

Towards a Single National Specialist Transport Service for Scotland - ScotSTAR

Strategic Vision

**National Planning Forum - Specialist Transport Services
Strategic Review**

Outline Recommendations, September 2011

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ISBN: 978-1-78045-514-3 (web only)

The Scottish Government
St Andrew's House
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Produced for the Scottish Government by APS Group Scotland
DPPAS12283 (11/11)

Published by the Scottish Government, November 2011

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Introduction

This paper provides an overview of the vision and strategic plan for a national specialist transport service for Scotland – ScotSTAR (Scottish Specialist Transport and Retrieval). It outlines an evolutionary approach to its implementation while maintaining current service delivery.

This proposal has built upon the areas of strength within the current system, and identifies areas for development to deliver better quality healthcare and ultimately achieve better outcomes.

This paper reflects the work of the Specialist Transport Services Strategic Review Project Board. It aims to facilitate engagement and discussion of the proposal and does not represent a final model of service delivery. Ongoing stakeholder consultation and discussion is planned.

Background

NHS Scotland currently has three established national specialist transport services; the Scottish Neonatal Transport Service, the Transport of Critically Ill and Injured Children Service and the Emergency Medical Retrieval Service. These services are dedicated to the transport of the most vulnerable patients in Scotland. The early intervention and rapid, safe transfer of seriously ill and injured patients to a centre capable of providing definitive surgical and intensive care, greatly improves patient outcomes.

The geography of Scotland is highly varied, and around 1 million people (18% of the total population) live in rural areas. Of these around 400,000 people live more than 1 hour from a District General Hospital with intensive care services. The provision of specialist transport services is essential to support rural healthcare practitioners.

The current specialist transport services represent the clinical services, which are supported by the Scottish Ambulance Service. Currently, the specialist transport services transfer around 2,200 patients each year at a cost of around £10M.

The specialist transport services have grown separately over a period of time. These developments, whilst meeting clinical need, have not taken into account the opportunities for greater coordination between services.

In light of this, NHS Scotland Chief Executives requested that a review of specialist transport services should take place to consider the opportunities to deliver a more integrated specialist transport service for NHS Scotland. The National Planning Forum endorsed such a review at its meeting in October 2009 and a short-life project board was created to undertake the review in summer 2010.

The short-life project board consisted of representatives of the Scottish Neonatal Transport Service, Transport of Critically Ill and Injured Children Service, Emergency Medical Retrieval Service, SHOCK Team, Scottish Ambulance Service, Regional Planning Directors and NHS Boards, Scottish Government Health and Social Care

Directorates and the Scottish Partnership Forum. For full membership please see Annex A.

The review has considered the opportunities to deliver a more integrated specialist transport service for NHS Scotland, and has specifically considered:

- the potential to combine logistical and support functions
- triage and tasking
- the development of well-defined and clear pathways and standards of care for specialist retrieval
- the coordination and dispatch of these resources
- the opportunities to deliver efficiencies for NHS Scotland

In achieving these objectives the goal has been to harmonise and refine the existing systems as far as possible and ultimately to deliver better quality healthcare, as measured against the Quality Strategy outcomes, and to be affordable and offer value for money. The need for an efficient and coordinated service, with integrated transport and clinical resources, is central to the delivery of care that is safe and responsive to the needs of patients in Scotland, and which ultimately achieves better outcomes.

Current specialist transport services

Specialist transport services in Scotland are dedicated to the transport of a particular patient group who, because of their clinical condition, require an augmented clinical team including doctors and nurses, and represent the most vulnerable of patients transported in Scotland. The three established national specialist transport services are outlined below.

Scottish Neonatal Transport Service (SNTS)

SNTS is a national service delivered by three regional teams (West, East and North) from four centres (Glasgow, Edinburgh, Aberdeen and Dundee), all of which provide cross-cover. A national Strategic Service Manager oversees service delivery.

All of the regional teams are available throughout twenty four hours with day time cover on shift (8am to 8pm) and night time cover provided by staff on-call (the East and North teams also provide weekend cover by staff on-call).

The East and North teams work from the Neonatal Intensive Care Units, although the nursing staff are dedicated to the transport service. The West team is independent from the Neonatal Intensive Care Unit and works from a shared transport base in Glasgow.

Each SNTS transport is undertaken by a team of between one and three clinicians, including consultants, ANNPs (Advanced Neonatal Nurse Practitioners), junior doctors and transport nurses.

SNTS transferred 1496 patients in 2010/11, and of these the majority (95%) were by road, with the remainder by fixed and rotary wing aircraft.

The service is funded jointly by territorial NHS Boards.

Transport of Critically Ill and Injured Children Service

The Transport of Critically Ill and Injured Children (also known as the Paediatric Intensive Care Transport Service) is a national service delivered by two teams (Edinburgh and Glasgow). These teams are integrated within the Paediatric Intensive Care Units at RHSC Edinburgh and RHSC Yorkhill, and are available 24 hours a day.

Both teams are predominantly consultant led and delivered services, supported by trainees and nurse practitioners. An advice only call service is also provided, whereby the duty consultant advises the referring clinician, which can prevent unnecessary transfers.

The Transport of Critically Ill and Injured Children Service transferred 323 patients in 2010/11, of these around 80% were by road, 15% by fixed wing and the remainder by rotary wing aircraft.

The service is nationally designated and funded by top-slicing.

Emergency Medical Retrieval Service (EMRS)

EMRS is a national service with two teams available 24 hours. It operates from the Heliport at Glasgow, and covers the whole of remote and rural Scotland.

Within this catchment area EMRS serves 6 Rural General Hospitals, 15 Community Hospitals, 36 Remote GPs (defined as over an hour from a hospital receiving emergency cases) and 12 Remote Nurse Practitioners (defined as over an hour from GP Practice).

EMRS is a consultant led and delivered service, and in addition to missions, EMRS also provides an advice only call service, whereby the duty consultant advises the referring clinician, which can prevent unnecessary transfers. The patient may remain in the referring location or be transported without the need for further EMRS involvement.

The Emergency Medical Retrieval Service commenced a national service in October 2010 (it previously operated as a pilot service in the West of Scotland), and therefore 2010/2011 activity is not representative of full year activity. The latest projections estimate the service will perform 324 transfers each year, and almost all of these will be by air with around 60% by rotary wing and 35% by fixed wing aircraft.

EMRS receives national funding from the Scottish Government.

Wider issues

Members of the SHOCK Team have provided an important contribution to this review. The SHOCK Team is a West of Scotland regional service, funded by NHS Greater Glasgow and Clyde, and based at the Western Infirmary in Glasgow. It was established in 1968, and developed due to the need to transport patients between a number of hospitals in the Glasgow area. It provides a dedicated transportation service for critically ill adult patients, delivered by one team available 24 hours a day and carries out around 375 transfers per year (almost all of these are by road).

It is important that a future national specialist transport service has a clear and defined remit, and provides equity of access for patients across Scotland. Therefore the project board recommends that a wider piece of work around inter-hospital transfers of acutely or critically ill patients that lie outside the remit of the national specialist transport services is undertaken.

There are a number of other ongoing related strands of work that have informed the review and should continue to feed into the future process. These include the Paediatric Unscheduled Care Project that the North of Scotland are progressing to support Rural General Hospitals, which encompasses paediatric HDU transfers, and the Perinatal Advisory Service scoping project that has been established by the Neonatal Expert Advisory Group to improve the coordination of the large number of perinatal transfers.

International and UK Comparisons

There are a number of international and UK examples of specialist transport and retrieval service delivery models, which have informed this review. These are outlined below. Integral to these models are central coordination and close alignment between the clinical and transport providers, in order to provide the best possible patient outcomes.

International Models

MedSTAR (South Australia)

MedSTAR is South Australia's unique 24-hour emergency medical retrieval service and is a discrete entity of the South Australian Ambulance Service. It has operated since February 2009 and provides a one-call service coordinating medical care, transport and retrieval of patients. The service is provided by an aeromedical consultant and suitably trained retrieval teams that are on standby 24 hours a day, seven days a week.

Aeromedical and Medical Retrieval Services (New South Wales)

The aeromedical and medical retrieval services are part of the ambulance service of New South Wales. They deliver a range of critical services including state-wide air transport and clinical care of patients from pre-hospital locations and between hospitals. These services are coordinated by a central Aeromedical Control Centre.

ORNGE (Ontario)

Ornge provides sophisticated medical transport for very ill and critically injured patients, by air and by land. Ornge is responsible for operations including the contracting of flight service providers, medical oversight of all transport medicine paramedics and screening of all transfers of patients between hospitals in Ontario. The service is centrally coordinated by the Ornge Communications Centre (OCC), which provides a multi-system communication network between clinicians, paramedics and logisticians.

UK Models

Children's Acute Transport Service (CATS) (North Thames and East Anglia)

CATS is an intensive care paediatric transport team serving over 50 hospitals in the North Thames and East Anglia regions. CATS provides a single point of contact for advice, bed finding and a paediatric retrieval team for acutely ill children needing intensive care. They offer telephone consultation, liaison with sub-specialists and skilled inter-hospital transport within one service.

Embrace (Yorkshire and Humber)

Embrace provides a 24 hours a day, 7 days a week, critical care transport service for critically ill neonatal and paediatric patients in the Yorkshire and Humber region. They are located adjacent to the road network to enable rapid response to referrals from clinicians throughout the region. Embrace provides clinical advice using conference call facilities to liaise with sub-specialists when required, and when

necessary will mobilise an intensive care team, staffed by doctors and nurses, skilled in the transport of critically ill children and infants. In addition, they provide a bed locator service to ensure the patient is transferred to an appropriate receiving facility.

Opportunities for development

The specialist transport services have grown separately over a period of time. These developments, whilst meeting clinical need, have not taken into account the opportunities to develop;

- Multi-disciplinary team working
- Sharing of expertise and skills
- Cohesive clinical coordination
- Effective and efficient triage and tasking of assets
- Integration between transport and clinical resources

The current services continue to provide safe and effective care to the patients that they care for. However, the current system lacks:

- A single point of contact for service users
- Standardised data collection
- Prioritisation system for times of simultaneous transfer requests
- Central coordination and communication
- Asset tracking and tasking
- Integration between specialist transport services and SAS
- Operational base co-located with transport assets
- Multi-disciplinary operational integration
- Multi-disciplinary teaching and training activities

Moving towards a single, national specialist transport service for Scotland will enable development of the areas identified above, and will ultimately deliver better quality healthcare and achieve better outcomes.

Strategic Plan Overview

Vision

To deliver a flexible and responsive single national specialist transport service for NHS Scotland.

Goals

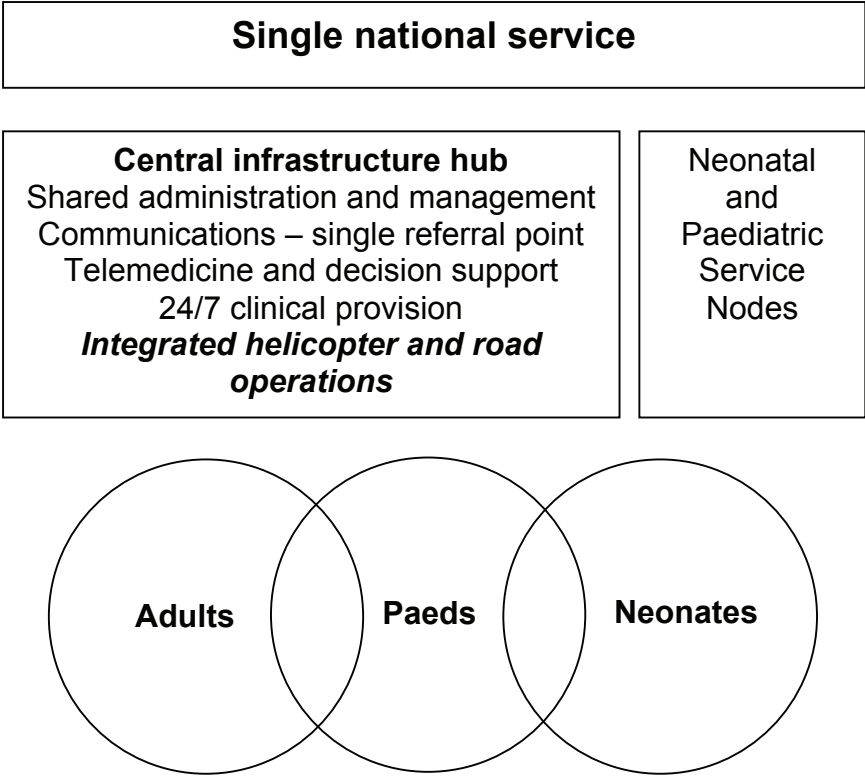
- A safe and effective service that
 - Has a single activation process
 - Supports use of common standard operating procedures
 - Has a common and adequate insurance policy
 - Supports common training in clinical practice and aircraft safety
 - Results in improved service safety, performance and patient care
- An adaptable and sustainable service that
 - Provides clinical coordination of retrieval activity
 - Covers the whole of Scotland, although within the remit of the existing services
 - Supports sustainability of the existing configuration and network of services in Scotland
 - Secures and enhances access for patients
 - Sustains and develops the required workforce
 - Is adaptable to future service design changes
- A feasible service that can deliver
 - Improved performance and efficiencies
 - A practical solution to the challenges
 - An integrated data collection / clinical audit / research
 - A coherent approach to performance management
 - A central and clinical governance accountable for retrieval service conduct and outcomes
- An efficient service that
 - Supports more efficient resource utilisation
 - Supports a more flexible approach to the workforce, ensuring skills are deployed appropriately and allowing development of generic skills
 - Is planned nationally
 - Enables greater cross-working within and across specialist teams
 - Facilitates integration of transport and clinical infrastructures offering a more consistent response
- A responsive and patient centred service that
 - Provides early clinical advice and support
 - Offers flexibility to tailor the response quickly and efficiently
 - Trains retrieval staff and staff at referring and receiving units
 - Co-ordinates with receiving units to ensure adequate intensive care and consultant capacity

Proposed Model

This service description recognises the strengths of the current specialist transport services and identifies areas for development. This functional description is intended to guide and strengthen a national specialist transport service. A detailed implementation plan will be required to address the transition to a new service model.

After extensive analysis and options appraisal, the project board has recommended to establish a single national specialist transport service for NHS Scotland. In the proposed model the specialist clinical teams for neonates, paediatrics and adults would maintain a discrete identity whilst being part of the single national service. The model would enable some overlap between the clinical teams, allowing cross-cover according to medical need or assessment, and enabling greater cross-collaboration and gain of experience between specialist teams.

In an evolutionary approach, the model allows for several clinical teams to be co-located at one site, adjacent to road and air transport services, enabling shared working practices, common equipment, effective use of resources, shared training and other latent benefits from co-location. However, delivery nodes will exist elsewhere as clinically appropriate, for example to deliver the neonatal and paediatric transport services across Scotland. Nonetheless, such nodes will benefit from a single coordination and tasking infrastructure.



Clinical coordination is an integral component of the proposed model, which allows safe and efficient use of expensive transport and clinical resources, provides high level clinical advice, and ensures the patient is directed in a timely manner to the most appropriate receiving facility.

A partnership approach between the clinicians and the Scottish Ambulance Service is essential to realise the benefits of a national, integrated specialist transport service, which are primarily increases in productivity and quality as a result of coordinated and effective management of high value assets, delivered within the existing resource envelope. Therefore development of a strong partnership, with shared goals, clearly defined aims, equality, trust and commitment, underpins an integrated specialist transport service for NHS Scotland.

The model will deliver a better quality service by providing a coordinated national service, which is responsive and clinically coordinated, and with central oversight to allow coordinated maintenance and improvement of facilities and infrastructure. Ultimately, these changes will deliver a better quality of healthcare and ensure access for all patients across Scotland, contributing to the safe, effective and person-centred ambitions.

Clinical coordination

Clinical coordination is the process by which specialist staff oversee the retrieval service to ensure:

- Safe and efficient use of expensive transport and clinical resources
- High level clinical advice is available
- The patient is directed in a timely manner to the most appropriate receiving facility

A robust clinical coordination system would facilitate a single point of contact for service users, and a central coordination process would allow early teleconferencing of the referring clinician, the clinical coordinator, the transport team, the specialist and the Scottish Ambulance Service. This system would be most effective with development of a national telemedicine network.

Clinical coordination will allow the transport service to be activated quickly, and enable the dispatch of the most appropriate team by the most appropriate method of transport. In addition, prioritisation of response to simultaneous requests would be possible, and patients that did not require transport could be identified.

It is proposed that the clinical coordination model is developed in partnership with the Scottish Ambulance Service, due to the close operational links and the extensive experience that the Scottish Ambulance Service has in operational planning, call handling and transport dispatch. The Scottish Ambulance Service are already developing clinical triage and management processes and the benefits are now manifest in reduced air ambulance demand, improved response times and quality of service delivery.

The proposed functions of the clinical coordination model include:

- **Clinical coordination** – integrated communication and coordination capacity for national advice and dispatch of most appropriate clinical team
- **Logistical coordination** – dispatch of most appropriate transport resource
- **Senior Medical input into triage and tasking** – a senior critical care specialist with extensive experience in specialist transport services to advise triage and tasking of assets as required

The clinical coordination system would use real time visual asset tracking systems and advanced communication systems. Further development of a national telemedicine system would allow for provision of greater support to remote and rural communities.

Workforce

The workforce should be flexible with the capacity to manage demands, while offering a cost effective service. The workforce model will need to constantly develop.

To respond to current and future challenges the workforce will need:

- the appropriate skills, knowledge and attitude
- to ensure the safety of the team and the patient
- to be flexible across tasks and across platforms
- to be efficient and effective

In addition to the clinical coordination functions described above, the following functions will be required:

- **Specialist Transport Physicians** – highly trained and experienced critical care physicians that provide critical care during patient transport to a standard only usually available in a tertiary hospital environment. The service will require specialist adult, paediatric and neonatal retrieval physicians, although the extent and scope of cross-cover may increase over time.
- **Critical Care Practitioner** – this role should be developed and will include a mixture of skilled nurses, nurse practitioners and paramedics.
- Robust arrangements for **pharmacy, bio-engineering support and medical physics** will be necessary.
- Dedicated **audit staff** for patient follow-up and governance.
- General **administration and secretarial support**.

The clinical coordinator would deploy a team based on the clinical need for each transfer. Generally a team of two would perform each transfer, and the composition of the team would depend upon the clinical and transport demands.

The development of the Critical Care Practitioner cadre will need to be taken forward in partnership between all stakeholders to ensure alignment and quality of training programmes. Currently, the Scottish Ambulance Service is developing a programme

with Glasgow Caledonian University to provide additional training around critical care issues particularly for those paramedics involved in higher acuity transfers and work with the specialist transport teams.

The long-term goal is to develop a generic workforce that has the appropriate skills and training to safely transfer any patient. The Critical Care Practitioners would be part of a multi-professional team approach, with doctors providing medical support, clinical governance and advice.

Remote and rural health practitioners should be integrated into the operational, training and clinical governance activities of the specialist transport service, as many of the transfers are in support of these practitioners.

Additionally, training programmes should encompass all referring and receiving clinicians and units.

Operations

The current specialist transport services perform around 2,200 transfers each year. The proposed single national specialist transport service will not expand the scope or remit of the current services.

The project board recommends that a wider piece of work around inter-hospital transfers of acutely or critically ill patients that lie outside the remit of the national specialist transport services is undertaken.

The service model described in this paper must sustain the existing configuration of hospital services, and will not expand upon the current services' remit, although it has been designed to support and sustain future service development and improvement.

The medical requirements for the specialist transfers are highly variable and range from simple logistic considerations through to rapid response to time-critical trauma or long distance high level inter-facility critical care transport. The challenge is to structure a highly flexible service that is efficient, effective and safe.

There is currently operational and physical separation of hospital based specialist transport teams and the transport platforms and other team members with which they must work. This lack of co-location results in measurable delays for rapid responses and increased costs required to move the team and asset together.

The development of a shared operational base for all teams could bring together clinical and support staff, equipment and vehicles in one location which could improve quality, performance and efficiency. The operational base would require vehicle access, office space, sleeping accommodation and storage for equipment and consumable items, and would require to be adjacent to the heliport with rapid access to the motorway system and airport.

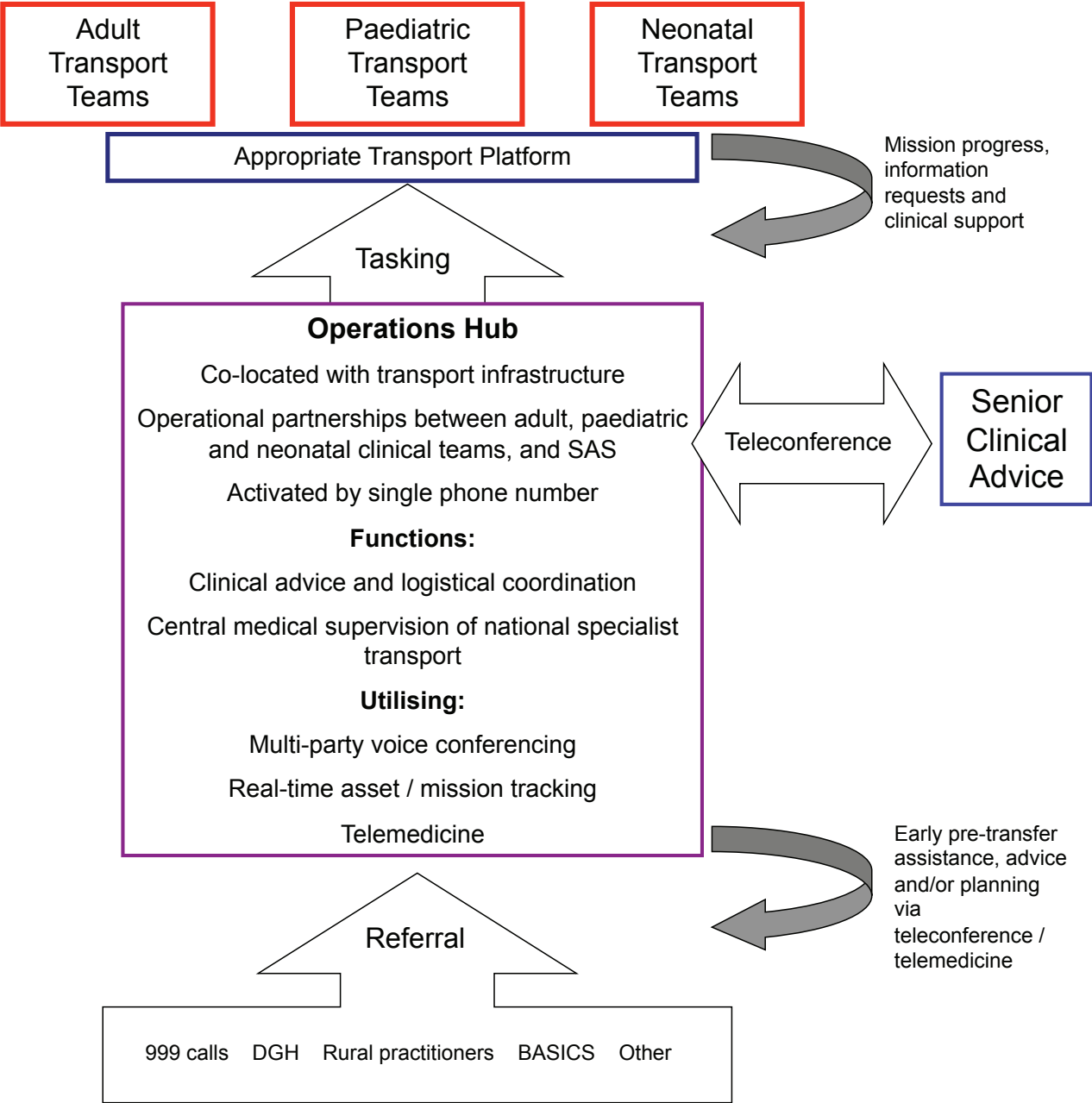
The Scottish Ambulance Service is currently selecting a preferred bidder to provide the Air Ambulance Service from 1 April 2013. The Air Ambulance re-procurement project will determine the location(s) of the airbase(s) from 2013-2020. Due to the

dependency of the specialist transport services on access to the Air Ambulance, their accommodation requirements have been built into the air procurement specification.

The proposed model is that the two adult teams, which require co-location with the rotary wing assets, and one paediatric and one neonatal team are co-located at the airbase. It is important to recognise that the majority of specialist transfers occur by road and therefore the airbase must have good road links in order to minimise land transfer response times.

In addition, delivery nodes will exist elsewhere as clinically appropriate to deliver the neonatal and paediatric transport services across Scotland. These nodes will also benefit from a single coordination and tasking infrastructure.

Proposed operational service model summary



Clinical Governance

Clinical governance refers to the application of a number of quality assurance tools to the national specialist transport service with the intent of improving service safety, performance and ultimately patient care. This must drive measurable improvements in patient care, service delivery and overall safety.

Quantitative measures such as response and transfer times will be needed to monitor service performance and allow for national and international benchmarking.

Clearly defined incident reporting processes must also exist.

The clinical performance of all specialist transport staff will be closely monitored but the model should reflect that individuals are making sessional commitments to the specialist transport service and are still employed by their home boards, which will also be responsible for clinical governance and performance.

Finance

The proposed model will be delivered within the existing resource envelope and evidence suggests this model of service delivery will enable efficiency savings by pooling of resources, clinical integration, combined administration and coordination.

Financial modelling has been advised and informed by a small group of NHS Board Directors of Finance, however, further detailed costing analysis and production of a Full Business Case is required before proceeding to full implementation.

The proposed model would be implemented over a phased transition process, whereby the following savings (largely productivity gains and releasing savings to meet future demand) could be realised as integration is achieved in a stepwise manner:

	Total	Savings
Baseline	£9.3M	
1. Combined management and administration	£9.24M	0.8%
2. Combined management and administration, combined clinical coordination	£9.3M	-
3. Combined management and administration, combined clinical coordination, towards integration of clinical teams	£8.8M	5%
4. Combined management and administration, combined clinical coordination, greater integration of clinical teams	£8.3M	10%

Combined clinical coordination will require some additional recurring investment (step 2) therefore negating the savings from combining management and administration. However, the potential benefits in terms of reduced transport demand, improved response times and increased quality of service delivery should outweigh this investment.

Additionally, the savings to be realised from integration of clinical teams (steps 3 and 4) is dependent on the operational delivery model adopted, for example nurse/paramedic led transport teams versus consultant led transport teams, and the scale of clinical integration that is achievable (which is dependent upon clinical training), for example the requirement for a generic transport clinician pool versus the requirement for speciality transport clinician pools.

Governance

It is essential that clear governance, lines of accountability and strong leadership are in place prior to the establishment of a national specialist transport service. The project board recommends that the Scottish Ambulance Service should manage the national specialist transport service; however, the specialist transport service must maintain a discrete and distinctive identity.

The Project Board considered several possible governance options, including models currently used by the existing specialist transport services, such as national designation as a specialist service, hosted service by a territorial or special health board, or establishment of an executive team accountable to the Board Chief Executives Group.

There are essential links between the Scottish Ambulance Service and the specialist transport service, and the requirement for a strong partnership between the two services has already been outlined above. A model where the national service is managed by the ambulance service could maximise the operational, clinical and cost benefits due to integration of the transport infrastructure, technology infrastructure and the specialist transport clinicians.

These benefits, and the desire to keep the governance arrangements as simple as possible by using existing processes, led the Project Board to recommend that the Scottish Ambulance Service manage the national specialist transport service.

The Scottish Ambulance Service would be accountable for service conduct and outcomes and will be well placed to manage service performance by controlling the availability of vehicles and drivers, coordinating and integrating critical infrastructure with service provision and supporting the most efficient use of high value assets through medically supported tasking, triage and remote assessment.

This service model follows international best practice, for example Aeromedical and Medical Retrieval Services (New South Wales), MedSTAR (South Australia) and ORNGE (Ontario) are all specialist transport services delivered by air ambulance services. Additionally, this service model is similar to that of the Scottish Centre for Telehealth (SCT) which was repositioned into NHS24 in April 2010. The SCT has ensured its strategy aligns with the strategic direction of NHS24, however the centre retains its discrete identity and website supporting NHS Scotland.

The Scottish Ambulance Service would be expected to report annually on the performance and expenditure of the service as part of the existing governance processes. In addition, an external oversight group would be established that meets

quarterly to address operational issues, ensure transparent monitoring and give assurance to NHS Board Chief Executives.

Next Steps

The project board recognises that their recommendations will not immediately solve all the challenges facing specialist transport in Scotland. However, they are confident that establishing a single, national specialist transport service will form the basis of a sustainable, safe and effective service that can support and sustain future service development and improvement.

In order to implement these recommendations it is proposed that a small implementation team, with strong clinical and managerial leadership, is put in place to oversee the phased transition process to a fully implemented service for 18 months to 2 years. This would be subject to further detailed costing analysis, including production of a Full Business Case.

Annex A - Membership of the Specialist Transport Services Strategic Review Project Board

Robbie Pearson, Chair – Acting Deputy Director, Health and Healthcare Improvement, Scottish Government Health and Social Care Directorates
Mike Fried – Clinical Adviser to STSSR
David Rowney – Clinical Lead, Paediatric Retrieval East
Andrew McIntyre – Clinical Lead, Paediatric Retrieval West
Stephen Hearn – Clinical Lead, Emergency Medical Retrieval
Phil Booth – National Director, Scottish Neonatal Transport Service
Mo Al Haddad – Clinical Lead, SHOCK Team
Alasdair Corfield – EMRS
Drew Inglis - EMRS
Iain Thomson - SHOCK Team
Ann Marie Wilson – Neonatal Transport Co-ordinator West
Sandra Stark – West of Scotland Paediatric Transport Coordinator
Justine Westwood – Head of Planning and Performance, NHS24
Pete Ripley – Director of Operations, SAS
Daren Mochrie – Acting Director of Service Delivery, SAS
Heather Kenney – Director of Strategic Planning, SAS
Pamela McLauchlan – Director of Finance, SAS
Annie Ingram – Regional Director of Planning and Workforce/ Project Director, Remote and Rural Project, NoSPG
Deirdre Evans – Director of National Services Division
Heather Knox – Regional Director of Planning, West of Scotland
Jacqui Simpson – Regional Director of Planning, SEAT
Grant Archibald – Director of Emergency Care, NHS Greater Glasgow and Clyde
Mechelle Dawson – Scottish Partnership Forum
James McNamee – Scottish Partnership Forum
Jenny Boyd – Consultant Obstetrician
Lesley Jackson – Scottish Neonatal Transport Service
Callum Percy – Scottish Government Health and Social Care Directorates
Jenny Long – Scottish Government Health and Social Care Directorates



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ISBN: 978-1-78045-514-3 (web only)

APS Group Scotland
DPPAS12283 (11/11)

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