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14. ABSTRACT The objective of this research is to develop and evaluate the efficacy of a computer-based self management program (heretofore referred to as NextSteps Program) for reducing secondary conditions and improving function following major lower limb trauma. The intervention will build on widely accepted self-management programs developed for persons with arthritis as well as components of a face-to-face self-management program for civilians with long-standing limb loss. It will be necessary, however, to tailor the content and delivery of these programs to better accommodate the needs of a young, acutely injured population. Specific needs not typically addressed in the existing programs include the management of acute anxiety and post-traumatic stress disorder (PTSD), and the maintenance or acquisition of employment or return to active duty. If shown to be efficacious, computer based self management programs for the acutely injured will provide a much-needed adjunct to the orthopedic care now available and contribute to a comprehensive trauma management program to improve long-term outcomes and quality of life. The military version of SM program will provide injured soldiers with an ongoing mechanism of support as they transition from inpatient rehabilitation to the community - whether that be in the military or civilian sectors.					
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Self-Managing the Consequences of Major Limb Trauma Annual Report – 2010

INTRODUCTION. The objective of this research is to develop and pilot of a computer-based self management program (heretofore referred to as NextSteps Program) for reducing secondary conditions and improving function following major lower limb trauma. The intervention will build on widely accepted self-management programs developed for persons with arthritis as well as components of a face-to-face self-management program for civilians with long-standing limb loss. It will be necessary, however, to tailor the content and delivery of these programs to better accommodate the needs of a young, acutely injured population. Specific needs not typically addressed in the existing programs include the management of acute anxiety and post-traumatic stress disorder (PTSD), and the maintenance or acquisition of employment or return to active duty. Specific aims (revised in April 2009) of the project are: (1) to pilot the face-to-face self-management program for persons sustaining major limb trauma and refine the intervention based on feedback; (2) to develop an online version of the self-management program for persons sustaining major limb trauma (heretofore referred to as Next Steps); (3) to evaluate the feasibility and acceptability of the Next Steps program in 12-15 civilians treated at a large, Level I trauma center; and (4) to engage our military colleagues and service members as advisors to assist us in modifying the content of the Next Steps Program for service members and veterans. We will not have sufficient funds remaining at the end of the project period to fully develop and test the military version of NextSteps at Walter Reed as originally planned. However, we will produce a detailed plan for modifying the program in the future.

If shown to be efficacious, computer-based self-management programs for the acutely injured will provide a much-needed adjunct to the orthopedic care now available and contribute to a comprehensive trauma management program to improve long-term outcomes and quality of life. The military version of the SM program will provide injured soldiers with an ongoing mechanism of support as they transition from inpatient rehabilitation to the community – whether that be in the military or civilian sectors.

PROGRESS IN YEAR FOUR:

In Year 4 we completed development of (1) an accessible website that will serve as the foundation for managing participants in the NextSteps program; and (2) 12 fully developed Next Steps lessons programmed in flash. We also beta tested the website and the lessons with 6 individuals. Based on their feedback we made revisions to both the website and the 12 lessons. The website can be accessed at www.nextstepsonline.org. To access the lessons, please follow the steps below. The lessons are not yet open to the public and we are limiting access until our pilot is completed.

1. Go to: www.nextstepsonline.org
2. Click on 'Register for NextSteps' at the top of the screen
3. The pre-registration password is: t3sts3cr3t
4. Then you can register and create a class member profile.
5. Once you've registered, you will be asked to go to your personal email account to confirm your registration
6. Once you've confirmed, an account will be created within NextSteps and you will get an email to let you know you can login. (NOTE__ YOU MAY WANT TO CHCEK YOUR JUNK EMIAL FOR THIS MESSAGE).

After completing the development of the NextSteps Website and lessons we proceeded to start piloting the full 6-week program. We are conducting the pilot with trauma survivors identified from two sources. First, as part of a separate study funded by the Centers for Disease Control, we have access to trauma survivors at University of Maryland Shock Trauma Center who are interested in participating in self management classes. We have enrolled 8 of these patients into a pilot NextSteps cohort, which is scheduled to be completed in the beginning of August of 2007. Our plan is to enroll a second cohort of University of Maryland Patients in late August.

We also received final approval to begin enrollment of patients from the Carolinas Medical Center into the Pilot study on 27 January 2010, with a minimal risk amendment approved on July 7, 2010. We anticipate enrolling two cohorts of CMC patients into two additional NextSteps classes, beginning in August and September, respectively.

In the final project report, we will present the results based on CMC and University of Maryland patients separately as well as in combination.

Finally, we have initiated contact with colleagues at Walter Reed (Col. Jeff Gambel in Physical Medicine and Rehabilitation and MAJ Sarah Mitsch in Occupational Therapy), to assist us in identifying a group of advisors who can provide us feedback on modifications needed for service members and veterans who are recovering from an injury.

PLANS FOR YEAR FIVE:

In Year 5, we will: (1) complete the pilot studies with civilian trauma survivors; (2) make revisions to the website and lessons as appropriate; (3) prepare a report with detailed recommendations for revisions to make it most relevant to service members and veterans and (4) write a final report for the sponsor and a publication for the peer reviewed literature.

A revised timeline for the period March 1 – December 31, 2010 is provided as Attachment 1.

KEY RESEARCH ACCOMPLISHMENTS:

We have developed a professional, accessible website that will serve as the foundation for managing participants in the NextSteps program and streamlined the process for translating content to an online format. The format and content of the flash lessons was fully developed and beta-tested. We have begun piloting the 6-week program with civilians.

The investigators made two formal presentations about NextSteps: an oral presentation at the Annual Meetings of the American Telemedicine Association (April, 2009); and both an oral and a poster presentation at the Third Military Health Research Forum (September 2009). A copy of the poster is attached in Appendix 2.

REPORTABLE OUTCOMES:

None at this point.

Appendix 1: Revised Timeline for Year 5

Critical Event	Projected Completion
<ul style="list-style-type: none"> Development and Beat Testing 	
<ul style="list-style-type: none"> Beta Test Program with Consumer Advisors & Revise 	Completed
<ul style="list-style-type: none"> Obtain Final Approval from Carolinas IRB And Johns Hopkins BSPH 	Completed
<ul style="list-style-type: none"> Obtain Final Approval from DOD OHRP 	Completed
<ul style="list-style-type: none"> Pilot Next Steps Cohort - University of Maryland 	
<ul style="list-style-type: none"> Enroll and Baseline Evaluation 	Completed
<ul style="list-style-type: none"> Lessons 	Ongoing
<ul style="list-style-type: none"> Follow-up Evaluation 	November 15
<ul style="list-style-type: none"> Pilot Next Steps Cohort #2 	
<ul style="list-style-type: none"> Enroll and Baseline Evaluation 	August 2 – August 10
<ul style="list-style-type: none"> Lessons 	August 15 – September 30
<ul style="list-style-type: none"> Follow-up Evaluation 	December 15
<ul style="list-style-type: none"> Make Revisions Suitable to a Military Population 	
Identify Advisors	August 5
Meet with Advisors - 1	September 15
Meet with Advisors - 2	October 15
Develop Detailed Plan for Modification to Program	December 1, 2010
<ul style="list-style-type: none"> Development of Final Report and Recommendations 	December 31, 2010

Appendix 2: Poster Presentation



Self Managing the Consequences of Major Limb Trauma

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BACKGROUND: Despite substantial improvements made in orthopedic trauma care, severe leg injuries often result in poor functional outcome for otherwise young healthy individuals. Research has shown that poor outcomes are associated with baseline measures of pain, anxiety, depression as well as low self efficacy and inadequate social support.

Self Management programs target these modifiable characteristics using cognitive behavioral techniques (CBT). They have shown to be efficacious and general widespread application in the treatment of chronic conditions where pain and disability are common. They have not been customized for the specific needs of trauma patients.



The NextSteps Self Management Program was developed for trauma survivors. It consists of 8 face to face group sessions that are focused on the self management principles of:

- Knowledge Acquisition
- Problem Solving
- Skill Acquisition
- Self Monitoring
- Identifying and Building on Strengths

To broaden the reach of NextSteps (and lower the cost of implementation) we are developing an on-line version of the program. In creating both the face to face and on-line versions of NextSteps we were guided by the fundamentals of participatory action research, involving trauma survivors and their families at several key steps along the way.

NextSteps on line will be accessed through the Trauma Survivors Network: www.traumasurvivorsnetwork.org. The TSN provides a place for trauma patients and their families to connect with others and get the information and help they need to rebuild their lives after injury.



Trauma survivors participate in the on-line version of NextSteps as part of a virtual group who track through a 6-week program together and are given the opportunity to interact with each other on a regular basis. Each group is facilitated by 2 coaches including a trauma survivor and a psychologist.

NextSteps is based on the belief that patients play a central role in their recovery and teaches them skills to become effective self managers. It helps them appreciate the relationship between their thoughts, feelings and behaviors. They learn how to replace negative, maladaptive thoughts with more positive ones to achieve better outcomes. Online learning techniques include: interactive didactics, self monitoring with feedback, videos and exercises to put what they learn into practice.



The core of the program consists of 12, 70-minute, interactive lessons delivered on-line at the pace of 2 per week. Each session focuses on a specific set of topics and skills:

- WEEK 1: Introduction to Self-Management**
- Learn about the importance of being a self manager and the art of good communication
- WEEK 2: Moving Forward**
- Identify problems and turn them into goals you can achieve
- WEEK 3: Managing Your Emotions - 1**
- Build on your strengths and learn how to promote a positive mood
- WEEK 4: Managing Your Emotions - 2**
- Discover how you can change your thinking to improve your health, learn some relaxation techniques.
- WEEK 5: Family and Friends**
- Identify helpful and unhelpful help and bolster your support network
- WEEK 6: Looking Ahead**
- Discover how to manage setbacks and reiterate successes

To supplement these sessions, participants have access to ongoing support services, to consist of:

- An initial one-on-one telephone orientation to the Program and learning methods.
- Weekly on-line chats among class participants.
- An electronic, bulletin board moderated by group coaches.
- Computer and telephone based "help" desks.
- On-line resources to include: a toolbox, workbook, private journal.

NextSteps will be piloted with 2 groups of 12 survivors each.

Conclusion: Advances in computer technology present the opportunity to develop multimedia, interactive self-management interventions that have the potential to reach large numbers of individuals at a cost-effective manner.

Relative Advantages of Interventions Designed to Modify Behavior



If shown to be efficacious, self management programs for the acutely injured will provide a much-needed adjunct to the orthopedic care now available and contribute to a comprehensive management program to improve long term outcomes and quality of life. A military version of NextSteps will provide injured soldiers with ongoing support as they transition back to the community.

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