



Great Western Ambulance Service



NHS Trust

## Trust Board Meeting

Date: 30 January 2009

Title	Prepared by:	Presented by:	Agenda Item
Air Support Unit Clinical Review	Dr S Rawstone	Dr S Rawstone	7.4
<b>Purpose:</b> Review of current air ambulance service and recommendation of future clinical model			
<b>Summary:</b> GWAS is served by 3 air ambulances. This review makes recommendations as to the configuration and model of clinical delivery for the future.			
<b>Recommendation:</b>  <ol style="list-style-type: none"> <li>1. That the Board accept the recommendations in the review as an aspiration for future air ambulance services within the GWAS area</li> <li>2. That the Board commend these recommendations to partner agencies – charities, police and others.</li> <li>3. The Board establish a working group to develop plans to implement the recommendations</li> </ol>			
Achievement of Corporate Objective: High Quality clinical care		Assurance Framework ref: BAF 3	
Risk issues: None.			
Financial impact: None.			
Statutory/legal impact: None.			
Communication:     External Internal			
Standards for Better Health	Auditors Local Evaluation	Other	



Great Western Ambulance Service **NHS**  
NHS Trust

# **CLINICAL REVIEW OF AIR AMBULANCE SERVICES IN THE GREAT WESTERN AMBULANCE SERVICE NHS TRUST AREA**

Report of the Air Ambulance Clinical Review Group

November 2008

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1.1	First draft	OR	04.11.08	Draft
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1.3	Third draft	JB	01.12.08	Further draft
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1.8				

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## **BACKGROUND**

The Great Western Ambulance Service NHS Trust Board commissioned a review of the clinical and operational model of existing air ambulance provision in the region in June 2008. The requirement for a review was triggered by a number of converging factors:

- The recent publication of the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report 'Trauma: who cares?'<sup>1</sup>
- The imminent publication of national guidance on air ambulance services by the Air Ambulance Working Group (AAWG) of the DH.<sup>2</sup>
- The launch in May 2008 of a third air ambulance service within the GWAS boundaries by the Great Western Air Ambulance charity (GWAA).
- Widespread concern in Wiltshire at possible changes to the existing air ambulance service.

The Terms of Reference of the review were agreed by the GWAS Board in July and an initial scoping meeting of the group took place in August. At this meeting the Terms of Reference were discussed and a minor amendment proposed. In summary, this was a desire on the part of the group to make a recommendation on the clinical governance arrangements which would best support the service. Subsequently, this minor addition was ratified by the GWAS Executive Team on behalf of the Board. (Appendix1).

Specifically, the Terms of Reference did not include a review of the governance arrangements that exist between the air ambulance charities and GWAS.

Air ambulances make an important distinction between 'Helicopter Emergency Medical Services' (HEMS) and 'Air Ambulance' flights.

### **Helicopter Emergency Medical Services (HEMS) flights.**

A flight by a helicopter operating under a HEMS approval, the purpose of which is to facilitate emergency medical assistance, where immediate and rapid transportation is essential, by carrying:

- A) Medical personnel; or
- B) Medical supplies (equipment, blood, organs, drugs); or
- C) Ill or injured persons and other persons directly involved.

There are a number of potential advantages of primary HEMS over a response by road, including:

- Improved accessibility when road access is difficult
- The ability to deliver a highly trained team (so providing 'emergency critical care at the roadside') over a wide geographical area.
- The capability to transfer patients quickly over long distances to definitive care

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<sup>1</sup> Trauma: Who cares? A report of the National Confidential Enquiry into Patient Outcome and Death (2007)

<sup>2</sup> Since published as: A Framework for High Performing Air Ambulance Services (June 2008)

- The ability to rapidly return to home base after transfer to a regional centre.

In secondary transfers, HEMS provides a subsequent transfer for patients delivered initially to a local hospital by a road crew. The transfer is undertaken in order to expedite their ongoing care to a specialist unit such as a burns, spinal injuries or paediatric intensive care, and is generally considered to be time critical.

### **Air Ambulance flights.**

A flight usually planned in advance, the purpose of which is to facilitate medical assistance, where immediate and rapid transportation is **not** essential, by carrying:

- A) Medical personnel; or
- B) Medical supplies (equipment, blood, organs, drugs); or
- C) Ill or injured persons and other persons directly involved.

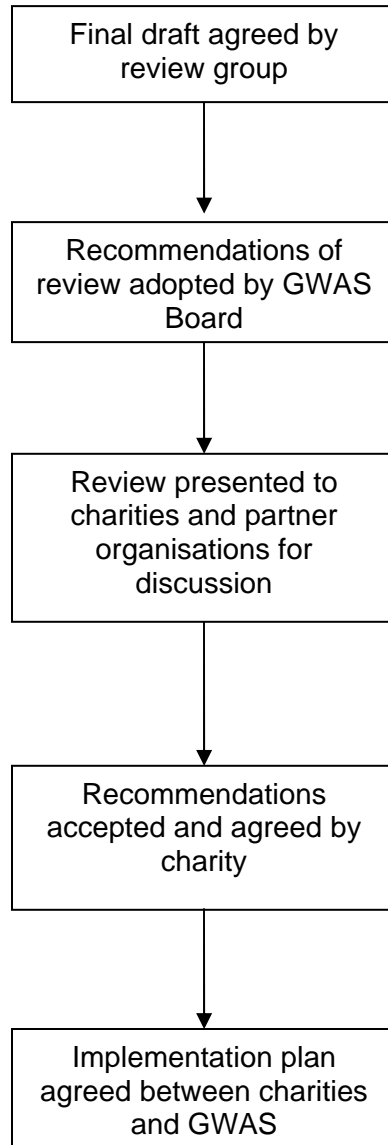
For the NHS, and for patients, the utilisation of an air ambulance to perform non-HEMS transfers may be beneficial. It may avoid lengthy journeys by road (e.g. in retrievals by regional services), it may facilitate the maintenance of local emergency cover (e.g. in rural areas). However, air ambulance charities may take a view on the balance between the HEMS and air ambulance roles provided by the helicopters they support.

### **'Casevac' flights**

Strictly, this is a Police task (though the term is often used in an air ambulance context as well): A flight, the purpose of which is to give immediate assistance to a sick or injured person in life threatening circumstances.

These types of operation may only be undertaken as a measure of last resort when no other means of transportation is available (or suitable).

The group considered how the findings of the review should be utilised, and a summary of its proposals on this matter are shown below.





## 1. EXISTING PROVISION

### 1.1 Wiltshire

The Wiltshire Air Support Unit has been operational since 1990. It is provided in partnership with Wiltshire Constabulary as a joint Police helicopter and air ambulance. This has the advantage that it is able to operate HEMS missions during the hours of darkness.

Base: Wiltshire Police HQ, Devizes, Wiltshire  
Aircraft: McDonnell Douglas MD902  
Call sign: WH99  
Crew: Pilot x1, police observer x1, Paramedic x1  
Operator: Police Aviation Service (PAS)  
Hours of Operation: 0800 – 0300 Monday – Sunday  
Rapid Response Vehicle (RRV) 1200 – 2200 Thu - Sun

### 1.2 Gloucestershire

Air ambulance services in Gloucestershire are provided by County Air Ambulance with one of its bases on the Gloucestershire/Worcestershire border. It provides a dedicated air ambulance service and has the ability to provide cross-cover from its other bases.

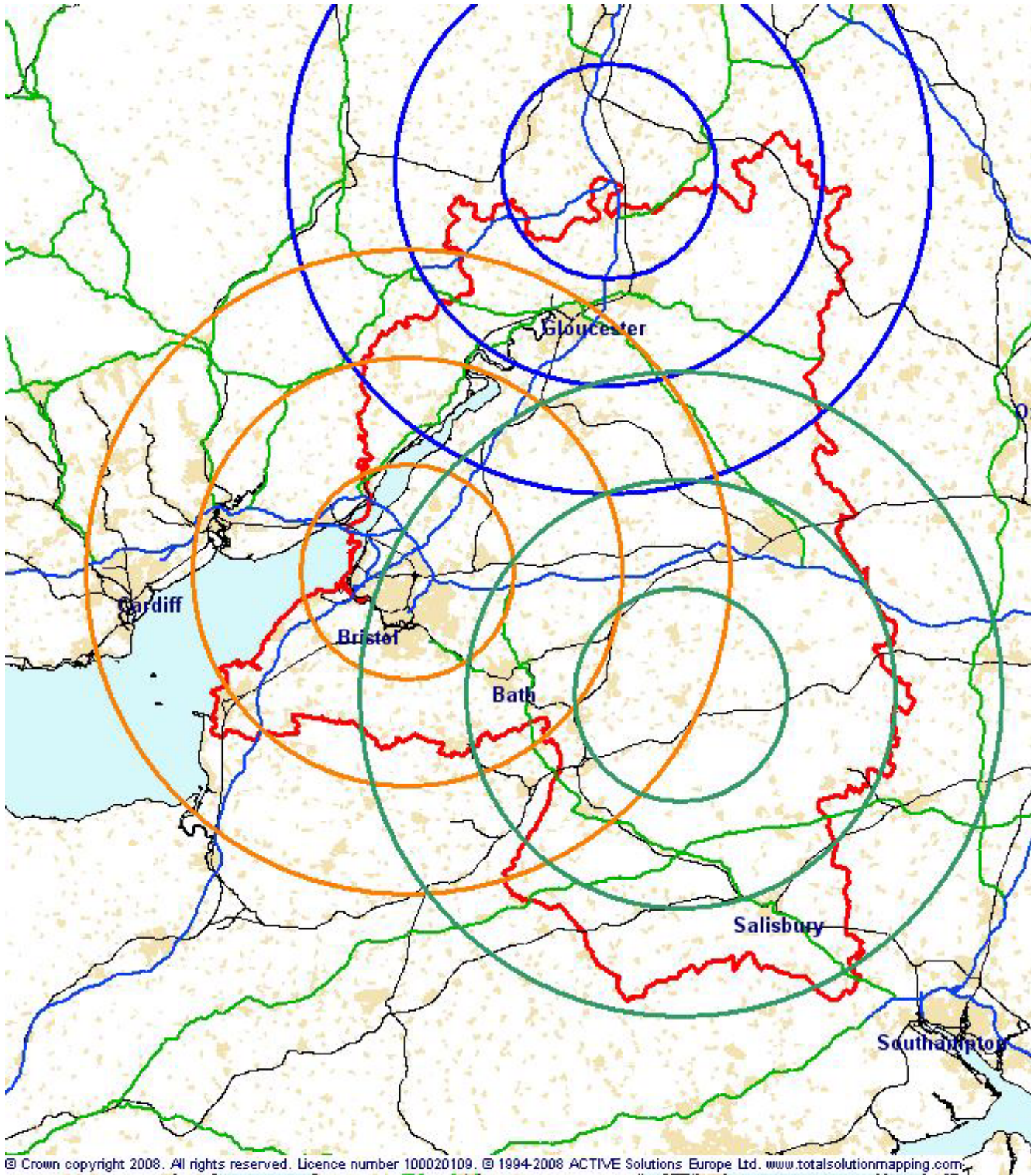
Base: Strensham services M5 North, Worcestershire  
Aircraft: Eurocopter EC135  
Call sign: HM06  
Crew: Pilot x1, Paramedic x2  
Operator: Bond Air Services  
Hours of Operation: 0700 (or first light) – 1900 (or dusk) Monday – Sunday

### 1.3 Avon

Most recently, the GWAA charity has funded an aircraft from Filton which is currently operational 5 days a week, with plans to develop a seven day function in the near future. This aircraft fills a gap in air ambulance provision within the GWAS boundaries.

Base: Filton Airport, Bristol  
Aircraft: Eurocopter EC135  
Call sign: HM65  
Crew: Pilot x1, Critical Care physician x1, Critical Care Paramedic x1  
Operator: Bond Air Services  
Hours of Operation: 1000 – 1800 (or dusk) Tuesday - Saturday  
RRV 24 hours 7 days (Critical care paramedic, with some physician cover)

**Current aircraft locations - 5, 10 and 15 minute flight times (approx.)**



## 2. AIR OPERATIONS ACTIVITY

### 2.1 Current Activity

This is captured in tabular form below:<sup>3</sup> Comparative data for England is available from the 'Air Ambulance Situation Audit 2007'.<sup>4</sup> This estimated an average number of responses (i.e. not stood down before arrival) of 820 per aircraft in 2006, which was the most recent full year considered by the audit.

Total 2007/08

	Allocations	Mobilisations	Responses	Transports
Gloucestershire (HM06)	398	286	241	164
Wiltshire (WH99)	592	509	430	326
Total	990	795	671	490

Total April – September 2008

	Allocations	Mobilisations	Responses	Transports
Gloucestershire (HM06)	159	108	94	74
Wiltshire (WH99)	317	284	231	184
Avon (HM65)	181	141	92	42
Total	657	533	417	300

\*Avon air ambulance went live on 3<sup>rd</sup> June 2008.

Recent detailed data (July & August 2008) suggests that the current response rate within GWAS is in the order of 1.5 missions per aircraft per day. This compares with an average nationally of approximately 2.25 missions per day.

	July 2008				August 2008			
	HM06	WH99	HM65	All Aircraft	HM06	WH99	HM65	All Aircraft
AVON			34	34	1		22	23
GLOUCESTER	24	2	16	42	27		6	33
WILTSHIRE		78	8	86	3	30	2	35
SOUTH WEST		1	1	2			3	3
SOUTH CENTRAL			2	2				0
WALES			1	1			1	1
	24	81	62	167	31	30	34	95

<sup>3</sup> Response = Arrival at scene; Transport = Conveyance of patient to hospital. Incidents from which the aircraft is 'stood down' before arrival are excluded.

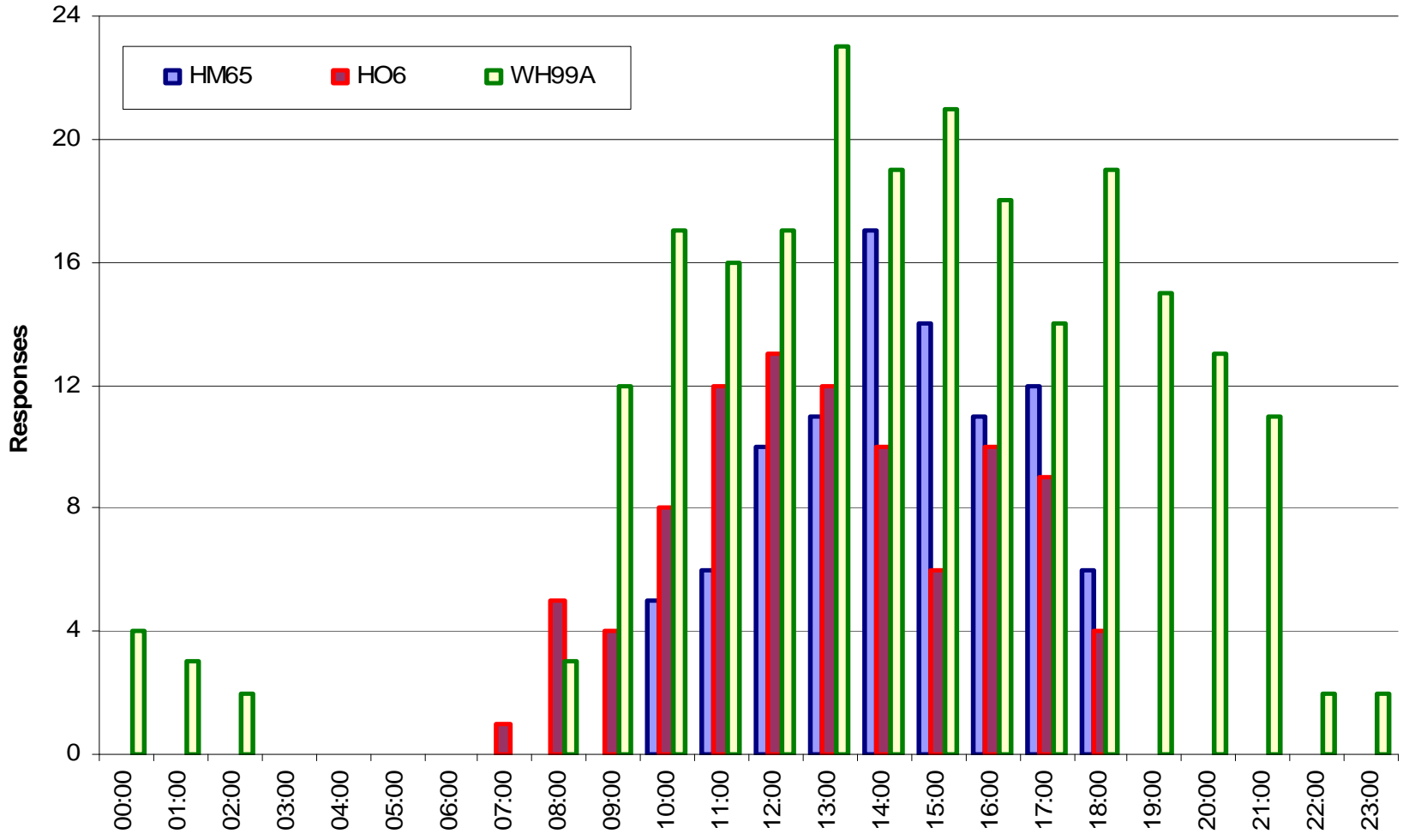
<sup>4</sup> Air Ambulance Service (England) Situation Audit September 2007

Reasons for the lower than national average deployment of the three local aircraft include:-

- The Wiltshire aircraft activity excludes police calls
- The Gloucestershire aircraft is extensively utilised elsewhere in the West Midlands region
- The Avon aircraft is currently flying only limited hour



### GWAS Helicopter Responses April - September 2008







### 3. CASE MIX

#### 3.1 Current Case Mix

In keeping with national experience the overwhelming majority of missions are HEMS missions with secondary transfers and retrievals representing only a handful of calls annually

#### Responses July & August 2008

Incident type	HM06	WH99	HM65	Total
RTC	24	46	48	118
Equestrian	10	7	3	20
Fall	5	8	11	24
Sport/Leisure	5	1	0	6
Burns	1	5	3	9
Other trauma	2	9	6	17
Cardiac arrest	6	9	10	25
Self harm	0	3	0	3
Other medical	4	19	11	34
Maternity	0	2	0	2
Transfer	0	1	0	1
<b>Total</b>	57	111	92	260

#### 3.2 Role of Air Ambulances

The review group agreed that the following roles should be considered as within the remit of a GWAS air ambulance service:

- 1 **Delivery of critical care skills to the scene**
- 2 **Access to difficult locations**
- 3 **Rapid transport to hospital (including specialist centres)**
- 4 **Secondary transfer including retrieval**

The existing air ambulances in Wiltshire and Gloucestershire have concentrated on roles 2 & 3. Although the aircrew paramedics within these services have developed considerable experience in managing critically ill and injured patients, there has been little attempt, until recently, to deliver additional competences through a formal educational programme. The County service in Gloucestershire is currently delivering additional training to some crew members through a 'Critical Care' course.

The GWAA has a different ethos with much greater emphasis on the deployment of additional clinical skills to the incident as its prime role. (This is evident in the changed response v. transport rates for the new aircraft). At the present time, these additional skills are centred on the flight physicians *supported* by critical care practitioners. The role of the critical care paramedic is currently under development. It is possible that in the future they will be able to deploy some of the additional skills of the flight physician independently.

The potential for increased utilisation of an aircraft for secondary transfers and retrievals has not yet been fully explored. This will impact on the optimum skill-mix in



the future, with the possibility that an increase in retrieval work might require enhanced physician input. The commissioning arrangements to support this role are not well developed at the present time. The planned rooftop landing site at Bristol Royal Infirmary (December 2009) will further enhance the potential use of aircraft in this role since this is an important regional centre for Paediatrics and cardiology/cardio-thoracics.

The current levels of activity might suggest that 2 aircraft could satisfactorily provide HEMS and air ambulance cover to GWAS. The potential for increased utilisation, and the development of new roles including a growing role in secondary transfer, commends a service based on 3 aircraft to the group. This would optimise the ability of the aircraft to provide a cohesive service within GWAS.

#### **Recommendation 1 –**

**Air ambulance resources within GWAS should be considered as part of an integrated service, and deployed as such, within the constraints imposed by partnership arrangements currently in place (with the police in Wiltshire and County air ambulance in Gloucestershire).**

#### **Recommendation 2 –**

**The current configuration of 3 aircraft should be maintained, with deployment from sites located in Avon, Gloucestershire and Wiltshire.**

#### **Recommendation 3 –**

**Opportunities to increase the number of secondary transfers and retrievals to supplement the current activity should be explored. The arrangements to support non-HEMS activity by the aircraft should be agreed in advance between GWAS and the relevant charity.**

## **4. CREW SKILL MIX**

### **4.1 Staffing models**

The two main staffing models found in the UK are:

- **Paramedic – Paramedic Model**  
Paramedic practice is, in general, limited by the scope of the Joint Royal Colleges Ambulance Liaison Committee (JRCALC) guidelines, whether they operate in road or air ambulances. Many air operations paramedics have some additional training and gain additional experience in the management of serious illness and injury. Some services are experimenting with a new role of ‘Critical Care Practitioner’ which further develops this expertise. At the present time the educational processes that support this development are not themselves supported by nationally recognised competency frameworks. The scope of practice of the role itself is also controversial.

*Some colleagues from the medical profession have expressed caution and argue that whilst certain techniques can be taught, skill in other areas are based on years of medical training and the development of clinical acumen. Further research and work is needed in this area. Whilst ambulance*

*services strive to develop newer, more extended skills for their paramedics, it is vital that core paramedic and recognised extended skills continue to be developed. (Hussain LM and Redmond AD, 1994) (NCEPOD, 2007) (Dunford et al, 2003).<sup>5</sup>*

- Paramedic – Physician Models

This can provide a higher level of clinical expertise, particularly for major trauma patients. Aircraft with this staffing model are increasing in number (up to one third), with proponents stressing the additional advantage of specially trained doctors over paramedics and ‘generalist’ doctors.

*With the development of the Helicopter Emergency Medical Service (HEMS) in London in 1988 and a body of trained practitioners elsewhere, the delivery of care at the point of injury improved markedly, and has been shown to significantly decrease patient mortality and morbidity within an overall system involving the ‘chain of survival’ and culminating in definitive hospital treatment. (Coats T, 1997); (Mckenzie R and Bevan D, 2005); (Baxt WG and Moody P, 1987); (Deakin C and Davies G, 1994); (Anderson I et al, 1988); (Lee A et al, 2003); (NCEPOD, 2007)*

*The paramedic-physician concept has been the subject of much debate over recent years but is now consistently demonstrating increased survival rates and decreased morbidity in regions where it is in use (Mckenzie R and Bevan D, 2005). Correctly utilised HEMS operations target the most seriously injured patients and those likely to benefit most from early medical input regarding; scene management, triage, treatment and transfer. Other benefits can be recognised in providing rapid, controlled and skilled secondary transfers to tertiary centres for further specialist input after initial resuscitation in a non-specialist hospital. <sup>6</sup>*

#### 4.2 Current crewing arrangements

Crewing arrangements in the GWAS area vary:

- 1 County Air Ambulance

2 paramedics from a number of ambulance services including GWAS.

The GWAS team consists of 1 full-time seconded and 2 part-time paramedics (4 days per month).

Additional training – 2 weeks HEMS course, locally provided training. Recent implementation of a ‘Critical Care’ course.

- 2 Wiltshire Air Ambulance

A single paramedic drawn from a dedicated team of 6 GWAS paramedics

Additional training – 1 paramedic currently studying on the UWE CCP course.

5 day Air Observer course

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<sup>5</sup> A Framework for High Performing Air Ambulance Services (June 2008) p. 5

<sup>6</sup> A Framework for High Performing Air Ambulance Services (June 2008) p. 6  
Report of Air Ambulance Clinical Review Group Final

### 3 Avon

Doctor – 1 paid part-time physician and 8 volunteer doctors  
 Critical Care Paramedic – 2 qualified and 7 trainees

#### 4.3 Optimum crew configuration

The optimum crew configuration will depend on the role of the air ambulance service and hence the clinical requirements of the patients it is intended to serve.

However,

- Flight Paramedics must be fully registered with the Health Professions Council (HPC);
- Doctors should demonstrate competencies in emergency medicine and critical care, and have a minimum level of competency at specialist registrar or above. Specialty requirements vary between the services, but the most common are anaesthetics and/or intensive care or emergency medicine. Whilst there will be some GPs who will have the appropriate training (usually BASICS), many GPs are not able to deliver the pre-requisites ascribed by NCEPOD<sup>7</sup> as necessary to perform the role of pre-hospital care physician successfully.

Paramedics may be dedicated to the air ambulance service or rotated in from other operational duties. Both options have some advantages:

##### Rotation

- a larger pool of potential flight paramedics
- increasing awareness of HEMS as more ambulance staff rotate through the service
- wide access to development opportunities in the organization
- injection of 'new blood' and enthusiasm at regular intervals

##### Dedicated Aircrew

- can justify significant investment in training a dedicated cohort
- opportunity for skill acquisition increased
- development of a specialist cadre (could be perceived as 'elitist')
- allows 'Critical Care' role to evolve

#### 4.4 Critical Care Paramedics

Critical care paramedics provide an expanded set of skills over and above those specified within JRCALC guidelines. However there is currently no national agreement regarding the scope of these skills, or the training required. Nevertheless it is generally accepted that such individuals must operate within a robust and accountable governance framework, probably with physician oversight and ideally with immediate telephone advice where required. Critical care paramedics are usually required to function as autonomous clinicians, using a wider range of drugs and skills, and making more complex scene management and triage decisions.

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<sup>7</sup> NCEPOD p.47 and recommendation

#### 4.5 Critical Care Physicians

With regard to critical care or “flight” physicians, the ‘framework’ document makes the following observations:

*‘Potential HEMS doctors should undergo a period of observation on the aircraft, watching the team work. This will allow a mutual look at each other to assess whether the doctor wishes to join and the paramedics feel they can work with the doctor. Upon selection the physician should undertake the pre-requisite training, courses and examinations before being allowed to operate as the sole physician.’*

It recommends the following:

*Post Membership / Fellowship exam holder  
Usually senior registrar – year 4+ or Consultant  
Demonstrate extensive pre-hospital care experience  
Proof of interest in pre-hospital care  
Preferably has DipIMC RCSEd or equivalent  
ALS/APLS/ATLS/MIMMS current  
Adaptable  
Personable  
Clinically proficient  
Willing to undertake a full training course  
Agree to work under agreed Standard Operating Procedures (SOPs)  
Willing to subscribe to clinical oversight  
Subscribes to the vision of the HEMS organisation.*

#### 4.6 Aircrew training

There are two distinct types of crew on a HEMS aircraft - Aircrew and Medical Passengers. Aircrew are integral to the safe running of the aircraft, for example, supporting the pilot in navigation and assessment of hazards. Medical passengers however have no aircraft safety role and are classed solely as passengers. This has clear implications for the extent of aircrew specific (as opposed to clinical) training required.

Given the limitations imposed by CAA regulations, it is assumed that all flight paramedics will be required to undertake aircrew training.

#### **Recommendation 4 –**

**The optimum crew configuration in the medium term is:-**

**Aircraft 1 – Paramedic/Doctor**

**Aircraft 2 – Paramedic/Paramedic**

**Aircraft 3 – Paramedic/Paramedic**

**Recommendation 5 –**

**The optimum crew configuration should be reviewed within 2 years to respond to changes in clinical practice, the development of the Critical Care Paramedic role and the case mix of both primary missions and secondary transfer.**

**Recommendation 6 –**

**All flight paramedics should be offered the opportunity to enhance their skills through a ‘Critical Care practitioner’ (CCP) course. Satisfactory completion of a CCP course will become mandatory for flight paramedics.**

**Recommendation 7 –**

**All flight physicians should meet the requirements recommended in the framework document and within the GWAS governance framework (Appendix 2).**

**Recommendation 8 -**

**Flight paramedics will rotate between the aircraft so that they are able to work within both the proposed crew configurations**

**5. DISPATCH****5.1 Tasking**

*‘Tasking of the aircraft is one of the main determinants of the success of a HEMS operation. Tasking is usually dealt with by the ambulance service. HEMS success is dependent upon finding the right jobs, arriving in a timely manner and delivering advanced interventions to the patients before transporting them to the most appropriate hospital. Any break in that chain will result in a failure of tasking with potentially serious implications for both the patient and the HEMS organisation.’<sup>8</sup>*

Tasking arrangements within GWAS vary. The Wiltshire helicopter was, until recently, deployed by Wiltshire A&E control in accordance with local guidance. The Gloucestershire aircraft is dispatched by the County Air Operations control room which deploys all of the ‘County’ air ambulances, requests having been made by the Gloucester A&E control room. With the advent of the Filton aircraft some attempts at interim centralisation of tasking have been made by locating one of the flight paramedics in the control room.

This is a model that has been successfully used by London HEMS desk for many years. It has the disadvantage that it utilises a highly skilled clinician as a ‘dispatcher’. Advocates of this approach point out that this is outweighed by the intimate knowledge of air operations that this individual brings to the control room.

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<sup>8</sup> A Framework for High Performing Air Ambulance Services (June 2008) p.33  
Report of Air Ambulance Clinical Review Group Final

Whilst it is easier to identify the results of poor tasking when the aircraft is responded inappropriately, it is more difficult to identify those incidents to which it *should* have been responded.

*‘There are some basic principles that should be taken into account which are:*

- *the purpose of aero medical emergency transfer is to provide better initial patient care and transport than available alternatives;*
- *air response is only justified where the speed of transport, skill of the medical team and/or ability of the helicopter to overcome environmental obstacles contribute to improved patient outcome;*
- *in trauma, helicopter deployment is not justified if it does not significantly reduce the time between injury and the patient arriving at an appropriate hospital unless the response delivers additional medical expertise or equipment to the scene.<sup>9</sup>*

## 5.2 Call Selection

There are no nationally accepted definitive guidelines for call selection and HEMS tasking. Already, with the development of a HEMS desk, call selection is more consistent across GWAS. However, there is some difference in the understanding of the role of an air ambulance in the different parts of GWAS which leads to differences in the requests received from road crews for the deployment of a helicopter. This is further complicated by the different clinical capabilities which now exist between the helicopters.

## 5.3 Tasking Responsibilities

Deployment under HEMS / Air Ambulance requirements is governed solely by the medical need of the patient. Therefore:

- there should be clear tasking criteria;
- the medical need must be assessed prior to a HEMS tasking;
- all persons connected with the decision making process in tasking an Air Ambulance should have a working knowledge of the difference between Air Ambulance and HEMS classifications. Including:
  - what tasking under each classification permits the pilot to do;
  - what tasking under each classification does not permit the pilot to do;
  - the responsibility to correctly classify a tasking;
  - the limitations dictated by the regulations;
  - the fluid nature of classification after the initial dispatch as updates from scene become available, and the need to ensure that the pilot (via the medical aircrew) is made aware of any changes;

Dispatch Criteria (Appendix 3) should be established to ensure a consistent standard of tasking.

The quality of tasking should be monitored through the clinical governance framework.

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<sup>9</sup> A Framework for High Performing Air Ambulance Services (June 2008) p. 34  
Report of Air Ambulance Clinical Review Group Final

If a HEMS dispatch function is created as an alternative to the use of aircrew, the dispatcher:

- must be a designated role and considered part of the flight team;
- should have completed a recognised HEMS dispatch course
- should have a good knowledge of flight operations and safety;
- should be competent to make decisions based on clinical need.

#### **Recommendation 9 –**

**Dispatching of the aircraft is co-ordinated centrally within a single GWAS**

**Emergency Operations Control Centre. A common set of tasking criteria should be agreed.**

#### **Recommendation 10 –**

**Dispatch of the aircraft should be either:-**

- **by specifically trained HEMS dispatchers**
- or
- **by HEMS aircrew**

## **6. CLINICAL STANDARDS AND CLINICAL GOVERNANCE**

### **6.1 Clinical Governance Arrangements**

The framework document highlights the importance of clinical governance arrangements for air ambulance services:

*‘This section outlines suggested clinical governance for all charities and ambulance services providing air ambulance services and the clinical processes that should be in place. In particular it advocates the adoption of best practice, clinical and non clinical audit, clinical and non clinical risk management, development of a shared model through multi-professional meetings and operational guidelines, regular peer review and clear lines of medical accountability. Members of UK HEMS should use this template of governance as bedrock of their clinical care.’*

Further, it outlines 2 possible models of clinical governance:

*‘There are two models by which air ambulance units can assure clinical governance:*

- *the air ambulance unit agrees to share the governance arrangements with one or more host NHS Ambulance Trusts. In this case the Charity retains responsibility for clinical governance even though it may delegate authority;*
- *the air ambulance unit develops an autonomous governance arrangement which is recognised by the NHS Litigation Authority, and conforms to the Health Care Commission standards against which the local ambulance trusts are assessed.*

*Charities must ensure that they are clear as to the limit of their clinical governance responsibilities and that these are agreed with the ambulance service.’*

The group considered that, for air ambulance charities, the provision of autonomous clinical governance arrangements was unduly onerous. This is particularly so since it is likely in the near future that these arrangements will be subject to independent assessment by the Healthcare Commission or its successor.

A proposed ‘Clinical Governance Framework’ for air operations is attached as appendix 2. It is compatible with the recommendations contained within the framework.

## **Recommendation 11 –**

**That the charities devolve the Clinical Governance arrangements to the ambulance trust, and that a single clinical governance framework to support the Wiltshire and Avon aircraft operations is created by the trust (special arrangements will be required for the County operation in Gloucestershire which already has a clinical governance framework devolved to West Midlands Ambulance Service NHS Trust)**

## **7. A 24 HOUR SERVICE**

### **7.1 Night HEMS Operations**

Major trauma and illness occur at all times of the day and night. Current regulations<sup>10</sup> do allow flying at night but require that the aircraft lifts from and lands upon a ‘class one landing site’. Examples of class 1 landing sites include secure airfields, airports and a few hospital helicopter pads. On HEMS operations it is highly unlikely that a primary HEMS mission landing at an incident will be on a designated class one site. This imposes a significant limitation on the ability to support the provision of clinical care to these patients.

Police Air Support Units (ASU) can and do land near to life-threatening incidents at the request of the emergency services. They are able to do this because any potential landing site is surveyed by a traffic police officer for size and hazards, before marshalling the aircraft down. In addition police aircraft are fitted with night vision aids to facilitate landing at ad-hoc sites; a very expensive option for charity funded HEMS.

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<sup>10</sup> HEMS: Joint Aviation Regulations (JAR-OPS)  
Report of Air Ambulance Clinical Review Group Final



A number of options exist to overcome this problem:

- The provision of a critical care capability in a road vehicle during the hours of darkness – limited by the constraints of geography and more suited to an urban environment.
- Arrangements with the police that allow for the provision of assistance by police helicopters on an 'ad-hoc' basis – limited by the need to pick-up the critical care team from a rendezvous point and uncertain availability of the police aircraft.
- The development of a more formalised partnership with the police authorities to deploy a joint response during the hours of darkness.

Within the GWAS area only the Wiltshire Air Ambulance is able to conduct routine night HEMS operations since it is operated as a combined unit with the Wiltshire Police. In other parts of GWAS night time operations are limited to ad hoc flights carried out by the police air support units. In addition, a critical care response car is deployed from Avon at night.

## 7.2 Night Transfers

There are opportunities to improve the utilisation of aircraft by carrying out night-time transfers between class 1 landing sites, i.e. hospital to hospital transfers. This should be explored as in recommendation 3.

### **Recommendation 12 –**

**Negotiations should begin between the charities, GWAS, and the 3 police authorities with a view to entering into agreements that would support a night-time HEMS capability across GWAS.**

## **8. SUMMARY OF RECOMMENDATIONS**

### **Recommendation 1 –**

**Air ambulance resources within GWAS should be considered as part of an integrated service, and deployed as such, within the constraints imposed by partnership arrangements currently in place.**

### **Recommendation 2 –**

**The current configuration of 3 aircraft should be maintained, with deployment from sites located in Avon, Gloucestershire and Wiltshire.**

### **Recommendation 3 –**

**Opportunities to increase the number of secondary transfers and retrievals to supplement the current activity should be explored. The arrangements to support non-HEMS activity by the aircraft should be agreed in advance between GWAS and the relevant charity.**

### **Recommendation 4 –**

**The optimum crew configuration in the medium term is:-**

**Aircraft 1 – Paramedic/Doctor**

**Aircraft 2 – Paramedic/Paramedic**

**Aircraft 3 – Paramedic/Paramedic**

### **Recommendation 5 –**

**The optimum crew configuration should be reviewed within 2 years to respond to changes in clinical practice, the development of the Critical Care Paramedic role and the case mix of both primary missions and secondary transfers**

### **Recommendation 6 –**

**All flight paramedics should be offered the opportunity to enhance their skills through a 'Critical Care' practitioner (CCP) course. Satisfactory completion of a CCP course will become mandatory for flight paramedics.**

**Recommendation 7 –**

**All flight physicians should meet the requirements recommended in the framework document and within the GWAS governance framework (Appendix 2).**

**Recommendation 8 -**

**Flight paramedics will rotate between the aircraft so that they are able to work within both the proposed crew configurations**

**Recommendation 9 –**

**Dispatching of the aircraft is co-ordinated centrally within a single GWAS Emergency Operations Control Centre. A common set of tasking criteria should be agreed.**

**Recommendation 10 –**

**Dispatch of the aircraft should be by either:-**

- **specifically trained HEMS dispatchers**  
**or**
- **HEMS aircrew**

**Recommendation 11 –**

**That the charities devolve the Clinical Governance arrangements to the ambulance trust, and that a single clinical governance framework to support the Wiltshire and Avon aircraft operations is created by the trust (special arrangements will be required for the County operation in Gloucestershire which already has a clinical governance framework devolved to West Midlands Ambulance Service NHS Trust)**

**Recommendation 12 –**

**Negotiations should begin between the charities, GWAS, and the 3 police authorities with a view to entering into agreements that would support a night-time HEMS capability across GWAS.**

11<sup>th</sup> August 2008

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## Review of GWAS Air Operations Strategy – Terms of Reference

### 1.1. Purpose

The purpose of this paper is to agree terms of reference for the review of the GWAS Air Support Operations

Proposed Terms of Reference

#### 1. Remit

To review the existing GWAS air support arrangements including levels of activity and case mix. To outline clinical best practice from an examination of the existing literature and practice both in the UK and internationally. To benchmark the existing arrangements against this best practice and to develop a clinical and operational model which would deliver best practice within the GWAS area.

#### 2. Key areas

- Identify current hours of operation and crewing arrangements.
- Identify activity by hour of day and day of week.
- Identify case-mix
- Review of literature and national guidance on air support arrangements.
- Outline existing UK operational models.
- Compare existing GWAS arrangements with best clinical practice.
- Outline clinical model to deliver best practice.
- Outline operational model, including tasking arrangements, which support the proposed clinical model.
- To recommend clinical governance arrangements to support air operations.

#### 3. Membership

- GWAS Clinical Director
- GWAS Critical Care Advisor
- Air Support Unit Service Delivery Manager
- Clinical representative Wilts ASU
- Clinical representative County (Gloucestershire) ASU

#### 4. Reporting Arrangements

The findings of the review will be presented to the Executive Team in November 2008.

**Dr S Rawstone**  
**Clinical Director**

Tel: 01249 858720

Email: [steven.rawstone@gwamb.nhs.uk](mailto:steven.rawstone@gwamb.nhs.uk)

**Appendix 2**

**A Clinical Governance Framework**

**Clinical Governance Framework: ..... Air Ambulance**



**1 Contents**

## Background

1. ....is a charitable air ambulance working in close collaboration with Great Western Ambulance Service NHS Trust (GWAS) to deliver advanced clinical and pre-hospital critical care to ill and injured persons within Avon, Gloucestershire, Wiltshire and the surrounding areas. The service comprises experienced pre-hospital physicians and/or critical care paramedics (collectively known as “air operations staff”) responding to incidents via helicopter and fast response vehicle.
2. Pre-hospital care, particularly the provision of advanced medical skills, is a high risk activity, and must therefore be practised within a robust and clearly defined clinical governance framework. This document describes the governance framework for GWAS tasked air ambulances.

## GWAS Employees

All individuals working within the Air Support Unit are employed by or through GWAS and should refer to the relevant GWAS policies regarding the terms and conditions of their employment with the Trust.

Additional information relating specifically to work within the Air Support Unit as below:

### Probationary period

If an employee fails to meet the required standards to work within the ASU during their probationary period, they will be required to return to their previous role and terms and conditions within the Trust.

## Training of team members

### 4a. Paramedics:

Newly appointed paramedics will be directly responsible to the Clinical Team Leader for the service, and will be assigned a clinical mentor who should be identified and trained in liaison with the Education department. They will then enter a supervised period of training. This will commence with a two month training programme (detailed in Appendix One), including the following core elements:

- HEMS crew member course in accordance with JAR ops 3,005
- Aircraft type approval & line check
- Introduction to HEMS clinical skills and pharmacology
- Emergency airway training
- Critical care paramedic module (University of the West of England)
- Accelerated learning module (University of the West of England)
- Paediatric advanced life support
- Scene assessment & management course
- Familiarisation with unit SOP's & equipment
- Clinical governance and peer review

4b. Paramedics will then enter a period of directly supervised practice, with clear educational objectives, and regular feedback and review. This will include:



- Shifts working in the helicopter and fast response car under the direct supervision of a clinical mentor and/or alongside medical staff
- Shifts working in the resuscitation room of local emergency departments, gaining and consolidating critical care skills
- Ongoing academic development through the University of the West of England
- Participation in clinical governance meetings, audit, feedback and peer review

4c. Paramedics will only be permitted to work without direct supervision within the service once they have achieved the educational objectives defined during the initial two month training course and demonstrated competence in all core skills. This will be agreed and certified by both the Clinical Team Leader and Service Delivery Manager through a system described in Appendix Two.

#### 4d. Doctors:

At appointment doctors entering the service will be matched, on the basis of previous experience, to one of the three levels of medical support recognised by GWAS (see Appendix Three). They will be required to act within this level, but will also be encouraged to seek progression through further supervised practice and learning. All medical staff will be directly responsible to the Medical Advisor for the service, and will be assigned a clinical mentor. Doctors who wish to work without direct supervision as an aircrew physician (i.e. at level three) will be required to undertake a training programme (detailed in Appendix One) containing the following core training elements:

- HEMS medical passenger training package
- Medical passenger aircraft type approval and check
- Emergency airway training
- Paediatric advanced life support
- Scene assessment & management course
- Advanced clinical skills
- Familiarisation with unit SOP's
- Major incident management
- Clinical governance and peer review

4e. Doctors will then enter a period of directly supervised practice, with clear educational objectives, and regular feedback and review. A logbook will be carried and completed by the trainee, with core competencies certified by the clinical mentor or air operations medical advisor as they are gained and demonstrated (Appendix Four).

4f. During training, doctors will complete "hot debrief" forms with their supervisor, clinical mentor or the air operations medical advisor for every patient care episode involving a medical intervention, significant event or teaching episode (Appendix Five).

4g. For those doctors wishing to work without direct supervision at level 3, this period of supervised training and experience will be followed by a formal "sign off" day undertaken with the air operations medical advisor. This day will include discussion of the service SOPs, competency logbook and hot debrief forms as well as direct observation of clinical practice. Successful completion of this assessment will subsequently allow the doctor to practice without direct supervision, and also train others.

## Documentation

5a. All patient care episodes will be recorded by the attending air operations paramedic or doctor. Both professional groups share responsibility for ensuring that a full record is completed as soon after the incident as possible. This record will consist of both paper and electronic components, as follows:

- A standard ambulance service case report from
- Or**
- An air operations case report form
- And**
- Completion of the air operations electronic clinical database

5b. Both paper and electronic components of each patient care episode must be completed in full by the end of each clinical shift. Failure to achieve this on more than one occasion may lead to disciplinary action.

## Data Protection

8a. The management of all data and records related should conform to the requirements the Data Protection Act (1998).

8b. Any requests made under the Freedom of Information Act (2000) will be managed in accordance with GWAS policy.

## Audit

9a. The records of all care episodes undertaken by the air operations unit will be reviewed by the Clinical Team Leader. Where deficiencies or omissions are noted the record will be returned to the originating clinician, with a standard form (Appendix Six) requesting clarification and correction. Persistent errors in relation to the patient care record will lead to disciplinary action.

9b. A sample of the records relating to patient care episodes attended by medical staff will be reviewed by the Air Operations Medical Advisor on a monthly basis.

9c. Where review of records by the Clinical Team Leader and/or Medical Advisor give rise to concern the staff members involved and other relevant parties will be interviewed and an appropriate action plan formulated in consultation with the Air Operations Service Delivery Manager. This will be enacted and recorded in the personal file relating to the relevant staff members. If appropriate, this process will be undertaken in conjunction with the HR Department, and governed by the Trust's Capability Policy.

9d. Members of the air operations team will be required to participate in audit (including the collection, analysis and presentation of data) under the direction of the Service Delivery Manager, Clinical Team Leader and/or Medical Advisor. Criteria for audit will be both standing and ongoing (e.g. rapid sequence induction of anaesthesia) and rolling with a variable programme (e.g. management of femoral fractures).

9e. An annual report of audit activity will be compiled by the Clinical Team Leader and Medical Advisor, and will be presented to both the Clinical Director for Great

Western Ambulance Service NHS Trust and the air operations clinical advisory group (see below).

### **Clinical governance meetings**

10a. An air operations clinical governance meeting will be held monthly. All air operations staff are expected to attend at least 50% of all meetings held in any 12 month period. Individuals failing to meet this requirement will be required to attend an interview with either the Service Delivery Manager or Medical Advisor, and if this proves unsatisfactory disciplinary action may be taken.

10b. Each clinical governance meeting will include at least two of the following:

- Presentation of cases attended by the unit
- Audit data
- Review of policies, procedures and guidelines
- Training in pre-hospital and critical care
- Discussion of adverse events and critical incidents

10c. Additional case discussions will be held with the paramedic and medical staff by the Service Delivery Manager, Clinical Team Leader and/or Medical Advisor to review cases of interest, concern or educational value.

10d. An annual report of clinical governance meetings will be compiled by the Service Delivery Manager and Medical Advisor, and will be presented to both the Clinical Director for Great Western Ambulance Service NHS Trust and the air operations clinical advisory group (see below).

### **Insurance Provision**

11a. For the purposes of insurance, all air operations staff are classed as agents of the Great Western Ambulance Service NHS Trust when they are responding on its behalf. Paramedics will be employees of the Trust; Doctors will be engaged by the Trust via an Honorary Contract.

11b. The NHS Litigation Authority provides the Great Western Ambulance Service NHS Trust insurance cover. Employer Liability, Clinical Negligence Cover and Public Liability cover all staff engaged in authorised activities and working within their agreed scope of practice.

11c. If air operations staff are required to drive their own vehicle while acting as agents of the Trust, they should ensure that they have sufficient motor insurance and that the vehicle is legally roadworthy.

11d. If air operations staff are required to drive vehicles belonging to the Great Western Ambulance Service NHS Trust as part of their role, they must have passed a driving assessment facilitated by the Trust. Air operations staff will then be covered by GWAS's motor insurance.

11e. Air operations staff are required to notify the relevant Trust of any traffic violations or motoring convictions as soon as is reasonably practicable.

11f. Air operations staff should be advised to ensure that by acting in this role they do not invalidate any of their own existing insurance arrangements, and to formally notify their insurers of their air operations work duties.

## **Risk Management**

12a. The management of risk associated with the activities of air operations staff will follow the risk management strategy of the Great Western Ambulance Service NHS Trust.

12b. Whilst air operations staff are expected to operate in accordance with the governance provided by this framework, they must also engage in a process of continual dynamic risk assessment. If unacceptable levels of risk are perceived, the individual is expected to take steps to mitigate that risk to the best of their ability.

## **Adverse events/reporting**

13a. All air operations staff are required to identify and report all adverse incidents, whether or not they lead to identifiable harm. Staff are also required to report any identified risks which are beyond normal expectations.

13b. All adverse events arising from air operations must be reported using the standard GWAS incident reporting form. All incident reports will be reviewed promptly by the Service Delivery Manager for Air Operations and graded according to severity and risk of recurrence.

13c. The Air Operations Service Delivery Manager will determine and oversee any actions required as a result of each reported incident, and will maintain a log of activity and actions in relation to incident reporting, as well as a formal risk register. The actions arising from each reported incident will be fed back to the reporting individual, including a face-to-face debrief where appropriate.

13d. Adverse incidents, the action log and risk register will be regularly reviewed by the Service Delivery Manager, Medical Advisor and Clinical Director for Great Western Ambulance Service NHS Trust. Summary reports will also be presented to the clinical advisory group (see below).

### **1.1.1. Complaints Procedure**

14a. Formal complaints relating to air operations staff will be investigated by the Service Delivery Manager for Air Operations, in accordance with the Complaints Policy of the Great Western Ambulance Service NHS Trust.

14b. The purpose of the investigation is to establish the facts, not to apportion blame. The investigation should seek to identify the root and any secondary causes of the incident, which has led to the complaint, with the aim of reducing or eliminating the risk of reoccurrence.

14c. The format of the investigation will be influenced by the nature, complexity and seriousness of the complaint. However all managers will observe the guidance laid down in the Trust's Complaints Policy

14d. All complaint reports and resulting actions will be reviewed by the Service Delivery Manager, Medical Advisor and Clinical Director for Great Western Ambulance Service NHS Trust. Summary reports will also be presented to the clinical advisory group (see below).

14e. The outcome of any investigation or disciplinary action in relation to an air operations staff member will be summarised and recorded in their personal file. As with all GWAS staff, disciplinary action will only be taken against air operations staff following an appropriate investigation, and a disciplinary hearing which takes place as per the Trust policy. The guidance of the HR Department should be sought as soon as any issue is identified which has the potential to warrant disciplinary action.

#### 1.1.2.

### **Observers**

16a. From time to time, individuals may accompany air operations staff as “observers”. This term applies to any person who is not a current member of the air operations staff, and who is not an individual in supervised training. It therefore applies to medical, paramedical and student staff who are not a part of the air operations organisation, as well as members of the press and public.

16b. All observers must receive prior approval from either the Service Delivery Manager or Medical Advisor. On arrival the observer must receive a verbal and written brief, and complete agreed paperwork relating to confidentiality, liability and indemnity. The GWAS policy for observers and relevant paperwork is reproduced in Appendix Seven.

16c. It is the responsibility of the accompanying aircrew staff to ensure that all observers have full personal protective equipment, which is used correctly at all times, and that they are not exposed to any undue risk.

16d. Observers may not participate in clinical care, and are required to respect patient confidentiality. They may not take photographs, videos or other images without the express written permission of the Service Delivery Manager or Medical Advisor.

### **Standard Operating Procedures (SOPs)**

17a. Great Western Ambulance Service NHS Trust will develop, review and maintain a range of SOPs to guide clinical practice in pre-hospital care. All staff are expected to be fully familiar with current SOPs, and updates to these as they become available.

17b. SOPs provide guidance to clinical staff, but like all guidance other approaches may be taken providing that clear clinical justification can be given for any deviation from those SOPs agreed for use by air operations staff. Individuals deviating significantly from agreed SOPs will be required to explain their actions to the Service Delivery Manager, Clinical Team Leader or Medical Advisor during formal debrief meetings.

17c. Action will be taken in respect of individuals who consistently deviate from agreed SOPs without clear or adequate clinical justification, or whose practice fails to conform to standard procedures and policies. This action may include suspension pending investigations, and/or disciplinary action, as well as counselling and other support. Appendix 9

### **Clinical advisory group**

18a. A clinical advisory group will be convened to provide expert advice to the Great Western Ambulance Service NHS Trust and ..... Terms of reference for this group are given in Appendix Eight.

18b. The clinical advisory group will comprise stakeholders from the healthcare community served by GWAS, and acknowledged clinical experts. The group will advise on the clinical practice of aircrew staff, and will review national clinical guidelines relevant to pre-hospital emergency care.

18c. The clinical advisory group will also provide assurance as to compliance with clinical standards by means of audit, activity and case review and review of incidents and complaints. The group will receive regular annual written reports in relation to clinical activity, audit, clinical governance meetings, adverse events, complaints, suspensions and disciplinary procedures.

18d. Recommendations from the clinical advisory group will be passed to Great Western Ambulance Service Clinical Effectiveness Committee for approval

## **Critical Care Clinical Advisory Group - Terms Of Reference**

### **DRAFT**

#### **Remit of the Critical Care Clinical Advisory Group**

The remit of the Clinical Advisory Group is to provide expert advice to the Great Western Ambulance Service NHS Trust.

The scope of this advice will be on all matters pertaining to the clinical practice of paramedics and doctors operating on the ..... air ambulances. It will include the review of national clinical guidelines relevant to emergency care.

The group will also provide assurance as to compliance with clinical standards by means of audit, case review and review of incidents and complaints.

Recommendations from the group will be passed to Great Western Ambulance Service Clinical Effectiveness Committee for approval.

#### **Key responsibilities**

- To act as the expert advisory body for the development of pre hospital critical care services in the Great Western Ambulance Service NHS Trust region.
- To review and provide guidance on the scope of practice of the ..... air ambulance.
- To review and provide guidance on the adoption of national or local clinical guidelines relevant to the work of the ..... air ambulance
- To examine and review clinical practice and levels of care provided by the ..... air ambulance.
- To benchmark levels of training against objective clinical standards
- To provide a considered perspective on whole systems working and service redesign
- To assist in the development of alternative pathways for service delivery

#### **Membership will consist of the following:-**

Clinical Director GWAS  
Service Delivery Manager Air Operations  
GWAS Air Operations Medical Advisor

The following acute Trusts:  
North Bristol NHS Trust  
University Hospitals Bristol NHS Foundation Trust  
Royal United Hospital Bath NHS Trust  
Weston Area Health NHS Trust  
Greta Western Hospital Swindon NHS Trust  
Salisbury NHS Foundation Trust  
Gloucestershire Hospitals NHS Foundation Trust

The following BASICS Schemes:  
Gloucestershire  
Avon

## SWIFT

And include the following specialties:

Anaesthesia/Critical Care

Emergency Medicine

Neurosurgery

Orthopaedics/General Surgery

Paediatrics

## Relationships

The Air ambulance clinical advisory group will make recommendations to GWAS Clinical Effectiveness Committee.

## Capacity

The committee is not a decision-making body, therefore it does not need to be quorate.

## Attendance and Remuneration

Incurred expenses will be paid for attendance at meetings. Should any work be commissioned for outside the meeting then full expenses will be paid.

## Minutes

Minutes will be taken and made available to the Clinical Effectiveness Committee either electronically or in paper form.

## Frequency of meetings

Quarterly

## Chair

The meeting will be chaired by the Clinical Director Great Western Ambulance Service.



## **Minimum List of Standard Operational Procedures**

### Clinical/Equipment/Drugs

- Defibrillation in Flight Procedure
- Equipment Inventory List
- Equipment Cleaning
- Drugs/stores Requests
- Medical Gases Storage/Policies/Ordering
- Stretcher use and care
- Suction unit use and care
- Ventilator use and care
- Clinical Waste
- On call Medical Advice

### Operational

- Call Out Procedure
- Casualty Management Scene to Hospital
- Doctors Responsibilities in Flight
- Equipment Pre Flight Checks
- Responsibilities in Flight Front Seat Medic
- Responsibilities in Flight Rear Seat Medic
- Transfer Policy
- Operational Hours
- Navigation Equipment
- HLS Directory
- Fire Training
- HEMS/Air Ambulance Operating Limits
- Communications in Flight Procedure
- Communications Air to Ground Procedure
- Communications on the Ground Procedure
- Major Incidents
- CBRN Incidents
- Stand Down Procedure
- Refuelling
- Response Vehicle
- PR Events
- Observer/Relative Brief
- PPE Aircrew
- Relocation Procedure
- Incidents Involving Mountain Rescue Units

### Aircraft Safety

- In Flight Emergency Procedure
- Rotors Running Loading/Unloading
- Aircraft Approach/Exit Rotors Running
- Doors Open in Flight
- Dispatchers Harness in Flight
- Pre take off Checks
- Power Checks
- Landing in Emergency/HEMS Locations
- Helicopter Hazards/Down Wash/FOD/Noise/Clearance
- CRM
- Aircraft Marshalling
- Fitness to Fly (Aircrew)

- Weather Brief

#### Administration

- Missions Database
- Post Call Documentation
- Shift Completion
- Aircraft Down Time
- Servicing/Calibration of Medical Equipment
- Covering Sickness

#### Miscellaneous

- Police Interviews
- Housekeeping
- Aircraft Washing Procedure
- Helilift/aircraft towing policy and procedures
- APU (auxiliary power units)
- Personal Accident Reporting
- IR1 Untoward Incident Procedure
- Press Interviews
- CPD
- Unit Hangar
- Patient Property
- Unit Visitors

This extensive list of SOP's covers the majority of the daily tasks and responsibilities. The Ambulance Service Policies and Procedures applicable to each individual Ambulance NHS Trust can cover other daily routines and duties.

Other policies and procedures will need to be written to accommodate future night transfer/HEMS operations within the UK.

### **Appendix 3**

#### **Tasking Criteria**

- Life threatening medical problem
- Life threatening paediatric incident
- Cardiac arrest
- RTC with:
  - Entrapment
  - High speed vehicle/motorcycle RTC

- Associated fatality
- Patient ejected from a vehicle
- Any incident with persons reported trapped
- Burns or smoke inhalation
- Falls from height greater than 6 feet
- Reported amputations
- Firearms incidents
- Stabbings or penetrating injuries
- Extensive haemorrhage or arterial bleeding
- Serious head injuries
- Any ambulance crew request

#### **Appendix 4**

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