

Acknowledgements

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The Road to Recovery

One step at a time

The use of ankle-foot orthoses following stroke

*A review of issues relevant to
Allied Health Professionals
and Nurses*

Scoping Report

July 2007

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Executive Summary

The Practice Development Network for Allied Health Professions was established to support staff in bringing about improvements in patient care by identifying clinical improvement priorities, promoting the use of evidence and sharing best practice.

To take this work forward, in June 2005, the NHS Quality Improvement Scotland Practice Development Unit set up a process of engaging with Allied Health Professionals (AHPs) to identify clinical improvement priorities within specific topic areas, with stroke being one of the key topics. One priority area identified was the need for more consistent advice and guidance in relation to the application and management of ankle-foot orthoses (AFO) for patients following a stroke.

An ankle-foot orthosis (AFO) is a device which is worn on the lower part of the leg and on the foot to control the motion of the ankle and foot, provide stability and prevent deformities.

Whilst the use of orthoses following stroke has been recognised as a treatment option for many years, there appears to be wide variation in current practice and lack of evidence-based research to determine the inclusion of an AFO in a rehabilitation programme for individuals who have sustained a stroke.

A scoping process was designed to focus on the issues related to practice and use of evidence by AHPs and nurses in the area of AFO following acute stroke, and this report describes this process and the outcome of this work.

The consensus reached through scoping was that a Best Practice Statement on AFO following stroke would be a valuable tool to improve practice. In addition, the need for further work on audit and outcome measures to ensure that practice becomes evidence based and measurable, wherever possible, was identified. Undergraduate teaching of the orthotic management of stroke and regular short courses on the role of AFO in stroke management for continuing professional development of healthcare professionals were also recommended.

The Delivery Framework for Adult Rehabilitation in Scotland (Co-ordinated, integrated and fit for purpose) has placed rehabilitation at the centre of health care policy. This scoping work fits within the policy context by working with healthcare professionals and patients to identify clinical improvement priorities and make recommendations on future practice development projects that will bring about patient centred quality improvements.

1 Introduction

Stroke is the third most common cause of death and the most frequent cause of severe adult disability in Scotland. Over 70,000 individuals are living with stroke and its consequences, and each year there will be approximately 15,000 new diagnoses of stroke. Immediate mortality is high and approximately 20% of stroke patients die within 30 days¹.

Of those who survive an acute stroke, it is estimated that about 40% remain dependent upon other people for their daily activities. The after effects of a stroke often include speech deficits, depression, neuropsychological disorders, functional difficulties and mobility problems².

The application and management of ankle-foot orthoses (AFO) is one area of rehabilitation following stroke which was identified as a clinical improvement priority by AHPs across Scotland as part of a scoping exercise carried out by the Practice Development Unit, NHS Quality Improvement Scotland (NHS QIS).

An ankle-foot orthosis (AFO) is a device, usually made of plastic, which is worn on the lower part of the leg and on the foot. It is used to control the motion of the ankle and foot, to provide stability and to prevent deformities. It thereby facilitates functions such as standing and walking.

It is important to start walking training with patients as soon as possible after a stroke in order to encourage the return of normal muscle activity, and to minimise any abnormalities of the walking pattern resulting from the stroke.

An appropriately designed AFO can facilitate this process by maintaining the ankle and foot in an appropriate and stable position, and by aligning the lower leg correctly during the stance phase of gait, thus optimising the alignment of the ground reaction force vector to the knee and hip joints. Together, these make it easier for the patient to regain control of their muscle activity, and to improve strength and walking ability.

AFOs are currently fitted by a variety of healthcare professionals including orthotists, doctors, physiotherapists, occupational therapists and nurses.

Whilst the use of standard orthotic intervention following stroke has been recognised as a treatment option for many years, this topic was raised by AHPs due to wide variations in current practice, lack of evidence-based research to determine the optimal rehabilitation programme for individuals following stroke and a desire to improve appropriate utilisation of AFOs.

2 Background

The Practice Development Network for Allied Health Professions was established to support staff in bringing about improvements in patient care by identifying clinical improvement priorities, promoting the use of evidence and sharing best practice.

To take this work forward, in June 2005, the NHS Quality Improvement Scotland Practice Development Unit set up a process of engaging with AHPs to identify clinical improvement priorities within specific topic areas. Rehabilitation after stroke is now one of the key topics on which the network is focussing. This process is outlined within Appendix 1 of this report.

Working with nine of the allied health professional groups (Appendix 2), a scoping process in the area of stroke identified areas of AHP intervention which AHPs considered to be clinical improvement priorities. Priorities were identified where there was a need for:

- audit or information gathering,
- advice and guidance on effective treatment/intervention,
- evidence about effectiveness of intervention,
- sharing of best practice across Scotland,
- evidence of impact of an initiative/change in practice, and
- consensus about best treatment or assessment tools.

The use of AFO following acute stroke was identified and agreed by a multi-professional AHP group as one of the topics which should be reviewed due to concerns raised in relation to:

- variation in practice across Scotland,
- need for practical guidance and advice for AHPs and nurses,
- lack of robust evidence base, and
- desire to improve appropriate utilisation of AFO in the early and later stages of rehabilitation of stroke patients.

Patient Focused Public Involvement

In order to understand and take account of the patient experience following a stroke, a former stroke patient was invited to attend the scoping workshop. The personal story of this patient provided valuable insight into the experience and feelings of living in hospital following a stroke and the challenges of the community rehabilitation phase thereafter. The length of stay in hospital, difficulties in mobilising and the psychological and psychosocial impact of stroke were all highlighted as areas of major concern and worry by the patient representative.

Issues raised by the group, in discussion with the patient representative, included:

- communication and involvement with patients at an early and appropriate stage,
- involvement of patients in their own goal setting,
- early intervention, monitoring and follow-up,
- patient information on how to access services following discharge,
- early mobilisation of patients, and
- psychological impact of stroke.

3 Scoping Process

A consensus conference on the orthotic management of stroke patients was held in September 2003, by the International Society for Prosthetics and Orthotics³. The conference report provides recommendations based on varying grades of evidence for the biomechanical design of, assessment for and prescription of both upper and lower limb orthoses. The importance of dissemination and implementation of these recommendations, in making improvements to the care of stroke patients, is highlighted within the document.

Taking account of this conference report, NHS QIS designed a scoping process to focus on the issues related to the practice and use of evidence by AHPs in relation to the application and management of AFO.

A group of healthcare practitioners with expertise or interest in the topic, and a patient with experience of using an AFO following stroke, were invited to attend a workshop in October 2006 (Appendix 3).

The scoping process was designed with the aims of:

- exploring issues relating to the patient experience,
- exploring issues relating to current practice,
- identifying challenges in relation to training and education provision,
- identifying current best available evidence and how widely the evidence is disseminated and utilised,
- identifying examples of good practice, and
- identifying what further actions, if any, are required to improve the utilisation of AFO with particular reference to AHP and nursing interventions.

For the purposes of the workshop, the patient pathway was used as a tool to aid discussion (Appendix 4). The recommendations from the consensus conference were also available at the workshop and were referred to during discussion.

The areas examined within the patient pathway included:

- screening and assessment,
- diagnosis,
- decision making/clinical reasoning,
- intervention, and
- rehabilitation (including in-patient and community follow-up).

The scoping process developed by the Practice Development Unit was experimental, and the lessons learned from this workshop have been used to further develop scoping processes and skills for use in future topic areas. Practitioners' views as to the benefits of undertaking this sort of scoping process are regarded as important. Participants commented on the value of the workshop:

“Open, fresh discussion across boundaries. Realising we are all frustrated with services & hopefully can take it forward to something constructive”

“Bringing different professions together highlights that we have common aims and purpose”

“Good communication & sharing of common ideas & reassurance of similar thinking across professions”

4 Findings and Recommendations

By working through a patient pathway, the workshop participants identified areas of good practice and gaps in knowledge and expertise.

The key findings by the group were:

Multidisciplinary Working

- AHPs and nurses are central to the rehabilitation of patients following stroke, including the application of AFO.
- The need to share and disseminate best practice in the application and management of AFO to a multiprofessional audience was identified.

Referral and Assessment

- The assessment and prescription of an AFO requires specialist knowledge and skills. However, apart from graduate orthotists, there appears to be a lack of practical advice and training for practitioners who are not specialised in this area.
- Early referral to and intervention by an orthotist is recommended but remains a challenge within existing structures and resources.
- The psychological and physiological benefits of early mobilisation of patients following stroke were highlighted.

Communication

- The importance of communication and involvement in goal setting of patients at an early and appropriate stage of rehabilitation was highlighted.

Follow-up

- Long-term review and monitoring of patients with an AFO remains a challenge.
- There appears to be a lack of patient information on how to access services, particularly after discharge.

Research and Outcome Measures

- Scientific evidence-based research is limited in the area of AFO.
- There is a need for the development of appropriate outcome measures relating to the application of AFO in stroke management, leading to the audit of appropriate standards of care.

Recommendations

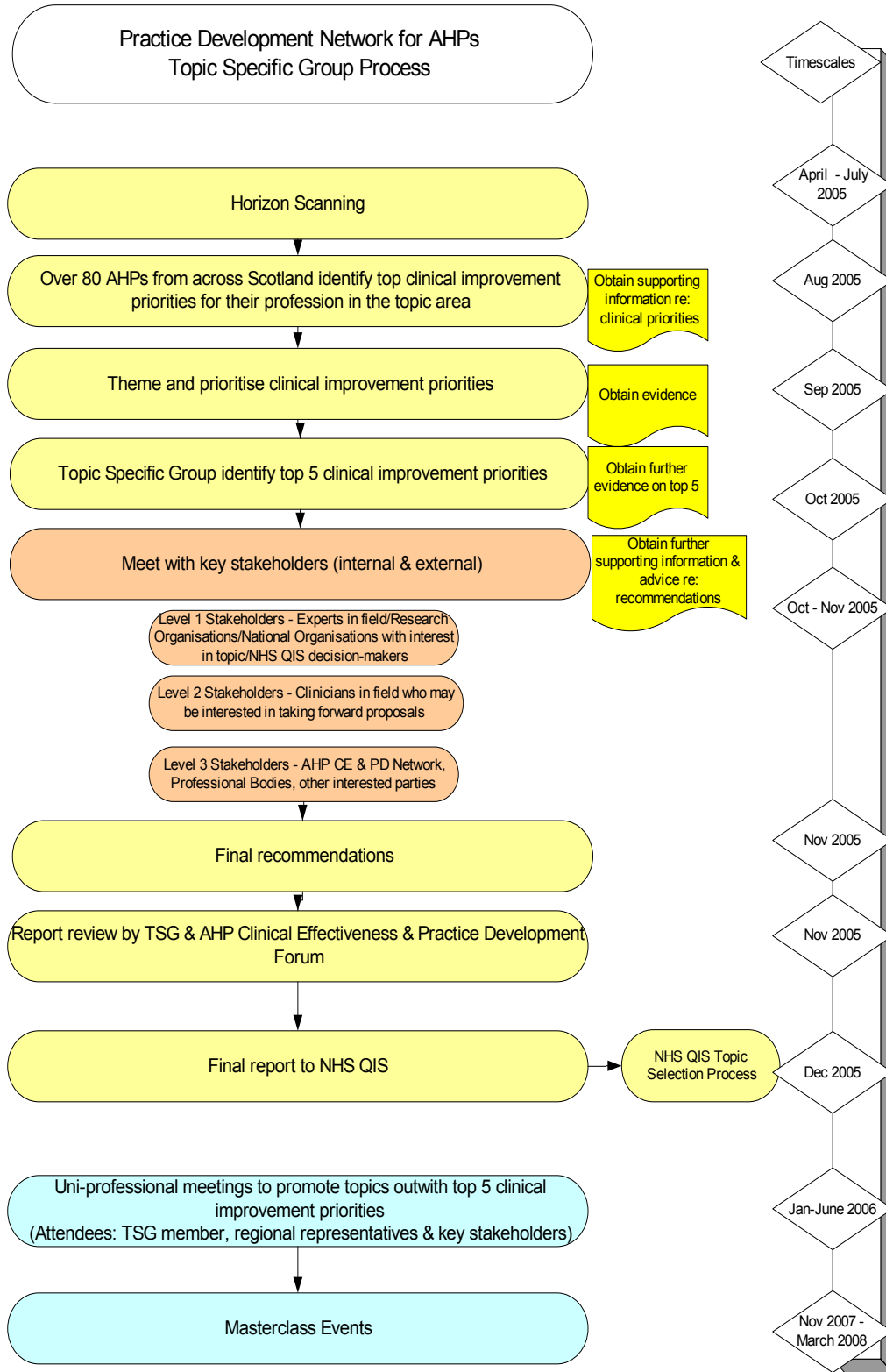
NHS QIS should:

- work in collaboration with the National Centre for Training and Education in Prosthetics and Orthotics, Strathclyde University, and key stakeholders to develop a Best Practice Statement on the application and management of AFO following stroke, and
- work with key stakeholders to pursue opportunities for development work in relation to the use of audit and outcome measures in the application of AFO.

The National Centre for Training and Education in Prosthetics and Orthotics, Strathclyde University, should:

- incorporate teaching on the orthotic management of stroke in its undergraduate curriculum,
- provide regular short courses on the role of AFO in stroke management for the continuing professional development of healthcare professionals, and
- produce an executive summary of the “Report of an International Consensus Conference on the Orthotic Management of Stroke Patients” published by the International Society for Prosthetics and Orthotics and make this widely available.

Appendix 1 Topic Specific Group Process



Appendix 2 Definitions

Definitions of professions involved in the Practice Development Network for AHPs.

Arts Therapists	use music, art or drama as a therapeutic intervention to help people with physical, mental, social and emotional difficulties
Dietitians	translate the science of nutrition into practical information about food. They work with people to promote nutritional wellbeing, prevent food related problems and treat disease
Occupational Therapists	help people to overcome physical, psychological or social problems arising from illness or disability, by concentrating not on what they are unable to do, but on what they may be able to achieve
Orthoptists	assess and manage a range of eye problems, mainly those effecting the way the eyes move, such as squint (strabismus) and lazy eye (amblyopia)
Orthotists and Prosthetists	responsible for the assessment, diagnosis, measurement, prescription, supply and review of prostheses and orthoses
Orthotists	use biomechanical principals to apply forces to a body segment/s to effect change, prevent deformity or relieve pain. Some orthotists will also have specialist knowledge and expertise, for example with diabetic neuropathies, rheumatoid arthritis, dystrophies, paediatrics and other complex fields such as spinal bracing
Prosthetists	provide prosthetic management for people who have an amputation or congenital absence of a limb. Prosthetists diagnose and analyse the mechanical loss and prescribe the most suitable prosthesis to meet these requirements. Some prosthetists have specialisms in upper limb prosthetics, paediatric prosthetics or sports prosthetics

Podiatrists	specialise in the assessment, treatment and management of patients with foot and lower-limb disorders. They play a particularly important role in helping people to stay mobile, and therefore independent
Physiotherapists	treat the physical problems caused by accidents, illness and ageing, particularly those that affect the muscles, bones, heart, circulation and lungs
Radiographers - Diagnostic	employ a range of sophisticated equipment to produce high quality images to diagnose an injury or disease
Radiographers - Therapeutic	play a vital role in the treatment of cancer as the only health professionals qualified to plan and deliver radiotherapy. Radiotherapy is used either on its own or in combination with surgery and/or chemotherapy
Speech and Language Therapists	work with people who have problems with communication, including speech defects, or with chewing or swallowing

Appendix 3 AFO Scoping Workshop Membership

Name	Title, organisation
Roy Bowers	Senior Lecturer/Clinical Placement Co-ordinator, National Centre for Training and Education in Prosthetics and Orthotics, University of Strathclyde
Elizabeth Condie	Reader, National Centre for Training and Education in Prosthetics and Orthotics, University of Strathclyde
John Dennis	Physiotherapy Team Lead - Stroke North, NHS Greater Glasgow & Clyde
Lorna Duncan	Principal Orthotist & Chair SCOTReT Orthotics Group, NHS Tayside
Elaine Figgins	Director of Undergraduate Courses, National Centre for Training and Education in Prosthetics and Orthotics, University of Strathclyde
Pauline Halliday	Occupational Therapist Clinical Specialist in Stroke, NHS Lothian
Elaine Hunter	Senior Physiotherapist, NHS Forth Valley
June Lawrie	Physiotherapy Team Lead – Stroke South, NHS Greater Glasgow & Clyde
Steven Lindsay	Chair – Executive Committee, British Association Prosthetists and Orthotists
Barry Meadows	Head of Neurobiomechanics, NHS Greater Glasgow & Clyde & University of Strathclyde
Nicola Munro	Advanced Specialist Orthotist, NHS Greater Glasgow & Clyde
Anne Price*	Member of Stroke Nurses Forum, NHS Greater Glasgow & Clyde
Alan Robertson	Patient Representative , Glasgow
Karyn Ross	Lecturer, National Centre for Training and Education in Prosthetics and Orthotics, University of Strathclyde

Phil Rowe*	Head of HealthQWest Function for Living Research Programme, Professor of Rehabilitation Science, HealthQWest
Chris Rowley	Orthotic Service Manager, NHS Greater Glasgow & Clyde
Lynne Rowley	BAPO Executive Committee Member, British Association Prosthetists and Orthotists
Mark Smith	Consultant Physiotherapist, NHS Lothian

*Attended Action Group Meeting only

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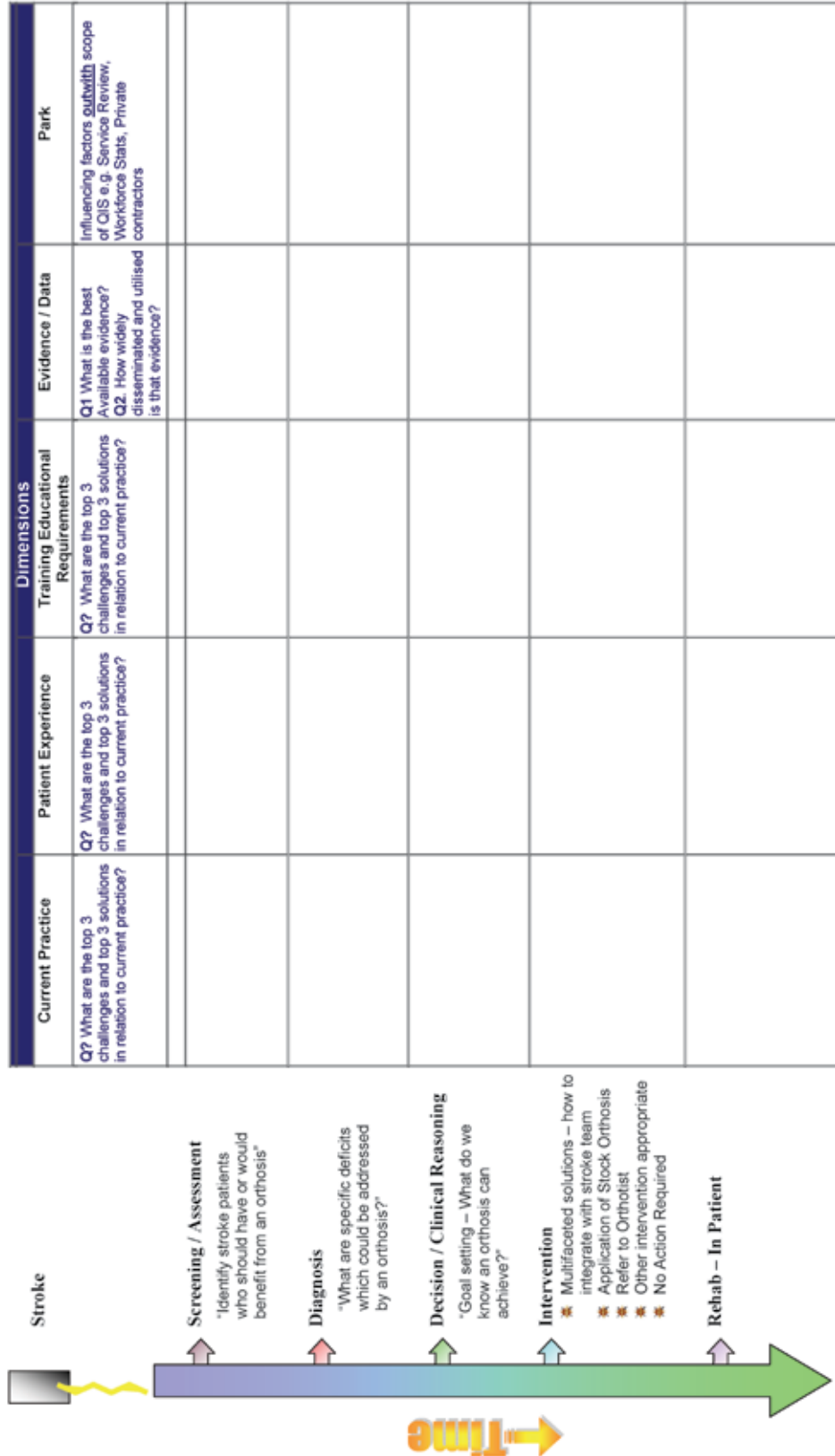
June Wylie	Professional Practice Development Officer – AHPs
Michelle Richmond	Practice Development Project Co-ordinator
Richard McManus	Business Analyst and Scoping Workshop Member

NHS QIS Sponsor Director

Jan Warner	Director of Performance Assessment & Practice Development
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Appendix 4 Patient Pathway

PATIENT PATHWAY- ANKLE FOOT ORTHOSIS FOLLOWING STROKE



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