Queensland Audit Office

Queensland Ambulance Service performance

Report 17 : 2013–14

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Queensland Audit Office

May 2014

The Honourable F Simpson MP
Speaker of the Legislative Assembly
Parliament House
BRISBANE QLD 4000

Dear Madam Speaker

Report to Parliament

This report is prepared under Part 3 Division 3 of the *Auditor-General Act 2009*, and is titled *Queensland Ambulance Service performance*.

In accordance with s.67 of the Act, would you please arrange for the report to be tabled in the Legislative Assembly.

Yours sincerely

Andrew Greaves
Auditor-General

Contents

Summary

The Queensland Ambulance Service (QAS) provides publicly funded patient transport services and emergency pre-hospital care to the Queensland community. Services include emergency and routine pre-hospital patient care and transport services; coordination of aero medical services; ambulance transport between facilities; planning and coordination of responses to multi-casualty incidents and disasters; and casualty room services.

In 2012, QAS was decentralised, with 16 Local Ambulance Service Networks (LASN) established as part of the QAS structural reform and public service renewal program. At this time, the delivery model for ambulance services was aligned with the Department of Health's Hospital and Health Services model. On 1 October 2013, QAS transferred to the Department of Health.

QAS, as a publicly funded entity, has a responsibility to demonstrate that it delivers the clinical services it was established to provide, effectively and equitably, while ensuring best possible value for money.

This audit examined the operational effectiveness of the QAS, focusing on service access and responsiveness and on its performance monitoring and reporting systems.

Conclusions

The QAS performs well, compared to ambulance services in other states and territories. It focuses appropriately on clinical outcomes for patients and, despite a significant increase in demand over the last five years, it has maintained better state-wide response times compared with other Australian ambulance services. It has also maintained its standards of emergency and pre-hospital care for patients; and provided equitable access to all Queenslanders.

However, as QAS is a publicly funded, professionally staffed ambulance service that seeks to provide an equitable response across a large geographic state; these service levels come at a cost. From 2003–04 to 2012–13, QAS has been consistently one of Australia's two most costly services per head of population.

QAS has more locations and more staff, per head of population, than any other jurisdiction; the highest ratio of qualified staff to total staff of all jurisdictions except the Australian Capital Territory; and fewer volunteers and first responders than most jurisdictions (only New South Wales has fewer). These factors drive the QAS costs.

As QAS is demand driven, there is a strong nexus between the state's population growth and the total cost of the service. This generally is a sustainable proposition, provided the state economy and state revenues grow at or faster than the rate of population growth. Under such scenarios the proportion the state spends on the service remain stable.

However a pressing issue, is the rapid escalation in growth in the use of ambulance services by Queenslanders, particularly for emergency and urgent incidents.

Per head of population, we are more likely to use an ambulance than people in any other state or territory. Demand growth has outstripped population growth. The ageing population and increasing incidence of chronic diseases contribute to this accelerating growth in demand. Our estimate is that the growth in the rate of use of the service has added around $82 million annually to its costs since 2005-06.

Given the QAS is already a relatively high cost service, in a fiscally constrained future the ability of QAS to continue to provide its current standards of emergency and pre-hospital care for patients is at risk. A whole-of-government response is required to address these challenges for QAS.

Key findings

Service performance

QAS responds to Code 1 emergency incidents, on average, quicker than any other Australian ambulance service but does not meet some of its own internal targets for dispatch times.

QAS performs well in other urgent and non-urgent response categories, compared to other Australian ambulance services, but again is not meeting some of its own targets for Code 2 responses.

QAS uses evidence-based and innovative clinical practices to drive excellence in service quality, including:

- a clinical audit and review tool
- a system for monitoring the location of ambulances (in real time) to aid in dispatch
- processes to avoid delays in patient handover to hospitals.

QAS reports on a number of clinical quality indicators and work is underway to develop, pilot and validate additional clinical quality measures. The development of clinical performance measures for pre-hospital care is a vast and ongoing academic exercise for QAS and ambulance services internationally. With its transfer from the Department of Community Safety to the Department of Health, QAS will now have access to hospital patient outcome data information.

Cost effectiveness

Based on the most commonly used ambulance cost efficiency measure of expenditure per head of population, QAS was the second most costly service for 2012–13, compared to ambulance services in other jurisdictions.

Some of this is attributable to the large geographic range of the state and the resultant kilometres that must be travelled, as QAS seeks to maintain equity of access for regional and rural residents.

QAS has also experienced a significant and rapid increase in the rate of demand for its services—predominantly for Code 1 and Code 2 incidents—with growth in demand outstripping population growth. The number of such incidents stands now at 133 incidents per 1 000 head of population, up from 106 incidents per 1 000 head of population eight years ago.

Other costs, such as absenteeism, sick relief and overtime payments, are also increasing at levels that exceed the growth in service demand and provision. In the four years since 2008–09, the cost of sick leave has increased by 60 per cent ($3.08 million).

Performance reporting

QAS has a mature and robust performance measurement and reporting framework that measures and reports performance information effectively. It uses performance information as a signalling device to assure service delivery is on track, to highlight issues that require attention and to convey information that allows senior management to assess its performance. Accurate and timely data underpin this framework to help management make informed decisions in allocating and using resources.

The responsiveness performance information QAS reports publicly does not identify its performance for Code 2 (urgent) incidents, or against regional targets for all incident codes. This limits the ability of the Parliament and the public to consider QAS performance across the range of its responses and, at a local level, against its own targets.

QAS has a system for managing customer feedback; however, it does not analyse or report on complaints received and their outcomes.

Recommendations

It is recommended that the Department of Health:

1. **facilitates the sharing of hospital patient outcome data with Queensland Ambulance Service to help measure the effect of pre-hospital care on patient outcomes**
2. **enhances management reporting processes over complaints by recording the number and nature of complaints, following up outstanding complaints formally and reporting complaints data to executive management**
3. **publicly reports a comprehensive suite of performance information, including:**
    - **response performance across all priority codes, including Code 2 (urgent) incidents and against response targets**
    - **results of clinical audits and reviews.**
4. **determines the underlying causes for the rapid growth in demand for Queensland Ambulance Service emergency responses and implements strategies to address these causes and reduce the cost per head of population to service this demand.**

Reference to comments

In accordance with section 64 of the *Auditor-General Act 2009*, a copy of this report was provided to the Department of Health with a request for comments.

Their views have been considered and are represented to the extent relevant and warranted in preparing this report.

The full comments received are included in Appendix A of this report.

1 Context

1.1 Background

The Queensland Ambulance Service (QAS) is an integral part of the primary health care sector in Queensland. Its objective is to provide timely and quality ambulance services which meet the needs of the community.

Its services encompass:

- pre-hospital ambulance response
- emergency and routine pre-hospital patient care and transport
- ambulance transport between facilities
- coordination of aero medical services
- planning and coordination of responses to multi-casualty incidents and disasters
- casualty room services.

The *Ambulance Services Act 1991* (the Act) established QAS in 1991 through the amalgamation of Queensland Ambulance Transport Brigades. The Act makes the QAS chief executive responsible for:

- defining the objectives, strategies and policies to be followed by the service
- ensuring the service performs its functions in an appropriate, effective and efficient way.

1.2 Structure and reform

On 5 November 2012, QAS undertook structural reform which included a restructure of its regional and central offices. This transformed the service structure, from seven regions with 21 area offices into 16 Local Ambulance Service Networks (LASNs), supported by a central office system manager. The revised structure aligns the ambulance service delivery model with the Department of Health's Hospital and Health Services model.

Of the 16 LASNs, QAS has fifteen geographic LASNs with 269 response locations providing ambulance services across the state. Appendix C contains a map of LASN boundaries and a detailed map of the south-east Queensland area.

Seven operations centres, distributed throughout Queensland, constitute the sixteenth statewide 'LASN'. Staff members employed at these centres are responsible for taking emergency calls; operational deployment and dispatch; and coordination of rotary and fixed-wing aero medical responses through the Queensland Emergency Medical System Coordination Centre.

On 1 October 2013, responsibility for QAS transferred from the Department of Community Safety to the Department of Health. The move is designed to achieve a better alignment of QAS core function as an emergency health service and to support continual improvement of the patient journey for Queenslanders.

1.3 QAS budget

QAS is a publicly funded service. Figure 1A shows the state's general government sector expenditure and the QAS budget from 2009–10 to 2013–14.

Figure 1A
State general government sector expenditure and QAS expenditure

	2009–10 $ m	2010–11 $ m	2011–12 $ m	2012–13 $ m	2013–14 $ m
State expenditure*	39 976	43 310	46 021	46 526	48 436
Queensland Ambulance Service expenditure^	533	562	576	568	593

Notes:

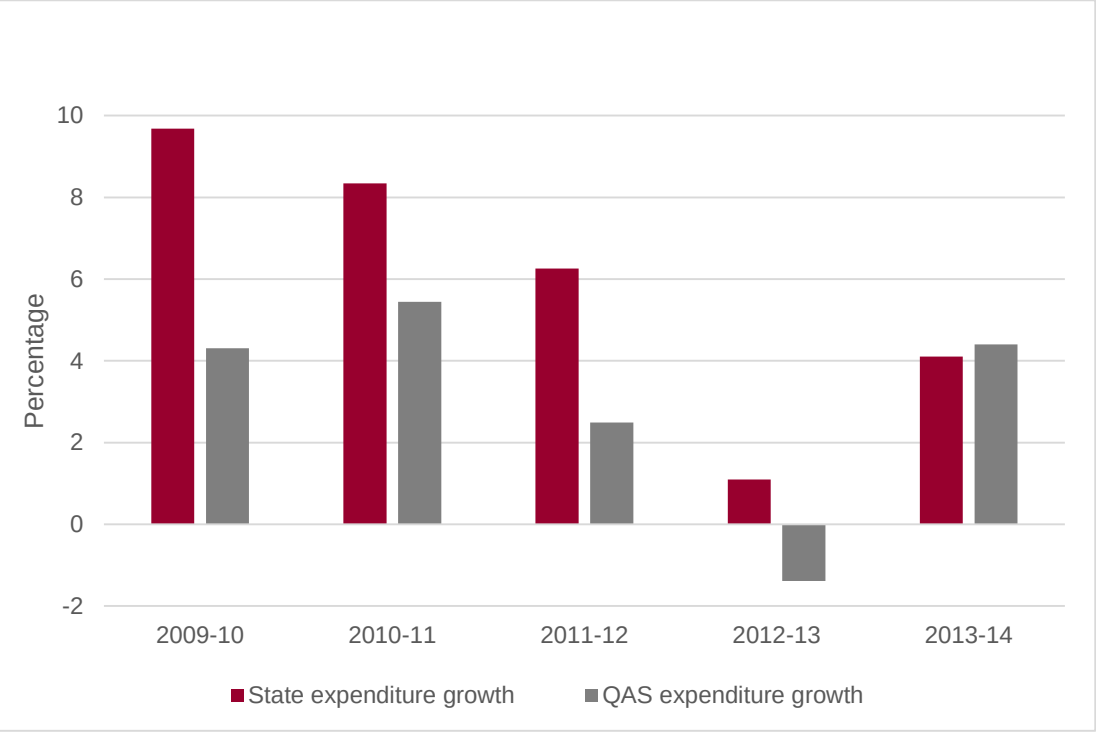
* state expenditure is the reported estimated actual expenditure taken from state budget papers for the respective financial years and represents general government sector expenses. 2013–14 expenses are forecast.

^ Queensland Ambulance Service expenditure for 2009–10 to 2012–13 is taken from the Productivity Commission's Report on Government Services; QAS provided expenditure for 2013–14 as the adjusted budget transferred to the Department of Health on 1 October 2013.

Source: Queensland Audit Office

Figure 1B shows the growth of the state's general government sector expenditure and that of the QAS.

Figure 1B
Growth rate of general government sector expenditure and QAS expenditure



Source: Queensland Audit Office

The growth in QAS expenditure has been less than growth in general government sector expenditure; in 2012–13, this expenditure reduced while general government sector expenditure grew. This is expected to change in 2013–14, with QAS expenditure forecast to grow at a similar rate to general government sector expenditure.

1.4 QAS response codes

Ambulance services respond to a wide range of incidents: from life threatening cases to transporting patients to medical appointments. The QAS, like most ambulance services, uses a coding system to prioritise its response to calls for assistance or service. Figure 1C provides a brief description of the QAS response codes and actions.

Figure 1C
Response codes

Code		Patient condition and response required
1	**Emergency—immediate response/life threatening, lights and sirens response:**	
	1A	probable cardiac/respiratory arrest, definitely unconscious, undetermined breathing status
	1B	unknown condition, definitely breathing, unknown or altered conscious state
	1C	life threatening condition, definitely conscious and breathing.
2	**Urgent—immediate response/non-life threatening:**	
	2A	patient's condition requires immediate response—no lights and sirens, ambulance to patient with no delays
	2B	patient's condition requires ambulance on scene within 30 minutes of receipt of call
	2C	patient's condition requires ambulance on scene within one hour of receipt of call. Contact patient and reassess if response time will be greater than one hour.
3	**Time critical—No lights and sirens. Patient has an appointment time and may require a paramedic (Code 3A) or a patient transport officer (Code 3B).**	
4	**At QAS earliest convenience—No lights and sirens. Patient may require a paramedic (Code 3A) or a patient transport officer (Code 3B).**	

Source: Queensland Audit Office based on QAS standard operating procedures

An incident may require one or more ambulances to respond; for example, where there are multiple casualties. Therefore, the number of incidents to which QAS responds are fewer than the number of its responses (ambulances sent).

1.5 Prior relevant reviews

1.5.1 Queensland Ambulance Service review: 2007

In 2007, representatives from Queensland Treasury and Trade, the Department of the Premier and Cabinet and Queensland Health undertook a review of QAS on behalf of the Queensland Government. This review covered:

- trends in the demand for ambulance services and the factors driving increasing demand
- budget and resource allocation, including the level of corporate overheads
- workforce management systems
- organisational effectiveness and the appropriateness of the current service delivery model
- intersection with the health system.

That review found that QAS was experiencing demand pressures for its services, which were growing faster than other Australian jurisdictions and faster than the rate of general population growth in Queensland.

There were 21 recommendations made, addressing demand management; budget and resourcing; workforce management; organisational effectiveness and service delivery model; performance management; interaction with Queensland Health; and future funding strategies.

1.5.2 Queensland Ambulance Service review: 2013

During 2013, former Australian Federal Police Commissioner Mick Keelty, AO, APM undertook a review of emergency services. The final report, *Sustaining the unsustainable—Police and Community Safety Review*, was provided to the Minister for Police and Community Safety in August 2013.

That review included an examination of QAS operations and covered the areas of demand and demand management, system coordination—including the relationship between QAS and the Department of Health—patient outcomes and staffing.

It concluded that QAS is a highly professional and effective ambulance service; and that it is at the forefront of innovation in pre-hospital patient care, demand management and in trialling alternate models of patient care and transport.

The review report also recognised that QAS is focusing on building its capacity in providing professional pre-hospital medical interventions that will have positive effects on overall patient outcomes, saving acute hospital care resources.

The transfer of QAS from the Department of Community Safety to the Department of Health was one of the recommendations of the review.

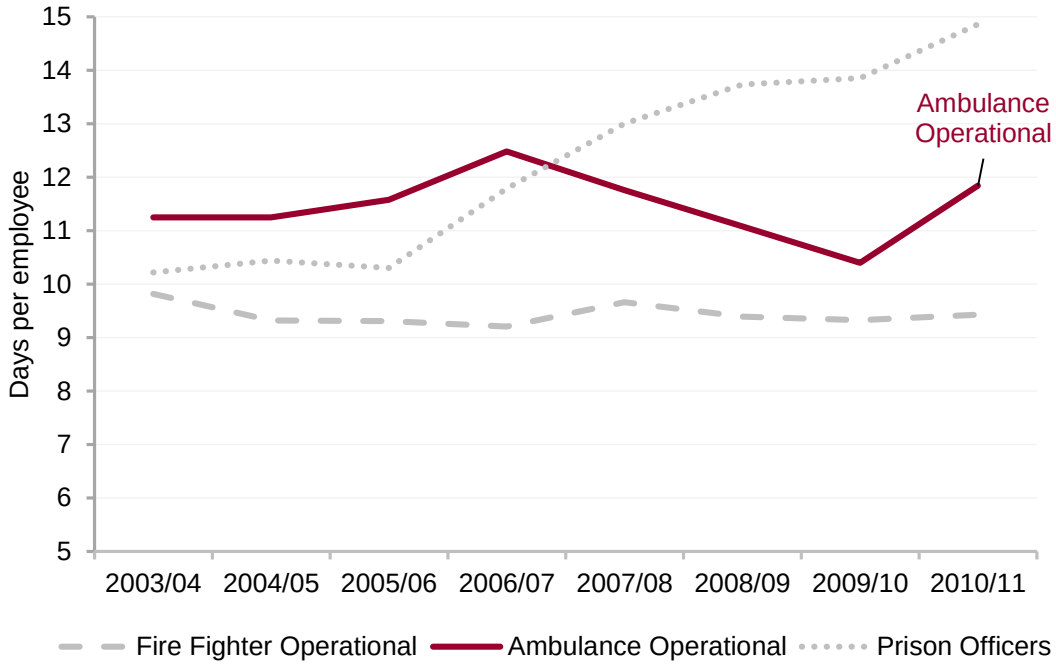
1.5.3 Unplanned absences audit: 2012

Our report to Parliament *Managing employee unplanned absence* (No 4 for 2012*)* assessed whether Queensland public service departments were effectively managing unplanned absence. It reviewed the role of central agencies and examined more closely the Department of Community Safety and the former departments of Education and Training and Public Works.

Unplanned absence may result from sick leave, the illness or death of close family members or other reasons, such as workplace injury or absence due to industrial disputes or natural disasters.

Figure 1D is reproduced from this report and shows the unplanned absence for QAS at that time, compared with other agencies.

Figure 1D
Rate of unplanned absences



Source: Queensland Audit Office

QAS unplanned absences rose between 2003–04 and 2006–07, followed by a three-year decline from 2006–07 to 2009–10, before rising again from 2009–10 to 2010–11.

That report found QAS had effective systems to manage unplanned absences, which included:

- monitoring of attendance and absence patterns
- triggers for management intervention
- regional absenteeism management committees
- absenteeism reporting as part of its operational performance review system.

1.6 Audit objective, scope and cost

The objective of this audit was to assess the operational effectiveness of QAS, focusing on access, responsiveness, monitoring and reporting.

The audit examined whether:

- ambulance services were planned and provided equitably and in accordance with the *Queensland Ambulance Service Act 1991*
- employee resources were managed efficiently and effectively
- performance information was used to measure and report performance and facilitate decision making.

The cost of this audit was $585 000.

1.7 Structure of the report

The findings in this report are structured as follows:

- Chapter 2—Service performance
- Chapter 3—Cost effectiveness
- Appendix A—Comments
- Appendix B—Audit details
- Appendix C— Queensland Ambulance Service Local Ambulance Service Network

2 Service performance

In brief

Background

Timely and high quality ambulance services are crucial to effective pre-hospital care. A robust performance management framework helps to measure the timeliness and quality of services by including relevant performance indicators, targets and reliable monitoring and reporting systems to evaluate and report performance and to enhance continuous improvement in delivering services.

Conclusions

Queensland Ambulance Service (QAS) responds quickly to most incidents, providing a quality and equitable service across the state, despite not meeting many of its own targets for dispatch, response and Code 2 incidents. It is outperforming the rest of Australia in statewide median response times.

QAS has an internal performance management framework that is mature and robust. Greater transparency in public reporting of its response time performance—including disclosing regional targets and summary outcomes of clinical audits and reviews—would strengthen its external accountability and better inform the public about the level of service people can realistically expect in each location.

Key findings

- The statewide median response time performance of QAS compares favourably when measured against other Australian ambulance services, particularly New South Wales, Victoria and Western Australia.
  - QAS has the quickest statewide median response time for Code 1 emergency incidents of all Australian ambulance services.
  - QAS is not meeting its own targets for Code 1 dispatch times, some individual LASN response times and statewide response for Code 2 incidents.
  - Patient 'off stretcher' times have improved 22.4 per cent and overall case cycle times have improved 7.75 per cent between 2012 and 2013.
- QAS demonstrates a culture of performance management, with active involvement from its leaders and all management levels. Systems, organisational routines and practices support this shared commitment.
- QAS records and reports internally on the performance of LASNs against their individual targets but does not make this information available to the public.

Recommendations

It is recommended that the Department of Health:

1. **facilitates the sharing of hospital patient outcome data with Queensland Ambulance Service to help measure the effect of pre-hospital care on patient outcomes**
2. **enhances management reporting processes over complaints by recording the number and nature of complaints, following up outstanding complaints formally and reporting complaints data to executive management**
3. **publicly reports a comprehensive suite performance information, including:**
   - **response performance across all priority codes, including Code 2 (urgent) incidents and against response targets**
   - **results of clinical audits and reviews.**

2.1 Background

Pre-hospital care is key in preventing patient injury and death. Timely and high quality ambulance services are crucial to effective pre-hospital care. In 2012–13, the Queensland Ambulance Service (QAS) responded to approximately 870 000 incidents.

QAS uses national and international ambulance service performance measures to evaluate the responsiveness, quality and efficiency of its performance across the patient journey from call taking to hospital handover.

A robust performance management framework provides objective performance information on the effective delivery of services and success in achieving intended objectives. Frameworks include relevant performance indicators, targets and reliable monitoring and reporting systems to evaluate and report performance and enhance continuous improvement.

This chapter assesses the QAS performance management framework and QAS performance against its targets and other Australian ambulance services.

2.2 Conclusions

QAS provides a timely, quality and equitable service across the state. It is outperforming the rest of Australia in statewide median Code 1 response times and survival rates for paramedic witnessed cardiac arrests. Part of the reason for this is its strong performance management culture, grounded in comprehensive and reliable operational data that are routinely captured, aggregated, analysed and reported widely throughout the service. Employees understand their performance standards and targets and have regular access to data on their actual performance.

As QAS is a publicly funded, pre-hospital care provider, the community naturally has expectations about, and an interest in, its performance at a state and local level. QAS is not transparent with all of its performance, providing no information to the community on its responsiveness to Code 2 (urgent) incidents. It is not meeting many of its internal targets for dispatch, response and Code 2 incidents.

2.3 Service responsiveness

There are three steps in the sequence of the patient journey where a form of handover of responsibility occurs:

- answering triple zero calls and dispatch
- at scene arrival
- hospital handover.

QAS case cycle performance is the time between ambulance dispatch and clearing of the case at the hospital. As at 30 June 2013, QAS achieved an average case cycle time of 69.42 minutes, an improvement of over five minutes (7.75 per cent) from the previous year's average time of 74.80 minutes.

QAS uses nationally and internationally accepted time-based service performance measures for assessing its responsiveness for the first two stages in the case cycle. Time targets relevant to the first two stages are calibrated according to the nature of the emergency; for example, Code 1 (emergency) incidents have quicker response time targets than Code 2 (urgent) incidents.

Figure 2A shows QAS performance in responding to all codes for the past three financial years.

Figure 2A
QAS response performance for all codes

Performance measures	2010–11		2011–12		2012–13	
	Target	Actual	Target	Actual	Target	Actual
% of triple zero calls answered within 10 seconds	90	91.07	90	90.75	90	90.64
Dispatch Code 1 (% < 60 seconds)	90	83.6	90	83.0	90	86.0
Dispatch Code 2A (% < 90 seconds)	90	68.3	90	68.1	90	73.1
Code 1 (emergency incidents)						
50th percentile (minutes)	8.2	8.2	8.2	8.3	8.2	8.2
90th percentile (minutes)	16.5	16.7	16.5	17.0	16.5	16.5
Code 2 (urgent incidents)						
Code 2A—50th percentile (minutes)	NT	12.9	NT	13.0	NT	12.8
Code 2A – 90th percentile (minutes)	NT	31.1	NT	32.3	NT	30.4
Code 2B (% < 30 min)	90	70.76	90	68.03	90	72.7
Code 2C (% < 60 min)	90	81.70	90	81.19	90	87.40
Code 3 and 4 (non-urgent incidents)						
% of non-urgent incidents attended to by appointment time	>70	75.98	>70	81.51	>70	85.65

* NT denotes 'no target'.

Source: Queensland Audit Office adapted from Department of Community Safety documents

2.3.1 Triple zero call taking and dispatch

QAS has system controls and quality assurance in place for triple zero call taking and dispatch. These include:

- an internationally validated system to prioritise case urgency and identify the appropriate response for each call received
- daily case reviews, including random samples of emergency incidents
- shift reports to manage service delivery issues and facilitate learning and professional development opportunities
- review of triple zero phone call recordings to assess the quality of customer service
- daily reviews of the performance of operations centres
- the international standard for operations centre staff to answer triple zero calls is within ten seconds—QAS achieved this standard for more than 90 per cent of the calls received over the past three financial years
- QAS targets require it to dispatch at least 90 per cent of Code 1 and Code 2A ambulances within 60 seconds and 90 seconds respectively, after taking the call
- in 2012–13, QAS did not meet its target of 90 per cent for either Code 1 or Code 2A dispatch times, achieving 86.0 per cent and 73.1 per cent respectively. However these results were an improvement over its 2011–12 performance, which was 83.1 per cent for Code 1 and 68.1 per cent for Code 2A dispatch.

2.3.2 Arrival at incident scene

Ambulance emergency response time targets relate to the time taken from the transfer of a triple zero (000) emergency call to dispatch and the arrival of the first ambulance unit at the scene.

To better understand the spread (dispersion) of its actual performance, targets are set for the median response time (the middle or 50th percentile), and for the 90th percentile (meaning that the slowest 10 per cent of responses take longer than this time).

Code 1 incidents—statewide performance

In 2012–13, QAS responded to 870 000 incidents, of which about 306 000 (35 per cent) were Code 1 incidents.

Figure 2B shows the median ambulance response times for Code 1 incidents for all Australian states and territories in 2012–13. QAS performs well in comparison to all other jurisdictions and its performance has improved over the past two years.

Figure 2B
2012–13 Code 1 response times in Australia

Performance measures	QLD	NSW	VIC	WA	SA	TAS	ACT	NT
50th percentile (minutes) *	**8.2**	11.1	11.2	9.1	9.4	11.0	8.7	9.5
90th percentile (minutes)*	**16.5**	23.0	22.9	16.5	17.4	22.8	13.7	21.6

* Indicative only as there are differences in measurement methodologies across jurisdictions

Source: Queensland Audit Office extracted from the Productivity Commission's Report on Government Services 2014

For the 2012–13 financial year, the statewide response time targets set by QAS for Code 1 incidents were:

- 8.2 minutes for the 50th percentile
- 16.5 minutes for the 90th percentile.

Figure 2A shows that QAS met its 2012–13 targets.

Figure 2B shows also that its median response time was the quickest nationally and that it was second only to the Australian Capital Territory (13.7 minutes) at the 90th percentile.

By comparison for 2011–12, state-wide, the 50th percentile actual response time in Queensland for Code 1 emergency incidents was 8.3 minutes—also the shortest average median response time across all Australian states for that year.

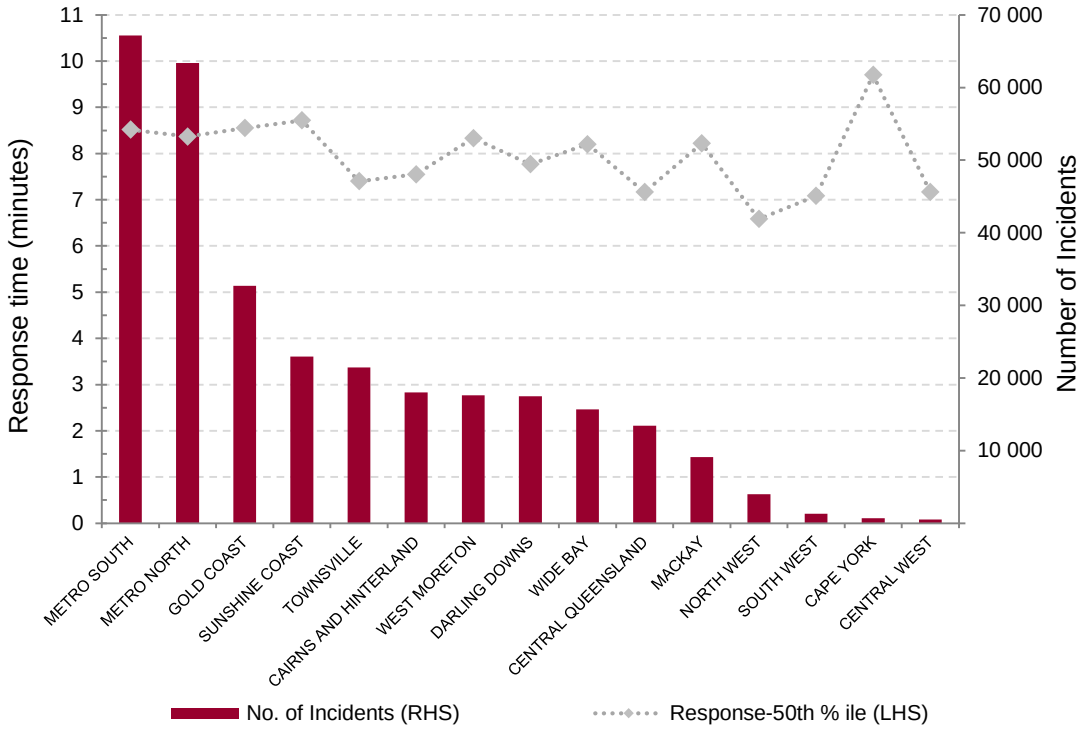
That year, QAS failed to meet its 16.5 minute target for the 90th percentile response time, instead achieving 17 minutes. However, again nationally this was second only to the Australian Capital Territory at 14.8 minutes.

Of all Code 1 incidents in 2012–13, 185 incidents (less than one per cent) had a response time greater than 40 minutes from dispatch to arrival on scene. Our analysis of a sample of these 185 incidents across the state, including metropolitan, regional, rural and remote locations, found the majority were to sites a long distance from station locations—on average, greater than 120 kilometres from the ambulance response location.

Code 1 incidents—Local Ambulance Service Network level performance

Figure 2C shows the number of incidents and 50th percentile (median) response time for the 15 geographic Local Ambulance Service Networks (LASNs) for 2012–13.

Figure 2C
Code 1 median response times for all LASNs in 2012–13



Source: Queensland Audit Office based on Department of Community Safety data

With the exception of Cape York, there is an inverse relationship between the number of incidents and service performance: those LASNs with the highest number of incidents generally don't perform as well on this metric than those with fewer incidents. This could be attributed to the latent response capacity and lower population density in LASNs with lower case loads.

QAS sets internal response time targets for each LASN, considering local factors such as size, geography, population demographics and past performance.

These targets are updated annually and performance against the targets is monitored daily.

Figure 2D shows QAS Code 1 regional response targets and performance for 2012–13.

Figure 2D
2012–13 QAS Code 1 regional response targets and performance

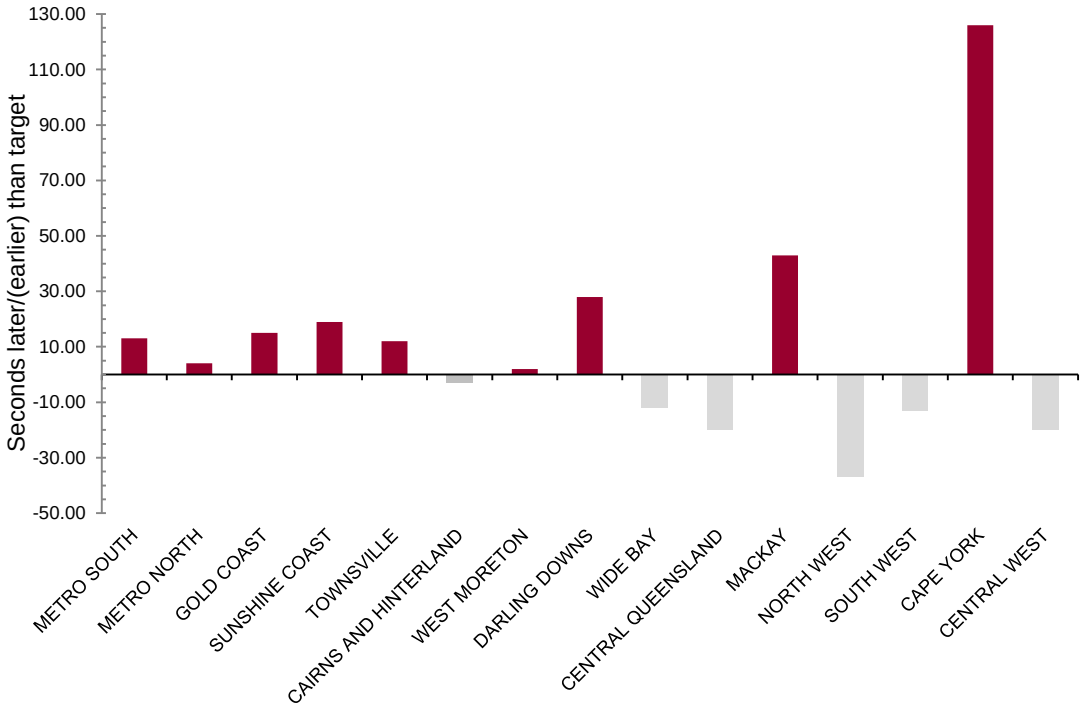
Region	LASN	50th percentile		90th percentile	
		Target minutes	Actual minutes	Target minutes	Actual minutes
Far Northern	Cairns and Hinterland	7.6	7.6	16.3	16.0
	Cape York	7.6	9.7	16.3	22.2
Northern	North West	7.2	6.6	14.4	11.8
	Townsville	7.2	7.4	14.4	13.8
Central	Central Queensland	7.5	7.2	18.5	16.7
	Central West	7.5	7.2	18.5	41.9
	Mackay	7.5	8.2	18.5	20.5
South Western	Darling Downs	7.3	7.8	20.2	20.6
	South West	7.3	7.1	20.2	45.4
North Coast	Sunshine Coast	8.4	8.7	18.5	18.5
	Wide Bay	8.4	8.2	18.5	18.7
Brisbane	Metro North	8.3	8.4	15.6	16.0
	Metro South	8.3	8.5	15.6	15.4
South Eastern	Gold Coast	8.3	8.6	15.4	15.9
	West Moreton	8.3	8.3	15.4	17.4

Source: Queensland Audit Office from QAS data

In 2012–13, eight of the 15 LASNs did not meet their 50th percentile response target. Nine LASNs did not meet their 90th percentile target. Five LASNs—Cape York, Darling Downs, Gold Coast, Mackay and Metro North—met neither their 50th nor 90th percentile targets.

Figure 2E shows that, of the nine LASNs that did not meet their median response time targets, Mackay and Cape York recorded an adverse variance for the 50th percentile greater than 40 seconds.

Figure 2E
2012–13 Code 1 variance against LASN median time targets (seconds)



Note: above the line is later than target, below is earlier.

Source: Queensland Audit Office

Four of the five south-east Queensland LASNs have the highest incidence of responses and also exceed both the statewide median response time target and their own LASN targets. The fifth, West Moreton—which ranks eighth for most incidents—also exceeds the statewide median response time target and meets its own median LASN target, but not its 90th percentile response time target.

Conversely, five LASNs outside south-east Queensland with relatively fewer incidents, easily meet the statewide median target and also better their own LASN targets. Cape York is a clear anomaly and Darling Downs and Mackay stand out as significantly underperforming in this cohort.

Non-Code 1 incidents

QAS has not set targets for arrival of first responding unit at scene for Code 2A cases, which are the most urgent of Code 2 incidents.

Its 50th percentile response times for Code 2A incidents has been between 12.8 minutes and 13 minutes over the past three financial years, while 90th percentile response times have ranged from 30.4 minutes to 32.3 minutes.

QAS has set targets of arriving at scene within 30 minutes for Code 2B and 60 minutes for Code 2C in 90 per cent of incidents. It has failed to meet its targets for both of these codes from 2010–11 to 2012–13.

2.3.3 Patient transfers to hospital facilities

QAS uses GPS tracking and closed circuit television at hospitals to monitor the travel routes and locations of individual ambulance vehicles to ascertain their availability for redeployment.

Using live geo-spatial data, QAS monitors the number of ambulance vehicles on their way to hospital and the time spent at the hospital by ambulance crews.

The QAS Patient Safety and Distribution Unit (PSDU) maintains a statewide overview of service delivery and notifies LASNs' operations supervisors to address delays. The PSDU uses the iROAM system to monitor all response times greater than 20 minutes and to generate operations incident reviews.

Hospital transfer times

QAS has an agreement with the Department of Health that stipulates patients are to be taken 'off stretcher' within 30 minutes of arrival at all hospital emergency departments. While the timeliness of patient handover at hospitals is affected by external factors, delays can impinge on QAS's costs and ability to respond to new and awaiting incidents.

In 2013, the average patient off stretcher time at Queensland's 27 reporting hospitals was 17.64 minutes. This was within the 30 minute time target agreed by QAS and the public hospitals and a 22.4 per cent improvement from the previous year's average of 22.74 minutes.

2.4 Clinical quality

QAS has limited ability to measure overall patient outcomes because of the nature of its clinical practices which are pre-hospital care interventions.

QAS evaluates clinical practice and quality for the period a patient receives ambulance care. QAS cannot measure the effectiveness of its services and their effects on specific patient outcomes as it does not have access to patient outcome information held by hospitals. QAS continues to pursue this information in order to track patient outcomes after ambulance transfer to hospitals. This information would support evaluation and ongoing improvements to pre-hospital interventions.

QAS has a framework in place to provide quality assurance and risk management over its clinical performance. The framework consists of a dedicated clinical standards and quality unit and the Clinical Quality and Safety, Education, Research Governance Committee, which oversees progress of recommendations from clinical audits and reviews.

QAS has a system to allocate complaints to LASNs for follow up; however, executive management is no longer informed of the volume of complaints received over time and does not know whether complaints are being followed up within 30 working days as required under QAS policy. QAS is currently working towards collating complaints data into the formal internal reporting process.

2.4.1 Clinical measures

QAS assesses the effectiveness of its clinical performance, using internal and external clinical measures as well as the results of its clinical audits and reviews and patient feedback surveys.

QAS uses a suite of clinical measures to evaluate the management of asthma and diabetes and traumatic and cardiac pain. These measures are useful for indicating trends over time, but the general lack of benchmarks and targets reduces their effectiveness.

The exception is the 'cardiac arrest survived event rate' measure. For the calendar years of 2010, 2011 and 2012, QAS performed above its target of 24 per cent, achieving 28.47 per cent, 30.2 per cent and 29.8 per cent respectively.

The 'cardiac arrest survival rate (paramedic witnessed)' measure is reported in the Productivity Commission's Report on Government Services (ROGS) and used as a benchmark for QAS against other Australian ambulance services.

The QAS and ROGS measures differ on case inclusion criteria such as:

- the minimum age of an adult patient (QAS: 18+, ROGS: 16+)
- the cause (aetiology) of the out of hospital cardiac arrest (QAS: cardiac aetiology, ROGS: any aetiology such as trauma, drowning).

The ROGS 'cardiac arrest survival rate (paramedic witnessed)' measure shows that, in 2012–13, Queensland's performance of 51.3 per cent was the best recorded in Australia as shown in Figure 2F.

Figure 2F
Comparison of QAS cardiac arrest related performance for 2012–13

Performance measure	QLD[#]	NSW	VIC	WA	SA	TAS	ACT	NT
Cardiac arrest survival rate (paramedic witnessed) %	51.3	NA	49.2	46.6	31.3	N/A	34.6	12.5

[#] There are differences in measurement methodologies between the QAS cardiac arrest survival indicator and that used by ROGS

N/A denotes 'not available'

Source: Queensland Audit Office extracted from the Report on Government Services 2013

It is difficult to benchmark QAS performance against other ambulance services because jurisdictions use different methods of reporting cardiac arrest data. The lack of publicly reported clinical measures makes it difficult to evaluate the effectiveness of QAS clinical performance. The development of clinical performance measures for pre-hospital care is a challenge for ambulance services internationally. QAS is working to develop, pilot and validate additional clinical quality measures for performance evaluation and reporting.

On 12 December 2013, QAS released a suite of publicly reported performance measures that encompasses care for patients; care for staff; daily activity; service delivery; value for money; and national comparison. These measures incorporate clinical quality indicators for management of cardiac and trauma related pain and 12 lead electrocardiograph (ECG) administration.

QAS is subject to external scrutiny of its clinical performance, on an exception basis, by the Office of the Queensland Coroner and the Health Quality Complaints Commission.

2.4.2 Clinical audits and reviews

QAS operates a clinical audit and review tool (CART) to identify variations to prescribed clinical practices. Using clinical triggers set by the QAS medical director's office, CART identifies variances ranging from variation 1 (not significant) to variation 4 (major variation). The medical director oversees the review of major and significant clinical variations. Results of the clinical audits and reviews are reported internally and are readily available for operational and executive management to review at any time.

The number of CART variations 3 and 4 is included in formal internal reporting only; it is not currently reported publicly. Ambulance Victoria publicly reports the percentages of audited emergency and non-emergency cases that meet clinical practice standards as a measure of quality and safety. This provides a good measure for quality of service and would enhance the other information QAS reports.

During 2011–12, QAS conducted 67 934 clinical audits and reviews, representing 8.15 per cent of a total 833 000 incidents for that financial year. As shown in Figure 2G, the audits and reviews identified 96 significant and major variations (0.1 per cent) from prescribed clinical practices.

Figure 2G
Analysis of QAS performance for 2011–12 financial year

Clinical variations	Number of variations
Clinical variation 3 (significant)	77
Clinical variation 4 (major)	19
Total 3 and 4 variations	96
Percentage of total audits and reviews	**0.14%**

Source: Queensland Audit Office from Queensland Ambulance Service data

2.4.3 Customer feedback

The Council of Ambulance Authorities annually conducts a patient satisfaction survey. The survey relates to Code 1 (emergency incidents) and Code 2 (urgent incidents) patients only. The number of QAS patients surveyed in 2012–13 was 1 300, of which only 396 responses were useable. Although these incidents are more critical, it means less than one per cent of total patients QAS services are subject to this survey. The small number of responses limits the usefulness of the data. Patient satisfaction for non-urgent incidents is not obtained.

Results from the annual patient satisfaction survey show that, in recent years, QAS exceeded its target of 95 per cent patient satisfaction with emergency and urgent ambulance services and treatment. However this satisfaction rating has changed, with QAS achieving 98 per cent of respondents being very satisfied or satisfied in the 2010 and 2011 calendar years, 97 per cent in 2012 and 96 per cent in 2013. Response time is the biggest factor with patients' consistently recording greatest dissatisfaction in the area of 'ambulance arrival time'.

Patient satisfaction with QAS, compared to interstate ambulance services, is shown in Figure 2H.

Figure 2H
Comparison of patient satisfaction results for 2013 calendar year

Performance measure	QLD	NSW	VIC	WA	SA	TAS	ACT	NT
Level of patient satisfaction with ambulance response services (%)	96	99	98	99	99	98	98	95

Source: Queensland Audit Office extracted from the Report on Government Services 2014

2.5 Public performance reporting

QAS is committed to strong accountability and transparency and to improving service performance. This is demonstrated through its proactive management strategies, informed by the use of accurate and timely performance information and evidence-based clinical practices.

QAS demonstrates this culture of effective performance management through active involvement from its leaders and all management levels. Systems, organisational routines and practices, including board of management meetings, a centralised Integrated Performance Management System (IPMS) and Local Ambulance Service Network Performance Reviews (LASNPRs), support this commitment.

The IPMS monitors service demand and evaluates delivery of services, use of human resources and clinical and financial performance. These indicators demonstrate a balanced approach to measuring performance. The LASNPRs are forums to assess performance and identify improvement strategies. Operational LASN managers are accountable for performance through regular progress reporting against performance measures.

QAS assesses performance continuously through ongoing liaison and reporting between LASNs and station managers. This facilitates the sharing of better practices, follow up of unsatisfactory performance and the management of region-specific issues.

Public reporting responsiveness performance

QAS publicly reports statewide median response times and targets for Code 1 (emergency) incidents. These are reported in the department's annual report as well as in the Productivity Commission's Report on Government Services, which reports performance information of ambulance services across Australia.

QAS does not publicly report its regional LASN Code 1 targets nor its performance against them. QAS also does not publicly report its performance in responding to Code 2 (urgent) incidents. It does not have targets for Code 2A incidents and does not publicly disclose its performance targets for incidents categorised as Code 2B, 2C, 3 and 4.

For non-urgent incidents (Codes 3 and 4), QAS has a target to attend more than 70 per cent of incidents by the appointment time. Performance against this target is reported externally in the annual report and Service Delivery Statement (SDS).

The ‘patient off stretcher time' is reported within QAS and externally in the Department of Health’s annual report and on its website.

Because QAS does not publicly report its performance in responding to Code 2 (urgent) incidents, nor against many of its targets, the community is not fully informed of the service it can expect when requesting an ambulance.

QAS monitors its expenditure through a number of performance measures reported internally and externally. Internal measures consist of a suite of 'value for money' measures that cover total revenue and expenditure against budget and prior periods. Major expenditure lines items are also recorded against budget and prior periods for comparative purposes. Expenditure on travel, contractors and consultancies is highlighted under a 'priority funding expenditure savings' section of this internal report.

Cost measures and comparisons are also reported externally. Total expenditure and expenditure per person (population) are reported annually in the Productivity Commission's Report on Government Services. In addition, gross cost per incident and gross cost per head of population were reported in the Department of Community Safety annual report before the QAS merger with the Department of Health and in the SDS. QAS also published quarterly performance indicators on the Department of Community Safety website. These indicators included cost per incident and cost per capita data for each LASN.

Cost efficiency measures are covered in more detail in the next section of this report.

2.6 Recommendations

It is recommended that the Department of Health:

1. **facilitates the sharing of hospital patient outcome data with Queensland Ambulance Service to help measure the effect of pre-hospital care on patient outcomes**
2. **enhances management reporting processes over complaints by recording the number and nature of complaints, following up outstanding complaints formally and reporting complaints data to executive management**
3. **publicly reports a comprehensive suite of performance information, including:**
    - **response performance across all priority codes, including Code 2 (urgent) incidents and against response targets**
    - **results of clinical audits and reviews.**

3 Cost effectiveness

In brief

Background

The challenge for ambulance service providers is to prevent patient injury and death while meeting the increasing demand for services driven by population growth and ageing.

This chapter looks at the Queensland Ambulance Service (QAS) planning and resourcing processes that support the demand for and delivery of ambulance services. It also examines the increasing costs of overtime and absenteeism and their effects on ambulance service delivery.

Conclusions

Queenslanders are extensive users of the publicly funded ambulance service provided by QAS. The growth in demand for QAS services is partly driven by Queensland's population growth and the ageing of its population; however, the median age in Queensland is below the median age of the Australian population and demand for QAS services continues to outstrip population growth.

Sound planning processes have meant that QAS has consistently delivered a high level of service, meeting increasing community demand across the state effectively. QAS provides its workforce with the equipment and training to deliver a high quality, pre-hospital clinical care and transport service.

QAS is a high cost organisation, compared to ambulance services in other jurisdictions, with the highest cost per head of population—the key determinant of overall efficiency. QAS could better manage employee costs, such as meal overtime and unplanned absence. Since 2008–09, the cost of meal overtime has increased by 136.3 per cent and sick leave by 60 per cent.

Key findings

- In 2012–13, Queensland had the highest incident to population and response to population ratios nationally.
- Queensland has the second highest patient to population ratio nationally.
- QAS has the second highest ratio of qualified ambulance officers nationally.
- QAS is a comparatively costly service on a cost per total population basis. It was the second most expensive service per head of population for 2012–13, when compared to all other Australian ambulance services
- Overtime and unplanned absence expenses continue to grow at a rate that exceeds the growth in service demand.
- Some ambulance officers received meal overtime payments in 2012–13 that equated to more than 50 per cent of their base salaries.

Recommendations

It is recommended that the Department of Health:

4. **determines the underlying causes for the rapid growth in demand for Queensland Ambulance Service emergency responses and implements strategies to address these causes and reduce the cost per head of population to service this demand.**

3.1 Background

The type of funding model chosen can contribute to the demand levels and cost effectiveness of ambulance services.

The Queensland Ambulance Service (QAS) is a publicly funded service for all Queensland citizens, providing cover for them wherever they might need emergency or pre-hospital ambulance services. QAS is funded through appropriation to provide its service. QAS employs full time paramedic employees under the *Queensland Ambulance Service Act 1991*.

In comparison, New South Wales has adopted a user pays business model and Victoria has a subscriber business model. Western Australia has a contracted service model, supported by volunteer first responders, in rural and remote regions. It also is a subscription based model.

The other Australian jurisdictions of South Australia, Tasmania, the Australian Capital Territory and the Northern Territory use either subscription, user pays or fully funded models.

The QAS resource planning process identifies changing service demand and matches the level and number of resources it applies to response locations—including qualified staff and effective equipment—to projected demand.

The challenge for the QAS is to maintain the quality of its services, as it responds to the increasing demand for services, while remaining sustainable from a cost standpoint.

3.2 Conclusion

The high cost per head of population of the QAS is partly attributable to the service delivery model applied and to the large geographic range of the state as QAS seeks to maintain equity of access for regional and rural residents.

As the population grows, so does the cost of the service. This generally is sustainable because gross state product and state taxation revenues typically grow in line with the population.

But QAS has also experienced a significant and rapid increase in the rate of demand for its services, predominantly for Code 1 and Code 2 incidents, with growth in demand outstripping population growth. Rapid escalation in the rates of use of the service adversely affects sustainability, as ambulance expenditures become more likely to exceed the growth in state revenues.

An ageing population and increasing incidence of chronic diseases both play their part in the significant growth in the rates of use of ambulances, now at 133 incidents per 1 000 people, up from 106 incidents per 1 000 people eight years ago. These factors are outside the direct control of the QAS, requiring whole-of-government responses. They present significant challenges to the financial sustainability of the QAS if it intends to maintain its current standards of emergency and pre-hospital care for patients.

QAS is responding to these challenges through a combination of demand management and resourcing initiatives. This includes a pilot program to coordinate the QAS response for lower priority incidents with other health service providers. QAS undertakes demand, population, demographic and geographic profiling to inform paramedic resource allocation. QAS matches resources to demand to ensure the necessary resources are in the correct locations and to avoid over-responding or under-responding. QAS has had a lower response to incident ratio than the rest of Australia for the last four years.

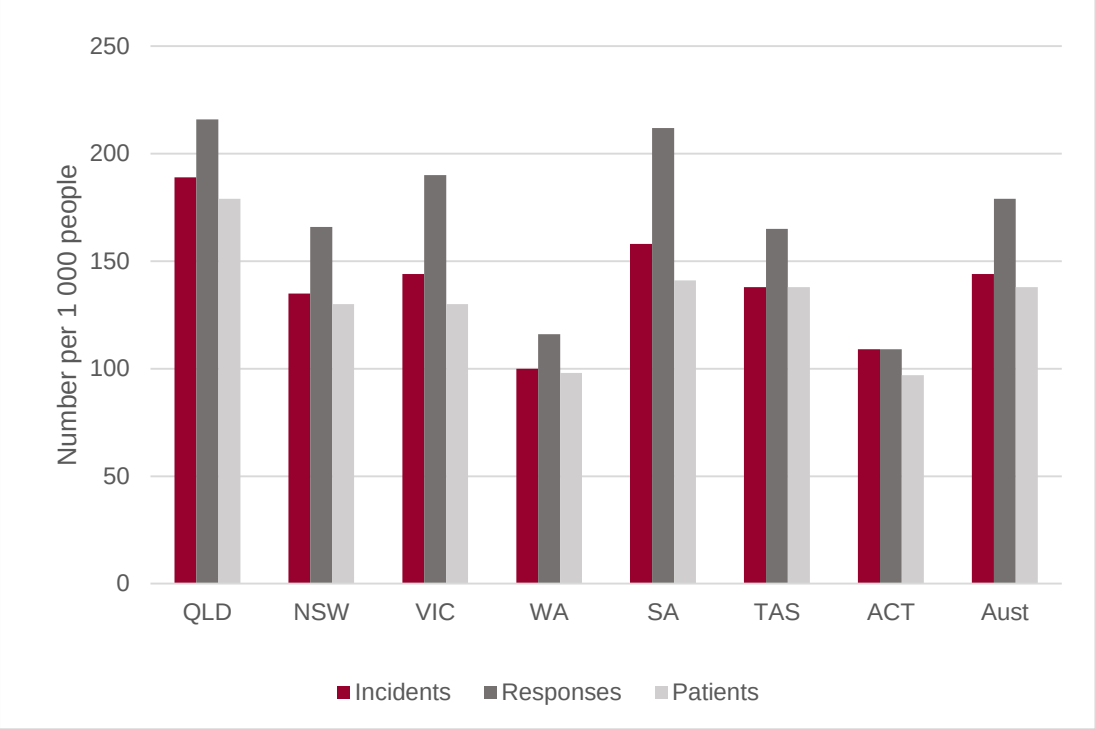
QAS can better manage some of its employee costs, such as meal overtime and absenteeism, to free up funds to maintain its operations.

3.3 Demand management

Queenslanders are extensive users of the publicly funded ambulance service QAS provides.

Figure 3A shows the ratio of incidents, responses and patients, per 1 000 people, of the ambulance services in all Australian states and territories for 2012–13.

Figure 3A
Comparison of demand for services between Australian states and territories for 2012–13



Note: The Productivity Commission's Report on Government Services does not record number of incidents for the Northern Territory.

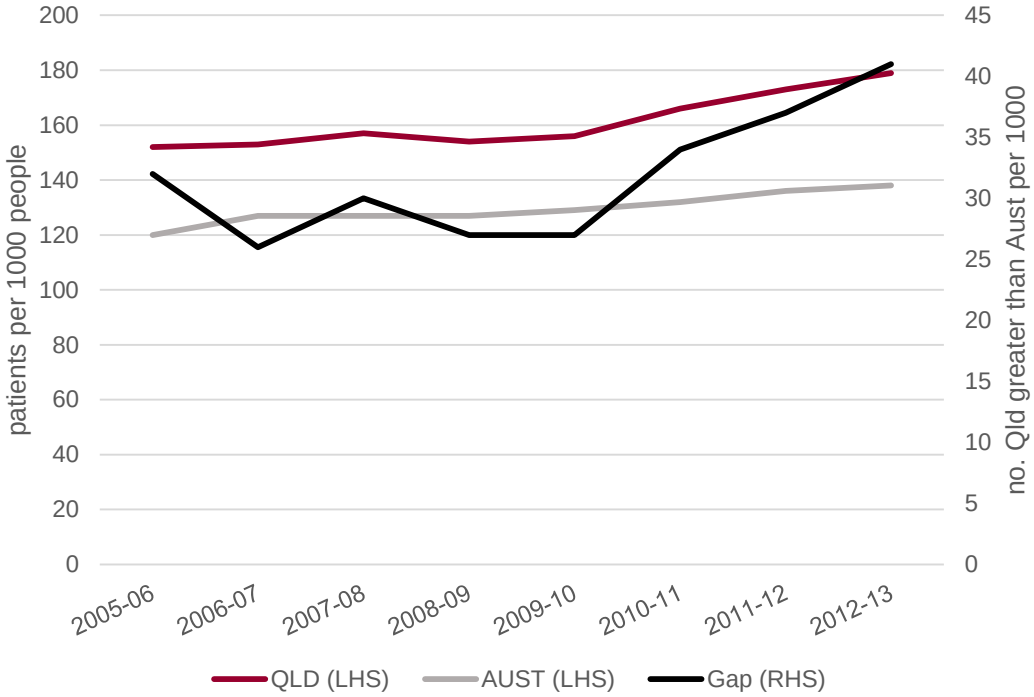
Source: Queensland Audit Office based on data from the Productivity Commission's Report on Government Services 2014

For 2012–13, the incidents to population and responses to population ratios were the highest nationally, at 189 per 1 000 people and 216 per 1 000 people respectively; which is 45 more incidents (31.3 per cent) and 37 more responses (20.6 per cent) than the national averages of 144 incidents and 179 responses per 1 000 people.

Queensland also has the second highest ratio of patients to population, at 179 per 1 000 people; 41 patients (29.7 per cent) more than the national average of 138 patients per 1 000 people. Only the Northern Territory has a higher ratio of patients to population with 200 patients per 1 000 people.

Figure 3B shows the change in patient demand over the past nine years for Queensland, compared with the Australian average.

Figure 3B
Change in patient demand



Source: Queensland Audit Office based on data from the Report on Government Services 2014

In 2005–06, Queensland had 152 patients per 1 000 people, which was 32 greater than the Australian average of 120 patients per 1 000 people. Since then, Queensland's ratio of patients per 1 000 people has grown by 18 per cent to 179 in 2012–13, while the Australian average has increased by 15 per cent to 138 patients per 1 000 people over this period.

The excess of Queensland's ratio of patients per 1 000 population above the Australian average has increased by 28 per cent over the same period, from 32 more patients per 1 000 people to 41 more patients per 1 000 people.

The growth in demand for QAS services is, in part, driven by Queensland's population growth. For the five years to 2012–13, the state's population grew by 7.6 per cent.

Nonetheless, in the corresponding five-year period, the growth in Code 1 and 2 incidents has outstripped this population growth.

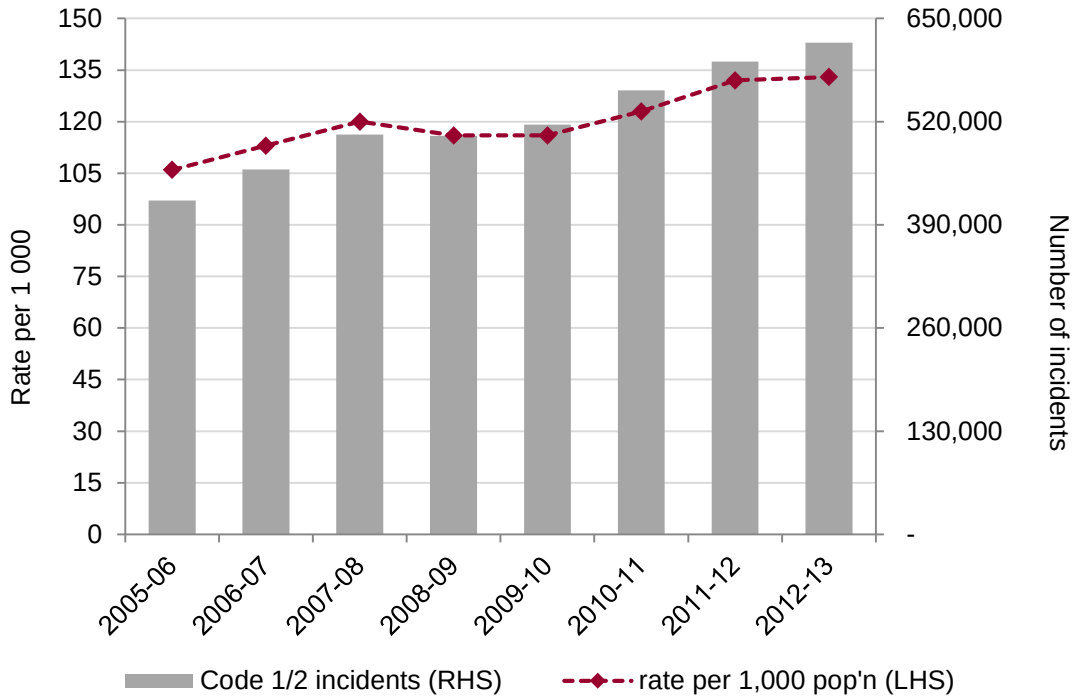
Figure 3C
QAS demand for service—five-year percentage increase (2008–09 to 2012–13)

Service category	Five- year percentage increase
Code 1 incidents	31.6
Code 2 incidents	8.1
Code 3 and 4 incidents	3.9

Source: Queensland Audit Office

Figure 3D shows that the major contributor to the growth in demand for services has been the increase in the rate of use of ambulance services for Code 1 (emergency) and Code 2 (urgent) incidents. This may be attributed, in part, to the characteristics of the population; including increased ageing and declining health.

Figure 3D
QAS growth in demand: emergency and urgent incidents



Note: 2005–06 is used as the base year because it is the earliest period with consistent data based on changes to the way QAS counts Code 1 and 2 incidents.

Source: Queensland Audit Office

To demonstrate the cost effect of the increase in the rate of demand from general population growth—had the rate of Code 1 and 2 incidents per head of population remained stable at 2005–06 levels of 106 per 1 000, there would have been 125 807 fewer such incidents in 2012–13.

At an average gross cost per incident of $653 for 2012–13, this translates to an additional cost burden of $82.2 million per year.

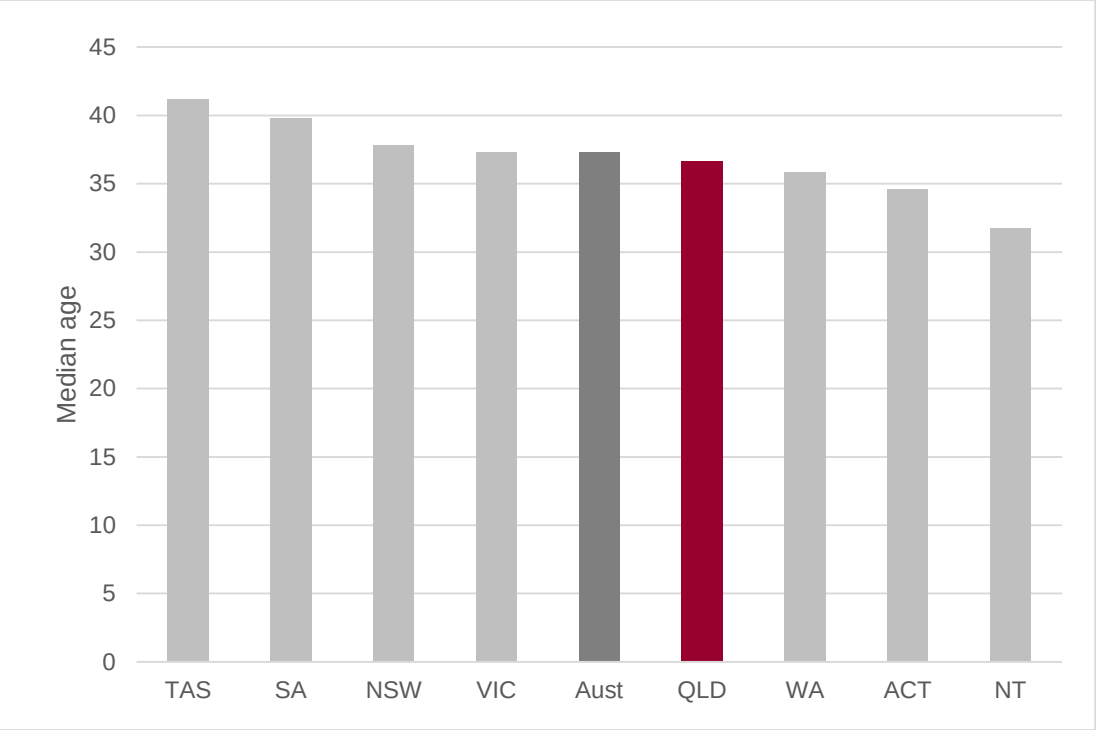
Ageing population

Older citizens are high users of ambulance services; the increasing ageing of the population creates greater demands on ambulance services.

The median age of the Australian population has increased by 4.3 years over the last two decades, from 33.0 years at 30 June 1993 to 37.3 years at 30 June 2013. During this period, the proportion of Australia's population aged 15–64 years has remained stable around 66.7 per cent of the total population, and the proportion of people aged 65 years and over has increased from 11.6 per cent to 14.4 per cent. During the same period, the proportion of population aged 85 years and over has almost doubled from one per cent of the population to 1.9 per cent of the total population at 30 June 2013. The proportion aged under 15 years has decreased from 21.7 to 18.9 per cent.

Figure 3E shows a comparison on the median age for all states and territories and the Australian median age.

Figure 3E
Comparison of median age



Source: Queensland Audit Office from Australian Bureau of Statistics 3101.0 - Australian Demographic Statistics, June 2013

Research conducted for the *Emergency Health Services Queensland 2012* study found that arrival by ambulance to the emergency departments of hospitals was significantly higher among the elderly than all other age groups.

Overseas research evidences similar findings, with one United States study finding that ambulance use nearly doubled among patients older than 65 years. A more recent analysis of 80 209 patient records of arrivals by ambulance to emergency departments in the United States found that ambulance patients aged 65 and over were 30 per cent more likely to arrive by ambulance.

The Australian Bureau of Statistics reports that all states and territories experienced growth in their populations aged 65 years and over in the year ended 30 June 2013. The largest increase in this group was in the Northern Territory (7.6 per cent), followed by the Australian Capital Territory (5.1 per cent), Western Australia (4.6 per cent) and Queensland (4.3 per cent).

The ageing population contributes to increasing demand for QAS service; however, with Queensland having the fourth lowest median age in the country, it is unlikely the ageing population alone is responsible for the state having the highest number of incidents and second highest number of patients transported in Australia.

Declining health

Another societal factor driving the growing demand on ambulance services is the increase in the incidence of potentially acute, life threatening and chronic diseases such as cardiovascular diseases, diabetes, asthma and obesity. The Chief Health Officer Report, *The Health of Queensland 2012,* discloses that, in the period 2010–11, chronic disease patients accounted for 85 per cent of all Queensland hospitalisations.

Although Queensland adults aged 65 years and older comprise 13 per cent of the population, they account for 44 per cent of the chronic disease burden.

Further, over the next 20 years, the population aged over 65 years will grow at three times the rate of the population aged between 15 and 64 years.

3.3.1 Modelling demand

QAS uses historical operational data to build demand profiles for each response location. Data mapping processes of geo-spatial information are used with demand against response availability to align response capability with demand areas.

The planning process to review data, demand and responses is also used to meet demand in rural and remote locations. The Department of Health is a major stakeholder in these reviews as there are 20 hospitals and clinics where local nurses, police and emergency workers use QAS vehicles and equipment to provide emergency and pre-hospital care.

There are 269 response locations which include ambulance stations, hospital based ambulance services, honorary stations, field offices and mine sites. There are a further 29 first responder locations. QAS operations centre staff, the Royal Flying Doctor Service (RFDS) and the Queensland Emergency Medical System (QEMS) support these response locations. QEMS is the integrated and coordinated system of care in place to provide emergency health care to patients in remote areas.

The planning processes drive a number of strategies to continue to meet future demand. These include:

- prioritising capital works and major physical resource programs to response locations throughout the state
- developing business cases for the recruitment and salary related costs of 'retained part time staff' to provide emergency service coverage to rural and remote areas
- identifying the effect of demand growth, geographical constraints and associated costs of service provision as the basis of submissions to secure future funding arrangements
- continuing to develop strategies to identify the extent of unmet need for ambulance pre-hospital care services and the inappropriate use of non-acute ambulance health transports
- developing and documenting an economic evaluation of investment in ambulance services and the costs associated with providing an increased level of coverage to improve response time standards and clinical outcomes.

These processes feed into the strategic plan and the annual QAS operation plan. QAS responds to the demand for services with effective planning across a broad range of geographic and demographic issues.

3.3.2 Managing demand

Managing demand for emergency and urgent incidents has proven difficult for ambulance services, including the QAS. Code 1 and 2 incidents account for the greatest percentage increase in incidents in Queensland over the past five years; by their nature, these incidents tend to be influenced by factors outside the control of ambulance services.

QAS has therefore focused its attention on managing demand for lower acuity incidents—Codes 2B and 2C.

In July 2013, QAS implemented a six-month pilot program in its Metro North Local Ambulance Service Network (LASN) to trial alternate treatment pathways and/or referral options for lower acuity patients/callers requesting an emergency ambulance within the Metro Brisbane catchment area. Single officer sedans, staffed by specially trained Advanced Care Paramedics (ACPs) and called Lower Acuity Response Units (LARU), were used to respond to lower acuity calls during the trial. Under the trial, assessment and treatment of patients occurs onsite and several treatment pathways are available. Patients may be:

- treated and left on scene with self-care advice
- treated and referred to a general practitioner, health clinic or specialist service for follow up
- transported by private vehicle to the emergency department, general practitioner, health clinic or specialist service
- transported by LARU to a general practitioner, health clinic or specialist service
- transported by LARU to the emergency department
- transported to the emergency department by an acute ambulance due to the clinical condition or mobility requirement.

Relationships with several medical clinics on the north side of Brisbane were negotiated as part of the pilot. The provision of alternative treatment pathways for lower acuity patients is a significant change from the traditional QAS service delivery model which has focused on providing emergency care.

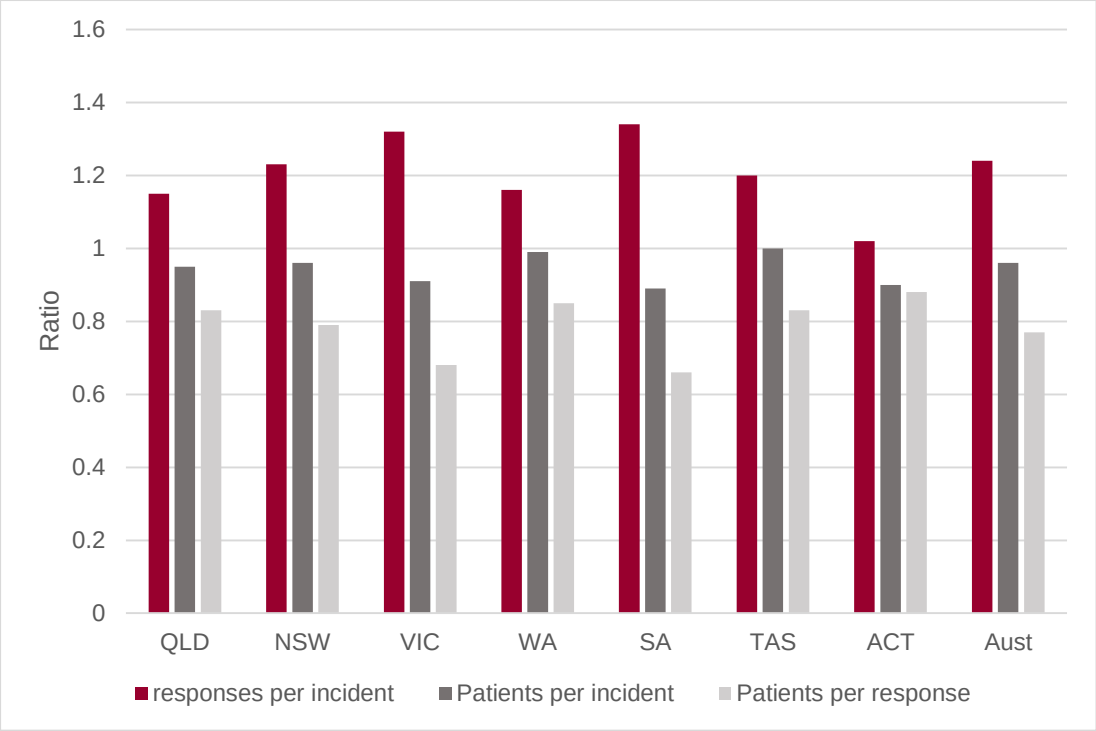
3.4 Resource management

In addition to demand management, response management is also a means of maximising service performance and cost efficiency.

This can be achieved by matching the resources to demand to ensure the necessary resources are in the correct locations and to avoid over-responding or under-responding (sending too many, or too few ambulances for the circumstances).

Figure 3F shows a comparison of incident, response and patient ratios across Australia.

Figure 3F
Comparison of demand for services between Australian states and territories for 2012–13

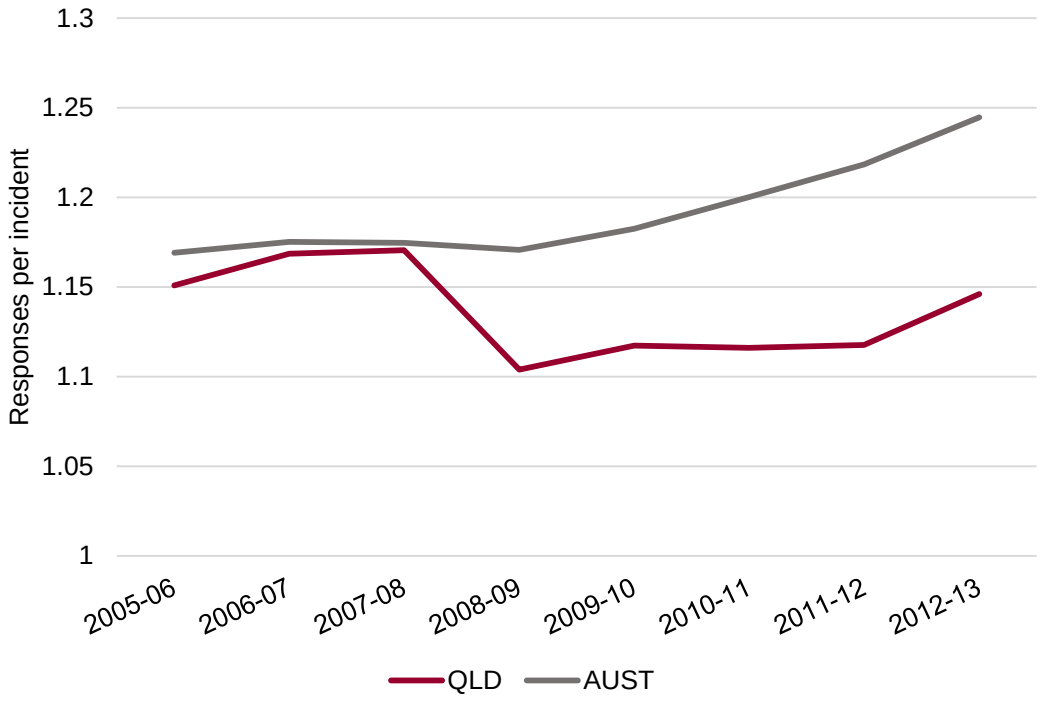


Note: Northern Territory is excluded because the Productivity Commission's Report on Government Services does not record the number of incidents for the Northern Territory

Source: Queensland Audit Office from the Report on Government Services 2014

Figure 3G shows the response to incident ratio for QAS, compared with the Australian average.

Figure 3G
Comparison of response to incident ratios



Source: Queensland Audit Office from the Report on Government Services 2014

Since 2005–06, the ratio of QAS responses per incident has declined by 0.4 per cent compared with an Australian average increase of 6.5 per cent.

QAS resource allocation models seek to maximise service performance and cost efficiency by matching demand to staff and equipment in each location.

QAS uses cost per response, rather than cost per incident, as one of its stations' cost efficiency measurements. This is because some incidents require multiple units to respond.

Figure 3H shows the staffing and cost data information for each of the 15 LASNs for 2012–13 and its relationship to response data.

Figure 3H
Cost analysis and response ratios by LASN for 2012–13

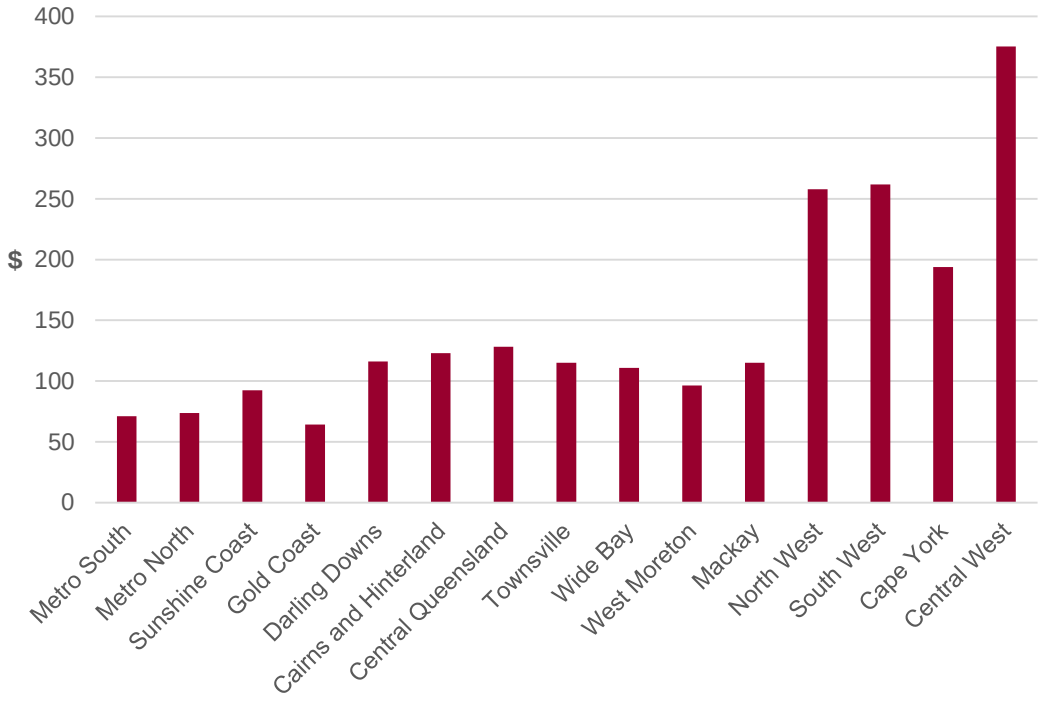
LASN	Total budget	Responses for all codes	FTE	Gross cost per response	Gross cost per FTE	Responses per FTE
	$	No.	No.	$	$	No.
Metro South	71 184 373	208 152	544.53	342	130 726	382.26
Metro North	66 311 288	207 974	513.85	319	129 048	404.74
Sunshine Coast	35 998 592	79 090	296.32	455	121 486	266.91
Gold Coast	34 744 133	95 336	261.02	364	133 109	365.24
Darling Downs	34 820 914	64 898	234.42	537	148 541	276.84
Cairns and Hinterland	30 763 005	63 764	225.89	482	136 186	282.28
Central Queensland	28 871 242	48 238	203.00	599	142 223	237.63
Townsville	27 594 567	68 022	209.17	406	131 924	325.20
Wide Bay	24 410 956	50 955	165.79	479	147 240	307.35
West Moreton	21 183 991	56 005	165.59	378	127 930	338.21
Mackay	21 308 028	30 377	133.99	701	159 027	226.71
North West	8 764 806	12 160	41.64	721	210 490	292.03
South West	6 807 510	5 963	33.00	1 142	206 288	180.70
Cape York	4 649 525	3 317	27.06	1 402	171 823	122.58
Central West	4 505 389	2 381	19.00	1 892	237 126	125.32
	421 918 319	**996 632**	**3 074.27**	**423**	**137 242**	**324.18**

Source: Queensland Audit Office from Queensland Ambulance Service data

The Central West LASN has the highest gross cost per response of $1 892, which is six times greater than the lowest gross cost LASN, Metro North, at $319 per response.

The size and decentralised nature of Queensland's population affects the cost of service delivery. Figure 3I shows that gross cost per head of population in the south-east corner of Queensland, which consists of the Metro North, Metro South, West Moreton, Sunshine Coast and Gold Coast regions, is $81.07. This is 36.8 per cent lower than the gross cost per person of $110.88 outside the south-east corner.

Figure 3I
Comparison of costs per head of population by LASN for 2012–13



Source: Queensland Audit Office from Queensland Ambulance Service data

This result correlates strongly with relative population densities in each LASN. The result for the south-east corner, which has the highest population density in the state, is below the statewide average cost of $103 per person for New South Wales, which has almost the same number of response locations.

The ratio of responses per full time equivalent position (FTE) drops in remote and regional areas, where there are fewer incidents but where the average patient journey is longer. From an equity perspective, these areas still need to maintain a core service to provide timely and effective ambulance services that meet the needs of the community.

3.4.1 Staffing levels

QAS calculates the most efficient staffing model for ambulance services using dynamic deployment models and Unit Hour Utilisation (UHU). This involves assessing:

- demand, based on demographics of the population, its health status and service delivery needs
- isolation, including geography, population density and spread
- availability of other health services in the area
- availability of community services in the area
- the costs of service provision in the area
- the need for QAS to provide extended service delivery roles in the area, such as public education, non-ambulance health transport and extended clinical roles
- the availability of staff.

These factors are used, in conjunction with the UHU, to determine staffing and resourcing. UHU is used by most high performing ambulance services throughout Canada, the United States and the United Kingdom. UHU represents the proportion of time that an ambulance crew is actively engaged on a call for service (that is, patient management) and unavailable to respond to a new call for service. UHU is of greatest value in areas where multiple resources are available. It matches high density metropolitan and urban areas and is distinct from the stand alone service delivery models necessarily used in rural and remote areas.

Dynamic deployment ensures continued operational support and service delivery by moving available resources to locations where demand is anticipated.

3.4.2 Employee expenses

QAS employee costs are escalating. Over the past five years, QAS has continued to increase its ambulance operational staff in line with the growth in service demand. Despite having more staff members, the expense incurred by QAS for overtime and unplanned absenteeism continues to grow at a rate that exceeds the service demand growth. There is a risk that, if these employee expenses are not better managed, the escalating costs will affect the overall service efficiency.

The QAS budget for 2012–13 was $581 million. Employees' salaries and wages accounted for $289 million, including $102 million in overtime and penalty payments. Total overtime was $47.4 million, of which 22.6 per cent was meal overtime. The remaining $54.6 million was for sick relief payments, penalties and overtime related allowances.

Figure 3J provides a breakdown of the QAS budget and employee expenses over the past five financial years.

Figure 3J
Queensland Ambulance Service budget and employee data

Budget category	2008–09 $ m	2009–10 $ m	2010–11 $ m	2011–12 $ m	2012–13 $ m
QAS expenditure	511.4	532.8	562.2	576.5	568.2
Employee expenses					
Basic pay	131.18	150.03	172.90	183.41	184.85
Overtime	37.14	37.71	47.15	44.33	47.41
Allowances	15.59	16.52	19.45	20.37	20.50
Penalties	25.05	28.81	33.13	34.20	34.30
Long service leave	1.19	0.82	1.19	1.47	1.58
Total employee expenses	**210.15**	**233.89**	**273.82**	**283.78**	**288.64**

Source: Queensland Audit Office from Queensland Ambulance Service and Report on Government Services 2014 data

QAS expenditure for 2008–09 to 2012–13 increased by 11.1 per cent from $511.4 million to $568.2 million, while total employee expenses have increased 37.3 per cent from $210.15 million to $288.64 million.

As a percentage of QAS expenditure, total employee expenses have increased from 41.1 per cent in 2008–09 to 50.8 per cent in 2012–13.

The largest increases in overtime, allowances and penalties occurred in the two years of 2009–10 and 2010–11.

QAS total basic pay increased by 41 per cent in the period 2008–09 to 2012–13, from $131.18 million to $184.85 million.

Meal overtime

If officers cannot take a meal break during a set 'meal window' because they have to respond to a call, they are entitled to a meal overtime payment.

While the cost of overtime generally has not increased significantly, one component—meal overtime—has increased by 136.3 per cent, from $4.54 million in 2008–09 to $10.73 million in 2012–13.

After the current industrial agreement—the QAS Determination 2010—became effective from 1 July 2010, there was an increase of 54.3 per cent in meal overtime, compared with a 2.2 per cent increase the previous financial year.

The increase in meal overtime payments indicates that an increasing number of officers are not taking meal breaks at the appropriate agreed times. This results in higher employee costs and potentially higher staff fatigue rates. While an analysis of self-reported fatigue suggests that missed meal breaks might not be contributing to fatigue, the growing absenteeism rates may suggest otherwise.

Some ambulance officers were paid meal overtime in 2012–13 which equated to more than 50 per cent of their base salaries.

Since the introduction of the meal overtime penalty, the QAS operations centre monitors (in real time), records and reports crew access to meal breaks. QAS has implemented processes to improve crews' access to their meal breaks, including:

- greater focus on improving crew clearance times from hospitals and turnaround times by crews—clearance rates have improved, particularly in the metro LASNs; however, meal overtime penalty continues to increase
- managerial (operations centre management) direction of crews to take their meal break before completing case records in non-urgent cases
- varied shift commencement times to stagger the consequential meal window times, in an effort to provide a wider meal window opportunity—the application of this is limited as it can result in crew shortages during some periods of the day and affects response times
- more regular briefings to management, during actual shifts, of the incurring of meal overtime penalty.

QAS management has monitored the growth rate of the meal overtime penalty and evaluated the change in operational processes to limit crews missing their meal breaks.

QAS has used industrial enterprise bargaining negotiations in an attempt to manage the costs associated with this penalty. These have included:

- providing meals for crews at convenient locations including hospitals and stations close to hospitals and other outlets to limit delays to commencing meal breaks (since 2002)
- removing the requirement to coordinate rest pauses on behalf of staff, thereby limiting the effect of rest pauses on meal break access (2005)
- widening the meal window from two hours to 2.5 hours (2005)
- an unsuccessful attempt in 2007 to further widen the meal window from 2.5 hours to three hours in 2007
- an attempt to further widen the meal window and remove the meal overtime penalty during the arbitration of QAS Determination 2010, which was unsuccessful
- removing the meal overtime penalty as part of current arbitration hearings.

While short term improvements in crew access to meal breaks were evident after the implementation of some of these changes, recent growth rates in crews missing their meal breaks during the fixed meal windows have continued to increase. QAS management actions so far have had little effect on this issue.

Unplanned absences

Unplanned absences include the leave categories of certified, uncertified, without pay, family leave and WorkCover. The direct salary cost in 2012–13 of these absences by ambulance operational staff was $10.05 million. Unscheduled absence leads to additional overtime and penalty payments, as absent staff members must be replaced. These replacements incur penalty rates and overtime, usually at double time.

Our report to Parliament, *Managing employee unplanned absence* (No 4 for 2012) reported on absenteeism in the Queensland public sector and included an assessment of absenteeism among QAS operational staff. This report found there had been a 16 per cent decrease in unplanned absence days per ambulance operational employee for the three financial years before 30 June 2010. This indicated effective management of employees' unplanned absences for this period.

Since the report, and from November 2010, there has been an increase in the sick leave entitlement from 80 hours per annum to 96 hours per annum per employee. This was to provide parity for operational and non-operational public sector employees.

Over the period of 2008–09 to 2012–13, QAS operational employee numbers grew by 487 positions in response to demand pressures for QAS services. This resulted in a 41 per cent increase in basic remuneration costs, from $131.18 million to $184.85 million and a 14.5 per cent increase in duty hours performed.

At the same time:

- sick leave entitlements grew 20 per cent to provide for eight shifts per year of sick leave, in line with employees outside QAS (change of entitlement from 80 hours to 96 hours)
- the average incidence of sick leave increased by 20 per cent, which correlates with the increase in shift length from 10-hour shifts to 12-hour shifts
- public service directive arrangements changed to allow access to sick leave for carer's leave for QAS operational employees.

Since the increase in employee sick leave entitlement:

- all categories of absenteeism have increased
- the direct salary cost of ambulance operational staff absence claims increased by 59 per cent.

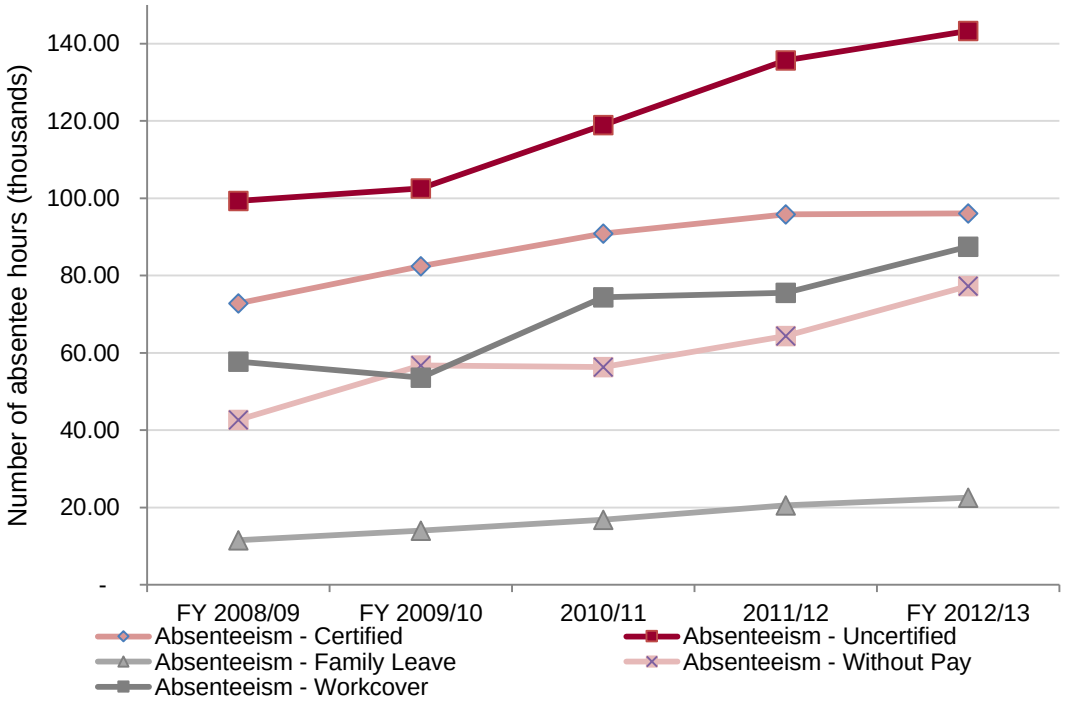
Sick leave accounts for 56 per cent of all QAS operational absences. Sick leave is either certified or uncertified; that is, supported by a medical certificate or not. Uncertified sick leave is the strongest growth component of absenteeism.

Total time lost from sick leave for 2012–13 increased by 39 per cent since 2008–09. The direct salary cost of sick leave for 2012–13 was $8.23 million. This is an increase of 60 per cent from 2008–09.

Figure 3K shows the following reported unplanned absence increases:

- uncertified (33.6 per cent of total absences): increased by 44.25 per cent
- certified (22.5 per cent of total absences): increased by 32 per cent
- WorkCover (20.5 per cent of total absences): increased by 51.4 per cent
- without pay (18.1 per cent of total absences): increased by 81 per cent
- family leave (5.3 per cent of total absences): increased by 94.8 per cent.

Figure 3K
Statewide growth of QAS unplanned absences (hours)



Source: Queensland Audit Office adapted from Queensland Ambulance Service data

Unscheduled absences create unforeseen difficulties in managing shifts and crew availability to ensure an effective and efficient emergency service. These difficulties reduce the capability of QAS to provide effective cover for actual and anticipated demand. It also has a negative effect on the QAS budget, paying the absent employee while also paying overtime rates for sick relief.

3.4.3 Equipment

QAS has an effective allocation process that identifies equipment needs and matches these with the appropriate vehicles and equipment.

The QAS resource allocation model includes an annual review of each station's demand profile and any specific special needs communicated through the LASNs. Information obtained from analysis of response profiles guides the allocation and type of vehicles and equipment. The equipment required to meet a station's special needs, such as providing ambulance services despite floodwaters, rough terrain and difficult conditions, may include special purpose vehicles and equipment such as four wheel drive vehicles and bariatric units.

Each station's demand profile determines its operational category. The vehicular and equipment needs are matched to a standard resources profile. The QAS Medical Device and Equipment Committee investigates and approves all equipment and vehicle resources. QAS uses best practice methodologies to evaluate and procure new and replacement vehicles and equipment and seeks input from workplace health and safety experts and operational staff regarding suitability for purpose as well as safe and efficient operation.

Feedback from operational and supervisory staff, obtained from 32 field interviews during the audit, confirmed that the equipment used for QAS operations works well and is fit for purpose. The introduction of new items of equipment or upgraded items occurs in conjunction with a relevant training regime to ensure its safe and effective operation.

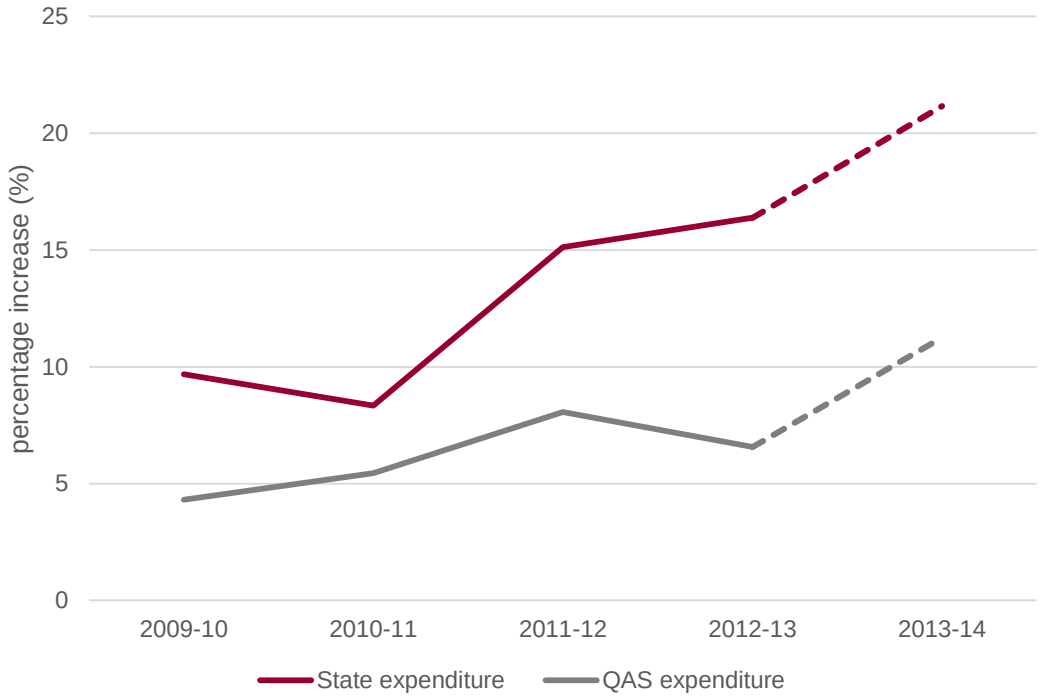
The QAS Medical Device and Equipment Committee maps out and oversees the implementation. No major defects or malfunctions have been detected since the adoption of the 'right equipment, right people and right numbers' principle in 2010.

3.5 Cost efficiency

In the context of rapidly escalating demand for Code 1 and 2 responses and downward pressures on general government sector real expenditure, QAS needs to focus on demand and cost minimisation.

While Figure 3L shows QAS expenditure is forecast to increase, at a similar rate in 2013–14 to general government sector expenditure, any success in its demand and resource management strategies will manifest itself in improvements in relative cost efficiency over time and in comparison to other jurisdictions.

Figure 3L
State expenditure and QAS expenditure



Notes: State expenditure is taken from state budget papers and represents general government sector expenses. 2013–14 expenses are forecast. Queensland Ambulance Service expenditure for 2009–10 to 2012–13 is taken from the Productivity Commission's Report on Government Services and the 2013–14 forecast was provided by QAS and is the adjusted budget transferred to the Department of Health on 1 October 2013.

Source: Queensland Audit Office

The Steering Committee on Government Service Provision each year produces the Productivity Commission's Report on Government Services (ROGS) which is used for comparative benchmarking between the states and territories.

The 'headline' ambulance cost efficiency measure in ROGS is expenditure per head of population. Expenditure per head of population is used in preference to expenditure per incident as a measure of overall efficiency, acknowledging both proactive and reactive activities.

Figure 3M sets out the results for this headline measure, and related cost measures, for each jurisdiction for 2012–13.

Figure 3M
Cost efficiency performance by Australian states and territories for 2012–13

Performance measures	QLD	NSW	VIC	WA	SA	TAS	ACT	NT
Headline measure								
Ambulance service expenditure per head of population ($)	**123**	103	110	81	126	119	119	109
Activity and distance based measures								
Gross expenditure per incident ($)	**653**	763	768	814	797	858	1100	NA*
Ambulance services expenditure per patient ($)	**690**	792	848	825	896	858	1 219	551
Ambulance services expenditure per kilometre ($)	**17**	21	18	29	18	21	35	NA*
Ambulance services expenditure per square kilometre ($)	**328**	947	2 756	79	213	890	19 126	19

*Not Available: Report on Government Services 2014 does not record number of incidents for the Northern Territory.

Source: Queensland Audit Office based on data extracted from the Report on Government Services 2014 and Geoscience Australia website

Headline measure

ROGS notes that all else being equal, lower expenditure per head of population represents greater efficiency. Data are comparable within each jurisdiction but, over time, are less comparable across jurisdictions. This is largely because the service delivery models (such as publicly funded, subscription, volunteer, user pays) employed across jurisdictions have a significant effect on cost.

Cross-jurisdiction comparisons however can be useful in providing some indication of the effect of the service model employed by a service.

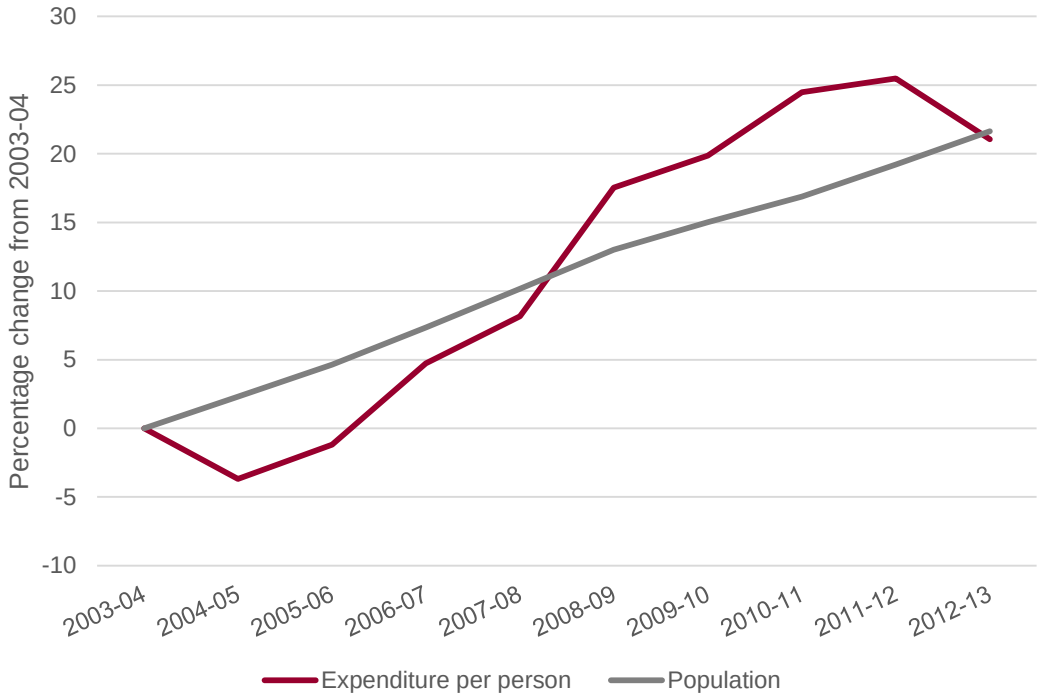
Based on this key measure of overall efficiency, from 2003–04 to 2012–13, QAS is consistently one of the two most costly services, compared with ambulance services across Australia. QAS was the second most costly service for 2012–13 after South Australia, at $123 per Queensland resident.

From 2003–04 to 2012–13, QAS expenditure per head of population increased by 21.1 per cent while, over the same period, the state's population grew by 21.6 per cent. It could be expected that, as the population grows, the cost per head of population would stay the same, or even fall because of greater economies of scale.

This was the case between 2003–04 and 2007–08 but, over the longer term, QAS has not been able to improve its cost efficiency by achieving better economies of scale.

Figure 3N illustrates the percentage change in QAS expenditure per person, compared with the percentage increase in population from 2003–04 to 2012–13.

Figure 3N
Percentage change in expenditure per person and Queensland's population



Source: Queensland Audit Office

Activity based measures

Activity based measures are not used by ROGS as a measure for overall efficiency because an ambulance service that applies more resources to the prevention and preparedness to reduce demand for services could erroneously appear to be less efficient.

QAS gross expenditure per incident rose by five per cent from 2007–08 to 2012–13. Over the past three years of this period, it decreased by eight per cent, from $710 in 2009–10, $702 in 2010–11, $692 in 2011–12 and $653 in 2012–13. This is better than the Australian average and is the greatest percentage reduction of all states and territories over this period.

As Queensland has experienced the fastest growth in the number of incidents and in the rate of incidents over the past three years, it would be expected that QAS average costs per incident would fall. This is because most of its costs are fixed in the short term; they do not vary with activity—staff levels change slowly; building and vehicle capital costs stay static; fuel and other consumables vary closely with activity. QAS has become relatively more efficient over time when compared to itself but is still high cost compared to other services.

Area and distance-based measures

The statewide performance of QAS of $17 spent per kilometre travelled and $328 spent per square kilometre compares favourably with other jurisdictions. This is partially due to the relatively low response to incident ratio of QAS.

3.5.1 Cost per head of population

A number of factors within QAS control affect Queensland's cost per head of population:

- the relatively high ratio of its qualified and total ambulance officers per 100 000 people
- the relatively low numbers of volunteers and community first responders
- the relatively high number of its response locations.

Ambulance officer ratios

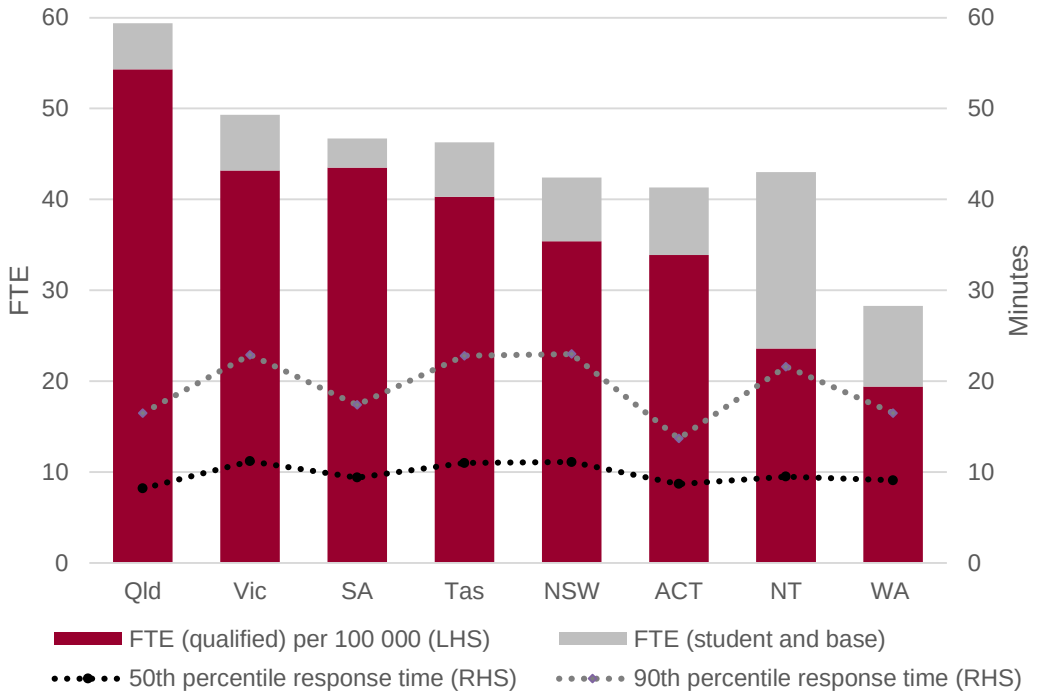
Compared nationally with other ambulance services, in 2012–13, QAS had the second highest ratio of qualified ambulance officers after the ACT, at 67.6 per cent of the combined number of ambulance officer operatives, volunteers and first responders.

QAS also has the smallest proportion of its full time equivalent staff in support roles than any other state or territory.

QAS has more ambulance officers, and qualified ambulance officers, per head of population than any other state or territory, at 59.4 and 54.3 per 100 000 people respectively. The next closest were Victoria with 43.2 qualified officers, and 49.3 total officers per 100 000 people and South Australia with 43.5 qualified officers, and 46.7 total officers per 100 000 people.

Figure 3O compares these ratios between jurisdictions, and shows their correlation with service response times.

Figure 3O
Comparison of staff ratios to service performance by Australian states and territories for 2012–13



Source: Queensland Audit Office extracted from the Productivity Commission's Report on Government Services 2014

The proportion of qualified officers to total officers at QAS is the second highest in Australia, at around 91 per cent, behind South Australia's 93 per cent.

From 2008–09 to 2012–13, QAS has seen the total number of full time equivalent ambulance officers per 100 000 of population grow from 56.9 to 59.4. The proportion of qualified officers to total officers at QAS also has increased consistently over this period, up from 75 per cent to 91 per cent.

QAS recruits university graduates and provides quality training to ensure that graduate paramedics develop the confidence, skills, knowledge and abilities to manage increasingly complex emergency situations.

Paramedics must undertake mandatory training programs, activities and assessments to ensure their skills remain at an optimum level. The QAS Learning Management System ensures that skills and knowledge are constantly reviewed and updated to conform to Paramedic Professional Competency Standards. The Council of Ambulance Authorities, in partnership with the Australian College of Ambulance Professionals (ACAP), mandates these standards. They form the foundation of the education, training and practice for operational service delivery and inform the universities' curricula for the pre-vocational paramedic courses. They are fit for purpose and reflect contemporary thinking across member ambulance services. They are benchmarked against high performing, international ambulance services.

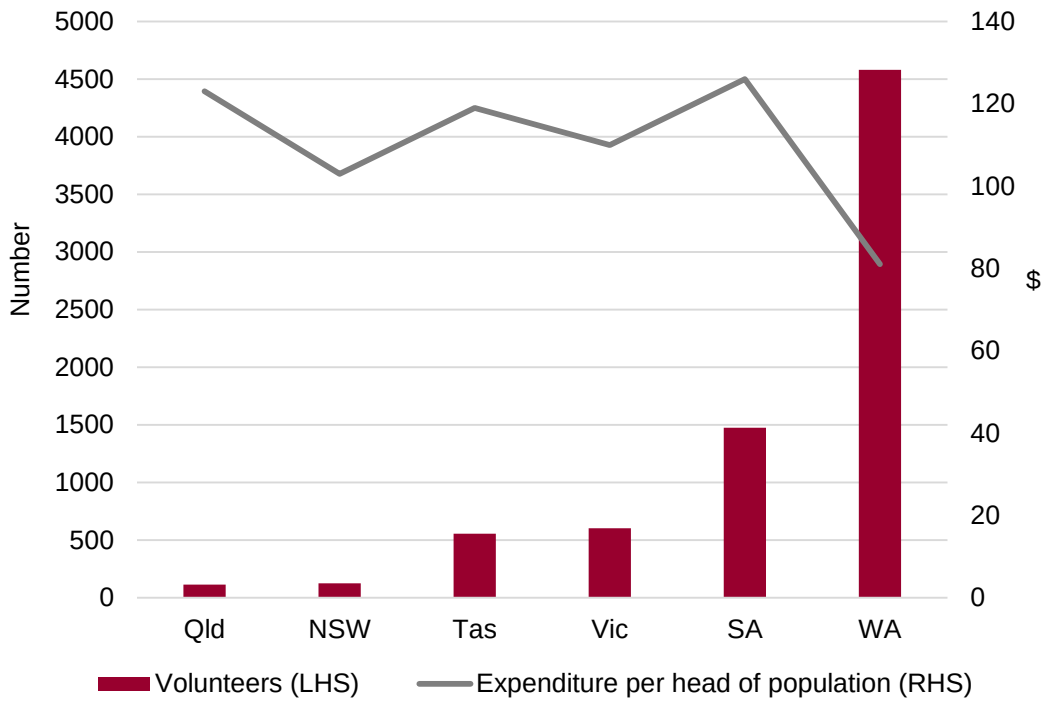
Volunteers

Volunteers are used by most ambulance services in Australia. The *Report on Government Service 2014* says:

> *Volunteers are often utilised to provide ambulance access to small rural areas which have low frequency of medical emergencies. Providing paid paramedics in these locations is costly and raises issues with skills maintenance for paramedics whose caseload is low.*

Compared nationally with other ambulance services, QAS has the lowest number of total volunteers at 115, behind New South Wales who have 126 volunteers. Figure 3P shows, for 2012–13, the number of volunteers for each state and their expenditures per head of population.

Figure 3P
Comparison of volunteer numbers and expenditure per head of population



Note: Volunteer numbers are not reported for the Northern Territory and Australian Capital Territory in the Productivity Commission's Report on Government Services

Source: Queensland Audit Office extracted from the Report on Government Services 2014

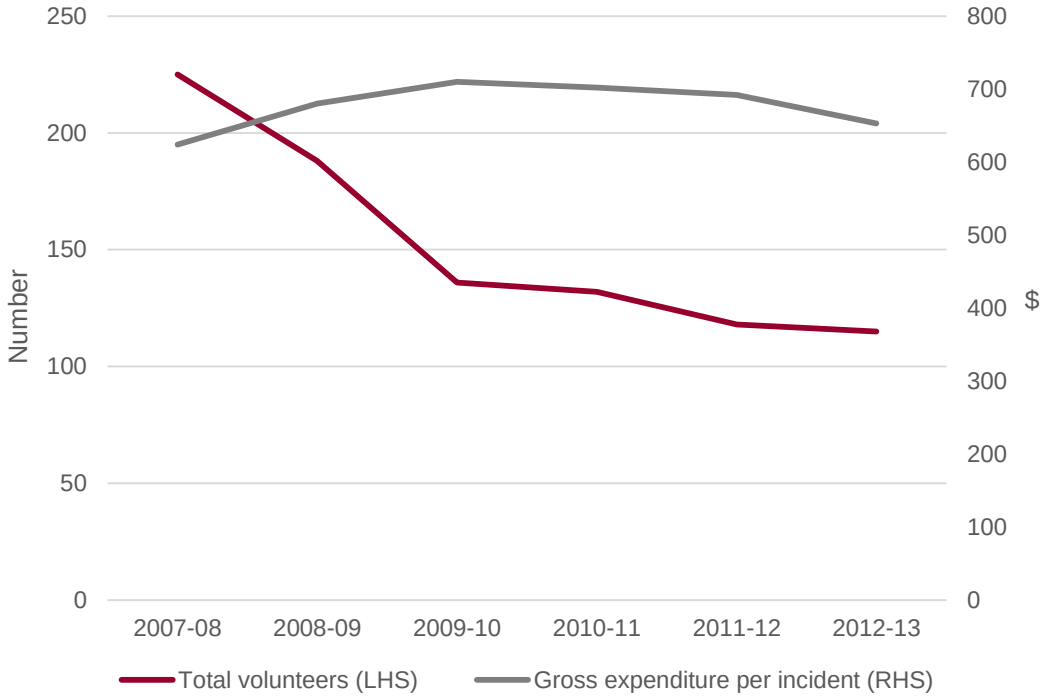
With the exception of South Australia, states with more volunteers spend less per head of population than those with fewer volunteers.

The number of volunteers in the QAS reduced by 49 per cent from 225 in 2007–08 to 115 in 2012–13. The reduction was the result of a decision by QAS to professionalise its service provision through qualified ambulance officers and its difficulty in finding volunteers, particularly those with the necessary skills and ability needed for the ambulance service.

During the same period, QAS gross expenditure per incident rose by five per cent, from $624 per incident to $653, which is still the lowest cost per incident nationally. The higher and increasing numbers of incidents in Queensland mean that overall costs are increasing.

Figure 3Q compares the reduction in volunteer numbers with the increase in gross expenditure per incident.

Figure 3Q
Comparison of volunteer numbers and expenditure per incident



Note: trend is shown from 2007–08 to 2012–13 because, prior to 2007–08, volunteer data were categorised differently in the Productivity Commission's *Report on Government Services*

Source: Queensland Audit Office extracted from the Report on Government Services 2014

Community first responders

As in other jurisdictions, QAS has a number of community first responders. QAS defines its community first responders as:

> *A person who is an authorised officer of QAS who is competent in basic life support, oxygen therapy, and the use of an automatic external defibrillator, and works within a medically supervised and accountable system.*

They are a separate class of volunteer and are classified as honorary ambulances officers under section 14(1) of the *Ambulance Service Act 1991.*

Queensland has 242 community first responders, a number comparable with NSW but significantly less than Victoria and Western Australia, as shown in Figure 3R.

Figure 3R
Comparison of community first responder numbers for 2012–13

	QLD	NSW	VIC	WA	SA	TAS
Community first responders	**242**	208	411	1 368	46	48

Note: Community first responder numbers are not reported for the Northern Territory and Australian Capital Territory in the Productivity Commission's *Report on Government Services*.

Source: Report on Government Services 2014

The number of QAS community first responders has increased by 29 per cent from 188 in 2007–08 to 242 in 2012–13. Even when community first responders are combined with volunteers, QAS has the second lowest total, as shown in Figure 3S.

Figure 3S
Combined volunteer and community first responder numbers for 2012–13

Note: Community first responder and volunteer numbers are not reported for the Northern Territory and Australian Capital Territory in the Productivity Commission's *Report on Government Services*.

Source: Report on Government Services 2014

The combined total of QAS volunteers and community first responders has fallen by 14 per cent from 413 in 2007–08 to 357 in 2012–13.

Response locations

QAS seeks to provide equitable community access to its services. This means, providing a comparable service across the state, taking into account local differences such as geography, demographics and the availability of health and community services.

As a consequence of this approach, Queensland has the highest absolute number of response locations, followed closely by NSW and Victoria, as shown in Figure 3T.

Figure 3T
Comparison of number of response locations by Australian states and territories: 2012–13

	QLD	NSW	VIC	WA	SA	TAS	ACT	NT
Number of response locations	**269**	268	257	189	113	49	7	9

Source: Report on Government Services 2014

3.6 Recommendations

It is recommended that the Department of Health:

4. **determines the underlying causes for the rapid growth in demand for Queensland Ambulance Service emergency responses and implements strategies to address these causes and reduce the cost per head of population to service this demand.**

Appendices

Appendix A—Comments

Introduction

In accordance with section 64 of the *Auditor-General Act 2009*, a copy of this report was provided to the Department of Health with a request for comment.

These views have been considered and are represented to the extent relevant and warranted in preparing this report.

Responsibility for the accuracy, fairness and balance of the comments rests with the head of each agency.

Comments received from Director-General, Department of Health on 29 April 2014

Queensland Government

Enquiries to: Dr Emma Enraght-Moony
Director
Clinical Performance and Service Improvement Unit
Queensland Ambulance Service
Telephone: 3635 1995
File Ref: DG073465

23 APR 2014

Mr Andrew Greaves
Auditor-General
Queensland Audit Office
PO Box 15396
CITY EAST QLD 4002

Dear Mr ~~Greaves~~ Andrew,

Thank you for your letter dated 21 March 2014, regarding the Queensland Audit Office's (QAO) proposed report on the performance audit of the Queensland Ambulance Service (QAS), which will be tabled in Parliament in May 2014.

I thank you for the opportunity to provide the accompanying response to the proposed report. Queensland Health's response consolidates comments from the Department of Health and QAS and includes general comments as well as the QAO template commenting on each of the recommendations.

Should officers of your Department require further information, the Department of Health's contact is Dr Emma Enraght-Moony, Director, Clinical Performance and Service Improvement Unit, Queensland Ambulance Service, on telephone 3635 1995.

Yours sincerely

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Comments received from Director-General, Department of Health on 29 April 2014

Performance Audit of Queensland Ambulance Service

Response to the Report to Parliament

Queensland Ambulance Service is a fundamental part of the health system. The ambulance service is often the first point of contact for patients in times of emergency, and provides a crucial gateway for the public to Queensland's acute health care services. In the privileged position that the ambulance service holds within the community, it is incumbent upon QAS to provide a safe and responsive service that efficiently manages resources to deliver maximum benefit to the community. To meet this challenge, QAS has a developed a culture of innovation, to drive efficiencies and provide high quality patient-centred care.

Since 1 July 2012, the Queensland Ambulance Service (QAS) has undertaken significant structural reform and ongoing development. On 5 November 2012, a restructure of QAS Regional and Central office structures was undertaken, transforming the Service into 16 Local Ambulance Service Networks (LASNs) supported by a central office 'system manager' structure.

Subsequently, following release of the Police and Community Safety Review by Mr Mick Keelty AO APM, QAS transferred to the Queensland Department of Health on 1 October 2013. This move represented QAS' core function as an emergency health service, and strengthens the links between Queensland Ambulance Service and Queensland Health to support continual improvement of the patient journey for Queenslanders.

The objective of these changes has been to ensure that front-line operations receive the support they need to deliver efficient and effective pre-hospital care and transport services across Queensland to meet local community needs.

Given the significant changes that have occurred to the Service, the conduct of this performance audit is timely, and I welcome the opportunity for an independent and credible review of the current operational effectiveness of the Queensland Ambulance Service. Undertaking a performance audit of such a vital community service is commendable in terms of both the scope and rigour of the review.

The recommendations of the audit report are accepted by the Queensland Department of Health and Queensland Ambulance Service.

The findings of this report highlight several key areas of analysis across the domains of service performance, cost effectiveness, and performance reporting, concluding that QAS performs well compared to other jurisdictions. I acknowledge that the report has also identified some valuable areas for further development and improvement for the Service.

QAS operates across a vast and geographically diverse environment, this does present challenges to the provision of appropriately responsive and cost efficient services. Whilst state-wide QAS is performing well compared the rest of Australia for Code 1 (Emergency) response time performance, it was identified that QAS are not meeting some internal targets with regards to response times to Code 2 (Urgent) priority cases and ambulance dispatch intervals. The Service has progressed a number of initiatives to improve performance in these areas. QAS established the Patient Safety Distribution Unit (PSDU) on 21 December 2012, as an outcome of the Metropolitan Emergency

Comments received from Director-General, Department of Health on 29 April 2014

Department Access Initiative (MEDAI) report (2012). The PSDU operates 24 hour a day and ensures patient safety by overseeing the appropriate distribution of patients amongst the public hospital network, and addressing any delays in the field to expedite the patient's treatment pathway. The coordinating function of PSDU has the capacity to enhance Code 2 response performance by reducing the case cycle time for ambulance units, returning resources back to the system sooner to respond to awaiting cases, and by providing oversight of Code 2 cases to ensure that the first available, appropriate unit is dispatched.

QAS has also been piloting an alternative response model for lower acuity (Code 2) patients within the Metro North LASN. The Lower Acuity Response Units (LARU) are dedicated resources, consisting of a single officer in a standard wagon vehicle, for responding to Code 2 patients that do not require stretcher transport. The purpose of these units is to identify the most appropriate treatment pathway for these patients and to facilitate their care, whether it is from the paramedic in the field, a primary health care service such as the patient's own GP or a health care clinic, or hospital emergency department.

Code 2 response and dispatch interval performance is analysed and reported monthly as Local Ambulance Service Network (LASN) Performance Reviews. Whilst not currently meeting some performance targets, analysis of performance is demonstrating consistent improvement in this area, and QAS will continue to strive for further gains. In addition, the Service is progressively rolling out a new telephony system (Genesys) in its emergency operations centres to optimise dispatch processes and facilitate real-time reporting and management of dispatch performance.

As noted in the Police and Community Safety Review report (2013), a rapid response is only one amongst a number of factors that contributes to optimal patient care. "This is reflected in the Queensland Ambulance Service's focus on measuring patient outcomes and clinical interventions as indicators of performance in addition to the long standing measures around timeliness of response." I am therefore very pleased to acknowledge the finding of this report that QAS, "focuses appropriately on clinical outcomes for patients."

QAS has a strong culture of clinical quality improvement, with the introduction and ongoing development of the evidence based Clinical Practice Manual and associated aides, to the strong program of clinical audit that ensures compliance with clinical protocols. The Clinical Audit and Review Tool (CART) is employed for routine clinical audit of selected high priority case types and randomly selected cases. This program of audit was enhanced on 1 July 2012 with the commencement of in-field audits, enabling Clinical Support Officers to facilitate evidence-based clinical support in real-time. This initiative has significantly improved the clinical support model for on road paramedics. In-field audit provides a good balance between retrospective and proactive quality assurance. In addition, it has reduced 'red tape' by a decreasing administrative burden and thus allowing more direct clinical support time. This improves not only the job satisfaction for QAS clinical support staff but also educational opportunities for paramedics in the field.

QAS has made significant and ongoing investment in providing leading-edge clinical care, such as equipping all units with 12 lead ECGs, implementing a state-wide reperfusion strategy for patients experiencing myocardial infarctions (STEMI), the use of prehospital ultrasound, prehospital blood administration, and providing ongoing and detailed education and training for Paramedics.

Comments received from Director-General, Department of Health on 29 April 2014

Not only do these innovations provide benefits to patients in the prehospital sector, providing rapid access to high quality care, they have the potential to provide cost efficiencies downstream.

> "Clinical excellence in the Queensland Ambulance Service is focused on building capability in the ambulance service which will produce significant savings in the larger health system. If the beginning of the value-chain is effective it can support savings and efficiencies further down the supply chain. For example, effective clinical interventions by paramedics can reduce the amount of time a patient would need to spend in intensive care, or similar resource intensive health care environments. Clinical excellence in paramedic services, for example pre-hospital coronary artery reperfusion in the case of cardiac arrest, also enables the key intervention to occur in a lower cost part of the health services value chain, as opposed to the entire service needing to be provided through hospital resources and infrastructure." [PACSR, 2013]

The capacity to undertake clinical audit activities, and to further develop the evidence base for the care provided by QAS, will be enhanced by access to patient outcome information from Queensland Health facilities. QAS is actively engaged with key stakeholders in the Department of Health to implement the mechanisms to enable access to hospital-based records to facilitate evaluation of the impact of prehospital care on patient outcomes both in the field and downstream in the health system.

The performance of the QAS, in terms of a range of clinical outcomes and other measures of service performance is publicly reported. On 12th December 2013, QAS released a suite of publicly reported performance measures across the domains of Care for Patients, Care for Staff, Daily Activity, Service Delivery, Value for Money, and National Comparison. (https://ambulance.qld.gov.au/publications.html) These indicators (with the exception of the National Comparison section) are reported for the State, as well as broken down by LASN. The QAS is proud of its performance, and is committed to transparency in reporting. The suite of performance measures adopted by QAS undergoes regular review, with piloting and internal benchmarking of new measures. In particular, QAS has implemented new clinical indicators around the management of cardiac, asthmatic, diabetic and pain-related conditions, and is continuing work to develop further measures. There is currently a lack of comparable data from other Services against which to benchmark QAS performance on these measures or establish appropriate performance targets. During the development and piloting period a continuous quality improvement approach has been taken to the application of these measures.

Delivering responsive, high quality and innovative services across a large geographic state does come at a cost. This report notes, "From 2003-04 to 2012-13, the service has been consistently one of the two most costly services per head of population in Australia. It has more locations and more staff per head of population than any other jurisdiction; more qualified staff to total staff than all but the Australian Capital Territory; and fewer volunteers and first responders than most (only New South Wales has fewer). These factors drive its costs." The relative high cost per head of population is in part a consequence of the Queensland state demography. Queensland is a large geographic region with a dispersed population, and therefore a considerable number of resources (stations, staff, vehicles etc.) are required to provide a responsive and equitable service across this vast area. Given

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the low population base in many regional areas, higher cost of service provision to these communities elevates the aggregate cost per capita across the entire state.

This audit has highlighted that a major factor affecting the cost efficiency of the Service, and thereby impacting upon the cost per capita required to maintain a responsive and equitable service across the State, is the impact of labour force costs. It is noted that, "Other costs, such as absenteeism, sick relief and overtime payments, are also increasing at levels that exceed the growth in service demand and provision. For example, in the four years since 2008-09, the cost of sick leave has increased by 60 per cent; $3.08 million dollars." This reported estimated cost of sick leave for ambulance operational staff is based on modelled cost data provided to QAO by the Public Service Commission (PSC). In 2012/13FY budget terms, this modelled cost increase of $3million represents 0.5% of QAS total expenditure.

Whilst there has been an increase in the total cost of employee entitlement claims to the Department over the period 2008-09 to 2012-13, this has been impacted upon by a number of factors outside of the management control of QAS. As discussed on page 35 of this report, over this period there has been an increase in QAS employee numbers (by 487 positions) and total duty hours worked (by 14.5%) to enable the service to meet demand pressures; increases to employee remuneration entitlements due to updated enterprise bargaining agreements (11%-26% wage increase dependent upon role and years of experience); and, mandated changes to employee sick leave entitlements (20% increase) as a result of the QAS Determination 2010. All of these factors increase the costs relating to the delivery of services in a 24 hour per day, seven day per week operational environment. However, examination of the rate of unplanned absences, as reported by PSC, provides a more sensitive measure of the effective management of employee absenteeism. Across the reported time period (08/09FY-12/13FY) there has been a 19.3% increase in the 'Average full time absent days taken' per operational employee. This is marginally less than the 20% increase in entitlements that occurred during this time period. [*Note: 'Average full time absent days' taken is calculated on a 7.6 hour day (38 weekly ordinary hours / 5), whereas QAS operational staff predominantly work four 12 hours shifts, so this reported figure is likely to over-report the actual number of absent days taken by QAS operational staff*).

Notably, analysis of Service cost efficiency performance across four other presented measures demonstrates that QAS performs exceptionally well nationally. Compared to the other states, Queensland reports the lowest gross expenditure per incident; second lowest on ambulance services expenditure per patient; lowest on ambulance services expenditure per kilometre; third lowest [to NT & WA] on ambulance services expenditure per square kilometre.

The QAS' performance in terms of cost efficiency is in the context of increasing demand and service delivery costs. Demand for service has shown steady growth over the past 8 years with the service utilisation per 1000 head of population increasing by 25.5%. This report estimates that this "growth in the rate of use of the service has added around $82 million annually to its costs", calculated upon a 2012/13 per incident cost of $653. However, QAS total expenditure has only increased by a total of $60 million dollars over five years (2009/10 – 2013/14). Growth in QAS expenditure has been lower than growth in general state government expenditure growth across this time period despite increasing demand pressures and substantial increases in employee expenses due to the appointment of additional staff to meet growing demand, and mandated changes in employee

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entitlements relating to overtime and unplanned absences. This array of cost indicators, in accompaniment with clinical performance and patient satisfaction measures, demonstrate that QAS manages to provide high quality care, delivered by professional paramedics, in a challenging environment on a cost efficient basis.

As highlighted by this report, the key challenge for QAS is to maintain efficient and high quality performance into the future, in the face of increasing demand for service and costs of service provision.

Identifying and addressing the numerous drivers that increase demand for emergency health services is a considerable and ongoing exercise, internationally. QAS is already an active partner in a number of research activities addressing the issues of demand for emergency health services. However, QAS is not positioned, as one entity within a large health system, to develop or effectively implement these strategies independently. As acknowledged in the PACSR Report (2013), "Arguably response services, which must be reactive to demand, should be aligned with those services which can prevent or mitigate this demand. The inclusion of Queensland Ambulance Service within Queensland Health's strategic remit would support Queensland Ambulance Service in achieving stronger demand management outcomes." The recent alignment of QAS with Department of Health provides greater capacity to seek coordinated solutions to these issues.

Exploring the drivers of, managing and responding to demand for emergency health services requires a multidisciplinary and collaborative effort involving the health and academic sectors. Additionally, implementing strategies and effecting changes in this area requires a whole-of-government approach, with contribution from all of the health system and supporting government agencies. The benefits that can be realised from such collaborative engagements have been evidenced by the improvements in Emergency Department off-stretcher times, as a result of the MEDAI Report (2012) recommendations that were jointly implemented by QAS and the Hospital and Health Service Networks.

The Queensland Ambulance Service is committed to driving accountability, transparency and improvement in service performance through proactive management strategies that are informed by the use of current evidence. The findings of this report both confirm and strengthen the vast amount of work that is underway within the Queensland Ambulance Service to shape its service delivery model to minimise costs and optimise outcomes in the provision of emergency health services for all Queenslanders.

I thank the Queensland Audit Office for their invaluable work on this report.

Responses to recommendations

Recommendation	Agree / Disagree	To be implemented by (mth, yr)	Additional Comments
It is recommended that the Department of Health:			
1. Facilitate the sharing of hospital patient outcome data with Queensland Ambulance Service to help measure the effect of pre-hospital care on patient outcomes	Agree	December 2014	QAS are actively engaged with Health Statistics Centre (DoH) to establish routine data linkage for Qld Health admitted patients who are transported to hospital by QAS. This will facilitate quality assurance, research and evaluation activities.
		August 2014	QAS and the Health Services Information Agency have been in active discussions to provide access to Queensland Health records via 'The Viewer' application, for rapid access to patient outcome information to support clinical audit and review.
2. Enhances management reporting processes over complaints by recording the number and nature of complaints, following up outstanding complaints formally and reporting complaints data to executive management	Agree	May 2014	Complaints are managed at the relevant Local Ambulance Service Network (LASN) head office. The LASN senior executives provide a monthly submission to the Office of the Commissioner regarding any new or outstanding complaints. This information is to be compiled in a central registry within the Office of the Commissioner, with weekly follow up by the Office of the Commissioner to the LASNs regarding any cases for requiring further action. A monthly report will be provided to the Commissioner regarding the status of any new or outstanding complaints.
3. Publicly reports a comprehensive suite of performance information, including:	Agree	Implemented December 2013	QAS publicly publish a wide range of performance measures across the domains of Care for Patients, Care for Staff, Daily Activity, Service Delivery, Value for Money, and National Comparison. These indicators are all reported for the State, as well as broken down by LASN. (https://ambulance.qld.gov.au/publications.html)

Responses to recommendations

Recommendation	Agree / Disagree	To be implemented by (mth, yr)	Additional Comments
• response time performance across all priority codes, including a breakdown of performance by region/LASN	Agree	May 2014	The Service Delivery section of the Public Performance Indicators report currently contains: Code 1 response times at 50th and 90th percentile; Percentage of non-emergency incidents (Code 3 & 4) attended to by appointment time; and, Average case cycle times, reported state-wide and by Local Ambulance Service Network (LASN). This section will be extended to include performance reporting for Code 2A-C response priorities.
• results of clinical audits and reviews	Agree	May 2014	Summary outcomes of clinical audits (i.e. Total n; % audits with serious clinical variation identified) are to be made publicly available, however the outcomes of individual audits should not be detailed due to concerns with regards to breach of patient privacy and confidentiality.
4. Determine underlying causes for the rapid growth in demand for QAS emergency responses and implement strategies to address these causes	Agree	Ongoing	This is a vast and ongoing exercise that requires a multidisciplinary and collaborative effort involving the health and academic sectors. QAS is already an active partner in a number of research activities addressing the issues of demand for emergency health services. QAS is not positioned, as one entity within a very large system, to develop or effect these strategies independently. Progress in this area requires a whole-of-government approach, with contribution from all of the health system and supporting government agencies.

Appendix B—Audit details

Audit objective

The objective of the audit was to examine the operational effectiveness of the Queensland Ambulance Service (QAS), focusing on access and responsiveness and monitoring and reporting.

The audit covered the operations of QAS which is now a division of the Department of Health.

The audit examined whether:

- ambulance services were planned for and provided equitably and in accordance with the *Queensland Ambulance Service Act 1991*
- employee resources were managed efficiently and effectively
- performance information was used to measure and report performance and facilitate decision making.

Reason for the audit

QAS is responsible for providing timely and quality ambulance services which meet the needs of the Queensland community.

QAS has a higher number of incidents, responses and patients per 1 000 people than any other jurisdiction in Australia. It has the second highest expenditure per person. Its response times are amongst the best.

A government review of QAS was tabled in Parliament in December 2007. Many of its recommendations, all but two of which were accepted by the government, were for improvements to demand management, to workforce management and (in conjunction with Queensland Health) on patient flow and data collection and reporting.

Performance audit approach

The audit was conducted in accordance with the *Auditor-General of Queensland Auditing Standards—September 2012*, which incorporate the requirements of standards issued by the Australian Auditing and Assurance Standards Board.

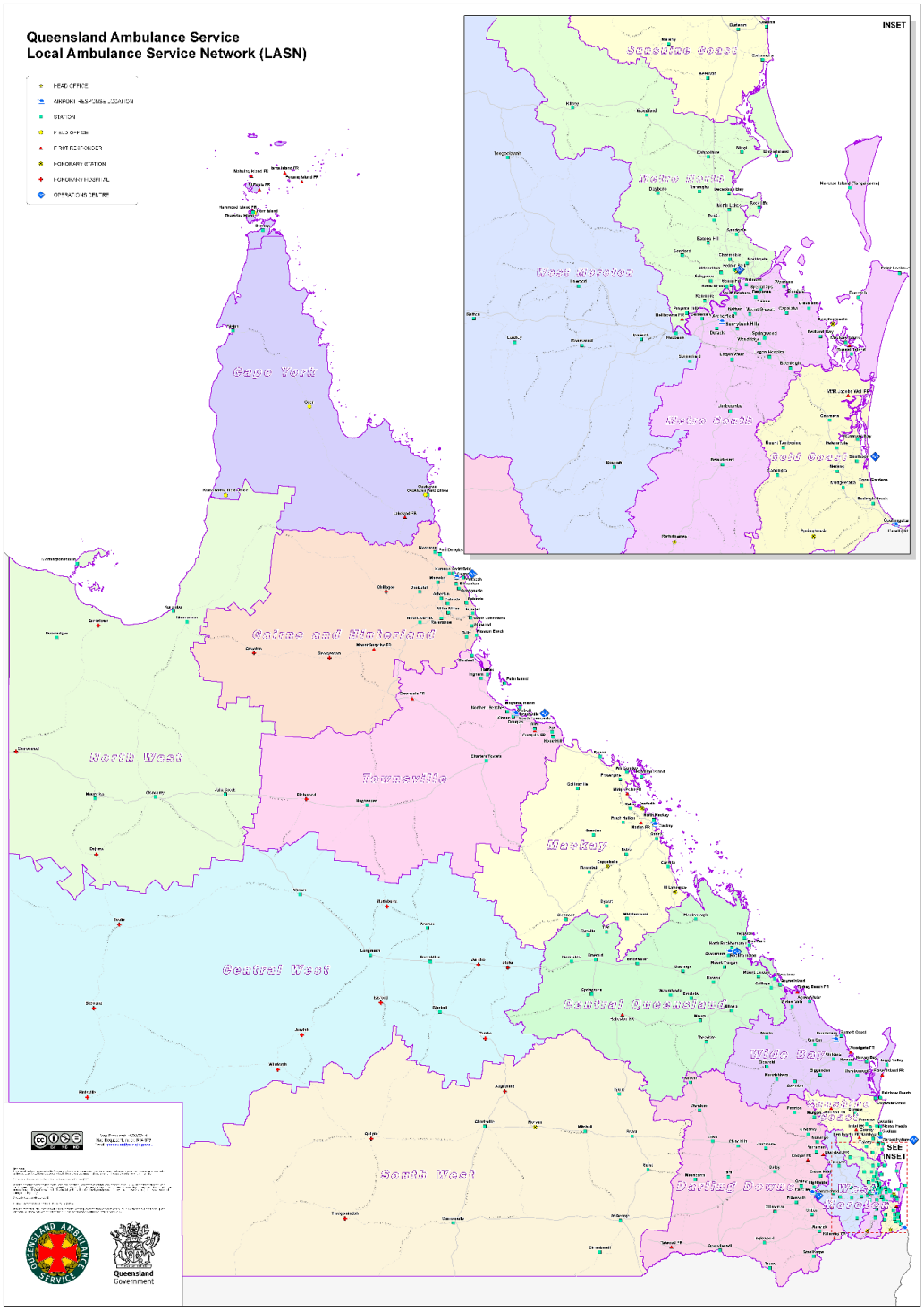
The audit was conducted between May and December 2013 and examined the operational effectiveness of QAS.

The audit included:

- an analysis of call taking, dispatch, monitoring, clinical review and resource planning systems
- analysis of response and other performance data
- interviews with executive management, clinical management, and employee management representatives as well as resource planning and research staff
- fieldwork at the Brisbane and Townsville Operations Centres, Metro South, Metro North, Mackay and Townsville Local Ambulance Service Networks (LASNs), 21 individual ambulance stations and the Kirwan Local Ambulance Committee.

Appendix C—Queensland Ambulance Service Local Ambulance Service Network

Figure C1
Queensland Ambulance Service Local Ambulance Service Network (LASN)



Source: Queensland Ambulance Service, Local Ambulance Service Network (LASN), 10 March 2014

Auditor-General Reports to Parliament

Reports tabled in 2013–14

Number	Title	Date tabled in Legislative Assembly
1.	Right of private practice in Queensland public hospitals	July 2013
2.	Supply of specialist subject teachers in secondary schools	October 2013
3.	Follow up—Acquisition and public access to the Museum, Art Gallery and Library collections	October 2013
4.	Follow up—Management of offenders subject to supervision in the community	October 2013
5.	Traffic management systems	November 2013
6.	Results of audit: Internal control systems	November 2013
7.	Results of audit: Water sector entities 2012–13	November 2013
8.	Results of audit: Hospitals and Health Services entities 2012–13	November 2013
9.	Results of audit: Energy sector entities 2012–13	November 2013
10.	Contract management: renewal and transition	December 2013
11.	Results of audit: State public sector entities for 2012–13	December 2013
12.	Results of audit: Queensland state government financial statements 2012–13	December 2013
13.	Right of private practice: Senior medical officer conduct	February 2014
14.	Results of audit: Local government entities 2012–13	March 2014
15.	Environmental regulation of the resources and waste industries	April 2014
16.	Results of audit: Education sector entities 2013	May 2014
17.	Queensland Ambulance Service performance	May 2014