Research Focus Area I: Barriers to Social Reintegration

• **Background:** For CRSR I This research area is a snapshot of life after limb-loss for current and former Military Advanced Training Center (MATC) patients.

• **Goal:** The broader goal is to investigate the process and experience of social reintegration after the wounded warrior leaves the rehabilitation program.

• **Importance:** The approach offers one of the only holistic attempts to understand and interpret the contours of post injury life for wounded warriors with extremity trauma.

• **Team:** Seth Messinger, PhD – Director of Qualitative Research
  Sayeh Bozorghadad, BS – Research Assistant
Profile of US OIF / OND / OEF Casualties

- Nearly 70% have had orthopedic or extremity injuries.

- As of August 2015 nearly 1700 have had major limb amputations.

- There is specificity of Limb-Loss casualties by limb(s) and by joint(s).

- This level of granularity is being developed for other categories of extremity trauma including “limb-salvage.”
Research Focus Area I: Research Approach

- Our Approach is to focus on the social and cultural factors that contribute to these experiences and barriers.

- Increasing attention among health services researchers to questions of the social – psychological – cultural worlds.
  - Gallagher, P. 2004: The psychosocial world of the person with limb-loss is a strong predictor of prosthetic utilization or abandonment
  - Napier, D. 2014: Culture is one of the single most important variables in a good clinical outcome.
Research Focus Area I: Methods

- Anthropological Approaches and Methods

- Developing a “Natural History”
  - Periods of observations during clinic routines;
  - Periods of observation outside of the clinic, off base, in the community (when possible);
  - Develop a catalog of key concepts, terms, values, ideals generated from observations and conversations;
  - One hour interviews around key themes, etc., to expand, revise, and develop key concepts.
Conceptual Question

• What Does it Mean to be Human in the aftermath of these injuries

• Quotes from our Interviews

  • "Will someone love me looking like this?"
    (Female NCO 2014)

  • "What kind of work will I be able to do?"
    (Male Officer 2013)

  • "I didn’t want to do anything but this, what am I going to do in school?"
    (Male NCO 2013)

  • “Where will I live, do I have to go to [home town] or can I live where I want? Who will help me?”
    (Male NCO 2014)
Clearing the Ground

- Among veterans life after injury remains largely uncharted.
  - Studies about social reintegration of Vietnam veterans are only being launched in part to address concerns about OIF / OEF veterans.
- Anthropology is useful for mapping out under-explored social terrain.
  - Especially areas that are not yet amenable to quantitative social research.
  - Significant attention to the meaning, ideals and experiences of study participants.
  - Initially definitions of key terms should be those of the participants. Surveys cannot capture this.
Supporting Quantitative Colleagues

- **Case Studies**
  
  Published accounts of the experiences of individual or small numbers of wounded warriors illuminate trends that are being seen in quantitative work;

  Significant attention to the meaning, ideals and experiences of study participants.

- **Establish new Survey Variables**
  
  Initially definitions of key terms should be those of the participants. Surveys can appropriate these variables for studies of greater scale.

- **Develop mixed methods approaches**
  
  Useful in capturing broad trends without losing important details.
Research Focus Area I: Projects

Three Concluded CRSR Projects

1. Interpreting and Promoting Adherence among Outpatients in the MATC
   This study investigates the role that resilience and autonomy have in shaping “good” outcomes in the rehabilitation program context.

2. Social Reintegration of Service-Members with Orthopedic Injuries
   This study investigates the social reintegration experience of wounded warriors who have had extremity amputations and have been treated in the Armed Forces Amputee Patient Care Program (APCP).

3. Neuropsychiatric Co-morbidities and Reintegration
   This study investigates the role that mild traumatic brain (mTBI) injury plays in social reintegration of wounded warriors who have had extremity amputations and have been treated in the APCP.
Research Focus Area I: Results to Date from CRSR Study 1 (Current Outpatients)

Current Research Results:

Clinical Results

- Unanimous support of the APCP / MATC model of care.
- Early introduction of prosthetics is a strong motivator for success;
- Good rapport between patient and treatment team is critical;
- Communication between clinical services is a continuing problem;
- Social reintegration efforts should begin early in treatment and be targeted as widely as possible (work, school, family, community);
Research Focus Area I: Results to Date from CRSR Studies 2 & 3 (Former Patients)

Overview of Positive Outcomes:

- In the former patients studies (positive and negative for mTBI).
  - We find no distinction between patients groups.
- PTSD and mTBI do not have a marked impact on lives of participants;
- All patients have taken or acknowledge opportunities for higher ed;
- 32 of 35 are employed or left for higher ed;
- Unanimous support of the APCP / MATC model of care.
Community Participation

Sport: (Messinger 2012a, Messinger 2012b)

- While sports participation has tailed off for at least 30 of 35 patients – participation in sports during rehab is credited with contributing to a sense of success.
  - Succeeding at physical challenges provides a stock of resiliency to draw upon when faced with new challenges – from community ambulation to dating to raising children.

Education Opportunities (Messinger et al 2013)

- All former patients have acknowledged higher-ed opportunities. Those who have not opted to go back to school are a) college graduates; b) returned to duty; c) still searching.
Community Participation

Higher Ed (cont’d):

• Most have taken advantage of exploring bachelor degree programs

• Retired officers (and other grads) have gone on to graduate work in business and engineering

• “Searchers” investigating fit between M.O.S and potential career.

Work: (Messinger et al 2013)

32 of 35 are or have been fully employed (of those not working all but 3 are in school).

• Four remain in military service
Community Participation

Work cont’d:

• Six work as GS or as contractors for a range of government departments

• Several others work in admin, or are entrepreneurs in a variety of enterprises.

Family: (Messinger et al 2013)

• Just under 30 are married or in long-term relationships.

• Many are parents

• Relationships are a mix of pre and post injury
Community Participation

Values: (Messinger 2013b)

- Former patients bring their military experience to bear on challenges of community life
- Symptoms that are associated with PTSD become sources of resiliency
  - Hypervigilance is associated with protecting family and community
  - Guardedness is associated with situational awareness in warding off crime and other safety issues.
Research Focus Area I: Results to Date from CRSR Studies 2 & 3 (Former Patients)

Overview of Causes for Concern:

- Among the former patients there was one suicide attempt
  - This attempt was treated as a substance abuse disorder / patient was encouraged to retire from the military
  - The former patient feels that the underlying grief and loss of his amputation was not addressed.
  - There was a completed suicide by a former patient (not enrolled in the study in 2012)
  - This is important in the context of the high rate of active duty and veteran suicide.
Research Focus Area I: Results to Date from CRSR Studies 2 & 3 (Former Patients)

Causes for Concern:

- Two cases of long-term substance abuse unrelated to pain management.
  - In both cases drugs were cocaine and heroin
  - In one case drug use was attributed as suicide gesture
- Heavy (> 5 drinks per day) drinking reported by 25% of participants.
Research Focus Area I: Results to Date from CRSR Studies 2 & 3 (Former Patients)

Causes for Concern:

- 25% divorced or divorcing (or relationship instability) – Causes
  - Pre-existing marital problems
    - Married too young
    - Married without a lot of experience as couple;
  - New problems generated by the injury and its aftermath.
    - Caregiver burnout
    - Conflicts over jobs, parenting, household chores
Research Focus Area I: Results to Date from CRSR Studies 2 & 3 (Former Patients)

Causes for Concern: (Messinger et al 2013)

- Social Isolation
  - Social networks limited to service period friends and veterans;
  - Disinterest in forging relationships with ‘new people.’
- Negative power of identity has potential consequences on longer-term outcomes.
Relationship of Current CRSR 1 Results and the upcoming CRSR 2 Studies with Trends in Research

1) Process of Care
2) Guidelines for Care
3) Quality of Life Issues
4) Gender
5) Community Involvement
Process of Care at Walter Reed (Regarding Limb Loss)

- Continued emphasis on integrative approach to care: orthopedic surgeons are involved in treatment immediately upon injured servicemember’s arrival, comprehensive rehabilitation plan is created through evaluation of comorbidities, pain management, and cooperation with PTs/OTs, PMR specialists, etc. (Doukas 2006)

- Combat casualties are also seen by Preventative Psychiatric Consultative Liaison Service upon arrival (Harvey 2012)
  - Demonstrating importance of immediate mental/psychiatric evaluation upon arrival, as well as physical evaluation

- Additional research supporting rehabilitation-based integrative care approach to treatment, according to satisfaction surveys from injured servicemembers (Pasquina 2008).
  - Supports need for cooperative, comprehensive approach to care among multiple disciplines
Process of Care at WRAMC – Adaptive Sports Model

- Adapted Sports Program: variety of modified sports activities made available to injured servicemembers; facilitates rehabilitation process (Daugherty 2007)
  - Program includes: CAREN, FATS, virtual reality, treadwall, driving simulators, 3-D Gait and Motion Analysis lab, etc. (Pavlou 2008)

- Adaptive Sports Model was developed to meet the rehabilitation goals of a young, mostly male, otherwise healthy population: program facilitates intrinsic motivation of military patient population (Yancosek 2008)

- Research supporting psychological, physiological, and emotional benefits of sports model for amputee rehabilitation (Webster 2001)
  - Resiliency associated with military culture, clinic organization and success in physical functioning can be translated into resiliency when facing challenges with community reintegration
Guidelines for Limb Loss Rehabilitation/Treatment Programs

- Additional support for use of multidisciplinary team, pain assessments, multimodal treatment approach, and ongoing education and research regarding treatment throughout entire rehabilitation process (Pasquina 2004)

- Emphasize treatment of underlying disease or trauma necessitating amputation, optimize residual limb function, utilize multidisciplinary approach in treatment (Pasquina 2014)

- Importance of social support throughout recovery, including virtual support system: “Second Life” virtual world developed for amputees to connect with and support each other, learn about new rehabilitation techniques and prostheses, etc. (Thompson 2010)
Quality of Life (QOL) Results Post-Amputation

- Major determinants of QOL in male patients after lower limb amputation included: depression, anxiety, and body image disturbances (Akyol 2013)
  - Negative power of identity: restricted social network and anxiety of not being able to “measure up” can negatively impact QOL
- Social support and social functioning are associated with better QOL, while lower QOL is associated with combat-related head injury, needing assistance with activities of daily life, etc. (Epstein 2010)
  - Social support and networking is integral to improving QOL: i.e. forming new relationships, expanding social networks, avoiding social isolation, etc.
Quality of Life (QOL) Results Post-Amputation

- Positive adjustment to limb loss associated with greater time post-amputation, more social support, lower level of amputation, less phantom limb/stump pain (Horgan 2004)

  - Implicates need for more longitudinal and qualitative research regarding immediate reaction to amputation, adjustment during/shortly after rehabilitation period, and development of changed sense of self/identity.

  - In line with this we have found that the ability to set rehabilitation goals and treatment plan could assist in improving overall QOL

- Research supports use of problem-focused coping strategies as predictors of post traumatic growth (i.e. positive life changes) compared to emotion-focused coping (Tuncay 2015)

  - Future studies should assess roles of more social environmental factors influencing QOL i.e. community reintegration
Quality of Life (QOL) Results Post-Amputation: Groups to Consider

Gender differences

- Study assessing psychosocial adjustment of 6 women suffering limb loss, after spending 1 year at WRAMC (Cater 2012)

- Determined 3 major themes from research: women faced physical disability adjustment issues, psychosocial adjustment and coping skills issues, and dealt with psychological resiliency associated with military structure

  Physical Disability Adjustment Issues
  Pain and physical function were highlighted as impairing

  Psychosocial adjustment / coping skills
  Heavy emphasis on others’ attitudes towards visible impairment

  Military structure provided social support, but the first two themes indicate problems when patients left MHS
Quality of Life (QOL) Results Post-Amputation: Groups to Consider

Gender differences

- An older study demonstrated what issues males vs. females deemed most important post-amputation (Legro 1999)
  - Males ranked fit of prosthesis, ability to walk, and avoidance of blisters/sores on residual limb as most important aspects of prosthesis
  - Females regarded appearance-related items with more importance
- The small number of women in the CRSR 1 studies coupled with an earlier round of research disrupted the “appearance issue,” but not conclusively. We found a mixed picture.
Social Reintegration Post-Amputation

• General factors influencing successful reintegration that require more attention during rehabilitation: community, mobility, work, and recreation (Nissen 1992)

Vocational Reintegration

• Determined to be integral to recovery: provides meaningful way to spend time and opportunity to expand social connections

• Study in Netherlands (civilian population): amputees cited issues with delay between amputation and return to work, problems finding suitable job, fewer opportunities for promotion, and problems getting workplace adjustments (Bruins 2003)

• Provides various methods for improvement and more successful reintegration i.e. beginning community rehabilitation efforts early in recovery process
Limb Loss and / or Limb Salvage

• Regardless of whether decision was made to amputate or reconstruct limb, patients reported overall satisfaction with their course of treatment (Aravind 2010)

• Limb salvage determined to be longer, more complex procedure with increased incidence of post-operative complications (Weddington 1985)
  • But, study also found no differences in psychological adjustment between patients who had undergone amputation vs. limb salvage

• Both limb loss and limb salvage patients report moderate-to-high levels of disability, especially with regards to emotional status and mobility. Nonetheless the conclusions of the METALS study was that on-balance those with limb amputations did better than those with limb-salvage (Doukas 2013)
Limb Loss and / or Limb Salvage

Procedure Comparisons

• Comparison of QOL demonstrated that reoperation rates, QOL, and pain scores were better in amputee patients vs. patients who underwent limb salvage (Tekin 2009)
  • Amputation still considered last-resort option to both physicians and patients, despite better scores overall

• Research has found benefits to both types of procedures (Akula 2011):
  • Psychological benefits of limb reconstruction compared to amputation – could positively impact QOL
  • Technical and economic benefits of amputation over limb reconstruction

• Difficulty in determining which course of treatment facilitates community reintegration after injury. But organization of care is a key factor in success.
Limb Loss and / or Limb Salvage

Barriers to Recovery

- Major factors contributing to perception of recovery: pain, mobility, fear (Trickett 2012)
  - Changes in pain description (from “explosions” to “mild aches”) correlated with a return to work or increase in general activity levels
  - Determined that a shift in description of mobility (from non-weight bearing to full weight bearing) was a key factor in patient’s perception of recovery
  - Fear persisted throughout entire recovery process, cited as potential barrier to mobility and recovery in general

- Must address injured servicemembers’ anxiety regarding return to work, school, or other social settings early in rehabilitation process
Limb Loss and / or Limb Salvage

Military Accommodations

• Military resources for limb loss are much more extensive and accessible than those for limb salvage – including peer/external support (Doukas 2013)

  • A high level of resources available to injured servicemembers has been shown to be instrumental in physical, psychological, and emotional recovery

• New orthotic and rehabilitation initiative program established to provide care to servicemembers undergoing limb salvage (Patzkowski 2012)

  • Includes intrepid dynamic exoskeletal orthosis (IDEO) and high-intensity sports medicine-based rehabilitation program early in rehabilitation

  • Resulted in significant improvements in functional performance for patients undergoing limb salvage, and decreased requests for delayed amputation

• Early rehabilitation and use of adaptive sports model has been shown to be integral in recovery
SUMMARY OF NEWLY FUNDED STUDIES

Life After Limb-Loss
This study offers the opportunity for continued monitoring of patients with traumatic limb loss as they begin to live their lives in the community. Interviews will be conducted at one year intervals to investigate and interpret changes in work, family, social and other aspects of life in communities.

Life After Limb-Salvage
This will be one of the first attempts to study this category of combat injured veterans. Key question is the role that physical functioning may play in social reintegration into community life. Another key question is the role clinic organization may play in future social reintegration. Limb-loss patients have received outpatient care in highly structured clinical environments among patients with similar injuries. For limb-salvage patients this has not always been the case. This may also influence social reintegration into community life.

Continual Monitoring of Study Populations I
These projects will be a continuation of Life after Limb-Loss and Life After Limb-Salvage. The goal is to transform this project into a long-term longitudinal observation of OIF / OEF veterans with extremity injuries.