Policy Directive

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Amputee Care Standards in New South Wales

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Functional Sub group Clinical/ Patient Services - Surgical
Clinical/ Patient Services - Aids and appliances
Personnel/Workforce - Learning and Development

Summary Amputee Care Standards in New South Wales has been developed to assist clinicians in the management of people who have experienced amputation of limb deficiency. The Policy provides direction for care from pre-operative through to long-term community care.

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Applies to Area Health Services/Chief Executive Governed Statutory Health Corporation, Board Governed Statutory Health Corporations, Affiliated Health Organisations - Non Declared, Affiliated Health Organisations - Declared, Community Health Centres, Public Hospitals

Audience Clinical, surgical, allied health, nursing, administration

Distributed to Public Health System, Community Health Centres, Divisions of General Practice, Health Professional Associations and Related Organisations, NSW Department of Health, Public Hospitals, Private Hospitals and Day Procedure Centres, Tertiary Education Institutes

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Amputee Care Standards in New South Wales

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AMPUTEE CARE STANDARDS IN NEW SOUTH WALES

Executive Summary

In 2003, NSW Health commissioned a review of the NSW Artificial Limb Service (ALS) and the health care services provided to amputees in New South Wales. The scope of the review was broad and covered health care provided at all stages of the care pathway from pre-operative information to community care. The review, published in June 2004, presented 27 recommendations for improving the provision of care to amputees. These recommendations are based upon the best available evidence and are consistent with internationally recognised best practice principles. They guide the clinical care of amputees, and service delivery for the ALS[1].

In May 2005, NSW Health formed the Clinical Guidelines Reference Group (CGRG) to address the implementation of eight of the Review recommendations relating to amputee care, treatment pathways, and the NSW ALS service model. The CGRG consisted of experts in the field of amputee care representing rural and metropolitan areas, paediatric and adult services, and professional and consumer groups. The specialist area of upper limb amputees was also represented. Membership of this group is attached at **Appendix 1**.

The CGRG produced *Amputee Care Standards in New South Wales* to assist clinicians in the management of people who have experienced amputation and/or limb deficiency. This policy will assist NSW Health to develop international best practice and patient centred amputee care, from pre-operative assessment, through surgery, acute hospitalisation, rehabilitation, outpatient services, and life long management.

[1] Stewart J, McCarroll A, Cameron I & Wilson J. Review of the New South Wales Artificial Limb Service. NSW Health Department's Final Report. June 2004.

STANDARDS FOR AMPUTEE CARE IN NEW SOUTH WALES

Introduction

Purpose

The purpose of this policy is to:

- Provide clinicians with evidence-based standards for the management of people with amputations in pre-operative, acute hospital, rehabilitation and community care settings.
- Specify where procedures may be tailored to suit local needs, resources and individual circumstances.
- Facilitate equitable care for people with amputations across NSW.

This policy provides standards for the management of people with amputations. It is not intended to replace the clinical judgement of individual health professionals.

Scope

In this document, the *amputee service* refers to the group of services, which cover the continuum of care required for all people who have experienced amputation of a limb(s) or limb deficiency. This incorporates pre-operative care, acute care, rehabilitation and life long management. A *specialist service* includes clinicians with recognised skills, knowledge and experience in amputee care.
The specialist team includes:

1. Affiliated surgeons
2. Nurses
3. Occupational therapists
4. Physiotherapists
5. Prosthetists
6. Rehabilitation physicians
7. The NSW Artificial Limb Service (ALS)
8. Peer support groups

Specialist team members may or may not be co-located. The amputee service may operate on a "without walls principle"[2] which will require a commitment to maintaining high quality communication.

The specialist team will collaborate with other clinicians who may not have dedicated amputee knowledge but who provide essential care and support to the patient. This may include but is not limited to:

[2] Journal of Prosthetics and Orthotics – Official Findings of the Consensus Conference – Post-operative Management of the Lower Extremity Amputee, 'Standards of Care', July 2004, Volume 16, Number 3.

1. Dietician
2. Employment advisor
3. General practitioner
4. Orthotist
5. Podiatrist
6. Psychologist /psychiatrist
7. Rehabilitation engineer
8. Social worker

The composition of the team at each phase within the amputee service must be appropriate to the type of service being provided and the needs of the amputee.

The patient and/or their carer is to remain at the centre of all decision-making and be an integral member of the team that is providing the care.

An Aboriginal Health Impact Statement has been completed to ensure that the health needs and interests of Aboriginal people have been considered, and where relevant, appropriately incorporated into this policy.

Access is a major barrier to equity of service provision for amputees and is influenced by geographic, economic and socio-cultural factors. Challenges for rural and remote services are particularly apparent where resources are often limited. This policy may include standards that cannot be resourced in all regions of NSW. In such instances procedures may need to be modified to address the resource issue and local solutions developed to ensure that best practice and optimal patient outcomes are maintained.

Using the Policy

Format

The clinical pathway for amputees has been categorised into phases of care. It is recognised that each patient's journey is unique and they do not necessarily progress through the phases in a linear fashion. It is also understood that there may be overlap between the various phases of care. There are two specialist subsections, for upper limb amputations and for children with a limb deficiency, and a section on staff training.

Phases of Care

Overall Service Provision

Overall service provision refers to the services provided across the continuum of care by the Area Health Service (AHS), incorporating all the facilities that deliver treatment to the patient. This includes services provided by acute hospitals, rehabilitation units, outpatient and community services, and the NSW Artificial Limb Service (ALS).

Pre-operative

The pre-operative phase begins with the decision to amputate and continues up to the point of surgery.

Surgical

The surgical phase includes all issues relating to the amputation surgery.

Post Surgical

The post-surgical phase incorporates the patient's journey immediately post-operatively until the patient is ready for rehabilitation.

Rehabilitation

The rehabilitation phase aims to improve functional status with or without prosthesis, and to successfully reintegrate the patient into their community. Comprehensive rehabilitation of the person with an amputation must take into account the whole person, including age appropriate goals and their environment.

Rehabilitation with a Prosthesis

This phase comprises all elements of prosthetic rehabilitation.

Life Long Management

This phase acknowledges the fact that the patient will be a service consumer for the remainder of their life.

Specialist Subsection

- Upper Limb
- Children with Congenital Limb Deficiency

The specialist sub-sections incorporate specific standards pertaining to the management of upper limb amputees and congenital limb deficiency patients.

Staff Development

The policy includes standards for the ongoing professional development of staff.

Categorisation of standards

Each standard in each phase of care is rated according to three categories. Standards with an 'A' classification are essential to the provision of care and must be adopted by health facilities involved in the care of amputees.

A Essential Practice

The minimum level of accepted practice, as assessed through the accreditation process occurring within any health facility in NSW.

B Good Practice

Standard practice expected to be in place in any health facility throughout NSW.

C Desirable Practice

Best practice based on current available evidence that is not yet standard across Australia.

This policy is based on the "Standards and Guidelines in Amputee and Prosthetic Rehabilitation" of the British Society of Rehabilitation Medicine 2003 with modifications for New South Wales conditions.

Performance Measures

Performance measures are to be incorporated into the ongoing management of the amputee care service. They are to include professionally specific functional assessment and rehabilitation tools, which are appropriate to and validated for the amputee population. This is indicated in each of standards and examples are given in **Appendix 3**.

Evaluation of the Policy

The policy was distributed to relevant stakeholder groups for consideration. All views and comments received were taken into consideration. **Appendix 2** lists the specific groups that were contacted. In particular, the CGRG would like to thank the following individuals and organisations for providing invaluable feedback and advice:

- Amputee Association of NSW Incorporated
- Australian Association of Occupational Therapists
- Centre for Aboriginal Health, NSW Health
- Centre for Chronic Disease Prevention and Health Advancement, NSW Health
- Community & Government Relations Unit, NSW Health
- Director of Rehabilitation Services, Prince of Wales Hospital
- Family and Primary Health Team, NSW Health
- Greater Southern Area Health Service
- Greater Western Area Health Service
- Head of Physiotherapy, Concord Hospital
- Hunter New England Area Health Service
- Nursing and Midwifery Office, NSW Health
- Physiotherapy Manager, Port Kembla Hospital
- Statewide Services Development, NSW Health
- South Eastern Sydney Illawarra Area Health Service

- Sydney West Area Health Service
- Workforce Development and Leadership, NSW Health

Review of the Policy

This policy will be reviewed by the NSW Department of Health in 2010.

Amputee care standards in New South Wales

1. Overall Service Provision

An amputee service is defined as the continuum of care required for people who have experienced amputation or limb deficiency, and incorporates acute care, rehabilitation and life long management from health care service providers.

Standards		Category
1.1	It is the responsibility of the Area Health Service (AHS) to provide access to a specialist amputee service for all amputees.	A
1.2	Each phase of the amputee service must be governed by appropriate policies and procedures consistent with those of the AHS.	A
1.3	Each AHS where amputations are performed is to make provision for the rehabilitation of amputees who are not suitable for prosthetic rehabilitation.	A
1.4	The AHS in which the patient resides is to make provision for patients whose needs are unable to be managed adequately within the patient's local area. Where gaps exist in the phases of care the AHS must ensure that patients gain timely access to services. This may involve referral to another AHS to ensure access to appropriate specialist amputee services.	A
1.5	Patients within any AHS are to have access to appropriate rehabilitation services that aim to maximise physical, psychosocial and cognitive wellbeing.	A
1.6	All patients are to be given access to relevant information about lifestyle opportunities when living with an amputation.	A
1.7	Patients are to have adequate access to relevant information in an appropriate format, including a choice of language and access to interpreter services.	A
1.8	Each phase of the amputee service must have oversight from a suitably experienced clinician in amputee management.	A
1.9	Each phase of the service is to reflect a staffing mix appropriate to the level of service being provided.	A
1.10	The rehabilitation phase of care begins from the point of decision to amputate and appropriate interventions are to be undertaken from that time by the specialist team to assist recovery.	A
1.11	The amputee service is to have access to appropriate prosthetic services.	A
1.12	The transfer and/or discharge of patients is to be supported with appropriate documentation to assist in the patient's ongoing health provision and care.	A

1.13	The medical director of the amputee clinic (or their nominated delegate) should be the official representative of the service with the ALS.	B
1.14	Amputee service should have established performance indicators and outcome measures for each phase of amputee care for continuous quality improvement purposes. Please refer to Appendix 3 for examples of suitable tools.	B
1.15	Clinical input is to be sought in any decision-making regarding the planning, development and delivery of amputee services.	A
1.16	Health facilities within the amputee service that provides prosthetic assessment, prescription or manufacturing services are to be accredited by the NSW Artificial Limb Service (ALS).	A
1.17	Key stakeholders including patients and carers, should have opportunities to provide input into service planning and review processes.	B
1.18	Amputee services should collect data at each phase of amputee care in line with NSW Health Department and ALS requirements and for the purpose of accreditation.	B
1.19	Outpatient and day rehabilitation should be supported by adequate transport systems to ensure equity of access to services.	B
1.20	Access to community support for those unable to travel to a rehabilitation centre, or for whom rehabilitation is more appropriately conducted in the context of their normal home environment, should be made available.	B
1.21	Where possible, AHSs should assist in the provision of peer support to people with amputations.	B

2. Pre-operative

The pre-operative phase begins with the decision to amputate and continues to the point of surgery.

Standards		**Category**
2.1	Facilities where planned amputations occur are to have access to a specialist team. This includes, but is not limited to a suitably experienced surgeon, rehabilitation physician, prosthetist, nurse, occupational therapist and physiotherapist.	A
2.2	A pre-amputation consultation is to be conducted for all planned amputations, with the patient and the rehabilitation team members who will be involved in rehabilitation after the surgery.	A
2.3	Experienced clinical counselling and psychological support is to be made available to patients and their significant others, particularly for those patients where amputation is unanticipated. This should begin in the acute phase and continue if required as part of lifelong management.	A

2.4	Unless clinically contra-indicated a rehabilitation program should be commenced pre-operatively.	B
2.5	All surgical departments should provide patients undergoing elective amputations with access to information regarding local peer support and/or amputee associations.	B

3. Surgical

This phase includes all issues relating to the amputation surgery.

Standards		**Category**
3.1	Each hospital where planned amputations are performed is to have access to a surgeon with specialist expertise in amputation surgery.	A
3.2	An amputation is to be performed or supervised by a suitably experienced surgeon using currently recognised operative techniques. All surgical interventions must take into consideration future rehabilitation potential and prosthetic use, except in cases of extreme urgency.	A
3.3	The surgical team is to liaise with the rehabilitation service to ensure continuity of care.	A
3.4	Rigid dressings should be applied according to the NSW Health Guideline, Amputee care – the use of post-operative dressings in trans-tibial amputees. Refer to standard 6.2.	B
3.5	The NSW Department of Health Dressing Data Collection Form is to be completed for all patients post-operatively whether a rigid or soft dressing is used. See the NSW Health Guideline on Rigid Dressings.	A

4. Post Surgical

The post surgical phase incorporates the patient's journey immediately post-operative until the patient is ready for rehabilitation.

Standards		**Category**
4.1	All patients are to be referred for assessment by the rehabilitation team.	A
4.2	All relevant clinical information, incorporating any special needs, is to be made available to the rehabilitation team at the point of referral.	A
4.3	All patients are to be assessed by the appropriate members of the multidisciplinary team to assist in the patient's ongoing management and care.	A
4.4	All patients are to be consulted about the outcome of assessments and their ongoing health care plan.	A

5. Rehabilitation

The Rehabilitation phase commences when the patient's post-operative recovery permits. Rehabilitation aims to improve functional status with or without a prosthesis, and to successfully reintegrate the patient into their community. Comprehensive rehabilitation of the person with an amputation must take into account the whole person in the context of their environment and their goals.

Standards		Category
5.1	All patients, including those who may not be a prosthetic candidate, are to be provided with an opportunity to participate in a rehabilitation program in accordance with the policies and procedures of the treating facility.	A
5.2	All referrals for rehabilitation should be acknowledged and suitable follow up provided in a timely manner.	B
5.3	Rehabilitation is to be responsive to changes in the individual patient's lifestyle, occupation and/or general health.	A
5.4	All patients undertaking a rehabilitation program are to be assessed and realistic rehabilitation goals established in conjunction with the patient and/or carers. These goals and reasons for any inability to achieve goals are to be documented.	A
5.5	When a prosthesis is not prescribed, reasons for the decision are to be clearly documented and alternative rehabilitation plans implemented. Outcomes must be reported back to referring agencies and the patient/carer.	A
5.6	All patients should have access to members of the specialist team as required.	B
5.7	The rehabilitation service should provide access to counselling and support services consistent with the needs of the patient and their significant others.	B
5.8	All patients should be provided with referral/access to vocational support services where appropriate.	C
5.9	Patients are to be educated about the care of their intact limb where a risk of amputation exists.	A
5.10	The rehabilitation service is to have a system in place for managing patient review and follow-up based on appropriate assessment and referral criteria.	A
5.11	The General Practitioner and other relevant agencies are to be regularly updated on progress and discharge planning via appropriate documentation.	A
5.12	All patients are to be provided with suitable discharge arrangements and follow-up services based on their individual rehabilitation goals.	A

6. Rehabilitation with prosthesis

This phase comprises all elements of prosthetic rehabilitation.

Standards		Category
6.1	If prosthetic rehabilitation is planned, the prosthesis should be prescribed in consultation with relevant members of the multi-disciplinary team.	B
6.2	A mechanical interim prosthesis manufactured by a prosthetist is to be made available to all amputees assessed as suitable for prosthetic rehabilitation. This is not required for amputees who are only suitable for a cosmetic prosthesis. The NSW ALS will fund the manufacture of a patient's mechanical interim limb where AHS has implemented the NSW Department of Health Guideline, Amputee care – the use of post-operative dressings in trans-tibial amputees, by 1 January 2008. Refer to standard 3.4. Training on the application of rigid dressings is available through the NSW ALS. Cost savings for AHSs as a result of this change are to be redirected into compliance with this policy directive.	A
6.3	Prosthetists are to follow the manufacturers' instructions and guidelines on risk management and any deviations from standard practice are to be fully documented.	A
6.4	If the patient abandons limb use, reasons are to be documented and the treating physician informed.	A
6.5	The amputee service should have a written and agreed policy for the provision of prosthetic limbs such as a cosmesis, leisure limbs, and water activity limbs to patients. For clients of the NSW Artificial Limb Service, please refer to the NSW ALS policy.	B
6.6	Facilities for the design and supply of custom made/one off appliances required for amputees, especially for work related activities, should be available and managed within the policies and procedures of the treating facility. For clients of the NSW Artificial Limb Service, please refer to the NSW ALS policy.	B

7. Lifelong management

This phase acknowledges the fact that the patient will be a service consumer for the remainder of their life and the standards reflect life long management issues.

Standards		Category
7.1	All service facilities are to have a written policy on patient follow-up.	A
7.2	The amputee service is to offer the patient access to the rehabilitation team for the purpose of review to meet the changing needs of individual patients.	A

7.3	Feedback to the treating physician and any other relevant services should be provided on follow-up when clinically indicated.	B

8. Staff Development

This policy includes standards pertaining to continued professional development for staff.

Standards		Category
8.1	Systems for continuous quality improvement and clinical governance are to be linked to the appropriate accreditation procedure. There must be a system of regular appraisal for all staff.	A
8.2	All amputee services are to undertake quality improvement activities as a routine part of clinical practice.	A
8.3	Each phase of the amputee service is to have a written policy on staff training and professional development.	A
8.4	Staff should be actively encouraged to attend relevant educational forums to enhance their skills and knowledge in amputee care. This should include national and international conferences.	B
8.5	Opportunities should be sought for multi-disciplinary and inter-agency education and training about the management of patients with amputations or limb deficiencies, including the involvement of patients in the management of their disability.	C
8.6	All professional staff are to be updated on current best practice in amputee care.	A
8.7	Staff should have access to current health literature relevant to their role within the amputee care pathway.	B
8.8	Adequate funding should be available to ensure all staff have access to appropriate educational forums.	B
8.9	Staff working with Aboriginal patients are to participate in cultural respect training.	A

9. Specialist Subsection – Upper Limb

It is recognised that upper limb amputee patients require specific recommendations pertaining to their care.

Standards		Category
9.1	During pre-amputation consultation for upper limb amputees, particular emphasis should be placed on the likely functional outcome with or without a prosthesis.	B
9.2	All upper limb amputations are to be carried out by an appropriately experienced upper limb surgeon using currently recognised upper limb	A

	amputation techniques with due consideration of future rehabilitation potential including prosthetic use, except in cases of extreme urgency.	
9.3	Experienced clinical counselling and psychological support is to be made available to all patients to assist with issues such as adjustment and pain management.	A

10. Specialist Subsection - Children with Congenital Limb Deficiencies

It is recognised that children with congenital limb deficiency require specific recommendations pertaining to their care.

Standards		**Category**
10.1	If a limb deficiency is detected antenatally, referral to a geneticist for advice on diagnosis and management should occur as soon as possible with subsequent referral to a Limb Deficiency Clinic.	B
10.2	If a congenital limb deficiency is detected at birth, the paediatrician should make a referral to a geneticist for advice as soon as possible and to the rehabilitation physician in the Limb Deficiency Clinic within one month of birth.	B
10.3	Parents/guardians are to be made aware of general and specific expert advice on all relevant treatment options (including the advisability or otherwise of prosthetic and surgical management).	A
10.4	The child and parents/guardians should be seen in a Specialist Limb Deficiency Clinic within 3 months of birth.	B
10.5	Where appropriate (for example where there are major joint abnormalities) the paediatrician or rehabilitation physician must, in consultation with parents/guardians, refer the child to a specialist orthopaedic surgeon.	A
10.6	All children with congenital limb deficiency are to have access to a therapist experienced in the management of limb deficiency.	A
10.7	Prosthetists experienced in congenital limb deficiency are to be involved in the assessment, treatment and ongoing management of all children with congenital limb deficiency.	A
10.8	Expert orthotic advice and treatment should be readily available.	B
10.9	Specific prosthetic solutions should be incorporated into treatment plans to facilitate participation in sport, leisure and recreation.	B
10.10	Participation in school activities should be facilitated by the physiotherapist, occupational therapist and rehabilitation physician in consultation with the school.	B
10.11	The multi-disciplinary team is to provide ongoing care for the child and parents/guardians with an appropriate and documented follow-up plan.	A

10.12	Experienced clinical counselling and psychological support is to be made available for all children and their families.	A
10.13	Planning for transition to an appropriate adult amputee service is to commence one to two years prior to school leaving.	A

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Appendices

Appendix 1 – Clinical Guidelines Reference Group (CGRG)

April 2005 – December 2005

Name	Position	Organisation
Prof. Ian Cameron	Rehabilitation Consultant	Royal Rehabilitation Centre
Ms Michelle Barakat-Johnson	Clinical Nurse Consultant	The College of Nursing
Ms Fiona Barnett	Prosthetist	Australian Orthotic & Prosthetic Association
Ms Linda Cutler	Director of Clinical Ops.	Greater Western Area Health Service
Ms Judith Davidson	Occupational Therapist	Australian Association Of Occupational Therapists
Mr Rudi Doller	Prosthetist	Prosthetic Manufacturers Association (Paediatric specialist)
Mr Tony Graham	Surgeon	Royal Australasian College of Surgeons
Dr Ross Hawthorne	Rehabilitation Consultant	Australasian Faculty of Rehabilitation Medicine
Ms Rebecca Kemp	Manager	NSW Artificial Limb Service
Dr Martin Kennedy	Rehabilitation Consultant	Calvary Hospital
A/Prof. Ben Marosszeky	Rehabilitation Consultant	Westmead Hospital
Ms Kathy McCosker	Manager	Hunter Prosthetic & Orthotic Service
Dr Andrew Nunn	Rehabilitation Consultant	Monash University
Ms Beryl Owen	Consumer	Amputee Association of NSW Inc.
Ms Angela Stark	Physiotherapist	Australian Physiotherapy Association
Ms Leanne Turner	Paediatric Social Worker	Australian Association of Social Workers
Ms Bronwyn Scott	A/Manager	Service Delivery Improvement Unit NSW Health Department
Ms Leanne Wallace	Director	Primary Health and Community Partnerships Branch NSW Health Department

Appendix 2 – Stakeholder groups consulted

The following organisations were provided with a draft copy of the guidelines for consideration and comment:

- Aboriginal Medical Service Redfern
- Amputee Association of NSW Incorporated
- Amputee Association of Sydney Incorporated
- Area Health Services
  - Greater Southern
  - Greater Western
  - Hunter/New England
  - North Coast
  - Northern Sydney/Central Coast
  - South Eastern Sydney/Illawarra
  - Sydney South West
  - Sydney West
- Australasian Faculty of Rehabilitation Medicine
- Australian Association of Occupational Therapists – NSW Branch
- Australian Association of Social Workers – NSW Branch
- Australian Orthotic Prosthetic Association
- Australian Physiotherapy Association – NSW Branch
- Limbkids Support Association Incorporated
- NSW Health Department Branches & Units
  - Aboriginal Vascular Health Program
  - Centre for Aboriginal Health
  - Chronic Disease Prevention & Health Advancement Branch
  - Community & Government Relations Unit
  - Dementia, Carers & Disability Team
  - Family Health & Primary Health Team
  - Health Services Performance Improvement Branch
  - Nursing & Midwifery Office
  - Statewide Services Development Branch
  - Workforce Development & Leadership Branch
- NSW Physiotherapists in Amputee Rehabilitation
- Prosthetic Manufacturers Association
- Royal Australasian College of Surgeons
- Royal Australian College of General Practitioners
- The NSW College of Nursing

Appendix 3 – Performance Measures

DISCUSSION PAPER PREPARED BY THE QUALITY WORKING GROUP FOR THE PROSTHETIC ADVISORY COMMITTEE (October 2005)

The NSW ALS Quality Working Group investigated a range of tools to assess outcomes for clients utilising a prostheses. The working group focused on outcome tools designed for lower limb amputees. However, the group does recognise the need to research outcome tools specific to upper limb amputees.

A number of tools were investigated and rated according to their psychometric properties (reliability and validity) and ease of use to administer within a clinic setting. The tools recommended by the committee have met the following criteria:

- Simple and quick to administer
- Able to be undertaken within the clinic setting by any discipline and where possible can be administered by clerical support staff
- Able to be adapted to a machine-readable format for future analysis/research opportunities

The assessment tools chosen address mobility and functional outcomes for the patient, as well as client satisfaction with the prosthesis and service. It should be noted that tests of functional outcome generally cover a range of tasks outside the scope of use of the prosthesis and therefore only sub-sections of an instrument may be relevant to administer. Furthermore, it was felt that overall satisfaction and outcomes for amputees might also be managed through modification of the existing NSW ALS forms.

A number of tools were piloted at two sites (Albury and Hunter) to look at practical issues such as ease of use and face validity.

RECOMMENDATIONS

The following tools and scales were recommended for use in conjunction with the Policy Directive, Amputee Care in New South Wales

Mobility Tools

- *Locomotor Capabilities Index in Amputees (LCI)*
- *Timed* Get Up and Go Test (TGUG)

Activity Limitation and Participation Tools

- *SMAF (Functional Autonomy Measuring System)*

Classification of componentry

- *K Classification*

Patient Satisfaction Tool

- *SATPRO (Satisfaction with Prosthesis)*
- SAMPLE AMPUTEE CLINIC SURVEY

Mobility Tools

Locomotor Capabilities Index in Amputees (LCI)

The LCI is a self-administered scale designed for people with lower-limb amputation. It is composed of 14 questions about different locomotor activities phrased, as "Would you say that you are able to do the following activities with your prosthesis on?" A 4-level ordinal scale (0-3 points) ranging from *"not able"* to *"able to accomplish the activity alone"* score's the degree of a person's perceived independence in performing each of the 14 activities, while wearing the prosthesis. A composite measure representing the global locomotor ability level is obtained by adding the individual scores with a maximum possible score of 42. The LCI can be divided into 7-item subscales that cover basic and advanced activities. Higher scores reflect greater locomotor ability with the prosthesis and less dependence on assistance. A further rating can be added to assess if the patient can perform the task alone with ambulation aids and thus the scale becomes a 5-level scale.

Timed Get Up and Go Test (TGUG)

The TGUG is a measurement of mobility. It includes a number of tasks such as standing from a seating position, walking, turning, stopping, and sitting down which are all important tasks needed for a person to be independently mobile. For the test, the person is asked to stand up from a standard chair and walk a distance of approximately 3m, turn around and walk back to the chair and sit down again. The individual uses their usual footwear and can use any assistive walking device they normally use. The person is seated with their back to the chair, their arms resting on the arm rests, and any walking aid they may use should be in hand. Timing, using either a wristwatch with a second hand or a stopwatch, begins when the individual starts to rise from the chair and ends when they are again seated in the chair. The normal time required to finish the test is between 7 – 10 seconds. This information should be documented as a baseline and repeated if any change in mobility occurs or at least yearly.

Activity Limitation and Participation Tools

SMAF (Functional Autonomy Measuring System)

The SMAF is an instrument used to evaluate autonomy. It was developed from the World Health Organisation's functional concept of health and international classification of impairments, disabilities and handicaps in 1983 and revised in 2002. It evaluates 29 functions related to Activities of Daily Living (ADL), mobility, communication, mental functioning and instrumental activities of daily living (IADL). It also includes a section for evaluating the human resources available to overcome disabilities and the stability of these resources over the next month. It has undergone numerous validity and reliability tests and has also been tested for sensitivity to change.

Evaluation is based on ***what the person does*** and not what they could or should do. Then an evaluation is undertaken if the person has the human resources or help necessary to overcome the identified disability or activity limitation. Sections of the SMAF relevant to the clinic assessment include the IADL and mobility components. The SMAF needs to be administered by a clinician. Whilst the AusTOMS for Occupational Therapists was considered, it was not deemed useful within a clinic setting.

K Classification

These are descriptive functional levels from the American Orthotic and Prosthetic Association (AOPA) used by manufacturers in classifying components.

K0	Functional Level 0	The patient does not have the ability or potential to ambulate or transfer safely with or without assistance and a prosthesis does not enhance their quality of life or mobility.
K1	Functional Level 1	The patient has the ability or potential to use a prosthesis for transfer or ambulation on level surfaces at fixed cadence. Typical of the limited and unlimited household ambulator.
K2	Functional Level 2	The patient has the ability or potential for ambulation with the ability to traverse low-level environmental barriers such as curbs, stairs or uneven surfaces. Typical of the limited community ambulator.
K3	Functional Level 3	The patient has the ability or potential for ambulation with variable cadence. Typical of the community ambulator who has the ability to traverse most environmental barriers and may have vocational, therapeutic or exercise activity that demands prosthetic utilisation beyond simple locomotion.
K4	Functional Level 4	The patient has the ability or potential for prosthetic ambulation that exceeds basic ambulation skills, exhibiting high impact, stress or energy levels. Typical of the prosthetic demands of the child, active adult or athlete.

Patient Satisfaction Tool

SATPRO (Satisfaction with Prosthesis)
The SATPRO is a measure of satisfaction of lower limb amputees with their prosthesis, developed by Bilodeau (1994). It was constructed on the basis of

17 consumer-based criteria for the evaluation of assistive devices described by Batavia and Hamer (1990). It is a self-administered tool taking around 5 minutes to complete and is designed for use after rehabilitation has been completed. It investigates satisfaction with the prosthesis, with use of the prosthesis and with services provided. It contains 15 questions and uses a 4-point ordinal scale. The patient is asked to check how they agree with each statement. A score of 0 is attributed to dissatisfaction and 3 for total satisfaction. Items 16 and 14 have been inverted to ensure that respondents do not systematically check all items the same way. The scores for these two items must therefore be inverted and scores can range from 0 to 45. The sum is divided by the maximum possible and multiplied by 100 in order to yield a total SATPRO score.

Useful References for Outcome Tools

Bilodeau, S., Hebert, R. and Desrosiers, J. (1999). Questionnaire on the satisfaction of persons with lower-limb amputations towards their prosthesis: development and validation. *Can J Occup Ther* **66**(1): 23-32.

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Gailey, R., Roach, K., Brooks Applegate, E., Cho, B., Cunniffe, B., Licht, S., Maguire, M., Nash, M. (2002). The Amputee Mobility Predictor: An Instrument to Assess Determinants of the Lower-Limb Amputee's Ability to Ambulate. *Arch Phys Med Rehabil,* **83**, 613-627

Hebert, R., Carrier, R., & Bilodeau, A. (1988). The Functional Autonomy Measurement System (SMAF): Description and validation of an instrument for the measurement of handicaps. *Age & Ageing,* **17**(5), 293-302.

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Wright, FV. (2006). Measurement of Functional Outcome with Individuals Who Use Upper Extremity Prosthetic Devices: Current and Future Directions. *JPO*, **18**(2), 46-56

SAMPLE AMPUTEE CLINIC SURVEY

The amputee clinic wants to measure lower limb amputee's **SATISFACTION** and **USE** of their prosthesis. Please answer every item as honestly as you can. There are no right or wrong answers. Your responses will remain confidential.

The information gained from the survey helps the clinic improve its services to people with an amputation.

1. Are you Male [ ]
   Female [ ]

2. What is your age? _____ years

3. How long ago did you have an amputation? _____ years

4. How long have you had your artificial limb? _____ years _____ months

5. What type of artificial limb do you have? *(please tick the appropriate box)*

   Below-knee [ ]
   Through-knee [ ]
   Above-knee [ ]
   Other *(please specify)* _____

6. What was your amputation a result of? *(please tick the appropriate box)*

   Peripheral Vascular Disorder [ ]
   Diabetes [ ]
   Cancer [ ]
   Accident [ ]
   Other *(please specify)* _____

Office Use Only Name of Clinic: _____ ***Date Completed*** _____

K Classification (circle) 0 1 2 3 4

Satisfaction with Prosthesis

For each question, please ***circle the number*** that best describes your satisfaction with your prosthesis.

Satisfaction With Prosthesis (SATPRO)

1. My prosthesis is comfortable.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

2. When I am in the presence of people other than my family, I am at ease wearing my prosthesis.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

3. My prosthesis is easy to clean.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

4. My prosthesis works well regardless of the weather.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

5. My prosthesis is easy to put on.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

6. There are chances that I will hurt myself with my prosthesis.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

7. I find it easy to move with my prosthesis.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

8. The repairs/adjustments to my prosthesis are done in reasonable time.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

9. My prosthesis will last me a long time.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

10. When I wear my prosthesis, I can accomplish more things than without it.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

11. I am satisfied with the look of my prosthesis.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

12. I find it easy to use my prosthesis with or without a walker/cane.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

13. It was easy to understand how to use my prosthesis.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

14. My prosthesis causes me physical pain or discomfort.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

15. In general, I am satisfied with my prosthesis.

1) Totally agree
2) Rather agree
3) Rather disagree
4) Totally disagree

Whether or not you wear your prosthesis, at the present time, would you say that you are "able" to do the following activities WITH YOUR PROSTHESIS ON?

ITEM	No	Yes, if someone helps me	Yes, if someone is near me	Yes, alone, with ambulation aids	Yes, alone, without ambulation aids
1. Get up from a chair	0	1	2	3	4
2. Walk in the house	0	1	2	3	4
3. Walk outside on even ground	0	1	2	3	4
4. Go up the stairs with a handrail	0	1	2	3	4
5. Go down the stairs with a handrail	0	1	2	3	4
6. Step up a sidewalk curb	0	1	2	3	4
7. Step down a sidewalk curb	0	1	2	3	4
Basic Activities Score					
1. Pick up an object form the floor (when you are standing up with your prosthesis)	0	1	2	3	4
2. Get up from the floor (e.g. if you fall)	0	1	2	3	4
3. Walk outside on uneven ground (e.g. grass, gravel slope)	0	1	2	3	4
4. Walk outside in inclement weather (e.g. snow, rain, ice)	0	1	2	3	4
5. Go up a few steps (stairs) without a handrail	0	1	2	3	4
6. Go down a few steps (stairs) without a handrail	0	1	2	3	4
7. Walk while carrying an object	0	1	2	3	4
Advanced activities score					
Total score					