

IT Supporting Emergency Medical Care

Experience from Scotland







↑ Adult's

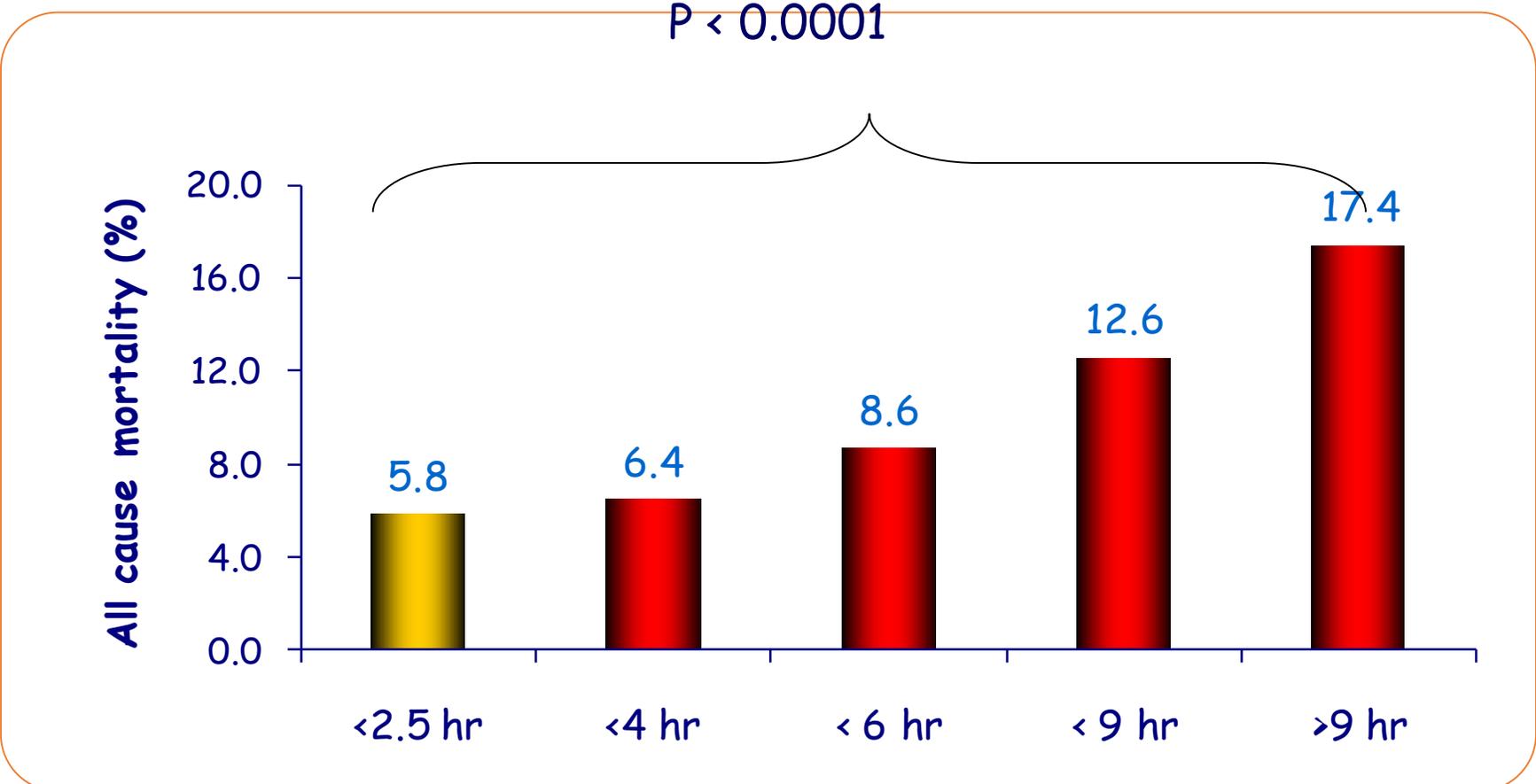
Accident and Emergency

Children's →
(Children Under 14 Years)



ED Door to medical team time

30-day adjusted mortality



- Clinical care is based on the effective transfer of data between the patient and the health care provider. As effective communication is a mandatory requirement for delivery of health care, health care providers must regard adapting their practice to reflect developments and trends in communications techniques and technologies to be as important as utilising new medicines or diagnostic techniques.



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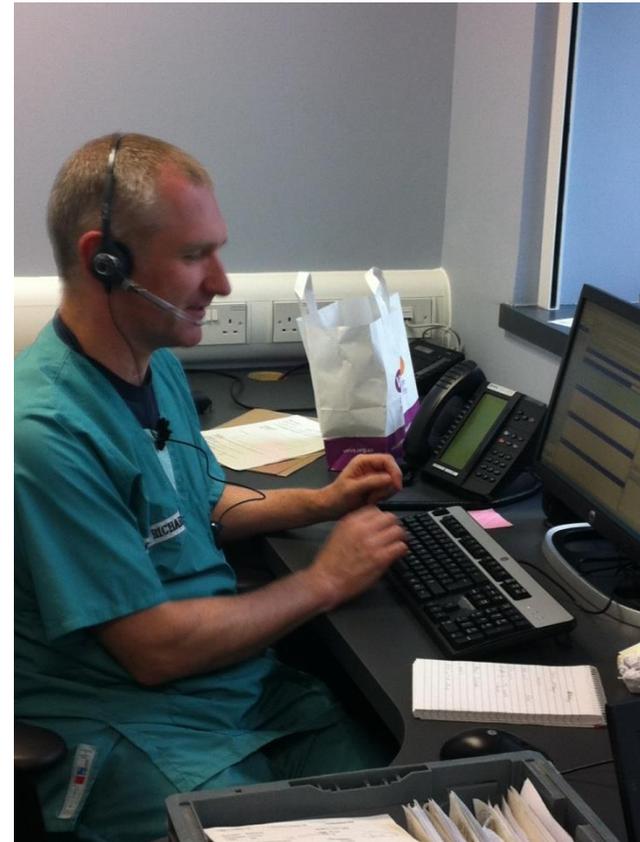






Decision Support

- Operational Mon – Fri
08.00 – 14.00
- Tel: 01224 558002
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with G Med & NHS 24
- Currently staffed by ED
Consultants



Improving Flow

- Reduce input
- Improve throughput
- Improve output

Improving Throughput

- Triage
- Redirection
- Navigation
- Streaming
- Integration

Eliminating ED Crowding



Emergency Department Capacity Management Guidance

6 Essential Actions: Unscheduled Care

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Clinically focused and empowered management

Capacity and patient flow

Managing the patient journey rather than bed management

Ensuring medical and surgical processes designed to pull patients from ED

Seven –day services

Ensuring patients are cared for in their own homes

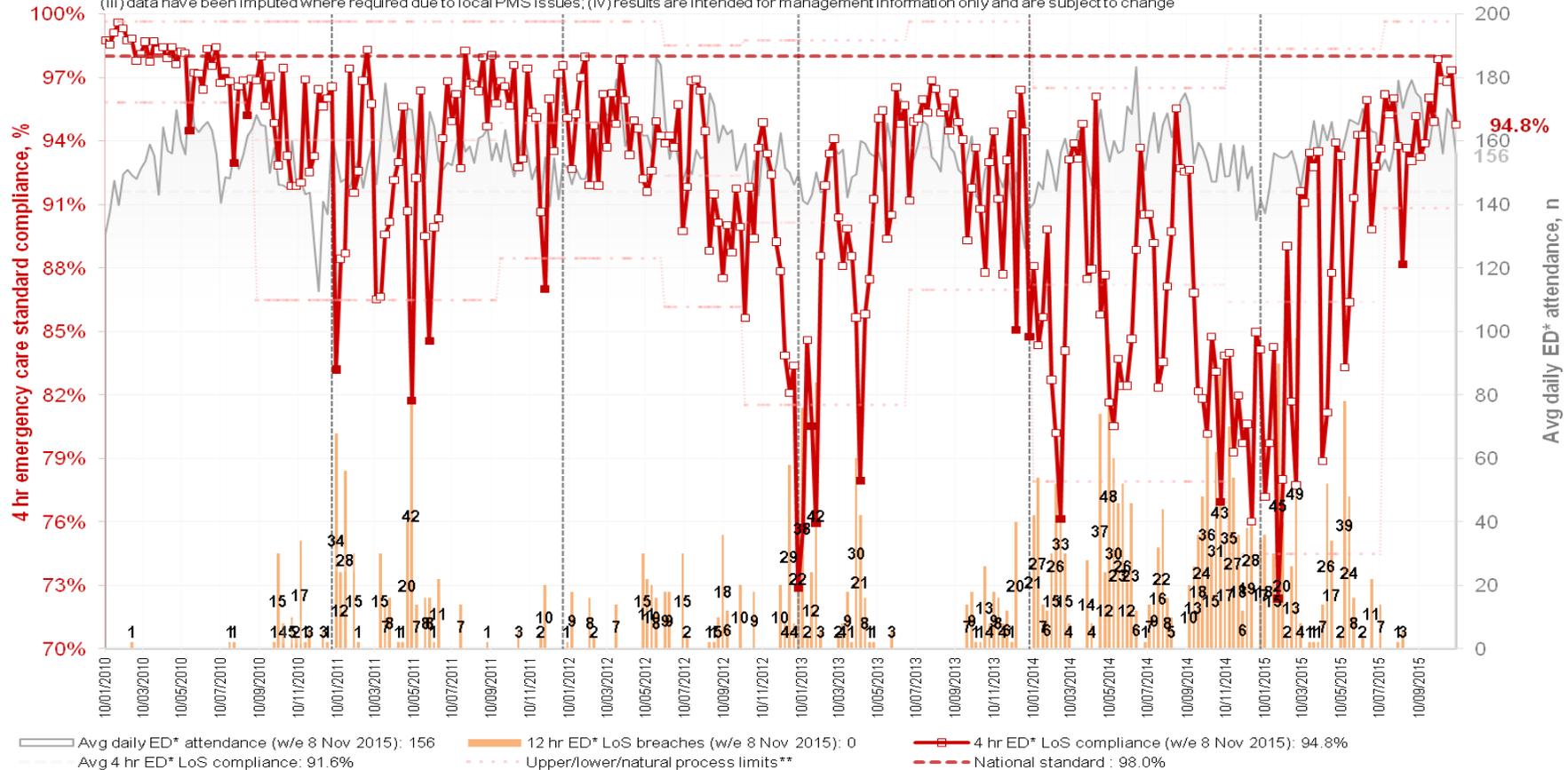
4 hour performance by week 2010-15

Hairmyres ED* attendance, 4 hr emergency care standard compliance, 12 hr ED* LoS breaches

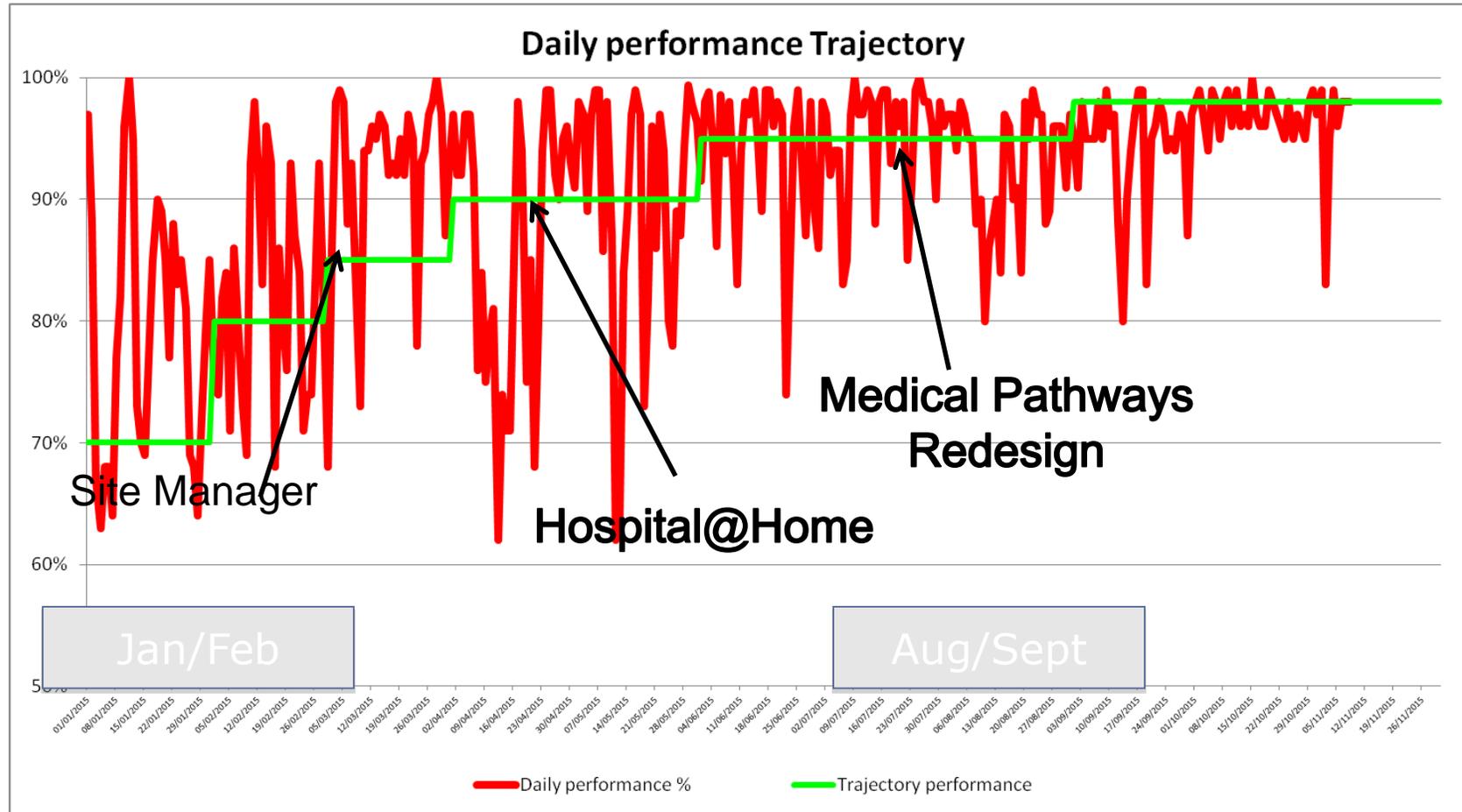
Weekly compliance with 4 hr emergency access standard, %; average daily core ED* attendance, n; ED* LoS > 12 hr, n

Sources: local management information reports covering unscheduled activity for ED sites w/e 10 Jan 2010 to w/e 8 Nov 2015

Notes: (i) ED* refers to EDs, MIUs and trolleyed assessment areas; (ii) **unadjusted, XmR-based process control limits recalculated against Wheeler rules 1.4 and 24-pt baseline; (iii) data have been imputed where required due to local PMS issues; (iv) results are intended for management information only and are subject to change



Trajectory set



Ambulance Control Centres

- Operations rooms are the call centres which handle both emergency and non-emergency requests for service.
- They control the deployment of staff and vehicle resources to meet both routine and major incident/event demand.

Contribution to Emergency Care

- By providing fast telephone answering;
- By ensuring that the nearest available (and appropriate) resource is quickly dispatched;
- By providing rapid and correct advice to callers whilst the ambulance is on its way (including emergency medical telephone instructions);

Contribution to Emergency Care

- By working with field managers to ensure that ambulances are deployed at the locations where demand is likely to be high (proactive deployment);
- By ensuring that ambulance crews are provided with accurate information about the location of the incident and the condition of the patient.

Reasons for the Redesign (emergency)

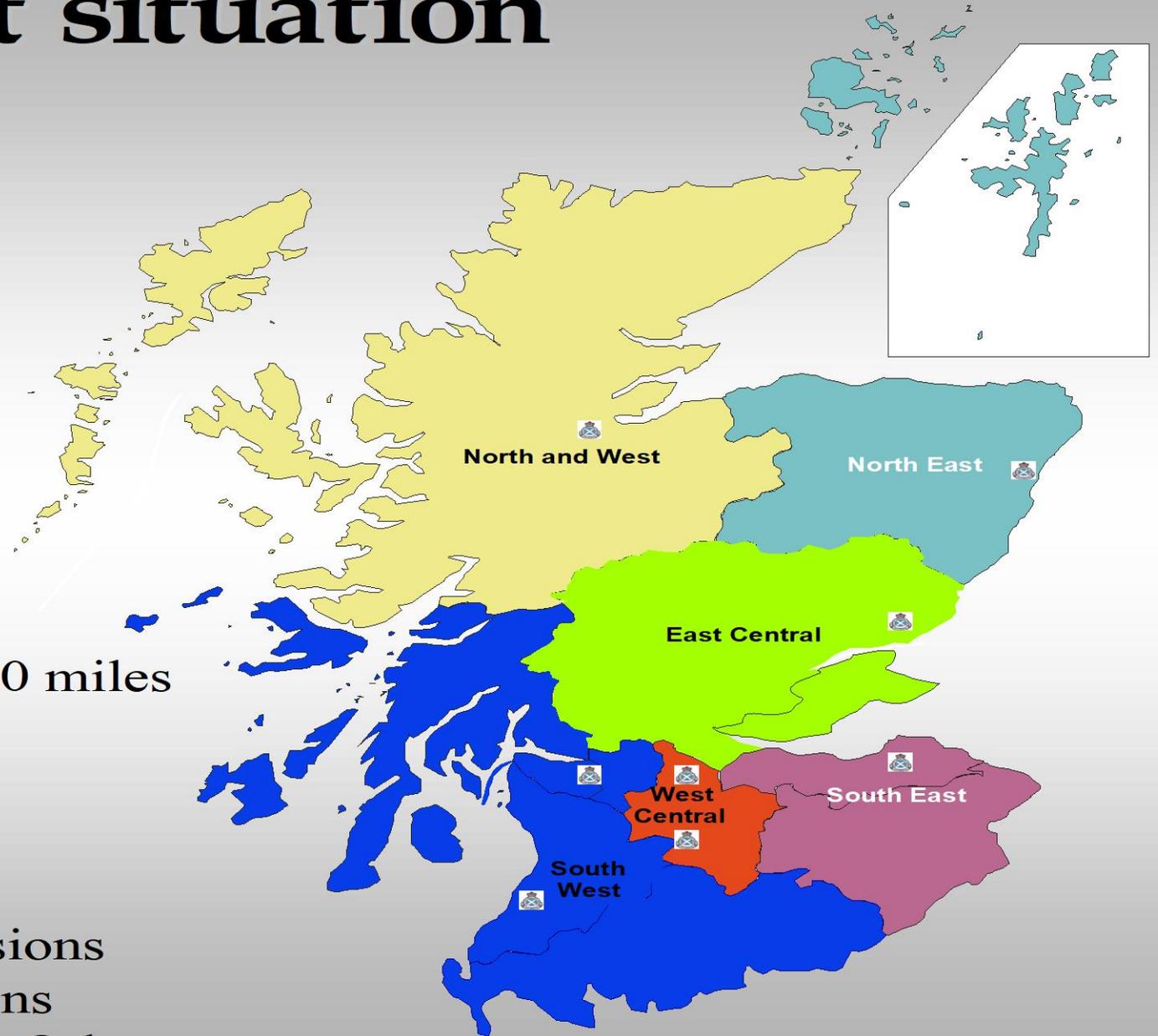
- concerns about the quality and equitable provision of pre-hospital care;
- developments in information technology and in operations room services mean that the Service's existing operations room services (established 10-15 years ago) are now out of date; and
- reports by the National Audit Office had indicated that a thorough review was required with a view to improving effectiveness and value for money in the way ambulances were deployed.

Reasons for the Redesign (non emergency)

- By providing fast and accurate planning of the non-emergency patient journeys so that non-emergency resources (ambulances and cars) collect/set down patients when scheduled, and so that patients spend the minimum length of time travelling to/from their appointments;
- By effectively controlling the non-emergency resources “on the day” so that patient journeys suffer the minimum disruption from unforeseen developments, e.g. adverse weather, road traffic accidents etc.

Option	Accident and Emergency	Non-Emergency	Air Desk
<p>Option 4, Three emergency operations rooms (full specification) ; and “hub and spoke” non-emergency service.</p>	<ul style="list-style-type: none"> • Three operations rooms (Inverness, Edinburgh, Paisley). Full specification/ functionality. • Includes full roll-out of pre-arrival software and call-taking/ dispatching mode of operation • Allows for improving emergency call pick-up performance to 95% within 10 seconds • AVLS, SSM and other IT tools to support service delivery • Allows for technological link to NHSiS Direct • New management structure 	<ul style="list-style-type: none"> • Migration to Hub and Spoke model of non-emergency service provision. • 20-30 local centres based in hospitals doing registration and day control • One central 24 hour “hub” for master planning and out-of-hours registration, and high dependency inter-hospital transfers, based in Dundee 	<ul style="list-style-type: none"> • Move to Dundee to be co-located with NES 24 hour hub. Carrying out planning and control of all patient air transport missions. • Technological link to emergency operations rooms to show status and availability of all patient air transport resources.

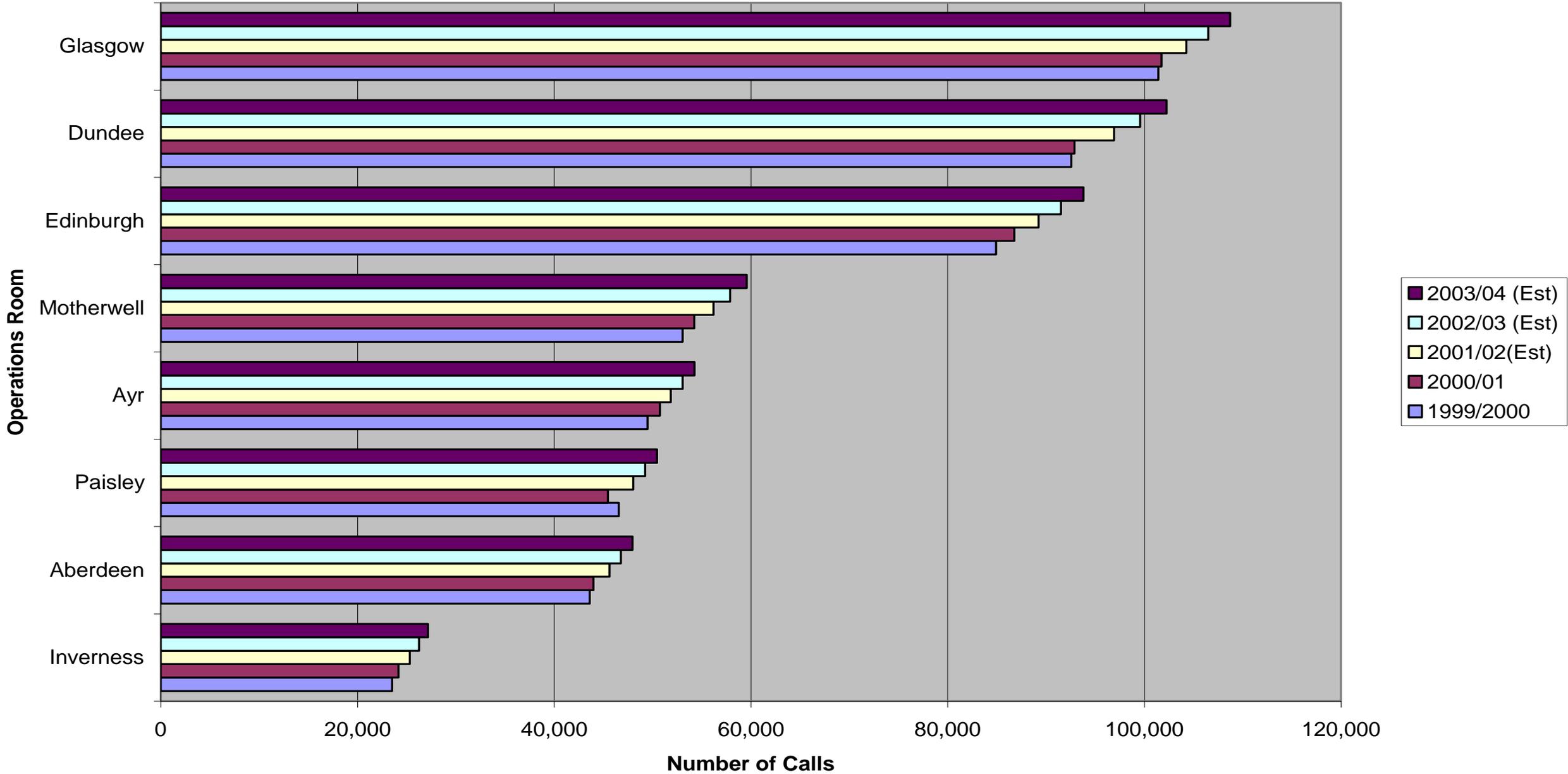
The current situation



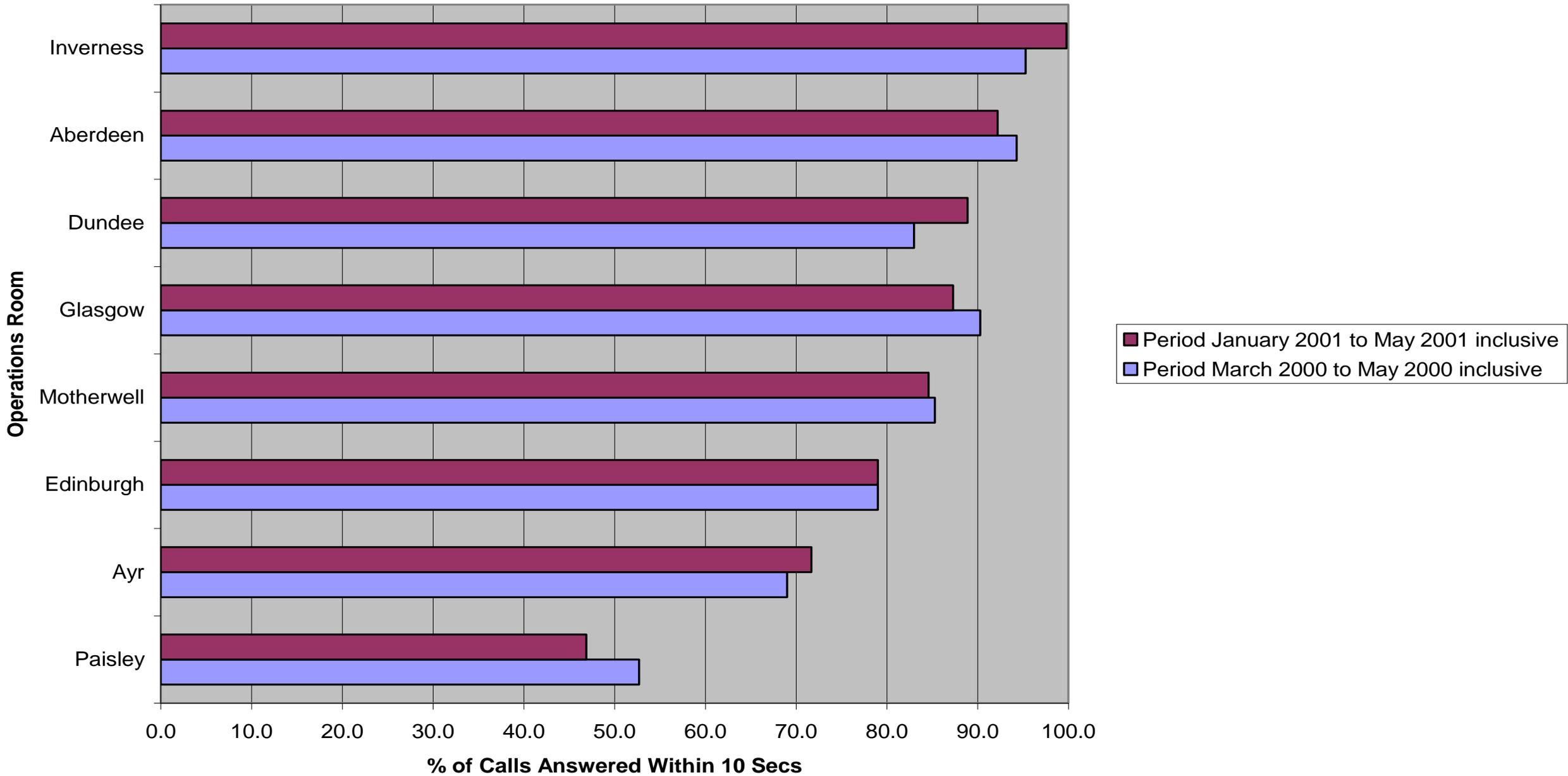
- Furthest distance controlled = 150 miles
- Air desk controls = 300 miles

- Both A&E and NES
- Single control rooms in four Divisions
- Two control rooms in two Divisions
- Local arrangements in Shetland & Orkney

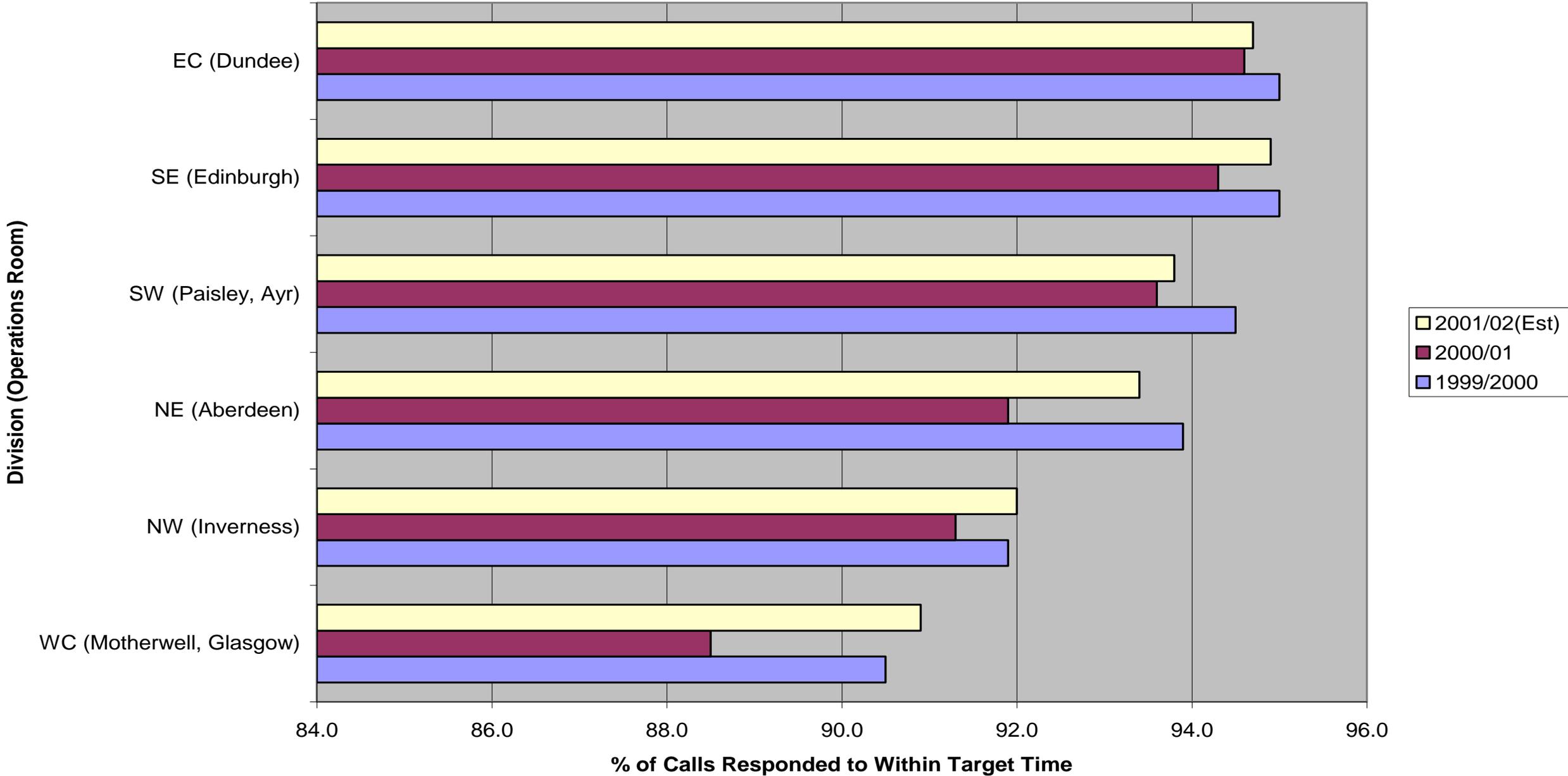
Operations Rooms: A&E Responses Handled



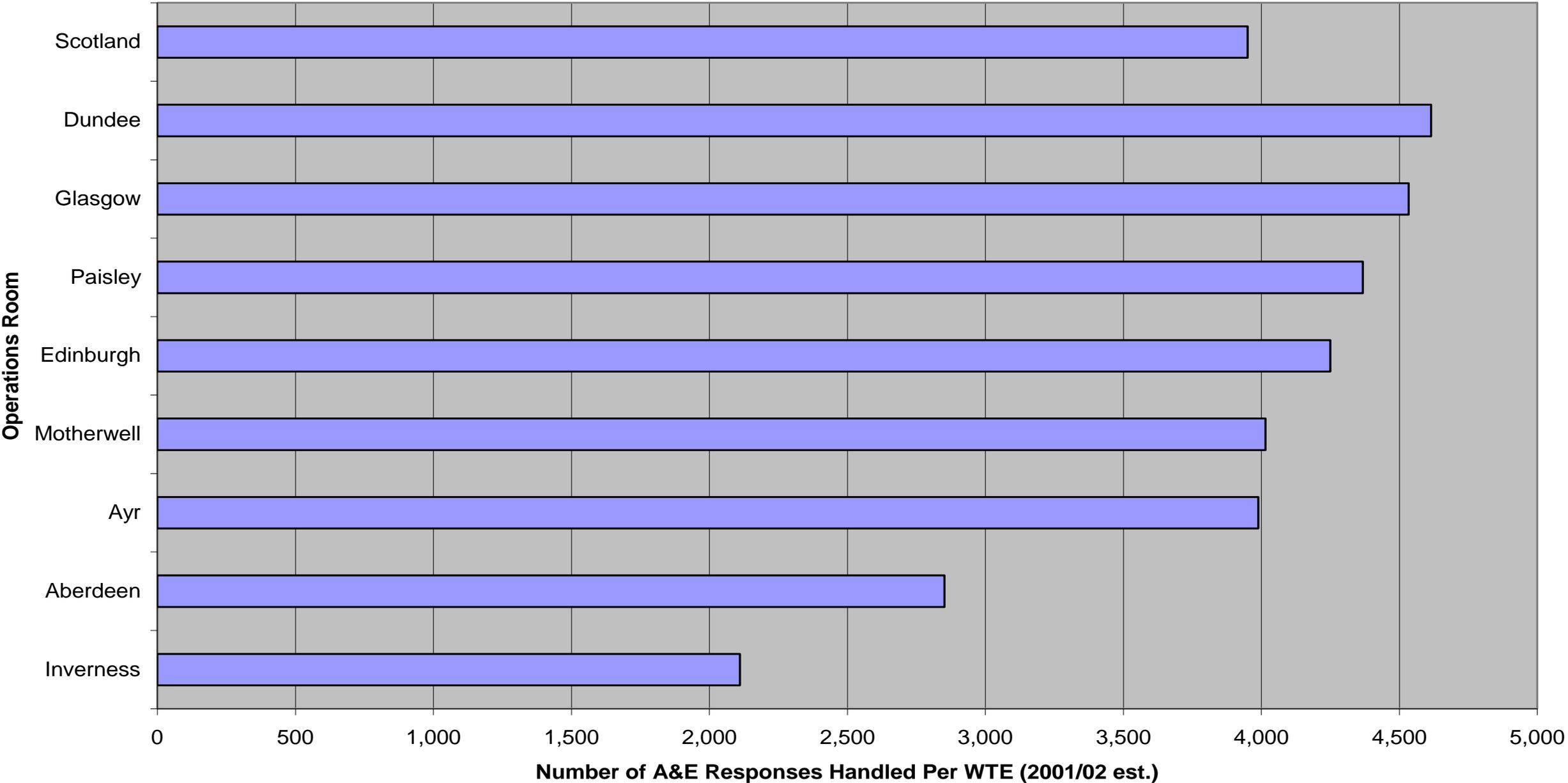
Operations Rooms: Call Pick Up Performance, Emergency Calls (Target 95%)



Divisions: Response Time Performance, Emergency Calls (Target 95%)



Operations Rooms: Productivity Pre-Project



Strengths

- The existing system has community acceptance insofar as communities are comfortable with a “locally-based” operations room;
- Easy access to stakeholders – NHS Boards, local health councils, etc.
- Local management/ “small is beautiful”;
- The system is well understood by staff;
- Professional attitude of managers and staff.

Weaknesses

Emergency services:

- Slow telephone answering;
- Poor activation and response times;
- Poor resilience and business recovery arrangements,
- Inequitable quality of service and efficiency across the country;
- Poor use of Service-wide resources – each room cannot “see” or use another room’s ambulances that might be nearer an incident;
- Little proactive deployment of ambulances to meet anticipated demand.

Non-emergency services:

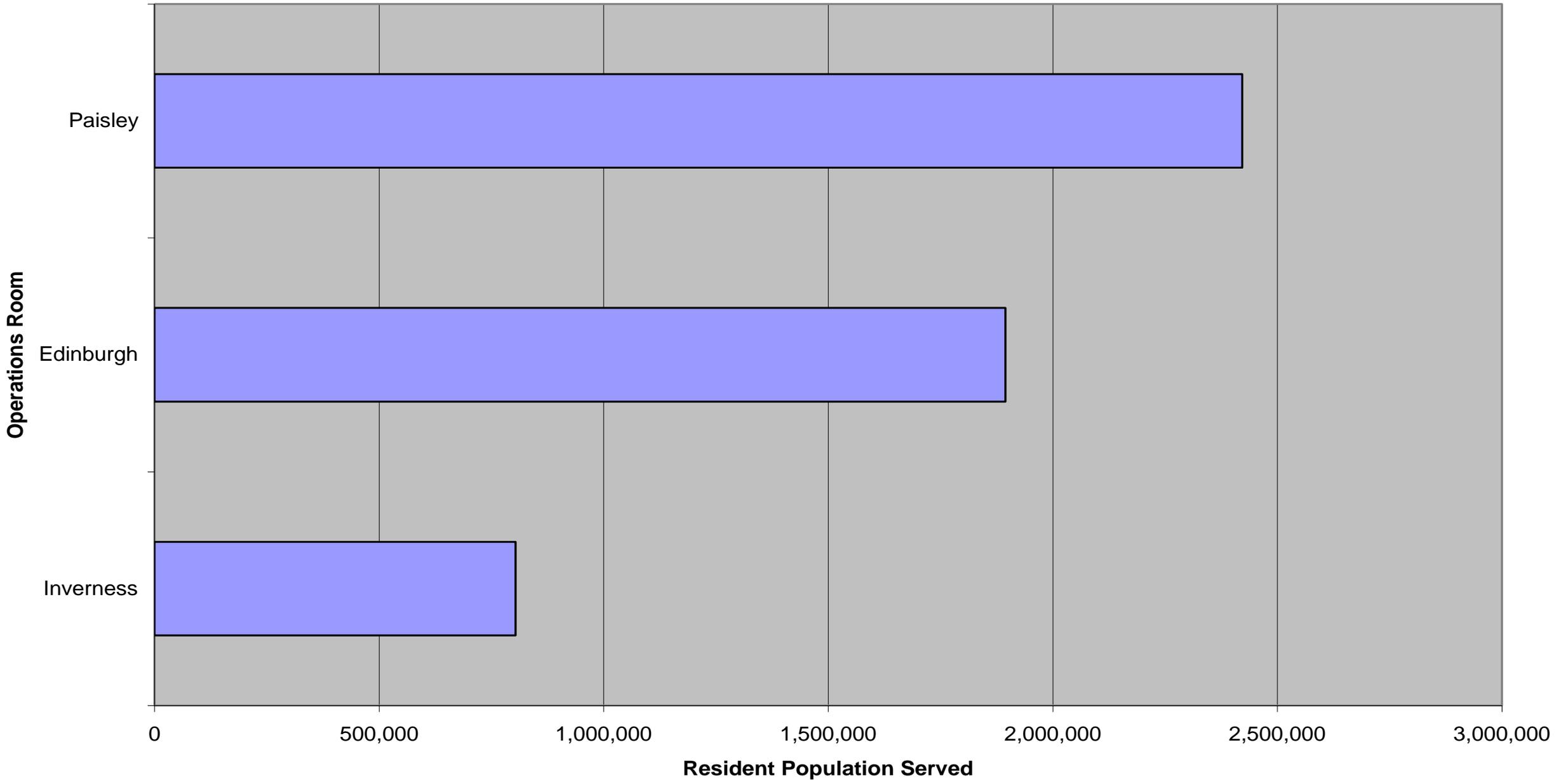
- Slow and inaccurate planning of patient journeys,
- Poor control of non-emergency ambulances and cars on the day,
- Unreliable service provision.

Redesign Conclusions

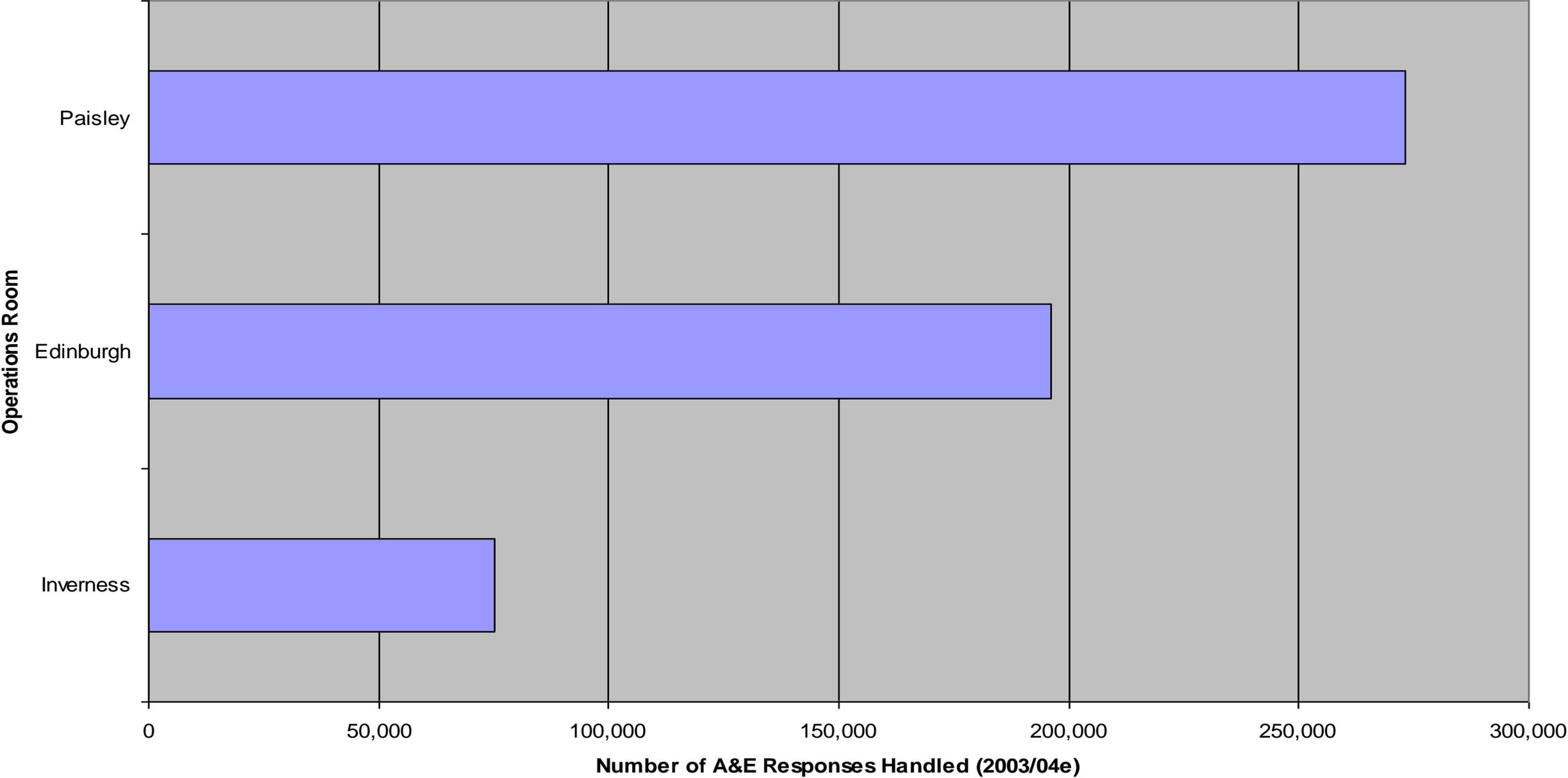
- Reduction of Control Centres from 8 to 3
- A hub and spoke model for non emergency services
- A dedicated air desk

Faster response times	<ul style="list-style-type: none">● Staffing levels to answer 95% of emergency calls within 10 seconds● Introduction of call line identification to pinpoint the location of caller● Auto Vehicle Location Systems to provide accurate local knowledge to assist in the dispatch of the nearest and most appropriate resource● System Status Management to review response time performance and assist in deploying ambulances proactively● Pre-arrival software as prerequisite for any introduction of prioritisation
Better patient care	<ul style="list-style-type: none">● Pre-arrival software to standardise call handling and advice● Pre-arrival software to ensure electronic integration with NHS24● Formal quality control procedures to monitor calls and continuously improve● Accredited training of staff● Databases to give vehicle crews prior notice of the clinical history of patients
Safer environment	<ul style="list-style-type: none">● More robust business continuity arrangements in case of catastrophic failure● Greater capacity to manage major incidents● Enhanced IT and Communications technical support on site● Meal break manager software to promote vehicle crew welfare● Compliance with Health and Safety Executive's best practice guidance for call-centre working practices

Operations Rooms (Emergency): Resident Population Served, Post-Project



Operations Rooms (Emergency): A&E Responses, Post-Project



NHS 24 is a healthcare service offering:

- An out-of-hours link to local services run by NHS Boards
- Clinical assessment and triage
- Health information and advice – including special health alert lines – eg: flu; E. coli; TB
- Added Value Services
- An online service on www.nhs24.com



Location of NHS 24

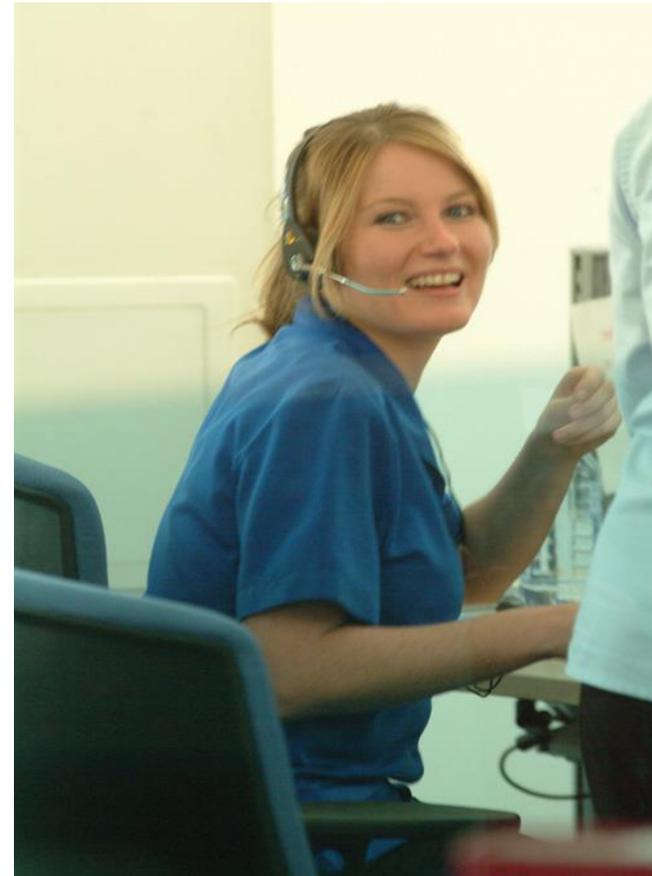


- NHS 24 operates from 4 contact centres and 6 local centres
- All calls initially answered by one of the main 4 centres
- All centres virtually linked and all staff have access to the same information

NHS 24 Employees

Frontline members of staff include:

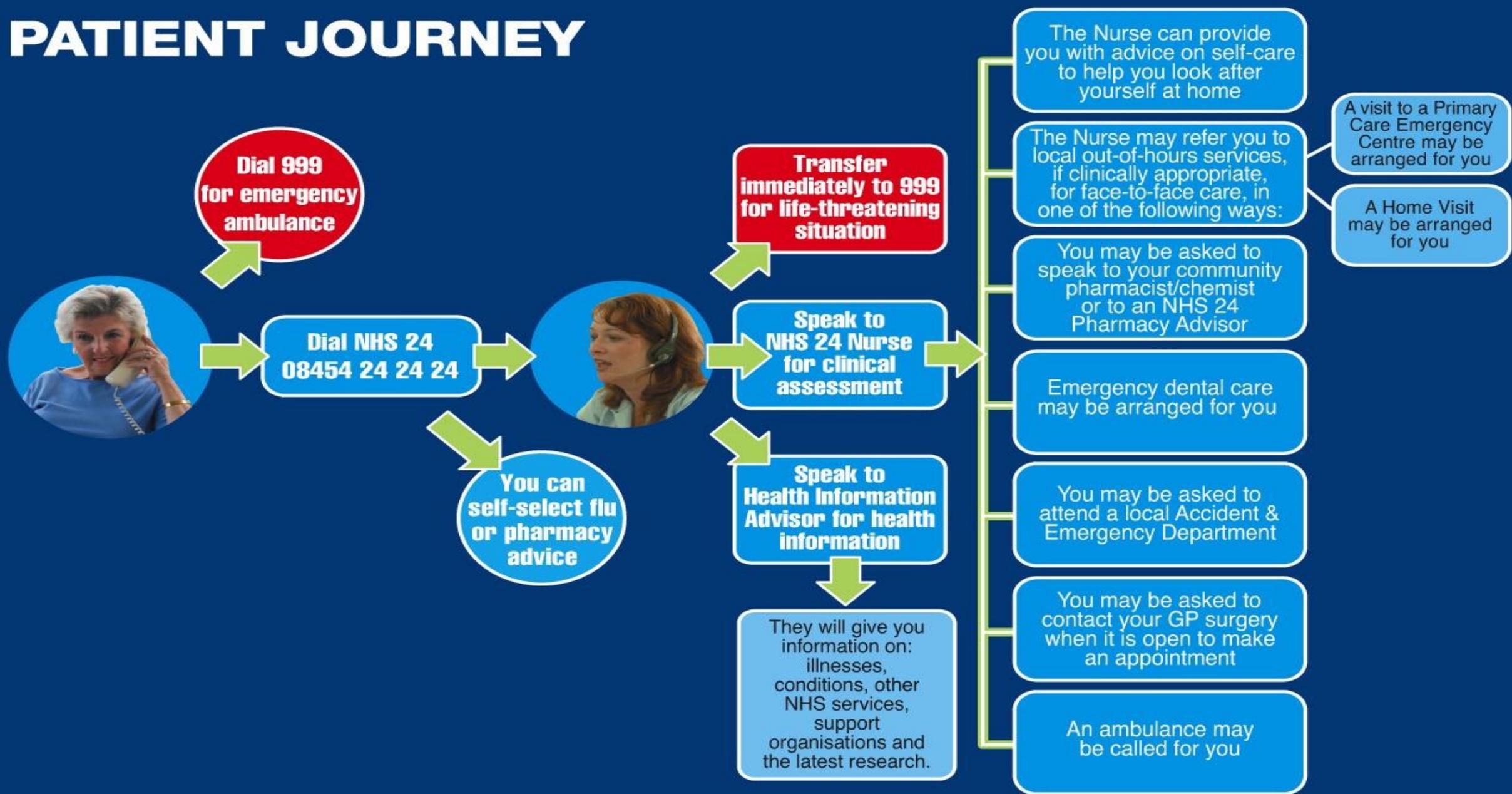
- Nurses
- Call handlers
- Health Information Advisors
- Pharmacists
- Dental Nurses
- Mental Health Advisors
- Mental Health Nurses
- *Physiotherapists*



The Clinical Environment



PATIENT JOURNEY



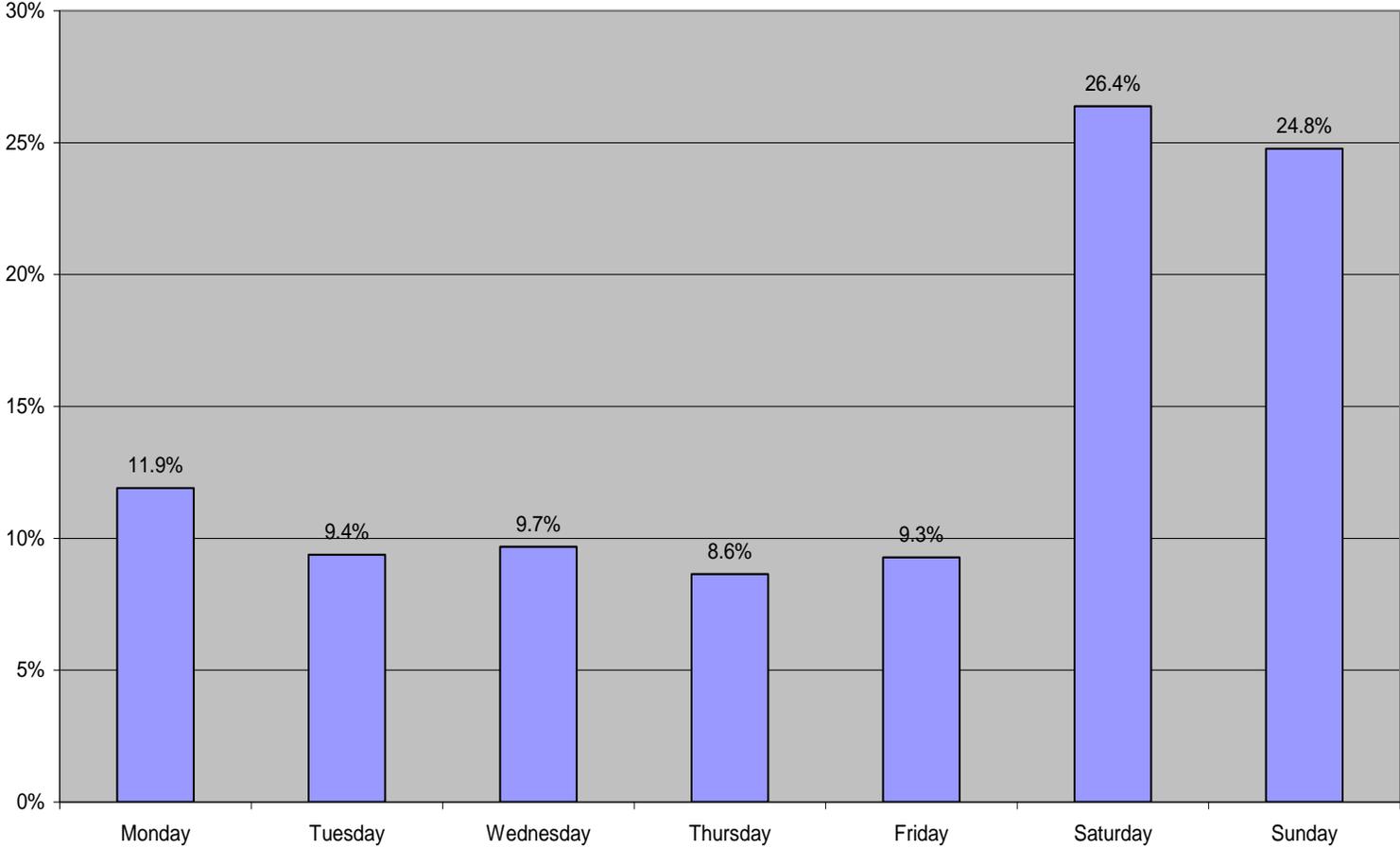


Performance

- **1,508,597 calls per year**

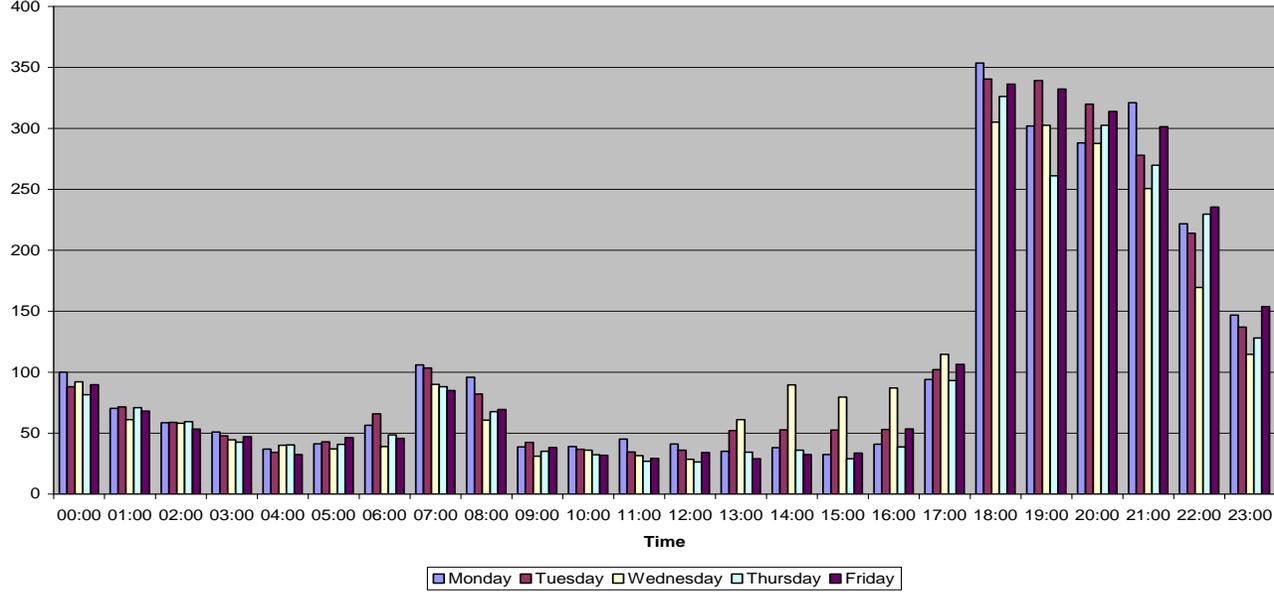
Typical weekly pattern

Typical daily pattern



Typical Weekdays

Typical intraday call arrival pattern



Clinical Response

- **Immediately life-threatening situations are quickly transferred to the Scottish Ambulance Service**
- **Serious and urgent calls which require immediate attention are put straight through to a nurse advisor**
- **PRIORITY– clinical response dealt with within 20 minutes**
- **ROUTINE – clinical response dealt with within 60 minutes**
- **For much of the week, NHS 24 operates without the need for any outbound calling. However, at particularly busy times, return calls are sometimes made.**

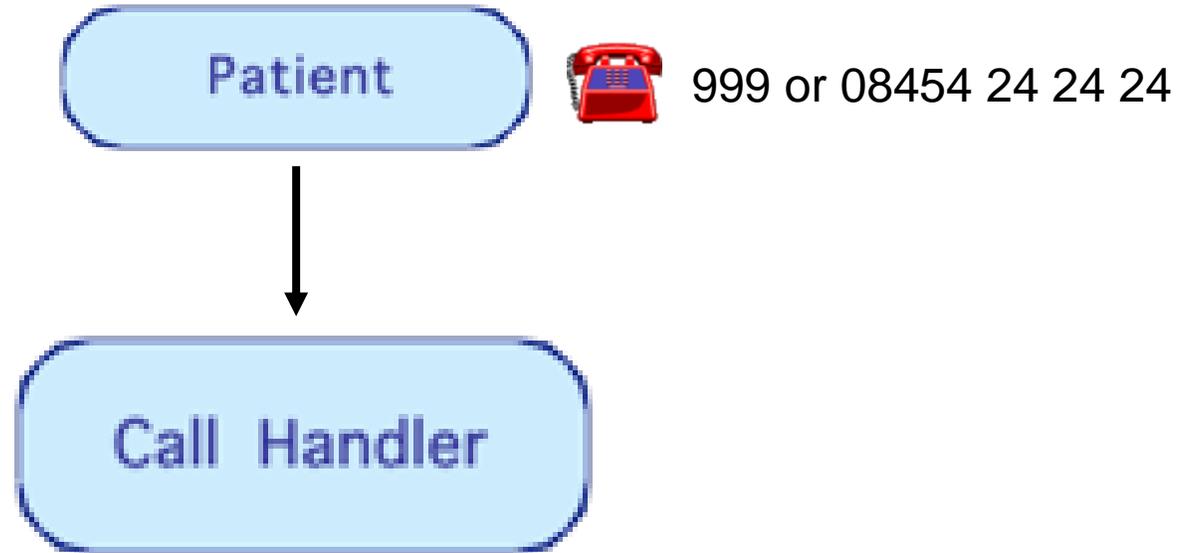
Service Delivery

- NHS 24 receives between 25,000 – 30,000 calls per week (seasonal)
- 99.1 % average time to answer is 3 seconds
- All immediately-life threatening calls are transferred to the Scottish Ambulance Service
- All serious and urgent calls are dealt with immediately
- 96% of urgent calls dealt with in under 20 minutes
- 97% of non-urgent calls dealt with within 1 hour

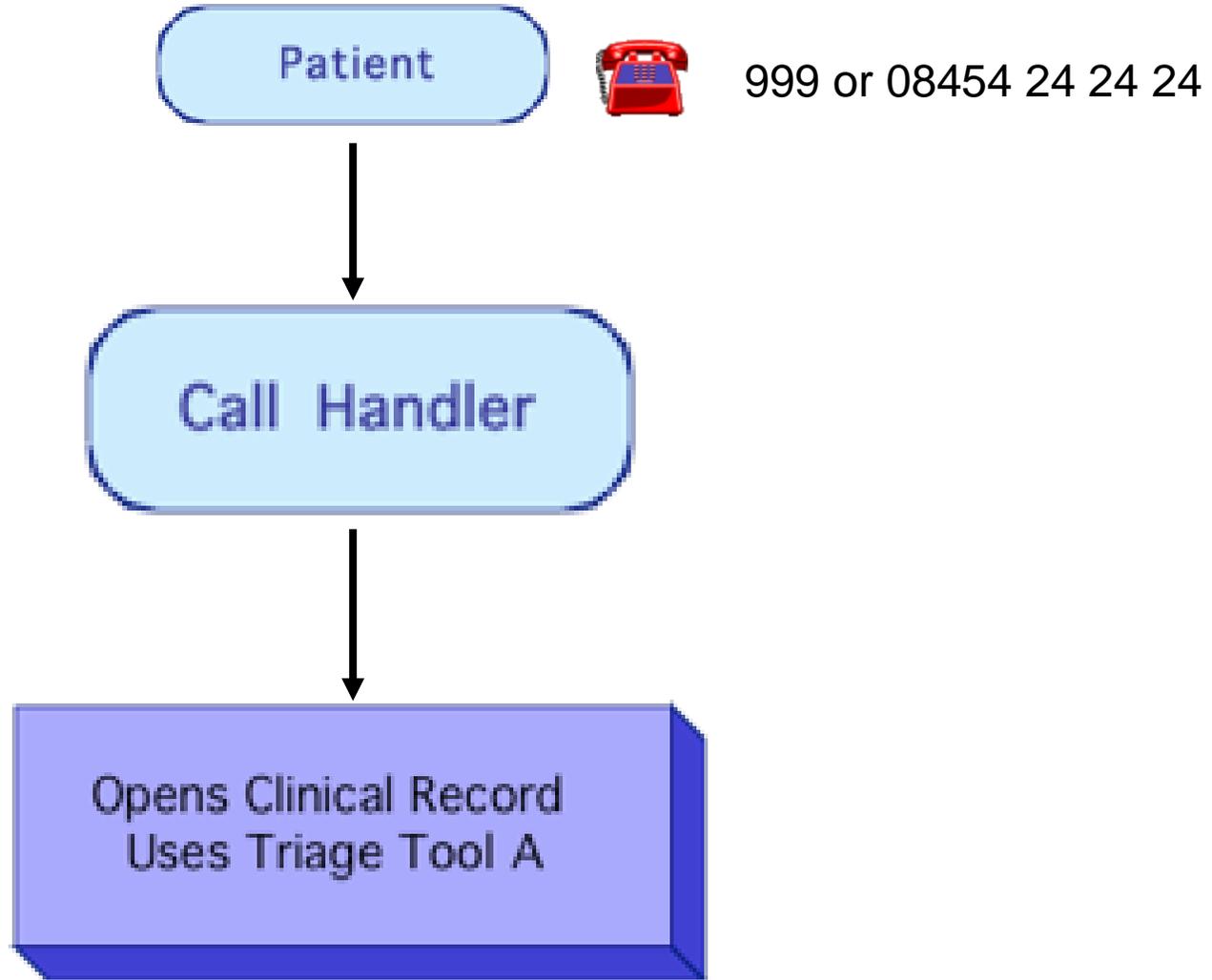
Integration of decision making

- Effective Triage
- Evidence Based
- Multiple end points including self care
- Professional to professional support
- Data transfer/sharing

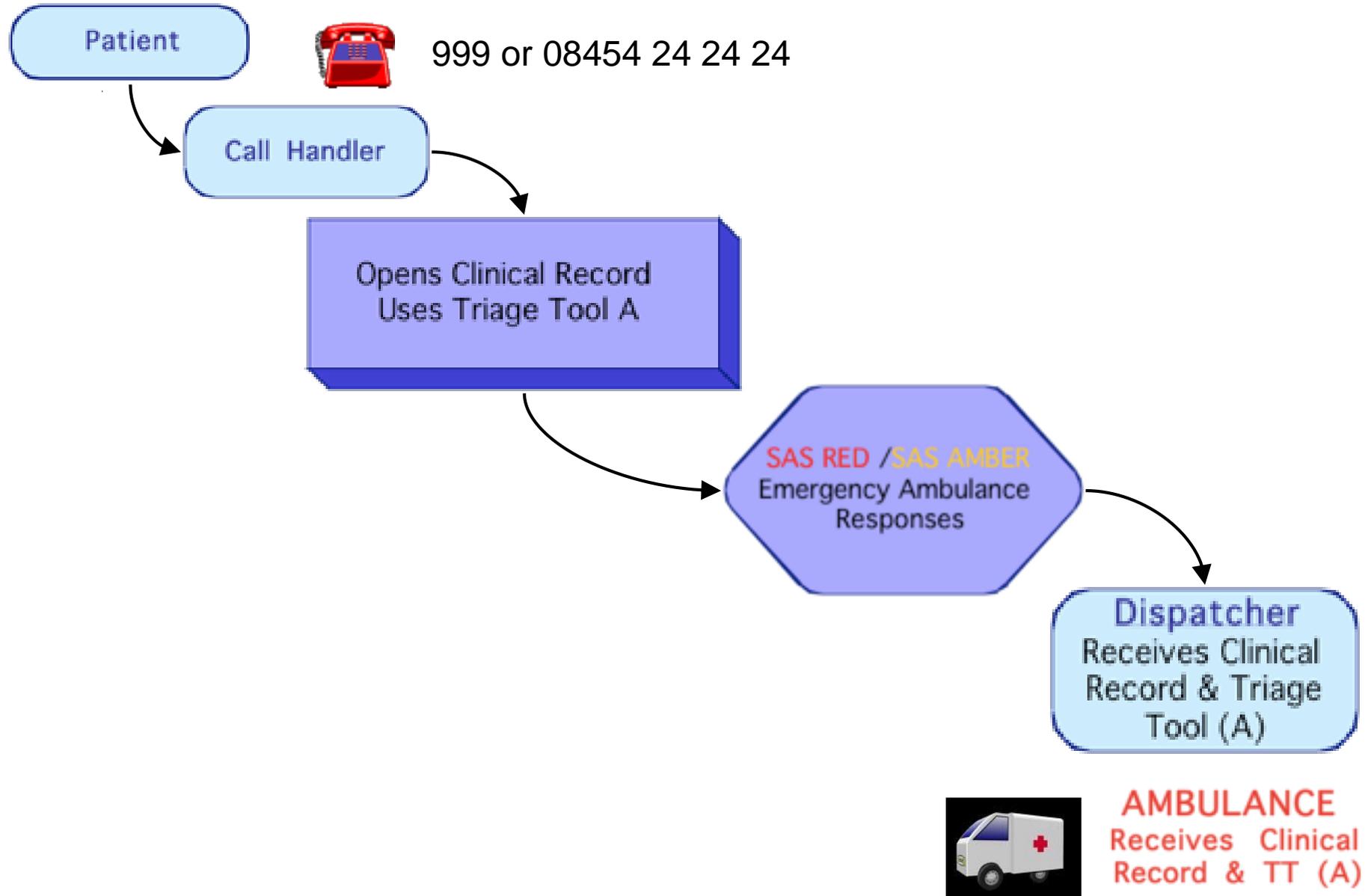
Unscheduled Care Common Triage Tool



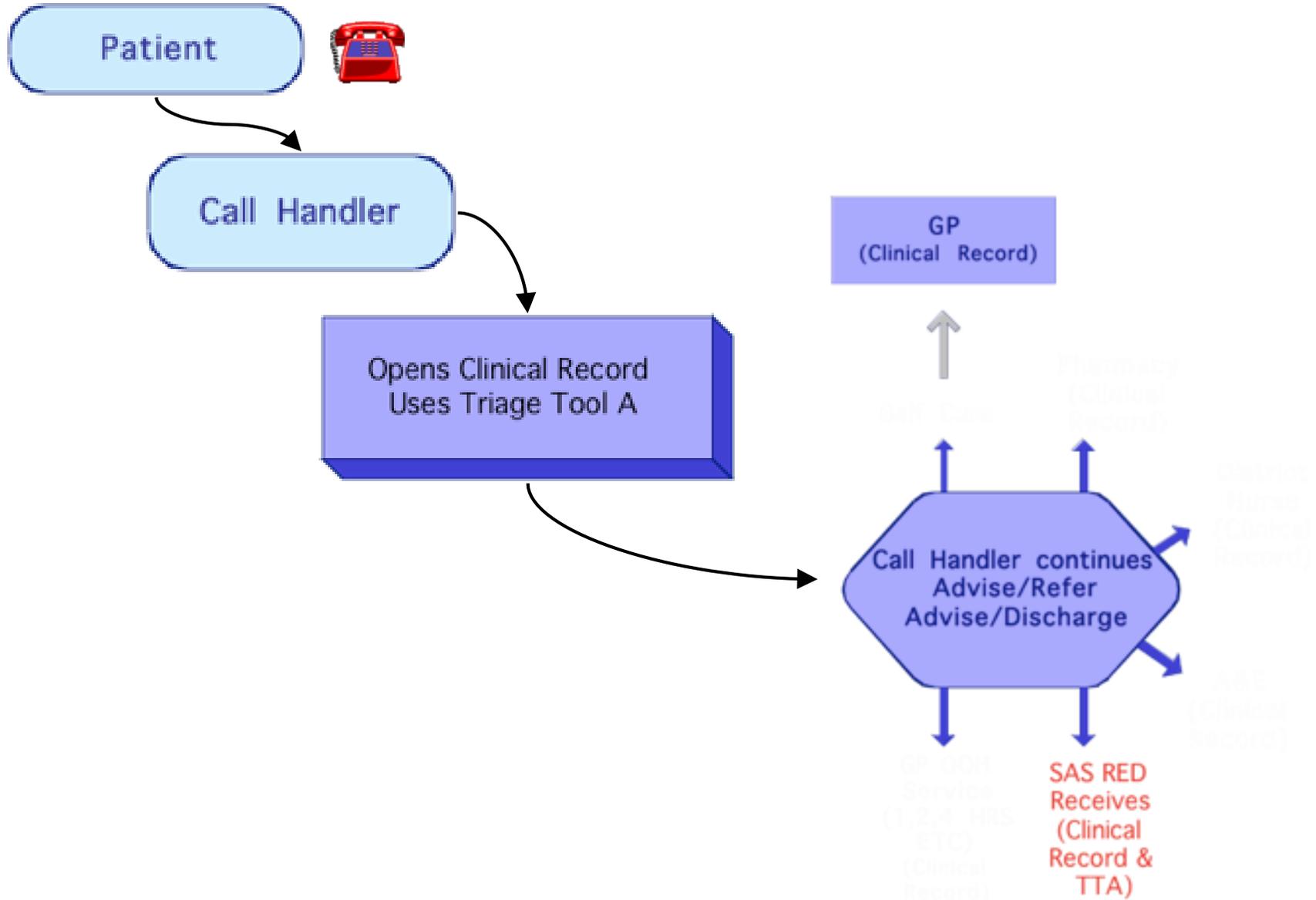
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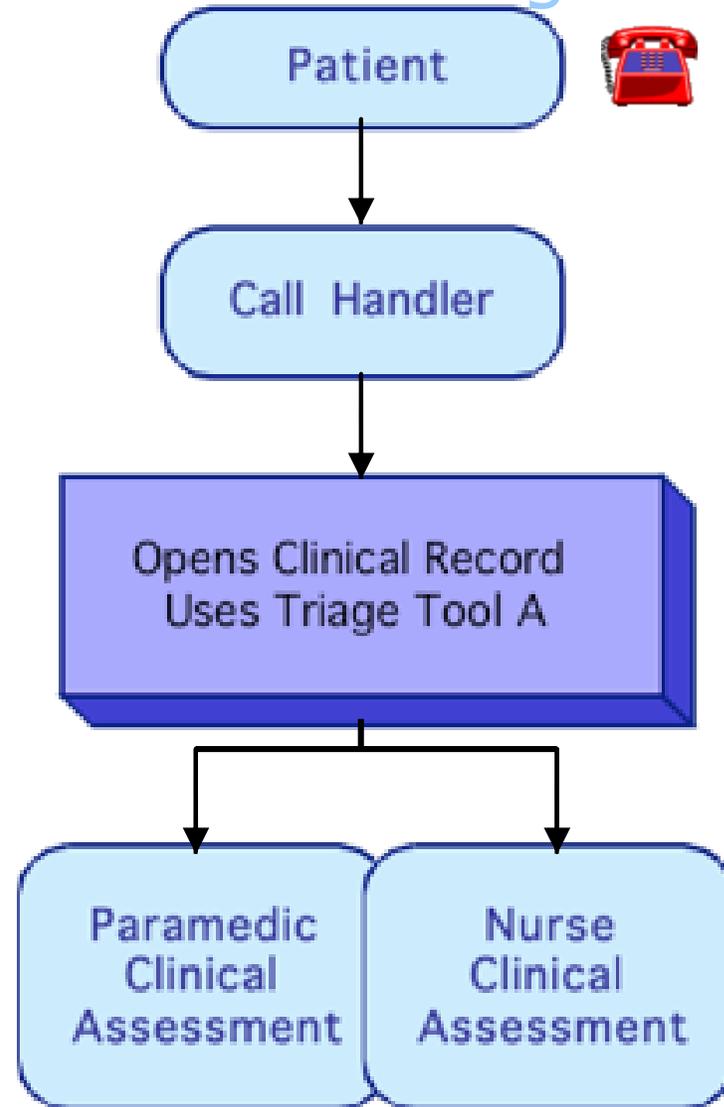
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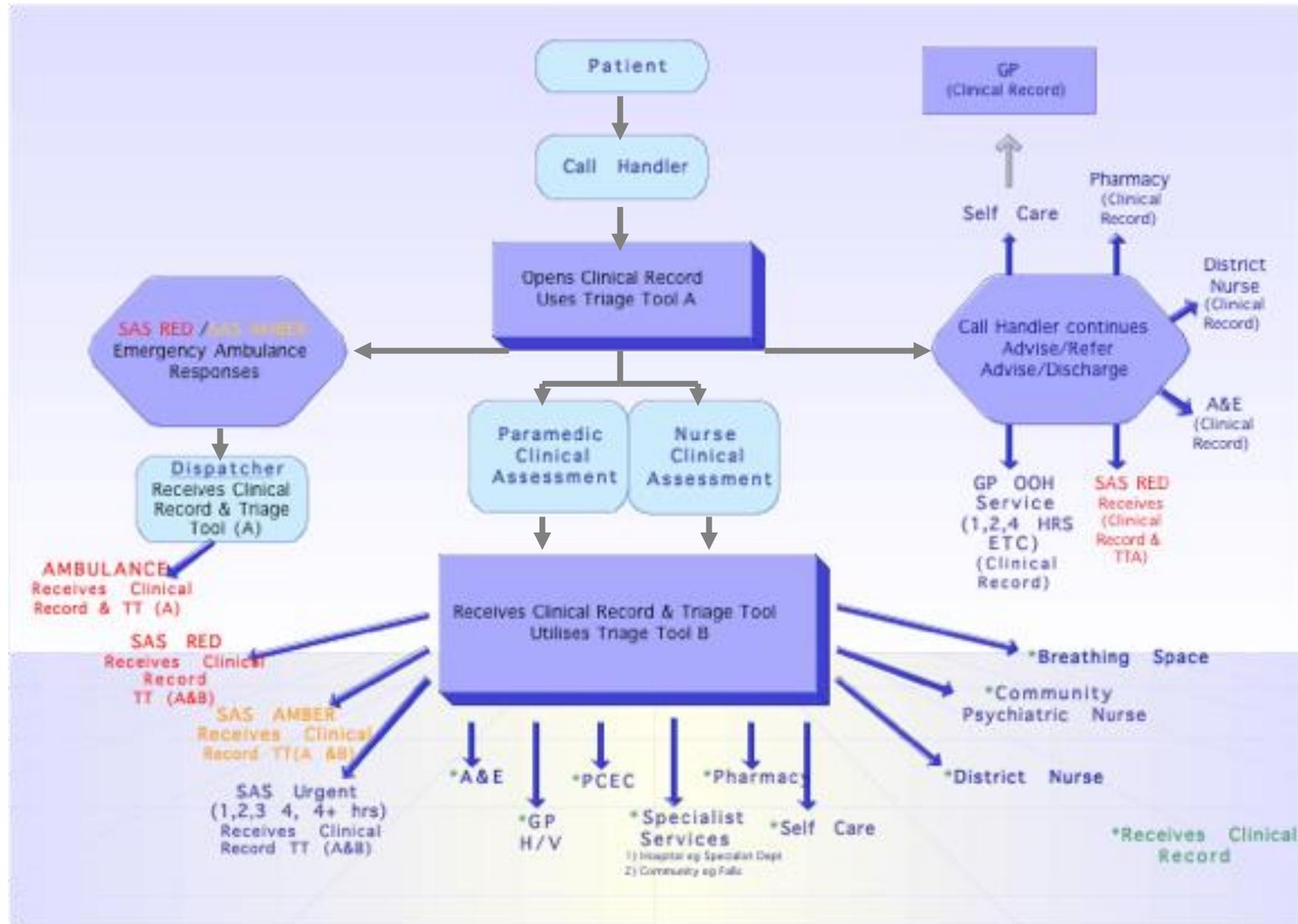
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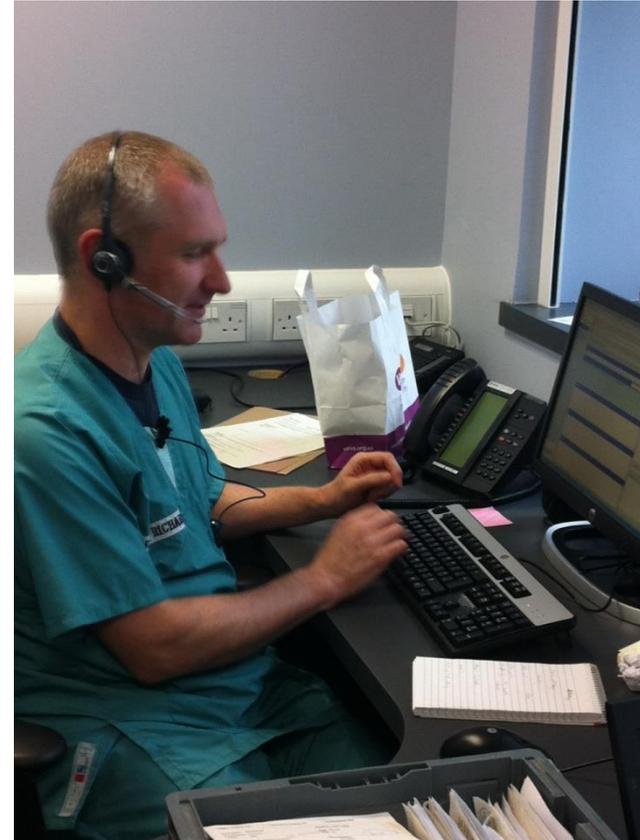




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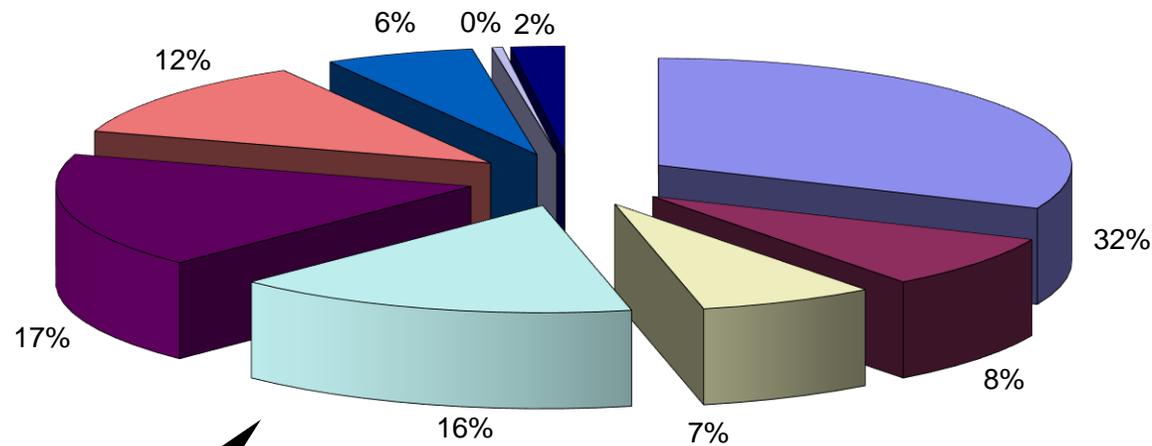
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GP Calls to Decision Support Service
Sept 13 to Jan 14
Total Calls 587

Through Decision Support
 18% of GP patients received
 appropriate care closer
 to home or in the community

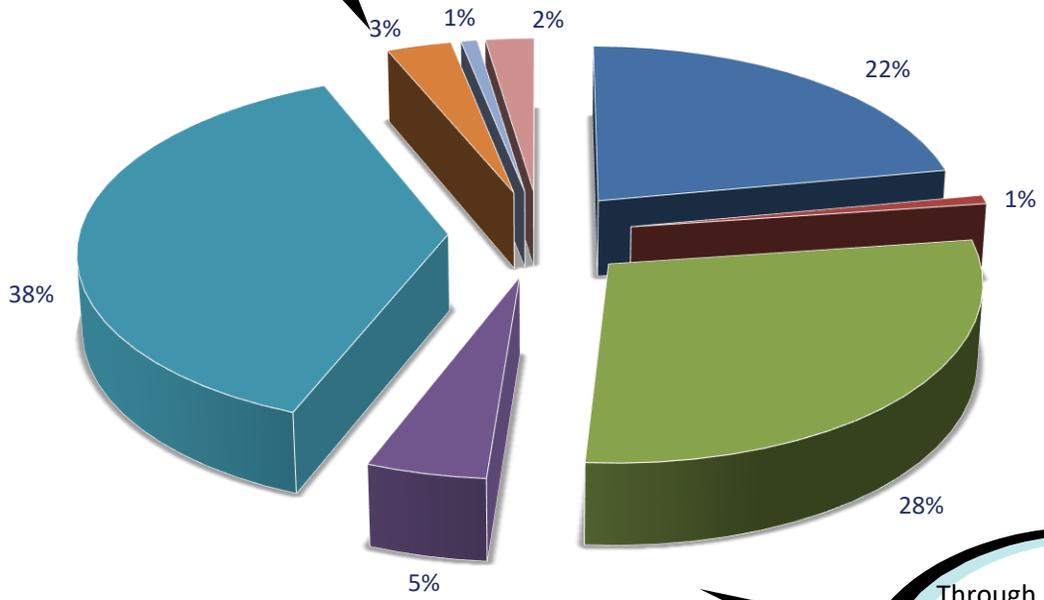


- Same Day ARI ED/MIU 187
- Same day RACH ED/MIU 49
- Redirected to AMIA 41
- ARI MIU Appt 91
- Planned assess/admission/management by Speciality 96
- Planned assess/admission/management by GP/Com Hosp/Community Service 77
- Advice Only 32
- System Constraint 2
- Other 12

Through Decision Support
 33% of GP patients had a
 planned assessment in
 acute care.

Through Decision Support
41% of patients received
appropriate care closer to
home or in the community

Paramedic Calls to Decision Support
Sept 13 to Jan 14
Total Calls 127



Through Decision Support
33% of patients
had a planned assessment
in AMIA or a Speciality

- Same Day ARI ED/MIU 28
- Same day RACH ED/MIU 1
- Redirected to AMIA 36
- Planned assess/admission/management by Speciality 6
- Planned assess/admission/management by GP/Com Hosp/Community Service 48
- Advice Only 4
- System Constraint 1
- Other 3



↑ Adult's

Accident and Emergency

Children's →
(Children Under 14 Years)



