

REHABILITATION ENGINEERING SERVICES FOR WHEELCHAIRS AND SPECIAL SEATING

To be used in conjunction with

*Rehabilitation Engineering Services:
Functions, Competencies and Resources*

Produced by

RESMaG

(Rehabilitation Engineering Services Management Group)

and IPeM



(Institute of Physics and Engineering in Medicine)

In collaboration with

CoRE

(Centre of Rehabilitation Engineering, King's College London)

Issue 1.4

March 2004

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1. INTRODUCTION

This document has been produced by the Rehabilitation Engineering Services Management Group (RESMaG) to identify guidelines that can be used as a benchmark for rehabilitation engineering services in the prescription, provision, maintenance, and modification of wheelchairs and special seating. It is to be used in conjunction with *Rehabilitation Engineering Services: Functions, Competencies, and Resources* [1].

Many NHS providers and purchasers are unclear of the service that can be provided by Rehabilitation Engineers and the framework in which they work. This is, in part, due to the relatively small numbers of Rehabilitation Engineering Technicians, Rehabilitation Engineers and Clinical Engineers working in the NHS.

It is vitally important that budget resources are employed in the most economical manner in order to provide the most effective solution to a client's mobility and postural management needs. Rehabilitation Engineers have an important contribution to make in their field and it is anticipated that these standards will act as a foundation for the provision and development of this discipline.

The guidelines have been developed in conjunction with the DoH Technician Training Programmes, both Basic and Advanced [2,3]. These are used to define a minimum acceptance standard of personal competence of rehabilitation engineering staff but will also be of use to fellow professionals involved in the assessment and provision of special seating, wheelchairs and associated modifications. The standards also reflect the standards set out in *National Guidelines on Wheelchair Services* [4].

The guidelines have been split into sections that reflect parameters of good practice and service provision.

2 PROFESSIONAL COMPETENCIES

2.1 Knowledge

In addition to having a qualified and sound engineering background, a high degree of expertise is essential in assessment and subsequent provision of mobility equipment (such as powered and non-powered wheelchairs also tricycles and buggies where applicable) and special seating (including cushions). Rehabilitation Engineering staff working in this area should, according to their minimum level of competence indicated

	Minimum level
2.1.1 Be aware of the roles of the clinic team and respect their views.	RET
2.1.2 Have a working knowledge of all common types of mobility equipment including specifications and maintenance procedures.	RET
2.1.3 Have a working knowledge of special seating construction and assembly.	RET
2.1.4 Have an understanding of environmental requirements in relation to wheelchair specifications and usage (powered and non-powered).	RET
2.1.5 Be familiar with the various powered controllers and allied components in use on powered wheelchairs.	RET
2.1.6 Have a knowledge of mechanics and biomechanics and a knowledge of posture and positioning, in the relevant pathologies.	RE
2.1.7 Have knowledge of the causes of tissue breakdown and the need for pressure measurement and management.	RE
2.1.8 Have a knowledge of the consequences and limitations of prescriptions.	RE
2.1.9 Have knowledge and understanding of the principles of cost management.	RE
2.1.10 Have a working knowledge of the procedures and instructions contained within the wheelchair maintenance contract and their negotiations where relevant.	RE
2.1.11 Have knowledge of the policy, resources and equipment that are available within the district service with which they have contractual obligations.	RE
2.1.12 Have a knowledge of EN 29000 Quality Management Systems.	RE

2.2 Skills

Rehabilitation Engineering staff should, according to their minimum level of competence:

	Minimum level
2.2.1 Use measuring techniques so as to achieve correct chair-to-user fit and to be capable of making technical adjustments accordingly.	RET
2.2.2 Be qualified to take part in moving and handling operations.	RET
2.2.3 Be cost effective but not at the expense of being ineffective.	RET
2.2.4 Be able to develop safe and effective technical solutions to a user's wheelchair and seating problems with minimum disruption and discomfort to the user and carer.	RE
2.2.5 Be capable of producing and adapting equipment to solve user and carer problems or be capable of supervising others to do so.	RE
2.2.6 Have the ability to estimate costs.	RE
2.2.7 Be capable of making sound decisions and producing informative reports and working drawings that clearly communicate the clinical and technical requirements.	RE
2.2.8 Have personal management skills and be capable of negotiation at all levels.	RE
2.2.9 Have the ability to teach and educate through demonstration and with verbal clarity to all prescribers and carers, expressing technical terminology in lay terms.	RE
2.2.10 Be able to make a clinical assessment of the rehabilitation engineering aspects of postural positioning, as a member of a multidisciplinary team.	RE
2.2.11 Be able to make a clinical assessment of the rehabilitation engineering aspects of postural positioning, either as a member of a multidisciplinary team or working independently on complex assessments.	CE

2.3 Attitudes and Attributes

Rehabilitation Engineering staff should form an integral part of the clinic assessment team for wheelchair mobility, special seating and pressure relieving cushion clinics, and, according to their minimum level of competence:

	Minimum level
2.3.1 Recognise and respond appropriately to the needs of users and carers.	RET
2.3.2 Be capable of taking a lead role in the team.	RE
2.3.3 Have the ability to communicate the technical aspects of a case to all case participants and to be flexible and respect others opinions.	RE
2.3.4 Have a team attitude with practical commitment and also be able to act independently.	RE

3 SERVICE OBJECTIVES

- 3.1 To contribute to the multi-disciplinary assessment for the users of wheelchairs and special seating (including those with more complex requirements) and their carers.
- 3.2 To provide information and advice on adaptations and modifications to meet the needs of users and carers.
- 3.3 To provide technical advice to users, health professionals and others on the use and maintenance of equipment.
- 3.4 To monitor and assist in the management of a satisfactory quality repair service to wheelchair users.
- 3.5 To monitor and assist in the management of a reconditioning service for returned wheelchairs and to monitor and control quality standards of the work..
- 3.6 To ensure that technical and safety standards of work undertaken by wheelchair contractors is satisfactory and of good quality.
- 3.7 To provide information and advice to health professionals and others on the range of available wheelchairs, special seating and associated items, the technical specifications and suitability.
- 3.8 To advise on procurement of mobility equipment.
- 3.9 To develop other rehabilitation engineering activities as agreed with the purchaser.
- 3.10 To work towards the adoption of appropriate quality standards in the delivery of rehabilitation engineering services.
- 3.11 Continually try to improve quality of service and value for money.

4 PRACTICAL COMPETENCIES

Note: the numbering in italics corresponds to the numbering in the Section 4 of Rehabilitation Engineering Services: Function, Competencies, and Resources [1].

	Minimum level of competence
4.1 Professional Practice	
<i>4.1.1</i> Responsibility and conduct: Maintain awareness of safety standards. Be aware of the risk issues connect with mobility equipment and special seating (current Hazard and Safety Action Bulletin notices, private and public transport, clinical risks such as pressure sores, etc.). Monitor defects in mobility equipment reported by the ‘Adverse Incident Centre’ and through other contacts (e.g. RESMaG).	RET
<i>4.1.2</i> Law: Have a working knowledge of relevant current legislation e.g. Consumer Protection Act, Health and Safety at Work Act, Medical Devices Regulations, fire safety regulations, Manual Handling Regulations.	RET
<i>4.1.3</i> Communication: Be able to communicate the technical aspects of a case to all participants and to be flexible and respect others’ opinions. Know when to liaise with other professionals and be pro-active in communicating as necessary.	RET
Be capable of compiling informative reports which clearly communicate clinical and technical requirements. Be able to train others when appropriate.	RE
<i>4.1.4</i> Professional development: As part of a planned programme of continuing profession development (CPD), keep up to date with technical developments in the field of mobility aids and special seating by reading, education and training.	RE
<i>4.1.5</i> Public awareness: Incorporate the holistic needs of users and carers. Keep aware of relevant social issues that affect the national and local services or that are of special concern to users and carers.	RE

4.2 Clinic (in addition to 4.1 above)

In normal service centre or on special referrals at other centres:

4.2.1	Commission manual wheel chairs.	RET
4.2.2	Commission powered wheelchairs.	RET
4.2.3	Fit modifications to wheelchairs and special seating.	RET
4.2.4	Fit postural supports and special seating.	RET
4.2.5	Fit special controls for powered wheelchairs.	RET
4.2.6	Fit integrated wheelchair and environmental control systems.	RET
4.2.7	Assess, adjust to individual user, and/or design for patient's mobility, special seating and specialised cushion requirements as above.	RE
4.2.8	Set and operate assessment equipment with regard to wheelchair drive and control systems.	RET
4.2.9	Instruct users and carers in use of wheelchairs, control systems, batteries and adjustment of supports and special seating.	RET
4.2.10	Record details of assessments and equipment specified, including design modifications and follow-up/review.	RET
4.2.11	Attend and contribute to clinics where wheelchair special seating assessments are carried out as part of or as lead of a multi-disciplinary assessment team. Advise on adaptation to wheelchairs, including advice on the supply, quality and range of equipment available. Attend special seating refits to carry out adjustments or make recommendation to suppliers.	RE
4.2.12	Assess for bespoke control systems and manual aids, configure and integrate into wheelchairs, special seating and other assistive devices.	RE
4.2.18	Assess / specify bespoke assistive systems for mobility, communication and control.	CE

4.3 Domiciliary Visits (in addition to 4.1 and 4.2 above)

At hospitals, institutions, special schools, user's homes and place of work:

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| 4.3.1 | Inspect contractor's work standards and maintenance of wheelchairs and special seating in line with the contract specification. | RET |
| 4.3.2 | Assess for and make recommendations regarding mobility and seating equipment for individuals. | RE |
| 4.3.3 | Demonstrate the safe operation of wheelchairs, batteries, control systems, and special seating to users and carers. | RE |
| 4.3.4 | Evaluate and advise on environmental situations which give rise to difficulty for wheelchair users and liaise as necessary with community therapists and other professions. | RE |

4.4 Workplace (in addition to 4.1-4.3 above)

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|--------|--|-----|
| 4.4.1 | Inspect wheelchairs and controls prior to delivery. Categorise relinquished wheelchairs and other equipment, monitor reconditioning standards. | RET |
| 4.4.2 | Prepare visit reports and complete user records. Maintain equipment records. | RET |
| 4.4.3 | Investigate defects in mobility and seating equipment, report to MDA or recommend/ undertake corrective action, facilitate warranty claims. | RET |
| 4.4.4 | Submit and monitor adverse occurrences in accordance with the national adverse incident reporting system. | RET |
| 4.4.5 | Undertake or arrange for manufacture and/or the purchase of mobility and seating equipment and modifications where relevant, having regard for costs and facilities available. | RET |
| 4.4.6 | Monitor contractor's repairs, modifications, and quality of work in line with the current contract. Monitor progress of outstanding work through contractors. | RET |
| 4.4.7 | Negotiate and manage maintenance repair contracts. | RE |
| 4.4.8 | Prepare specifications for modification of wheelchairs, including drawings where necessary and progress these with manufacturers or contractors. Provide relevant documentation. | RE |
| 4.4.9 | Audit clinical provision and effectiveness for cost efficiency and progress solutions accordingly. | RE |
| 4.4.10 | Participate in clinical audit and case conferences and advise multidisciplinary colleagues. Deal with technical problems raised by medical, paramedical, and clerical staff, users and carers. | RE |

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| 4.4.11 | Evaluate new wheelchairs, controls, and special seating systems equipment. Ensure current safety standards of equipment and materials are complied with. Check that contract specifications are complied with. Monitor performance. | RE |
| 4.4.12 | Assist in negotiations and management of purchaser/provider service contracts. | RE |
| 4.4.13 | Provide Quality Assured Management Systems. | RE/CE |
| 4.4.14 | Plan and manage service bidding and funding for the wheelchair, special seating, and engineering services. | RE/CE |
| 4.4.15 | Present training courses on aspects of mobility and special seating services, including lectures and demonstrations both to in-house staff and non engineers. | RE/CE |
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REFERENCES

1. *Rehabilitation Engineering Services: Functions, Competencies, and Resources*. Published by RESMaG (March. 04), Centre of Rehabilitation Engineering, King's College London, 2004. www.kcl.ac.uk/core
2. *DoH Technician Training Programme First-Stage Technician in Rehabilitation Engineering*. DoH, 1991.
3. *DoH Technician Training Programme Rehabilitation Engineering (Advanced)*. DoH, 1992.
4. *National Guidelines on Wheelchair Services* (1994), Southern Birmingham Community Health NHS Trust.

THE REHABILITATION ENGINEERING SERVICES MANAGEMENT GROUP – *RESMAG*

Members of this group are actively involved in the day-to-day management of Rehabilitation Engineering Services and represent every Region in the country. The group meets bi-monthly

- To provide a representative body for rehabilitation engineering service managers to statutory, voluntary, educational, service, and professional groups at national level.
- To provide advice on rehabilitation engineering services.
- To initiate and continue to promote and support quality management systems within the field of rehabilitation engineering.
- To co-ordinate and exchange information between rehabilitation engineering services at regional and national level.
- To assist in the implementation and review of CPD and the relevant training systems for Rehabilitation Engineers and Rehabilitation Engineering Technicians.
- To act as a co-ordinating body for collection and dissemination of information from related organisations such as:

MHRA	NHS Medicines and Healthcare products Regulatory Agency
PASA	NHS Purchasing and Supply Agency
NWSSCG	National Wheelchair and Special Seating Consultative Group
NWMF	National Wheelchair Managers' Forum
CoRE	The Centre of Rehabilitation Engineering
PMG	The Posture and Mobility Group
IPEM	The Institute of Physics & Engineering in Medicine
PCAG	The Prosthetics Commodities Advisory Group.

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West Midlands	1
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London	1
South East	1
South West	1
Scotland	1
Wales	1
Northern Ireland	1
Special Interest Groups	
Wheelchairs and Special Seating	1
Prosthetics and Orthotics	1
Electronic Assistive Technology	1
Associates	
Medicines and Healthcare products Regulatory Agency (MHRA)	1
NHS Purchasing and Supply Agency (PASA)	1
Centre of Rehabilitation Engineering (CoRE)	1
Rehabilitation Engineering and Biomechanics SIG of the Institute of Physics and Engineering in Medicine	1

Contact

For further information and contacts see: www.kcl.ac.uk/core