Report of the Emergency Aeromedical Support Service Working Group

November 2014

An Roinn Sláinte
DEPARTMENT OF HEALTH

Contents

1. Introduction

1.1 Background

There have been a number of calls in recent years for the State to establish or fund an air ambulance service. In 2012, the Minister for Health, with the agreement of the Minister for Defence, initiated a pilot helicopter emergency aeromedical support (EAS) service, in order to determine the need, if any, for such a service and, if a need was established, how best to provide it. The service is operated by the Air Corps, with the National Ambulance Service (NAS), out of Custume Barracks, Athlone. Reserve capacity is provided by the Irish Coast Guard.

The EAS pilot was established in June 2012 as a secondary response service to 112/999 calls. Through a memorandum of understanding between the Departments of Health and Defence, it was agreed that the pilot service would assess the level and type, if any, of dedicated EAS service needed to support the NAS, primarily in the west of Ireland, for certain types of patient, particularly in light of the requirements of the HSE clinical care programmes.

In line with agreed criteria, the EAS crew is tasked by the National Aeromedical Coordination Centre (NACC), at the request of paramedics already at a scene. Taskings are for high acuity patients, generally in the west of Ireland, where the primary responding paramedics consider that a road transfer to an appropriate facility is not possible within a clinically advisable time, having regard to the patient's condition. In addition, simultaneous dispatching of ground and air crews, where merited, has been successfully introduced in certain areas.

1.2 Result of 2013 Review of EAS Pilot

The EAS Audit and Evaluation Group reviewed the pilot service in 2013. The review found that there was a clear clinical need for such a service, in areas where the road transit time to the nearest appropriate facility would not be clinically advisable, given the patient's condition and level of acuity. This applied mostly in the western half of the country, where road networks can restrict rapid road transfer, in particular for serious or time-critical conditions such as stroke, STEMI heart attacks and major trauma.

On the basis of the evidence provided by the pilot service in relation to the level of need for, and clinical benefit from the service, the review report recommended, *inter alia*, that:

- an EAS service should be established, primarily to serve the west of Ireland;

- the Minister should consider how best to provide a dedicated EAS service and that this should include the potential of service provision from all available State resources, including the possibility of a shared service, as well as private and other service providers;
- consideration be given in the medium term to the need to expand the geographical reach of the EAS service, including the possible potential for an all-island partnership approach.

The Minister accepted the recommendations of the EAS Audit and Evaluation Group.

1.3 EAS Working Group

The EAS Working Group was established in late 2013 to implement the recommendations of the report on the review of the EAS pilot programme. The full terms of reference are at Appendix 1 and membership is at Appendix 2. The Group's task was to consider options for the provision, maintenance and development of a high quality service and make appropriate recommendations in relation to:

- the provision of aeronautical support for the service;
- the potential for expansion of the geographical reach of the service, including an all-island approach;
- the inclusion of helipads in future acute hospital capital projects.

1.4 Civil Aviation Control and HEMS

Provision of helicopter emergency medical services (HEMS) operations by a military organisation is highly unusual in the international context. The EAS pilot service, supported by the Air Corps, currently operates under military aviation rules and therefore European civilian aviation regulations do not apply. However, it is the policy position of the Department of Defence that the operation of an established EAS service by the Air Corps must fully meet an equivalent to the civilian aviation standards for such operations.

2. Assessment of Options for an EAS Service

2.1 Objective

The objective of the assessment of options was to identify viable options for the long-term aeronautical support of the EAS.

2.2 Options

The Group considered the following five options for long-term provision of aeronautical support to the EAS;

- Irish Air Corps with support from the Irish Coast Guard;
- Irish Coast Guard (from within its current fleet);
- shared Irish Air Corp/Irish Coast Guard service, based on a geographical divide;
- HSE aircraft ownership with Irish Air Corp or other operation (as for An Garda Siochana);
- commercial provider.

2.3 Assessment Criteria

As set out in the terms of reference, the Group considered each option against the following criteria:

- quality of service;
- access;
- governance;
- cost and value for money;
- sustainability of service provision.

2.4 Summary of Assessment

The full assessment of the five options is at Appendix 3. The assessment summary is as follows.

	Quality	Access	Governance	Cost/VFM	Sustainability
Air Corps with Coast Guard Support	Very good	Very good	Very good	€2.6 m + permanent hangar and other facilities	Challenging
Coast Guard from Current Fleet	Good	Acceptable	Acceptable	€3.81-4.01 m + €634 k in year 1 for 12 hour roster + €800 k survey costs	Very good
Shared Air Corps/ Coast Guard	Good	Acceptable	Unsatisfactory	€3.68-4.44 m + €800 k survey costs	Very Good
HSE-owned Aircraft Operated by Air Corps/ Other	Very good	Very good	Very good	€8-12 m + annual operating costs	Challenging
Commercial Provider	Very good	Acceptable	Very good	€3.78-6.9 m + €800 k survey costs	Very good

The Group considered that neither the shared Air Corps/Coast Guard provision nor the HSE aircraft ownership, with Air Corps or other operation, sufficiently met the criteria to warrant further examination.

- The shared service option would effectively mean two services providing the same overall activity level as at present, but to a lower clinical standard in the western region. The benefit of this arrangement would be that the Air Corps aircraft and crew could operate from Baldonnel, with a substantial cost saving compared to basing a helicopter and five crew in Athlone seven days a week. The operation of the EAS from Athlone represents a resource pressure for the Air Corps but this could

be reduced very significantly if the service operated out of Baldonnel. Based in Baldonnel, however, the Air Corps aircraft would focus on the eastern part of the country, whereas the focus of and need for the EAS is primarily on the west. A shared service would also be inequitable as the Coast Guard, which under this arrangement would focus on the west and take the bulk of calls, is crewed by paramedics who only provide basic life support to patients, whereas the Air Corps aircraft, serving the eastern part of the country, would be crewed by NAS advanced paramedics, providing advance life support in line with Pre-Hospital Emergency Care Council (PHECC) recommendations.

- For the HSE to acquire an aircraft, with a view to its operation by the Air Corps or other party, it is considered that the capital costs of the acquisition of the aircraft and the ongoing maintenance costs would be unacceptably high in the current climate. In addition, without a back-up aircraft, the EAS would be unavailable during planned or other maintenance unless an arrangement is made for back-up from existing State resources. It should also be noted that, in the main, the resource pressures on the Air Corps relate to personnel rather than aircraft. Thus, acquiring an aircraft would not ease those pressures and the long term sustainability of the EAS, because of its dependence on Air Corps pilots and technicians, would still be an issue.

3. Review of Viable Options

3.1 Viable Options

The three options considered potentially viable for long term EAS support are:

I. Provision by the Irish Air Corps with support from the Irish Coast Guard

II. Sole Irish Coast Guard provision from within its current fleet

III. Commercial provider

3.2 Service Requirements

The requirements for aerial support to the EAS service are based on assessment and planning of the pilot project and the experience and data gained from two years operation to date. It is noted that some requirements, such as for two pilots, differ significantly from typical HEMS operations in other jurisdictions. However, such operations, in particular in the UK, tend to be short range over limited geographical areas with high population densities and are less focussed on high acuity patients, so operational and clinical needs differ from those of the EAS.

The three options selected for further consideration all meet the assessment criteria, albeit with some significant qualifications. Specific issues in relation to the service requirements for each option are set out below, followed by a cost comparison.

3.3 Requirements for EAS Service

The basic requirements for an EAS service are:

- a two pilot, twin engine light-medium or medium lift helicopter, equipped for the provision of pre-hospital emergency care to high acuity patients, in particular patients with STEMI, stroke and major trauma;
- based in the target area (west), for daylight operation, seven days a week, 365 days a year;
- sufficient range for at least the current coverage, primarily for the western half of the State, and for re-tasking without returning to base;
- clinical decision-making on tasking by NAS, with aeronautical decision-making by provider;

- advanced life support, as recommended by PHECC, in view of the service's focus on high acuity patients;
- direct tasking through a single command and control entity (NACC);
- sufficiently short scramble time to allow effective responses to time-critical taskings, such as STEMIs;
- provision of a service that is operated in line with the civilian aviation standards for such operations.

Preferred features include:

- scalable for extension to Northern Ireland if required.

3.4 Options

Option 1 Air Corps Provision with Irish Coast Guard Support

I. This is the current service provision, involving the following.

- A dedicated aircraft (two pilot, medium lift AW139[1]) at Custume Barracks, Athlone, specifically equipped for high acuity patients.
- Based in the target area, seven days a week in daylight hours, with crew, operational and communications facilities on site, temporary overnight hangar, fuel and some maintenance capacity.
- Crewed by NAS advanced paramedics, who are trained to provide advanced life support to the patient.
- Direct tasking of the aircraft, following a request for EAS assistance by ground ambulance personnel, and assessment and triaging of that request by the NACC.
- In line with a memorandum of understanding between the HSE and the Irish Coast Guard, Coast Guard provision up to 12 EAS missions free per month in support of ground ambulance services. (In addition, the Coast Guard provides, under its remit and at no cost to the HSE, search and rescue missions ie where NAS land ambulances do not have direct access to a patient or incident site, such as locations that are inaccessible by road, offshore islands or cliff or mountain rescues.)
- Air Corps costs are recouped from the HSE by the Department of Defence on a quarterly basis.

[1] The pilot service was initially provided by a smaller single pilot EC135 helicopter, which was similarly equipped.

II. Apart from a heavy landing incident in the early weeks of the pilot service, in which nobody was seriously injured but which caused considerable damage to the EC135 helicopter, the current service has been very effective, both operationally and clinically. Up to the end of September 2014, the Air Corps completed 787 taskings for the EAS, of which just under one third were STEMI time-critical missions. The NAS and the Air Corps have engaged very productively. The current model meets the service requirements, although sustainability is recognised as a challenge in the medium term. Turnover of pilots and ground crew is an ongoing issue for the Air Corps and the Department of Defence, and the Athlone placements have contributed to these resource pressures.

III. In terms of scalability to cover Northern Ireland, this service model could be adapted by potentially basing the Air Corps aircraft further south in a military installation, leaving the northern part of the country to be covered by a second, non-Air Corps, aircraft.

IV. Advantages of this model include the following.

- Cost-effective use of existing state assets.
- Advanced life support is available at all times from the primary provider, in line with PHECC recommendations, as the NAS deploys its own advanced paramedics to operate the EAS service.
- There is reserve capacity available from the Coast Guard, albeit not to the same clinical standard as NAS advanced paramedics.
- It provides a valuable source of flying experience for Air Corps pilots.

V. Difficulties include the following.

- The Air Corps faces challenges with retention of flying and technical staff, resulting in resource pressures in servicing its rotary wing services. The White Paper on Defence may result in an expanded military role for the Air Corps, including a possible overseas role, which may restrict its ability to support the EAS service in the medium to longer term.
- During the period of the pilot, the Department of Defence has recouped the costs of Air Corps participation from the HSE by way of Appropriations-in-Aid. This is very unsatisfactory from the perspectives of the Air Corps and the Department of Defence as it means that all costs are met from the Defence Vote without direct re-imbursement.

Option 2 Sole Irish Coast Guard Provision from Within Its Current Fleet

I. This option would be operated by the Canadian Helicopter Corporation (CHC) under the current Irish Coast Guard (IRCG) contract, as follows.

- Service provided by Sikorsky S92 aircraft on an as available basis, primarily from the two western IRCG bases at Shannon and Sligo.
- The aircraft are commercial assets, provided under contract to the IRCG by CHC.
- CHC provides the clinical staff and equipment.
- Crewed at paramedic level only ie basic life support.
- 12 free EAS missions to the HSE per month. After that, charged at €3,000 an hour, plus monthly and other standing charges, or else a flat rate of €4,500 per hour flown with no fixed charges.
- Indirect tasking by the NACC, requested through IRCG dispatch centre and regional control. (The IRCG could operate with direct tasking but has chosen not to do so).
- Operation and landing sites subject to civil regulation.

II. The Coast Guard option, under its current operating arrangements, partially meets service requirements. However, the IRCG's principal activity is search and rescue (SAR), with HEMS as a secondary role. If the IRCG is to become the sole provider of the EAS, it is likely that a Government decision will be required to include HEMS as a principal activity and thus ensure that there is no risk that EAS/HEMS missions would be diverted to SAR. The Department of Transport has been consulted and, following an initial consideration, has confirmed that it may be possible for the Coast Guard to provide additional support to the HSE; the costs of such additional support would of course be borne by the HSE.

III. Under this service model, the IRCG requires that tasking of the aircraft would be routed through its dispatch centre. Thus, ground ambulance crew would request air support from the NACC; having considered the request, the NACC would make contact with the IRCG dispatch centre, which would dispatch an aircraft, if available, from one of its bases. The Group has been advised that such indirect tasking could have patient safety implications, as it has the potential to lead to delays in tasking. The evidence available from the Scottish Ambulance Service, which was contacted by the Group with a view to learning from its experience of HEMS operations, confirms that indirect tasking can produce significant deployment delays and data transfer issues.

IV. The fact that IRCG aircraft are crewed by paramedics, rather than advanced paramedics, is also a real concern. The EAS, of its nature, deals with the most seriously ill and time-critical patients. PHECC has advised that, as the EAS is primarily for high acuity patients, the minimum level of clinical support and intervention should be a practitioner with advanced life support skills, which is an advanced paramedic.

V. Benefits of this arrangement include the following.

- A pooled resource of up to four two pilot aircraft, from bases in Dublin, Waterford, Shannon and Sligo, with the possibility that more than one aircraft could be tasked concurrently.
- Coverage of the entire target area within STEMI range, if the nearest aircraft is available.
- The S92 is faster and has a greater range and better weather resilience than the AW139.
- There is an established operational relationship with the NAS.
- This could be extended to encompass Northern Ireland – the contract with CHC provides for the commissioning of an additional aircraft (if one were required).

VI. Difficulties include the following.

- This is not a dedicated EAS resource, so the service is only available if an IRCG aircraft is available. While it is highly unlikely that all IRCG aircraft would be simultaneously deployed, it may be the case that the nearest resource is not available, which means potentially longer response times, greater cost and, despite better target area coverage, STEMI patients may still be outside the clinical transfer time.
- Indirect tasking. Under this service model, the IRCG requires that tasking of aircraft is routed through its own control centre.
- Provision of basic life support only, when the EAS deals almost exclusively with very high acuity cases. Difficulties could arise if advanced treatment was commenced by an advanced paramedic (AP) on the ground, as the AP would be required to accompany the patient in the aircraft. This would mean that the local emergency response resource would be diluted, as an ambulance/rapid response vehicle would be off the road until the ground AP returned. The logistics of returning the ground AP presents more difficulties, as it would require return by ambulance/rapid response vehicle, which would mean taking a vehicle out of commission and consequently reducing the local emergency response service, or by helicopter

(provided the aircraft has not been re-tasked in the interim) with associated flying hours charges.

- CHC has advised that it would not be in a position to carry NAS APs on board to fulfil the advanced life support requirement for primary service provision. Training full-time CHC staff to AP level would cost over €100,000 per person and take over a year to complete per AP. To bring sufficient numbers of CHC paramedics to AP standard would take several years and, during the training period, the HSE would have to pay for paramedic cover for CHC staff attending training. However, even if it were possible to upskill sufficient numbers of staff, the volume of high acuity paramedic activity may not be sufficient for skill maintenance – NAS APs are routinely rotated back to land ambulance duty to address this issue. Also, there would be an ongoing training need, because of CHC staff turnover.
- The Sikorsky S92 is a very large aircraft for this role. This produces limited rendezvous and incident site access, and hospital landing restrictions compared to the AW139.
- As the IRCG fleet is not a state asset, the aircraft are subject to civil aviation controls, including limitations on landing sites. Currently, the IRCG has only approximately 50 approved landing sites, compared with a significantly higher number of approved landing sites utilised by the Air Corps (including sports fields). To provide additional landing sites would necessitate a survey at each site, at a cost of €550 per site.
- As a back-up resource, the IRCG currently provides 12 missions a month to the HSE, or approximately 240 hours flying time a year. If the IRCG were to become the sole provider of the EAS, the EAS flying hours requirement would increase to over 700 hours a year (240 + 480 currently provided by the Air Corps). While feasible, this requirement would stretch IRCG resources and increase the risk of concurrent tasking between EAS and SAR, with potential delays for time-critical patients and consequent patient safety issues.
- The IRCG is subject to regulation by the Irish Aviation Authority (IAA). Different rules apply to HEMS and SAR missions; HEMS has much stricter controls in terms of crew flying, landing etc. While the IRCG operates a hybrid SAR/HEMS model, the bulk of the work is SAR, and so, with the agreement of the IAA, the IRCG operates under SAR rules. However, if the IRCG increases HEMS missions to over 700 hours a year, it is very likely that its HEMS services would have to operate under the more restrictive HEMS rules. In this situation, there would have to be a move to rostering staff on a 12 hour, rather than a 24 hour, basis. This would have very significant

cost implications. CHC has estimated that such a roster change would cost in the region of €2m annually, with additional costs in year 1.

- While the IRCG has provided assurance that the contract with CHC allows for the provision of greater flying hours for HEMS missions, nonetheless it will be necessary to take legal advice on whether any procurement issues arise in what would effectively represent a subcontracting arrangement with the HSE/NAS for the EAS.

Option 3 Commercial Provision with IRCG support

I. If it were decided that aerial support for the EAS should be provided on a commercial basis, any contract would presumably reflect the current service arrangements and would therefore comply with service requirements. In addition, the flexibility required for a potential expansion to an all-Ireland service could be factored into the procurement process.

II. A commercial provider has the following advantages.

- While initiation might take some time, because of civilian HEMS approval requirements, the replication of existing service arrangements would allow for a seamless change-over and for service continuity for the NAS and HSE.
- The choice of aircraft is flexible. For example, a light-medium lift aircraft (such as an EC145) with two pilots would realise a significant saving over commercial provision of an AW 139 or equivalent.
- NAS clinical staff and equipment on board would provide advanced life support.
- Direct tasking by NAS NACC.
- Such an operation would be scalable to all-island coverage.

III. Difficulties include the following.

- This model is subject to civil aviation control, including limitations on landing sites. Currently, there are no approved landing sites available to a commercial operator and these would have to be approved at survey costs of €550 per site, with a significantly longer lead-in time to the start of the service.
- A smaller aircraft potentially limits the service's range, reducing access at the periphery and increasing the need for a second aircraft.
- A new base and facilities would need to be established.

- The lead-in time would be significant, with a full procurement process, regulatory approval, base development and integration with NAS operations.

3.5 Cost Comparison

3.5.1 The three options represent two service models – dedicated and pooled provision. While options one and three are effectively the same model, there is potentially a considerable cost variation between aerial support provided by the Air Corps and that by a commercial provider. Option two (IRCG) has significant service delivery differences. However, the model is less satisfactory from a clinical perspective and the cost should be considered in that context.

Option 1 Air Corps Provision - AW 139

Cost per hour:	€3,039
Cost for 480 hours:	€1,458,720
Fixed annual cost:	€744,096
Total annual cost:	€2,202,816[2]
HSE costs:	€400,000
Total cost:	€2,602,816[3]

Option 2 Commercial Provision

The cost of commercial provision would be determined by a tender process. However, estimates have been made on the basis of commercial information provided to the Department of Health. Totals include HSE costs of €400,000 a year.

Total annual cost - AW 139 or similar: €6,900,000
Total annual cost - EC 145 or similar: €3,780,000

Option 3(a) Irish Coast Guard Provision – S92 Pool: hourly rate and standing charges

Cost per hour: €3,000
Cost for 480 hours: €1,440,000
Landing charges: €100,241
Fixed annual cost: €820,992
Total annual cost: €2,361,233[4]

[2] All of these costs are subject to annual review by the Department of Defence's Cost Accountant.
[3] Establishing the service at a military installation will require capital investment by the HSE for a permanent hangar and facilities, as well as ongoing maintenance costs. The Defence Forces estimate that such a facility could take two years to complete from project commencement.

Move to 12 hour roster:
Once-off cost year 1: €634,538
Ongoing cost: €1,648,000
Total cost year 1: €2,282,538

Total cost with 12 hour roster year 1: €4,643,771
Total cost with 12 hour roster ongoing: €4,009,233

Option 3(b) Irish Coast Guard Provision – S92 Pool: flat hourly rate without standing charges

No fixed annual cost – pay as you go type arrangement
Cost per hour: €4,500
Cost for 480 hours: €2,160,000

Move to 12 hour roster:
Once-off cost year 1: €634,538
Ongoing cost: €1, 648,000
Total cost year 1: €2,282,538

Total annual cost with 12 hour roster year 1: €4,442,538
Total ongoing annual cost with 12 hour roster: €3,808,000

3.6 Consideration of Other Issues

3.6.1 Extension of EAS Coverage

I. Considerable discussion was held on this issue, particularly the potential for an all-island service. The Group was concerned to avoid making recommendations that might hinder the future development of a wider or all-island service.

II. The evidence from the pilot shows that there is a clear clinical need for aeromedical support to the NAS, for the transport of high acuity and time-critical patients, primarily in the western half of the State. Because of the significantly better road network in the eastern half of the country, there does not appear to be as great a need for such support beyond currently available resources.

III. The DHSSPS participated in the EAS Group in order to explore the potential for an all-island air ambulance and/or HEMS service, following agreement between both Health

[4] Costs based on the operation of a 24 hour roster; however as indicated it is expected that the IAA would apply HEMS rules to the EAS in which case a move to a 12 hour roster would be required. No HSE costs in this model.

Ministers that this option should be explored. The DHSSPS is currently considering a report on the feasibility of providing a HEMS service for Northern Ireland. It is proposed to continue discussions between both departments, in light of both this report and the NI feasibility report.

3.6.2 Inclusion of Helipads in Future Acute Hospital Capital Projects

I. Current hospital helicopter access is poor, for inter-hospital transfers, organ transplant teams and for the EAS and SAR. Only four of the Model 4 hospitals have helipads and of these, only two have unrestricted access for Coast Guard helicopters. There is only one operational on-campus helipad in Dublin and none of the major children's hospitals has helicopter access. Only one hospital has direct access from the helipad to the ED.

II. In these circumstances, it is considered that all proposed Model 3 and Model 4 hospital developments should include the provision of ground level helicopter access, to facilitate current and future transport models. Helicopter landing pads should be provided as close to the ED as possible, to allow for quick transfer of the patient from the aircraft. As the IRCG S92 is not approved for elevated landing pads, the development of rooftop helicopter pads is not recommended.

4. Conclusions

4.1 Viable Models

The Group has identified two possible models for aerial support to a permanent EAS service.

i. A dedicated aircraft, with direct NAS tasking and pre-hospital care at advanced life support level, through either state or commercial provision and with IRCG support.

ii. Provision of a shared aircraft from within pooled IRCG resources, with indirect NAS tasking and pre-hospital care at basic life support level.

4.2 Model Options

4.2.1 Dedicated Aircraft with IRCG Reserve Support

I. This is the preferred clinical model in terms of patient safety and quality. The aircraft is dedicated to delivering EAS support and will not be diverted to SAR or other activity. It allows provision of advanced life support in transit, through NAS advanced paramedics, and continuity of advanced life support on handover from the ground crew, as well as delivery of advanced life support to an incident where required. Direct tasking of the aircraft by the NAS NACC reduces dispatch time and the capacity for error in data transfer.

II. There are two options for this model – provision from within existing state resources (the Air Corps fleet of medium lift AW139 helicopters) or provision by a commercial operator. The two options, for the same service, differ in two respects.

- Price: the cost of Air Corp provision may be significantly lower than commercial provision (estimated at about one third of the cost for an equivalent aircraft to the Air Corps' AW 139 and 60% of the cost for a smaller commercial craft).
- Commercial provision would allow for the potential use of a smaller twin engine, two pilot aircraft, as the provider would not be constrained by the Air Corps' need to use a fleet helicopter. However, an EAS commercial arrangement with a light-medium lift helicopter, with a smaller range, would still cost more than the EAS supported by the Air Corps with a larger aircraft.

III. Air Corps provision represents better value for money to the Exchequer than commercial provision and allows for the greater utilisation of existing state assets. The wide availability of approved landing sites around the country, which reduces the transit time for interception and facilitates near-incident landings, means that patient safety

risks are minimised. It is also noted that a change in provider would present operational challenges to the NAS during transition.

IV. The Department of Defence has identified concerns in relation to the availability of sufficient numbers of pilots; the fact that the EAS operates out of Custume Barracks, Athlone with a dedicated crew presents sustainability challenges, but if the service operated from Baldonnel resource pressure and costs to the HSE would be significantly reduced. However, from the NAS and Department of Health perspectives, operating the service from Baldonnel is not an option, as the aircraft is required to be located in the target area – the west.

V. Commercial provision is more expensive than the Air Corps, but there are no concerns over sustainability. As civil aviation regulations apply, it is likely that the IAA would place some initial restrictions and other requirements on the service/new provider, so there may be a significant lead-in time to full operation. At the outset, there would be very few approved landing sites and considerable expenditure in surveying and getting approval for an adequate number. Engaging a provider would have to be done through the procurement process.

4.2.2 IRCG Pooled Aircraft

I. The pooled aircraft model has operational benefits, but significant clinical disadvantages, compared to the dedicated service model. Benefits arising from access to the larger Sikorsky 92 aircraft and fleet include coverage of the entire target area, greater poor weather performance and resilience against multiple tasking requirements.

II. However, direct tasking of aircraft is not available and, because the aircraft are crewed by CHC paramedics (no NAS clinical staff or equipment on board), only basic life support is supplied in flight. With the EAS focus on high acuity patients, the lack of advanced life support means that vital care may not be available in transit, handovers from the ground crew may see advanced life support discontinued in flight and it would not be possible to bring advanced life support to an incident site if required. While this may be acceptable in a reserve capacity, it is not so for primary provision.

III. The IRCG fleet operates under civil control. If the IRCG service increases the focus on HEMS, the IRCG and its contractor, CHC, have advised that it is likely that a move from the current 24 hour to a 12 hour roster will be required as a condition of licencing and this would have a significant impact on the costs of operating the service.

IV. In addition, as for commercial provision of a dedicated aircraft, a much greater number of landing sites would need to be surveyed and approved. The size of the S92 presents additional challenges in acquiring suitable landing sites.

V. In light of uncertainty over any required extension of arrangements with the current contractor, it will be necessary to obtain legal advice on any procurement issues if this option is chosen.

4.3 Recommendations

4.3.1 Provision of Aeronautical Support for the EAS

I. The options, in order of preference, are as follows.

i. The preferred model is continued service provision by the Air Corps, providing advanced life support and with reserve capacity provided by the IRCG.

ii. From a patient safety and quality perspective, the next most clinically preferable option is a dedicated aircraft from a commercial provider, which also provides advanced life support; however, this option would have resource implications for the HSE and additional funding would be required.

iii. The least preferred model is pooled provision by the IRCG. Although offering the possibility of concurrent EAS taskings, this is the most problematic for clinical and governance standards, with neither direct tasking nor advanced life support. In addition, in light of detailed discussions with the IRCG in relation to the potential need for rostering changes, it may not offer any significant cost advantage over a dedicated commercial model.

4.3.2 Potential for Expansion of Geographical Reach of Service, Including an All-island Approach

I. The Ministers for Health in both jurisdictions are in favour of examining the possibility of a future all-island EAS service. All of the three options recommended are suitable for expansion to an all-island service.

II. The DHSSPS is currently considering a report on the feasibility of providing a HEMS service for Northern Ireland. The DHSSPS notes the findings and recommendations in this report and it is proposed to continue discussions between both departments, in light of this report and the NI feasibility report.

4.3.3 Inclusion of Helipads in Future Acute Hospital Capital Projects

It is recommended that all future acute hospital developments in the State take into consideration the need for inclusion of a ground helipad, to facilitate the arrival of patients via the EAS and SAR, inter-hospital transfers and the transport of organ transplant patients and teams.

Appendix 1

EAS Working Group Terms of Reference

The review of the pilot Emergency Aeromedical Support Service demonstrated a clinical need for the service and recommended that the Minister for Health consider how best to provide a dedicated service in the target area, with a particular emphasis on the west of Ireland. In these circumstances, a working group, chaired by the Department of Health and including representatives of the Departments of Health, Defence, Public Expenditure and Reform, the Health Service Executive, the National Ambulance Service, the Pre-Hospital Emergency Care Council and the Department of Health, Social Services and Public Safety, will be established to:

1. Consider options for the provision, maintenance and development of a high quality service and make appropriate recommendations in relation to:
   - the provision of aeronautical support for the service;
   - the potential for expansion of the geographical reach of the service, including an all-island approach;
   - the inclusion of helipads in future acute hospital capital projects.

2. In considering options for the service, the Group shall have regard to:
   - quality of service;
   - access;
   - governance;
   - cost and value for money;
   - sustainability of service provision.

3. The Group shall, in particular, examine the options for dedicated aeronautical support, including but not limited to:
   - The Air Corps
   - The Irish Coast Guard
   - Shared Air Corp/Irish Coast Guard provision
   - HSE aircraft ownership with Air Corps or other operator
   - Commercial providers

4. The Group shall report its findings, with an implementation plan, to the Minister by 20/2/2014.

Appendix 2

EAS Working Group Membership

Joan Regan, Department of Health (Chair)
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Daniel Kelly/Dreena Evans, Department of Health, Social Services and Public Safety (Northern Ireland)

[5] DPER withdrew from the Group after three meetings on the basis that they did see not a need for their continued involvement in regularising SLA agreements for the EAS. However, they remain concerned about the overall funding context of the EAS.

Appendix 3

Options Assessment Tables

Options for Establishment of Emergency Aeromedical Support Service

Option	Criteria	Assessment – does this option meet the criteria?
Air Corps with Coast Guard support	Quality of service	- Advanced life support, with NAS clinical staff and equipment - Current service works well
	Access	- Northwest/southwest: STEMIs outside IAC range and are covered by IRCG - Wide coverage of ALSs - Potential difficulties for Air Corps operating in Northern Ireland
	Governance	Direct tasking of resource
	Cost/value for money[1]	- **€2.6 m pa** for 480 hours (current service level) + hangar and facilities - Consideration needs to be given to options for direct reimbursement of Air Corps costs, including the possibility of introducing a mechanism for the HSE to pay for some service elements directly - Includes 144 missions free from IRCG
	Sustainability of service	- Retention of crews is an issue for Air Corps/Department of Defence - Potential resource pressure from White Paper on Defence, if an overseas role for the Air Corps is provided
Irish Coast Guard provision with current fleet	Quality of service	- Basic life support, with contractor's clinical staff and equipment - Potential skill retention difficulties for IRCG - currently NAS rotates clinical staff between air and land service - Limitation on HEMS taskings before 1 pm under current 24 hour rostering – would need to move to 12 hour shifts - Increased EAS activity (from 240 to 700+ hours) increases risk of concurrent taskings
	Access	- All of target area covered - Better range, weather capability - Longer scramble time - Size of Sikorsky may mean access/landing difficulties: capital investment needed for ground level hospital helipads - S92 may be too large for purpose - Only ca. 50 ALSs: 1500 additional sites required, at €550 per site
	Governance	- Indirect tasking by NAS, through IRCG control centres -

		potential for comms and other problems as tasking is more complex, delays and data error - IRCG is not a dedicated HEMS service: Government decision required to prioritise HEMS as well as SAR; HEMS regulatory approval needed - No resource tracking available to NACC
	Cost/value for money[1]	**- €4.01 m year 1** ongoing for 480 hours at €3,000 per hour with other charges, 12 hour roster, plus: - 634 k in year 1 for 12 hour roster - site survey costs €800,000+ **- €3.81 m pa** ongoing for 480 hours at flat rate of €4900, 12 hour roster, plus: - 634 k in year 1 for 12 hour roster - site survey costs €800,000+ - Additional 144 missions free from IRCG
	Sustainability of service	- Provision of more HEMS hours will place greater regulatory requirements on IRCG - Likely need to move from 24 hour to 12 hour rosters to provide HEMS
Shared Air Corps/Coast Guard provision on geographic basis	Quality of service	IRCG: - Basic life support, with contractor's clinical staff and equipment - Potential skill retention difficulties for IRCG: currently NAS rotates clinical staff between air and land service - Limitation on HEMS taskings before 1 pm under current 24 hour rostering - Increased EAS activity (from 240 to 700+ hours) increases risk of concurrent taskings IAC: - Advanced life support, with NAS clinical staff and equipment Both: - Inequitable, as only some areas with advanced life support
	Access	IRCG: - All of target area covered, with Sligo and Shannon main activity bases - Better range, weather capability in target area - Size of S92 may mean access/landing difficulties: capital investment needed for ground level hospital helipads - S92 may be too large for purpose - Only ca. 50 ALSs: S92, under civilian HEMS rules, cannot use IAC ALSs, so 1500 additional sites required, at €550 per site IAC: - Service restrictions if Air Corps service based in Baldonnel - Potential difficulties for Air Corps operating in Northern Ireland

	Governance	IRCG: - Indirect tasking by NAS, through IRCG control centres - potential for comms and other problems as tasking is more complex, delays and data error - IRCG is not a dedicated HEMS service: Government decision required to prioritise HEMS as well as SAR; regulatory approval needed - No resource tracking available to NAS IAC: - Direct tasking Both: - Potential for comms issues with complexity of primary tasking across two services
	Cost/value for money[1]	- Based on 3-1 IRCG/IAC activity split: **- €4.11 m pa** for 480 hours, IRCG fixed charges, 12 hour shifts, plus site survey costs €800,000+ **- €3.68 m pa** for 480 hours, IRCG flat rate, 12 hour shifts, plus site survey costs €800,000+ - Effectively funding two services - Logical geographic option (east/west divide) increases the cost but not the service, as most activity is in the west and the eastern service would be underdeployed
	Sustainability of service	IRCG: - Provision of more HEMS hours will place greater regulatory requirements on IRCG - Likely need to move from 24 hour to 12 hour rosters to provide HEMS IAC: - Retention of crews an issue for Air Corps - Potential move to civilian regulation for HEMS may be an issue - Potential resource pressure from White Paper on Defence, if restrictions on overseas operations are lifted
HSE ownership: Air Corps/other operation	Quality of service	- Advanced life support, with NAS clinical staff and equipment
	Access	- Depends on location of base and type of aircraft
	Governance	- Direct tasking
	Cost/value for money[1]	**- 12m + annual operating costs** for AW 139 or equivalent medium lift **- 8m + annual operating costs** for EC 145 or equivalent light-medium lift - Significant capital cost, plus back-up resource unless incorporated into IAC fleet
	Sustainability of service	- Retention of crews an issue for Air Corps - Potential move to civilian regulation for HEMS may be an issue - Potential resource pressure from White Paper on

		Defence, if restrictions on overseas operations are lifted
Commercial Provider via RFT	Quality of service	- Advanced life support, with NAS clinical staff and equipment
	Access	- Depends on location of base and type of aircraft
	Governance	- Direct tasking - Significant lead-in time to establish service
	Cost/value for money[1]	**- €3.78 m pa** for twin pilot light-medium lift craft **- €6.9 m pa** for twin pilot medium lift aircraft - Site survey costs €800,000+ and capital costs for hangar and base
	Sustainability of service	- Contracted service: sustainable for contract term but needs guaranteed funding

[1] Exclusive of approx €400,000 pa for NAS supply of staff and equipment

Assessment of Top Three Options for EAS Support

Option	Service Quality	Access	Governance	Annual Cost/VFM*	Sustainability of Service
Irish Air Corps (IAC) with Irish Coast Guard Support	Current service works Advanced life support with NAS clinical staff	NW/SW outside IAC STEMI range, covered by IRCG Large number of ALSs	Direct tasking	€2.6 m: 480 hours + hangar and facilities 144 free IRCG support missions Options for direct reimbursement of Air Corps costs will need to be examined	IAC crew retention issues Resource pressure if overseas service authorised Possible civil regulation for HEMS
Irish Coast Guard (IRCG) Provision from Current Fleet	Basic life support with contractor's clinical staff Potential skill retention issue for IRCG: NAS rotates clinical staff between air and land Increased risk of concurrent taskings	Better range, weather capability Only 50+ approved landing sites Hospital, incident site landing issues	Indirect tasking Government decision for IRCG to prioritise HEMS and provide dedicated service Regulatory approval under civil aviation rules	€4.64 m: 480 hours @ €3,000 with standing charges, 12 hour roster €4.44 m: 480 hours @ €4,500 flat rate, 12 hour roster €800,000+: 1500+ ALSs at €550 per survey 144 free IRCG support missions	Greater regulatory requirements for HEMS provision Possible legal challenges to non-procurement sub-contracting
Commercial Provider via RFT	Service as contracted Advanced life support with NAS clinical staff	Depends on service level procured No civilian ALSs, restriction on landing sites	Direct tasking Lead-in time to establish structures Regulatory approval under civil aviation rules	€3.78-6.9 m, depending on aircraft €800,000+: 1500+ ALSs at €550 per survey 144 free IRCG support missions	Sustainable for contract period: requires guaranteed funding Subject to civil regulation, may increase costs

*Air Corps and commercial include NAS annual costs (€400,000). IRCG includes own provision of clinical staff and equipment.