

**AUDITOR-GENERAL'S REPORT  
PERFORMANCE AUDIT**

**Helicopter Emergency  
Medical Service Contract**

**NSW Health  
NSW Ambulance Service**



The Legislative Assembly  
Parliament House  
SYDNEY NSW 2000

The Legislative Council  
Parliament House  
SYDNEY NSW 2000

In accordance with section 38E of the *Public Finance and Audit Act 1983*,  
I present a report titled **Helicopter Emergency Medical Service Contract:  
NSW Health, NSW Ambulance Service.**

A handwritten signature in black ink that reads "Peter Achterstraat".

Peter Achterstraat  
Auditor-General

Sydney  
September 2010

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# Contents

<b>Executive summary</b>	<b>1</b>
Background	2
Conclusion	2
Supporting findings	3
Recommendations	4
Response from NSW Department of Health	5
<b>Management and outcomes of helicopter emergency medical services in Greater Sydney</b>	<b>7</b>
Introduction	8
Management of the contract process	9
Outcomes of the new arrangements	13
<b>Appendix: About the Audit</b>	<b>21</b>
<b>Performance Audits by the Audit Office of New South Wales</b>	<b>25</b>



## Executive summary

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## Background

Since the 1970s helicopters have been part of the Ambulance Service of NSW's fleet. By 2006 there were nine helicopters operating across the state. The crew, usually a paramedic but occasionally including a doctor, provided:

- quick access to medical treatment for injured or ill patients on site (prehospital)
- transport for patients between hospitals, usually from a rural or regional hospital to a major one (interhospital).

These services, prehospital and interhospital, are collectively referred to as helicopter emergency medical services (HEMS).

The Ambulance Service of NSW (Ambulance) commenced a tender process in 2006 to provide helicopters in Greater Sydney, which covers the Sydney, Wollongong and Orange areas.

In May 2007 Lloyd Off-Shore Helicopters Pty Ltd trading as CHC Helicopters (Australia) (CHC), which was already providing a service in Wollongong and Canberra, started providing helicopter services for all of the Greater Sydney region.

The objective of this audit was to assess whether the helicopter emergency medical services contract process and outcomes for Greater Sydney were satisfactory. We considered the management of the contract process and the outcomes of the new arrangements.

Helicopter emergency medical services have been subject to much comment in the media and in Parliament. We have attempted in this report to address significant statements or claims made about the process and its outcomes.

## Conclusion

We found that the contract process was satisfactory. Ambulance data show that the performance of CHC is meeting contract requirements with the exception of the availability of the Wollongong helicopter. Ambulance's ability to transport patients to the right hospital at the right time has improved.

However the cost of the new Greater Sydney helicopter contract is three times higher than before.

## Supporting findings

### 1.1 Did the contract process have a clear purpose and objectives?

We found the contract process had a clear purpose and objectives. Ambulance initially conducted reviews of HEMS which showed that there were current and future constraints on performance. The contract process was intended to address these.

### 1.2 Was the process consistent with policies, standards and guidelines?

The process was consistent with policies, standards and guidelines, and was endorsed by Cabinet. While a probity audit and independent evaluation identified some minor concerns, these would not have changed the tender decision or its outcomes.

### 2.1 Is the current provider meeting targets?

The average time for the helicopters to be airborne is meeting contract targets. Availability is meeting contract requirements, with the exception of the Wollongong helicopter.

The systems available to monitor helicopter performance information are not as robust as those used for road operations.

### 2.2 Has the current provider's service improved Ambulance's ability to transport patients to the right hospital at the right time?

CHC's service has improved Ambulance's ability to transport patients to the right hospital at the right time. Standardisation of helicopters and operating procedures have permitted improvements to reduce the time taken from 000 call to tasking of helicopters for prehospital trauma cases.

The number of prehospital trauma patients being transported to the hospital best suited to meet their clinical needs has increased. There has been a corresponding reduction in the number of interhospital transfers needed.

Because of greater helicopter capacity and specialised crews, patients weighing over 120kg and those requiring specialised equipment support can now be transported.

After significant growth in the number of missions flown on the introduction of the CHC contract, the number of missions flown and patients transported in Greater Sydney has decreased in 2009-10. All NSW HEMS services similarly flew fewer missions in 2009-10.

## Recommendations

- |  |   |
|--|---|
| <b>This should be implemented urgently</b>           | 1. Ambulance should ensure, in consultation with the helicopter operators, that the improvements recommended by the safety audit of the Orange Hospital helicopter landing site are followed (page 19).   |
| <b>These should be implemented within six months</b> | 2. Ambulance should provide more comprehensive information on its helicopter emergency medical services performance to the public (page 15).<br>3. Ambulance should explore whether any financial compensation should be sought for lost capability resulting from the installation of the inlet barrier filters (page 19).   |
| <b>These should be implemented within one year</b>   | 4. Ambulance should ensure that AmbFlight is implemented and fully functional (page 15).<br>5. Ambulance should advise the public on the permanent location for its Sydney helicopter emergency medical services base and its impact on operations once this decision is made (page 19).  |
| <b>This should be implemented within two years</b>   | 6. Because of the apparent change in demand across NSW, Ambulance should review the effectiveness of all its helicopter emergency medical arrangements before extending the CHC contract or executing any new regional contracts (page 18).   |
| <b>These are ongoing</b>                             | 7. Ambulance should ensure through its contract management that helicopter operators gain appropriate authorisation for any changes that may influence the service delivery capacity of the helicopters (page 19).<br>8. Ambulance should continue to ensure that CHC appraise them of any possible changes in corporate direction that could affect their role in Australia (page 13). |



## Response from NSW Department of Health

*Thank you for the opportunity to provide comments on the performance audit report "Helicopter Emergency Medical Service Contract".*

*I note that the Audit concludes that the contract tender process was satisfactory, that with the marginal exception of the availability of the Wollongong helicopter CHC (Australia) is meeting contract requirements which are far more stringent than previous arrangements, and that the ability of the Ambulance Service to transport patients to the right hospital in the right time has improved. The Audit has made eight recommendations with which the Ambulance Service agrees, and some of these were in train or planned prior to the Audit.*

*As outlined in the report, operational experience and a number of reviews identified the need to improve emergency medical helicopter service arrangements in the Greater Sydney Area. It is pleasing to note that the Audit has confirmed that the improvements detailed in those reviews, along with the expected outcomes of the tender process, have been achieved.*

*The tender process was designed to market test the most cost effective way to achieve the required results. While the cost of providing the service is higher than previous arrangements, the service that is being provided is also higher, allowing the Ambulance Service to undertake a greater range of missions at enhanced levels of safety.*

*The availability of the Wollongong helicopter has been impacted by a number of unscheduled maintenance services over the last twelve months. It should however be noted that the downtime of the Wollongong helicopter is not mission related and has not impacted upon service delivery. Nonetheless, the relevant penalties under the contract have been imposed on the provider.*

*I am very pleased with the level of co-operation that existed between NSW Health and the Audit Office in the preparation of the report, and thank the staff of both agencies for their efforts.*

*(signed)*

*Professor Debora Picone AM  
Director-General*

*Dated: 16 September 2010*



# **Management and outcomes of helicopter emergency medical services in Greater Sydney**

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## Introduction

### Beginning of helicopter operations

Australia’s first civilian helicopter rescue service was started by Surf Life Saving Australia (SLSA) in Sydney in 1973, and began receiving state government funding in 1978. CareFlight commenced in 1986 as a medical rescue version of the SLSA rescue service.

NSW Health and Ambulance introduced funding and tasking arrangements for the helicopter emergency medical services functions of SLSA and CareFlight in 1989.

Since then the service has grown and, prior to the introduction of the current arrangements in 2007, comprised nine helicopters across the state. However this development was driven by the charity-based providers relying on community support in addition to Ambulance funding.

### Changes in Greater Sydney

Ambulance commenced a tender process in 2006 to provide helicopters for HEMS in Greater Sydney, which covers Sydney, Orange and Wollongong.

In May 2007 CHC, which was already providing a service in Wollongong and Canberra, started providing the helicopter services in the Greater Sydney region. In 2007-08 new five-year contracts were entered with SLSA in Newcastle, Tamworth and Lismore, SouthCare in Canberra and with ChildFlight.

Below is a table of all HEMS providers in NSW.

Exhibit 1: Helicopter emergency medical service providers in NSW		
Location	Previous Provider	Current Provider
Sydney	CareFlight	CHC
Sydney	SLSA	CHC
Sydney	ChildFlight	ChildFlight
Wollongong	SLSA (CHC since 2005)	CHC
Orange	CareFlight	CHC
Newcastle	SLSA	SLSA
Tamworth	SLSA	SLSA
Lismore	SLSA	SLSA
Canberra	SouthCare	SouthCare

Source: Review of Rotary Wing Services in NSW (December 2004); Ambulance Annual Reports.

Note: SouthCare have subcontracted helicopter service provision to CHC for several years.

### HEMS is not rescue

The primary responsibility of Ambulance’s HEMS is to ensure that its helicopters are able to transfer a medical team and patients when needed.

Comments in the media appear to confuse Ambulance’s HEMS responsibilities with rescue functions, for which NSW Police are responsible. Some of the concerns raised would be more appropriately directed to the State Rescue Board.

## Management of the contract process

### 1.1 Did the contract process have a clear purpose and objectives?

The contract process had a clear purpose and objectives.

Ambulance initially conducted reviews of HEMS which showed that there were current and future constraints on performance. The contract process was intended to address these.

#### Reviews of rotary wing retrieval services identified weaknesses

The reviews initiated by Ambulance included:

- a review of rotary wing services in 2004 by Operational Research in Health Ltd (ORH)
- a review of technical helicopter requirements by J Cornish & Associates Pty Ltd in 2005.

The ORH review examined the provision of helicopter services in NSW, noting that their development by CareFlight and SLSA had not been within a NSW Health or Ambulance policy framework. This resulted in some anomalies and weaknesses such as:

- low utilisation rates
- mobilisation delays caused by non-dedicated crew arrangements
- concerns over the level and currency of staff training.

The ORH review also noted that the two Sydney helicopters were crewed by a doctor and an ambulance paramedic. But those in Wollongong and Orange used non-dedicated doctor and paramedic crews. The report noted that:

A doctor/paramedic crew gives tasking flexibility and therefore promotes faster mobilisation times ... there was a demonstrable survival benefit associated with physician management in prehospital trauma cases ... it is concluded that the optimum medical crew should be a doctor and a paramedic for all missions.

The existing operators were also independent organisations, with different equipment and operating standards:

Lack of depth of helicopter backup, particular in the Sydney Basin, was a major concern ... there was a lack of commonality between helicopter types and their associated differing standard operating procedures.

The review of technical helicopter requirements concluded that 'it would be a major benefit to medical retrieval teams if helicopter types and Standard Operating Procedures, particularly in the Sydney Basin could be standardised'.

#### Case for change

In response to the issues raised by the reviews, Ambulance developed a Business Case in 2005 which summarised the need for change:

... demand, standards and operational complexity have grown considerably and, over the past two years, performance standards and service levels have begun to drop below those acceptable to Ambulance.

The Business Case identified the critical success factors:

- Ambulance effectively and efficiently manages service delivery
- helicopter service providers meet required medical/clinical service standards and upgraded helicopter operational standards
- Ambulance and helicopter service providers operate efficiently
- service costs reflect income from community funding and sponsorship.

**Anticipated benefits**

The tender documents, issued in 2006, included specific benefits to be realised by implementation of new helicopter service arrangements:

- improved availability
- improved response times
- improved doctor and paramedic crew mix
- improved coverage
- better utilisation
- improved safety
- better equipped/mission-suitable helicopters.

**1.2 Was the process consistent with policies, standards and guidelines?**

The process was consistent with policies, standards and guidelines, and was endorsed by Cabinet. While a probity audit and independent evaluation identified some minor concerns, these would not have changed the tender decision or its outcomes.

However provision of helicopters under the new contract is costing three times what it was before.

**The process was approved by Cabinet**

Ambulance's Business Case noted that there were inefficiencies and a lack of financial transparency with the then existing arrangements. New models of helicopter which had become available were also offering improved capability. The Business Case proposed to market test alternative helicopter service delivery options for Greater Sydney. Cabinet endorsed this in May 2006.

**The tender process included independent and expert advice**

Ambulance developed a Tender Evaluation Plan, issued specifications and sought offers in an open market.

The Tender Evaluation Committee comprised representatives of Ambulance, NSW Health and the Principal Procurement Specialist from the Department of Commerce. It also included an aviation consultant and the President of the Australian Chapter of the International Society of Aeromedical Services (who was also the HEMS Team Manager, Air Ambulance, Victoria). The process was also overseen by a probity auditor.

**Evaluation of bids adhered to tender plan**

Six bidders including CareFlight and SLSA made offers, and all offered several options. Seven different alternatives from four bidders were shortlisted. The bids were ranked on:

- tenderer's past performance in the industry
- capacity of the tenderer to provide appropriate personnel, management structure and business acumen
- compliance with the specifications (including quality of service delivery, helicopters, equipment and facilities)

- ability to supply services
- safety, risk management and quality management practices
- benefits of a single provider versus multiple providers
- demonstrated awareness of the special needs of Ambulance
- value added services, innovative aspects of the tender submission and corporate or community support
- compliance with NSW Government procurement policy.

CHC, the winning bidder, offered the second lowest cost over the seven year contract period. CHC was ranked highest on all the criteria above, with the highest overall rating.

**Cabinet approval of the contract**

Cabinet approval to sign the contract at an estimated cost of \$24 million per annum was sought in a submission in November 2006.

The Chair of the State Contracts Control Board also approved acceptance of the CHC tender in November 2006.

**Reviews of the evaluation were favourable**

A probity review of the tender process found it to be generally sound and complying with all requirements. Although the review found some minor concerns, it concluded that these would not have changed the outcome.

An independent commercial review concluded that in general the tender evaluation criteria were consistent with those used on other comparable tender evaluations and represented a sound basis for selecting a preferred bidder. However it did identify a number of issues concerning calculation of the cost index, but concluded that these would not have changed the value-for-money ranking due to the relatively high weighted quality index.

**Delivery was an important factor**

The winning bidder's timeframe for introducing the helicopters chosen was seven months earlier than the nearest promise by another bidder. However the evaluation report noted that helicopters of the type sought typically had delivery times of around two years.

**Interim helicopters were required**

Accordingly, to commence an improved service as quickly as possible, the Request for Tender (RFT) sought from bidders an interim service whilst awaiting delivery of new helicopters. Those offered for the interim service did not have to fully comply with the specification for new helicopters.

CHC was the only tenderer to offer a near-conforming interim service, which could commence by September 2007. CHC was able to provide this service commencing in May 2007.

**New helicopters arrived late**

CHC had to continue with the interim service for longer than initially planned because of delayed delivery of helicopters from the overseas manufacturers.

Exhibit 2: Delivery of new helicopters		
	Contract delivery dates	Actual delivery
AgustaWestland AW139 (Wollongong)	February 2008	August 2008
AgustaWestland AW139 (Sydney)	June 2008	October 2008
AgustaWestland AW139 (backup)	December 2008	May 2009
Eurocopter EC145 (Orange)	March 2009	December 2009
Eurocopter EC145 (Sydney)	June 2009	February 2010

Source: Contract between Health Administration Corporation and Lloyd Off-Shore Helicopters trading as CHC; Ambulance Aeromedical Operations Centre.

**Costs have increased** The costs of HEMS under the new contract are three times higher than before.

The Business Case prepared in October 2005 reported the cost to Ambulance of the helicopters for Greater Sydney as \$7.8 million in 2004-05. The cost of the new contract in 2008-09 was \$23.2 million, and in 2009-10 was \$26.3 million.

Costs for 2010-11 will be further increased by the operation of all new helicopters since February 2010.

**Implementation issues** Two matters raised in Parliament and the media are claims of overheating of crew and patients due to lack of air-conditioning and the need for a winch on the Orange based helicopter.

**Technical advice said air-conditioning was not required** The 2005 review of technical helicopter requirements stated that:

An air-conditioning system is desirable however the weight of this option may present an unacceptable weight penalty and will be assessed based on the efficiency of the normal ventilation system and the amount of additional weight involved.

The RFT reflected this:

The tenderer is to review the equipment available and provide options with the weight penalty and performance loss if any, and costs as applicable.

Consistent with the review of technical requirements the helicopters were originally ordered without air-conditioning.

Ambulance was not the only helicopter user to identify problems due to lack of air-conditioning. In the northern summer of 2007 the military version of the EC145 was reported as experiencing:

... inadequate ventilation, heat emitted by helicopters electronics, and sunlight streaming through the large windows caused cockpit temperatures to reach 40.5 °C.

Ambulance acknowledged the problem and committed in June 2009 to retrofitting air-conditioning in the EC145 helicopters by February 2010 at a one-off cost of \$1.3 million. The Sydney helicopter was retrofitted by February 2010, but the Orange helicopter will not have air-conditioning until October 2010.

However for technical reasons it does not appear possible to retrofit air-conditioning to the three AW139 helicopters.



**Ambulance analysed demand for a winch** A concern frequently raised is that the EC145 based at Orange is not fitted with a winch. As these generally refer to the ‘rescue helicopter’, this suggests some confusion over its role. The primary responsibility of Ambulance’s helicopters is for medical retrieval, not for rescue.

A November 2006 Ambulance Fact Sheet confusingly stated:

The new contract provides a better response, range of operations, double patient transfer, hoist and poor weather operations for all helicopters in the Greater Sydney Area.

This statement has since been acknowledged as being in error. The RFT issued in May 2006 had not requested a winch for the Orange helicopter.

Ambulance continuously monitors the missions undertaken from Orange to assess whether a winch could have been used. Over the last three years this has averaged less than one potential winch mission every four months. Ambulance concluded that, given the high training requirements, costs and operational risks, such low activity does not justify winch operations with the Orange helicopter.

**Assignment of contract rights must be approved** In an article in the media in December 2009 CHC’s Australian Managing Director stated that:

While no decisions have been made ... it is likely to consider among other alternatives a possible divestiture of our [emergency medical services] ... business unit.

However CHC, on announcing the new Managing Director for Australia in May 2010, confirmed that emergency medical services ‘will ... remain a critical part of the business’.

Ambulance was kept informed of the potential changes. Additionally, rights and obligations under the contract cannot be assigned without Ambulance’s written consent.

**Recommendation** Ambulance should continue to ensure that CHC appraise them of any possible changes in corporate direction that could affect their role in Australia.

## **Outcomes of the new arrangements**

### **2.1 Is the current provider meeting targets?**

The average time for the helicopters to be airborne is meeting contract targets. Availability is meeting contract requirements, with the exception of the Wollongong helicopter.

The systems available to monitor helicopter performance information are not as robust as those used for road operations.

**Availability requirements are being met** The contract with CHC requires Sydney and Wollongong helicopters and crews to be mission ready 24 hours a day, with Orange mission ready between 0800 and 1800.

Average downtime for each helicopter in Greater Sydney from July 2009 to June 2010 is shown in the following table.

Exhibit 3: Downtime in Greater Sydney (average hours per month)		
	Allowable downtime	Actual downtime
Sydney Helicopter 1	20	10.9
Sydney Helicopter 2	20	13.0
Orange Helicopter	20	8.7
Wollongong Helicopter	20	26.4
Total	80	59.0

Source: Ambulance Aeromedical Operations Centre.

Ambulance reviewed the need to extend the operating hours of the Orange helicopter during 2009. The review identified there was not sufficient demand at this time to warrant an increase to a 24 hour service.

**Responsiveness requirements are being met**

The contract with CHC also requires helicopters to be airborne within 15 minutes of a request during the day and 30 minutes for a request during the night. This is reported as mobilisation time.

The contract does not differentiate between the two types of patients and missions undertaken by HEMS:

- primary, or prehospital patients, are those treated at the location where they were injured, and then transferred to the most appropriate hospital
- secondary, or interhospital patients, are those who are already in a hospital, but need to be transferred to another for more appropriate care.

However Ambulance's internal performance monitoring differentiates between targets for prehospital missions (15 minutes by day and 30 minutes at night) and interhospital missions (30 minutes).

The following table shows average mobilisation time for prehospital and interhospital missions.

Exhibit 4: Mobilisation times for HEMS in Greater Sydney					
	2004 (ORH Report)	2006-May 2007 (Previous providers)	Jun-Dec 2007	2008	2009
Prehospital mobilisation time (average; minutes)					
Sydney	8	9	12	10	11
Orange	9	8	8	7	7
Wollongong	NM	9	8	9	11
Interhospital mobilisation time (average; minutes)					
Sydney	20	24	19	18	20
Orange	36	16	15	10	11
Wollongong	NM	13	14	20	20

Source: Ambulance Aeromedical Operations Centre; NM: not measured.

The ORH times were from tasking to engine start, based on a six week sample of flight manifests. The other data are from tasking to takeoff, which can be two to three minutes later than engine start time.

Allowing for the different definitions, this shows no significant change for prehospital mobilisation time. Sydney and Wollongong are slightly slower, but all are well within the contract requirement of 15 minutes.

Interhospital mobilisation times show improvements for Sydney and Orange since 2006-07. Wollongong times appear to have deteriorated from 2007. This is because the service moved to 24 hour operations in January 2008, and the mobilisation time target is 30 minutes at night.

**Some mobilisation times exceed targets**

Despite the above, some missions exceed mobilisation time targets. Ambulance records show that in Sydney, for example, mobilisation times for ten per cent of interhospital missions are 35 minutes or more, exceeding the 30 minute target.

While not a contract requirement, missions taking off later than the 15 or 30 minute target have reduced in number and in percentage of total missions between 2006 and 2009.

**Limitations of performance information**

We are aware of criticisms of the robustness of HEMS performance measurement and reporting.

HEMS performance information is manually compiled. In the rest of Ambulance performance information is provided by the Operations Centre computer systems and the mobile data terminals fitted to ambulances. It is hence more objective and can provide more comprehensive performance information on all phases of an ambulance task.

Ambulance is developing AmbFlight, an improved information system to manage and report operational activity and performance similar to the road Computer Aided Dispatch System.

**Recommendations**

Ambulance should ensure that AmbFlight is implemented and fully functional.

Ambulance should provide more comprehensive information on its HEMS performance to the public.

**2.2 Has the current provider's service improved Ambulance's ability to transport patients to the right hospital at the right time?**

CHC's service has improved Ambulance's ability to transport patients to the right hospital at the right time. Standardisation of helicopters and operating procedures have permitted improvements to reduce the time taken from 000 call to tasking of helicopters for prehospital trauma cases.

The number of prehospital trauma patients being transported to the hospital best suited to meet their clinical needs has increased. There has been a corresponding reduction in the number of interhospital transfers needed.

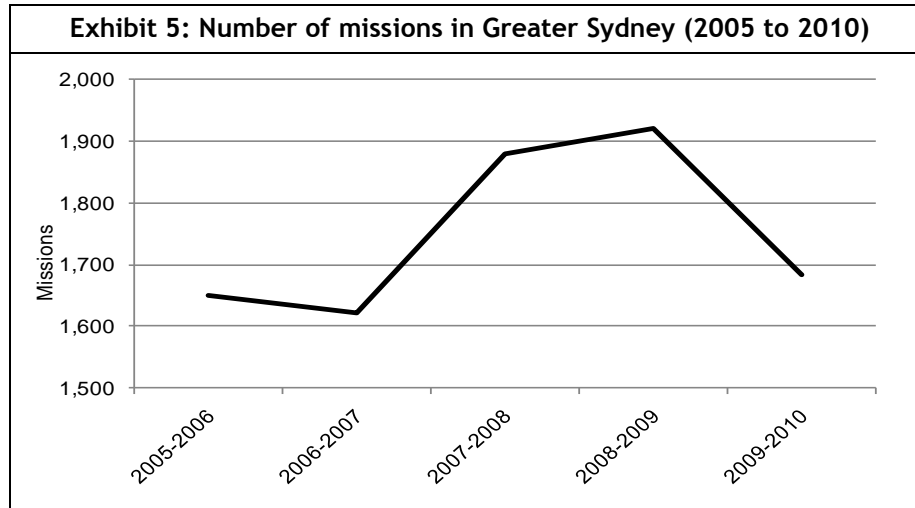
Because of greater helicopter capacity and specialised crews, patients weighing over 120kg and those requiring specialised equipment support can now be transported.

After significant growth in the number of missions flown on the introduction of the CHC contract, the number of missions flown and patients transported in Greater Sydney has decreased in 2009-10. All NSW HEMS services similarly flew fewer missions in 2009-10.

**Increased mission numbers**

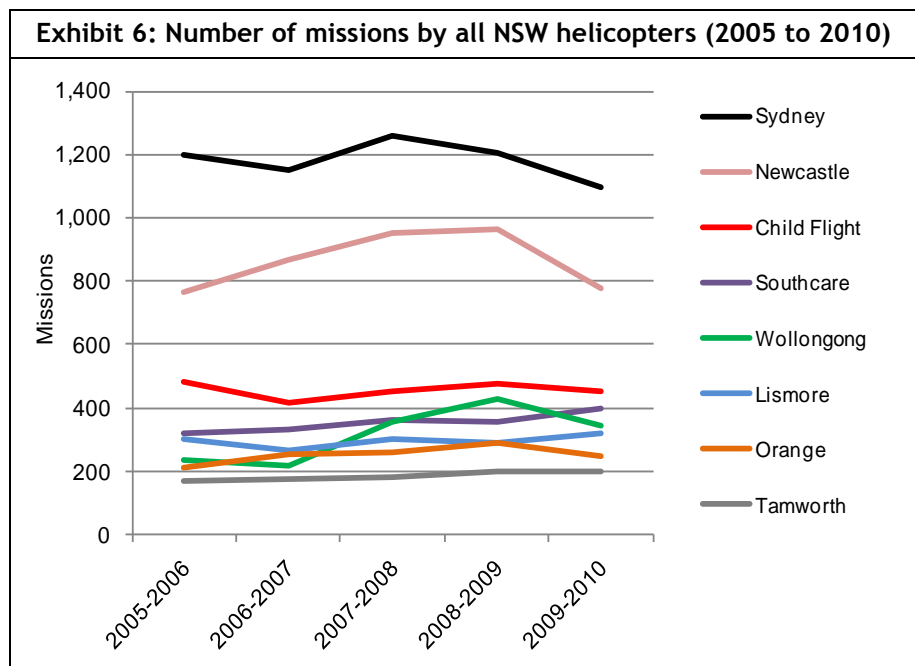
One of the expected benefits of the change process was increases in both primary and secondary missions per helicopter.

As the chart shows, the total number of missions flown increased dramatically when CHC began providing the interim service in 2007.



Source: Ambulance Aeromedical Operations Centre.

As can be seen below, growth in Greater Sydney has been primarily in Wollongong and, to lesser degree, Orange.



Source: Ambulance Aeromedical Operations Centre.

This chart also shows that since 2008 the number of helicopter missions has declined not just in Greater Sydney but statewide. As already noted, Greater Sydney HEMS is meeting contract targets, so the levelling of mission numbers does not appear due to any inability to respond.

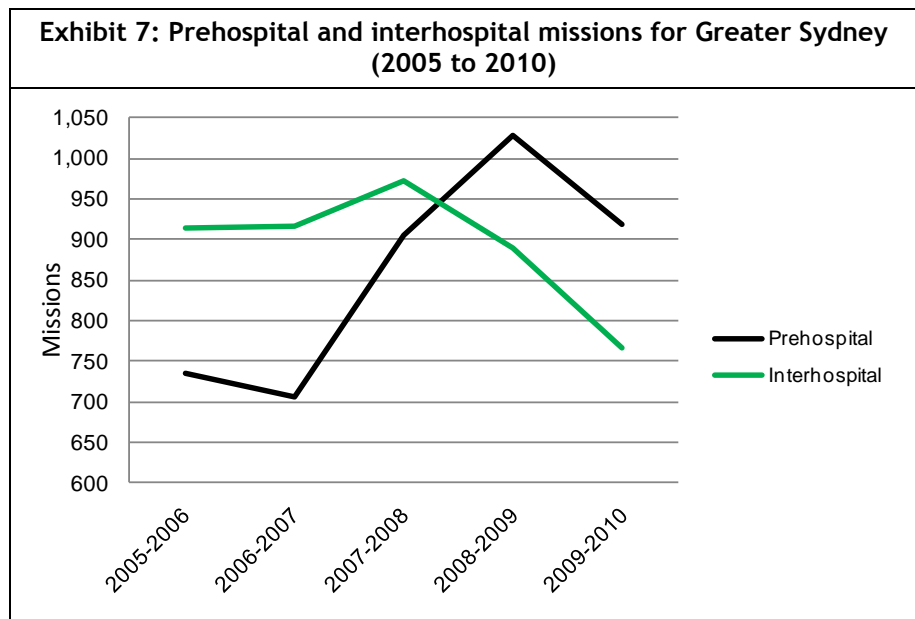
**Clinical benefits achieved**

The contract process has achieved standardised equipment and procedures and increased interchangeability of helicopter and crew. This has allowed Ambulance to pursue other improvements such as standardised doctor-paramedic crewing and an improved ability to identify appropriate trauma cases early. This in turn has facilitated improved clinical treatment of patients.

**Improved service for prehospital patients**

Better patient outcomes are achieved if patients are taken directly to a hospital equipped and experienced in managing their complex needs. Taking more prehospital patients to the right hospital first time reduces the potential for unnecessary interhospital transfers. This is consistent with NSW Health’s current Trauma Services Plan.

Prior to 2007 the number of interhospital missions exceeded the number of prehospital. Since then the number of prehospital missions has grown and now exceeds interhospital missions.



Source: Ambulance Aeromedical Operations Centre.

**Less need for interhospital transfers**

An analysis of transfer rates of trauma patients by helicopter shows that they are now more likely to be taken directly to the hospital that is best able to meet their medical needs rather than being transferred from an incident site to the nearest hospital then to the major care hospital.

The proportion of trauma patients transported directly from rural hospitals without trauma capability to the major trauma hospitals has increased from 30 per cent in 2004 to 39 per cent in 2009. In addition, fewer patients are being transferred from rural Base hospitals (30 per cent in 2004 compared to 21 per cent in 2009).

In addition, longer-range helicopters and quicker tasking mean that interhospital transfers can be arranged earlier. In 2009, 14 per cent of interhospital transfers were initiated while the patient was still at the accident site. This was not able to be done in 2004.

**Number of patients per mission has fallen** The RFT specified two-stretcher capacity for the helicopters based in Sydney and Wollongong and single stretcher for Orange. The actual number of patients per flight has decreased.

	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Patients per flight	0.87	0.86	0.85	0.91	0.84	0.84	0.79	0.80

Source: Ambulance Annual Report data; Ambulance Aeromedical Operations Centre.

**Recommendation** Because of the apparent change in demand across NSW, Ambulance should review the effectiveness of all its helicopter emergency medical arrangements before extending the CHC contract or executing any new regional contracts.

**Quicker tasking of helicopters** Concurrent with the improvements flowing from the contract process, Ambulance undertook other improvement initiatives. A trial in 2008 was aimed at reducing the time taken from the 000 call to tasking for a prehospital case.

The trial demonstrated potential for significant reductions in time from 000 call to tasking for major trauma cases, and was adopted in 2009.

**Improved reliability** Ambulance data show other improvements with the new arrangements in Greater Sydney.

	Jul 2006 to May 2007 (Previous service providers)	May 2007 to Sep 2009 (Current service provider)
Number of days helicopters not suitable for poor weather flying	23 per annum	Nil
Critical care missions delayed or not responded to because of helicopter capacity	72 per annum	Nil except for severe weather e.g. dust storms

Source: Ambulance Aeromedical Operations Centre.

**Other clinical benefits** With the introduction of the new helicopters Ambulance advise it is now able to undertake a range of patient transfers by helicopter that previously could only be undertaken by road. These include:

- transfers of patients with body weight greater than 120kg
- critically ill heart and lung patients needing Extra-Corporeal Membrane Oxygenation (ECMO) machines
- cardiac patients requiring specialised treatment.

**Matters affecting performance** Concerns about the Sydney helicopter base and Orange hospital helipad have been raised in the media.

<b>Sydney helicopter base may not be optimal</b>	<p>The Cornish review had recommended a single base for all Sydney helicopters. CareFlight had previously operated from Westmead Hospital and SLSA's Sydney helicopter from Mascot. However neither of these sites was suitable for a base as they could not accommodate facilities and staff for three helicopters. Bankstown airport was chosen as the only suitable site.</p> <p>However Bankstown is the busiest airport in Australia. Medical staff are located some distance from the helicopters, and CHC's operating procedures preclude vertical takeoff, which potentially increases mobilisation time.</p> <p>Ambulance engaged a consultant to identify a permanent location for the Sydney HEMS base, and received a report in August 2010. A decision has not yet been made.</p>
<b>Recommendation</b>	<p>Ambulance should advise the public on the permanent location for its Sydney HEMS base and its impact on operations once this decision is made.</p>
<b>Problems with Orange hospital helipad</b>	<p>Media reports have stated that 'a loaded helicopter cannot take off from Orange Base Hospital'. A safety audit commissioned by Ambulance and reported in March 2010 expressed significant concerns about the helicopter landing site at Orange Base Hospital. These affected any helicopter, including those that the EC145 replaced. The report recommended some improvements to the landing site and suggested using the Ambulance Orange base, approximately two kilometres away, as an alternative.</p>
<b>Recommendation</b>	<p>Ambulance should ensure, in consultation with the helicopter operators, that the improvements recommended by the safety audit of the Orange Hospital helicopter landing site are followed.</p>
<b>EC145 performance limitations addressed</b>	<p>The performance of the EC145 based at Orange has been criticised in the media and in Parliament:</p> <p>Is the Treasurer aware that the new helicopter ... cannot take off in certain weather conditions ... and must limit the amount of equipment it carries because it is small and underpowered?</p> <p>Ambulance found that the operational capabilities of the EC145 following delivery were less than had been required during the contract process. This was traced to the fitting of an inlet filter to the engines which imposed performance limitations.</p> <p>Ambulance had not been advised of the effect of the filters. Once aware, it sought advice and established that they were not required for safety or as part of the contract. The filters have now been removed, and Ambulance is monitoring the EC145's performance.</p>
<b>Recommendations</b>	<p>Ambulance should ensure through its contract management that helicopter operators gain appropriate authorisation for any changes that may influence the service delivery capacity of helicopters.</p> <p>Ambulance should explore whether any financial compensation should be sought for lost capability resulting from the installation of the inlet barrier filters.</p>





## Appendix

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## **Appendix      About the audit**

**Audit Objective**      This audit examined whether the Ambulance Service of NSW's helicopter emergency medical services contract process and outcomes for Greater Sydney were satisfactory.

**Lines of Inquiry**      In reaching our opinion against the audit objective, we sought to answer the following questions:

1. Was the emergency medical helicopter service contract process managed appropriately?
2. Is the service provided meeting the requirements of the Ambulance Service for its aeromedical operations?

**Audit Criteria**      In answering the lines of inquiry, we used the following audit criteria (the 'what should be') to judge performance. We based these standards on our research of current thinking and guidance on better practice. They have been discussed, and wherever possible, agreed with those we are auditing.

For line of inquiry 1, we assessed the extent to which:

- the contract process had a clear purpose and objectives
- the process was consistent with policies, standards and guidelines.

For line of inquiry 2, we assessed the extent to which:

- the current provider was meeting targets
- the current provider's service improved Ambulance Service's ability to transport patients to the right hospital at the right time.

**Audit scope**      The audit focused on the tender and contract processes for, and the service delivery of, the emergency medical helicopter service provided by CHC in Sydney, Orange and Wollongong.

We looked at:

- the processes of developing the tender specifications, contract requirements, assessment and decision making
- the service delivery of the selected provider through longitudinal reviews of performance and by comparisons with emergency medical helicopter performance elsewhere in NSW.

Helicopter emergency medical services have been subject to much comment in the media and in Parliament. To ensure that we were fully informed, we wrote to nine organisations which have an interest in and knowledge of helicopter emergency medical services. We have attempted in this report to address significant statements or claims made about the process and its outcomes.

This audit did not examine the service provision from:

- the helicopter emergency medical services in Newcastle, Tamworth, Lismore, Canberra or ChildFlight
- the fixed wing air ambulances
- the road ambulances.

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<b>Audit approach</b>	<p>We acquired subject matter expertise by:</p> <ul style="list-style-type: none"> <li>▪ interviewing Ambulance staff involved in monitoring, reporting and evaluating service provision of emergency medical helicopters</li> <li>▪ examining documents for the proposal and tender process, tender assessment and contract negotiations</li> <li>▪ examining independent reviews of the tender process</li> <li>▪ examining records of mission debriefs, governance meetings, and a selection of monthly reports from service providers</li> <li>▪ reviewing relevant policies, standards, guidelines and Protocols</li> <li>▪ analysing performance trends against target and over time and across NSW regions.</li> </ul>
<b>Audit selection</b>	<p>We use a strategic approach to selecting performance audits which balances our performance audit program to reflect issues of interest to Parliament and the community. Details of our approach to selecting topics and our forward program are available on our website.</p>
<b>Audit methodology</b>	<p>Our performance audit methodology is designed to satisfy Australian Audit Standards on Assurance Engagements, ASAE 3500 Performance Engagements, and to reflect current thinking on performance auditing practices.</p> <p>Audits are produced under the Office's quality control policies and practices, including a quality management system certified to International Standard ISO 9001. Our processes have also been designed to comply with the <i>Public Finance and Audit Act 1983</i>.</p>
<b>Acknowledgement</b>	<p>We gratefully acknowledge the co-operation and assistance provided by the Ambulance Service of NSW and NSW Health. We would like to thank all the staff who participated in interviews, assisted with file review or provided other material relevant to the audit.</p> <p>In particular we wish to thank our liaison officers: Dr Ron Manning, Director, Aeromedical and Medical Retrieval Services, Ambulance Service of NSW and Mr Warwick Chant, Manager, Risk Management, Corporate Governance &amp; Risk Management Branch, NSW Health.</p>
<b>Audit team</b>	<p>Our team for the performance audit was Geoff Moran and Sandra Tomasi. Sean Crumlin provided direction and quality assurance.</p>
<b>Audit cost</b>	<p>Including staff costs, printing costs and overheads, the estimated cost of the audit is \$195,654.</p>



## **Performance Audits by the Audit Office of New South Wales**

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## Performance Auditing

### What are performance audits?

Performance audits determine whether an agency is carrying out its activities effectively, and doing so economically and efficiently and in compliance with all relevant laws.

The activities examined by a performance audit may include a government program, all or part of a government agency or consider particular issues which affect the whole public sector. They cannot question the merits of Government policy objectives.

The Auditor-General's mandate to undertake performance audits is set out in the *Public Finance and Audit Act 1983*.

### Why do we conduct performance audits?

Performance audits provide independent assurance to Parliament and the public that government funds are being spent efficiently, economically or effectively and in accordance with the law.

Through their recommendations, performance audits seek to improve the efficiency and effectiveness of government agencies so that the community receives value for money from government services.

Performance audits also focus on assisting accountability processes by holding managers to account for agency performance.

Performance audits are selected at the discretion of the Auditor-General who seeks input from Parliamentarians, the public, agencies and Audit Office research.

### What happens during the phases of a performance audit?

Performance audits have three key phases: planning, fieldwork and report writing. They can take up to nine months to complete, depending on the audit's scope.

During the planning phase the audit team develops an understanding of agency activities and defines the objective and scope of the audit.

The planning phase also identifies the audit criteria. These are standards of performance against which the agency or program activities are assessed. Criteria may be based on best practice, government targets, benchmarks or published guidelines.

At the completion of fieldwork the audit team meets with agency management to discuss all significant matters arising out of the audit. Following this, a draft performance audit report is prepared.

The audit team then meets with agency management to check that facts presented in the draft report are accurate and that recommendations are practical and appropriate.

A final report is then provided to the CEO for comment. The relevant Minister and the Treasurer are also provided with a copy of the final report. The report tabled in Parliament includes a response from the CEO on the report's conclusion and recommendations. In multiple agency performance audits there may be responses from more than one agency or from a nominated coordinating agency.

### Do we check to see if recommendations have been implemented?

Following the tabling of the report in Parliament, agencies are requested to advise the Audit Office on action taken, or proposed, against each of the report's recommendations. It is usual for agency audit committees to monitor progress with the implementation of recommendations.

In addition, it is the practice of Parliament's Public Accounts Committee (PAC) to conduct reviews or hold inquiries into matters raised in performance audit reports. The reviews and inquiries are usually held 12 months after the report is tabled. These reports are available on the Parliamentary website.

### Who audits the auditors?

Our performance audits are subject to internal and external quality reviews against relevant Australian and international standards.

Internal quality control review of each audit ensures compliance with Australian assurance standards. Periodic review by other Audit Offices tests our activities against best practice. We are also subject to independent audits of our quality management system to maintain certification under ISO 9001.

The PAC is also responsible for overseeing the performance of the Audit Office and conducts a review of our operations every three years. The review's report is tabled in Parliament and available on its website.

### Who pays for performance audits?

No fee is charged for performance audits. Our performance audit services are funded by the NSW Parliament.

### Further information and copies of reports

For further information, including copies of performance audit reports and a list of audits currently in-progress, please see our website [www.audit.nsw.gov.au](http://www.audit.nsw.gov.au) or contact us on 9275 7100.

## Performance Audit Reports

No	Agency or Issues Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
206	NSW Health NSW Ambulance Service	<i>Helicopter Emergency Medical Service Contract</i>	September 2010
205	Department of Environment, Climate Change and Water	<i>Protecting the Environment: Pollution Incidents</i>	15 September 2010
204	Corrective Services NSW	<i>Home Detention</i>	8 September 2010
203	Australian Museum	<i>Knowing the Collections</i>	1 September 2010
202	Industry & Investment NSW Homebush Motor Racing Authority Events NSW	<i>Government Investment in V8 Supercar Races at Sydney Olympic Park</i>	23 June 2010
201	Department of Premier and Cabinet	<i>Severance Payments to Special Temporary Employees</i>	16 June 2010
200	Department of Human Services - Ageing, Disability and Home Care	<i>Access to Overnight Centre-Based Disability Respite</i>	5 May 2010
199	Department of Premier and Cabinet NSW Treasury WorkCover NSW	<i>Injury Management in the NSW Public Sector</i>	31 March 2010
198	NSW Transport and Infrastructure	<i>Improving the Performance of Metropolitan Bus Services</i>	10 March 2010
197	Roads and Traffic Authority of NSW	<i>Improving Road Safety: School Zones</i>	25 February 2010
196	NSW Commission for Children and Young People	<i>Working with Children Check</i>	24 February 2010
195	NSW Police Force NSW Department of Health	<i>Managing Forensic Analysis - Fingerprints and DNA</i>	10 February 2010
194	Department of Premier and Cabinet Department of Services, Technology and Administration NSW Treasury	<i>Government Advertising</i>	10 December 2009
193	Roads and Traffic Authority of NSW	<i>Handback of the M4 Tollway</i>	27 October 2009
192	Department of Services, Technology and Administration	<i>Government Licensing Project</i>	7 October 2009
191	Land and Property Management Authority Maritime Authority of NSW	<i>Administering Domestic Waterfront Tenancies</i>	23 September 2009
190	Department of Environment, Climate Change and Water NSW Environmental Trust	<i>Environmental Grants Administration</i>	26 August 2009
189	NSW Attorney General's Department NSW Department of Health NSW Police Force	<i>Helping Aboriginal Defendants through MERIT</i>	5 August 2009
188	NSW Department of Health	<i>Tackling Cancer with Radiotherapy</i>	23 June 2009
187	Roads and Traffic Authority of NSW	<i>Improving Road Safety - Heavy Vehicles</i>	13 May 2009
186	Grants	<i>Grants Administration</i>	6 May 2009

No	Agency or Issues Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
185	Forests NSW	<i>Sustaining Native Forest Operations</i>	29 April 2009
184	NSW Police Force	<i>Managing Injured Police</i>	10 December 2008
183	Department of Education and Training	<i>Improving Literacy and Numeracy in NSW Public Schools</i>	22 October 2008
182	Department of Health	<i>Delivering Health Care out of Hospitals</i>	24 September 2008
181	Department of Environment and Climate Change	<i>Recycling and Reuse of Waste in the NSW Public Sector</i>	11 June 2008
180	Follow-up of 2003 Performance Audit	<i>Protecting Our Rivers</i>	21 May 2008
179	NSW Office of Liquor, Gaming and Racing; NSW Police Force	<i>Working with Hotels and Clubs to reduce alcohol-related crime</i>	23 April 2008
178	Greyhound and Harness Racing Regulatory Authority	<i>Managing the Amalgamation of the Greyhound and Harness Racing Regulatory Authority</i>	3 April 2008
177	Office of the Director of Public Prosecutions	<i>Efficiency of the Office of the Director of Public Prosecutions</i>	26 March 2008
176*	Better Practice Guide	<i>Implementing Successful Amalgamations</i>	5 March 2008
175	Department of Commerce Department of Primary Industries	<i>Managing Departmental Amalgamations</i>	5 March 2008
174	Department of Education and Training	<i>Ageing workforce - Teachers</i>	13 February 2008
173	NSW Police Force	<i>Police Rostering</i>	5 December 2007
172	Department of Primary Industries	<i>Improving Efficiency of Irrigation Water Use on Farms</i>	21 November 2007
171	Department of Premier and Cabinet Department of Commerce	<i>Government Advertising</i>	29 August 2007
170	RailCorp	<i>Signal Failures on the Metropolitan Rail Network</i>	15 August 2007
169	NSW Police Force	<i>Dealing with Household Burglaries</i>	27 June 2007
168	Ministry of Transport	<i>Connecting with Public Transport</i>	6 June 2007

\* Better Practice Guides

**Performance audits on our website**

A list of performance audits tabled or published since March 1997, as well as those currently in progress, can be found on our website [www.audit.nsw.gov.au](http://www.audit.nsw.gov.au).

If you have any problems accessing these reports, or are seeking older reports, please contact our Office Services Manager on (02) 9275 7116.