Regular Scottish Specialist Transport and Retrieval

Critical care, anywhere

Scottish Specialist Transport and Retrieval
Annual Report 2015-16
1. Welcome

“I am pleased to present the 2015/16 SCOTSTAR Annual Report on behalf of the Scottish Ambulance Service and NHS Scotland. Our three clinical teams operating in a ‘Once for Scotland’ model, continue to care for some of the most sickest patients who require Specialist Transport and Retrieval between health care facilities throughout Scotland.

It’s been another busy year for SCOTSTAR. Our Adult team completed 287 primary and 239 secondary Retrievals, our Neonatal team completed 1,428 secondary Transfers and our Paediatric team completed 323 secondary Retrievals. The SCOTSTAR teams are now benefiting from the Scottish Ambulance Service’s new state of the art larger and more capable aircraft to enhance the care they provide to patients.

Our Specialist Transport and Retrieval teams working in partnership with a number of organisations supported the Scottish Ambulance Service at several Major Incidents throughout the year.

The construction of the new state of the art Specialist Transport and Retrieval base at Glasgow airport is now complete and was formally opened by the Cabinet Secretary for Health, Wellbeing and Sport on 11 March 2016. Our teams are now benefiting from this modern fit for purpose accommodation which is enabling our teams to come together under the same roof to learn and train together and share their knowledge and experiences.

Whilst it is acknowledged that there is still much to do to further strengthen governance and future workforce models, the service continues to evolve and I would like to take this opportunity to thank all our staff for the work they do; day in day out; to provide communities across Scotland with a Service which is safe, effective and clinically excellent.”

Pauline Howie OBE
Chief Executive Officer,
Scottish Ambulance Service
2. Introduction

SCOTSTAR (Scottish Specialist Transport and Retrieval) is a division of the Scottish Ambulance Service (SAS) within the Service Delivery Directorate led by Daren Mochrie QAM the Director of Service Delivery that exists to provide a national service for the safe and effective transport and retrieval of neonates, children and adults in Scotland.

It was launched on 1st April 2014 and has brought together three existing services – Scottish Neonatal Transport Service (Neonates), Emergency Medical Retrieval Service (Adults), and Scottish Paediatric Retrieval Service (Paediatrics) into one specialist service. The service provides a safe and dedicated transport service for a particular patient group who, because of their clinical condition, require an augmented clinical team during retrieval/transport, and represent the most vulnerable of patients transported in Scotland. In total, SCOTSTAR teams completed 2,087 transfers and retrievals in 2015/16.

As a National Service, SCOTSTAR ensures that critically ill patients are transferred within and outside Scotland to the definitive level of care that the clinical condition of a patient demands. All of the territorial Boards in Scotland rely on the service and have an interest in the performance and operation of SCOTSTAR. When the new Service was established, it was agreed that the service would be funded nationally through top-slicing and that a governance system would be established, which would include separate reporting to allow stakeholders to track progress of the service against the previously agreed deliverables. The stakeholders for SCOTSTAR are the Health Boards, service users, and the wider NHS Scotland organisations such as Community Midwife Units and Rural General Hospitals. The Governance system included an Advisory Group, chaired by Dr Annie Ingram, reporting to the Chief Executives Group, and the production of an Annual Report, building on the system of Annual Reporting which the three previous services had used.

The three established national specialist transport teams are outlined below.

2.1 Organisational Overview

2.1.1 Team Overview

Scottish Paediatric Retrieval Service (Paediatrics)

In 2015-16, the Paediatrics team provided a national service from Edinburgh and Glasgow for the retrieval of children from newborn to 16 years of age. The team is predominantly consultant led; supported by trainees, nurse practitioners and nurses. The team works closely with Paediatric Intensive Care Unit (PICU) consultants to provide an advice only call service, whereby the duty SCOTSTAR and PICU consultants advise the referring clinician, which prevents unnecessary transfers. SCOTSTAR retrieval operations in Edinburgh concluded on 31 March 2016 and the team now works from the new base in Glasgow.

Scottish Neonatal Transport Service (Neonates)

The Neonatal team provides a national service delivered by three regional teams in the West, South East and North of Scotland, all of which provide cross-cover for each other. They transfer and/or retrieve babies up to five kilograms. Each neonatal transport is undertaken by a team of between one and three clinicians, including consultants, Advanced Neonatal Nurse Practitioners (ANNPs), middle grade doctors and transport nurses.

Emergency Medical Retrieval Service (Adults)

The Adult team provides a national service, with two teams available 24 hours a day. Each team is led by a consultant with the second team member being either a senior medical trainee or a Critical Care Practitioner (CCP). It operates from the SCOTSTAR Base at Glasgow International Airport, and covers the whole of remote and rural Scotland.

The Adults team has four functions:

• Secondary retrieval of critically ill and injured patients from remote and rural health care facilities;
• Telephone advice to remote and rural hospital staff with regard to resuscitation and safe transfer of patients with critical illness;
• Primary retrieval of patients with major trauma in West and Central Scotland;
• Major incident pre-hospital medical response.

2.1.2 SCOTSTAR Role

Nearly 2,100 of the 740,000 emergency incidents attended annually by the Scottish Ambulance Service are attributable to specialist transport and retrieval, however these take significantly longer and are complex in their delivery with many being inter-hospital transfers.

The clinical coordination model for the Division is being developed in partnership with the Ambulance Service’s Ambulance Control Centre (ACC), due to their close operational links and extensive experience in operational planning, call handling and transport dispatch. There are essential links between the different elements of these different services within the Scottish Ambulance Service and SCOTSTAR, which is an operating division of the Ambulance Service maximises the operational, clinical and cost benefits through integration of the transport infrastructure, technology infrastructure and the specialist transport clinicians. In addition to this the Scottish Ambulance Control Centre has recently taken over the Perinatal Advisory Service from NHS 24. This links in with the co-ordination role undertaken by the Specialist Services Desk in the ACC which allocate missions to the retrieval teams.

The base has immediate access to specialist vehicles and aircraft as part of a £9.5 million investment in patient care. It is the first time anywhere in the UK that multi-disciplinary clinical retrieval teams operate from a single base. The Cabinet Secretary met with staff and was given a tour of the base and capabilities, which included an overview of the specialist vehicles, aircraft, and equipment available to use. There are approximately 85 staff who work from the new base which includes the national administrative and managerial functions of both SCOTSTAR and the Air Ambulance Division.
2.1.3 Mission statement

SCOTSTAR aims to provide the highest quality clinical care through an integrated sustainable national service for the safe and effective transport and retrieval of neonates, children and adults in Scotland.

To achieve this, SCOTSTAR aims to achieve four main goals in 2016-17:

1. Improve coordination and tasking of air and retrieval teams,
2. Consolidate and develop the workforce of multi disciplinary teams for the future needs of the patients, and
3. Work to coordinate and align all data reporting systems from the retrieval teams,
4. Develop governance arrangements to integrate with the existing SAS governance frameworks.

To achieve these, in 2016-17 SCOTSTAR will work towards:

Coordination

- Integration and provision of clinical support to the Specialist Services Desk (SSD),
- Developing additional linkages to the wider SAS strategy,
- Collaboration with other SAS partners around related areas of clinical practice, e.g. Major Trauma and Major Incidents, and further engagement with internal and external partners within NHS Scotland,
- Developing links with Scottish Patient Safety Programme in particular with regards to Paediatrics,

- Developing clear and consistent operating procedures for tasking and coordination of all assets (including SAR) including how to triage and prioritise across teams,
- Appraising all options for function and location of coordination / referral,
- Integrating Air Ambulance and SCOTSTAR more closely,
- Participating in induction training for all coordination staff.

Workforce Planning

- Developing job appropriate training plans for enhanced nurse and paramedic grade staff,
- Scoping the potential for a North SCOTSTAR team,
- Formalising links across teams to improve skill sets and resilience, such as between Paediatrics and Neonates, or between CCPs and Adults,
- Improving practices regarding rostering such as fatigue management, Personal Protective Equipment (PPE), and protected training time,
- Up-skilling of all staff including Air Ambulance paramedics,
- Exploring direct recruitment of doctors and nurses by SAS, and
- Developing a centre of excellence for SCOTSTAR training in collaboration with other partners.

Data and Information

- Developing an integrated suite of measures to support service improvement, aligned with the wider service and new SSD measures,
- Using a single, shared data collection system,
- Ensuring SCOTSTAR developments remain compatible with wider integrated data systems, such as Badgemet,
- Making data reporting system more real-time, accessible and user friendly through the use of technology,
- Ensuring firm and appropriate governance arrangements for our data,
- Providing regular feedback to staff using data,
- Developing measures regarding access and equity,
- Incorporating patient feedback,
- Developing a list of “change ideas” to test.

Governance

- Developing SCOTSTAR clinical governance arrangements to ensure integration with existing SAS Clinical Governance framework,
- Developing SCOTSTAR staff governance arrangements to ensure integration with existing SAS Staff Governance framework,
- Developing SCOTSTAR financial governance arrangements to ensure integration with existing SAS Financial governance arrangements, and
- Ensuring SCOTSTAR Information governance remains aligned with SAS Information Governance practices and processes.

2.2 Governance

2.2.1 Governance Framework Overview

SCOTSTAR Governance Framework saw changes in 2015/16, both to the structure of the division and the management team. In November 2015, the previous Head of Service was succeeded by the interim Deputy General Manager for Scottish Ambulance Service South West Division and SCOTSTAR, Jim Dickie, along with the recruitment of a new Associate Medical Director in spring 2016. The governance arrangements for SCOTSTAR have been split into the following categories – Information, Corporate, Patient Safety and Quality (formerly Clinical Governance) and Workforce and Communications (formerly Staff Governance).

The diagram below sets out the accountability arrangements for SCOTSTAR.

2.2.2 Information Governance

The NHS Scotland Information Assurance Strategy is adhered to within SCOTSTAR. Information Governance responsibility is delegated by the Ambulance Service Chief Executive and Director of Strategic Planning and Quality Improvement, who chairs the SAS Information Governance Committee which meets quarterly, to the Deputy General Manager for South west and SCOTSTAR.

SCOTSTAR is represented on this committee, and reports to this Committee on any pieces of work requiring collation and analysis of data held across different Health Boards, to ensure all relevant permissions via Privacy Advisory Committee and Caldicott Guardians are secured. The Information Governance Committee reports to the main SAS Audit Committee.

The diagram below sets out the accountability arrangements for SCOTSTAR.

Figure 1: SCOTSTAR Accountability Arrangements

Figure 1: SCOTSTAR Accountability Arrangements

2.2.3 Reporting Arrangements

Reporting structures within SCOTSTAR were updated and strengthened during 2015-16 to maximise the benefits of co-location of the SCOTSTAR and Air Ambulance Teams at the new operating base within the grounds of Glasgow Airport. This new facility has created synergies between the four teams by generating opportunities for collaboration and joint working to ensure that person centred care and activities are considered in a joined up basis.

The Deputy General Manager for SW and SCOTSTAR chairs the monthly SCOTSTAR Senior Leadership and Management Team (SSLMT) which is responsible for implementing, reviewing and reporting overall reporting arrangements and performance within SCOTSTAR and Air Ambulance. During the year significant progress has been made regarding reporting and...
performance. The Operational Capabilities and Standard Operating Procedures (SOPs) Group chaired by Neonatal Manager, Mrs Ann Marie Wilson, has been regularly working to identify operational issues and new capabilities, along with developing SOPs for SCOTSTAR. The Operational Support Group chaired by Paediatric Lead, Ms Sandra Stark, regularly meets to ensure that SCOTSTAR teams are provided with appropriate administrative, logistics and base support to ensure that frontline operations run as smoothly as possible.

2.2.4 Governance Arrangements

Work is ongoing to further develop the governance arrangements for SCOTSTAR and to align them with the governance arrangements for the Scottish Ambulance Service as shown below:

Figure 3: SAS Board

2.2.5 Patient Safety & Quality

The SCOTSTAR Clinical Governance Group was superseded by the Patient Safety & Quality Group (PSQG) in 2015-16. This is a Tactical level group chaired by the Associate Medical Director. The chair of the PSQG reports to the SSLMT and represents SCOTSTAR on the SAS National Clinical Governance Group which reports to the SAS Clinical Governance Committee.

The PSQG has two operational groups, Joint Air & Adult Clinical Governance & Learning Group and the Joint Paediatric & Neonatal Clinical Governance & Learning Group, which report to and undertake a number of the work streams noted above on behalf of the PSQG. These groups are jointly chaired by both Clinical and Service Leads and meet monthly.
2.2.6 Workforce And Communications

The Short Life Work Force Group, introduced in 2014 to identify the best options for employing staff and any transfer arrangements required in the future, was superseded by the Workforce and Communications Group (WCG) in 2015-16. This is a Tactical Operational level group chaired by the Deputy General Manager supported by the Associate Director of Human Resources. This group meets bi-monthly and is responsible for developing proposals for future SCOTSTAR operating models for submission to the SSSM and to the SAS. Developing our Future Workforce Group. In addition, a key part of this group’s role is to provide a forum to formally engage with the range of staff groups across the various specialist areas. Importantly, this group has membership from a range of staff from across the four teams.

2.3 About The Service – SCOTSTAR in 2015

Service Model

As a result of co-location at the new base, back office functions have come together, and Paediatric and Neonatal transport teams are able to assist each other when required. Teams also try to ensure standardisation when purchasing equipment. Regular discussions with the North of Scotland Regional Planning Group have been underway since 2014 regarding engaging stakeholders and identifying an optimum solution for Neonatal, Paediatric and Adult retrieval in the North of Scotland. However due to changes in management personnel and post vacancies in both NHS Grampian and SCOTSTAR, these discussions have been delayed in recent months. Following the recruitment of a Deputy General Manager and Associate Medical Director for SCOTSTAR later in summer 2016, discussions are now progressing regarding adopting a sustainable model for the future.

Clinical Coordination

Development of a dedicated tasking and coordination hub for SCOTSTAR continues to be taken forward as part of the SSD project. Benefiting from dedicated project management support since October 2015, the desk is scheduled to become operational from summer 2016 in the Cardonald ACC.

As the single point of contact for SCOTSTAR operations, the desk will function as a communications hub. Utilising a newly procured and installed call conferencing upgrade, the SSD staff will seamlessly connect referring centres with the relevant SCOTSTAR transport team for advice and retrieval while giving live time updates on transport options. Central to realising the project ambitions of improved tasking and coordination of specialist resources are the SSD Supervisors. In addition to standard ACC systems training, the project team and SCOTSTAR/ Air Ambulance service leads have designed and delivered a bespoke induction package to better prepare the SSD Supervisors for their new role. When operational, the desk will co-ordinate and prioritise access to the SCOTSTAR Retrieval services, pre-hospital Trauma Teams, Air Ambulance transport services and specialist neonatal cots and beds for patients across the whole of Scotland helping to ensure that these finite resources are targeted towards our most vulnerable and critically unwell patients.

2.3.1 Report On Activity

In 2015-16, SCOTSTAR completed 2277 transfers. In comparison with the total activity of 2654 completed transfers in 2014-15, this represents a 14.2% decrease. This is constituted of a 24% increase in paediatric activity over the last year, 13% decrease in adults’ activity and a 20% decrease in neonatal activity. During this period of time, the neonatal units have been experiencing shortages of neonatal costs. This had an impact on activity as this restricts the movement and repatriation numbers. This issue is included as part of the Maternity and Neonatal Service Review. There also appears to be under-reporting of neonatal activity following the move to a new system earlier in the year, resulting in a period of loss of access to the database, which generated backlogs for certain teams. The issue has now been resolved and the teams have almost caught up with the backlog. Total activity of SCOTSTAR teams for 2015-16 is presented below.

Activity breakdown of the SCOTSTAR teams is presented below.

* In addition, the Adults team took 268 advice calls in 2015-16, resulting in 89 avoided transfers (33% of all calls received), compared to 247 advice calls in 2014-15 resulting in 81 avoided transfers (33%). The Paediatric (East) team also took 64 advice calls during the course of the year, compared to 74 advice calls in 2014-15.

Activity breakdown of the SCOTSTAR teams is presented below.

---

**Figure 4:** Overall Activity of SCOTSTAR teams in 2015-14

**Figure 5:** Adults Activity Breakdown in 2015-16

**Figure 6:** Neonates Activity Breakdown in 2015-16

**Figure 7:** Paediatrics Activity Breakdown in 2015-16

---

* Journeys initiated: number of journeys initiated.
* Journeys completed: number of journeys completed.
* Less cancellations: number of journeys cancelled.
* Avg Mission Duration: average mission duration.
* Workload in Hours: total workload in hours.

---

* Planned: journeys planned.
* Unplanned: journeys unplanned.
* Uncategorised: journeys uncategorised.

---

* Transfers Completed: number of transfers completed.
* Avg Mission Duration: average mission duration.
* Workload in Hours: total workload in hours.

---

* Paediatrics - Road: number of journeys for Paediatrics - Road.
* Paediatrics - Air: number of journeys for Paediatrics - Air.
* All Paediatrics: total number of journeys for all Paediatrics.

---

* * Cancellations include journeys that were aborted or stood down after retrieval had been requested, either before or after a team had been mobilised, due to various reasons such as specialist input no longer being required, death of the patient, etc.
Specific pieces of information relating to activity within the SCOTSTAR services are presented below:

<table>
<thead>
<tr>
<th>Diagnosis Category</th>
<th>North</th>
<th>Outside Scotland</th>
<th>Seat</th>
<th>West</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVS</td>
<td>3.1%</td>
<td>16.1%</td>
<td>19.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GI</td>
<td>3.1%</td>
<td>0.9%</td>
<td>4.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metabolic</td>
<td>1.8%</td>
<td>3.1%</td>
<td>4.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neurological</td>
<td>4.5%</td>
<td>13.4%</td>
<td>17.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory</td>
<td>10.7%</td>
<td>14.3%</td>
<td>25.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sepsis</td>
<td>5.4%</td>
<td>6.2%</td>
<td>11.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toxicology</td>
<td>1.3%</td>
<td>5.4%</td>
<td>6.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trauma</td>
<td>2.2%</td>
<td>8.5%</td>
<td>10.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>32.1%</td>
<td>67.9%</td>
<td>100.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 8: Adults Secondary Retrievals by Scottish Region and Diagnosis Category

<table>
<thead>
<tr>
<th>Diagnosis Category</th>
<th>North</th>
<th>Outside Scotland</th>
<th>Seat</th>
<th>West</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac / Cardiology</td>
<td>1.6%</td>
<td>0.3%</td>
<td>3.7%</td>
<td>3.1%</td>
<td>8.7%</td>
</tr>
<tr>
<td>ECMO</td>
<td>0.0%</td>
<td>0.3%</td>
<td>0.0%</td>
<td>0.3%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>0.3%</td>
<td>0.0%</td>
<td>0.3%</td>
<td>0.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Metabolic</td>
<td>0.6%</td>
<td>0.0%</td>
<td>0.9%</td>
<td>0.6%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1.9%</td>
<td>0.0%</td>
<td>2.8%</td>
<td>0.6%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Neurological</td>
<td>4.0%</td>
<td>0.0%</td>
<td>6.5%</td>
<td>9.6%</td>
<td>20.1%</td>
</tr>
<tr>
<td>Respiratory</td>
<td>13.0%</td>
<td>0.6%</td>
<td>14.6%</td>
<td>18.0%</td>
<td>46.2%</td>
</tr>
<tr>
<td>Sepsis</td>
<td>2.8%</td>
<td>0.0%</td>
<td>4.0%</td>
<td>3.7%</td>
<td>10.5%</td>
</tr>
<tr>
<td>Surgical</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.6%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Trauma</td>
<td>1.2%</td>
<td>0.0%</td>
<td>2.5%</td>
<td>1.6%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Total</td>
<td>25.4%</td>
<td>1.2%</td>
<td>35.3%</td>
<td>38.1%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Figure 10: Paediatrics Retrievals by Scottish Region and Diagnosis Category

Figure 9: Adults Secondary Retrievals by Scottish Region and Diagnosis Category

Figure 11: Paediatrics Retrievals by Scottish Region and Diagnosis Category
Clinical categories for neonatal transfers have been included in the dataset since September 2015 following the move to the new Badgernet transport system. From September 2015 to March 2016, the main clinical categories for neonatal transfers were – medical (58% of all transfers), surgical (30%), neurology (7%) and cardiac (6%). Annual figures for transfers by clinical category will be reported from 2016-17 to enable reporting for SCOTSTAR teams to remain as consistent as possible.

### 2.3.2 Resource Use

#### Facilities

Following the co-location of the West SCOTSTAR teams at the new base in September 2015; only neonatal team delivery units remain operational in Edinburgh and Aberdeen from April 2016.

The re-provision of neurosciences and paediatric care to the Little France site adjacent to the Royal Infirmary of Edinburgh is well underway. This will include a state of the art elevated helipad facility improving access for helicopter transfers in and out of Edinburgh.

#### Equipment / Vehicles

The teams within SCOTSTAR are committed to ensuring the provision of suitable equipment for all retrievals, and teams work collaboratively to plan the purchase of replacement equipment. A new Skoda Octavia four wheel drive response vehicle was leased for the Paediatric East team in 2015, and two new Octavia response cars have been procured for the Adults team. Several new vehicles are being developed and funded by SAS and by charitable donations over the coming year. New equipment and drivers for the North neonatal team were also agreed in 2015. SCOTSTAR teams remain committed to streamlining and enhancing the quality of equipment where possible.

SCOTSTAR retrievals and transfers completed using different modes of transport in 2015-16 have been presented below.

### Figure 14: SCOTSTAR Journeys by Mode of Transport in 2015-16

<table>
<thead>
<tr>
<th>Mode of Transport</th>
<th>Paediatrics</th>
<th>Adults</th>
<th>Neonates</th>
<th>SCOTSTAR Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>235</td>
<td>193</td>
<td>1136</td>
<td>1564</td>
</tr>
<tr>
<td>Air</td>
<td>88</td>
<td>333</td>
<td>102</td>
<td>523</td>
</tr>
<tr>
<td>Total</td>
<td>323</td>
<td>526</td>
<td>1238</td>
<td>2087</td>
</tr>
</tbody>
</table>

Figure 14: SCOTSTAR Journeys by Mode of Transport in 2015-16

### Figure 15: SCOTSTAR Journeys by Mode of Transport in 2015-16

<table>
<thead>
<tr>
<th>Mode of Transport</th>
<th>Paediatrics</th>
<th>Adults</th>
<th>Neonates</th>
<th>SCOTSTAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>235</td>
<td>193</td>
<td>1136</td>
<td>1564</td>
</tr>
<tr>
<td>Air</td>
<td>88</td>
<td>333</td>
<td>102</td>
<td>523</td>
</tr>
<tr>
<td>Total</td>
<td>323</td>
<td>526</td>
<td>1238</td>
<td>2087</td>
</tr>
</tbody>
</table>

Figure 15: SCOTSTAR Journeys by Mode of Transport in 2015-16


Systems

There have been several strands of development in the use of Information Technology to support the work done by all three teams. Significant changes have taken place in 2015/16: the Neonatal team completed the move to the new Cloud based BadgeNet platform in August 2015 and the Paediatric team started to use it from April 2016 to record paediatric retrieval activity. The Adults team have completed the testing and feedback stages for their new database, EMRS View, which was demonstrated at the 2016 Retrieval Conference and will allow for run-sheets to be completed electronically.

Innovation

SCOTSTAR teams are committed to driving forward new initiatives and quality improvements and have implemented several service innovations in 2015-16. Specifically, neonatal and paediatric teams have been working towards an integrated neonatal/paediatric nursing model. The ANNP’s developed a training programme for the paediatric nursing staff to undertake to enable them to work with the neonatal team, to undertake neonatal transfers both elective and emergency.

Three of the paediatric nurses have completed their neonatal competencies and are now working as part of the neonatal nursing team as well as undertaking paediatric retrievals. The nurses will have clinical placements within the neonatal intensive care unit to consolidate the training that they have completed. The paediatric nurses and clinicians will be working towards a training programme for the neonatal nursing team to undertake paediatric retrievals. This will also include clinical placements within the paediatric intensive care unit.

Honorary contracts have been agreed within NHS Greater Glasgow and Clyde to allow the nursing team to go in to the clinical environment for skill maintenance and intensive care patient management. Working proactively towards standardised documentation and data collection following the integration of nursing teams; neonatal and paediatric nurses Graham Latta and Clare Hargan have been working together on combining the transport logs. These will be available for use for the teams at the beginning of summer 2016.

The nursing team have developed a training programme for adult intensive care nurses. The main aim of this training is to support and assist the adult nurses that are caring for the critically ill children prior to arrival of the retrieval team. This programme will be ready to deliver from the summer of 2016.

Team specific innovation achievements for 2015-16 included:

Paediatrics

- Quarterly joint PICU/SCOTSTAR Morbidity and Mortality meetings are hosted at the SCOTSTAR base, featuring case-based presentations and discussions on patients retrieved in to both units
- The redesign and development of the paediatric website is being undertaken by two of the consultants, Dr Tim Geary and Dr Andrew McIntyre.

Adults

- Further development and updates of the EMRS app including a major incident call team call out function;
- Advanced CCP project work continues with two further CCPs undertaking an post graduate certificate in advanced practice;
- Development of service capability around the treatment of patients suffering accidental hypothermia, as described in section 3.5.5;
- Project to utilise badge cameras to assist debrief, reflective learning, audit and improve patient care with regards to rapid sequence induction of anaesthesia;
- Reorganisation of clinical equipment carried on pre-hospital missions to expedite response times.

Neonates

- New clip dock trial

2.3.3 Finance And Workforce

Finance

Since April 2014, funding streams are managed through SAS finance and regular meetings are conducted with the Territorial Boards involved to ensure that budgets are being managed appropriately. Each team has a defined budget allocated from the SCOTSTAR budget; costs incurred by each of the teams within the territorial boards are transferred to SCOTSTAR during the financial year. SCOTSTAR’s financial statements presented an under spend of £21,332 at the end of March 2016 (Appendix 1).

Workforce

The diverse structure of workforce in different teams is presented below:

Adults

The Adults team is staffed by Consultants, Trainee Doctors, Research Fellow, and Critical Care Practitioners (CCPs). The team, led by Clinical Lead Dr Stephen Hearn and Service Lead Mr Stuart Daly, has had two clinical teams available every day during 2015/16 and is able to provide additional teams during major incidents or periods of increased activity. Medical staff from throughout Scotland...
and from as far away as London and the South Coast of England form the EMRS consultant group working clinical sessions within the team. A new CCP joined the team in 2015 in a seconded position. The team has recently gained approval to provide sub-specialty training in Pre-Hospital Emergency Medicine (PHEM), a great achievement for the service.

**Paediatrics**

The Paediatrics team comprises consultants, nurse consultants, specialty doctors, trained PICU nurses and PHEM / anaesthesia / PICU senior medical trainees. Any vacancies on the rota are filled by internal locums. Apart from nurse practitioners and consultants, PICU consultants continue to provide telephone advice and support to the referring hospitals. As part of the agreed training programme, all trainees must undertake transport work. Senior PICU Grid trainees now have dedicated transport sessions. They undertake two 6 week blocks within their two year PICU training. Senior anaesthetic and emergency medicine trainees also work within SCOTSTAR as part of their training.

From 1st April 2016 all paediatric retrieval will be delivered from the SCOTSTAR Base, and at the time of report development there were six substantive Band 6 nursing posts within SAS for SCOTSTAR with one service lead, Paediatric Nurse Consultant Ms Sandra Stark. Dr David Rowney provides clinical leadership to the team as Lead Clinician. Six PICU consultants and one anaesthetic consultant undertake additional sessions. There are six dedicated drivers shared with the neonatal team. Plans are in place to recruit 5 additional Band 6 nurses and 2 further shared drivers over summer 2016.

**Neonates**

The Neonates team is managed by the Strategic Service Manager, Mrs Ann Marie Wilson who provides strategic management and leadership to the service to ensure that the service is able to respond to the demands placed upon it, and to ensure consistent working practices across the service. Dr Allan Jackson, Lead Clinician, provides enhanced clinical guidance to the teams. The medical rota for the teams is delivered differently within the three sites, with some teams allocated whole time equivalents and others based on Programmed Activities (PAs). Support staff are also essential to the efficient running of the team and include medical physics, pharmacy and administrative support, which is provided locally.

The Neonates team has run successful rounds of recruitment in 2015 to resolve recruitment challenges and gaps existing previously. In 2015, a Band 6 post was appointed to the West team and a Band 7 West nurse commenced ANNP training. Two nurse posts were successfully appointed for the North team, with discussions planned for extending two further part time rotational posts due to finish their secondment. However vacancies still exist and were advertised for a fellow in the South East and an ANNP in West. Three dedicated drivers were recruited in the North team, with recruitment process in place to appoint two drivers in the South East.

**2.3.4 Quality Performance Indicators (QPIs) And HEAT Targets**

A suite of internal and external Quality Performance Indicators were provisionally agreed and measured during 2015-16 to provide information on response times, clinical outcomes and quality issues relevant to the teams; and to drive forward the programme of continuous quality improvement within SCOTSTAR, including clinical outcomes which showcased the high standard of care delivered and highlighted areas with scope for improvement, for example temperature control. The measures are being reviewed in summer 2016 to ensure improvement efforts remain aligned to our overall delivery plan. More information on our performance against agreed externally reporting QPIs is available in sections 3.4.3 Clinical Outcomes and 3.4.7 Response Times.

SCOTSTAR remains committed to ensuring key goals are delivered by 2020, such as clinical coordination, agreements with territorial Boards, integrated and agile staffing structure, technology model and demand levels.
3. Strategic Objectives

3.1 Longer Lives

Work is ongoing under the auspices of the Scottish Ambulance Service’s Information Governance Committee and SCOTSTAR Research and Development (R&D) Group to link three years worth of retrieval data to the outcomes data held by ISD as a pilot study. In August 2015, an initial study was approved to link these data to provide a baseline of outcomes from the implementation of SCOTSTAR in 2014/15, with an annual exercise carried out in subsequent years to follow up on outcomes. Based on the trends shown by the yearly linkage, patient outcome indicators will be developed by 2020.

3.2 Healthy Lives

Efforts have continued in 2015-16 to ensure that staff at all levels in the three teams are adequately trained to undertake retrieval, including updating their knowledge of equipment, air and road safety. Details of the learning and outreach activities undertaken by the team are available in Section 3.4.6.

SCOTSTAR is committed to ensuring the rate of sickness absence remains equal to or as close to the national average as possible.

3.3 Safe

3.3.1 Risk Register

A risk register is maintained and regularly updated by the SCOTSTAR Management Team and reported along with other divisions to the Ambulance Service Executive Team and onwards to Scottish Ambulance Service Governance Committees. Any risks that affect the territorial boards are shared.

3.3.2 Clinical Governance

Clinical Governance is crucial to the effectiveness of SCOTSTAR. Work is underway to align ScotSTAR Patient Safety and Quality Group with the existing SAS Clinical Strategy arrangements, and to provide regular reporting to the SAS Clinical Governance Committee. The bi-monthly SCOTSTAR Patient Safety and Quality Group will provide assurance and evidence to the SAS Clinical Governance Committee that SCOTSTAR is compliant in all areas of clinical provision, by:

- Ensuring care delivered by clinical teams is effective through ongoing research, audit and review.
- Supporting the development of clinical standards agreed through the National Clinical Governance Group.
- Implementing Clinical Standards agreed through the national clinical governance framework.
- Undertaking various audits and produce reports to the National Clinical Governance Group.
- Considering local and national Significant Adverse Event learning and recommendations.
- Reviewing clinical Data reports.
- Promoting learning and development.
- Considering and promoting peer case reviews.
- Overseasing and promoting quality improvement activities within SCOTSTAR.
- Identifying and producing proposals for specialist clinical procedures and equipment for approval by the SCOTSTAR Senior Leadership and Management Team and the National Clinical Governance Group.

This group reports into the Ambulance Service Clinical Governance Group and a number of the clinicians currently working from SCOTSTAR are members on this Group. The Associate Medical Director attends appropriate Clinical Governance and Board meetings as required.

3.3.3 Adverse Events

Critical incident reporting continues to play a key role in ensuring that standards of care on retrieval are maintained. Currently the teams record issues on their local systems historically in place, and discuss these at team meetings and SCOTSTAR PSQG.

3.4 Effective

3.4.1 Clinical Audit Programme

SCOTSTAR teams have a long standing history of participation in audit programmes and continuing improvement initiatives. In 2015-16, all SCOTSTAR teams have continued participating in several audit programmes as detailed below.

Paediatrics

The team follows the Paediatric Intensive Care Society (PICS) Standards for transport of critically ill children. Post mission debriefs are undertaken and recorded as a routine and cases are reviewed weekly in collaboration with PICU colleagues. This allows detailed review of each case in an open, transparent and supportive environment.

Neonates

The team has had an ongoing participation within local, regional and national audit programmes. It also contributes to the national data standards and benchmarking tools which are currently being developed by the UK-wide Neonatal Transport Interest Group (TIG) which reports to the British Association of Perinatal Medicine (BAPM). The service is committed to participating in the implementation of regional collaborative working to implement agreed pathways.

Adults

The Adults team continued to have Quarterly clinical governance meeting with remote and rural colleagues and SAS in 2015-16. The Adult team has developed 117 clinical and non clinical SOPs that form the backbone of their clinical governance structure to ensure safe and efficient operations. They continue to issue weekly updates to SOPs and communication briefs.

3.4.2 Staff Governance

The NHS Scotland Staff Governance Standards apply within SCOTSTAR and a plan is in place to ensure regular monitoring and continuous improvement. As part of the SAS arrangements, an annual staff governance audit is undertaken and reported via SAS staff governance structures.

3.4.3 Clinical Outcomes/ External Benchmarking

Following the agreement of provisional indicators last year, SCOTSTAR has measured clinical outcomes in 2015-16. In 2015-16, 98.4% of SCOTSTAR Emergency missions were completed with requisite team members. 99.3% of the completed missions were without equipment failures and 99.6% of the completed missions were without vehicle/ambulance failures in flight or on road.
Nearly 75% of retrievals for PICU last year. Of these, 77% were started from or were completed outside of Scotland.

The team presented a lay highlights report presenting their data for the Retrieval Conference. As well as ensuring an oversubscribed delegate list every year, speakers attending from FinsHEMS, Norskluftmabulanse, Sydney HEMS, MedSTAR (South Australia) and other international services allow SCOTSTAR to build links with these services and ensure best practice.

The programme for the conference changes every year based on core topics such as Human Factors and Innovation in Retrieval Medicine but also encompassing hot topics in retrieval medicine. In 2016, the conference continued to innovate with filmed case based scenarios for delegates to interact with.

The history of the referral and transport database collected by PICANet, and how it had changed over the years was presented. Sisters from Great Ormond Street Hospital and Birmingham Children’s hospital discussed the role and value of Family Liaison Teams to the units and families of patients.

A spot check established that equipment checks were documented for 95% of the missions and pre/post mission checks were documented for 96% of all completed SCOTSTAR missions. 0.7% of all SCOTSTAR retrievals were mobilised in under an hour, highlighting our unique challenges.

Dr Salvo gave a presentation on the Italian PICU Network TIPNet which has been collecting data since 2004. The programme for the conference changes every year based on core topics such as Human Factors and Innovation in Retrieval Medicine but also encompassing hot topics in retrieval medicine. In 2016, the conference continued to innovate with filmed case based scenarios for delegates to interact with.

The team presented a lay highlights report presenting their data for the first time, which showed that over 6,000 very sick children were transported to PICU last year. Of these, 77% were transported by paediatric intensive care transport teams. In comparison, SCOTSTAR Paediatric retrieval team transported 323 children in 2015-16, accounting for 5.4% of all UK transports.

Nearly 75% of retrievals for all UK organisations met the mobilisation time target of less than one hour. In comparison, for SCOTSTAR paediatric teams, 47.1% of all paediatric air retrievals and 46.4% of all paediatric road retrievals were mobilised in under an hour, highlighting our unique challenges.

Following the move to BadgerNet for recording paediatric retrieval activity from April 2016, the team will consider options and identify an optimum solution for submitting SCOTSTAR data to PICANet. A group of staff from the Neonatal team attended the Transport Interest Group annual conference in Brighton on 12 and 13 November 2015. The main theme of the meeting was human factors with discussion on the effects of teamwork, equipment, and culture. The highlights from the conference were:

- Benchmarked data was presented on the number of total and ventilated transfers, and the time it took to get teams mobile and at the patient bedside. 81% of all time critical transports in the UK were mobilised in less than one hour. In comparison with the national benchmark, 77.3% of all SCOTSTAR time critical neonatal transfers met the mobilisation time target of less than one hour in 2015-16. 83% of all emergency transfers in the UK met the national time to patient bedside target of 3 hours and 30 minutes. In comparison with the national benchmark, 92.9% of all SCOTSTAR emergency neonatal transfers met the target of time to patient’s bedside within 3 hours and 30 minutes.
- There were three poster presentations from the SCOTSTAR South East Neonatal Team on transport equipment, Cerebral Function Monitoring (CFM), and pre-arrival checklists.
invited as speakers at conferences, and had abstracts and posters accepted at national and international meetings. They have also reviewed articles, commentary or chapters, and published articles in journals such as Infant.

In 2015-16, the Adult team have published several articles in Resuscitation, Emergency Medicine journal, European journal of Emergency Medicine, Transplant International and the journal of Paramedic Practice, and team members have been invited to speak at national, European and International conferences about the work the service does. The team has also had a leading role in setting up an international aeromedical research collaborative group involving retrieval services from Scandinavia and Australia.

In addition the team also organises the annual Retrieval & Pre-hospital Care conference, including delegates from the UK, Europe and Australia representing Adult, Paediatric and Neonatal retrieval services receiving universally positive feedback.

3.4.5 Research And Development

During the course of the year the SCOTSTAR Research and Development (R&D) Group has worked to agree a minimum dataset for SCOTSTAR teams and develop a process for handling and documenting research activities undertaken by the SCOTSTAR team members. Documentation of research projects has been integrated with the SAS Research, Development and Innovation database during 2015-16.

Dr Chris Moutrie, appointed as a funded Clinical Research Fellow to the service in August 2014, has continued his research on analysing growth trends and forecasting patterns of activity within the SCOTSTAR teams, which aims to use mathematical modelling to make SCOTSTAR teams more available and more efficient. Dr Moutrie is a member of the R&D group and has been involved in the development of quality control within the Adults team and GPIs for SCOTSTAR.

Staff within the three teams are also directly participating in many research activities and holding memberships of professional groups or as course faculty, for example, the Paediatrics retrieval team members have been invited to speak at conferences and deliver presentations, and have authored publications and book chapters, lectures, editors of case histories, abstracts, posters. They have also chaired meeting sessions, and examined for the Diploma in Retrieval and Transfer Medicine.

Similarly the Neonatal transport team members have also been internationally as a leading retrieval service through its annual conference, research programme, academic achievements and its work with partner services throughout the world.

3.4.6 Training And Outreach Activities

Extensive training activities have been developed and conducted within the SCOTSTAR teams over the past years and this has continued in 2015-16. Staff from adults, paediatrics and neonates have been working together to develop the training and simulation room within the SCOTSTAR Base. They have identified essential equipment that would be required for this facility and are working with a number of charities that are keen to be involved in this project. A structured induction package has been developed for all staff, and daily safety briefing huddles have been introduced.

Paediatrics

The highlights of learning activities conducted by the Paediatric team in 2015/16 have been:

- Outreach training was delivered to Mull, Benbecula, Shetland, Orkney, Lofoten, Wick, Shetland, Islay Campbelltown, Wick, Stornoway and Stornoway, with dates being planned for the upcoming year.
- Joint training exercise at Scottish Fire and Rescue Service Training Centre, Ullapool.
- Further two CCPs have commenced a post graduate certificate in advanced practice.
- All CCPs and Neonatal teams have completed training programme with London’s Air Ambulance Institute of Pre-Hospital Care.
- Further work was completed on Education Modules for Outreach Training Trips resulting in 36 hours of teaching materials now available to service.

Neonates

The Advanced Neonatal Nurse Practitioners are in the process of undertaking a post graduate certificate in Education. They have a lead role in coordinating the in house training and education for the neonatal and paediatric teams. They also have a lead role in coordinating the training and education for the remote and rural area and work alongside adult and paediatric colleagues to ensure that this training and education support is delivered to staff in the remote and rural referring hospitals.

The highlights of learning activities conducted by the Neonatal team in 2015-16 have been:

- Outreach training was delivered to Mull, Benbecula, Shetland, Coll, Lofoten, Inverness, Paisley, Monklands and Ninewells hospitals; with link clinicians identified and agreed for each referring hospital.

3.4.7 Response Times

Response Times Targets

Following agreement of provisional indicators for 2015-16, SCOTSTAR has measured the following response time targets:

- Adults: Mobilisation targets were: 75% for air retrievals and time bedside targets for emergency transfers (time critical for neonates in 55.6% retrievals for the year 2015-16.
- Neonates: The main circumstances affecting these targets in 2015-16 were availability of suitable aircraft leading to challenges in competition/prioritisation of missions between services and also the many other missions

Outreach Training Trips resulting in 36 hours of teaching materials now available to service.
- Apgar GP update course.
- Emergency obstetric CPD course.
- Major incident tactical command course.
- All team members completed Team Resource Management training.
- Team members have once again been instrumental in the development and delivery of the Diploma in Retrieval and Transfer Medicine exam run by the Royal College of Surgeons of Edinburgh.

These composite targets are category weighted averages of individual mobilisation and time to patient targets of the teams. SCOTSTAR identifies slippage from these targets, including where possible reasons for delays and any exceptional circumstances affecting targets. The main areas identified as reasons for slippage from compliance with mobilisation targets were:

- Paediatrics: Mobilisation of air retrievals and time to reach patient’s bedside for air retrievals.
- Adults: Mobilisation of Helimed 5 (night) and Glasgow King Air (day and night).

The main circumstances affecting these targets in 2015-16 were availability of suitable aircraft leading to challenges in competition/prioritisation of missions between services and also the many other missions.
that the aircraft undertake out with retrieval. From a paediatric perspective, insufficient paediatric resource can be a likely issue in case the single team is already out or exhausted and unable to work following shift over-runs.

SCOTSTAR have considered possible solutions to resolve these challenges and identified that:

- Clinical coordination will improve logistics greatly in the future.
- Continuing the ongoing work to increase paediatric resource, and increased blending of teams including breaking down the historical age-related boundaries between teams.
- A pragmatic review of the services provided to different types of stakeholders, from RGH to Critical Care Hospitals. This may enable a refinement of performance targets based on patient need.
- Possibility of regularly reviewing the figures every month with Air Ambulance, Bond and Gama Aviation.

3.5 Person Centred

3.5.1 Patient / Care/ Public Involvement

All teams involve the patients (or their parents / carers) in decision making as far as possible and parents are invited to travel with baby in the ambulance, when clinically and logically possible and appropriate. Parental presence is documented and monitored for each Paediatric and Neonatal transfer. Paediatrics and Neonates have been actively monitoring their feedback through regular questionnaires over the past years.

From April 2016 onwards, SCOTSTAR is implementing an electronic system for collecting continuous parent/carer feedback, and will report on the following indicator from 2017 onwards:

- Overall Patient Satisfaction Score

3.5.2 Partner Involvement

The teams have close links with other Neonatal and Paediatric transfer and retrieval services in the UK and abroad, and continue to build links with similar services through reciprocal visits and attending conferences such as the Transport Interest Group and PICANet annual conferences.

The teams also work collaboratively with other SAS teams internally and territorial and special NHS Boards externally to continually enhance service delivery and patient care provided to the public. Peter Lindle provides an example outlining how his role as SCOTSTAR Project Manager involves interactions with SCOTSTAR teams to ensure the SSD project is delivered successfully.

As a former helicopter air ambulance paramedic based in Glasgow, I have had the opportunity to work alongside representatives from each of the SCOTSTAR teams for a number of years. Prior to our collocation in the new Glasgow base, the majority of that experience had been with the Adults team responding to pre-hospital missions and retrieval calls. Working with the team added an extra dimension to the role. When we weren’t actively engaged on a tasking we now had access to the knowledge and experience of a group of senior clinicians who were always willing and eager to share their experiences. Training sessions on critical care topics and just as willing to learn from our previous experience in pre-hospital care. Together we developed a daily simulation training schedule and set of air ambulance paramedic critical care competencies. The interactions between our services also led to the creation of the Critical Care Practitioner (CCP) role, a development opportunity that several air ambulance practitioners were to benefit from.

Due to the complex nature of our joint air tasks we found post mission de-briefs to be a useful improvement tool. When issues relating to our equipment or processes were identified they were quickly resolved on base, however the most commonly discussed issues by far were related to the appropriateness of tasking. The helicopter could respond with a standard paramedic crew or if requested could bring along the EMRS Trauma Team (Doctor and CCP). Requests for a helicopter emergency response could be routed through either of three geographically distinct ambulance control centres and made by anyone in the organisation, regardless of their level of understanding of the capabilities of the aircraft or distinct crew configuration options.

Prior to my clinical training, I spent several years working in our ambulance control centres as a call handler and dispatcher. Being able to look at the tasking issue from these two viewpoints has proved invaluable in my current role as Specialist Services Desk Project Manager.

The Specialist Services Desk Project is an integral part of the Scottish Ambulance Services wider strategy “Towards 2020: Taking Care to the Patient”. The key ambition of the project is to create and staff a desk in the Cardonald Ambulance Control Centre that will prioritise access to and coordinate the activity of, our specialist resources. The desire to implement the desk has been articulated for a number of years and several iterations of plans and proposals of the functions to be managed by the desk have proliferated since. My first objective on becoming project manager in October 2015 was to clarify which of these proposed functions were to be tackled first. It was agreed that initial work would focus on SCOTSTAR coordination, Air Ambulance tasking and provision of the Perinatal Advisory service with the following deliverables in mind:

1. To better prioritise patients who need access to specialist resources
2. To improve tasking of air assets
3. To improve coordination of SCOTSTAR assets.

In an effort to realise these objectives the project team have implemented the following:

- Recruitment and training of SSD Supervisors to be responsible for ensuring that the expected improvements in tasking and co-ordination are managed day to day and for ensuring that the agreed QPI’s are met and reported.
- Installation of a custom designed and procured call conferencing solution, to facilitate improved tasking and coordination of assets. As the planned single point of contact for access to the SCOTSTAR teams the desk will also utilise this upgrade to better coordinate this activity.
- Procurement and installation of a filter for the call management system used in ambulance control to allow SSD staff to focus their attention on those calls requiring a response from a specialist resource.
- Improved cover for the Trauma Desk and enhanced access to senior clinical decision making to support to help with the tasking and prioritisation of access to specialist resources.
- Delivery of a custom training package for all current and recruited SSD staff that focuses on enhancing their understanding of specialist assets and helps to improve tasking decision making.

The project team has worked closely with the SCOTSTAR service and clinical leads throughout the implementation phase of the project.

A project group has been meeting monthly since October 2015 and the SCOTSTAR teams have been very receptive to our calls for more day to day support to help with the tasking and prioritisation of access to specialist resources.

SSD Supervisor trainees from Peter’s team have provided the following quotes highlighting their positive experiences of interacting with SCOTSTAR teams:

“The SCOTSTAR clinician’s enthusiasm and passion for their role was contagious. The time and effort they put into their training with us was invaluable but the scenarios just made everything come together and made us realise just how important their role is and what sort of complex challenges they face.”

James Dempsey, Practice Developer, ACC

“There is one thing I have noticed about all the teams and that is the energy and passion they all have for their roles. I want to take that to the Specialist Services Desk.”

Steven Hunter, SSD Supervisor


3.5.3 User Surveys / Feedback

Referring unit feedback was monitored during the year through an annual survey conducted centrally by the SCOTSTAR Management Team for all three teams and the overall Service User Satisfaction Score was calculated as 97.8% for the division as a whole. Feedback and comments received from the survey are presented below:

From April 2016 onwards, an electronic system of collecting continuous referring unit feedback is being implemented.

Figure 16: Feedback from SCOTSTAR Referring Units

3.5.4 Communications

Effective communication is essential in keeping the staff informed of progress and changes related to the service. With this in mind, the new management structure for SCOTSTAR has included a Workforce and Communications Group, with membership from a range of staff across the teams. The group’s remit includes providing a forum to formally engage with the range of staff groups across the various specialist areas.

The branding exercise has been completed and recognisable branding integrating the ethos of the three teams to the identity of the Scottish Ambulance Service developed.

In addition, the teams have their own mechanisms for internal communications with patients and parents as well as communication with relevant outside parties. For example, as Neonates routinely have discussions with parents following a diagnosis of their baby’s condition including its implications and regarding the ongoing care and treatment of their baby; all staff are trained in effective methods of communicating with parents. Majority of transport staff are experienced in communication, but a communication scenario has been added to the transport course to build resilience. There is also a strong focus on inter-site communication, with ongoing regular meetings with the North team to ensure sustainability of service delivery model.

Within Paediatrics, three 1 hour programmes were screened in the fall of 2015 on BBC Alba as part of the second series of Paediatric Retrieval. Following discussions between Bees Nees Media, SCOTSTAR Deputy General Manager and Scottish Ambulance Service Media Manager, it has been agreed that filming for a third season involving all three teams at the new base would commence in April 2016 for a period of eight weeks. The series would be screened on BBC in October 2016. EMRS was involved in filming of ‘Countryside 999’ TV programme in 2015 and continues to maintain close links with different media aspects.

3.5.5 Stories

The following stories provide an insight into a usual day at work for the SCOTSTAR teams and also highlight the importance joint working between SCOTSTAR teams and partners to enhance overall patient care:

Adults

Importance of Training and Protocols

A young man was discovered in a field early one morning in cardiac arrest. He had been lying out overnight in an ambient temperature of -6C, and his core temperature had dropped to 21 degrees, most patients will not survive when their body temperature falls below around 30C. As well as dispatching a local crew to attend the incident, the Ambulance Control Centre alerted the Trauma Desk to task the team to respond in one of the Scottish Ambulance Services Air Ambulance helicopters. The ground paramedics moved the patient to the local hospital where he was met by the team. Using a recently developed Hypothermia Standard Operating Procedure the team referred the patient to the Cardiothoracic Centre at Edinburgh Royal Infirmary, who accepted this patient for emergency re-warming on ECMO. After rapid intubation and ventilation the patient had mechanical CPR commenced by the Autopulse and was immediately transferred by the EMRS team in Helimed 5 to Edinburgh. On arrival the patient was placed on Extra Corporeal Membrane Oxygenation (ECMO) life support by the cardiac surgeons and re-warmed. His heart was restarted within a couple of hours; he was extubated the same evening and discharged from the Intensive Care Unit the following day with normal neurological function.

As far as we know this is the first time that a patient suffering prolonged hypothermic cardiac arrest has been successfully treated with in-flight mechanical CPR and emergency ECMO to subsequently survive with a normal neurological outcome.

This case highlights a number of important factors in making sure that this patient received the best possible care to increase his chances of making a full recovery. These include good communication and decision making between all the teams involved. This meant that the patient received the chain of survival from the local crew giving him CPR right through to the advanced care he received from the Adult Retrieval team and the to post resuscitation care at the Royal Infirmary. It also highlights the importance of the advanced training and the protocols used by the Adult Retrieval team in the treatment of this patient.

Adults

Trauma Care

A patient who had fallen down the stairs of a flat and had potentially sustained a traumatic brain injury. Due to the serious nature of the patient’s injury, the EMRS team attended the incident. Working alongside the Accident and Emergency ambulance crew, they were able to give a pre-hospital anaesthetic then intubate and ventilate the patient before safely transferring him to a hospital with neurosurgical facilities.
SCOTSTAR Annual Report 2015-16

There was excellent team work and communication between the rural referring team, PAS/Air desk, the centre, PAS/Air desk, the neonatal receiving team and the neonatal transport team. They were able to advise management and triage urgency. There was excellent communication between the referral unit and the central one. The use of videoconferencing allowed the neonatal team to clinically assess the infant so they were able to commence a transfusion of O negative blood on the flight, helping to resuscitate and stabilise the patient.

Kate Campbell, Advanced Neonatal Nurse Practitioner, West Neonatal Team

This example demonstrates the challenges of receiving a second emergency referral when still dealing with the current one. The use of videoconferencing allowed the neonatal team to clinically assess the infant so they were able to advise management and triage urgency. There was excellent communication between the referral centre, PAS/Air desk, the neonatal receiving team and the neonatal transport team.

Adults

Importance Of Carrying Bloods

The team are able to carry O negative blood on both primary (pre-hospital) and secondary retrieval missions. An example of where this blood helped a patient was when a patient in a rural location suffered from severe internal bleeding following the birth of a child.

She was being treated and receiving transfusions at her local hospital, however her condition was getting progressively worse, and team was called to retrieve her to a hospital in the central belt. She lost consciousness shortly after take-off and the team were able to commence a transfusion of O negative blood on the flight, helping to resuscitate and stabilise the patient.

Neonates

Clinical Coordination and Coastguard

A baby boy was born at term in a rural hospital by caesarean section. The following day he became unwell with breathing difficulties, colour changes and reduced oxygen saturation. The local consultant examined the infant and suspected congenital heart disease with a duct dependant lesion (time critical). She notified PAS and the neonatal team were alerted. The neonatal team were about to leave on a back to base transfer. That was rescheduled quickly.

The fixed wing aircraft was sought for the transfer but it was unavailable. As the neonate needed to be urgently moved, Air desk contacted the coastguard and requested use of one of their helicopters. This was quickly approved and the team were mobilised within an hour of first referral to retrieve the newborn. The baby and his mother were uneventfully transferred to Glasgow.

There was excellent team work and communication between the rural referring team, PAS/ Air desk, the coastguard team, the receiving neonatal and cardiac consultants, the neonatal retrieval team and the obstetric bed manager (who provided a bed for the mother post section).

Neonates

Simultaneous Transfers

Just after the helicopter above landed in Glasgow, there was a referral from a Western Isles consultant about a day one newborn who had breathing difficulties reduced oxygen saturation and a metabolic acidosis. The infant from example 1 was efficiently transferred to the receiving tertiary centre and the neonatal retrieval team quickly prepared to retrieve infant number 2.

While the team were preparing equipment, the neonatal ANP established a videoconference with the rural consultant and was able to assess the infant and advise on management. Air desk secured the fixed wing plane for the transfer and ambulance links were organised. The fixed wing left Glasgow with the neonatal team less than two hours after landing with the infant from example 1. The infant from the Western Isles was uneventfully transferred back to Glasgow.

This example demonstrates the challenges of receiving a second emergency referral when still dealing with the current one. The use of videoconferencing allowed the neonatal team to clinically assess the infant so they were able to advise management and triage urgency. There was excellent communication between the referral centre, PAS/ Air desk, the neonatal receiving team and the neonatal transport team.

Neonates

Time Critical Transfers

On arrival back in Glasgow airport with infant from example 2 (at 04.00), there was a third emergency referral received from a GG&C level 2 neonatal unit. A term baby boy had been delivered 2 hours previously by emergency caesarean section. He was asystolic at birth and required resuscitation to which he responded. At two hours of age he was showing signs of hypoxic ischaemic encephalopathy and was being referred to a tertiary centre for whole body therapeutic cooling. This was a time critical transfer and the neonatal team had just arrived from the Western Isles with the infant from example 2. It was decided that the most efficient way to expedite the transfer of infant 3 was to ask the referring unit for infant 3 to accept infant 2. The original receiving unit for infant 2 was a similar acuity unit but an hour’s ambulance drive away. The referring unit for infant 3 accepted infant 2. The family of infant 2 were informed that their infant for non-clinical reasons needed to be moved to a different hospital than first anticipated. The neonatal team arrived at infant 3’s cot side within four hours of age and initiated whole body therapeutic cooling and then uneventfully moved the baby to the receiving level 3 unit.

This example highlights the ability of the team to reorganise to expedite further emergency referrals. Even though the neonatal team had just completed two long distance transports, they efficiently reorganised to facilitate a further time critical retrieval. There was excellent communication between the neonatal transport team, PAS, the referring and receiving centres.

Paediatrics

Clinical Coordination

A 2 year old child presented to A&E with a diagnosis of croup. Her condition deteriorated and she was referred to the paediatric retrieval team. The air resources were tasked through the airdesk and the team arrived at the referring site within an hour and a half of referral. The referring team managed this child until the retrieval team arrived and then both teams worked together to stabilise the child. The child was prepared for transfer.

The mother was unable to travel with the child as she was 36 weeks pregnant and this was extremely distressing for her. The father decided to travel with the team and his child to the receiving hospital.

The child subsequently had a short intensive care stay and was discharged home 6 days after admission. The family were extremely grateful that the father could travel with his child. The transport journey for the child is complete when we are in a position to facilitate a parent travelling with their child.

The referring unit were extremely grateful for our prompt arrival at their hospital and for the help, advice and support from the receiving unit and the retrieval team.
This retrieval highlighted excellent communication and team working with the referring unit, the receiving unit, Air desk, air ambulance, the road crews and the retrieval team.

Paediatrics

ECMO Transfer

A child was referred from Northern Ireland to the Paediatric intensive care unit for ECLS support. The child was already on maximum respiratory support and was continuing to deteriorate both from a respiratory and cardiovascular state. An ECMO team consisting of a paediatric intensivist, paediatric surgeon and perfusionist were tasked to go to the referring unit and to cannulate and commence ECLS. The process for this took the majority of the night, trying to ensure that the team members that were required were available and that the resources were available to undertake this retrieval. The Air desk tasked the fixed wing aircraft to this retrieval. The child’s condition was deteriorating and even once on ECLS support took a significant period of time to stabilize before they were ready to leave the referring unit. There were also weather issues that had to be considered prior to leaving the referring unit. There were pressures on the fixed wing crew as they had other jobs that had been delayed whilst this retrieval was taking place. The air desk staff re-tasked these jobs to the other available resources.

There was excellent team working and communication with the Air desk, the air ambulance team and the retrieval team to ensure that this journey back to the receiving unit was as seamless as possible. This was a highly stressful adrenaline rushing situation and although unstable on ECLS support the child arrived safely back to the receiving unit.

3.5.6 Staff Engagement Index

A new tool has been designed with staff in NHS Scotland to help individuals, teams and Health Boards understand and improve staff experience, the idea being that positive staff engagement will result in positive patient experience. As the tool is rolled out, it is intended that all team members will be asked to complete a short online or paper questionnaire and provide information on their experience of working for NHS Scotland, in your team and your Health Board. Staff Engagement Index will be reported from 2017 onwards.

Staff engagement has always been a priority for SCOTSTAR as having an empowered workforce is key to smooth service delivery and efficient coordination of all transfers and retrievals. Ms Sandra Stark and Mrs Ann Marie Wilson, Paediatric and Neonatal Service Leads, share their experience of the moving to the new SCOTSTAR Base at Glasgow Airport including the benefits that this co-location has brought, and some views from their staff members’ perspective:

The move to the SCOTSTAR base at Glasgow Airport has been an amazing experience so far.

From a paediatric perspective it has been an exciting development. The retrieval nurses are now based in the SCOTSTAR base working a 12 hour shift pattern. This has meant that the retrieval nurses are now more involved in the development of the service. Their enthusiasm and commitment is like a breath of fresh air. They are focussed on developing and moving the service forward to ensure that we provide the best service that we can for the critically ill children and their families throughout Scotland.

From a neonatal perspective, the team have settled into the new base and have started to integrate with the paediatric team and share workloads. We have started to develop shared working practices. We have also been involved in shared training sessions with the Adults and Air wing colleges. We have also managed to facilitate nursing staff from the North team coming down to gain some clinical time at the new base. The South East team will hopefully be able to spend time at the new base over the coming year.

Annamarie Wilson and I have been working together on the integration of the paediatric and neonatal transport nurses. The Advanced Neonatal Nurse Practitioners (ANNPs), some of whom are in the process of undertaking the post graduate certificate in education, have developed a competency based training programme which was delivered to the paediatric nurses and three of them now work with both the neonatal and paediatric teams. We are hoping to develop this further this year and develop a training programme which was delivered to the paediatric nurses and three of them now work with both the neonatal and paediatric teams. We are hoping to develop this further this year and develop a training programme for the neonatal nurses to undertake.

There is continuing collaboration with the Paediatric intensive Care Units in both Glasgow and Edinburgh and the neonatal units in Glasgow to allow the retrieval nurses to undertake clinical placements in both neonatal and paediatric intensive care. These placements will ensure that their skills in intensive care nursing are kept up to date and also inform them of any changes in nursing management of the critically ill infant and child.

The move has also allowed us to work collaboratively with the Adults team and the Air Ambulance Service helping us to understand the needs of all of the teams, how they all function and operate. It will be exciting to see what developments the year ahead is going to bring.

Staff perspective and views:

“It has been an amazing experience with cross team working and an appreciation of how all teams operate.”

“It is a great place to work, working with people who understand retrieval/transport and all it involves.”

“It is amazing to be part of SCOTSTAR and help develop the service for the future.”

“I love my job and knowing that we are there to help the critically ill children and their families that use our service makes it all worthwhile.”

“It is a fantastic place to work – the facilities and an appreciation of what the other teams do.”
3.5.7 Equity: Geographical Access

A study to link Adults, Paediatric and Neonatal activity data to outcomes data including patients’ Health Board of Residence and Health Board of Treatment was approved in 2015. This will allow SCOTSTAR to link data related to geographical access and monitor to ensure the service remains equitable across different areas in Scotland. SCOTSTAR teams collect referring unit data for all retrievals. The data below shows secondary SCOTSTAR retrievals by Health Board of Referring units for all retrievals. The map opposite shows secondary SCOTSTAR retrievals by Health Board of Referring units in 2015-16.

### SCOTSTAR retrievals by Health Board of Referring units in 2015-16

<table>
<thead>
<tr>
<th>Adults</th>
<th>Neonates</th>
<th>Paediatrics</th>
<th>SCOTSTAR Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayrshire &amp; Arran</td>
<td>1.2%</td>
<td>2.5%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Borders</td>
<td>1.0%</td>
<td>0.5%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Dumfries</td>
<td>0.6%</td>
<td>1.4%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Fife</td>
<td>1.7%</td>
<td>1.4%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Forth Valley</td>
<td>1.3%</td>
<td>1.3%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Grampian</td>
<td>10.4%</td>
<td>1.8%</td>
<td>12.2%</td>
</tr>
<tr>
<td>Greater Glasgow</td>
<td>0.3%</td>
<td>23.5%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Highland</td>
<td>8.5%</td>
<td>3.0%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Lanarkshire</td>
<td>4.3%</td>
<td>2.6%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Lothian</td>
<td>13.5%</td>
<td>2.0%</td>
<td>15.5%</td>
</tr>
<tr>
<td>Orkney</td>
<td>1.1%</td>
<td>0.5%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Shetland</td>
<td>0.6%</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Tayside</td>
<td>3.8%</td>
<td>1.3%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Western Isles</td>
<td>1.6%</td>
<td>0.4%</td>
<td>0.3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13.8%</strong></td>
<td><strong>67.7%</strong></td>
<td><strong>18.5%</strong></td>
</tr>
</tbody>
</table>

Figure 17: SCOTSTAR retrievals by Health Board of Referring units in 2015-16
4. Conclusions: Celebration & Risk

The second year of operation for SCOTSTAR has seen over 2,000 successful retrievals with patient care at the heart of the clinical decision making, while bringing together the teams at the new base at Glasgow Airport and strengthening the service with required changes to the management and reporting structure.

In addition, the following have been achieved to support effective service delivery:

- Development of a SCOTSTAR Local Delivery Plan.
- Procurement of new vehicles, including 4 new vehicles being funded by SAS (2 Ambulances and 2 Operational Support vehicles) and 1 new Ambulance being funded by charitable donations.
- Introduction of a daily Safety Briefing Huddle.
- Increased joint training and joint working between teams, for example the Adults Major Incident CPD day, and progress towards development of national guidelines and SOPs.
- Clinical Simulation and Skills facilities being developed further by the teams including the potential to support infrastructure for this,
- Monthly and quarterly Balanced Scorecards for the three teams.
- Planning the introduction of SAS Cab Based Telehealth equipment within

SCOTSTAR Ambulances to support clinicians, improve on coordination of assets, and data capture, and Development of a structured induction package for all staff.

The new base is now well established and provides greater opportunity for joint working which has already been taken forward by the neonatal and paediatric teams, supporting each other when demand is high.

In addition to the achievements there have been a number of challenges in this year including:

- Workforce recruitment and succession planning issues, in terms of Trauma Desk cover for Adults and successfully filling vacancies for neonatal and paediatrics. This is an ongoing risk currently being addressed with the territorial boards involved.
- Increasing demand, and winter pressures within the teams, particularly paediatrics. The continued leadership from the Paediatric Nurse Consultant to SCOTSTAR is laying down the foundation for establishing a specialist paediatric response and the evolution of a separate paediatric role should support winter pressures.
- National cot capacity constraints, necessitating transfers purely for capacity and the West team getting involved in long calls to find cots. The service is working closely with Scottish Government and the Neonatal Managed Clinical Networks (MCNs) regarding these concerns.
- And aircraft availability leading to longer mobilisation times especially at night. Clinical coordination through SSD will improve logistics in future, with a possible refinement of performance indicators based on the location of the aircraft at the time of referral.

SCOTSTAR has further accomplished distinct improvements between the first and second half of the year, several of these coinciding with the shift to the new base in September 2015. Overall for the division, the proportion of international transfers increased from 0.4% to 1.1%. There were no missions with equipment failures for either road or air retrievals since September 2015. Over the same period within the Neonatal team, compliance with time to patient bedside for emergencies increased from 90% to 95.8% demonstrating a clear upward shift, and compliance with mobilisation for time critical retrievals increased from 71.9% to 82.8%. Proportion of babies with blood sugar levels greater than 2.6 Millimole (MMol) per litre on completion also increased from 96.9% to 99%.

Within the Paediatric team, between April-September 2015 and October-March 2016, proportion of patients transferred more than once for the same illness/injury in a month decreased from 1.4% to 0%, and proportion of patients requiring a Cardio Pulmonary Resuscitation (CPR) while in care of team decreased from 1.3% to 0%.

Over the same period, proportion of missions with emergency diversions decreased from 3.3% to 0.6%, and compliance with decision to mobilisation for road retrievals saw a 14.8% improvement. Time to arrival at patient’s bedside for road and air retrievals also improved by 12.5% and 4.7%, respectively. Within the Adults team, proportion of RSI successful at first attempt excluding Out of Hospital Cardiac Arrest (OHCA) for primary missions improved from 71.5% to 78.6% over the same period, whereas for secondary retrievals it remained at 100% for both periods showcasing continued excellence. Proportion of ventilated patients with temperature > 36 degrees (excluding OHCA) for secondary retrievals improved from 76.8% to 80.2%. Missions completed without any monitoring and ventilator failures improved from 99.1% and 99.3% to 100% for both over the same period.

In summary, this has provided an expected mix of achievement and ongoing risks and challenges, but the risks have been addressed with mitigating actions in place. The next year of SCOTSTAR will further strengthen our operations at the central base, central co-ordination and an ongoing commitment by all the teams to provide the most effective and safe retrieval and transfer for patients across NHS Scotland and out with when required.

Jim Dickie
Garry Fraser
5. Looking Ahead - Expected Change & Developments

Key to the strategic progress of SCOTSTAR and fully realising the benefits of the co-location is the aim to further align capacity between the three SCOTSTAR families. Opportunities for improved joint working both within secondary and potentially within primary retrieval of critically ill patients will be scoped and implemented.

Within the wider health and care landscape in Scotland there are significant challenges and opportunities for Scotland; these include ensuring an adequate pre-hospital critical care response. Within the work to improve the management of major trauma within Scotland is work to improve Scotland’s resilience in terms of pre-hospital critical care provision for major incidents and mass casualties and work to improve integration and training with the Scottish Ambulance Service (SAS) Special Operations Teams around Scotland’s response to the anti-terrorist strategic threat level.

Dr James Ward

The overall aim for the future is to further strengthen links between SCOTSTAR and SAS clinical governance, to strengthen links with Scotland’s charity air ambulance, and to align a single system for governance between SCOTSTAR pre-hospital team and Board pre-hospital teams such as Tayside Trauma and Medico-1 in Edinburgh.”

Dr James Ward

Appendix 1 Scotstar Financial Performance 2015-16

<table>
<thead>
<tr>
<th></th>
<th>Forecast Budget 2015/16</th>
<th>Revised Budget 2015/16</th>
<th>Actual 2015/16</th>
<th>Variance 2015/16</th>
<th>% Variance 2015/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Managerial</td>
<td>1,060,416</td>
<td>1,176,846</td>
<td>1,213,647</td>
<td>-36,801</td>
<td>-3%</td>
</tr>
<tr>
<td>Total Adults</td>
<td>1,818,000</td>
<td>1,817,418</td>
<td>1,756,492</td>
<td>60,926</td>
<td>3%</td>
</tr>
<tr>
<td>Total Paediatrics</td>
<td>1,135,963</td>
<td>1,198,962</td>
<td>1,229,534</td>
<td>-30,572</td>
<td>-3%</td>
</tr>
<tr>
<td>Total Neonates</td>
<td>3,004,330</td>
<td>2,792,335</td>
<td>2,764,531</td>
<td>27,804</td>
<td>1%</td>
</tr>
<tr>
<td>Total Transport</td>
<td>2,850,251</td>
<td>2,850,252</td>
<td>2,850,277</td>
<td>-25</td>
<td>0%</td>
</tr>
<tr>
<td>SCOTSTAR Total</td>
<td>9,868,960</td>
<td>9,835,813</td>
<td>9,814,481</td>
<td>21,332</td>
<td>0%</td>
</tr>
</tbody>
</table>
## Appendix 2 Glossary

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A&amp;E</td>
<td>Accident and Emergency</td>
</tr>
<tr>
<td>ACC</td>
<td>Ambulance Control Centre</td>
</tr>
<tr>
<td>ANNIP</td>
<td>Advanced Neonatal Nurse Practitioner</td>
</tr>
<tr>
<td>ANP</td>
<td>Advanced Nurse Practitioner</td>
</tr>
<tr>
<td>BAPM</td>
<td>British Association of Perinatal Medicine</td>
</tr>
<tr>
<td>BBC</td>
<td>British Broadcasting Corporation</td>
</tr>
<tr>
<td>CCP</td>
<td>Critical Care Practitioner</td>
</tr>
<tr>
<td>CFM</td>
<td>Cerebral Function Monitoring</td>
</tr>
<tr>
<td>CMU</td>
<td>Community Maternity Unit</td>
</tr>
<tr>
<td>CSMEN</td>
<td>Clinical Skills Managed Educational Network</td>
</tr>
<tr>
<td>ECMO</td>
<td>Extra Corporeal Membrane Oxygenation</td>
</tr>
<tr>
<td>EMRS</td>
<td>Emergency Medical Retrieval Service</td>
</tr>
<tr>
<td>EQIA</td>
<td>Equality Impact Assessment</td>
</tr>
<tr>
<td>HEAT</td>
<td>Health Efficiency Access and Treatment</td>
</tr>
<tr>
<td>HEMS</td>
<td>Helicopter Emergency Medical Service</td>
</tr>
<tr>
<td>HFOV</td>
<td>High Frequency Oscillatory Ventilation</td>
</tr>
<tr>
<td>HIS</td>
<td>Healthcare Improvement Scotland</td>
</tr>
<tr>
<td>HR</td>
<td>Human Resources</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>ISD</td>
<td>Information Services Division</td>
</tr>
<tr>
<td>MCN</td>
<td>Managed Clinical Network</td>
</tr>
<tr>
<td>MD</td>
<td>Doctor of Medicine</td>
</tr>
<tr>
<td>MedSTAR</td>
<td>Medical Specialist Transport and Retrieval</td>
</tr>
<tr>
<td>MOU</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>NES</td>
<td>NHS Education for Scotland</td>
</tr>
<tr>
<td>NHS</td>
<td>National Health Service</td>
</tr>
<tr>
<td>NICU</td>
<td>Neonatal Intensive Care Unit</td>
</tr>
<tr>
<td>NIRS</td>
<td>Near-infrared Spectroscopy</td>
</tr>
<tr>
<td>PAS</td>
<td>Perinatal Advisory Service</td>
</tr>
<tr>
<td>PAs</td>
<td>Programmed Activities</td>
</tr>
<tr>
<td>PIC</td>
<td>Paediatric Intensive Care</td>
</tr>
<tr>
<td>PICANet</td>
<td>Paediatric Intensive Care Audit Network</td>
</tr>
<tr>
<td>PICS</td>
<td>Paediatric Intensive Care Society</td>
</tr>
<tr>
<td>PICU</td>
<td>Paediatric Intensive Care Unit</td>
</tr>
<tr>
<td>PSQG</td>
<td>Patient Safety and Quality Group</td>
</tr>
<tr>
<td>QF</td>
<td>Quality Framework</td>
</tr>
<tr>
<td>QPI</td>
<td>Quality Performance Indicators</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
</tr>
<tr>
<td>SAP</td>
<td>Service Administrative Policies</td>
</tr>
<tr>
<td>SAS</td>
<td>Scottish Ambulance Service</td>
</tr>
<tr>
<td>SCOTSTAR</td>
<td>Scottish Specialist Transport and Retrieval</td>
</tr>
<tr>
<td>SEAT</td>
<td>South East and Tayside</td>
</tr>
<tr>
<td>SFRS</td>
<td>Scottish Fire and Rescue Service</td>
</tr>
<tr>
<td>SNBTS</td>
<td>Scottish National Blood Transfusion Service</td>
</tr>
<tr>
<td>SOP</td>
<td>Standard Operating Procedures</td>
</tr>
<tr>
<td>SORT</td>
<td>Special Operations Response Team</td>
</tr>
<tr>
<td>SSLMT</td>
<td>SCOTSTAR Senior Leadership and Management Team</td>
</tr>
<tr>
<td>TIG</td>
<td>Transport Interest Group</td>
</tr>
<tr>
<td>TRM</td>
<td>Trauma Resiliency Model</td>
</tr>
<tr>
<td>WCG</td>
<td>Workforce Communications Group</td>
</tr>
</tbody>
</table>
Equality & Diversity

A full Annual Report is also available on our website. A summary is available in other languages and formats on request. Please telephone the Interpretation and Translation Service on 0131 242 8181 and quote reference number 13-1304.

Gheibhear làn Aithisg Bhliadhnaid air an lárach-lìn againn. Tha geàrr-chunntas ri fhàighinn ann an cànanan agus cruthan eile le iarratas. Feuch an cùir thu fìn chun t-Seirbheis Eadar-mhìneachaidh is Eadar-theangachaidh air 0131 242 8181 agus ainmich àireamh clàraidh 13-1304.


Pułny raport roczny dostępny jest również na naszej stronie internetowej. Na żądanie dostępną jest skrócona wersja raportu w innych językach oraz formatach. Prosimy zadzwonić do Biura Tłumaczeń (ang. Interpretation and Translation Service) pod nr tel. 0131 242 8181 i podać nr referencyjny 13-1304.

我们网站上也有一份完整的年度报告。如有需要，我们可以用其他语言及格式提供报告的摘要。请致电0131-242 8181和翻译及笔译服务部（Interpretation and Translation Service），并报上参考号13-1304.

你还可以在我们的网站上看到完整的《年终报告》。报告摘要被译成了其他语言，可以要求取得其他格式的版本。请打0131 242 8181联系译和笔译服务部（Interpretation and Translation Service），并报上参考号13-1304.

С полной версией годового отчета можно ознакомиться на нашем сайте. Краткий обзор предоставляется по требованию на других языках и в других форматах. Пожалуйста обращайтесь в Переводческую Службу ITS по телефону 0131 2428181 за документом под исходящим номером 13-1304.

ماوتاو توتن از کشوری هنگامی هم‌هستی رویالدنی فرصت‌ها و فرصت‌های اثرگذاری جمعیت‌های اثرگذار در زمینه تجویز سیاست‌های تحریک‌کننده و پویایی سیاست‌های تحریک‌کننده Interpretation and Translation Service 8181 را به روش روم به روز رم‌های بیان‌شده اثاثار 13-1304

एक पूर्ण नार्वेन विषय पहली रुचि के में बाल्यवर्त एवं, उड़ीलार्न द्वारा क्रियापूर्वक विख्यात उपविषय का, भाषा Interpretation और Translation के अध्ययन के लिए संबंधित नंबरों 13-1304 का संदेश दे सकते 0131 242 8181 पर तैलियां करे।

সম্পূর্ণ অ্যানুয়ালরিপোর্ট আমাদেরওয়েবসাইটেও উপলব্ধ। অনুরোধের ক্ষেত্রে অন্যান্য ভাষায় এবং অন্যরূপে প্রতিষ্ঠানের সাথে যোগাযোগ করতে 0131 242 8181 নম্বরে তেলেফোন করেন এবং সংগঠনের সন্দেহ নম্বর ১৩-১৩০৪ বিবেচনা করে।
Hangar B, 180 Abbotsinch Road, Paisley

Edinburgh: 0131 536 0919   Glasgow: 0141 452 4725