*

Competing: *striving to gain or win by doing something better than others*

Blue-Green: Cautious-Supporting

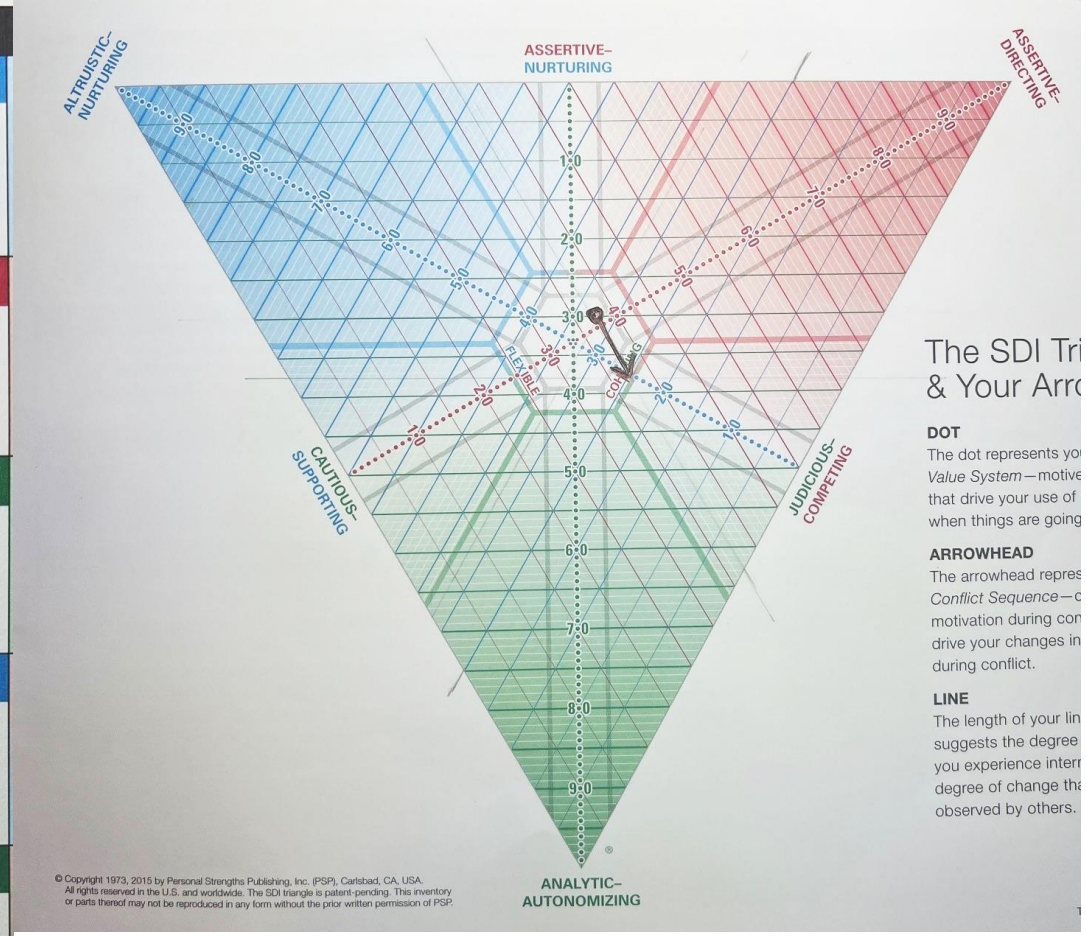
Cautious: *careful to avoid potential problems or dangers*

Supporting: *providing encouragement, comfort, and emotional help*

Hub: Flexible-Cohering

Flexible: *able to respond to changing circumstances and conditions*

Cohering: *bringing people together to form a united whole*



Dot – your *Motivational Value System*
Arrowhead – your *Conflict Sequence*
Line (length) – your degree of change


uvex fire

Collaborative, multidisciplinary clinical protocol development

HEMS Project Timeline

2016 – Medical Director appointed

2017 – Transition from non-responding CC to response-capable RC

– Started training with GSA HEMS (ICFP & RC) – new service model

– Review of Tasmanian Rotary Wing Aeromedical Retrieval Services completed

2018 (July) – New funding commences, ICFP based with helicopters, new equipment etc.

2018 (August) – Responding RC on base day/on call overnight

2019 (August) – Addition of Evening/overnight on call RC shifts

2020 – Begin 'RCM-D" Training, Medical Team hover exit/entry, winching

– COVID 19, addition of B412 capability

– Completed base renovations

2021 (June) – HEMS Project closure report

2022 – CASA Fatigue Regulations; impact on rosters (ongoing)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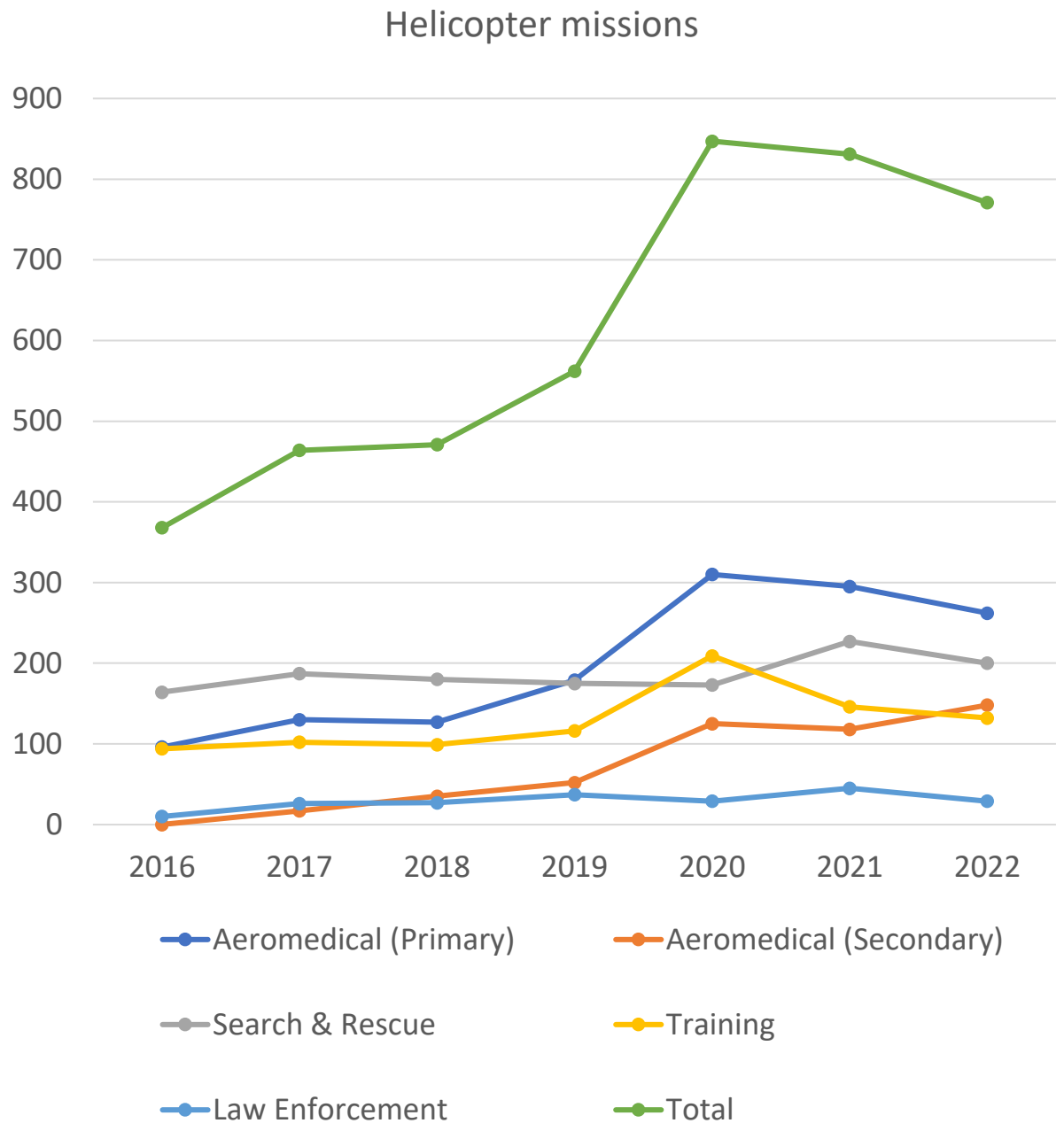
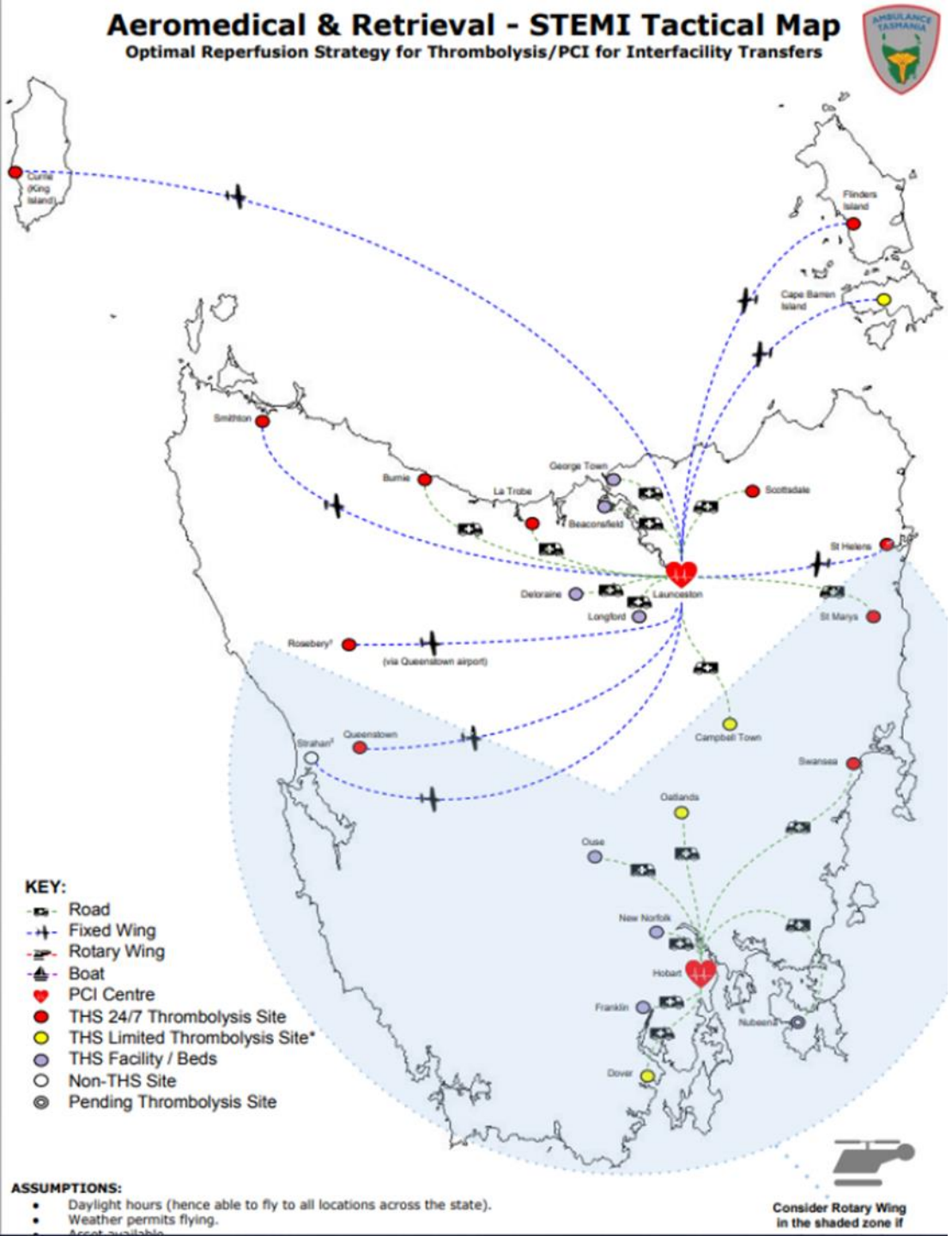

Helicopter missions
900
800
700
600
500
400
300
200
100
0
2016
2017
2018
2019
2020
2021
2022
Aeromedical (Primary)
Aeromedical (Secondary)
Search & Rescue
Training
Law Enforcement
Total



And also…

Liaison with EDs, ICUs, Trauma, Cardiology, Paediatric, Stroke and other services

Nurse coordination system

HEMS activation criteria

Time Critical Retrieval Protocol

Acuity-Based Redirection Protocol

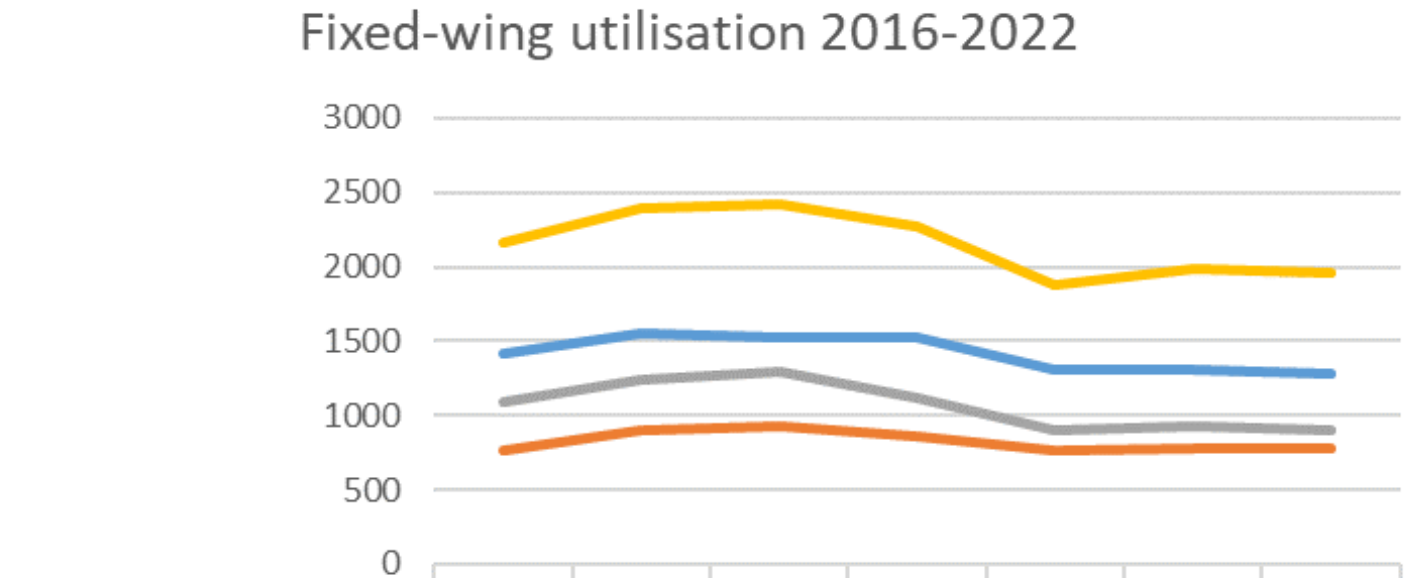
Improving FW utilisation:

- Interstate transfer approval process
- Reducing FW use for short-distance transfers

STEMI coordination / support for rural hospitals, early access to PCI, prehospital thrombolysis

Activation for potential INR (large vessel stroke) in rural/remote areas

Changes in fixed wing utilisation



	2016	2017	2018	2019	2020	2021	2022
Flights	766	899	924	866	762	778	774
Flight hours	1410	1558	1530	1526	1304	1305	1285
Patients Transferred	1088	1234	1296	1121	901	926	907
Total flight legs	2167	2398	2425	2273	1883	1990	1964

2023

Tasmanian Role Delineation Framework (RDF) **Core Services:**

- Emergency Medicine
- Critical Care
- Pre Hospital & Retrieval Medicine
- Medical Imaging
- Pathology
- Pharmacy
- Anaesthetics

Tasmanian Government | Department of **Health**

Core services

Overview ()

The core RDF includes a broad range of services that enable the prevention, early detection and / or management of acute and chronic conditions. Other clinical disciplines may be reliant on core services for delivery of care.

PHRM Service Description

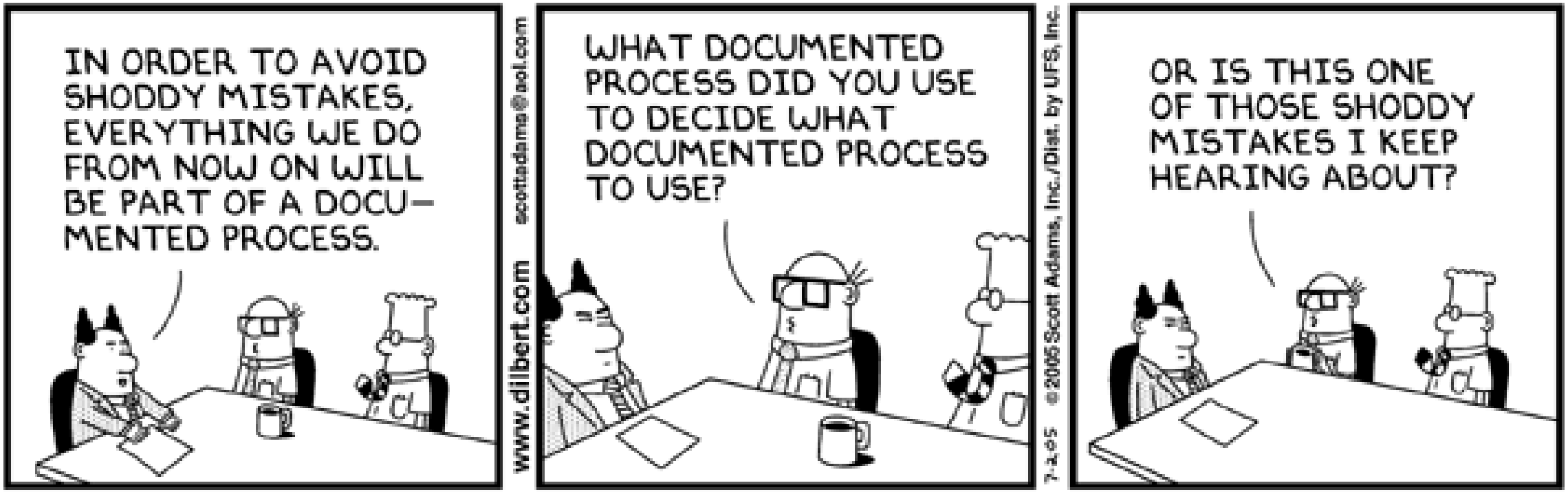
- Interfacility transfers for patients up to high clinical risk.
- Pre-hospital medical response and retrieval in all setting types including wilderness, marine, and rescue.
- Clinical coordination and critical care management advice
- Response to disaster and mass casualty incidents
- Expert advice to health, emergency services and other key response stakeholders.

PHRM Service & Workforce Requirements

- Operating base(s)
- Various platforms (road vehicle, fixed wing, helicopter)
- Aircraft with adequate range, endurance and cabin space and all helicopters winch-equipped
- Retrieval paramedics &/or nurses and PHRM doctors on base 24/7 for immediate response
- Specialist medical practitioners, paramedics with specialist wilderness rescue skills, and paramedics & nurses with specialist critical care skills

There have been some challenges…

- Resistance to change and cultural issues
- Multiple agencies and organisational disarray
- COVID and its aftermath
- Staff turnover /resignations
- Dealing with the bureaucracy…



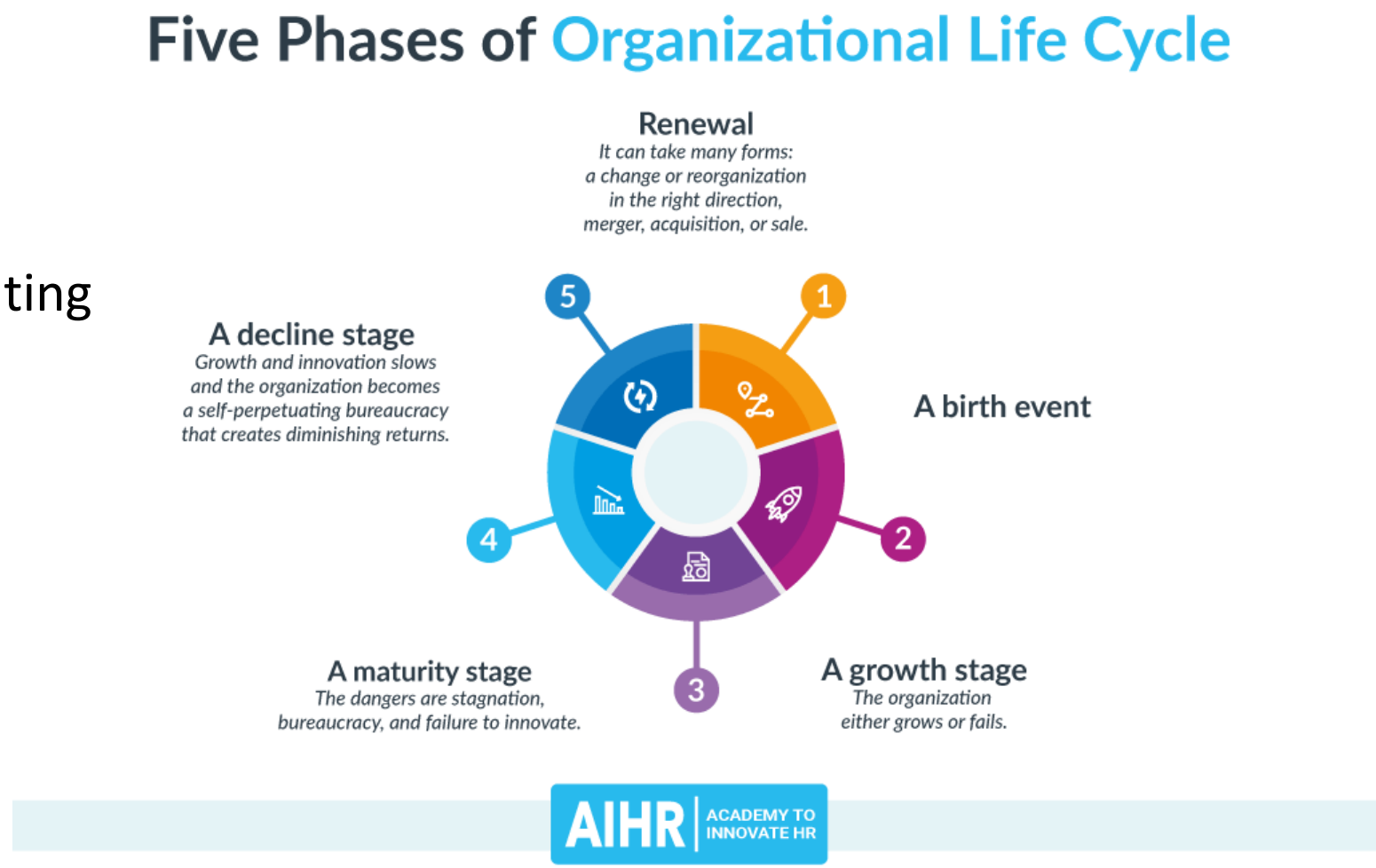
Are we there yet?

- ✓ Efficient and effective use of expensive assets
- ✓ Access to a critical care medical team wherever you are, if you need it
- ✓ Long distance transport direct from the scene (for now, during the day...)
- ✓ Improved, timely access to definitive care for patients around the state
- ✓ PHRM integration into the broader health system, as a ‘Core Service’ required for safe and efficient function of other acute services
- ❑ New platforms, new contract model pending
- ❑ Safety

What got you here won't get you there….

Transition from Building/Creating

To Consolidation/Embedding



- **Simple systems** (lamps/wheelbarrows)
- **Complicated systems** (can study and reduce to parts e.g. computer)
- **Complex systems** (simple parts, when interacting make up a system that exhibits novel characteristics.)
  - can *not* be understood by studying its parts.
  - studied from multiple perspectives

- An intro to complex adaptive systems | by Joel Thorstensson | Medium

Path is nonlinear

North Star

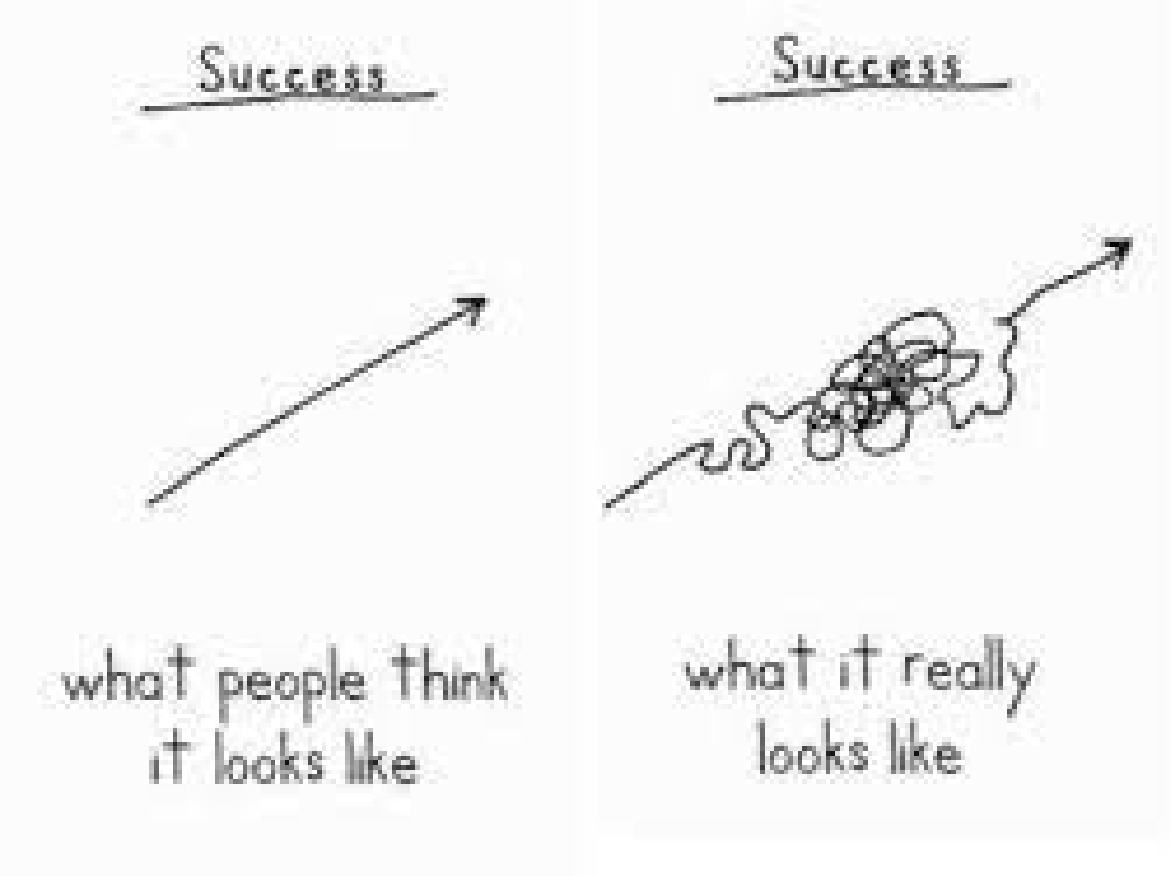
“What does success look like?”

-managing expectations

-incremental improvement

-building relationships (in/out of state)

-celebrating success



“The goal is not to be perfect by the end. The goal is to be better tomorrow”

- Simon Sinek