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Governmental Perspective on Fair and Equitable Provision of Bone-anchored Prostheses: Barriers and Facilitators

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Speaker's information



Dr [Laurent Frossard](#) is currently an Adjunct Professor at the Queensland University of Technology (QUT) and University of Sunshine Coast (USC) as well as the Director/Chief

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He is a Biomechanist focusing on the locomotion and rehabilitation of individuals with lower limb loss. He is one of the very few independent experts in the clinical benefits of bone-anchored prostheses.

His academic track record includes over 140 publications, several grants, supervisions of students and international collaborations.

Background

Individuals with lower limb amputation fitted with conventional artificial limbs often experience continuous socket-related discomfort leading to a dramatic decrease in quality of life. Most of these functional issues can be overcome by replacing the socket with a surgically implanted bone-anchored prosthesis attached directly to the residual

bone using an osseointegrated fixation.^[1-31] Government organizations are facing challenges in adjusting procedures to accommodate the emergence of bone-anchored prostheses.^[32-35] This study shares the knowledge gained by the Queensland Artificial Limb Service (QALS) an Australian State government organization, while implementing a procedure for fair and equitable provision of bone-anchored prostheses care.

Aim

The aim of this study was to share some insights drawn from QALS' experience with strong emphasis on barriers and facilitators encountered when implementing procedure for provision of bone-anchored prostheses care in Queensland, Australia.

Method

Barriers and facilitators were identified over nearly 3 years following typical phases of action research led by QALS' management team and researchers who consulted key stakeholders (e.g., 18 Queensland-based consumers, 3 prosthetists, 2 multidisciplinary clinical teams).

Results

One outcome of this study was the identification of barriers to overcome during the implementation of such a procedure including, but not limited to:

- Initial lack of a definitive rehabilitation program, particularly for the treatment with press-fit fixation. This issue is resolving as rehabilitation programs are becoming more established nationally and worldwide.^[1, 2, 4, 16-18, 36-39]
- Initial uncertainty in the relevance and timing of prosthetist involvement for pre- and post-operative prosthetic care.
- Need to fit bone-anchored prostheses' consumers with advanced micro-processing knees, providing critical biomechanical advantages but expensive.^[17-21, 25-30]
- Consistent updating of complex procedure to accommodate bone-anchored prostheses clinical improvements (e.g., surgical procedures, long terms outcomes) and development of prosthetic components (e.g., biomechanical performance, cost).^[10, 37, 40-54]

Equally important were the facilitators to implementation also identified during the development of the procedure including, but not limited to:

- Early and consistent consultations of stakeholders to warrant relevance and adhesion,
- Adapting existing processes rather than creating new ones,
- Use a passport of service to facilitate continuum of care particularly for multidisciplinary services performed interstate.

Discussion and Conclusion

To date, the proposed QALS' procedure has only been implemented over one year for 18

consumers. All consumers had unilateral transfemoral amputation. They were mainly located in metropolitan areas in reasonable proximity of prosthetists. Only a small number of dedicated prosthetists and clinicians were involved. Consequently, revisiting regularly the presented barriers and facilitators will be required following consideration for more complex case mixes (e.g., transtibial, multi-level amputations), the geographical spread of consumers extending to rural areas with limited access to a prosthetists, the increasing number of treatment sites in Australia and abroad as the surgery becomes more routinely performed.

For the first time, an overview of barriers and facilitators for implementation of procedure from one government organization for fair and equitable bone-anchored prostheses are presented. The QALS' experience reported here is a stepping-stone providing a working template for both development and implementation of procedure to stakeholders responsible for policies around prosthetic care.

To know more



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Governmental Perspective on Fair and Equitable Provision of Bone-anchored Prostheses: Barriers and Facilitators?

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INTRODUCTION

- **Background.** Individuals with lower limb amputation fitted with conventional artificial limbs often experience continuous socket-related discomfort leading to a dramatic decrease in quality of life. Most of these functional issues can be overcome by replacing the socket with a surgically implanted bone-anchored prosthesis (BAP) attached directly to the residual bone using an osseointegrated fixation.
- **Issues.** Government organizations are facing challenges in adjusting procedures to accommodate the emergence of bone-anchored prostheses. This study shares the knowledge gained by the Queensland Artificial Limb Service (QALS) an Australian State government organization, while implementing a procedure for fair and equitable provision of bone-anchored prostheses care.
- **Aim.** The aim of this study was to share some insights drawn from QALS' experience with strong emphasis on barriers and facilitators encountered when implementing procedure for provision of bone-anchored prostheses care in Queensland, Australia.

METHODS

Barriers and facilitators were identified over nearly 3 years following typical phases of action research led by QALS' management team and researchers who consulted key stakeholders:

- 18 Queensland-based consumers,
- 3 prosthetists,
- 2 multidisciplinary clinical teams.

RESULTS

Key barriers including, but not limited to:

- **Initial lack of a definitive rehabilitation program**, particularly for the treatment with press-fit fixation. This issue is resolving as rehabilitation programs are becoming more established nationally and worldwide,
- **Initial uncertainty in the relevance and timing of prosthetist involvement** for pre- and post-operative prosthetic care,
- **Need to fit BAP consumers with advanced microprocessor-control knees**, providing critical biomechanical advantages but expensive,
- **Consistent updating of complex procedure** to accommodate BAP clinical 18 Queensland-based consumers.

RESULTS...

Table 1: Overview initial and ongoing barriers within the governmental control identified after implementation of formal procedure for provision of bone-anchored prostheses (PSP: Prosthetic Service Provider).

Initial Barriers

- Estimation of PSPs hours for pre-op, surgery and post-op prosthetic care
- Review of QALS paradigm for allocation of advanced knee unit
- Absence of procedures for pre-op, surgery and post-op care
- Difficulties to extract easily individuals and overall costs for BAP consumers
- Dealing with treatment occurring interstate and possibly overseas

Ongoing Barriers

- Reduction of the number of processes before Phase 5 of the procedure
- Funding for ongoing monitoring of procedure (e.g., cost, satisfaction)

Table 2: Overview of known and suggested facilitators to implementation within the governmental control identified after implementation of formal procedure for provision of bone-anchored prostheses (PSP: Prosthetic Service Provider, AMPAT: Amputee Mobility Predictor Assessment Tool; FDA: Food and Drug Administration, SF36: Short Form 36, Q-TFA: Questionnaire for Transfemoral amputees).

Known Facilitators

- Engage early with stakeholders, particularly PSPs
- Adapt existing processes rather than creating ones
- Create of passport of service (e.g., interstate care)
- Assess actual prosthetic needs from PSPs and consumer's perspectives
- Clarify PSPs role and responsibilities (e.g., case manager)
- Use of standard instruments to assess needs and outcomes (e.g., AMPAT)
- Create database to monitor individual and overall costs
- Negotiate regularly with suppliers of components
- Will from QALS' management team to facilitate changes

Suggested Facilitators

- Approve reimbursement before most expensive items
- Analysis of quarterly reports for progress, compliance, cost and satisfaction
- Use of standard instruments to assess outcomes (e.g., SF36, Q-TFA)
- Educate PSPs about ways to limit cost (e.g., re-use of components)
- Monitor national and international developments (e.g., FDA approval)
- Set processes to assess benefits of treatment (e.g., daily steps count)
- Engage continuously with local clinical teams (e.g., Rehabilitation)
- Engage continuously with suppliers and manufacturers of components

CONCLUSIONS

- Revisiting regularly the barriers and facilitators will be required following consideration for more complex case mixes, the geographical spread of consumers extending to rural areas with limited access to a prosthetists, the increasing number of treatment sites in Australia and abroad
- The QALS' experience reported here is a stepping-stone providing a working template for both development and implementation of procedure to stakeholders responsible for policies around prosthetic care!

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