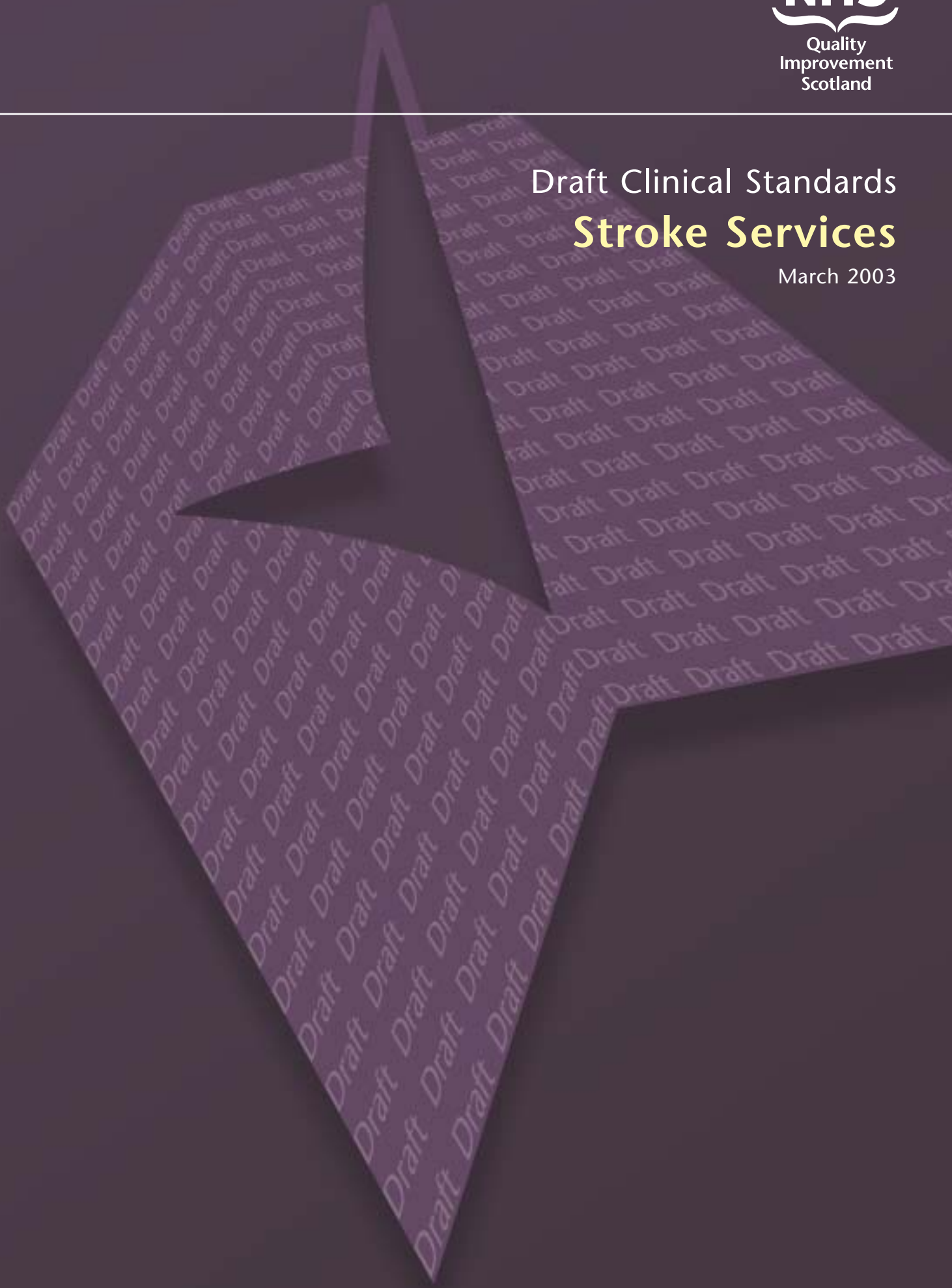


Draft Clinical Standards **Stroke Services**

March 2003



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1 Introduction

This document introduces NHS Quality Improvement Scotland's *Draft Clinical Standards for Stroke Services*. These draft standards apply to stroke and transient ischaemic attack (TIA) and include sections on:

- Organisation of Stroke Services for Scotland
- Acute Stroke and Rehabilitation (Management in Hospital)
- Secondary Prevention
- Discharge

When finalised the standards will be used by NHS Quality Improvement Scotland to assess performance in these areas in Trusts¹ throughout Scotland where stroke services are provided. As part of this assessment, Trusts will be visited by multidisciplinary teams, which will include members of the public.

The initial sections of this document provide background information on NHS Quality Improvement Scotland and on the process used to develop the draft standards (Sections 2 and 3 respectively).

The development of the *Draft Clinical Standards for Stroke Services* is outlined in Section 4, and the membership of the Project Group undertaking this work is given in Section 5. The overarching principles guiding development of the draft standards are provided in Section 6.

Section 7 provides background information on stroke. The evidence underpinning the draft standards and each individual criterion is presented in Section 8.

Section 9 contains the *Draft Clinical Standards for Stroke Services*.

Finally, Section 10 provides a glossary of terms used in the draft standards.

¹ For simplicity, the term 'Trust' is used throughout this document to refer to all relevant NHS organisations as most of them (28) are Trusts. The exceptions are the three Island NHS Boards: Shetland, Orkney and the Western Isles, which are Special Health Boards.

2 Background on NHS Quality Improvement Scotland

NHS Quality Improvement Scotland was established as a Special Health Board on 1 January 2003 as a result of bringing together the Clinical Resource and Audit Group (CRAG), Clinical Standards Board for Scotland (CSBS), Health Technology Board for Scotland (HTBS), Nursing and Midwifery Practice Development Unit (NMPDU) and the Scottish Health Advisory Service (SHAS).

The purpose of NHS Quality Improvement Scotland is to improve the quality of healthcare in Scotland by setting standards and monitoring performance, and by providing NHSScotland with advice, guidance and support on effective clinical practice and service improvements.

A part of this remit is to develop and run a national system of quality assurance of clinical services. Working in partnership with healthcare professionals and members of the public, NHS Quality Improvement Scotland sets standards for clinical services, assesses performance throughout NHSScotland against these standards, and publishes the findings. The standards are based on the patient's journey as he or she moves through different parts of the health service. A wide range of diseases and services are at present being addressed, including infection control, vascular services and specialist palliative care.

Project Groups

For each service in the work programme, NHS Quality Improvement Scotland appoints a project group comprising appropriate healthcare professionals and members of the public to:

- oversee the development of, and consultation on, the standards;
- recommend an external peer review process; and
- report on its findings to the NHS Quality Improvement Scotland Board.

As part of their rolling programme, individual project groups ensure that the standards are regularly evaluated and revised so that they remain relevant and up to date (reflecting new procedures and treatments). They also ensure that targets of achievement are raised as performance improves.

Development of Standards

The way in which standards are developed is a key element of the quality assurance process. Groups working on behalf of NHS Quality Improvement Scotland are expected to:

- adopt an open and inclusive process involving a wide range of both members of the public and professional people through a variety of mechanisms;
- work within NHS Quality Improvement Scotland policies and procedures; and
- test standards through undertaking pilot reviews to ensure that they meet the principles of NHS Quality Improvement Scotland.

In addition to standards for specific services or conditions, generic clinical governance standards have been set which apply to all clinical services.

Review

The framework for the NHS Quality Improvement Scotland review process is as follows:

- once the standards have been finalised, each relevant Trust is asked to undertake a self-assessment of its service against the standards;
- a review team visits the Trust on behalf of NHS Quality Improvement Scotland to follow up this self-assessment exercise with an external peer review of performance in relation to the standards; and
- NHS Quality Improvement Scotland reports the findings for the Trust, based on the self-assessment exercise and on the external peer review.

Peer review teams are multidisciplinary, including both healthcare professionals and members of the public. All teams are led by an experienced clinician and are supported by staff from NHS Quality Improvement Scotland.

All the processes being developed are subject to review and evaluation, and this will help NHS Quality Improvement Scotland improve its quality assurance system.

2 Background on NHS Quality Improvement Scotland

Further Information

For further information about the standards and reviews function of NHS Quality Improvement Scotland, or to obtain additional copies of these draft standards, please contact:

Edinburgh Office
Elliott House
8-10 Hillside Crescent
Edinburgh
EH7 5EA

Tel: 0131 623 4300

Fax: 0131 623 4299

comments@nhshealthquality.org

www.nhshealthquality.org

Copies of all NHS Quality Improvement Scotland publications can also be downloaded from the website (www.nhshealthquality.org).

3 Background on Clinical Standards - Basic Principles

The standards set by NHS Quality Improvement Scotland are:

- focused on clinical issues and include non-clinical factors that impact on the quality of care;
- written in simple language;
- based on evidence (recognising that levels and types of evidence will vary);
- written to take into account other recognised standards and clinical guidelines;
- clear and measurable;
- achievable but stretching;
- developed by healthcare professionals and members of the public;
- consulted on widely;
- published on paper and electronically (on the Internet); and
- regularly reviewed and revised to make sure they remain relevant and up to date.

Some standards are common to all clinical services, others specific to particular conditions.

Format of Standards and Definition of Terminology

All standards set by NHS Quality Improvement Scotland follow the same format:

- each standard has a **title**, which summarises the area on which that standard focuses;
- this is followed by the **standard statement**, which explains the level of performance to be achieved;
- the **rationale** section provides the reasons why the standard is considered to be important; and
- the standard statement is expanded in the section headed **criteria**, which states exactly what must be achieved for the standard to be reached.

As already mentioned, NHS Quality Improvement Scotland aims to set standards that are **achievable but stretching**. This is reflected in the criteria. Most criteria are **essential**, in that it is expected that they will be met wherever a service is provided. Other criteria are **desirable**, in that they are being met in some parts of the service and demonstrate levels of quality which other providers of a similar service should strive to achieve. Each project group is responsible for determining which criteria are essential and which are desirable.

The criteria are numbered for the sole reason of making the document easier to work with, particularly for the assessment process. The numbering of the criteria is not a reflection of priority. The distinction between 'essential' and 'desirable' is the only way in which criteria have been prioritised.

Generic Clinical Governance Standards

As mentioned earlier in this document, generic clinical governance standards have been developed which apply to clinical services generally.

Copies of the generic clinical governance standards are available on request from NHS Quality Improvement Scotland or can be downloaded from the website (www.nhshealthquality.org).

4 Development of the Draft Clinical Standards for Stroke Services

Background

Stroke was identified as a national priority for the NHS in the mid-1990s because it is a major cause of death and disability in Scotland. The national Coronary Heart Disease (CHD)/Stroke Task Force was convened by the Scottish Executive Health Department in 1998 to address this and one of the key milestones in the CHD/Stroke Task Force report, published in September 2001, was the development of recommendations and strategic planning for stroke services. The CHD and Stroke Strategy, which translated these recommendations into an implementation plan for the future configuration of CHD and Stroke Services in Scotland was then published in October 2002. NHS Quality Improvement Scotland is building on the recommendations from these national plans.

Developing the Draft Clinical Standards for Stroke Services

NHS Quality Improvement Scotland appointed a multidisciplinary project group that includes representatives from healthcare professionals, patients, carers, voluntary organisations and members of the public. It is chaired by Professor Ross Lorimer, President of the Royal College of Physicians and Surgeons, Glasgow, and previous Chairman of the CHD/Stroke Task Force. Dr Marion Barlow, Associate Specialist, Glasgow, is Clinical Advisor to the Group. The first meeting of the Group was in March 2002 and its membership is given in Section 5.

The draft standards produced by the Group focus on four key elements underpinned by an evidence base. They do not aim to be a guideline or protocol, but are measures of performance for a service providing care to stroke patients and, as such, are indicators of performance. When drafting the standards, the Group adhered to established basic principles, and paid particular attention to restricting the number of standards in order to focus on key issues.

The remit of the Stroke Services Project Group is to:

- develop core national standards for stroke services within NHSScotland resources;
- recommend a review process; and
- provide a baseline report on performance against standards in Scotland.

Wide consultation on the development of the draft standards will take place at open meetings in March and April 2003. The *Draft Clinical Standards for Stroke Services* will also be piloted in different NHS sites across Scotland, to assess their measurability, before they are finalised and published.

The consultation process is designed to achieve a consensus view on the points of the subject under consultation. Whilst it will not be possible for the final version of the standards to reflect all points of view put forward, the Project Group will consider every comment received as the standards are developed.

Submitting Your Comments

Responses to the *Draft Clinical Standards for Stroke Services* are welcome and should be submitted by **Monday 2 June 2003**. Please send these to:

Nanisa Feilden
Project Officer
NHS Quality Improvement Scotland
Edinburgh Office
Elliott House
8-10 Hillside Crescent
Edinburgh
EH7 5EA

Tel: 0131 623 4279

Fax: 0131 623 4299

Email: nanisa.feilden@nhshealthquality.org

5 Membership of the Stroke Services Project Group

The membership of the Stroke Services Project Group, chaired by Professor Ross Lorimer, President of the Royal College of Physicians and Surgeons, Glasgow, and previous Chairman of the CHD/Stroke Task Force, is presented below:

Name	Title	NHS Board Area/Organisation
Dr Marion Bain	Consultant in Public Health Medicine	Information and Statistics Division, Common Services Agency
Dr Marion Barlow	Associate Specialist	Greater Glasgow
Mrs Jane Borthwick	Lay Representative	Lothian
Mr David Clark	Chief Executive	Chest Heart & Stroke Scotland
Ms Muriel Cockburn	Superintendent Radiographer - MRI	Greater Glasgow
Mrs Ursula Corker	Lay Representative	Dumfries & Galloway
Professor Martin Dennis	Professor of Stroke Medicine	Lothian
Dr Sandip Ghosh	Consultant Physician	Ayrshire & Arran
Ms Thérèse Jackson	Head Occupational Therapist/ Clinical Specialist	Grampian
Dr Aileen Keel	Deputy Chief Medical Officer	Scottish Executive Health Department
Ms Anne Kinnear	Principal Pharmacist	Lothian
Professor Peter Langhorne	Professor of Stroke Care	Greater Glasgow
Dr Jacqueline McDonald	General Practitioner	Lothian
Mr Iain McMillan	Consultant Vascular & General Surgeon	Ayrshire & Arran
Mrs Fiona Neal	Stroke Liaison Sister	Ayrshire & Arran
Ms Noelle O'Neill	Clinical Effectiveness Co-ordinator	Highland
Ms Lesley Pacitti	Principal Pharmacist	Lothian
Dr Margaret Roberts	Clinical Director	Greater Glasgow
Mr Will S Scott	Head of Branch, Health Planning and Quality	Scottish Executive Health Department
Dr Robert Stewart	Lay Representative	Lothian
Dr Paul Syme	Consultant Physician	Borders

Support from NHS Quality Improvement Scotland is being provided by Dr David Steel (Chief Executive); Ms Hilary Davison (Review Team Manager); Ms Susan Shields (Senior Project Officer); Ms Nanisa Feilden (Project Officer); and Ms Jacqueline Ellis (Project Administrator).

6 Overarching Principles

As detailed in Section 3, NHS Quality Improvement Scotland uses generic standards of care that underpin all clinical services provided by NHSScotland. They provide a broad context for all NHS Quality Improvement Scotland condition-specific standards. The *Draft Clinical Standards for Stroke Services* should be read in conjunction with the generic standards.

A number of key points should also be noted in order to interpret and apply the *Draft Clinical Standards for Stroke Services*, namely:

- They follow the patient's journey of care from initial referral to rehabilitation and secondary prevention.
- They represent what are considered to be the key elements of care and treatment for people who have had a stroke or TIA.
- The Group concluded that the measurement of standards set predominantly for primary prevention would be difficult, but noted that it would be valuable for systems to be put in place by primary care to identify and treat those patients at high risk of stroke. This includes patients with raised blood pressure, diabetes, atrial fibrillation and other vascular disease. The risk of stroke increases with age, therefore, it is important that risk factors are identified and treated in the older age groups.
- The Group has developed standards which mainly focus on patient care provided by secondary care and specialist services. However, they also attempt to reflect and encourage the establishment of local managed clinical networks across primary, secondary and tertiary care as recommended in the Coronary Heart Disease and Stroke Strategy for Scotland. The Group has, therefore, included standards on the local organisation of stroke services and the management of patients according to agreed protocols.
- The Group also noted that secondary prevention, which is a life-long strategy, should continue to be monitored in primary care after discharge from specialist care.

7 An Introduction to Stroke

Introduction to the Draft Clinical Standards for Stroke Services

The purpose of NHS Quality Improvement Scotland is to improve the quality of healthcare in Scotland by setting standards and monitoring performance, and by providing NHSScotland with advice, guidance and support on effective clinical practice and service improvements. NHS Quality Improvement Scotland aims to involve the public as well as health professionals at each stage of the process.

This section aims to provide information on stroke and stroke care, and serve as an introduction to the development of the draft stroke standards and terms used within this document.

Members of the public may not always readily understand the language used by health professionals. The following section is intended as a guide for those who may know little about stroke or quality assurance processes but who are interested in working as equal partners with health professionals. This section will aid the interpretation of the evidence base and standards sections (Sections 8 and 9).

The Quality Assurance Process for Stroke Services

NHS Quality Improvement Scotland has developed a system of measuring clinical services in Scotland. This system involves setting written standards for a service and then measuring performance against these standards.

NHS Quality Improvement Scotland aims to set standards which are:

- clear, well-defined and easily understood by all;
- based on evidence to show that they are beneficial and are an appropriate measure of clinical service within the current resources of NHSScotland;
- few in number and capture key actions which demonstrate the quality of care provided. They are not intended to be a guideline to cover all aspects of a patient's treatment. Large numbers of standards may overburden the healthcare system and detract from patient care rather than enhancing it; and
- measurable.

The Project Group has applied the above principles to the setting of the *Draft Clinical Standards for Stroke Services* which will be the subject of wide professional and public consultation. There will be a number of pilot visits which will determine whether the draft standards (Section 9) can be measured effectively. Final standards will be published following this process.

What is a Stroke?

A stroke occurs when the blood supply to the brain is disrupted. Each year over 100,000 people in Britain have their first stroke. In about 85% of cases this is caused by a blood clot in a vessel supplying the brain (**ischaemic stroke**). The remaining 15% are caused by a burst or leaking blood vessel (**haemorrhagic stroke**). The brain is a complicated organ that governs most of the functions of the body and is dependent on a network of blood vessels which supply oxygen and nutrients to the individual cells of the brain. When the cells of the brain are deprived of their blood supply they may be damaged or die and the areas in the brain controlled by these cells start to malfunction.

The results of this damage to the brain cells can be very varied depending on which part of the brain is injured and how much of the brain is damaged. Therefore, if the damage affects the area of the brain which controls movement, patients may have difficulty moving their legs or arms. In other cases they may have numbness, difficulty seeing, speaking, or controlling their emotions. A stroke can also cause problems with thinking clearly and translating thoughts into appropriate speech.

A stroke usually occurs suddenly and patients should seek help quickly. Most patients are admitted to hospital, but a proportion are cared for by their GP.

Although a stroke is a major illness, most patients make a partial or full recovery, helped by treatment and a variety of specialist care. Therefore, Standard 1 of the *Draft Clinical Standards for Stroke Services* requires the organisation of stroke services to allow all patients in Scotland access to specialist care. Standard 2 details some of the specialist investigations and care for stroke patients while they are in hospital. Standard 4 covers discharge of the patient from hospital.

What is a Transient Ischaemic Attack (TIA)?

A TIA is a temporary reduction in blood supply to the brain. Every year 40,000 people in Britain have a TIA which is sometimes called a 'mini-stroke'. This can occur when a blood vessel is narrowed, and differs from a stroke in that symptoms last for a short time. The symptoms are similar to those of a full-blown stroke and include blurred vision, numbness, weakness, pins and needles on one side of the body, or slurred speech. However, because the disruption is temporary, it does not cause permanent damage and resolves completely in less than 24 hours.

TIA's are important in that they highlight an underlying problem which may need correcting to prevent a subsequent stroke. Up to 25% of patients who have a TIA go on to develop a stroke very soon after. Therefore, it is important to identify and investigate rapidly the symptoms of a TIA. Standard 1 of the *Draft Clinical Standards for Stroke Services* requires the organisation of stroke services to allow patients, with a possible diagnosis of TIA, rapid access to specialist neurovascular clinics for investigation, diagnosis and treatment.

What Can be Done to Prevent a Stroke or TIA?

A number of lifestyle risk factors increase the likelihood of having a stroke or a TIA. They include:

- smoking;
- a fatty diet; and
- lack of exercise.

In addition, a number of disease risk factors also increase the possibility of having a stroke or TIA. These include:

- high blood pressure;
- diabetes;
- high cholesterol; and
- abnormalities of heart rhythm.

It is important, therefore, to control these factors before they result in a stroke (**primary prevention**). These risks also need to be controlled once a stroke or TIA has occurred, to prevent further strokes (**secondary prevention**).

Patients who smoke have twice the risk of non-smokers of having a stroke as smoking damages vessel walls and speeds up clogging of the artery walls. It also increases blood pressure, and patients with high blood pressure have a 40% increased risk of having a stroke. The different risk factors do not just add up, they multiply. Therefore, patients who smoke, and who have high blood pressure, and who take no exercise, have a 24 times higher risk of having a stroke than those who don't smoke, exercise regularly and have a normal blood pressure. Standard 3 of the *Draft Clinical Standards for Stroke Services* deals with secondary prevention for both those patients who have had a 'full blown' stroke and those who have had a TIA.

It is important that systems be put in place by primary care to identify those patients at high risk of stroke, as described above. The risk of stroke increases with age, therefore it is important that risk factors are identified and treated in the older age groups. It is hoped that the appropriate groups will take forward work in this important area.

Patient Journey of Care

The Project Group has developed standards for key areas of the patient's journey of care. These include referral to specialist care, time to assessment, management whilst in hospital, secondary prevention and discharge from hospital. Figure 1 relates to the journey of the patient with a stroke and the relevant standards. Figure 2 relates to the journey of the patient with a suspected TIA and the relevant standards.

Figure 1: Stroke Patient Journey of Care and Standards

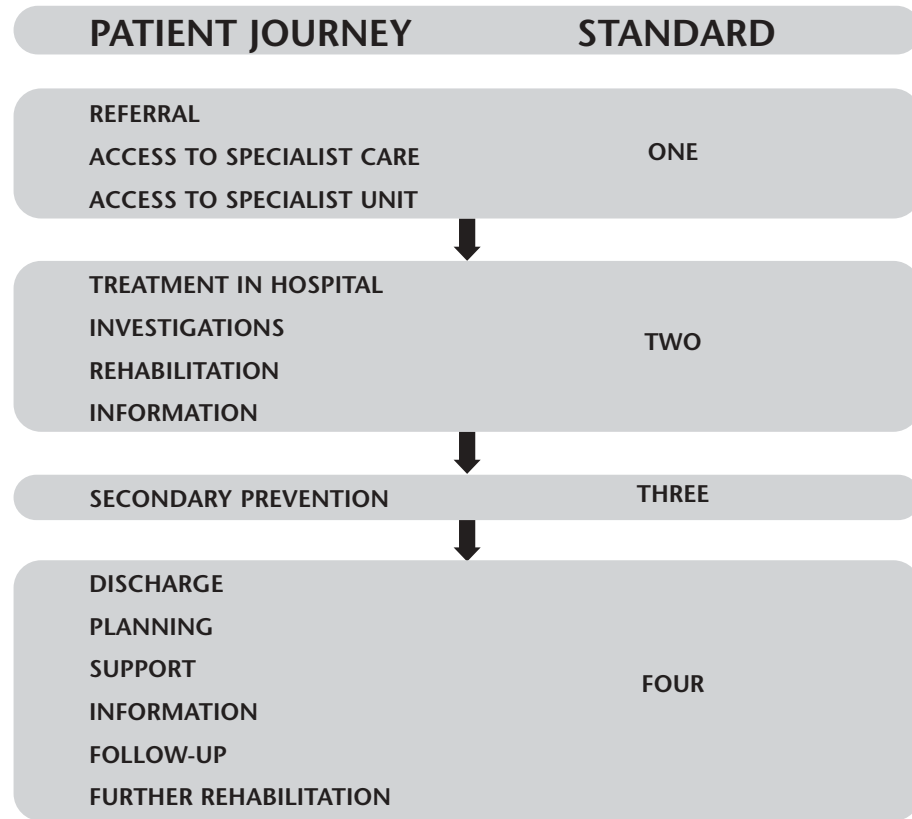
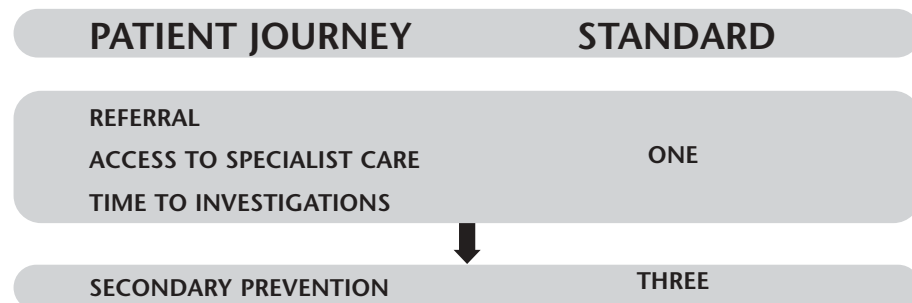


Figure 2: TIA Patient Journey of Care



8 Evidence Base for the Draft Clinical Standards for Stroke Services

Introduction

This section provides an introduction to the types of evidence which were available to the Project Group when developing each of the performance measures in the *Draft Clinical Standards for Stroke Services*. The format follows the standards and the individual criteria and allows ready reference to the reasons for each of the criteria in Section 9.

What is Meant by Evidence?

Care given to patients with illness is based on knowledge gathered over a long period of time. Clinicians have documented the results of different treatments for many years by observing which action or medication appears to give best improvements. These are called **observational studies**. However, these studies were often based on a small number of people and, when larger studies were conducted, these showed an interesting effect called the **placebo effect**. It was noticed that some patients improved even though they were treated with non-active or dummy pills. Therefore, to allow for this effect, and to determine the proper treatment effect, studies were conducted which compared an active treatment with a placebo treatment. The difference between the two groups was considered to be the proper effect of the treatment. This gave a more accurate assessment of the effect of treatment and these studies are called **placebo controlled trials**.

Where there is already a treatment for a condition, the new treatment may be compared to the existing treatment. This is called a **controlled trial**. However, there were problems with controlled trials, in that doctors may have known the treatment they were using and, therefore, may have unconsciously influenced patients.

Blinded studies were introduced in which neither the doctor nor the patients knew which treatment was used. An additional refinement was to randomly allocate treatments in order to prevent further bias. This is known as a **randomised controlled trial (RCT)**. Therefore, the most compelling evidence comes from large randomised controlled trials, which allow extensive examination of the effects and side-effects of the treatment in a large group of patients.

When there are no large randomised controlled trials, individual trials involving small numbers of patients, performed at different times in different areas, may be combined and the results examined. This is called a **meta-analysis**. Where there

is no evidence from trials, groups of specialists may produce **consensus statements (CS)** which are based on the best agreed clinical practice.

All the above forms of evidence can be gathered to produce **guidelines** for particular areas of patient care and guidelines such as the Scottish Intercollegiate Guidelines Network (SIGN). These guidelines recommend the provision of care and treatments on the evidence available at the time.

What Evidence was Examined to Develop the Draft Clinical Standards for Stroke Services?

There are few, large, randomised controlled studies which give clear indications for the treatment and care of stroke patients, although, there are a number of smaller studies and observational studies available as evidence. The Project Group looked at all the existing forms of evidence, including qualitative evidence consisting of surveys, questionnaires and discussions with stroke patients. Where possible, the best evidence available was used, that is, randomised controlled trials. However, as stated earlier, there is a lack of this form of research evidence. Therefore, meta-analysis of a number of smaller studies, observational studies, consensus statements, and national guidelines, in particular the Scottish Intercollegiate Guidelines Network, were used in the evidence base.

Approximately 10-40% of patients who have a stroke or TIA are cared for at home by their GP. Therefore, the services provided by primary care to patients with stroke in all areas of primary prevention, acute care and secondary prevention are of great importance. In particular, the screening of patients at high risk of stroke to ensure risk factors such as hypertension, diabetes, and high cholesterol are treated and controlled is an essential service, which will reduce the number of patients suffering a debilitating stroke. However, there is difficulty measuring and reviewing standards set predominantly for primary care because of the large numbers of individual practices.

Standard 1: Organisation of Stroke Services for Scotland

Introduction

In 2001, the CHD/Stroke Task Force reviewed services in Scotland for cardiovascular disease and produced a report which contained a number of recommendations for stroke services and their organisation. One of the main recommendations was the development of Managed Clinical Networks (MCNs) for stroke. This is a programme involving primary care, secondary care, tertiary care, public and patients in an area, who design their local service to ensure equal access and treatment for all patients. However, there are not many managed clinical networks established as yet. Therefore, Standard 1 is designed to encourage this process with a standard on organisation, which includes the organisation of stroke/TIA services and common referral protocols.

Criterion 1: Referral Protocols

Improving communication between healthcare workers was a concern of some stroke patients who took part in a recent survey carried out by CSBS Public Partnership Initiatives. The presence of referral protocols can help communication and, in particular, assist in the referral of appropriate patients to specialist services.

- Clinical Standards Board for Scotland (CSBS). Public Partnership Initiatives: Stroke Services. People's Experiences of NHSScotland: A Survey of People Who Have Had a Stroke and the Carers of Those Who Have Had a Stroke. Edinburgh: CSBS (June 2002).
- Coronary Heart Disease/Stroke Task Force [chaired by Professor Ross Lorimer]. Coronary Heart Disease/Stroke Task Force Report. Edinburgh: Scottish Executive Health Department (SEHD) (2001). www.show.scot.nhs.uk/sehd/publications/cdtf/cdtf-00.htm url cited 27/01/03.

Criterion 2: Consultant with a Special Interest in Stroke

The Royal College of Physicians (London) Intercollegiate Working Party for Stroke (RCP IWP/S) Update February 2002, recommended that diagnosis of stroke should be reviewed by an experienced clinician with an expertise in stroke. This opinion was based on a number of observational studies, including Ricci et al 1991, Kothari et al 1995 and Sandercock et al 1985, which suggested

that experience increased the accuracy of diagnosis. Further observational studies by Bots et al 1997 and Lemesle et al 1998 concluded that accuracy in diagnosis of TIA was difficult and many are misdiagnosed. SIGN Guideline 64 recommended that consultants with an interest in stroke should co-ordinate every stroke unit. This recommendation was based on expert opinion.

- Bots ML, Van der Wilk E, et al. Transient Neurological Attacks in the General Population: Prevalence, Risk Factors, and Clinical Relevance. *Stroke* (1997); 28 (4): 768-773.
- Kothari RU, Brott T, et al. Emergency Physicians. Accuracy in the Diagnosis of Stroke. *Stroke* (1995); 27 (3): 572-573.
- Lemesle M, Madinier G, et al. Incidence of Transient Ischaemic Attacks in Dijon, France. A 5 Year Community-Based Study. *Neuroepidemiology* (1998); 17 (2): 74-79.
- Ricci S, Celani MG, et al. A Community Based Study of Incidence, Risk Factors and Outcome of Transient Ischaemic Attacks in Umbria, Italy: The Sepivac Study. *Journal of Neurology* (1991); 2 (238): 87-90.
- Royal College of Physicians of Edinburgh (RCPE) [Consensus Panel]. Consensus Conference on Medical Management of Stroke: Consensus Statement. RCPE (Nov 2000). www.rcpe.ac.uk/esd/consensus/stroke_98.html url cited 27/01/03.
- Sandercock PA, Allen CM, et al. Clinical Diagnosis of Intracranial Haemorrhage Using Guy's Hospital Score. *British Medical Journal* (1985); 291 (6510): 1675-1677.
- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 64: Management of Patients with Stroke: Rehabilitation, Prevention and Management of Complications, and Discharge Planning. Edinburgh: SIGN (2002). www.sign.ac.uk/guidelines/published/numlist.html [access to full document] url cited 27/01/03.

Criteria 3 and 4: Stroke Unit

The Stroke Unit Trialists' Collaboration 1998 published the results of a meta-analysis, which included 19 randomised controlled trials involving 2,060 patients, and demonstrated that co-ordinated stroke units reduced mortality and morbidity. Kalra et al 2000 conducted a randomised controlled trial, which included 457 patients, and showed that the benefit of a geographically defined stroke unit was superior to that of mobile stroke teams. Indredavik et al 1999

8 Evidence Base for the Draft Clinical Standards for Stroke Services

concluded that the benefits of a stroke unit persisted for 10 years in a randomised controlled trial of 220 patients, and SIGN Guidelines 13 and 64 recommended that acute in-patient care for patients admitted to hospital with a major stroke should be organised as a multidisciplinary stroke service based in designated units. The CHD/Stroke Task Force, after consideration of available evidence, recommended that managed clinical networks should include a dedicated stroke unit serving a specific geographical area.

- Coronary Heart Disease/Stroke Task Force [chaired by Professor Ross Lorimer]. Coronary Heart Disease/Stroke Task Force Report. Edinburgh: Scottish Executive Health Department (SEHD) (2001). www.show.scot.nhs.uk/sehd/publications/cdtf/cdtf-00.htm url cited 27/01/03.
- Indredavik B, Bakke F, et al. Stroke Unit Treatment. 10 Year Follow up. *Stroke* (1999); 30 (8): 1524-1527.
- Kalra L, Evans A, et al. Alternative Strategies for Stroke Care: A Prospective Randomised Controlled Trial. *The Lancet* (2000); 356 (9233): 894-899.
- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 13: Management of Patients with Stroke Part I: Assessment, Investigation, Immediate Management and Secondary Prevention. Edinburgh: SIGN (1997). www.sign.ac.uk/guidelines/index.html [access to full document] url cited 04/06/02.
- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 64: Management of Patients with Stroke: Rehabilitation, Prevention and Management of Complications, and Discharge Planning. Edinburgh: SIGN (2002). www.sign.ac.uk/guidelines/published/numlist.html [access to full document] url cited 27/01/03.
- Stroke Unit Trialists' Collaboration (Cochrane Stroke Group). Organised Inpatient (Stroke Unit) Care for Stroke. Cochrane Database of Systematic Reviews. CD000197 (2000: Issue 1).
- Stroke Unit Trialists' Collaboration (Cochrane Stroke Group). Organised Inpatient (Stroke Unit) Care for Stroke. Cochrane Database of Systematic Reviews. CD000197 (2000: Issue 2).

Criterion 5: Co-ordinated Multidisciplinary Team

Evidence from the Stroke Unit Trialists' Collaboration suggests that a co-ordinated multidisciplinary team improves the outcome of stroke patients. SIGN Guidelines 13, 24 and 64 recommend a specialist multidisciplinary team

co-ordinated by a consultant with specific interest in stroke. The membership of the multidisciplinary team is defined in SIGN Guideline 64 as appropriate levels of medical, nursing, occupational therapy, physiotherapy, speech and language therapy, and social work staff.

- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 13: Management of Patients with Stroke Part I: Assessment, Investigation, Immediate Management and Secondary Prevention. Edinburgh: SIGN (1997). www.sign.ac.uk/guidelines/index.html [access to full document] url cited 04/06/02.
- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 24: Management of Patients with Stroke Part IV: Rehabilitation, Prevention and Management of Complications, and Discharge Planning. Edinburgh: SIGN (1998). www.sign.ac.uk/guidelines/index.html [access to full document] url cited 04/06/02.
- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 64: Management of Patients with Stroke: Rehabilitation, Prevention and Management of Complications, and Discharge Planning. Edinburgh: SIGN (2002). www.sign.ac.uk/guidelines/published/numlist.html [access to full document] url cited 27/01/03.
- Stroke Unit Trialists' Collaboration (Cochrane Stroke Group). Organised Inpatient (Stroke Unit) Care of Stroke. Cochrane Database of Systematic Reviews. CD000197 (2000: Issue 1).
- Stroke Unit Trialists' Collaboration (Cochrane Stroke Group). Organised Inpatient (Stroke Unit) Care of Stroke. Cochrane Database of Systematic Reviews. CD000197 (2000: Issue 2).

Criterion 6: Training for Staff Working with Stroke Patients

Jones et al 1998 demonstrated in a randomised controlled trial of six wards and 59 nurses that minimal training of two 2-hour lectures on stroke and rehabilitation produced a small increase in knowledge and change in practice. Forster et al 1999 showed changes in attitude after three 2-hour training programmes in a controlled clinical trial involving 32 nurses and two stroke wards. SIGN Guideline 64 recommended that stroke patients be treated by nurses specialising in stroke and based in a stroke unit.

- Forster A, Dowswell G, et al. Effect of a Physiotherapist-Led Training Programme on Attitudes of Nurses Caring for Patients after Stroke. *Clinical Rehabilitation* (1999); 13 (2): 113-122.

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- Jones A, Carr EK, et al. Positioning of Stroke Patients: Evaluation of a Teaching Intervention with Nurses. *Stroke* (1998); 29 (8): 1612-1617.
- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 64: Management of Patients with Stroke: Rehabilitation, Prevention and Management of Complications, and Discharge Planning. Edinburgh: SIGN (2002). www.sign.ac.uk/guidelines/published/numlist.html [access to full document] url cited 27/01/03.

Criteria 1 and 7: Neurovascular Clinics

Neurovascular clinics are run by specialist staff for the investigation, diagnosis and treatment of patients with symptoms of stroke or TIA. Evidence for the benefit of specialist neurovascular clinics is largely derivative and depends on expert opinion and consensus statements, plus extrapolation from observational studies on the accuracy of diagnosis.

Accurate diagnosis of TIA can be difficult and Bots et al 1997 concluded that, in an observational study of 7,983 patients in Rotterdam, 50% were misdiagnosed. However, accurate, rapid assessment is necessary for appropriate secondary prevention. Expert opinion also advises that stroke services and neurovascular clinics have access to facilities for urgent investigation, including brain and vascular imaging (CT, MRI, carotid ultrasound).

Michaels et al 2000 performed a systematic review of vascular services for the National Co-ordinating Centre for Health Technology Assessment and concluded that centralisation of services would be expected to lead to improved outcomes. However, there would be an increase in overall resource requirements.

The Blight et al 2000 observational study consisted of 211 patients referred to a one-stop clinic, and concluded that 90% of patients were managed with a single consultation with potential cost savings. The CHD/Stroke Task Force Report recommended that NHS Boards review the current provision of one-stop clinics for assessment of TIA within 2 weeks of onset of symptoms, with a view to developing improved access to such clinics. SIGN Guideline 64 also advised early access to a neurovascular clinic for those patients who had suffered a non-disabling stroke.

- Blight A, Pereira AC, et al. A Single Consultation Cerebrovascular Disease Clinic is Cost Effective in the Management of Transient Ischaemic Attack and Minor Stroke. *Journal of the Royal College of Physicians of London* (2000); 34 (5): 452-455.

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- Bots ML, Van der Wilk E, et al. Transient Neurological Attacks in the General Population: Prevalence, Risk Factors, and Clinical Relevance. *Stroke* (1997); 28 (4): 768-773.
 - Coronary Heart Disease/Stroke Task Force [chaired by Professor Ross Lorimer]. Coronary Heart Disease/Stroke Task Force Report. Edinburgh: Scottish Executive Health Department (SEHD) (2001). www.show.scot.nhs.uk/sehd/publications/cdtf/cdtf-00.htm url cited 27/01/03.
 - Michaels J, Brazier J, et al. Cost and Outcome Implications of the Organisation of Vascular Services. *Health Technology Assessment* (2000); 4 (11: i-iv): 1-191.
 - Royal College of Physicians of Edinburgh (RCPE) [Consensus Panel]. Consensus Conference on Medical Management of Stroke: Consensus Statement. RCPE (Nov 2000). www.rcpe.ac.uk/esd/consensus/stroke_98.html url cited 27/01/03.
 - Royal College of Physicians of Edinburgh (RCPE) [Consensus Panel]. Consensus Conference on Stroke Treatment and Service Delivery: Consensus Statement. RCPE (Nov 2000). www.rcpe.ac.uk/esd/consensus/stroke_2000.html url cited 27/01/03.
 - Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 64: Management of Patients with Stroke: Rehabilitation, Prevention and Management of Complications, and Discharge Planning. Edinburgh: SIGN (2002). www.sign.ac.uk/guidelines/published/numlist.html [access to full document] url cited 27/01/03.

Criterion 7 and Desirable Criterion 1: Time to Assessment at Neurovascular Clinic

The risk of recurrence of a stroke or TIA is much higher in the first few days after an initial event, so it is likely that secondary prevention will be effective if started early. However, accurate diagnosis is necessary for appropriate secondary prevention and Wardlaw et al 2003 demonstrated that CT scanning was unreliable in detecting haemorrhagic stroke in patients seen more than 8 days after the event. Therefore, early assessment and imaging will allow more appropriate secondary prevention to be prescribed.

SIGN Guideline 14 recommends that patients with a possible carotid artery event be referred for specialist referral within 2 weeks and that there should be fast-track assessment for those patients with minor strokes or TIAs not requiring hospital admission. The Royal College of Physicians (London) Intercollegiate

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Working Party for Stroke recommends that assessment at a specialist clinic should be within 14 days of onset of symptoms.

- Royal College of Physicians of London (RCPL) Intercollegiate Working Party for Stroke. National Guidelines for Stroke. Update 2002. London: RCPL (Feb 2002). www.rcplondon.ac.uk/pubs/books/stroke/ceeu_stroke_intro.htm url cited 27/01/03.
- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 14: Management of Patients with Stroke Part II: Management of Carotid Stenosis and Carotid Endarterectomy. Edinburgh: SIGN (1997). www.sign.ac.uk/guidelines/index.html [access to full document] url cited 04/06/02.
- Wardlaw JM, Keir SL, et al. The Impact of Delays in Computed Tomography on the Accuracy of Diagnosis and Subsequent Management in Patients with Minor Stroke. *Journal of Neurology Neurosurgery & Psychiatry* (2003); 74 (1): 77-81.

Standard 2: Acute Stroke and Rehabilitation (Management in Hospital)

Introduction

Stroke is primarily a clinical diagnosis and accurate diagnosis is important not only to distinguish stroke from other acute onset diseases, but also because medical management and secondary prevention are dictated by the diagnosis. Much of the evidence concerning diagnosis is extrapolated from other studies or from expert opinion.

Criterion 1: Management Protocol

Protocols can improve communication between healthcare workers. Communication was one of the key concerns of stroke patients who took part in a recent survey performed by CSBS Public Partnership Initiatives. Protocols developed from national evidence-based guidelines such as SIGN, and agreed locally, encourage consistent management of patients regardless of where they are cared for. This was one of the recommendations of the CHD/Stroke Task Force.

Some small studies have demonstrated the benefits of using different types of protocols in patients (not specifically stroke patients). Duncan et al 1995 showed a reduction in mortality using a combination of stroke unit with rehabilitation and protocols in a controlled clinical trial of 126 patients. Bowen and Yaste 1994 showed the benefit in lower hospital costs and possible reduction in length of stay by using a protocol with a critical nursing pathway in a controlled clinical trial of 386 patients. In 1994, Naylor et al studied 276 patients in a randomised controlled trial and concluded that discharge protocols lead to fewer re-admissions.

- Bowen J, Yaste C. Effect of Stroke Protocol on Hospital Costs of Stroke Patients. *Neurology* (1994); 44 (10): 1961-1964.
- Clinical Standards Board for Scotland (CSBS). Public Partnership Initiatives: Stroke Services. People's Experiences of NHSScotland: A Survey of People Who Have Had a Stroke and the Carers of Those Who Have Had a Stroke. Edinburgh: CSBS (June 2002).
- Duncan G, Ritchie LC, et al. Acute Stroke in South Ayrshire: A Comparative Study of Pre and Post Stroke Units. *Health Bulletin* (1995); 53 (3): 159-166.
- Naylor M, Brooten D, et al. Comprehensive Discharge Planning for the Hospitalized Elderly: A Randomized Clinical Trial. *Annals of Internal Medicine* (1994); 120 (12): 999-1006.

Criteria 1 and 5: Rehabilitation

The course of events following a stroke is highly variable. Rehabilitation is an intervention to assist patients through the recovery phase to aid restoration of physical, psychological, functional and social ability. Stuck et al 1993 conducted a meta-analysis of 28 trials, including 9,871 elderly patients (not specifically stroke patients), and concluded that a comprehensive geriatric assessment, linked to co-ordinated management, improved survival and function. SIGN Guideline 24 recommends that rehabilitation should be started as soon as the patient's condition permits. The evidence for this recommendation was extrapolated from a trial by Smith et al 1982.

- Smith ME, Garraway WM, et al. Therapy Impact on Functional Outcome in a Controlled Trial of Stroke Rehabilitation. *Archives of Physical Medicine & Rehabilitation* (1982); 63 (1): 21-24.
- Stuck A, Siu A, et al. Comprehensive Geriatric Assessment: A Meta-Analysis of Controlled Trials. *The Lancet* (1993); 342 (8878): 1032-1036.
- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 24: Management of Patients with Stroke Part IV: Rehabilitation, Prevention and Management of Complications, and Discharge Planning. Edinburgh: SIGN (1998). www.sign.ac.uk/guidelines/index.html [access to full document] url cited 04/06/02.

Criterion 2: Brain Imaging

Brain imaging by CT scan or MRI is important to aid diagnosis and, therefore, inform subsequent management. It is important to differentiate between a haemorrhagic stroke and ischaemic stroke as this will determine treatment. Also, as the risk of recurrence of a stroke or TIA is much higher in the first few days after an initial event, it is likely that secondary prevention will be effective if started early. In 2003, Wardlaw et al demonstrated that CT scanning was unreliable in detecting haemorrhagic stroke in patients seen more than 8 days after the event. Therefore, early imaging will allow more accurate diagnosis.

- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 14: Management of Patients with Stroke Part II: Management of Carotid Stenosis and Carotid Endarterectomy. Edinburgh: SIGN (1997). www.sign.ac.uk/guidelines/index.html [access to full document] url cited 04/06/02.

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- Wardlaw JM, Keir SL, et al. The Impact of Delays in Computed Tomography on the Accuracy of Diagnosis and Subsequent Management in Patients with Minor Stroke. *Journal of Neurology Neurosurgery & Psychiatry* (2003); 74 (1): 77-81.

Criterion 3: Aspirin

In patients who have had a stroke caused by a clot, rather than a bleed, the evidence suggests that early aspirin can improve patient outcome. In 2000, Gubitz et al conducted a meta-analysis of 41,325 patients in eight trials and concluded that aspirin within 48 hours of an ischaemic stroke reduced mortality and morbidity.

- Gubitz G, Sandercock P, et al. Antiplatelet Therapy for Acute Ischaemic Stroke. (2003. Issue 1). www.cochrane.de/cochrane/revabstr/ab000029.htm [abstract] url cited 29/01/03.

Criterion 4: Swallow Screen Assessment

45% of all stroke patients suffer from dysphagia (difficulty in swallowing). This may cause problems when eating or drinking and can lead to food or drink being inhaled into the lungs, resulting in pneumonia. It is, therefore, important to screen for this, as was shown by Odderson et al in 1995. He conducted a controlled clinical trial of 124 acute stroke admissions and found that use of a standardised protocol, including dysphagia guidelines, reduced the risk of aspiration pneumonia. SIGN Guideline 20 recommends early screening with a simple water test.

- Odderson IR, Keaton JC, et al. Swallow Management in Patients on an Acute Stroke Pathway: Quality is Cost Effective. *Archives of Physical Medical Rehabilitation* (1995); 76 (12): 1130-1133.
- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 20: Management of Patients with Stroke Part III: Identification and Management of Dysphagia. Edinburgh: SIGN (1997). www.sign.ac.uk/guidelines/index.html [access to full document] url cited 04/06/02.

Criterion 6: Information and Support to Patients/Carers (During the Acute Admission)

Stroke causes emotional stress to both patients and carers, and information and support was another concern of the participants in the CSBS Public Partnership

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Initiatives. Clark and Smith 1998 conducted an observational study in 60 stroke patients and carers and suggested that more information about stroke and services was associated with greater levels of patient satisfaction. Mant et al 1998 conducted a randomised controlled trial of 93 acute stroke patients and carers, and concluded that information packs improved the knowledge of stroke, in those given information packs, but did not increase satisfaction with the service or improve quality of life. Rodgers et al 1999 demonstrated, in a randomised controlled trial of 204 acute stroke patients, a reduction in social functioning of informal carers provided with a 7 hour information and educational programme, and no difference in perceived health status of the patients who received the educational programme. The Forster et al review for the Cochrane Library formed the basis of the SIGN Guideline 64 recommendation that stroke patients and their carers should be provided with information about stroke and rehabilitation, but mentioned that the effectiveness of structured information has not yet been demonstrated.

- Clark MC, Smith DS. Factors Contributing to Patient Satisfaction with Rehabilitation Following Stroke. *International Journal of Rehabilitation Research* (1998); 21 (2): 143-154.
- Clinical Standards Board for Scotland (CSBS). Public Partnership Initiatives: Stroke Services. People's Experiences of NHSScotland: A Survey of People Who Have Had a Stroke and the Carers of Those Who Have Had a Stroke. Edinburgh: CSBS (June 2002).
- Forster A, Smith J, et al. Information Provision for Stroke Patients and Their Caregivers. (2003. Issue 1). www.cochrane.de/cochrane/revabstr/ab001919.htm [abstract] url cited 29/01/03.
- Mant J, Carter J, et al. The Impact of an Information Pack on Patients with Stroke and Their Carers: A Randomized Controlled Trial. *Clinical Rehabilitation* (1998); 12 (6): 465-476.
- Rodgers H, Atkinson C, et al. Randomised Controlled Trial of a Comprehensive Stroke Education Programme for Patients and Caregivers. *Stroke* (1999); 30 (12): 2585-2591.
- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 64: Management of Patients with Stroke: Rehabilitation, Prevention and Management of Complications, and Discharge Planning. Edinburgh: SIGN (2002). www.sign.ac.uk/guidelines/published/numlist.html [access to full document] url cited 27/01/03.

Standard 3: Secondary Prevention

Introduction

Risk of further stroke or vascular event is approximately 7% per annum in those patients who have had a stroke. Therefore, strategies to prevent further events are important. There is much evidence from high-quality randomised trials regarding the benefits of antiplatelet therapy for secondary prevention. Similarly, there is now good evidence and strategies for secondary prevention in patients who have atrial fibrillation (a heart rhythm abnormality), high blood pressure, raised cholesterol and carotid stenosis. Completed randomised trials addressing diabetes and smoking for secondary prevention of stroke are lacking. However, as stroke and TIA are vascular diseases, guidelines can be extrapolated from studies of other vascular disease.

Criteria 1 and 7: Diabetes

A number of studies have demonstrated that there is a high incidence of stroke in patients who are diabetic and that diabetes is a risk factor for stroke. Patients who have had a stroke and suffer from diabetes have a higher risk of death. Evidence for the best ways of addressing diabetic control continues to evolve.

- Abbott RD, Donahue RO, et al. Diabetes and the Risk of Stroke. *Journal of the American Medical Association* (1987); 257: 949-952.
- Barrett-Connor E, Khaw Kay-Tee. Diabetes Mellitus: An Independent Risk Factor for Stroke? *American Journal of Epidemiology* (1988); 128 (1): 116-123.
- Burchfiel CM, Curb D, et al. Glucose Intolerance and 22-Year Stroke Incidence: The Honolulu Heart Program. *Stroke* (1994); 25: 951-957.
- Fuller JH, Shipley MJ, et al. Mortality from Coronary Heart Disease and Stroke in Relation to Degree of Glycaemia: The Whitehall Study. *British Medical Journal* (1983); 287: 867-870.
- Kuusisto J, Mykkanen L, et al. Non-Insulin-Dependent Diabetes and its Metabolic Control are Important Predictors of Stroke in Elderly Subjects. *Stroke* (1994); 25: 1157-1164.
- Stegmayr B, Asplund K. Diabetes as a Risk Factor for Stroke: A Population Perspective. *Diabetologia* (1995); 38: 1061-1068.

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- Stokes J, Kannel WB, et al. The Relative Importance of Selected Risk Factors for Various Manifestations of Cardiovascular Disease Among Men and Women from 35 to 64 Years Old: 30 Years of Follow-up in the Framingham Study. *Circulation* (1987); 75: 65-73.
- Tuomilehto J, Rastenyte D, et al. Diabetes Mellitus as a Risk Factor for Death from Stroke: Prospective Study of the Middle-Aged Finnish Population. *Stroke* (1996); 27 (2): 210-215.

Criteria 2 and 8: Atrial Fibrillation

There is good research evidence for the benefit of warfarin, an anticoagulant, in patients with atrial fibrillation. This heart arrhythmia is confirmed by an electrocardiogram (ECG). The European Atrial Fibrillation Trial 1993 was a randomised controlled trial of 1,007 patients which demonstrated clearly the benefit of warfarin in patients with non-valvular atrial fibrillation. They also demonstrated that aspirin was a safe, though less effective, alternative in those patients unable to take warfarin.

- (European Atrial Fibrillation Trial) Study Group. Secondary Prevention in Non-Rheumatic Atrial Fibrillation after Transient Ischaemic Attack or Minor Stroke. *The Lancet* (1993); 342 (8882): 1255-1256.

Criteria 3 and 12: Smoking Status and Cessation

There is observational evidence that smoking is a major risk factor for stroke. Abbott et al 1986 and Colditz et al 1988 quantified the increased risk of stroke in males and females respectively (1.5 to 2.2). There is also observational evidence of the effects of cessation of smoking. Wannamethee et al 1995 noted, in an observational study of 7,735 men, that stopping smoking reduced the risk of stroke, particularly in patients with high blood pressure. Kawachi et al 1993 performed an observational study of 117,006 women and noted that the excess risk of stroke disappeared 4 years after cessation.

- Abbott RD, Yin Y, et al. Risk of Cigarette Smokers. *New England Journal of Medicine* (1986); 315 (12): 717-720.
- Colditz GA, Bonita R, et al. Cigarette Smoking and the Risk of Stroke in Middle-Aged Women. *New England Journal of Medicine* (1988); 318 (15): 937-941.
- Kawachi I, Colditz GA, et al. Smoking Cessation and Decreased Risk of Stroke in Women. *Journal of the American Medical Association* (1993); 269 (2): 232-236.

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- Wannamethee SG, Shaper AG, et al. Respiratory Function and Risk of Stroke. *Stroke* (1995); 26 (11): 2004-2010.

Criteria 4 and 10: Cholesterol Lowering

The evidence for treatment of raised cholesterol levels in patients with CHD is very strong and this evidence also suggested a reduction in strokes. Hebert et al 1997 performed a systematic review of 16 trials with 29,000 patients and noted clear evidence of a reduction in stroke risk in patients treated with a statin. The Scandinavian Simvastatin Study (4S) in 1994, reported a 30% reduction in fatal and non-fatal strokes in patients taking simvastatin. Crouse et al 1998 performed a meta-analysis of four trials in primary prevention and concluded that there was a significant reduction (27%) in expected stroke incidence. Plehn et al 1999 (Care Trial), a randomised controlled trial of 4,159 patients, concluded that pravastatin reduced the incidence of stroke and TIA after myocardial infarction in patients with average cholesterol. The recent Heart Protection Study, a randomised controlled trial with over 20,500 subjects, showed a 27% reduction in all strokes in all high-risk patients prescribed simvastatin (no matter what their original cholesterol was). However, the PROSPER 2002 randomised controlled trial, in over 5,000 high-risk patients over 70 years of age, showed that pravastatin had no effect on the risk of stroke.

- Collins R, Peto R, et al. The MRC/BHF Heart Protection Study: Preliminary Results. *International Journal of Clinical Practice* (2002); 56 (1): 53-56.
- Crouse JR 3rd, Byington RP, et al. MHG-CoA Reductase Inhibitor Therapy and Stroke Risk Reduction; an Analysis of Clinical Trials Data. *Atherosclerosis* (1998); 138 (1): 11-24.
- Hebert PR, Gaziano M, et al. Cholesterol Lowering with Statin Drugs, Risk of Stroke and Total Mortality. An Overview of Randomized Trials. *Journal of the American Medical Association* (1997); 278 (4): 313-321.
- Plehn JF, Davis BR, et al. Reduction of Stroke Incidence after Myocardial Infarction with Pravastatin: The Cholesterol and Recurrent Events (Care) Study [for the Care Investigators]. *Circulation* (1999); 99 (2): 216-223.
- PROSPER study group. Pravastatin in Elderly Individuals at Risk of Vascular Disease (PROSPER). *The Lancet* (2002); 360 (9346): 1623-1630.
- Scandinavian Simvastatin Survival Study Group. Randomised Trial of Cholesterol Lowering in 4,444 Patients with Coronary Disease: The Scandinavian Simvastatin Survival Study. *Lancet* (1994); 344: 1383-1389.

Criteria 5 and 9: Blood Pressure Control

There is strong evidence for the reduction of blood pressure in hypertensive patients who have suffered a stroke or TIA. The main trials are listed below.

The Progress 2001 randomised controlled trial, in patients with previous stroke or TIA, demonstrated a 43% reduction in stroke risk with a combination of perindopril and diuretic.

The Post-stroke Antihypertensives Treatment Study Collaborative Group's 1995 randomised controlled trial demonstrated a 29% reduction in further stroke in those stroke patients whose blood pressure was reduced by 5-2 mmHg.

The HOPE 2000 randomised controlled trial of 9,297 high-risk patients demonstrated that ramipril reduces not only death from cardiovascular disease, but also reduces the incidence of stroke by 33%.

- Heart Outcomes Prevention Evaluation (HOPE) Study Investigators. Effects of an Angiotensin-Converting-Enzyme Inhibitor, Ramipril, on Cardiovascular Events in High-Risk Patients. *New England Journal of Medicine* (2000); 342 (2): 145-153.
- PATS Collaborating Group - Post Stroke Antihypertensives Treatment Study. *Chinese Medical Journal* (1995); 108: 710-717.
- Progress Collaborative Group. Randomised Trial of Perindopril-Based Blood Pressure Lowering Regimen among 6105 Individuals with Previous Stroke or Transient Ischaemic Attack. *The Lancet* (2001); 358 (9287): 1033-1041.

Criterion 6: Antiplatelet Therapy

Antiplatelet therapy reduces the formation of little clots in the blood and evidence suggests it is beneficial in patients who have had an ischaemic stroke. Aspirin is the commonest antiplatelet but, for those patients unable to tolerate it, clopidogrel and modified release dipyridamole, combined with aspirin, have been shown to be effective. The Antiplatelet Trialists' Collaboration 1994 conducted a meta-analysis of 10,000 patients at risk of stroke or TIA and concluded that prolonged antiplatelet therapy reduced the incidence of stroke by a third. The Antithrombotic Trialists' Collaboration 1998 looked at 287 randomised controlled trials, which included 212,000 patients, and demonstrated lower dose aspirin and clopidogrel were effective in reducing mortality after stroke.

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- Antiplatelet Trialists' Collaboration. Collaborative Overview of Randomised Trials of Antiplatelet Therapy 1: Prevention of Death, Myocardial Infarction and Stroke by Prolonged Antiplatelet Therapy in Various Categories of Patients. *British Medical Journal* (1994); 308 (6921): 81-106.
 - Sudlow C, Baigent C. Different Antiplatelet Regimes in the Prevention of Vascular Events among Patients at High Risk of Stroke; New Evidence from the Antithrombotic Trialists' Collaboration. Seventh European Stroke Conference, Edinburgh May 1998 [on Behalf of the Antithrombotic Trialists' Collaboration]. *Cerebrovascular Diseases* (1998); 8 (supplement 4): 68.

Criterion 11: Carotid Artery Stenosis

Narrowing of the arteries in the neck (carotid stenosis) can cause a stroke or a TIA. SIGN Guideline 14 recommends that patients who have had a TIA or ischaemic stroke in the previous 6 months and are found, after investigation, to have a severe stenosis of over 70% of the appropriate coronary artery, should be considered for a revascularisation procedure.

- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 14: Management of Patients with Stroke Part II: Management of Carotid Stenosis and Carotid Endarterectomy. Edinburgh: SIGN (1997). www.sign.ac.uk/guidelines/index.html [access to full document] url cited 04/06/02.

Standard 4: Discharge

Introduction

Discharge is one of the standards covered in the generic clinical governance standards. However, the Group concluded that there are additional dimensions, concerning stroke patients and their carers, which warrant a further disease-specific standard.

Discharge planning has been defined by the Royal College of Physicians of London as any process transferring responsibility from one group to another, and it recommends that there should be a discharge protocol. This may ease some of the stress patients and carers feel when leaving hospital care and is of particular value for the stroke patient who may have residual disabilities.

SIGN Guideline 24 recommended that there should be an explicit discharge policy for stroke patients to identify future needs based on expert opinion and reports. Some studies have looked at discharge and how it affects patients. Not all are specific to stroke patients. However, the CSBS Public Partnership Initiatives surveyed patients and carers who attend support groups in Scotland, and lack of support following discharge was perceived as one of the key areas of concern.

- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 24: Management of Patients with Stroke Part IV: Rehabilitation, Prevention and Management of Complications, and Discharge Planning. Edinburgh: SIGN (1998). www.sign.ac.uk/guidelines/index.html [access to full document] url cited 04/06/02.

Criterion 1: Early Planning of Discharge

Studies which have looked at discharge planning and early discharge included the Early Supported Discharge Trialists 2000-2002, which concluded that early hospital discharge should only be considered if there is a specialist stroke rehabilitation team in the community. Evans and Hendricks 1993 demonstrated, in a randomised controlled trial of 835 high-risk admissions, that discharge planning reduced re-admission rate. Naylor et al 1994, in a randomised controlled trial of 276 patients, concluded that a comprehensive discharge planning protocol for the elderly heart disease patients led to a shorter admission and fewer re-admissions in medical wards.

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- Early Supported Discharge Trialists. Services for Reducing Duration of Hospital Care for Acute Stroke Patients. Cochrane Database of Systematic Reviews CD000443 (2000: Issue 1).
 - Early Supported Discharge Trialists. Services for Reducing Duration of Hospital Care for Acute Stroke Patients. Cochrane Database of Systematic Reviews CD000443 (2000: Issue 2).
 - Evans RL, Hendricks RD. Evaluating Hospital Discharge Planning: A Randomised Clinical Trial. *Medical Care* (1993); 31 (4): 358-370.
 - Naylor M, Brooten D, et al. Comprehensive Discharge Planning for the Hospitalized Elderly: A Randomized Clinical Trial. *Annals of Internal Medicine* (1994); 120 (12): 999-1006.

Criterion 2: Immediate Discharge Summary and Information

SIGN produced a revised guideline for the immediate discharge document in January 2003. The guideline documents the basic information which should be included in each immediate discharge document which will allow GPs to efficiently take over care.

- Scottish Intercollegiate Guidelines Network (SIGN). SIGN Guideline 65: The Immediate Discharge Document. Edinburgh: SIGN (2003). www.sign.ac.uk/guidelines/published/numlist.html [access to full document] url cited 27/01/03.

Criteria 3, 6, and Desirable Criterion 1: Patient and Carers Information and Support Post-Discharge

There have been a small number of trials conducted on support and information for patients and carers after discharge. Towle et al 1989, Forster and Young 1996 and Friedland and McColl 1992 showed no improvement in disability, mood, carer stress or psychosocial function when they conducted three independent randomised controlled trials of 372 patients looking at additional special social support or specialist nurse visits. There are a number of observational studies which demonstrate an increase in stress for carers but there is little research into means of relieving this distress. Dennis et al 1997 reported, from a randomised controlled trial of 417 patients, that a family care worker improved satisfaction with services, but there was a possible increase in patient helplessness and depression. However, carers were possibly less anxious. Mant and Carter 2000 demonstrated family support improved quality of life for carers with no effect on patients in a randomised controlled trial of 323 patients and 267 carers.

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- Dennis M, O'Rourke S, et al. Evaluation of a Stroke Family Care Worker: Results of a Randomised Controlled Trial. *British Medical Journal* (1997); 314 (7087): 1071-1076.
- Forster A, Young J. Specialist Nurse Support for Patients with Stroke in the Community: A Randomised Controlled Trial. *British Medical Journal* (1996); 312 (7047): 1642-1646.
- Friedland JF, McColl M. Social Support Intervention after Stroke: The Results of a Randomised Trial. *Archives of Physical Medicine and Rehabilitation* (1992); 73 (6): 573-581.
- Mant J, Carter J. Family Support for Stroke: A Randomised Controlled Trial. *The Lancet* (2000); 356 (9232): 808-813.
- Royal College of Physicians of Edinburgh (RCPE) [Consensus Panel]. Consensus Conference on Medical Management of Stroke: Consensus Statement. RCPE (Nov 2000). www.rcpe.ac.uk/esd/consensus/stroke_98.html url cited 27/01/03.
- Royal College of Physicians of Edinburgh (RCPE) [Consensus Panel]. Consensus Conference on Stroke Treatment and Service Delivery: Consensus Statement. RCPE (Nov 2000). www.rcpe.ac.uk/esd/consensus/stroke_2000.html url cited 27/01/03.
- Towle D, Lincoln NB, et al. Service Provision and Functional Independence in Depressed Stroke Patients and the Effect of Social Work Intervention on These. *Journal of Neurology Neurosurgery & Psychiatry* (1989); 52 (4): 519-522.

Criteria 5 and 6: Long-Term Patient Management

Active rehabilitation is often discontinued after discharge from hospital or after a period of out-patient or domiciliary rehabilitation has been completed, usually 3-6 months post-stroke. Patients often request further rehabilitation and there is evidence that continuing decline can be reversed by targeted input. Evidence is from controlled clinical trials looking at change in stable patients or from randomised controlled trials focusing on particular problems. Wade et al 1992, in a randomised controlled trial of 92 patients with reduced mobility 2-6 years post-stroke, had home-based assessment and treatment by a physiotherapist which improved mobility for 3+ months, but patients deteriorated when untreated. Drummond and Walker 1995, in a randomised controlled trial of 65 patients 6 months post-stroke, compared occupational therapy focused on

leisure activities with either no therapy or general therapy. Results concluded that therapy focused on leisure activities improved leisure. Walker et al 1996, in a very small randomised controlled trial of 15 patients unable to dress 6 months post-stroke, concluded that occupational therapy focused on dressing improved independence in dressing. Werner and Kessler 1996, in a randomised controlled trial of 49 patients more than 1 year after stroke, concluded that 12 weeks of 4 days of therapy for 2 hours per day reduced dependence and increased social function. The effect was maintained, but showed deterioration in the control group.

- Drummond AE, Walker MF. A Randomised Controlled Trial of Leisure Rehabilitation after Stroke. *Clinical Rehabilitation* (1995); 9 (4): 283-290.
- Wade DT, Collen FM, et al. Physiotherapy Intervention Late after Stroke and Mobility. *British Medical Journal* (1992); 304 (6827): 609-613.
- Walker MF, Drummond AE, et al. Evaluation of Dressing Practice for Stroke Patients after Discharge from Hospital: A Crossover Design Study. *Clinical Rehabilitation* (1996); 10 (1): 23-31.
- Werner RA, Kessler S. Effectiveness of an Intensive Outpatient Rehabilitation Program for Postacute Stroke Patients. *American Journal of Physical Medicine and Rehabilitation* (1996); 75 (2): 114-120.

9 Draft Clinical Standards for Stroke Services

STANDARD 1 - Organisation of Stroke Services for Scotland

**STANDARD 2 - Acute Stroke and Rehabilitation
(Management in Hospital)**

STANDARD 3 - Secondary Prevention

STANDARD 4 - Discharge

STANDARD 1 - Organisation of Stroke Services for Scotland

Standard Statement	Rationale
<p>All patients with symptoms of a stroke or TIA have access to specialist stroke services, which will include a neurovascular clinic and stroke unit, for rapid diagnosis, assessment, and treatment according to an agreed written local protocol, based on national guidelines.</p>	<p>There is evidence that specialised stroke units improve mortality and outcome in a cost-effective way in patients admitted to hospital who have severe or persisting symptoms of stroke.</p> <p>The risk of early stroke recurrence is high in all patients who have had a TIA or stroke. Therefore, early rapid specialist assessment of patients at a neurovascular clinic is important for accurate diagnosis and secondary prevention in those patients who are managed at home.</p>

Criteria

Essential

1. There is a shared, written local protocol, agreed between primary and secondary care, for referral to neurovascular clinics and admission to the stroke unit.
2. A consultant with a special interest in stroke is responsible for the management of stroke patients.
3. There is a stroke unit comprising a defined area for the care of stroke patients.
4. 70% of all patients admitted to hospital with a diagnosis of stroke are admitted to the stroke unit within 24 hours of presentation at hospital, and remain in specialist stroke care until in-hospital rehabilitation is complete.
5. The stroke unit includes a co-ordinated multidisciplinary team consisting of healthcare staff with specialised knowledge who have a weekly meeting. The core membership of the team comprises medical, nursing, occupational therapy, physiotherapy, and speech and language therapy staff.
6. There are planned stroke education and training programmes for all medical, nursing and allied health professions staff.
7. 80% of new patients are seen within 10 working days of receipt of referral to the neurovascular clinic.

Desirable

1. 80% of new patients are seen within 5 working days of receipt of referral to the neurovascular clinic.

STANDARD 2 - Acute Stroke and Rehabilitation (Management in Hospital)

Standard Statement	Rationale
<p>All patients admitted to hospital with a diagnosis of stroke are managed according to a local, written management protocol, based on national guidelines.</p>	<p>Evidence suggests that rapid diagnosis and management can improve the outcome of patients who have had a stroke. There is also evidence to indicate a reduction in morbidity and mortality in those patients managed in a stroke unit setting with comprehensive co-ordinated stroke rehabilitation services.</p>

Criteria

Essential

1. There is a local, shared, written management protocol in place, based on national guidelines, which incorporates arrangements for rehabilitation. This protocol has been agreed between the central stroke unit and any satellite sites.
2. 80% of patients have CT/MRI imaging within 48 hours of admission, unless there is a documented contraindication.
3. Aspirin treatment is initiated within 48 hours of admission for all patients in whom a haemorrhagic stroke, or other contraindication, has been excluded.
4. All patients have a swallow screen test performed on day of admission, unless there is a documented contraindication.
5. All patients are assessed by a member of the multidisciplinary team for rehabilitation needs within 48 hours of admission.
6. There is information, advice and support from the multidisciplinary team for patients and carers, with provision of information in a variety of formats.
7. There are guidelines in place, agreed between stroke consultants and neurosurgery, to ensure appropriate patient referral to neurosurgical services.

STANDARD 3 - Secondary Prevention

Standard Statement	Rationale
<p>All patients admitted to hospital, or seen at the neurovascular clinic, diagnosed with a stroke or TIA, have their risk factors assessed, documented and treated.</p>	<p>Evidence suggests that modifying risk factors in patients who have had a stroke or TIA can improve their outcome. These risk factors include smoking, high blood pressure, diabetes, atrial fibrillation, carotid artery stenosis and hyperlipidaemia.</p> <p>Prophylactic medication has also been shown to be of benefit, and those patients who suffer an ischaemic stroke will benefit from early aspirin. Continued treatment with aspirin and/or other antiplatelet agents also improves outcome.</p> <p>Patients who have non-valvular atrial fibrillation (a specific heart rhythm abnormality) benefit from treatment with warfarin.</p>

Criteria

Essential

Investigation

The following is documented before discharge:

1. Blood glucose result.
2. ECG.
3. Smoking status.
4. Lipids results.
5. Blood Pressure (BP) measurement.

Management

6. Protocol for antiplatelet therapy policy.
7. Protocol for management of diabetes.
8. Protocol for management of atrial fibrillation.
9. Protocol for management of blood pressure lowering.
10. Protocol for management of cholesterol lowering.
11. Protocol for management of suspected carotid artery stenosis.
12. Protocol for management of smoking cessation.

STANDARD 4 - Discharge

Standard Statement	Rationale
<p>All patients admitted to hospital with a stroke have early assessment of discharge needs and the development of a discharge plan. There is consultation with patient, carer, primary care and community services so that the immediate and ongoing needs for rehabilitation are addressed.</p>	<p>Discharge, which is planned and well communicated to patients and carers, with support from community services and primary care teams, eases the often stressful process of returning home. There is evidence that further rehabilitation leads to improved outcomes. Primary care teams are responsible for risk factor management and care after discharge, with appropriate advice and support from specialist services.</p>

Criteria

Essential

1. There is early planning of discharge in consultation with patient and carers.
2. An immediate discharge summary is provided, based on the SIGN guideline, which gives details of the pathological diagnosis.
3. An information pack is provided for patients and carers on discharge. This pack is tailored to the patient's individual needs and includes a contact telephone number for a liaison healthcare professional.
4. There is an agreed protocol in place for accessing social work services and voluntary services.
5. There is evidence that patients' needs for post-discharge services are assessed and planned.
6. Arrangements are made for patients admitted with a stroke to be reviewed by the specialist stroke service within 3 months of discharge.

Desirable

1. There is a trained healthcare professional who can provide both early and longer-term contact with stroke patients after discharge.

10 Glossary of Terms

Term	Definition
accreditation	A process, based on a system of external peer review using written standards, designed to assess the quality of an activity, service or organisation.
acute sector	Hospital-based health services which are provided on an in-patient or out-patient basis.
AHP	See allied health professions.
allied health professions (AHP)	Healthcare professionals directly involved in the provision of primary and secondary healthcare. Includes several groups such as physiotherapists, occupational therapists, dieticians, etc. Formerly known as professions allied to medicine (PAM).
anticoagulant	An agent that prevents or slows down the clotting of blood.
antiplatelet agent	A medication which thins the blood to prevent clots forming, by inhibiting platelet aggregation.
arrhythmia	Any variation from the normal, regular heartbeat.
arteries	Blood-vessels which carry blood away from the heart to supply the tissues.
aspiration pneumonia	Inflammation of the lungs due to aspiration (the sucking in of food particles or fluids into the lungs).
aspirin	A medication which thins the blood to prevent clots forming. It is the most widely tested antiplatelet agent.
assessment	The process of measuring patients' needs and/or the quality of an activity, service or organisation.
atrial fibrillation	A heart rhythm abnormality.
audit	Systematic review of the procedures used for diagnosis, care, treatment and rehabilitation, examining how associated resources are used and investigating the effect care has on the outcome and quality of life for the patient.
blinded study	A study in which neither the doctor nor the patients know which treatment was used.
blood clot	A mass formed as a result of the conversion of blood from a liquid form to solid, either within the blood vessels and heart or elsewhere.
blood glucose	A measurement of the amount of sugar in the blood.
blood pressure (BP)	Blood pressure is related to the force of the heart pumping and the resistance to the flow of blood through the body. It is the pressure of the blood in the main arteries needed to push it through the smaller vessels of the circulation.

carer	A person who looks after family, partners or friends in need of help because they are ill, frail or have a disability. The care they provide is unpaid.
carotid artery	A key artery located in the front of the neck that carries blood from the heart to the brain.
carotid artery stenosis	Narrowing of the arteries in the neck. See stenosis.
carotid endarterectomy	An operation performed to prevent stroke. It involves cleaning out and widening of the carotid artery.
carotid ultrasound	Ultrasound of the carotid arteries. See ultrasound.
cerebrovascular disease	A general term which encompasses a variety of diseases which affect the arteries which supply the brain.
CHD	See coronary heart disease.
cholesterol	Fatty substance needed by the body as a building block for tissues and chemical processes. Cholesterol is an important constituent of atheroma.
clinical governance	A framework through which NHS organisations are accountable for both continuously improving the quality of their services, and safeguarding high standards of care, by creating an environment in which excellence in clinical care will flourish. Management of clinical risk at an organisational level is an important aspect of clinical governance. Clinical risk management recognises that risk can arise at many points in a patient's journey, and that aspects of how organisations are managed can systematically influence the degree of risk.
clinical service	Service provided by healthcare professionals.
Clinical Standards Board for Scotland (CSBS)	The Clinical Standards Board for Scotland was a statutory body, established as a Special Health Board in April 1999. Its role was to develop and run a system of quality control of clinical services designed to promote public confidence that the services provided by the NHS met nationally agreed standards, and to demonstrate that, within the resources available, the NHS was delivering the highest possible standards of care". On 1 January 2003, CSBS was merged, along with four other clinical effectiveness bodies, to form NHS Quality Improvement Scotland. See NHS Quality Improvement Scotland.
clopidogrel	Antiplatelet agent which works in a different but equally effective way from aspirin.
college	In the UK, the term college, when used relating to healthcare, as for example in "The Royal College of...", refers to organisations which usually combine an education role with promotion of professional standards.

community services	Services provided outwith the hospital setting. These include health visiting, school medical and nursing services, chiropody, community nursing, dentistry, child health and family planning.
computerised tomography (CT)	An X-ray imaging technique used in diagnosis that can reveal many soft tissue structures not shown by conventional radiography.
consensus statements	Summary statements representing the majority agreement of groups of specialists meeting to reach a consensus on a selected subject, based on the best agreed clinical practice.
contraindication	Any condition, past or present, which makes a particular line of treatment unsuitable or undesirable.
controlled trials	Studies in which treatments are compared - these may include inactive or placebo therapy.
coronary heart disease (CHD)	Disease, such as angina, coronary thrombosis or heart attack, caused by the narrowing or blockage of the coronary arteries by atheroma.
criterion(s)/criteria(pl)	Provide the more detailed and practical information on how to achieve the standard, and relate to structure, process or outcome factors.
CSBS	See Clinical Standards Board for Scotland.
CT	See computerised tomography.
data source	The source of evidence to demonstrate whether a standard or criterion is being met.
desirable (criterion/criteria)	Good practice that is being achieved in some parts of the service and demonstrates levels of quality to which other providers of a similar service should strive.
diabetes	A disorder characterised by high levels of glucose (sugar) in the bloodstream.
diabetic	The condition of having diabetes.
diagnosis	Identification of an illness or health problem by means of its signs and symptoms. This involves ruling out other illnesses and causal factors for the symptoms.
dipyridamole	A drug that dilates the blood vessels of the heart.
discharge	A discharge marks the end of an episode of care. Types of discharge include in-patient discharge, day-case discharge, day-patient discharge, out-patient discharge and allied health professions (see AHP) discharge.

discharge summary	A letter, usually sent from a hospital to a patient's GP once the patient has been discharged, containing information relating to the patient's admission to hospital, eg the reason for admission, diagnosis, and what happened to the patient while in hospital.
diuretic	A drug that increases the volume of urine produced.
dysphagia	Difficulty in swallowing.
ECG	See electrocardiogram.
electrocardiogram (ECG)	A test which shows the electrical activity of the heart and which often becomes abnormal after a heart attack.
endovascular	Inside or within the blood vessels.
essential (criterion/criteria)	A criterion that should be met wherever a service is provided.
evaluation	The study of the performance of a service (or element of treatment and care) with the aim of identifying successful and problem areas of activity.
evidence-based medicine	Evidence-based clinical practice is an approach to decision making in which the clinician uses the best evidence available, in consultation with the patient, to decide upon the option which suits that patient best.
generic standards	Standards that apply to most, if not all, clinical services.
glycaemia	A medical term meaning that the blood contains the sugar glucose.
GP	General Practitioner.
guidelines	Statements which help in deciding how to treat particular conditions.
haemorrhagic stroke	A disruption in the blood supply to the brain caused by a burst or leaking blood vessel supplying the brain.
HDL	See Health Department Letter.
Health Council	Each NHS Board area has a Health Council, an organisation whose aim is to promote public consultation and participation in health-related matters. Sometimes referred to as a Local Health Council.
Health Department Letter (HDL)	Health Department Letter (formerly known as Management Executive Letter - MEL), formal communications from the Scottish Executive Health Department to NHSScotland.
healthcare professional	A person qualified in a health discipline.
hyperlipidaemia	High level of fats (lipids) in the blood.

hypertension	Abnormally high blood pressure. This is a risk factor for other arterial diseases such as stroke, heart attack and leg ischaemia.
ICP	See integrated care pathway.
imaging	The production of images of organs or tissues using radiological procedures, particularly using scanning techniques.
Information and Statistics Division (ISD)	The Information and Statistics Division is part of the Common Services Agency, National Health Service in Scotland. Health service activity, manpower and finance data are collected, validated, interpreted and disseminated by the division. This data is received from NHS Boards, NHS Trusts and general practices. Website address: www.show.scot.nhs.uk/isd/index.htm
integrated care pathway (ICP)	An integrated care pathway is an explicit agreement by a local group, both multidisciplinary and multi-agency, of staff and workers to provide a comprehensive service to a clinical or care group on the basis of current views of good practice and any available evidence or guideline. It is important that the group agree on communication, record keeping and audit. There should be a mechanism to pick up when a patient has not received any care input specified by the pathway so that the omission can be remedied. The local group should be committed to continuous improvement of the integrated care pathway on the basis of new evidence of service developments or problems in implementation.
ischaemia	Reduced blood flow, usually because of narrowing or blockage of an artery.
ischaemic stroke	A disruption in the blood supply to the brain caused by a blood clot in a blood vessel supplying the brain.
ISD	See Information and Statistics Division.
Island NHS Board	Island NHS Boards do the work of both NHS Boards and Trusts, in that they have a strategic and operational role. There are three Island NHS Boards, covering Shetland, Orkney, and the Western Isles.
LHCC	See Local Health Care Co-operative.
lipids	Fats circulating in the blood.
Local Health Care Co-operative (LHCC)	In Scotland, Local Health Care Co-operatives are voluntary groupings of GPs and other local health care professionals intended to strengthen and support the primary health care team in delivering local care.

magnetic resonance imaging (MRI)	A special imaging technique used to image internal structures of the body, particularly the soft tissues. An MRI image is often superior to a normal X-ray image. It uses the influence of a large magnet to polarize hydrogen atoms in the tissues and then monitors the summation of the spinning energies within living cells. Images are very clear and are particularly good for soft tissue, brain and spinal cord, joints and abdomen. These scans may be used for detecting some cancers or for following their progress.
malfunction	Disordered, inadequate, or abnormal.
Managed Clinical Network (MCN)	A formally organised network of clinicians. The main function is to audit performance on the basis of standards and guidelines, with the aim of improving healthcare across a wide geographic area, or for specific conditions.
Management Executive Letter (MEL)	Formal communications from the Scottish Executive Health Department to NHSScotland, now known as Health Department Letters (HDLs).
MEL	See Management Executive Letter.
meta-analysis	Statistical method for the analysis of more than one randomised clinical trial.
monitoring	The systematic process of collecting information on clinical and non-clinical performance. Monitoring may be intermittent or continuous. It may also be undertaken in relation to specific incidents of concern or to check key performance areas.
morbidity	A measure of disease or unwellness. This may be physical or psychological.
mortality (rate)	The number of deaths in a given population during a specified period of time.
MRI	See magnetic resonance imaging.
multidisciplinary	A multidisciplinary team is a group of people from different disciplines (both healthcare and non-healthcare) who work together to provide care for patients with a particular condition. The composition of multidisciplinary teams will vary according to many factors. These include: the specific condition, the scale of the service being provided, and geographical/socio-economic factors in the local area.
neurosurgery	The surgical or operative treatment of diseases of the brain and spinal cord.
neurovascular	A term that relates to both the neurological and vascular structures.
neurovascular clinic	A clinic run by specialist staff for the investigation, diagnosis and treatment of patients with symptoms of stroke or TIA.
NHS	National Health Service.

NHS Board	NHS Boards replaced the separate board structures of Health Boards and NHS Trusts. The NHS Boards cover the same geographical area as the old Health Boards. The overall purpose of NHS Boards is to ensure the efficient, effective and accountable governance of the local NHS system, and to provide strategic leadership and direction for the system as a whole, focusing on agreed outcomes.
NHS priorities	The three national clinical priorities are mental health; coronary heart disease and stroke; and cancer.
NHS QIS	See NHS Quality Improvement Scotland.
NHS Quality Improvement Scotland (NHS QIS)	NHS Quality Improvement Scotland is a statutory body, established as a Special Health Board in January 2003. Its role is to focus on improving the quality of patient care and the health of patients. It will have a particular emphasis on the quality of care and the patient journey for vulnerable groups. NHS Quality Improvement Scotland has been created by the merger of five organisations: Clinical Standards Board for Scotland (CSBS); Health Technology Board for Scotland (HTBS); Scottish Health Advisory Service (SHAS); Nursing and Midwifery Practice Development Unit (NMPDU), and the Clinical Resources and Audit Group (CRAG). Website address: www.nhshealthquality.org
NHSScotland	The National Health Service in Scotland.
non-valvular atrial fibrillation	A specific heart rhythm abnormality.
nutrients	Substances that must be consumed as part of the diet to provide a source of energy or material for growth.
obesity	Condition of being grossly overweight, at least 20% heavier than the heaviest weight in the 'ideal' range for that person's height.
observational studies	Documentation of the results of different treatments by observing which action or medication appears to give best improvements.
occupational therapist (OT)	A health professional, also known as an OT, who finds ways to help people live at home and be independent, despite their illness.
occupational therapy	The treatment of mental and physical health problems by encouraging people to participate in specific activities that will help them to reach their maximum level of function and independence in all aspects of their daily life. An occupational therapist is a person specially trained to provide such assessment and treatment.

outcome	The end result of care and treatment and/or rehabilitation. In other words, the change in health, functional ability, symptoms or situation of a person, which can be used to measure the effectiveness of care and treatment, and/or rehabilitation.
palliative care	Palliative care is the active total care of patients and their families by a multi-professional team when the patient's disease is no longer responsive to curative treatment.
PAM	See professions allied to medicine.
pathological diagnosis	A specific diagnosis relating to the disease or illness.
patient	A person who is receiving care or medical treatment. A person who is registered with a doctor, dentist, or other healthcare professional, and is treated by him/her when necessary. Sometimes referred to as a user.
patient journey	The pathway through the health services taken by the patient (the person who is receiving treatment), and as viewed by the patient.
PCT	Primary Care Trust. See Trust and Primary Care.
peer review	Review of a service by those with expertise and experience in that service, either as a provider, user or carer, but who are not involved in its provision in the area under review. In the NHS Quality Improvement Scotland approach, all members of a review team are equal.
perindopril	A drug used to reduce blood pressure.
physician	A specialist in medicine.
physiotherapy	The branch of treatment that employs physical methods to promote healing, including the use of light, infrared and ultraviolet rays, heat, electric current, massage, manipulation and remedial exercise.
placebo	Dummy treatment which is given to some of the volunteers participating in a clinical trial. Patients can feel better even when the treatment they are given is a 'sugar pill' or placebo.
pneumonia	Inflammation of the lungs, in which the air sacs become filled with inflammatory material and the lung becomes solid.
pravastatin	A drug used to reduce abnormally high levels of cholesterol in the blood.

primary care	The conventional first point of contact between a patient and the NHS. This is the component of care delivered to patients outside hospitals and is typically, though by no means exclusively, delivered through general practices. Primary care services are the most frequently used of all services provided by the NHS. Primary care encompasses a range of family health services provided by family doctors, dentists, pharmacists, optometrists and ophthalmic medical practitioners.
Primary Care Reference Group (PCRG)	Established to help the CSBS and now NHS Quality Improvement Scotland ensure that the component of care delivered to patients outside hospitals is included in its standards, and to promote the accreditation of general practices.
primary prevention	The prevention of the development of a condition, such as coronary heart disease, by avoidance of factors known to contribute to its development, for example, smoking and lack of exercise.
professions allied to medicine (PAM)	Healthcare professionals directly involved in the provision of primary and secondary healthcare. Includes several groups such as physiotherapists, occupational therapists, dieticians, etc. Now called allied health professionals (AHPs). See allied health professions.
prophylactic medication	Drugs prescribed to prevent something happening.
protocol	A policy or strategy which defines appropriate action in specific circumstances. Protocols may be national, or agreed locally to take into account local requirements.
quality assurance (QA)	Improving performance and preventing problems through planned and systematic activities including documentation, training and review.
Quality Assurance Manual	Document outlining the methods and procedures to be used in setting standards and reviewing services.
ramipril	A drug used to reduce blood pressure.
randomised controlled trial (RCT)	Where there is already a treatment for a condition a new treatment may be compared to the existing treatment and this is called a controlled trial. The treatments are randomly allocated and this prevents further bias.
rationale	Scientific/objective reason for taking specific action.
recurrence	To happen again.
referral	The process whereby a patient is transferred from one professional to another, usually for specialist advice and/or treatment.
revascularisation	The restoration of blood flow by repair of a diseased blood vessel.

risk factor	A clearly defined occurrence or characteristic that has been associated with the increased rate of a subsequently occurring disease or health problem. Risk factors include aspects of personal behaviour, lifestyle, environmental exposure, or inborn or inherited characteristics, which are known to be associated with the disease.
satellite sites	A satellite site is a centre which is distinct from the parent unit, and which usually derives certain key resources and expertise from that unit.
Scottish Executive Health Department (SEHD)	The Scottish Executive Health Department is responsible for health policy and the administration of NHSScotland. Website address: www.show.scot.nhs.uk/sehd/
Scottish Intercollegiate Guidelines Network (SIGN)	SIGN was established in 1993 by the Academy of Royal Colleges and Faculties in Scotland, to sponsor and support the development of evidence-based clinical guidelines for NHSScotland. Where a SIGN guideline exists for a specialty or service for which CSBS has set standards, or NHS QIS is taking forward standards, it will be referenced. For further information relating to SIGN guidelines or the methodology by which SIGN guidelines are developed, contact: SIGN Executive, Royal College of Physicians, 9 Queen Street, Edinburgh EH2 1JQ. Website address: www.sign.ac.uk/
secondary care	Care provided in an acute sector setting. See acute sector.
secondary prevention	All those factors that should be addressed, such as lifestyle changes or drugs, in order to reduce the likelihood of recurrence of, slowing or reversing the progression of disease.
SEHD	See Scottish Executive Health Department.
self-assessment	Assessment of performance against standards by individual/clinical team/Trust providing the service to which the standards are related.
SIGN	See Scottish Intercollegiate Guidelines Network.
SIGN guideline	Scottish Intercollegiate Guidelines Network guideline.
simvastatin	A drug used to reduce abnormally high levels of cholesterol in the blood.
Special Health Board	The name is given to Health Boards with a national remit. These boards are focused on specific areas - eg NHS Education for Scotland, or NHS Quality Improvement Scotland. Special Health Boards match regional NHS Boards in terms of administrative grading.
specialist	Someone who has received training in a particular aspect of medicine. Formerly the term applied specifically to a consultant but has recently been widened, eg specialist nurse practitioner.

standard statement	An overall statement of desired performance.
statutory	Enacted by statute; depending on statute for its authority as a statutory provision. Required by law.
stenosis	The abnormal narrowing of a passage or opening, such as a blood vessel or heart valve.
stroke	A sudden attack of weakness affecting one side of the body, caused by an interruption to the blood flow to the brain.
swallow screen assessment	A simple water test to check for difficulty in swallowing.
tertiary care	Specialised care, usually on referral from primary or secondary medical care personnel, by specialists working in a centre that has personnel and facilities for special investigation and treatment.
therapy	A word often used to mean treatment.
transient ischaemic attack (TIA)	The result of temporary disruption of the circulation to part of the brain due to a blood clot or spasm of the vessel walls. Similar symptoms to a stroke, but the patient recovers within 24 hours.
Trust	A Trust is an NHS organisation responsible for providing a group of healthcare services for the local population. An acute hospital Trust provides hospital services. A Primary Care Trust delivers primary care/community health services. Mental health services (both hospital and community based) are now usually provided by Primary Care Trusts.
ultrasound	An imaging test that bounces sound waves off tissues and converts the echoes into pictures.
unified Board	See NHS Board.
Unified Health Board	See NHS Board.
vascular disease	Disease affecting vessels which carry blood (arteries and veins) or tissue fluid (lymphatics).
warfarin	A drug used to inhibit blood clotting.

Our Commitment

We will:

- involve patients and the public in all parts of our work;
- work with and support NHS staff in improving standards;
- assist NHSScotland in delivering the highest quality of NHS care to each patient;
- base conclusions and recommendations on the best evidence available;
- be open and transparent in all our work through wide circulation of reports written in language that can be understood by all and is jargon free;
- seek to avoid duplication of effort through working closely with other national organisations involved in improving the quality of care within the NHS; and
- ensure our own work is subject to quality assurance and evaluation.



NHS Quality Improvement Scotland (Edinburgh Office)
Elliott House 8-10 Hillside Crescent Edinburgh EH7 5EA
T: 0131 623 4300 F: 0131 623 4299

comments@nhshealthquality.org
www.nhshealthquality.org