A review of international ambulance services

Informing strategic direction of Aotearoa

Prepared for the Accident Compensation Corporation

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A review of international ambulance services: Informing strategic direction for Aotearoa

Tēnā koe Jared

Thank you for the opportunity to support the Accident Compensation Corporation and the Ministry of Health with identifying global trends in the provision of emergency medical services. This report outlines the research and assessment we undertook, and highlights trends from comparable ambulance services and characteristics which could be appropriate for adoption in New Zealand.

This report is issued pursuant to the terms and conditions set out in the Contract for Services dated 2 December 2021 and the Contract Variation dated 23 March 2022.

If you have any queries, please do not hesitate to contact Dan (027 322 778) in the first instance.

Yours sincerely

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Introduction

Our mahi in preparing this report has focused on reviewing international ambulance services. We analysed current and emerging trends in service delivery, and identified areas for potential application to Aotearoa. We focused on what other counties are doing to improve equity of access, financial sustainability, and health outcomes, and have compared international services to the Aotearoa context for relevance.

We identified seven comparator jurisdictions, based on a range of factors including the comparability of the populations they serve, geography, scale, the adoption of the Anglo-American model of ambulatory care and the challenges their health systems face.

In addition to our desktop research, we were fortunate to draw on the industry knowledge of Jim Higgins (PwC Australia) and hear directly from some of the jurisdictions. We are immensely grateful to those we spoke with, the kōrero was valuable and added depth to our analysis.

We have identified six characteristics we think are worthy of further consideration for application to Aotearoa. Each of these characteristics are interdependent - they cannot be viewed in isolation. Collectively they represent a cohesive set of choices that will strengthen the ambulance service as a system, and position New Zealand's provision of emergency medical services for the future. While the specifics of the future may be uncertain, we know it is likely to bring increased demand, more complex health issues, and higher expectations from patients - all set against a need for the health system to be financially sustainable.

Our six characteristics sit on a spectrum, and decisions will need to be made about the extent to which these are implemented in Aotearoa. There are some aspects that have commenced through the health reforms - such as building stronger relationships across the health system, but will require focus and commitment to achieve fully.

What you will find in this document

Glossary

Glossary

How to navigate this document

We have included a range of links and clickable icons to enable easier navigation of the sections within this report. The headings outlined along the top of most pages indicate where you are in the document, and clicking on each will take you to the corresponding section.

A&E	Accident and Emergency
ACC	Accident Compensation Corporation
AHS	Alberta Health Services
AV	Ambulance Victoria
BCAS	British Columbia Ambulance Service
BCEHS	British Columbia Emergency Health Services
CAD	Computer Aided Dispatch
CALD	Culturally and Linguistically Diverse
CRM	Customer Relationship Management
ECP	Emergency Care Practitioner
ED	Emergency Department
EMS	Emergency Medical Services
ESS	Emergency Support Services
ESTA	Emergency Services Telecommunications Authority
FTE	Full Time Equivalent
FY	Financial Year
GP	General Practitioner

HALO	Helicopter Air Lift Operation
HHS	Hospital and Health Services
ICS	Integrated care system
KPI	Key Performance Indicator
MoH	Ministry of Health
NEAS	North East Ambulance Service
NEPT	Non-Emergency Patient Transport
NHS	National Health Services
NSW	New South Wales
NZ	New Zealand
PPE	Property Plant and Equipment
QAS	Queensland Ambulance Service
QFES	Queensland Fire and Emergency Services
SAS	Scottish Ambulance Service
STARS	Shock Trauma Air Rescue Service
UK	United Kingdom

Executive Summary

Overview of approach and research

Research

In order to identify international trends and themes we undertook a global scan of emergency medical services.

The jurisdictions (listed below) in Australia, Canada, and the United Kingdom provide useful comparisons as they use a modified version of the Anglo-American model of care, have similar populations to NZ, and are experiencing similar challenges exacerbated by COVID-19.

Engagement

We engaged directly with some of the seven jurisdictions.

Kōrero allowed us to understand the challenges they are facing. We specifically focused on how ambulance providers are trying to reduce inequities, and what work is being done to support indigenous populations.

This engagement was invaluable in helping us to better understand how these services are responding to the challenges present within their operating environments.

Analysis

We used 17 characteristics to understand:

- Ownership, governance and funding
- Market and service settings
- Integration
- Data

Our analysis framework consisted of an assessment to determine the current and future direction of each jurisdiction's operating model and service delivery and was used to determine the relevance of each characteristic to the NZ context.

Click on the icons to go to the detailed analysis of each jurisdiction

We identified six key areas for further consideration

1 Integration with the health system

Integration across the health system is a fundamental, enabling characteristic. It drives the level to which communications are integrated, data is shared and patient flow is managed.

Globally there is a clear shift towards greater integration of systems and processes.

2 Demand management practices

All jurisdictions researched are experiencing increasing levels of demand.

Demand management, through triage, alternative pathways of care, modelling and the use of third party services is key to improving patient outcomes, and maintaining a sustainable and equitable service.

3 Long-term workforce strategy

Workforce recruitment and retention is a common challenge across jurisdictions. Each service is undertaking specific work to address the long-term issue, with some innovative solutions being implemented.

Staff wellbeing is a major concern of all services we researched. Significant investment and changes to operating practices are required to effectively manage this challenge.

4 Integration of communications

A key driver of success is integrated communications. A centralised coordination centre with oversight of resources, and responsibility for dispatch is the conduit that enables a well-functioning EMS and healthcare system.

Across the jurisdictions there has been a transition towards increasingly integrated communications.

5 Use of data to support decision-making

Data has two elements - measuring key metrics and applying that information in a meaningful manner.

Jurisdictions employ a range of technology platforms to enable the use of data across dispatch, rostering, and patient information sharing. These jurisdictions are also putting a notable future focus on increasing their use of data systems.

6 Indigenous populations and equity of access

Each jurisdiction is addressing the needs of its indigenous populations and minority groups differently, but with a shared acknowledgement of priority.

This was not a specific characteristic in our framework as there were a small number of examples that could be learnt from. We did make this a focus of our international kōrero.

Integration with the health system

Integration with the health system received the highest score under our analysis framework. This clear importance was also reflected throughout our research and engagements.

The level of integration with the health system varies across jurisdictions but there is a clear shift towards greater integration of systems and processes.

Ambulance services are the frontline of healthcare. Increasing integration provides patients with a more equitable and timely service and provides more appropriate pathways of care and better outcomes for patients.

Centralisation

Centralisation of EMS provision is key to integration with the health system. Six out of the seven jurisdictions analysed have a sole provider of road ambulance services. The other (Alberta) has begun to transition to a more centralised service, and manages its current arrangements through strong governance and contractual arrangements.

Referral processes

Having strong relationships and referral pathways with mental health services is essential to providing the best outcome and most appropriate care for patients. Many of the jurisdictions have a clear understanding of what is required, but this has challenged working relationships across the health sector, and remains a work in progress for many of the services.

Ramping / off-load delays

Ramping is the situation where patients arriving at hospital by ambulance cannot be admitted to ED and are left waiting until a bed is available.

Coordination amongst all healthcare providers is critical to ensuring smooth and timely patient movement along the healthcare spectrum. Providers with greater health care integration have experienced lesser ramping effects. Coordination of intensive care beds by ambulance services is one option to manage the needs of patients within the available resources (AV).

International insights

Integration scored the highest in our analysis framework. This remained generally consistent even when we undertook sensitivity analysis.

In jurisdictions with multiple EMS providers, integration is achieved through centralised systems and processes.

Internationally, ambulance providers have a continued focus on integration. Both QAS and the NEAS have undertaken specific work to increase partnerships across the health system.

Connection to ACC focus areas: 1a - d

Demand management practices

All jurisdictions analysed are experiencing increasing demand, particularly due to COVID-19. Demand management is central to improving patient outcomes and maintaining a sustainable and equitable service.

Service providers and governments have invested in operational improvements to ensure delivery of efficient and effective services to all patients, even when resources are stretched.

Models of care are being adapted. Services appear to be taking elements of the Franco-German model, and combining it with the Anglo-American model to create a sustainable service that meets the needs of patients.

Demand modelling

Understanding potential future demand and the effects on the service delivery model is critical and should be supported by demand modelling (British Columbia).

Demand and capacity should be regularly reviewed with active management plans to ensure effective alignment of resources (the SAS and NEAS).

Triage and alternative pathways

Increasing triage capacity and alternative pathways for patients is a critical focus (all jurisdictions) to ensure patients have access to care that reflects their needs whilst ensuring resources are being deployed efficiently.

Demand management tools, such as a *no send* policy (NEAS) and public service announcements in relation to reserving ambulance resources for emergencies (NSW), have proven effective at reducing demand but may also create additional risk of disengagement, particularly with priority groups and indigenous patients (NSW).

Third party services

Making greater use of third party services such as Fire (NEAS and British Columbia) can alleviate strain on EMS resources. Co-location with other emergency services can also aid in sharing resources, particularly in remote and rural areas (SAS).

International insights

BCEHS does not determine what resources each contractor must use. Many choose to use the Fire Department for funding reasons and its ability to respond to emergencies quickly. In BC the Fire Department responds to patients faster than the BC Ambulance Service 75% of the time.

QAS treated 13% of emergency and urgent patients at the scene and did not transport them to a hospital during the final quarter of FY22.

The proportion of patients who received *hear and treat* outcomes from the NEAS rose ~40% from FY20 to FY21.

Connection to ACC focus areas: 2c, 3a and 3d

Long-term workforce strategy

Workforce recruitment and retention is a common challenge across jurisdictions. Each service is undertaking specific programmes to address this long standing issue, with some innovative solutions being implemented.

Many jurisdictions noted that there has been a fundamental shift in recent years with staff seeking to prioritise the balance between work and life.

Recruitment

Ambulance services must focus on the whole recruitment life cycle in order to address staff shortages. The adoption of innovative approaches such as working more closely with educational institutions to increase student paramedic intakes and seats available (Alberta) and establishing apprenticeship schemes targeting school leavers (British Columbia) can be effective.

A highly competitive global workforce market is expected to continue with all jurisdictions targeting talent from other countries, including New Zealand.

Retention

Once hired, retaining highly skilled and experienced staff through a positive employee journey is critical.

COVID-19 has exacerbated the stress and burnout staff experience as part of their work. Wellbeing strategies which prioritise the wellbeing of staff and ensure they are provided with support resources (including psychological services and peer support officers) are valuable in retaining staff.

Accommodating staff who do not wish to work full time hours within traditional shift patterns remains a challenge. Investment is required to understand how to make this balance work for both the employee and employer to ensure sufficient recruitment and retention of staff.

International insights

In 2021 AV hired 313 new graduate paramedics and raised its overall workforce numbers by almost 4%.

Alberta EMS has earmarked $CAD14m towards its "*their hours of work*" initiative which is aimed at reducing fatigue and stress caused by long shifts in rural areas.

Between September 2021 and January 2022, 553 SAS staff members needed to take time off work due to mental health or stress issues.

Connection to ACC focus areas: 3a - c

Integration of communications

A key driver of success across jurisdictions is the level of integration of communications.

Across the jurisdictions there has been a steady move towards greater integration of communications. This is achieved in a variety of ways, including integration with other healthcare providers, emergency services or ambulance providers.

Experience across jurisdictions suggests this integration allows for greater efficiency, additional pathways of care for patients and a greater ability to share key data.

Communications and dispatch centres

A centralised coordination centre with oversight of resources, and responsibility for dispatch is the conduit that enables a well functioning EMS system.

Central dispatch service are considered even more critical in jurisdictions with multiple EMS providers (Alberta). Ensuring providers have a common communications platform (including both technology and equipment) is fundamental to achieving coordination (Alberta).

Combining emergency communications within a single authority can offer real benefits such as speed, consistency of quality and economies of scale (Victoria's ESTA service).

Cross-government emergency services critical communications networks can increase the level of integrated service delivery and efficiency through the enablement of fast, safe and secure voice, video and data across the 4G network (SAS).

Integration of emergency operations centres with other healthcare operations including physicians and general practitioners (NEAS) enables smoother triaging of patients to the best form of care for their condition.

International insights

In FY21 NSW Ambulance answered 94.1% of calls within 10 seconds, a significant improvement on FY19 when only 79.6% were answered within 10 seconds.

Alberta used to have 7 communication and dispatch centres, 4 under contract to municipalities. AHS recently terminated these contracts in favour of 3 centralised communication centres.

QAS has 8 dispatch and communication centres, the most out of the juridictions analysed. In FY21 QAS set a target of answering 90% of calls within 10 seconds but only managed to achieve this 89.1% of the time.

Connection to ACC focus areas: 1c

Use of data to support decision-making

Use of data has two elements - measuring key metrics and applying that information in a meaningful manner.

The jurisdictions analysed are planning to significantly increase their use of data. This is reflected in their shift in approach to key performance indicators. Services are no longer solely recording response times but now measure quality of care. A richer set of data is key to the services using that data to support, inform and direct operations.

There are challenges with using data; jurisdictions acknowledged that patient confidentiality is of utmost importance but this can present issues with data sharing across services.

Critical importance of data

Measuring, using and investing in data is critical to both daily operations and long-term strategic planning through the recording of a wider range of measurements and applying that evidence base to operational and strategic work.

Current and future data initiatives

The integration of electronic medical records allows for easy access and sharing of patient health information. This access to patient history enables services to treat repeat patients holistically, with each call not being viewed in isolation.

SAS uses data to improve cardiac arrest outcomes. The project, started in 2015, led to an increase in the number of people who survived out-of-hospital cardiac arrest events from 5% to 10%.

Barriers to data use

In order to increase the use of data, strategies must be supported by planning and investment in technology.

Jurisdictions have published strategies to develop more easily accessible data (NEAS and NSW). SAS has a stated goal of maximising the use of digital data so it can become a global innovator in emergency care. It will be releasing a data strategy in late 2022 that will be supported with an action and investment plan.

International insights

AV provides key pre-hospital data to the Australian Stroke Clinical Registry to examine the impact of pre-hospital diagnosis, treatment and triage of stroke patients on long-term patient outcomes.

In 2021 Queensland implemented a new electronic patient information system that stores patient demographic data in a single source, the Queensland Master Patient Index.

In FY21 AV invested $AUD14.39m in additional capital on information and communication technology.

Connection to ACC focus areas: 1a. 2a - c

Indigenous populations and equity of access

Each jurisdiction is addressing the needs of its indigenous and minority population groups differently, but with a shared acknowledgement of priority.

Many noted their efforts towards successful translation of intent into action is fledgling. Genuine relationships with indigenous and minority communities were seen as central to achieving real and lasting change.

There was a collective acknowledgement that New Zealand is a global leader in this area.

BCEHS has published its Rural, Remote, First Nations and Indigenous COVID-19 Response Framework.

Indigenous populations

There has been collective acknowledgment that traditional forms of healthcare have not met the healthcare needs of the indigenous communities however there are limited strategies in place to provide better care and integration for indigenous populations. Comments included that systems were 'built on giving people what we think they need', recognition that providers need to listen to communities to understand what they need, and build a coalition of self-determination.

Minority populations

Chevra Hatzolah Melbourne is a Community Emergency Response Team, whose members are trained by and work closely with AV. Hatzolah Melbourne was established in 1994 initially to build a bridge between an ageing generation of Holocaust survivors afraid of calling for medical assistance due to the fear of people wearing uniforms, and has grown over time to recognise the specific cultural, religious, and emotional needs of the Jewish communiy.

Equity of access

Equity of access for remote and rural communities is a particular focus for all jurisdictions, especially as COVID-19 has seen more people move away from cities and into rural communities.

International insights

Five of the seven jurisdictions have minority indigenous populations.

Alberta has mandated indigenous training for all staff within its health department, which includes EMS staff.

Indigenous communities in remote regions of NSW lack confidence in the health system. NSW Ambulance has started to work with communities to bring health care to them.

Since 2012, QAS has provided an employment pathway into paramedicine via the Indigenous Paramedic Program with a focus on recruiting from indigenous communities and providing employment and education whilst they remain in the community.

Connection to ACC focus areas: 2b, 3a and b

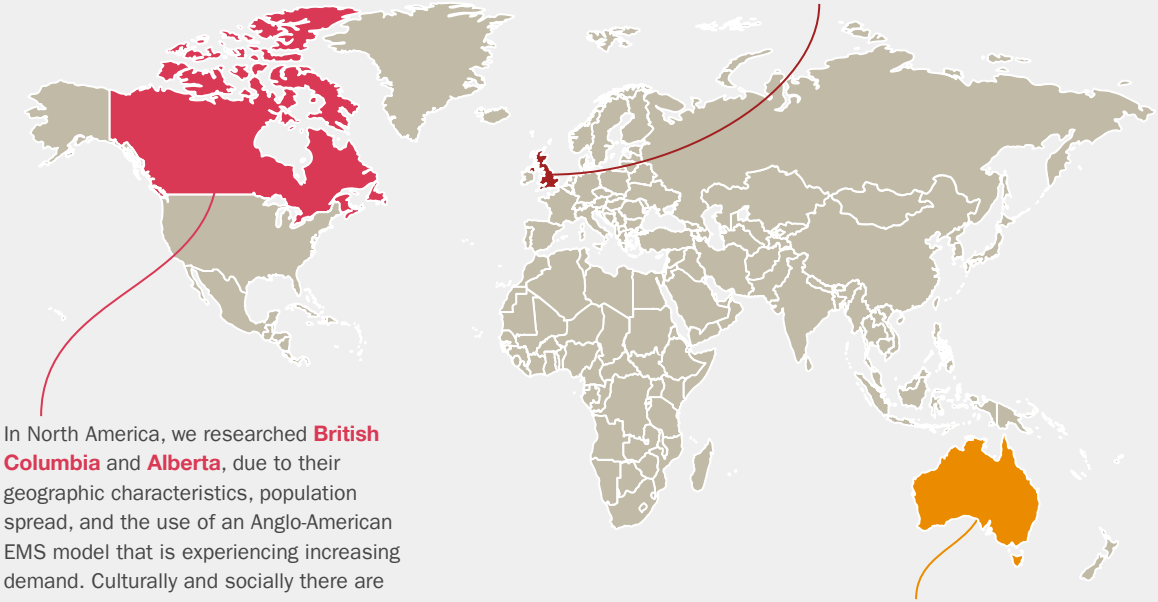
Research

Selected jurisdictions

In order to identify international trends and themes we undertook a global scan of emergency medical services.

Australia, the UK, and Canada provide useful comparisons as they all use a modified version of the Anglo-American model of care and are experiencing similar challenges exacerbated by COVID-19.

We chose the UK because their system of EMS is based on the Anglo-American model, their systems of government are the origin of ours, and their emergency medical and wider health systems face similar challenges in terms of funding arrangements, underlying infrastructure, staffing, and dispersed populations. **Scotland** is the most similar to New Zealand in relation to population size, spread and geographic landscape. **North East England** was selected as it is experiencing similar challenges and is a region with population density similar to New Zealand.



In North America, we researched **British Columbia** and **Alberta**, due to their geographic characteristics, population spread, and the use of an Anglo-American EMS model that is experiencing increasing demand. Culturally and socially there are similarities with New Zealand, and a focus on indigenous populations.

We chose **Victoria, New South Wales** and **Queensland**, based on their geographic and population similarities to New Zealand. Each of these is experiencing similar challenges, including increased demand for EMS. Queensland uses aeromedical services to reach their remote and isolated communities. Culturally and socially there are many similarities, and a focus on serving indigenous populations.

Excluded jurisdictions

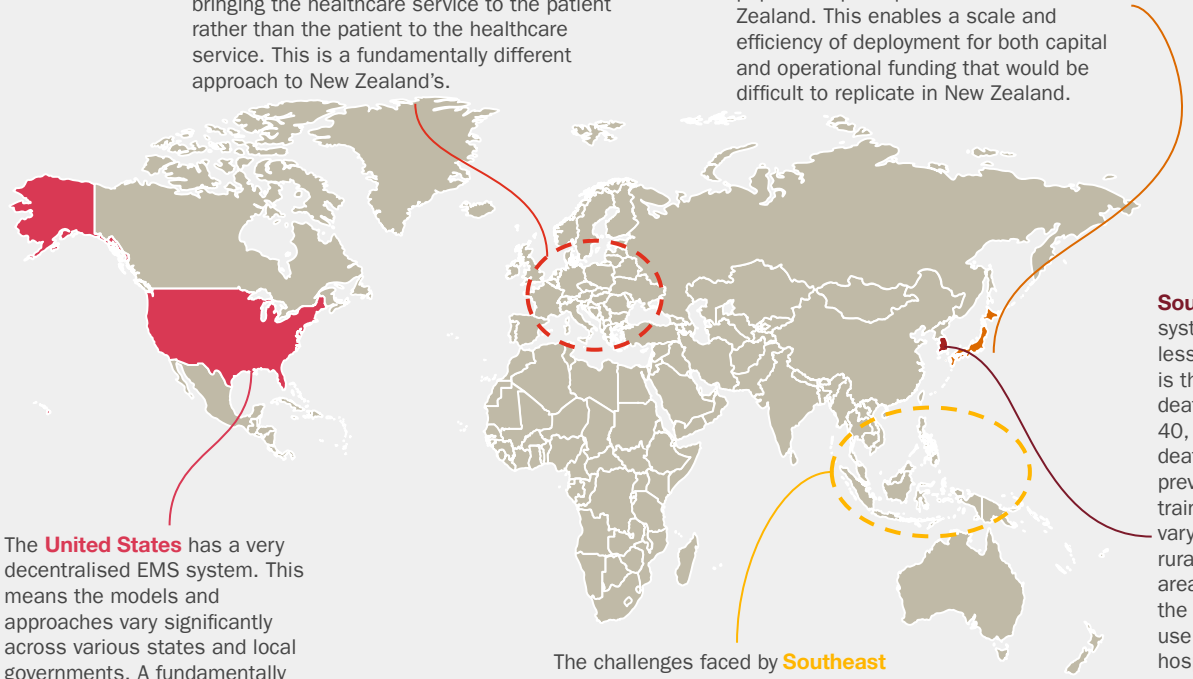
Some jurisdictions were interesting, but lacked enough similarities to New Zealand to warrant further consideration.

The jurisdictions set out here were not selected for more detailed analysis due to some significant differences to New Zealand, primarily either geographically or in the model of healthcare.

We did consider the approaches taken in some of the following jurisdictions (on an issue by issue basis) to ensure we considered the value of different approaches.

Most of **continental Europe** uses the Franco-German model of EMS, which is based on the principle of "stay and stabilise" or bringing the healthcare service to the patient rather than the patient to the healthcare service. This is a fundamentally different approach to New Zealand's.

The EMS system in **Japan** has thousands of private providers. Japan has approximately 20 times the population per square kilometre of New Zealand. This enables a scale and efficiency of deployment for both capital and operational funding that would be difficult to replicate in New Zealand.



South Korea's EMS system is relatively less developed. Trauma is the leading cause of death for people under 40, with ~60% of these deaths being preventable. Levels of training and equipment vary widely between rural and metropolitan areas, and members of the public often do not use EMS, arriving at hospitals by taxi or car even in cases that warrant emergency response.

The **United States** has a very decentralised EMS system. This means the models and approaches vary significantly across various states and local governments. A fundamentally different approach to health-care is used in the US, which adopts a private insurance-based model.

The challenges faced by **Southeast Asian** EMS systems are centered around large metropolitan areas, which have population densities 3 to 5 times higher than New Zealand's most dense cities. Many government system and geographic characteristics are also vastly different from New Zealand.

Summary of challenges facing jurisdictions

Throughout our research, analysis and kōrero we identified a range of consistent challenges facing jurisdictions.

Like New Zealand, each jurisdiction is facing challenges with increased demand. In many cases, the underlying challenges, issues and risks were present prior to the COVID-19 pandemic, but have been exacerbated by the increased demand from 2020 onwards. COVID-19 has also brought about additional challenges that were not previously present such as changed operating environments and staffing issues.

Each of these challenges is covered in more detail later in this report. Each section can be reached directly by clicking on the respective heading.

Staff shortages

Decreased staff wellbeing coupled with increased demand for ambulance services has resulted in consequential staff shortages globally and has created international competition for frontline staff.

Staff wellbeing

The demand caused by the COVID-19 pandemic has had negative impacts on staff wellbeing. Staff experienced tougher working conditions, longer hours and poor treatment by the public. This has resulted in burnout and increased amounts of work related stress.

Response times

Response times are often used as a proxy for performance by ambulance services that use an Anglo-American model of service. Response times have increased dramatically due to high demand.

Non-emergency calls

The quantity of non-emergency calls has risen substantially since the pandemic began. This has resulted in flow-on impacts across EMS systems. It has meant that key resources are unavailable for emergency incidents and has put significant pressure on communications and dispatch centres.

Ramping / ambulance offload delays

Ramping has risen significantly globally due to pressures across health systems. This has flow-on effects for ambulance providers as it ties up valuable resources waiting at emergency departments.

Mental health patients

Globally there has been a significant increase in patients experiencing mental health challenges. EMS providers have had to adapt their service delivery model so these patients receive the best and most appropriate care for their needs.

Research approach

We developed a holistic understanding of EMS globally and identified international trends through an initial global scan. This was combined with insights from workshopping with industry experts to determine our seven jurisdictions for further analysis. In-depth desktop research was then undertaken to inform our characteristics for the seven jurisdictions. This was then used in conjunction with our other approaches to research to inform our framework and produce the results found in this report.

We were fortunate enough to have access to the industry expertise of Jim Higgins, a special advisory consultant for PwC Australia. Jim was previously the Commissioner of QAS and the CEO of the Melbourne Fire Brigade. Workshopping our research with Jim provided us with invaluable insights into how EMS is conducted in our shortlisted jurisdictions. We learnt more about the challenges faced by the ambulance sector in Aotearoa thanks to Dame Diana Crossan, former CE of Wellington Free Ambulance.

Our final step was engagement with the jurisdictions. We met with Alberta, British Columbia, New South Wales and Victoria, and received a completed questionnaire from Queensland. The kōrero allowed us to understand the challenges they are facing, and we took the opportunity to focus on how ambulance providers are trying to reduce inequities, and what work is being done to support indigenous populations.

Assessment

ASSESSMENT FRAMEWORK

Overview of characteristics

While there are many characteristics that could be used, our list of 17 takes those identified by the Ministry of Health and ACC as the Future Direction system settings in a 2019 working paper. This list is then expanded to reflect additional settings identified during a workshop of sector professionals from ACC.

The characteristics are based on four key themes developed through our research:

- Ownership, governance and funding
- Market and service settings
- Integration
- Data

Characteristics			
1.	Proportion of government contribution	10.	Integration with health system
2.	Political independence of operations	11.	Integration of road and air services
3.	Government asset ownership	12.	Integration of emergency and transfer
4.	Usage of demand-responsive funding mechanisms	13.	Integration of communications
5.	Number of service providers	14.	Integration with other emergency services
6.	Balance of paid and voluntary workforce	15.	Usage of data systems to support front-line decisions
7.	Local variation of service delivery	16.	Level of data sharing within the emergency sector
8.	Types and levels of demand management practices	17.	Breadth of measurement of patient and system outcomes
9.	Level of investment in long-term workforce strategy		

ASSESSMENT FRAMEWORK

First section of our framework

The framework is designed to identify specific strategic initiatives that hold potential for New Zealand's ambulance services sector, including air, road, patient transfer, and triage services in all locations across the country.

The framework was divided into two distinct sections.

The first was based on jurisdictional analysis and was used to inform the second section of the framework.

The second section applied our analysis to a series of criteria. This section then ranked the characteristics based on their level of significance and relevance to New Zealand.

The first section of the framework compares each jurisdiction's EMS model against our chosen 17 characteristics (outlined here). Each jurisdiction was placed along a spectrum based on our understanding of their operating environment. We also assessed any apparent or stated future change to that setting.

The example outlined below shows our analysis of Ambulance Victoria under the characteristic *Types and levels of demand management practices*. The scale ranges from *no practices* on the left to *best practice well established* on the right. The black dash represents where AV is today and the yellow dash represents where it is headed, based on our research and discussions.

These characteristics provide the primary unit of analysis for our framework. They are also used to inform the second section of the framework, to determine a final rating per characteristic.

ASSESSMENT FRAMEWORK

Second section of our framework

For each characteristic, our framework uses a series of eight criteria to determine a final rating for its potential application in Aotearoa.

These eight criteria are grouped into two categories. The first includes criteria to measure relevance to New Zealand, and the second category assesses benefit and alignment to the needs and priorities of our environment.

The first category is assessed individually for each jurisdiction. The second is assessed by comparison across jurisdictions.

The second category produces our final framework scores used in determining our key areas for further consideration.

Filter Criteria		
Criteria 1: Difference	**Criteria 2: Potential**	**Criteria 3: Relevance**
Is this characteristic performed in a different way to New Zealand?	Does it clearly contribute to a strength of the jurisdiction's service?	Is this approach potentially relevant to the New Zealand context?

These three criteria are applied as a filter to ensure that those criteria that do not reflect meaningful improvements on the New Zealand approach (in terms of either current or future service) are removed from further consideration.

Aggregate consideration for NZ				
Criteria 4: Observed benefit	**Criteria 5: Cost of change**	**Criteria 6: Equity impact**	**Criteria 7: Best practice**	**Criteria 8: Strategic benefit**
If altered, how strong is the demonstrated potential for benefit across jurisdictions?	Are the costs and difficulty associated with altering this relatively low compared to other strategic initiatives?	Could altering this characteristic have a positive impact on the equity of service outcomes?	Is there consistency in the direction of difference between New Zealand and the selected jurisdictions?	Is there potential for action here to enhance actions being considered for other characteristic settings?

These five criteria are applied on an aggregate level to determine the key areas for further consideration. Sensitivity analysis was applied to both the filter criteria and aggregate consideration to ensure the results from the framework were robust.

ASSESSMENT FRAMEWORK

Framework outcomes

The framework was used to generate final ratings for the 17 characteristics used throughout the analysis.

Each characteristic was assigned a value based on its outcome against the various criteria. These values were aggregated across the jurisdictions and averaged across the various criteria to determine a final rating.

Each of the 17 characteristics are analysed under the three filter criteria for all seven jurisdictions and assigned a numerical value:

- 3 if the response to the criteria is *yes*
- 2 if the response to the criteria is *maybe*
- 1 if the response to the criteria is *no*

A characteristic for each jurisdiction is deemed relevant if it receives a 3 rating for all three filter criteria.

The filter removes the characteristics that score a 1 or a 2 - these are therefore considered not relevant

This resulted in 14 characteristics progressing through the filter criteria. Each had a various number of jurisdictions that provide relevant insight into that characteristic.

For each characteristic and the respective jurisdiction that passed through the filter we then used the same grading system for the final five criteria. These were then averaged to give each relevant characteristic a rating from 1 - 3 for each of the five final criteria.

The final rating for each of the 14 characteristics was then determined by taking the average of the final values determined for the five non-filter criteria. The final ratings for each characteristic are shown on the next slide. A colour code is used to represent the response to the five criterion.

- Green if the response to the criteria is *yes*
- Yellow if the response to the criteria is *maybe*
- Red if the response to the criteria is *no*

Final framework ratings

Key		
Yes	Maybe	No

Further consideration - top 5, plus 'indigenous populations & equity of access'

Characteristics	How many jurisdictions passed the filter criteria	If altered, how strong is the demonstrated potential for benefit across jurisdictions?	Are the costs and difficulty associated with altering this relatively low compared to other strategic initiatives?	Could altering this characteristic have a positive impact on the equity of service outcomes?	Is there consistency in the direction of difference between NZ and the selected jurisdictions?	Is there potential for action here to enhance actions being considered for other characteristic settings?	Rank
Integration with health system	5						1
Types and levels of demand management practices	5						2
Level of investment in long-term workforce strategy	2						3
Integration of communications	2						4
Usage of data systems to support front-line decisions	2						5
Government asset ownership	5						6
Integration of road and air services	4						=7
Integration with other emergency services	2						=7
Local variation of service delivery	3						=9
Level of data sharing within the emergency sector	3						=9
Number of service providers	7						11
Breadth of measurement of patient and system outcomes	2						12
Integration of emergency and transfer	1						13
Balance of paid and voluntary workforce	1						14
Usage of demand-responsive funding mechanisms	0						=15
Proportion of government contribution	0						=15
Political independence of operations	0						=15

Key Findings

KEY FINDINGS

Key findings from Australia

Australian EMS services all use a modified version of the Anglo-American model, and they are facing similar challenges in terms of non-emergency calls, underlying infrastructure and ramping.

Australian ambulance services also have similar challenges in regard to staffing and human resources and are looking to NZ paramedics to fill staff shortages.

Queensland

Out of all the jurisdictions we analysed in depth, Queensland has the lowest population density of 3.01 persons per square km (NZ population density is 18 persons per square km). This creates unique challenges for QAS to ensure its service model enables equity of access and care across the state.

QAS depends on a high portion of volunteers to enable care in rural areas. Aeromedical services are contracted out, and these service contractors are provided with QAS paramedics. This helps ensure QAS reaches all patients efficiently and still provides them with a high level of care.

New South Wales

NSW Ambulance serves the largest population of the jurisdictions analysed. This creates unique demand and funding challenges. The state government provided NSW Ambulance with $AUD1.76b for FY23, the largest amount of grant funding out of all ambulance services in Australia.

In metropolitan areas, NSW Ambulance has the longest response time out of all the Australian states. To try and combat its slow response time NSW Ambulance is investing heavily in how it uses data to manage demand and support decision making.

Victoria

Victoria shares many similarities with NZ in regard to both population size and density. AV is experiencing many of the universal EMS challenges being tackled globally. In response to these challenges AV has put a large focus on triage and alternative pathways. Its virtual care options were very successful during COVID-19 and have helped them to become a global leader in triage.

Centralisation of services and integration with health care, communications and aeromedical services have allowed for a more efficient flow of care for patients. This has allowed AV to create data platforms that share data across all coe aspect of EMS.

KEY FINDINGS

Key findings from Canada

Canada uses a modified version of the Anglo-American model for EMS and provides services across widely dispersed populations of a similar size to NZ.

Canada and NZ share commonality in age group demand for emergency care. The age brackets that require the most frequent emergency care are the same in Canada and NZ. The 15-24 and 75+ age groups represent the top two age brackets in both Canada and NZ.

Alberta and British Columbia were selected within Canada due to their specific approaches to EMS and the challenges they currently face.

Alberta

Alberta provides a noticeably different approach to the other jurisdictions, due to the level of centralisation in its services.

AHS depends on contractors to provide EMS care in 40% of the province. Over time there has been a province-wide move towards greater centralisation but currently due to increasing response times, ramping and staffing challenges the shift to centralisation has halted.

The contracts Alberta EMS has with the other EMS providers allows for flexibility in delivery but affects the ability to have widespread integration and data sharing. The contractors provide EMS with varying models of care, meaning that there are differences in equipment, alternative pathways and the skill level of staff. This can jeopardise care for patients but also provides communities with a sense of ownership over, and allows for tailored models of, service delivery.

British Columbia

BCEHS serves a large population spread over a large area, creating significant challenges in providing efficient and high quality rural care. It also operates on one of the smallest budgets per person out of the jurisdictions we have analysed. This has meant BCEHS has adopted a model of care that varies from others analysed.

BCEHS uses a considerable amount of Fire Department resources, especially during periods of high demand, to ensure patients get the care they need efficiently. Fire Department resources are often used in remote or rural regions where the Fire Department can be underutilised and BCEHS does not have many resources available. This helps provide patients with timely access to care in locations a long way from hospital.

British Columbia is dealing with an opiod crisis which is putting immense demand and psychological pressure on frontline staff. In response to this BCEHS has invested heavily in staff wellbeing programmes.

KEY FINDINGS

Key findings from the United Kingdom

In the UK, the National Health Service is creating a new model for its respondents, shifting from a paramedic-based approach to training staff to be emergency care practitioners (ECP).

ECPs are paramedics with additional training and an expanded scope of practice aimed at on-site care for low-acuity cases. This to help them provide a more efficient and high quality health care service that shares some similarity with the Franco-German approach to EMS.

North East England and Scotland share a similar proportion of trauma cases to NZ and are becoming global leaders in their approach to EMS.

Scotland

SAS is implementing unique and innovative solutions to solve its challenges with the overarching goal of becoming an international example of EMS provision.

SAS is aware of the environmental issues that are associated with EMS and is starting to invest in ways to reduce emissions and provide an environmentally friendly service. SAS has released a sustainability plan and has started to report on key environmental performance measures. SAS has also leased 50 electric vehicles (EV) that are now an integrated part of the fleet and is looking at increasing the number of EVs the services uses.

SAS has the lowest funding per person out of the jurisdictions we have analysed. It hopes to become a global leader in pre-hospital care and innovation which will help patients receive high quality care but aims to also attract investment.

North East England

NEAS must adhere to certain standards set by NHS England and reach certain key performance measures.

NEAS is heavily integrated with the broader healthcare system and there is a high level of data sharing across all health care providers. The ambulance providers also share key data that helps with demand and resource management and allows the services to evaluate their performance against the other providers. This has helped NEAS and the other NHS trust ambulance services become exemplars for how data can be used to improve EMS efficiency and equity.

The NEAS serves a relatively elderly population and seeks to match its services with the needs of this community. It has invested heavily in providing care at the scene of the patient and providing local communities with resources to help citizens act as emergency responders to cardiac arrest cases.

KEY FINDINGS

Characteristic observations

This following two slides provide a brief summary of some of the high level themes that came through our research and engagement, against each characteristic. The majority of our findings have been highlighted in in various sections of the report.

1.	**Proportion of government contribution**	Government funding represents the biggest portion of revenue for all the jurisdictions we have analysed. The levels of funding each service receives vary significantly. SAS receives the lowest funding of $104.78 per person and AV receives the highest of $195.32 per person.
2.	**Political independence of operations**	Government provides the majority of revenue for ambulance services. Governments set strategic priorities and direction, but decision-making on operational elements is done by the ambulance service.
3.	**Government asset ownership**	Asset ownership is dependant on the service's structure and how integrated and centralised each service is. There has been a move by some jurisdictions to increase the use of government leases as it provides the services with greater financial flexibility.
4.	**Usage of demand-responsive funding mechanisms**	Ambulance services act as the frontline of healthcare and have been heavily impacted by the challenges of COVID-19. In response to this all the services we have analysed have received increased funding from the government to continue to provide an efficient and equitable service during demand increases.
5.	**Number of service providers**	There has been a clear long-term shift to centralisation. Six of the seven jurisdiction analysed operate the primary road ambulance service in their jurisdiction and many of these services also operate non-emergency patient transfer services and air ambulance services. This centralisation allows services to integrate across communications and the health care system and allows for more effective use of data in operations.
6.	**Balance of paid and voluntary workforce**	There is a large disparity in the amount of volunteers used by the services. This difference is largely driven by how the each individual service operates and provides care to remote and rural patients. The jurisdictions with a high proportion of remote and rural residents rely on volunteers to act as first responders.
7.	**Local variation of service delivery**	All ambulance providers analysed have the goal to provide an efficient and equitable service to all patients regardless of where they are located. There are tailored engagement plans to achieve this when there are certain geographic challenges but this varies across jurisdictions based on specific residential needs.
8.	**Types and levels of demand management practices**	Increased demand has been a universal challenge for ambulance services, requiring providers to re-think the way they provide care to communities. Current initiatives are focused around triage and alternative pathways and the use of third party services.

KEY FINDINGS

Characteristic observations

9.	**Level of investment in long-term workforce strategy**	One of the biggest challenges is staffing. Staff wellbeing has created significant retention struggles meaning providers have needed to focus on plans and strategies to address this. There is also a global EMS staff shortage that is creating recruitment difficulties.
10.	**Integration with health system**	The ambulance providers analysed have varying levels of integration with the health system, with the amount of integration being positively correlated with the level of centralisation and government control. Integration across the health system is noticeably beneficial to ambulance providers and therefore there is a drive towards more integration.
11.	**Integration of road and air services**	The model for air and road ambulance providers varies significantly across the jurisdictions. Some providers act as the primary road and air ambulance provider where some have completely separate providers for each. This difference is largely driven by the the needs of the community. For example Queensland has a large remote and rural population and uses separate specialised air ambulance providers distinct from QAS. For those who do have different providers, centralised communications enables the system to work most effectively.
12.	**Integration of emergency and transfer**	Some of the jurisdictions have an integrated model where the primary ambulance provider also operates non-emergency and interfacility patient transfer services. Some have a seperate provider that specialises in non-emergency patient transfer services.
13.	**Integration of communications**	Integration of communications is vital in providing a service that is efficient and cohesive. The need for coordinated communications has grown as services look to increase their triage and alternative pathways.
14.	**Integration with other emergency services**	As a result of the new challenges and increased demand caused by the pandemic services are shifting to increase their integration with other emergency services, often looking to fire departments to increase the resources available to manage demand.
15.	**Usage of data systems to support front-line decisions**	Data and information technology usage is an emerging trend in EMS. Ambulance providers are starting to leverage data to improve their operations. As this is a relatively new development, use of data plays a small role in decision-making processes but there is significant drive towards investment and innovation that will help ambulance providers better optimise data.
16.	**Level of data sharing within the emergency sector**	The ability to share data across both the emergency sector and the broader healthcare system is critically important to service provision. It allows for a more efficient flow of patients and better demand and resource management.
17.	**Breadth of measurement of patient and system outcomes**	The Anglo-American approach to EMS puts significant focus on response time, and has heavily influenced the way the ambulance services measure performance. As services adapt their service delivery model they are implementing more performance measures based around clinical care and patient wellbeing to better reflect overall performance.

Trends and Themes

TRENDS AND THEMES

Staff shortages

Decreased staff wellbeing coupled with increased demand for ambulance services has resulted in consequential staff shortages globally and has created international competition for frontline staff.

All the jurisdictions we have analysed have experienced staff shortages. Responses to this issue have varied, but typically involve increasing funding levels to hire additional staff but the amount of funding varies significantly across the analysed jurisdictions. This has led to an internationally competitive labour market with jurisdictions attempting to hire highly sort after frontline staff from other jurisdictions.

Ambulance Victoria

16% of AV paramedics said they intend to seek new employment within one year in FY21 (up from 9% in the previous year) and 45% claimed to often think about quitting their profession. AV is trying to hire new staff to counteract the potential shortages that the survey results indicate. In 2021 AV hired 313 new graduate paramedics and raised its overall workforce numbers by almost 4%. Additionally in the FY23 Victorian budget, $AUD333m has been allocated to AV to add nearly 400 new staff to increase Triple Zero call taking and dispatch capacity for Triple Zero services, including ambulances, and training more operators to allocate calls across the state.

BC Ambulance Service

Staff numbers were stretched during COVID-19 as more staff were forced to take time off work. During late 2021 and early 2022 almost 40% of ambulances were unavailable for emergency response due to either ramping or lack of staff to man the ambulance. In response, BC Ambulance Service hired a new executive vice president and chief ambulance officer in January 2022. This appointment of new high level staff was coupled with the hiring of 271 new paramedics in the first three quarters of 2021. The FY23 government budget has allocated funding for the recruitment of 155 new staff.

NSW Ambulance

NSW Ambulance is experiencing significant staff shortages. A Sydney paramedic who chose to remain anonymous recently wrote to the media saying “I don’t know one person at work who isn’t formulating some sort of exit plan”. Health Services Union national president Gerard Hayes estimates that NSW Ambulance needs at least an extra 2,000 paramedics to cope with the rising demand. NSW Ambulance has been provided with a $AUD1.76b boost as part of the NSW Government's FY23 budget. This investment will go towards hiring 2,128 new staff and will mean that NSW Ambulance has the largest paramedic workforce in Australia.

PwC: Review of international ambulance services

TRENDS AND THEMES

Staff wellbeing

The extra demand caused by COVID-19 has had significant negative impacts on staff wellbeing globally. Staff report experiencing tough working conditions, long hours and poor treatment by the public. This has resulted in high levels of burnout and increased amounts of work related stress.

This challenge has put significant pressure on ambulance services to invest in staff wellbeing. Services have introduced new programmes to help with staff wellbeing and hired additional internal staff to run these programmes and provide mental health support for all staff.

Ambulance Victoria

AV released a 2022 report on staff wellbeing that showed the results of its staff wellbeing survey. In 2022 35% of respondents (up from 16% in 2021) indicated they often or always find every waking hour at work tiring, with only 42% of respondents saying they were satisfied with their job (down from 62%).

In response AV increased investment in staff wellbeing activity. In 2021 it launched *Skills for Life Adjustment and Resilience Programme*. This programme provides psychological based intervention and support.

BC Emergency Health Services

BC ambulance staff have been working under extreme conditions due to the opioid crisis in Canada.

BC Emergency Health Services has contracted a team of mental health professionals to work with BC Emergency Health Services dispatch and paramedics to address stress and fatigue while providing access to trauma-based therapy.

Scottish Ambulance Service

One of the largest demand changes experienced by the SAS since the pandemic began is the increase in patients with mental health problems. This has added new challenges for frontline staff and has had adverse effects on staff wellbeing. From September 2021 to January 2022, 553 SAS staff members have taken time off work due to mental health or stress issues.

In 2021 the SAS launched a health and wellbeing strategy aimed at enabling its staff to feel healthy, valued and supported. It also launched a mental health strategy in May 2022. The Scottish Government has also provided the service with £1.6m to help support the recruitment of 21 new mental health staff.

Queensland Ambulance Service

Prior to the pandemic QAS was experiencing staff wellbeing challenges so it focused on staff in its 2016-2021 strategic plan. This has resulted in an operational workforce attrition rate of 1.9% which is significantly lower than the national average of 2.9%.

TRENDS AND THEMES

Response times

Response times for ambulances have increased significantly. This is often regardless of the severity of need which can have adverse effects on patient outcomes.

All the jurisdictions we completed a detailed analysis of use the Anglo-American approach to emergency medical response. Therefore response times are often use as a direct proxy for ambulance performance. This makes decreasing the current response times a top priority for ambulance services but the approach to achieving this can vary significantly across various ambulance services.

Alberta Health Services

AHS records the median response time for life threatening events by region. All of these have increased or stayed the same (region dependant) over the two year period depicted in the table. Most notably the median response time in metro/urban areas has increased 30.91%.

	First quarter FY21	Last quarter FY22
Metro/ urban	6:25 mins	8:24 mins
Population > 3000	8:47 mins	9:33 mins
Rural	15:13 mins	17:03 mins
Remote	20:44 mins	20:44 mins

Ambulance Victoria

In FY21 AV set six goals based around providing timely access to care that cover all aspects of its service. It only met or exceeded one of these targets. One of the targets AV set was to respond to 85% of code 1 incidents within 15 minutes, however this was only achieved this 77.2% of the time.

BC Emergency Health Services

BC Ambulance Service has set target response times for high acuity events, to arrive 70% of the time in 9 minutes (urban), 15 minutes (rural) and 30 minutes (remote). The actual percentage of times BC Ambulance Service responded within its target was 50%, 79% and 77% respectively.

Scottish Ambulance Service

For SAS from January 2021 to September 2021 the most time critical calls were taking an average of 8:58 minutes for services to arrive at the patient. SAS had an average response time of 6:29 minutes for the same priority calls in 2016.

Queensland Ambulance Service

In FY21 QAS set a target of having a median response time for its most critical incidents of 8:2 minutes (regardless of the patient's location). The latest quarterly report shows that it is responding slower than its target with a median response time in the third quarter of FY21 of 8:7 minutes.

TRENDS AND THEMES

Non-emergency calls

Increasing numbers of non-emergency calls is resulting in key resources being diverted from patients who need them the most.

Across all Australian and NZ services, in FY21:

- the average growth in total incidents was 14.7%
- emergency incidents increased 3.7%
- non-emergency incidents increased 30.9%

In order to mitigate this service pressure, ambulance services are increasing their triage services, offering alternative care pathways and implementing new technology to provide a high level of care remotely.

Ambulance Victoria

AV is expanding its triage services so it can appropriately deal with patients that do not need an ambulance. Currently around 40% of the state-wide Triple Zero call volume is directed to Secondary Triage each day.

Over the course of 2021/22 AV doubled its practitioner capacity within its triage services. This allowed 17.6% of triple zero callers to be triaged to the right care for their condition.

NSW Ambulance

In FY21 NSW Ambulance attended over 200,000 cases where no patient was taken to a hospital, with many of these not needing ambulance attendance. In response, NSW Ambulance and Police launched its *Save Triple Zero* campaign aimed at educating the public about alternative services they can access if their situation is not an emergency.

Scottish Ambulance Service

SAS has increased its 'hear and treat' services (where the patient does not need ambulance dispatch) and 'see and treat' services (patients receive care without transportation).

In March 2020, 19.4% of patients received *hear and treat* and 26.5% of patients received *see and treat* services against SAS's FY20 targets of 15% and 20% respectively.

NEAS

999 emergency demand rose 1% from FY20 to FY21 yet the number of ambulance incidents decreased by 1.2%. In response the NEAS introduced video consultation facilities to its emergency operations centers to increase triage. The use of video consultation improves patient choice, access to services and outcomes.

The percentage of patients who received hear and treat care from the NEAS rose from 5.7% in FY20 to 8.02% in FY21 and the percentage of patients who received see and treat care rose from 26.8% in FY20 to 29.78% in FY21.

TRENDS AND THEMES

Ramping

Ramping is defined as ambulance queueing at hospitals waiting to transfer patients to emergency departments. Ramping has risen significantly due to pressures across the whole healthcare system, which have flow on effects to frontline services.

Ramping times on this slide can not be compared across jurisdictions due to each service using different measurements.

There is a wide range of responses to this challenge, with limited information available on how our shortlisted services are addressing this issue.

Alberta Health Services

AHS tracks EMS hospital times at Edmonton and Calgary. From the first quarter of 2021 to the second quarter of 2022 the median response time has risen 13.84% and 19.68% at Edmonton and Calgary respectively. Both Edmonton and Calgary also have a 90th percentile response time target of 1 hour 30 mins. At the end of the second quarter of 2022 both Edmonton and Calgary had a time greater than 2 hours 30 mins.

NSW Ambulance

As a result of ramping in April 2022 there were just seven out of the available 142 ambulances on the road able to transport patients. This has caused NSW Ambulance to consider its model of service and the possibility of transporting patients to general practitioners or pharmacies if urgent care is not required.

Scottish Ambulance Service

Ambulance turnaround time was near the highest in the SAS's history in November of 2021, with an average turn around time of around 40 minutes. In response to increased ramping and service-wide demand exacerbated by COVID-19 NHS Scotland announced a £1 billion recovery plan for 2021-2026. Included is £20 million of funding for SAS to recruit an additional 300 ambulance service staff.

Ambulance Victoria

AV set a target of having an average ambulance clearing time of 20 minutes however in FY21 this the average was 23.9 minutes. To improve upon this AV is investing in training higher skilled paramedics that can treat patients at the scene.

Queensland Ambulance Service

Increased demand for EMS in Queensland has created a significant ramping problem. In late 2021 ramping was affecting more than 46% of all patients as patients were forced to wait more than 30 minutes in an ambulance before being admitted to a hospital.

TRENDS AND THEMES

Mental health patients

Globally there has been a significant increase in patients with mental health problems. This is forcing EMS providers to alter their service delivery models so patients with mental health concerns get the best treatment for their needs.

Mental health patients often require care that is different to other patients. Many EMS services believe emergency departments are not a good place for mental health patients so are adapting the way their services provide care to mental health patients. This includes providing alternative pathways for mental health patients and sending mental health physicians to the patients so they can be treated at their location.

Queensland Ambulance Service

Mental health services saw a significant increase in demand at the beginning of the pandemic, with a 23% increase in mental health patients then the year prior. This resulted in QAS's mental health co-responder programme receiving additional funding. The program was piloted in south-east Queensland in 2019, and there are now mental health co-responder teams in 12 locations across the state. QAS Mental Health Co-responder program pairs a specialist Paramedic with a Senior Mental Health Clinician to provide a timely and appropriate health response to patients experiencing a mental health crisis.

NSW Ambulance

After a year-long pilot program, NSW Ambulance has launched a Mental Health Acute Assessment team. Typically an Ambulance will take mental health patients straight to hospital, but under this new initiative a Mental Health Acute Assessment team, which consists of a specially-trained paramedic and mental health nurse, will be able to refer them to general practitioners or mental health facilities instead.

Scottish Ambulance Service

To address mental health challenges SAS launched a strategy in May 2022. The Scottish Government has provided the service with £1.6m to help support the recruitment of 21 new mental health staff. The SAS fleet now consists of Mental Health Triage Cars. These cars are staffed by a Paramedic with additional mental health training and are used to respond to people who have contacted 999 for Ambulance support for a mental health need. SAS also collaborated with Police Scotland and other mental health support providers to create a Mental Health Hub. Accessible for patients 24 hours a day, the Hub is staffed by psychological wellbeing practitioners, mental health nurse practitioners and mental health senior charge nurses. This eases pressure on A&E and frees up ambulances to attend to other emergencies whilst providing greater care for mental health patients.

Analysis of Jurisdictions

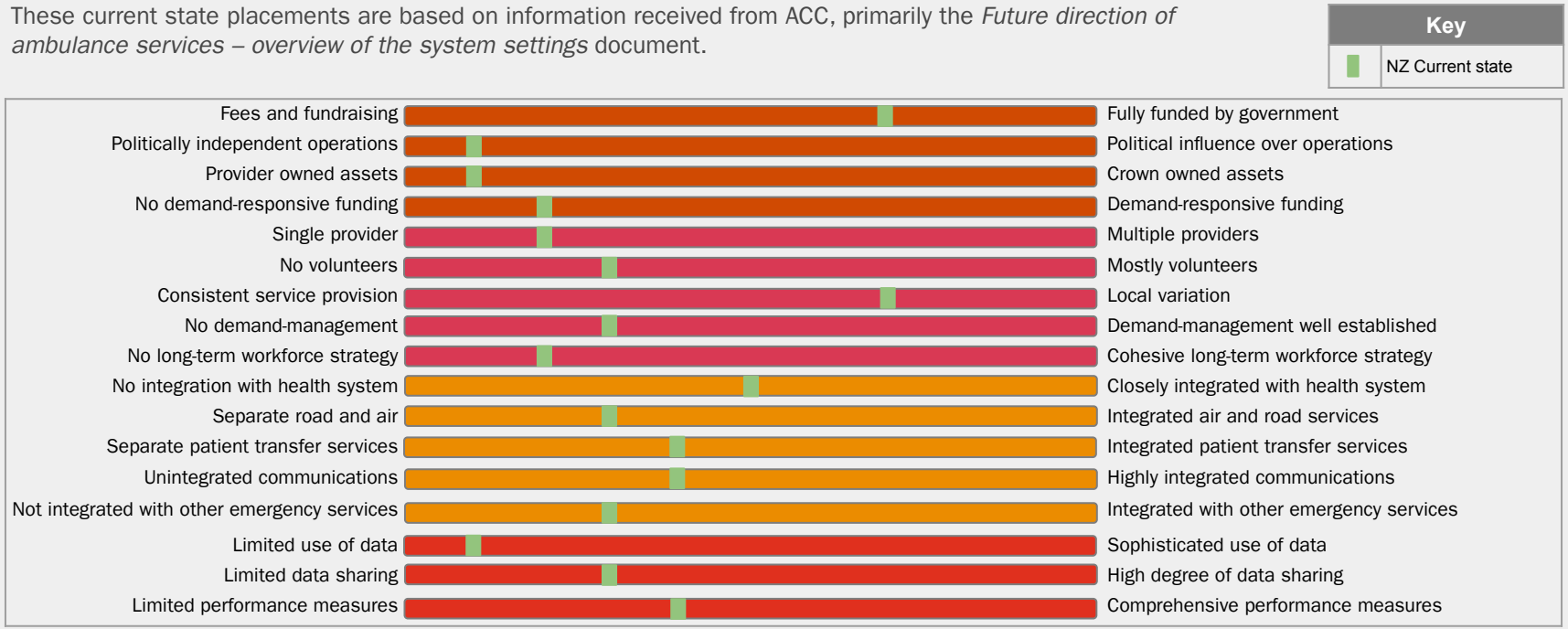
Who we talked to

Jurisdiction kōrero participants		
Alberta EMS	Darren Sandbeck	Chief Paramedic and Senior Provincial Director
	Kathleen Fraser	Executive Director - EMS Employee Program
	Anne Macdonald	Executive Director EMS Provincial Operations
Ambulance Victoria	Anthony Carlyon	Acting Executive Director Clinical Operations
NSW Ambulance	Clare Beech	Executive Director - Clinical Systems Integration
British Columbia Emergency Health Services	Neil Lilley	BCEHS Chief Operating Officer
Other participants		
PwC Australia	Jim Higgins	Industry expert, and former Commissioner of Queensland Ambulance Service
	Dame Diana Crossan	Former Chief Executive of Wellington Free Ambulance

New Zealand

Current state, by characteristic

These current state placements are based on information received from ACC, primarily the *Future direction of ambulance services – overview of the system settings* document.



Queensland

- Overview
- Service Model
- Characteristics
- Current and future direction
- Kōrero

The changing demographics within our workforce require a specific strategic focus to ensure that we harness the benefits of a more diverse workforce.

Queensland Ambulance Service

Summary

QAS is the state emergency ambulance provider in Queensland. It is part of the Queensland Government, operating as a directorate of Queensland's Department of Health. QAS is led by a Commissioner, who also sits on the Executive Leadership team of the Department of Health.

QAS is operationally organised into North Queensland and South Queensland which includes eight geographical regions that consist of 17 districts. These districts are aligned to the state's Hospital and Health Services (HHSs). Within this organisational structure, eight regional Operations Centres are responsible for emergency call taking, operational deployment and dispatch, and coordination of non-urgent patient transport services.

QAS is very integrated with the government and the broader healthcare system due to its place within a government department.

Queensland has a very low population density which creates challenges and costs for QAS. Accordingly it has one of the highest funding rates per capita out of all the ambulance providers in Australia. In the 2021/22 Queensland Health budget, $AUD988.38m was allocated to QAS, a 68% increase from FY19.

QAS is one of only two state run ambulance services in Australia that are completely free to its permanent residents (the other being Tasmania). This also means residents of QAS who require an ambulance when in another state do not have to pay.

Queensland Ambulance Service

Service model

As a result of COVID-19 demand for healthcare services, in particular emergency services, has surged. This has affected all parts of QAS's processes but the biggest impact has been on the ramping delays caused by ambulances waiting to hand over patients to hospitals. In late 2021 ramping was affecting more than 46% of all patients, as patients waited more than 30 minutes in an ambulance before being admitted to a hospital (The Guardian, 2022).

The increased demand is directly reflected in a significant increase in triple zero calls. The quantity of triple zero calls was stretching QAS's communication resources to such an extent that its telecommunications provider introduced a pre-recorded message directing callers to the non-emergency number if they were not in an emergency (Read, 2022) in an attempt to decrease the volume of calls. This demand had the flow on effect of extreme fatigue for QAS staff who were constantly struggling to meet demand with the current resource availability. To combat this, QAS is looking to increase the percentage of patients treated at the scene, reducing demand for hospital transport and pressure on the system. A recent report shows that 14.9% of patients are now treated at the scene.

The Queensland government has responded with significant increases in the budget assigned to QAS, announcing in 2021 a plan to deliver an additional 475 paramedics over the next four years. In 2021 QAS opened six new ambulance stations across the state, at a cost of $AUD45.8m.

Queensland Ambulance Service

Characteristics (1/2)

1.	**Proportion of government contribution**	QAS is primarily funded by the State government. In FY19 QAS received $AUD671.8m from the State government, making up ~83% of its total funding for that financial year, with the second largest source of revenue coming from user charges.
2.	**Political independence of operations**	QAS is part of the Queensland Government, operating as a directorate of Queensland's Department of Health. QAS is led by a Commissioner, who also sits on the Executive Leadership team of the Department of Health. The Commissioner reports to the Director-General of Health, who in turn reports to the Minister for Health.
3	**Government asset ownership**	In FY20 QAS had right of use assets totalling $AUD1.37m but as of FY21 QAS has full ownership of its assets, with no right of use assets on its balance sheet.
4.	**Usage of demand-responsive funding mechanisms**	Funding from the State government has increased over the last few years in response to increased demand, and to prepare for future demographic changes. In FY22 QAS received a record level of funding from the Queensland Government in response to the pandemic, totalling $AUD988.38m.
5.	**Number of service providers**	QAS has been the main provider of emergency services across the state since 1991. QAS also works with ~150 Local Ambulance Committees who provide volunteer care across the state in support of its local ambulance service.
6.	**Balance of paid and voluntary workforce**	The total number of staff employed by QAS is 4,610, with 88.2% of these staff being ambulance operatives. QAS has approximately 1600 volunteers made up of honoriers and Local Ambulance Committees volunteers.
7.	**Local variation of service delivery**	QAS is the main provider of road ambulance care in Queensland but partners with volunteer and private ambulance services in remote areas due to the state's geographic challenges.
8.	**Types and levels of demand management practices**	The surge in demand caused by the pandemic resulted in QAS implementing a COVID-19 Demand Surge Response strategy. This included streamlined onboarding of staff, COVID-19 surge response vehicles, implementation of enhanced staff safety measures and increased resource management.
9.	**Level of investment in long-term workforce strategy**	QAS experienced increased demand prior to 2020 due to increasing population and this has only become more pronounced since the pandemic. Hiring has struggled to keep pace with the increase in demand with QAS only budgeting for 50 new staff over the next 18 months. QAS has, over the recent 12 months invested a great deal of time and effort into the development of a new strategic plan focused on appropriately managing the changing workforce.

Queensland Ambulance Service

Characteristics (1/2)

10.	**Integration with health system**	QAS is owned and operated by Queensland Health, a department of the State government that coordinates state-run health services. The Integrated Care Innovation Fund was introduced in 2016 and allows Queensland Health's services to provide greater integration of care across the health sector. Extensive collaboration between QAS and the Department of Health helps to specifically manage ambulance presentations and waiting times at emergency departments.
11.	**Integration of road and air services**	QAS primarily provides road ambulance services. Helicopter-based emergency care is contracted to six medical rescue providers who operate in separate geographic locations across Queensland. QAS operates in conjunction with the Royal Flying Doctor Services for aeromedical emergency services.
12.	**Integration of emergency and transfer**	QAS provides patient transport services in-house, alongside a number of private and charity organisations who provide similar services.
13.	**Integration of communications**	QAS runs eight operations centres located throughout the state that are responsible for emergency call taking, operational deployment and dispatch, and coordination of NEPT services. Due to the number of private, state and charity ambulance providers in Queensland there are challenges to integration. The number of calls QAS responded to in FY21 was 53% greater than in FY20.
14.	**Integration with other emergency services**	There is limited widespread integration between QAS and other emergency services. QAS has a shared CAD platform with Queensland Fire and Emergency Services (QFES) where ‘associated incidents’ result in an automatic notification to the relevant agency to expedite a response to the community. Where necessary QAS may also utilise the resources of other emergency services in rural and remote locations to provide a coordinated community response.
15.	**Usage of data systems to support front-line decisions**	No publicly available information.
16.	**Level of data sharing within the emergency sector**	QAS is highly integrated with the broader healthcare system in Queensland, including across information systems and data. Investment in new technology is often coordinated across multiple aspects of the healthcare system. There is a state-wide integrated electronic medical record system that allows for easy access and sharing of patient health information. Patient confidentiality does limit what data can be shared.
17.	**Breadth of measurement of patient and system outcomes**	QAS takes part in the Council of Ambulance Authorities reporting and data analysis completed by the Australian Government but provides limited public performance reporting itself. QAS has some key performance measures which are reported on annually by the Department of Health.

Queensland Ambulance Service

Current and future direction, by characteristic

Queensland Ambulance Service

Kōrero

We did not have the opportunity to meet with representatives from QAS, however they provided written responses to our questionnaire.

The questionnaire was based on the key themes that we identified through our desktop research and kōrero with other ambulance providers in different jurisdictions.

Indigenous care

Queensland has a large indigenous population and has developed various programmes to support them. Since 2012 QAS has provided an employment pathway into paramedicine via its Indigenous Paramedic Program with a focus on recruiting from the community and providing employment and education to cadets whilst they remain in community. Similar to the Indigenous Paramedic Program, QAS has a Culturally and Linguistically Diverse (CALD) Paramedic Program which currently supports cadets from Samoan heritage. QAS has an internal Diversity and Inclusion Strategy aimed at closing the gap and building genuine relationships and engagement with Aboriginal and Torres Strait Islander communities. The strategy has a focus on growing Aboriginal and Torres Strait Islander staff leadership capability.

Mental health

QAS has experienced significant increases in demand from mental health patients. It has introduced a dedicated Mental Health programme to address this growing demand. The new programme includes advisory services to on-road paramedics to enable delivery of an appropriate level of care, and a co-responder model that sees specialist paramedics teamed up with mental health clinicians responding to patients experiencing a mental health episode.

Health system integration

QAS is heavily integrated with the broader healthcare system in Queensland and uses this integration to create collaborative strategies aimed at appropriately managing demand. QAS has introduced an Off Load Paramedic initiative which sees paramedics strategically placed at some hospital emergency departments to assist ambulance crews in managing patients so that critical resources are not unnecessarily tied up at the hospital. It implemented a Clinical Hub in 2020 that enables telephone consultations with paramedics, Mental Health Liaison and Medical Officers. This helps ensure patients who do not require ED admission are not transported to an ED.

New South Wales

- Overview
- Service Model
- Characteristics
- Current and future direction
- Kōrero

The ambulance service these days is not just about flashing lights, it is the front door to the health system.

New South Wales Ambulance

Overview

NSW Ambulance is part of the New South Wales Ministry of Health (NSW Health) and is the largest ambulance service in Australia with a budget of $AUD1.4b in FY21. NSW Ambulance is very aligned to, and coordinated with, NSW Health, reflecting its role and position in the state's health system.

NSW Ambulance is led by an executive leadership team which has responsibility for each of its five directorates: clinical operations, aeromedical operations, finance and corporate services, people and culture, and clinical systems integration.

A statutory board, the Ambulance Service Advisory Board, has legislative responsibility for providing advice on the exercise of statutory functions in respect of the provision of ambulance services.

Across the state there are multiple emergency transport services that operate across all terrains. Services such as St John Ambulance Australia are limited to special event support, first aid training and under certain circumstances, disaster response. They do not provide patient transfer services.

NSW Ambulance operates its own dispatch and coordination centres. Non-emergency patient transfer services are the responsibility of a separate healthcare provider – HealthShare NSW.

Residents of NSW are only charged 51% of the actual cost of receiving ambulance services as the NSW Government provides a 49% subsidy.

Residents all have a maximum charge for the use of NSW Ambulance services that is fixed across all forms of transport. Anyone that is not a NSW resident or is not covered by another states ambulance system must pay the full charge and do not have a maximum charge.

New South Wales Ambulance

Service model

Demand for emergency services within NSW has risen substantially over the past few years. There are, on average, 500 more triple zero calls being made to NSW Ambulance per day than there were before the pandemic. This increased demand is outstripping the available resources.

Increased demand is being experienced across the health system, and this has flow-on effects to the ambulance service which frequently experiences ramping. At one point during April 2022 there were only 7 out of the available 142 ambulances on the road able to transport patients. This has caused NSW Ambulance to rethink parts of its model of service and is looking at the possibility of transporting patients to general practitioners or pharmacies if the patient does not need urgent care. This has also put significant pressure on staff. Staff experienced tougher working conditions, longer working hours, and were occasionally treated poorly by the public. This has resulted in high levels of burnout and increased levels of work related stress.

To address these challenges the NSW government announced the single largest investment in NSW Ambulance's infrastructure of $AUD214m. This is to be spread over four years and will contribute towards establishing a new fit for purpose ambulance state. In response to increased rural demand, the NSW Government is investing $AUD132m in the Rural Ambulance Infrastructure Reconfiguration programme which will include investment into 24 sites. This consists of the rebuilding of 16 stations and eight new rural ambulance stations with sites selected in certain rural areas with high response times. The investment provided by the Government helps to support strategies released in the NSW Ambulance Vision and strategic plan for 2021-2026 which outlines how NSW Ambulance is planning to adapt its model of service to keep up with shifts in demand for emergency services.

New South Wales Ambulance

Characteristics (1/2)

1.	**Proportion of government contribution**	NSW Ambulance receives the largest level of state government funding out of all the state-run ambulance services in Australia. In 2021 additional funding was provided and the NSW Ambulance budget was increased to $AUD1.4b. Residents of NSW are charged 51% of the actual cost of receiving ambulance services, and the NSW Government provides a 49% subsidy.
2.	**Political independence of operations**	NSW Ambulance is part of the NSW health system, and is highly coordinated with the Ministry of Health, who provides direction on priorities.
3.	**Government asset ownership**	As a public entity owned by the state government, NSW Ambulance has a mixed model of asset ownership. Consolidated leases make up roughly 5% of NSW Ambulance total assets.
4.	**Usage of demand-responsive funding mechanisms**	NSW Ambulance received a significant amount of COVID-19 funding from the state government to meet increased demand, but there is no publicly available set strategy to increase funding during times of high demand. As part of the government health system, NSW Ambulance receives funding through the state budget process. In FY21 NSW Ambulance was provided with $AUD214m for infrastructure, the single largest investment in infrastructure in NSW Ambulance's history.
5.	**Number of service providers**	NSW Ambulance is the sole provider of emergency ambulance services in NSW and operates from 226 locations across the state. Non-emergency patient transfer services are the responsibility of a separate healthcare provider; HealthShare NSW.
6.	**Balance of paid and voluntary workforce**	NSW Ambulance employs over 6500 paid staff. Additionally, there are approximately 350 clinical volunteers based in remote and rural areas who attended 4705 cases in FY21. There is also a chaplain volunteer programme to support NSW Ambulance staff and families.
7.	**Local variation of service delivery**	NSW Ambulance provides a consistent level of care for all patients across the state. There are some challenges to timely access due to geographic conditions and differing levels of demand. Despite NSW Ambulance's best efforts to smooth response times across the state, there is still an upward trend in response time and distance of the local response area from ambulance stations.
8.	**Types and levels of demand management practices**	In order to better manage increasing demand, NSW Ambulance used COVID-19 funding received from the state government, and has altered aspects of its delivery model. Alternative pathways of care are an important element to managing demand and NSW Ambulance has looked to AV to learn from their respective approaches to secondary triage.
9.	**Level of investment in long-term workforce strategy**	NSW Ambulance has increased the recruitment of staff with a particular focus on staff wellbeing which include an employee assistance and psychological services programme, peer support officers and a staff psychology service. In May 2021 NSW Ambulance brought forward the training of 180 graduates and 250 casual trainees. This was a record breaking number of graduate recruits in one month and was brought forward to increase frontline staff numbers.

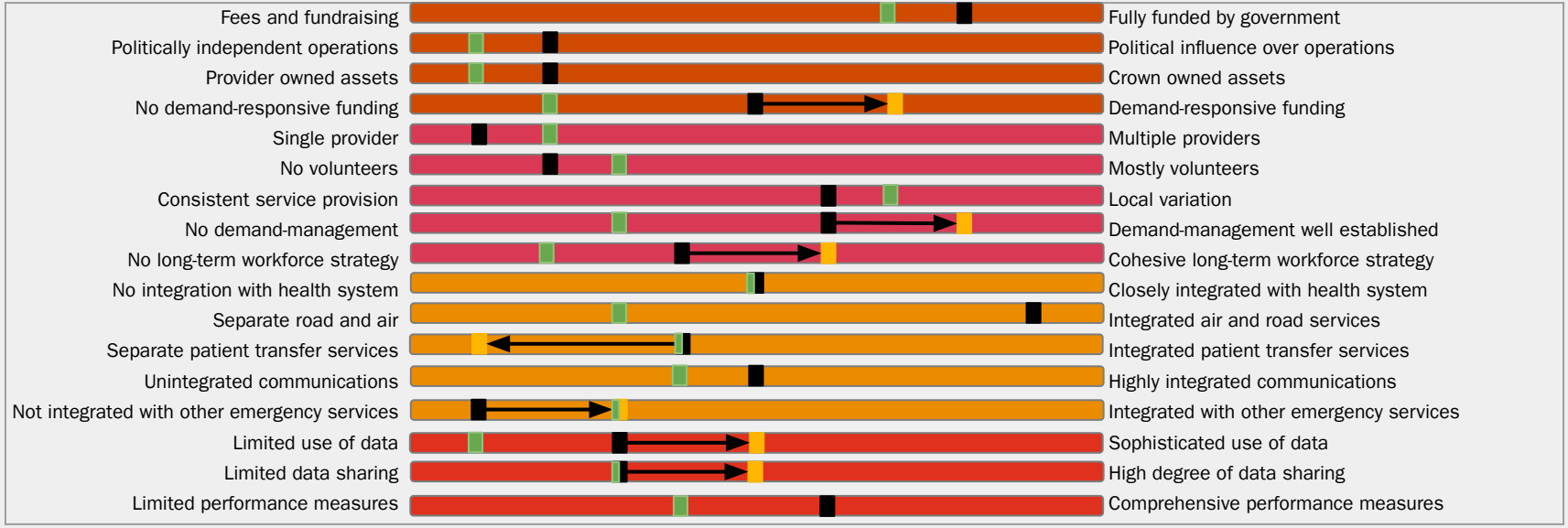
New South Wales Ambulance

Characteristics (2/2)

10.	**Integration with health system**	NSW Ambulance is a statutory authority, closely aligned to the Ministry of Health which coordinates services across the health system. NSW Ambulance integrates with statewide health networks for specific health cases such as stroke, cardiac arrest and trauma but this integration is not completely widespread. There is currently no integration with mental health services.
11.	**Integration of road and air services**	NSW Ambulance is the sole provider of emergency ambulance services in NSW and operates the state's only emergency air ambulance service. NSW Ambulance aeromedical fleet consists of 9 rotary and 2 fixed wing aircraft.
12.	**Integration of emergency and transfer**	Non-emergency patient transfer services are the responsibility of HealthShare NSW. HealthShare NSW has its own call and dispatch systems, and apart from a small amount of overflow where NSW Ambulance takes some patients, they are completely standalone.
13.	**Integration of communications**	NSW Ambulance has three communications and dispatch centres that are separate to other emergency services. These communication centres have experienced significant increases in calls but have increased their efficiency. In FY19 79.6% of triple zero calls were answered in 10 seconds or less. In FY21 94.1% of triple zero calls were answered in 10 seconds.
14.	**Integration with other emergency services**	There is limited integration between NSW Ambulance and other emergency services. It is currently working with NSW Police and in May of 2021 NSW Ambulance and Police launched their Save Triple Zero campaign aimed at educating people about services other than triple zero that they can call for health care if their situation is not an emergency. This was launched to try and stop calls tying up critical resources when they are not required. In FY21 NSW Ambulance attended over 200,000 cases where there was no patient taken to a hospital with many of these cases not requiring ambulance attendance.
15.	**Usage of data systems to support front-line decisions**	NSW Ambulance has plans to further implement the use of data and technology throughout its operations. It has implemented mobile location technology to help control centre staff and paramedics locate patients faster. NSW Ambulance uses service planning data to select sites for new stations based on demand and to improve response times to local communities.
16.	**Level of data sharing within the emergency sector**	NSW Ambulance has the goal of establishing shared data with emergency departments and other healthcare systems to enable early access to patient information. NSW Ambulance aims to improve links to statewide administrative data sets and Local Health District clinical data. It currently collects a significant amount of important data from across all areas of its operations but is still looking at how to best utilise this data.
17.	**Breadth of measurement of patient and system outcomes**	NSW Ambulance primarily measures key clinical care performance outcomes. It relies on reporting from other organisations for patient experience data and response time data.

New South Wales Ambulance

Current and future direction, by characteristic



New South Wales Ambulance

Kōrero

We met with Clare Beech from NSW Ambulance. Clare is the Executive Director of Clinical Systems Integration. Her role is centered on innovation and developing new models of care.

A big theme discussed was the future of the paramedic profession and how NSW Ambulance is transitioning to operate as a high level healthcare provider rather than a transporter with basic medical training.

Demand management

Demand management has been at the forefront of operations in recent years. NSW Ambulance has found ways to innovate while acknowledging that the recent surge in demand is unlikely to ever return to pre-pandemic levels.

The biggest challenge has been the quantity of emergency calls received. Volumes have increased from ~3,000 a day prior to the pandemic to over 5,500 during the height of the pandemic. In an innovative response, NSW Ambulance hired a team of university students to call patients back to assure them they were not being ignored as they found a large proportion of callers were repeat callers following up on their original call.

NSW Ambulance continues to invest in secondary triage to help manage demand. The success of this is heavily reliant on relationships with other health services, in order to have appropriate pathways for patients. Currently 51% of patients who receive secondary triage go back into the emergency call queue because they have not received appropriate care.

Sustainability

NSW Ambulance has plans for an electric vehicle fleet, and its current ambulances have solar panels, as do its facilities.

The more complex issue is how to move healthcare practices away from single use plastics that generate a large amount of waste.

Workforce

NSW Ambulance is experiencing the same global challenges in relation to workforce. It is also working to manage the funding challenges associated with its on-call model used in remote and rural parts of the state where there are payment variations depending on work location. NSW Ambulance has been supported by the government in shifting its model from on-call to full-time. This has created savings for the service, and has benefited staff by providing more manageable shift lengths.

Victoria

- Overview
- Service Model
- Characteristics
- Current and future direction
- Kōrero

When people change the way they live their lives, the way they need emergency services changes.

Ambulance Victoria

Summary

AV's legislative responsibility is to provide safe and comprehensive statewide emergency ambulance services, and it is the only organisation in Victoria with responsibility for emergency pre-hospital care and transport.

AV was established in 2008 following the merger of the Metropolitan Ambulance Service, Rural Ambulance Victoria and the Alexandra and District Ambulance service. The amalgamation of the rural and urban services in 2008 has enabled rural regions access to a state-of-the-art call taking and dispatch system that prior to the amalgamation was used only in metropolitan Melbourne.

Ambulance is not a free service in Victoria. Patients who do not have an AV membership, concession entitlement or other coverage are required to pay for the care they receive. The full cost of care, including situations where treatment is provided without the patient being transported, is passed on to the patient (cost recovery), which means the cost can vary significantly depending on time, distance and mode of transport required.

AV offers an annual membership-based service that covers the costs of the use of its services. The membership fees are low in comparison to the costs of providing the service.

Ambulance services across the country have implemented a range of reciprocal agreements for situations where residents require emergency medical care while in another part of the country.

The Emergency Services Telecommunications Authority (ESTA) provides statewide 24-hour emergency call-taking and dispatch services for police, fire, ambulance and Victoria State Emergency Service (previously called civil defence).

Ambulance Victoria

Service model

AV responded to over one million incidents during FY21, up 4.1% from the previous year. This included 7,707 incidents responded to by its Air Ambulance team, almost 1000 more than the previous year.

Not only did demand increase over the year, so did the geographic profile of the demand. As a result of COVID-19 creating more flexible work environments there was an increased demand for emergency services in outer suburbs and rural areas compared to central Melbourne, creating a significant increase in demand for Air Ambulance.

This increased demand has created many challenges for AV's model of service and has forced it to re-work its model to increase efficiency. This has resulted in an increased focus on its approach to triple zero calls. Over the course of 2021/22 AV doubled its triage practitioner capacity which allowed 17.6% of callers to be triaged to the appropriate care, including non-emergency transport, referral to a GP, or in home care. This enables emergency resources to be kept available for patients in the greatest need. The success of this approach has been acknowledged by the government through its injection of over $AUD200m through the FY22 budget to support AV's telehealth services. This is the virtual healthcare service that has been scaled up heavily due to challenges caused by COVID-19.

AV is also investing heavily in training higher skilled paramedics that can treat patients at the scene. This allows for a quicker turnaround for ambulances and decreases ramping. AV employs mobile intensive care ambulance paramedics (as well as registered paramedics) who make up just over 10% of its workforce. These paramedics have a higher clinical skill set and can perform more advanced procedures than qualified paramedics. AV has multiple ambulance patient offload teams that care for patients when queued at a hospital and awaiting transfer to a hospital bed.

Ambulance Victoria

Characteristics (1/2)

1.	**Proportion of government contribution**	AV is funded by the Victorian government for services provided to those who are formally exempt from paying fees and charges. For those who are not exempt, AV sells annual memberships, and undertakes cost recovery for services provided. The government share is ~77%, with patient fees and donations approximately ~23%.
2.	**Political independence of operation**	The Victorian government has influence over AV operations through legislation, regulation, governance and oversight. AV receives an annual Statement of Priorities from the Minister, which is linked to the Budget. AV, like other major health services is part of the Health portfolio, and there is a close working relationship across the health system on funding and priorities.
3.	**Government asset ownership**	As a public entity owned by the Victorian government AV has a mixed model of asset ownership. As of 30 June 2021 AV has total assets of $AUD1.052 billion with a net asset value of $AUD302 million. ~66% of AV's total assets were from property, plant, equipment (PPE) and vehicles, of which ~38% were right of use assets. While AV owns the majority of PPE assets, it also depends on concessionary leases of land, representing about 26% percent of total land value
4.	**Usage of demand-responsive funding mechanisms**	AV will receive $AUD444m in funding from the FY23 Victorian budget to meet increased demand. $AUD333m has been allocated to add nearly 400 new staff to increase Triple Zero call taking. $AUD99m has been allocated to enhance the fleet management system and $AUD12m will go towards a mobile stroke unit in Melbourne.
5.	**Number of service providers**	AV became the sole provider of emergency ambulance services in Victoria in 2008 after the merger of three previous providers of EMS. There are private services for non-emergency patient transport which are contracted by AV.
6.	**Balance of paid and voluntary workforce**	AV's staff are predominantly paid employees (5,513 FTEs). AV has 257 community first responders and an additional 1,026 volunteers, giving them the largest proportion of volunteers out of the three Australian services analysed in this report.
7.	**Local variation of service delivery**	AV provides a consistent service across the state that is accessible to all but there are tailored engagement plans to meet local community needs. There is a negative relationship between the total number of responses in an area and the average response time, showing that the areas with the highest demand for emergency response also are the areas with the quickest response time.
8.	**Types and levels of demand management practices**	During the pandemic AV established a Crisis Management Team and Crisis Support Team, made up of staff from across AV with the purpose being to deliver a coordinated and agile response to the pandemic. These new teams work closely with AV's Emergency Management Unit.

Ambulance Victoria

Characteristics 2/2

9.	**Level of investment in long-term workforce strategy**	AV is facing increasing demand and has announced increased hiring of paramedics and staff to keep pace, raising its overall workforce by 4% in 2021. There is a particular focus on employee wellbeing, mental health and the employee experience, with 16% of AV paramedics saying they intend to seek new employment within one year.
10.	**Integration with health system**	AV is an integrated part of the Victoria health system, is part of the health portfolio (which consists of 86 separate health services), and works in close collaboration with health partners. This enables integration across its services, enabling right place, right time and right care treatment across the state.
11.	**Integration of road and air services**	AV operates Victoria's only emergency air ambulance service. AV's air ambulance fleet consists of five helicopters located across four different stations and four airplanes.
12.	**Integration of emergency and transfer**	AV transports patients in accordance with the Non-Emergency Patient Transport (NEPT) Regulations 2016 and Clinical Practice Protocols. There are also a number of other private NEPT providers.
13.	**Integration of communications**	ESTA is responsible for the state's triple zero response. ESTA's emergency communication services are integrated across AV, Fire Rescue Victoria, the Country Fire Authority, Victoria Police and Victoria State Emergency Service, connecting patients to the appropriate emergency service.
14.	**Integration with other emergency services**	There is integration between AV and other emergency services due to the centralised emergency call and dispatch centres. Fire services are designated co-responders but do not have transport authority. This arrangement is currently being expanded to the whole state, after being trialled in metropolitan areas.
15.	**Usage of data systems to support front-line decisions**	AV has multiple programs and strategies that make use of data. It uses Optima Predict, a customer relationship management (CRM) system, and a computer aided dispatch (CAD) system. These are fundamental to its success, and make AV a leader in terms of using analytics and data. The CRM system allows paramedics access to patient history and data in real time.
16.	**Level of data sharing within the emergency sector**	AV provides certain patient information to organisations who could benefit from access to this data. AV provides pre-hospital data to the Australian Stroke Clinical Registry to examine the impact of pre-hospital diagnosis, treatment and triage of stroke patients on long-term patient outcomes. The AV Centre for Research and Evaluation provides data to the Victorian State Trauma Registry for all major trauma patients attended by ambulance paramedics.
17.	**Breadth of measurement of patient and system outcomes**	AV measures a range of targets and outcomes, including 7 quality and safety measures and 6 response time measures reported annually.

Ambulance Victoria

Current and future direction, by characteristic

Ambulance Victoria

Kōrero

We had the opportunity to meet with Anthony Carlyon, the acting Executive Director of Clinical Operations at AV. Prior to this role Anthony spent the majority of his career as a paramedic before becoming the Executive Director of Operational Communications.

As Executive Director of Operational Communications Anthony was previously responsible for the development of clinical pathways and triage services. When Anthony started this role the number of patients who received triage services was 14%, this has now risen to 21%.

Clinical care and triage

AV plans to significantly reduce the number of elderly aged care residents transported by ambulance. Instead, these patients will be provided care through triage by a paramedic attending with a supporting video consultation with an Emergency Department doctor as required.

Virtual care has been a significant success story from the COVID-19 pandemic as AV has diverted approximately 100 patients per day who would have previously required transportation.

AV aims to be cost recoverable, however innovations such as virtual care create challenges because AV is currently funded based on the number of patients transported.

Workforce

The remuneration received by AV staff is considered competitive. AV prides itself on providing high remuneration to all rather than focusing on select individuals and roles.

The most significant challenge faced relates to rostering and work life balance. Current paramedics want to have a roster that reflects work life balance but currently rosters are fatigued (global issue). AV wants to give staff more flexibility in the hours they work whilst maintaining a 4 on, 4 off roster.

AV also wants its workforce to be representative of the community.

Currently around 51% of staff are female. AV also has an Aboriginal cadet program that aims to increase Aboriginal representation in their workforce.

Indigenous care

Public intoxication is a focus area for AV - particularly where this impacts indigenous communities. It is trying to shift the view and approach to public intoxication from a police matter to a healthcare concern. Aboriginal communities are disproportionately impacted through treating this as a criminal matter. AV is taking a similar approach to mental health issues to shift public perception.

Alberta

- Overview
- Service Model
- Characteristics
- Current and future direction
- Kōrero

We need to stop being a transporter. It's about referral not deferral.

Alberta Health Services

Summary

Alberta EMS was established as Alberta's centralised provider of ambulance services on April 1, 2009. Alberta EMS grew out of many providers operating in separate municipalities.

AHS, which operates Alberta EMS, is the provincewide fully integrated health system, and is responsible for delivering health services across Alberta, including the provision of emergency medical services.

Governance for Alberta EMS is through the President and CEO of AHS, who reports to the AHS Board, which in turn is accountable to the Minister of Health.

AHS has two approaches available to it for the provision of emergency medical services; it can either own and operate an EMS dispatch centre or delivery system, or contract out these services.

AHS is funded by the Alberta Government and AHS chooses where the funding is to be spent across the many health care services it operates. In 2021 funding for Alberta EMS was roughly $CAD523 million. For 2022 the total funding for EMS was $CAD587 million, an increase of 12.2% from 2021, a reflection of the increased demand Alberta EMS is experiencing.

All residents in Alberta pay a fixed fee for the use of road ambulance services regardless of where they live in the province. There is an additional charge of $CAD200 if the patient is not an Alberta resident. As both rotary and fixed-wing air ambulance services are provided by various AHS contractors and private providers separate to AHS there is no fixed cost for air ambulance and the cost is normally determined on a case-by-case basis.

Alberta Health Services

Service model

Alberta EMS has experienced unprecedented demand in recent years due to COVID-19 and the effects of an opioid crisis. Recently the number of calls for EMS has risen 30% which has stretched resources, causing staff shortages and response times to spike.

Red alerts occur when a patient requests an ambulance via an emergency call but there are none available to respond. In FY21 there were 426 red alerts which resulted in 82.5 hours where ambulances were not able to respond to emergency calls. This is a 96% increase in the number of red alerts compared to the 2019 fiscal year, which totalled less than 13 hours where ambulances were unavailable. In response to these challenges and system-wide pressure the Alberta Government plans to release a report towards the end of 2022 that will include long-term recommendations to ease EMS pressure. This report will be produced by the Alberta EMS Provincial Advisory Committee, an advisory committee put together by the Alberta government earlier this year to address the challenges facing Alberta's emergency medical system.

Alberta EMS has already made changes to its service model to meet increased demand. Typically, each ambulance is required to have at least one higher-level paramedic to accompany emergency medical responders. An exemption has recently been put in place to allows paramedics to respond to patients who require non-emergency transportation without the assistance of a higher level paramedic. Some municipalities are trialling the use of cross-trained firefighter-paramedics as medical first responders. These solutions do help relieve some of the demand on Alberta EMS.

Alberta Health Services

Characteristics (½)

1.	**Proportion of government contribution**	Alberta EMS receives funding from the provincial government via AHS, and through patient fees. In FY22 the total funding for EMS was announced at $CAD587 million which represents a 12.2% increase from FY21. This amount of funding equates to a funding per person of $CAD134.39 , this is 21.6% higher than the funding per person in British Columbia and when adjusting for exchange rates it is similar to the amount of funding per person in the Australian jurisdictions we have analysed.
2.	**Political independence of operation**	AHS is funded by the Alberta Government. AHS is a government organisation, with a reporting line through to the Minister of Health. Accordingly, this funding and governance means the government provides direction into the operation of Alberta EMS.
3.	**Government asset ownership**	Alberta EMS has a complex lease system in partnership with AHS and the contractors who provide additional EMS care across the province. Alberta EMS has lease agreements with AHS for facilities, vehicles and equipment.
4.	**Usage of demand-responsive funding mechanisms**	In the event that increased funding is required, it is sought via government budget processes. For FY23 the budget for Alberta EMS has increased by $CAD64m or 12.2% from the previous year to try and address the capacity needs and decrease the pressure on the emergency medical services system in Alberta. $CAD28 million will go towards adding new ambulances, equipment and EMS crew. This increase in funding is significantly higher than the increase to the entire healthcare system in Alberta which received only a 3.3% increase in funding. This is reflective of where the pressure is being felt across the healthcare system in Alberta.
5.	**Number of service providers**	AHS is the primary providers of emergency medical services across the province, through direct provision and contracting of providers. AHS has overall governance and responsibility for EMS in Alberta. AHS directly provides EMS to 60% of the province with the other 40% being serviced by contract providers through a variety of for profit, not for profit and municipality organisations.
6.	**Balance of paid and voluntary workforce**	At the end of FY21 Alberta EMS had 2,737 AHS staff and 2,065 contracted staff who operate across 204 stations. Three of the levels of practitioner employed by Alberta EMS are emergency medical responder, primary care paramedic and advanced care paramedic. There are around the same number of primary care paramedics and advanced care paramedics in the workforce.
7.	**Local variation of service delivery**	There can be variability due to AHS contracting service delivery to providers, and municipalities operating their own services. AHS tries to ensure a consistent high standard of care across the province by requiring all contractors to adhere to a set of medical protocols.
8.	**Types and levels of demand management practices**	Alberta EMS uses two computer aided dispatch (CAD) systems. Logis is used for non-emergency scheduling. Optima Predict is used in conjunction with Hexagon.

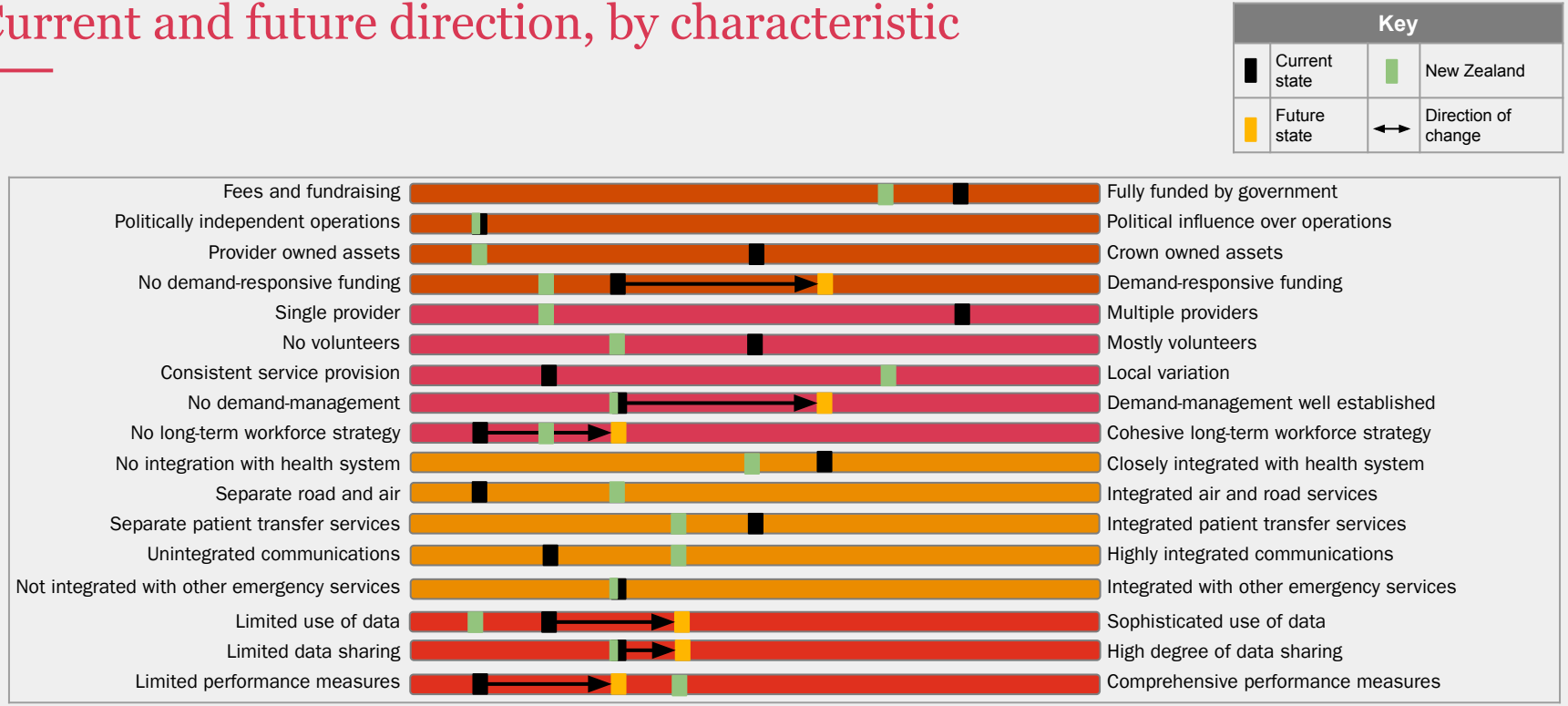
Alberta Health Services

Characteristics (2/2)

9.	**Level of investment in long-term workforce strategy**	Like many other jurisdictions worldwide, Alberta EMS is facing workforce challenges. In response it is looking to increase hiring, and improve retention through focusing on employee welfare. It also offers the second highest remuneration for paramedics in Canada, creating significant domestic and international attraction.
10.	**Integration with health system**	AHS is the largest integrated healthcare system in Canada. This includes Alberta EMS and the contractors who provide emergency services and therefore there is significant integration across the services provided.
11.	**Integration of road and air services**	Air ambulance services are contracted to providers such as STARS and HALO with communications and dispatch operated centrally by AHS EMS centres.
12.	**Integration of emergency and transfer**	Inter-Facility Transport Services is operated by AHS and provides medical care and transport for patients moving between facilities for medical needs. Due to both the transfer service and the emergency service being owned by AHS, there is a good level of integration across these services.
13.	**Integration of communications**	Alberta EMS operates three dispatch centres that dispatch only ambulances. There were previously seven communication and dispatch centres (four were operated by contractors) but the move to centralisation saw these amalgamated into the three centres run by Alberta EMS.
14.	**Integration with other emergency services**	There are seven EMS contractors with significant fire department integration that allows for shared use of practitioners based on capacity. Whilst Alberta EMS does not use fire personal in its operations it does not dictate the use of fire personal by their contractors. Alberta EMS is primarily focused on the contractors having the appropriate quantity of resources available for EMS.
15.	**Usage of data systems to support front-line decisions**	AHS uses data to underpin many operational decisions. Demographic demand data is used in selecting appropriate locations for additional resourcing. This data based approach was used to help Alberta EMS select the best location for the new ambulances provided to the service via the additional funding in Alberta's latest budget.
16.	**Level of data sharing within the emergency sector**	AHS uses a provincial electronic health record (Alberta Netcare) that enables the sharing of key patient and client information. Access is restricted to health professionals as it contains Albertans' personal health information.
17.	**Breadth of measurement of patient and system outcomes**	Currently the key performance indicators (KPIs) used by Alberta EMS are based on response times. As it is shifting its model of service to better reflect the industry demands it is looking to develop new KPIs that better reflect the services priorities, putting a larger focus on clinical care measures.

Alberta Health Services

Current and future direction, by characteristic



Alberta Health Services

Kōrero

We had the opportunity to meet with three senior members from Alberta EMS.

They identified three core challenges their service is facing:

- a sustained increase in call volumes
- resource unavailability due to ramping
- workforce challenges

In response AHS is implementing short term solutions while also planning for an EMS future that requires significant adaptation to its current service delivery model. They do not see the current model as being sustainable.

Healthcare integration

Alberta EMS is heavily integrated with healthcare in Alberta however Alberta EMS only covers ~60% of EMS in Alberta with the other ~40% being provided by contractors governed by Alberta EMS. These contractors are a mix of not for profits, for profit and municipalities. Alberta EMS ensures these providers are integrated with healthcare in Alberta through the use of data. Alberta EMS provides these contractors with the technology to be able to use a province wide electronic patient record system. This allows data to be shared across all EMS providers and the broader healthcare system. This integration also allows for greater access to technology, including a specialty stroke ambulance operated by Alberta EMS.

Workforce

Alberta EMS is struggling to meet demands with its current level of workforce. This has resulted in a large hiring push involving aggressive international recruitment, hiring throughout Canada and supporting educational institutions to train more paramedics. There is also significant investment in internal retention that has derived from a shift in the way employees want to work. Employees are prioritising life style flexibility in their job so Alberta EMS is having to adapt its approach to staffing and shift work. It is also developing more extensive programmes to support staff wellness and endeavouring to shift the culture that surrounds EMS.

Demand management

Alberta EMS wants to maximise the number of patients who can safely receive treatment and referral advance, not transportation to a hospital. Currently only field paramedics provide alternative pathway advice to patients but Alberta EMS is beginning to expand this to become a more regular approach to low acuity patients. A programme that uses nurses that do not work for Alberta EMS is also used to improve secondary triage. The number of patients with mental health issues has grown markedly. As a result Alberta EMS is wanting to have specialty mental health staff in its communications and dispatch centres so it can provide these patients with treatment appropriate for their needs.

British Columbia

- Overview
- Service Model
- Characteristics
- Current and future direction
- Kōrero

We continue to work to better integrate emergency services into the health care system

British Columbia Emergency Health Services

Summary

British Columbia Ambulance Service (BCAS) is part of British Columbia Emergency Health Services (BCEHS), which is under the Provincial Health Services Authority.

BCEHS provides provincial ambulance and emergency health services as legislated in the Emergency Health Services Act. BCAS is the sole public provider of emergency medical services in British Columbia and is one of the largest providers in North America.

The Executive Vice President and Chief Ambulance Officer of BCEHS reports to the President and Chief Executive Officer of the Provincial Health Services Authority, and has executive responsibility for all BCEHS services. BCEHS is governed by a Board.

Prior to 1974 ambulance services in British Columbia were provided by a mix of volunteers, the fire department and private ambulance service providers.

BCEHS operates inter-facility transfer of patients separately to BCAS, but they share resources such as road and air ambulances for transport.

BC Emergency Health Services is majority funded by the Provincial Health Services Authority in line with the Emergency Health Services Act. Ambulance fees for the use of BCAS are heavily subsidised for residents of British Columbia who have a Medical Services Plan. For those who do not have insurance or are not otherwise covered by private insurance or a workplace the fees represent the unsubsidised cost of providing services.

British Columbia Emergency Health Services

Service model

BCAS is owned and operated by BCEHS. BCEHS has focused on becoming more integrated into the British Columbia health system in order to better manage increasing demand. In 2014, almost 15% of calls to BCEHS resulting in dispatch from fire services as fire services experience lower demand than ambulances in British Columbia and can, on average, respond faster than ambulances 75% of the time.

Prior to the pandemic, and in order to understand how to best deploy resources that were already being stretched, BCEHS commissioned a demand analysis and modelling study. This 2015 study reviewed its services and anticipated how demand for emergency services in British Columbia is expected to grow. This demand modelling study predicted demand for the five year period from 2016-2020 and helped shape the way BCEHS and BCAS, operates today.

This demand modelling study helped British Columbia reshape its model of service to be prepared for the expected demand. The study predicted an annual increase in emergency calls of 5%, however from 2016-2020 there was an average annual growth rate of 1.36%.

While the predictions in the study did not eventuate as expected, it did position BCEHS well for the unanticipated demand created by the COVID-19 pandemic, which saw demand increase significantly.

BCAS has been fortunate in its preparation and handling of COVID-19 but still needs to make changes to its service model in reaction to shifts in demand for EMS caused by COVID-19, primarily the increase in demand from less densely populated areas.

British Columbia Emergency Health Services

Characteristics (1/2)

1.	**Proportion of government contribution**	BCAS receives funding from the provincial government via BCEHS. This funding has risen substantially over the last few years. The Ambulance Service is also partially funded by patient fees. In 2020 BCEHS had a budget of $CAD560m.
2.	**Political independence of operation**	The provincial government funds BCEHS, and accordingly provides direction on operations and priorities.
3.	**Government asset ownership**	BCAS has a large number of leases from a variety of lessors. Many of the leases provided to BCEHS (and therefore BC Ambulance Service) are from the Provincial Health Services Authority but it also has leases with local councils. BC Emergency Health has leases for buildings that last up to fifty years and leases for equipment as short as 3 years. The costs of BCEHS leases for 2022 this is expected to be $CAD11.075m.
4.	**Usage of demand-responsive funding mechanisms**	BC's FY23 budget has earmarked an additional $CAD148m for BCEHS due to increased demand. This additional funding is expended to be spent on the recruitment of 125 new paramedics and 30 dispatchers to mitigate the surge in demand.
5.	**Number of service providers**	Since 1974, BCAS has been the sole provider of public prehospital emergency care services in BC.
6.	**Balance of paid and voluntary workforce**	BCAS employs over 4750 staff, and has no volunteers. BC has a Emergency Support Services (ESS) Volunteer programme that helps local authorities and indigenous governments during emergencies such as natural disasters, although these are not medical volunteers.
7.	**Local variation of service delivery**	BCAS operates a large road and air ambulance service with minimum requirements for staff training that ensures all emergencies are responded to with a high level of care. There is a significant private ambulance sector in British Columbia, with a large majority providing air medical services. This could result in an inequity due to the inability to afford these private services.
8.	**Types and levels of demand management practices**	The additional funding provided by BCEHS has primarily funded new staff for BCAS. BCAS partners with the Fire Department to help reach patients during periods of high demand. The Fire Department responds to patients faster than the BC Ambulance Service 75% of the time. Telehealth is at the centre of BCEHS approach to triage and alternative pathways.
9.	**Level of investment in long-term workforce strategy**	BCAS has increased staff numbers from additional funding and over the next 6 months is aiming to hire an additional 1400 new staff. In order to increase staff numbers BCEHS are beginning to offer apprenticeship programmes to graduating high school students. There was no publicly available long-term workforce strategy that addresses the health and wellbeing of its staff.

British Columbia Emergency Health Services

Characteristics (2/2)

10.	**Integration with health system**	BCEHS, which operates BCAS, is under the jurisdiction of the Provincial Health Services Authority and therefore has a strong integration with the healthcare system in British Columbia.
11.	**Integration of road and air services**	BC Ambulance Service operates the sole public road and air emergency ambulance service across the province. It operates a large road ambulance service, operating out of 183 stations across the state and also operates a 16 fleet fixed wing and rotary air ambulance service out of 7 different facilities. Air ambulance services have seen significant demand increases for their services, in response BCEHS is looking at increasing the size of its air ambulance fleet.
12.	**Integration of emergency and transfer**	BCEHS operates both BC Ambulance Service and Patient Transfer Services, and operates three dispatch centres which coordinate interfacility patient transfers throughout BC.
13.	**Integration of communications**	BCEHS operates three dispatch operations centres, (located in Vancouver, Victoria and Kamloops). These three centres are staffed by more than 270 employees who work closely with police, fire, search and rescue, and the coastguard to ensure citizens receive appropriate and efficient care in an emergency situation. BC Ambulance Service received 553,948 calls in 2021, a 5.54% increase from the previous year's call volume of 524,870.
14.	**Integration with other emergency services**	Fire Departments have been identified by BCEHS as first responders for the most acute patients. The closest fire department is dispatched to roughly 30% of total calls received by BCEHS.
15.	**Usage of data systems to support front-line decisions**	There is limited publicly available information on BCEHS's use of data in decision making.
16.	**Level of data sharing within the emergency sector**	Data is used across the emergency sector in a minimal way. It is heavily affected by rules around the sharing of data in BC. This means BCEHS do not share any data across police and fire but does share limited amounts of data with the health authorities. This affects BCEHS's ability to see the full patient journey.
17.	**Breadth of measurement of patient and system outcomes**	There is limited publicly available reporting by BCAS on its performance measurements and the direction it is heading. The key KPIs used by BCEHS are based around response time. It wants to shift to use more clinical care measures but struggles with the public perception that ambulance performance is based on how quickly it transports patients.

British Columbia Emergency Health Services

Current and future direction, by characteristic

British Columbia Emergency Health Services

Kōrero

We met with Neil Lilley from BCEHS. Neil is the Chief Operating Officer, and his current role is focused on day to day operations and ensuring BCEHS meets its short term challenges and demands.

Originally from the United Kingdom, Neil spent three years in NZ working for St John, prior to his move to BC six years ago. The context and understanding he had in regard to NZ's ambulance service model was extremely beneficial in guiding our conversation.

Rural care

BC has a population similar to NZ's but spread over a much larger land area. This has created significant geographical and topographical challenges, centered around ensuring equitable care to patients in remote and rural areas. The challenges associated with this were exacerbated by COVID-19, and as residents moved from urban and metropolitan to rural areas.

Early in the pandemic BCEHS started to transition many ambulance stations from on-call to full time. This has been scaled up, creating 248 new jobs for paramedics in remote areas of BC. BCEHS does not have any volunteers and is dependant on these remote staff to ensure equity of care.

BCEHS has also invested significantly in its air ambulance fleet, increasing both rotary and fixed wing vehicle numbers in order to manage rural demand.

Workforce

BCEHS has experienced the global challenges associated with staff shortages and workforce retention.

When looking for new staff BCEHS previously relied on traditional pathways such as hiring paramedics out of tertiary education. BCEHS is now hiring directly from high schools. They offer high school graduates apprenticeships and pay for their training to become a paramedic. In return these staff are contracted to work in a specific community for a fixed period of time.

This strategy was first used in response to COVID-19 but is something BCEHS will continue in the future.

Indigenous care

The BC Ministry of Health has put a significant focus on providing equitable care to indigenous communities. It released a COVID-19 response framework to ensure that during the pandemic indignous communities maintained access to critical health care.

Sustainability

BCEHS receives additional funding if it meets certain emissions reduction targets. It currently has hybrid vehicles and is moving towards electric vehicles in its urban and metropolitan areas.

Scotland

- Overview
- Service Model
- Characteristics
- Current and future direction

Despite the ongoing challenges we have adapted and found new and innovative ways of working to ensure we continue to provide the very best care to patients

Scottish Ambulance Service

Overview

SAS is part of NHS Scotland and is the sole public provider of emergency medical services in Scotland. SAS provides emergency ambulance services to the five million + population of Scotland, across the nation's mainland and island communities. The Patient Transport Service also provides care for patients who need non-emergency support.

SAS was established in 1999 under the Scottish Ambulance Service Board Order 1999 which amended the National Health Service (Scotland) Act 1978. In accordance with NHS Scotland's Blueprint for Good Governance, the Board, appointed by Scottish Ministers, is responsible for:

- Setting the direction, clarifying priorities and defining expectations
- Holding the executive to account and seeking assurance that the organisation is being effectively managed
- Managing risks to the quality, delivery and sustainability of services
- Engaging with stakeholders
- Influencing the Board's and the organisation's culture

The SAS has a large fleet of emergency vehicles including 670 ambulances and 60 paramedic rapid response units. Air ambulance is an essential part of the SAS, as Scotland has 89 islands that have permanent residents. The SAS air ambulance fleet comprises two helicopters and two fixed wing planes. SAS is assisted by Scotland's Charity Air Ambulance which provides an additional two helicopters and responds to an average of two callouts per day.

The use of SAS is free for patients that are UK residents, however charges may be incurred by those who are not entitled to free NHS care.

Scottish Ambulance Service

Service model

COVID-19 has presented challenges for the NHS system in Scotland. Demand for healthcare has grown significantly, and there has been an increase in need for EMS.

In FY20, SAS received 1,578,415 calls (4,300 calls a day); these calls resulted in it responding to 806,489 incidents.

In FY22, SAS dealt with 4,500 calls a day on average, a 4.7% increase from two years prior. This has resulted in an increase in response times for all level of acuity events. When comparing 2016 statistics to 2021 statistics the highest acuity events response time during this period increased 38%. Despite this SAS have been able to reach all of its clinical care targets and patients complaints have also decreased. In FY21 SAS managed the return of spontaneous circulation for cardiac arrest patients 50.8% of the time, this is higher than its target of 45% and greater than the previous year's 49.8%. During the same period the number of complaints SAS received from patients decreased 24.8% and represented roughly 0.06% of all calls received.

To manage additional demand SAS added an additional 540 frontline staff in FY22, the highest number of staff to join the service in a single year. SAS has also become more integrated with other emergency services. It recruited the help of the military to support with mobile testing units, freeing up ambulance staff to attend emergencies and is now sharing resources with the fire department, using fire fighters to drive ambulances to and from patients.

SAS is currently developing a strategy to 2030 to address immediate, and long-term projected, increases in demand. This includes continued high levels of demand for mental health care and SAS predicts that by 2030 Scotland's pensionable population will increase by around 110,000, with a similar reduction in the number of children making up their population.

Scottish Ambulance Service

Characteristics (1/2)

1.	**Proportion of government contribution**	SAS is majority funded by the Scottish Government. Funding in 2020 totalled £301.17 million, an 11.26% increase from 2019 where funding totalled £270.728 million. In 2019 SAS received £196,000 worth of donations, in 2020 donations dropped to £55,000.
2.	**Political independence of operation**	SAS is established as a NHS Trust, with an executive team who reports through the Chief Executive to the SAS Board, which in turn reports to the Cabinet Secretary for Health and Social Care. As such, the Scottish Government has input into SAS's operations through comprehensive performance measures via the NHS.
3.	**Government asset ownership**	Asset leases from the government are an integral part of SAS's business model and have helped it to take advantage of new technology. In 2020 SAS introduced 50 new full electric vehicles on a government lease.
4.	**Usage of demand-responsive funding mechanisms**	As an NHS Trust, SAS seeks funding from the Scottish Government via NHS budget processes. In response to the challenges caused by COVID-19 NHS Scotland announced a £1 billion recovery plan for 2021-2026. Included in this is £20 million for SAS to help recruitment of an additional 300 ambulance service staff. The additional funding will also be used to help fund 14 new ambulance posts which will be introduced in the North and West regions of Scotland.
5.	**Number of service providers**	SAS is the sole publicly funded emergency medical service in Scotland. It operates the largest public air ambulance service in Scotland and is aided by a charity air ambulance service. SAS is one of the largest ambulance providers in Europe, with a fleet consisting of roughly 1450 road based vehicles including 670 ambulances and 60 paramedic rapid response units.
6.	**Balance of paid and voluntary workforce**	SAS employs 5,278 staff (as of April 2020) with the balance of full-time and part-time workers equating to a workforce of 4,727 full time equivalent staff members. As of April 2020 these staff received a median wage of £35,000, a 5.7% increase from the previous year's median wage of £33,121. SAS currently has 1200 volunteer community first responders.
7.	**Local variation of service delivery**	SAS trains all its staff to provide the same high level of care. Volunteers do not receive the same level of training as employed staff.
8.	**Types and levels of demand management practices**	SAS uses a demand and capacity programme to constantly review operations to enable SAS to identify demand trends across the country so it can appropriately align resources. This programme has enabled the recruitment of 540 additional frontline staff over FY21 and also helps reduce shift overruns, improving the time available for rest breaks and decreases the need for on-call arrangements for remote and rural stations. Eight co-locations with the Scottish Fire and Rescue Service have been established across the country over the same year of the recruitment to ensure staff have the appropriate resources.
9.	**Level of investment in long-term workforce strategy**	In 2021 SAS launched a health and wellbeing strategy aimed at enabling its staff to feel healthy, valued and supported, and launched a mental health strategy in May 2022. The Scottish Government has also provided the service with £1.6m to help support the recruitment of 21 new mental health staff. There has also been significant investment in recruitment which is expected to continue.

Scottish Ambulance Service

Characteristics (2/2)

10.	**Integration with health system**	NHS Scotland oversees all public healthcare in Scotland, which enables a high level of integration across the health system. As demand for healthcare grows, and because ambulance services are frequently the entry point to the healthcare system, SAS is a key part of the wider health system who has a role to play in managing the flow of patients. This achieved through alternative pathways and alternative care options.
11.	**Integration of road and air services**	SAS is the only provider of public emergency ambulance services for both road and air. Air ambulance is an essential part emergency services in Scotland due to the 89 offshore islands that have permanent residents. The SAS air ambulance fleet comprises two helicopters and two fixed wing planes and Scotland's Charity Air Ambulance provide an additional two helicopters.
12.	**Integration of emergency and transfer**	SAS undertakes inter-hospital transportation services for healthcare organisations operated by NHS Scotland.
13.	**Integration of communications**	SAS uses the national emergency number, 999, to communicate with patients and is working with other emergency services to increase integration. The Home Office is leading a cross-government programme to deliver a new Emergency Services Network (ESN) critical communications system. The SAS has active participation in this programme and is collaborating with Police Scotland and Scottish Fire & Rescue to ensure a well integrated service delivery.
14.	**Integration with other emergency services**	SAS has become more integrated with other emergency services (i.e. fire). The military supported mobile testing units during COVID-19, freeing up ambulance staff to attend emergencies. Fire fighters have also been trained to drive ambulances and provide first aid under the supervision of a paramedic.
15.	**Usage of data systems to support front-line decisions**	SAS currently uses data in its current operations and also has a stated goal of having data at the forefront of its operations going forward. Steps to achieve this will be included in its 2022 data strategy that is yet to be released. The NHS has an electronic health record system, which is used across the health care system.
16.	**Level of data sharing within the emergency sector**	NHS Scotland coordinates across its organisations to enable data sharing. SAS has a goal of formalising data sharing agreements with its key partners.
17.	**Breadth of measurement of patient and system outcomes**	SAS publishes high level reporting and an array of future strategies. The NHS has a comprehensive performance regime, which include clinical care performance, response time performance and patient feedback. This data provides SAS with an extensive understand of its operations and is used to inform decision making.

Scottish Ambulance Service

Current and future direction, by characteristic

North East England

- Overview
- Service Model
- Characteristics
- Current and future direction

Looking after the welfare, wellbeing and safety of our colleagues has been of paramount importance over the last year.

North East England Ambulance Service

Overview

The North East Ambulance Service (NEAS) is one of ten ambulance trusts that provide England with emergency medical services. As a subsidiary of NHS England, NEAS is funded by the English government.

NEAS is established as an NHS Foundation Trust. The Trust Board leads the organisation, and comprises 13 members: a non-executive Chairman, six Non-Executive Directors and six Executive Directors, one of whom is the Chief Executive.

The role of the Board is to provide active leadership of the organisation, set its strategic direction and aims, ensuring that both financial and human resources are in place, and monitor and review performance.

NEAS works closely with NHS England, whose main role is to set the priorities and direction of the NHS and to improve health and care outcomes for people in England.

NEAS does not operate an air ambulance service but works in partnership with the Great North Air Ambulance Service, a charity that operates three air ambulances. NEAS acts as the primary provider of road ambulance services in the area with a fleet of over 600 vehicles. It operates emergency, non-emergency and patient transfer services while private ambulance providers also operate within the Northeast region.

As a subsidiary of NHS England it gets the majority of its funding from the government, with some additional income from other sources such as patient transport fees. Its operating income for FY21 was £184.722 million, up 24.40% from FY20. In response to the increased demand for emergency medical services caused by COVID-19 in the UK, NHS England announced in July of 2021 that the ten ambulance trusts would receive additional funding. This funding was to recruit staff across all areas of its operations, and each trust received a share of funding based on patient numbers.

North East England Ambulance Service

Service model

As a result of the pandemic the emergency operations centres operated by the NEAS have been inundated with calls, putting pressure on resources. Even though the quantity of calls received by NEAS has increased rapidly due to the pandemic, ambulances and paramedics are attending fewer incidents then prior to the pandemic and are taking fewer patients to local emergency departments. This is because of an increased number of people calling who could have sought help elsewhere and a large increase in the number of patients who are receiving either phone care or care at their location, without being taken to hospital.

The percentage of patients who received phone care rose from 5.7% in FY20 to 8.02% in FY21 and the percentage of patients who received location care rose from 26.8% in FY20 to 29.78% in FY21. This explains why 999 emergency demand rose 1% from FY20 to FY21 yet the number of ambulance incidents decreased by 1.2%.

Even with this adaptation in its model of service, the long term effects of increased demand and staff shortages caused by COVID-19 have resulted in the NEAS taking drastic action to try and ensure patients receive the best care under all circumstances. As of late 2021 the NEAS moved to its highest clinical escalation level. Advising patients who do not have potentially life threatening issues that when there was a delay for ambulances it may be in their best interest to find their own way to the hospital.

In response to the increased demand felt across the entire health care sector the NHS set out a long term plan with a focus on developing health care in the UK for the next 10 years. This plan can be achieved without legislative change but change would support more rapid progress and as a result some change is expected. The NEAS has also had a Board of Directors refresh causing the NEAS to review its strategic direction which motivated the release of the Trust's new strategy that outlined its vision for the future.

North East England Ambulance Service

Characteristics (1/2)

1.	**Proportion of government contribution**	The NEAS is majority funded by NHS England, with some additional income from other sources such as patient transport fees. Its total operating income for FY21 was £184.722 million, this was up 24.40% from FY20.
2.	**Political independence of operations**	NHS Foundation Trusts were created to allow decisions to be made by local organisations and communities which are free from central government control and to decide how best to spend the Trust's income, taking into account the needs of the local community. NHS England sets the priorities and direction of the NHS, and the NEAS, through their Board, translates those into operational activity.
3.	**Government asset ownership**	The NEAS acts as both a lessor and lessee of assets. This provides flexibility with resource costs and acts as a small additional source of revenue. The value of leased property, plant and equipment (PPE) assets was roughly 11.05% of total PPE assets in FY21, up from 7.81% in FY20.
4.	**Usage of demand-responsive funding mechanisms**	NHS England provided all of its ambulance trusts, including NEAS, with additional funding based on each trust's individual demand profile during the pandemic.
5.	**Number of service providers**	The NEAS is the sole British Government funded provider of emergency road ambulance services in the North-East. NEAS does not provide its own air ambulance service and the region is serviced by a mix of private providers and charities that offer air ambulance services that operate across multiple NHS ambulance regions.
6.	**Balance of paid and voluntary workforce**	NEAS employs over 2,700 staff, and over 300 volunteers. There are roughly 100 Community First Responders who are members of the general public trained by NEAS in basic first aid and life support. They are provided with oxygen and a defibrillator and are deployed to life threatening emergencies if they are the nearest resource, followed by the next nearest emergency care crew.
7.	**Local variation of service delivery**	The NEAS serves an area with a population density of 310 people per sq. km with limited rural and isolated areas. NHS England sets service standards for all of its ten ambulance service trusts. NEAS also sets its own additional standards that ensure it offers a high quality of care to all patients. This ensures there is limited variation of service delivery across NEAS.
8.	**Types and levels of demand management practices**	NEAS has multiple internal plans and strategies to best provide emergency services during high demand and these are aided by additional government funding. The NEAS uses a clinic safety plan to help respond quickly in times of pressure while ensuring patient safety. Under its 'no send' policy, an internal demand management plan indicates which patients could be safely advised to make their own way to hospital, to free up ambulance resources for more urgent cases.
9.	**Level of investment in long-term workforce strategy**	It is not clear if there is a long-term workforce strategy that focuses on training, hiring, retention and addresses the health and wellbeing of current staff. NEAS has initiated many programmes to improve staff wellbeing and are investing in additional staffing resources to manage current demands.

North East England Ambulance Service

Characteristics (2/2)

10.	**Integration with health system**	As one of the ten ambulance services operated, funded and regulated by NHS England, NEAS is a part of the new Integrated Care System (ICS) being implemented by NHS England. Across England, local partnerships (ICS, made up of all the public services that provide health and care – the NHS, GPs, local councils and the community, voluntary and social enterprise sector – will work together to provide high quality services and benefit local people. The intention is to bring together health and social care organisations to agree joint priorities and decide how best to deliver efficient services where there is a common need or opportunity. This will be done by collaborating and making best use of combined resources, including technology, data, money and workforce.
11.	**Integration of road and air services**	Air ambulance services in North East England are provided by a the Great North Air Ambulance charity that is not funded, owned or operated by NHS England, but does work in partnership with NEAS. The Great North Air Ambulance provides air ambulance services to the North-East, North Yorkshire and Cumbria. This service operates 3 rotary aircrafts and has additional road based vehicles that can also help provide emergency medical care.
12.	**Integration of emergency and transfer**	NEAS provides inter-hospital transportation services for various healthcare organisations operated by NHS England.
13.	**Integration of communications**	NEAS operates three emergency operations centres that are integrated with the local healthcare system. There is limited integration between these emergency operations centres and other forms of emergency services as the original 999 calls are triaged to NEAS. NEAS is not able to dispatch ambulances from another trust provider via its own systems. However due to the jurisdictions sharing populated borders there is a high level of interoperability between the various trusts.
14.	**Integration with other emergency services**	Limited publicly available information
15.	**Usage of data systems to support front-line decisions**	NEAS uses high-level internal data measurements to make decisions. NEAS are one of only three ambulance services official recognised as Global Digital Exemplars. NHS providers are internationally recognized for their data implementation and how data is used to deliver improvements in quality of care.
16.	**Level of data sharing within the emergency sector**	NEAS is a member of the Great North Care Record, a way of sharing medical information across the North East and North Cumbria. NEAS also shares data with NHS health care providers. This data is used to identify trends cross all of England's healthcare system.
17.	**Breadth of measurement of patient and system outcomes**	NEAS has in-depth reporting structures for patient satisfaction, clinical care, staff wellbeing and response times, providing detailed measurements in its Annual Report. This data is used to compare annual changes in demands, trends and performance and is compared against other NHS ambulance trusts which is then used to helps inform strategies for the NEAS.

North East England Ambulance Service

Current and future direction, by characteristic

Ngā mihi nui

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