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TITLE: Evaluating Service Delivery and Support Mechanisms to Improve the Quality of Life for Service Members and Veterans with Spinal Cord Injuries

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CONTRACTING ORGANIZATION: University of Washington

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14. ABSTRACT

Research suggests that to support outcomes of consequence, health service providers, regardless of setting, must deliver whole person care that addresses the biopsychosocial model of health. The fragmentation of health care and social services in the U.S., even among federal health systems, makes this task challenging at best, particularly for disadvantaged groups for whom multi-morbidity and limited access to care contributes significantly to health disparities. To support the best possible outcomes among the federal health systems' SCI/D populations, this study seeks to examine the following question: *Which health system services and supports contribute to or detract from improved quality of life for SCI/D Service members and Veterans from the point of injury through reintegration within the community?* To address the study question, our team pursued a multi-staged qualitative inquiry to elicit inputs to: (1) map the military health system (MHS) and VHA SCI/D services delivery and supports continuum; (2) assess stakeholder perspectives of strengths and weaknesses in care delivery and supports from point of injury through reintegration within the local community; and (3) develop system recommendations that are actionable and sustainable.

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TABLE OF CONTENTS

	Page
1. Introduction	4
2. Keywords	4
3. Accomplishments	4
4. Impact	13
5. Changes/Problems	15
6. Products	18
7. Participants & Other Collaborating Organizations	20
8. Special Reporting Requirements	23
9. Appendices	23

INTRODUCTION: *Narrative that briefly (one paragraph) describes the subject, purpose and scope of the research.*

According to the Office of Research, the Veterans Health Administration (VHA) delivers care to more than 27,000 of an estimated 42,000 Veterans with spinal cord injuries and related disorders (SCI/D) eligible for VHA care through its hub-and-spoke care delivery mechanism each year. Previous studies reveal that key barriers to care for Service Members and Veterans derive from a spectrum of delivery system weaknesses: lack of trust in the system, stigma and safety concerns, wariness of care efficacy, etc. Research suggests that to support outcomes of consequence, health service providers, regardless of setting, must deliver whole person care that addresses the biopsychosocial model of health. The fragmentation of health care and social services in the U.S., even among federal health systems, makes this task challenging at best, particularly for disadvantaged groups for whom multi-morbidity and limited access to care contributes significantly to health disparities. To support the best possible outcomes among the federal health systems' SCI/D populations, this study seeks to examine the following question: *Which health system services and supports contribute to or detract from improved quality of life for SCI/D Service members and Veterans from the point of injury through reintegration within the community?* To address the study question, our team will pursue a multi-staged qualitative inquiry to elicit inputs that will allow the research team to: (1) map the military health system (MHS) and VHA SCI/D services delivery and supports continuum; (2) assess stakeholder perspectives of strengths and weaknesses in care delivery and supports from point of injury through reintegration within the local community; and (3) develop system recommendations that are actionable and sustainable.

1. **KEYWORDS:** *Provide a brief list of keywords (limit to 20 words).*

   military health system, Veterans Health Administration, spinal cord injury and disability, qualitative research, health services research, organization theory

2. **ACCOMPLISHMENTS:** *The PI is reminded that the recipient organization is required to obtain prior written approval from the awarding agency grants official whenever there are significant changes in the project or its direction.*

   What were the major goals of the project?
   List the major goals of the project as stated in the approved SOW. If the application listed milestones/target dates for important activities or phases of the project, identify these dates and show actual completion dates or the percentage of completion.

   Response:

   Specific Aim 1: Assess the nature and range of environmental and health system characteristics (Military Health System {MHS} and Veterans Health Administration {VHA}) that support or impede biopsychosocial services delivery based on previous research of active duty personnel and Veterans eligible for care from the MHS and/or VHA
   - i. Major Task 1 – IRB Approvals (Y1Q1-2)
     - a. UW IRB Approval
       - i. Target: Y1Q1-2; goal met in Q2

b. HPRO Approval
    i. Target: Y1Q1-2: goal met in Q2

ii. Major Task 2 - Collect background information on administration of MHS – VHA SCI/D care continuum (Y1Q1-2)
    a. Subtask 1 – Leverage Advisory Board to identify clinical/administrative executive key informants (purposive sample) to outline SCI/D delivery system (intake, care delivery, hand-offs, and follow-ups)
        i. Target: Y1Q1-2; goal met in Q2; ongoing progress and revisions
    b. Subtask 2 – Interview MHS-VHA clinical/administrative executive informants (n=6-12)
        i. Target: Y1Q1-2; 100% response rate met in Q4 due to delays in connecting with one key informant, n=10
    c. Subtask 3 – Review published literature, policy documents regarding the SCI/D care continuum and beneficiary perceptions of the system
        i. Target: Y1Q1-2; goal met in Q3 with ongoing thematic analyses in progress Q4
    d. Subtask 4 – Validate delivery system components to develop additional mapping inputs in collaboration with Advisory Board
        i. Target: Y1Q2: goal met in Q2-3 with ongoing analyses of inputs in progress Q4
    b. Milestone(s) Achieved – Development of a generic SCI/D MHS-VHA care continuum mapping schema – inputs received in Q2-3 with ongoing analyses in Y1Q4 and Y2

Specific Aim 2: Evaluate a range of key stakeholders' perceptions regarding MHS-VHA services delivery components (intake, care delivery, hand-offs, and follow-ups) to understand how operational mechanisms promote or impede care with the potential to improve SCI/D patients' and caregivers' quality of life

i. Major Task 3 – Interview stakeholders (Y1Q2-Q3)
    a. Research Question 2a: Subtask 1 – Develop two interview questionnaires (health system staff and patient instruments) and validate with Advisory Board
        i. Target: Y1Q2-3; goal met in Q3; Interview instruments reviewed, approved, and used in ongoing interviews
        ii. Milestone achieved

ii. Major Task 4 – Conduct interviews
    a. Research Question 2b: Subtask 1 – Develop list of potential key informants that fit inclusion/exclusion criteria; align by stakeholder group; approve informant stratification plan (most relevant to SCI/D patient population)
        i. Target: Y1Q3; ongoing recruitment and interviews in progress through Y1Q4
    b. Subtask 2 – Contact and interview key informant stakeholders identified through purposeful sampling (including but not limited to providers, administrators, staff, community organizations, patients); develop coding plan (n=60)
        i. Target: Y1Q3-Y2Q2; 34 of 60 informants interviewed in Q3 and Q4 (31 interviews); 56% complete
    c. *Milestone Achieved:* Interviews completed—in process

iii. Major Task 5 – Analyze data

a. Subtask 3 – Transcribe audio recordings; code interviews to determine strengths and weaknesses
    i. Target: Y1Q4-Y2Q3; 40 interviews (n=44) were transcribed in Q3 and Q4; cleaning transcripts in progress, 40% completed; initial coding schema developed; coding to begin Y2Q1
b. Subtask 4 – Validate findings with Advisory Board, key informants, and further analyze data to answer additional questions;
    i. Target: Y2Q2-3, individual meetings and interviews with select Advisory Board members conducted – 100%; validation is ongoing through Y2Q3

What was accomplished under these goals?
For this reporting period describe: 1) major activities; 2) specific objectives; 3) significant results or key outcomes, including major findings, developments, or conclusions (both positive and negative); and/or 4) other achievements. Include a discussion of stated goals not met. Description shall include pertinent data and graphs in sufficient detail to explain any significant results achieved. A succinct description of the methodology used shall be provided. As the project progresses to completion, the emphasis in reporting in this section should shift from reporting activities to reporting accomplishments.

Response:

Specific Aim 1: Assess the nature and range of environmental and health system characteristics (Military Health System {MHS} and Veterans Health Administration {VHA}) that support or impede biopsychosocial services delivery based on previous research of active duty personnel and Veterans eligible for care from the MHS and/or VHA

iii. Major Task 1 – IRB Approvals (Y1Q1-2)
    a. UW IRB Approval
        i. Target: Y1Q1-2; goal met in Q2
        ii. At the end of Q1, our application was in review with the University of Washington IRB. We received a request for approximately 30 revisions on 30 Oct. 2019; we submitted these revisions early in Q2 on 5 Nov 2019. UW IRB requested about 10 additional revisions on 8 Nov 2019; we submitted these new revisions on 14 Nov. 2019. UW approved the application on 18 Nov 2019 as an expedited review; "minimal risk"; Categories 5, 6 & 7. We submitted a minor modification (re: recruitment through social media and web platforms) on 9 Jan 2020; UW approved the modification 24 Jan 2020.
    b. HPRO Approval
        i. Target: Y1Q1-2: goal met in Q2
        ii. At the end of Q1, our application had been in review with Human Research Protection Office (HRPO) since 2 Aug 2019. We received a request for approximately 10 revisions on 30 Oct. 2019; we submitted these revisions early in Q2 on 8 Nov 2019. We also notified HRPO officer Dr. Zeling Cao-Harman about the UW IRB revision request (8 Nov 2019) and approval. We emailed Dr. Cao-Harman on 11 Dec 2019 to request a status update on the HRPO review. Dr. Cao-Harman responded that approval was not likely to occur by the end of December. Dr. Cao-Harman emailed on 31 Dec 2019 and

13 Jan 2020 to request additional copies of previously submitted forms; we resent the requested copies on the same date of request, respectively. We received a notice of approval from HRPO director Kimberly Odam on 29 Jan 2020. In Jan 2020, we discussed the request to extend key informant recruitment, with the Science Officer; the request was approved 24 Jan 2020 by the UW IRB. On 14 Feb 2020, we notified HPRO of the UW IRB modification. We received a notice from Human Subjects Protection Scientist Allie McLean that the changes were considered non-substantive and did not require additional review; additionally, McLean noted that no future modifications need to be submitted to HRPO for review.

iv. Major Task 2 - Collect background information on administration of MHS – VHA SCI/D care continuum (Y1Q1-2)
    a. Subtask 1 – Leverage Advisory Board to identify clinical/administrative executive key informants (purposive sample) to outline SCI/D delivery system (intake, care delivery, hand-offs, and follow-ups)
        i. Target: Y1Q1-2; goal met in Q2; ongoing progress and revisions
        ii. We convened an initial Advisory Board of 18 members in order to achieve diverse representation of: veterans with and without SCI/D, active duty service members, SCI/D community support staff, and system level executive and clinicians in the MHS and VHA SCI/D care continuum. We met with Advisory Board members via teleconference on 22 Jan 2020 and 22 April 2020 to review Statement of Work progress, which included discussions of recruitment and marketing strategies, revisions to the key informant interview questionnaires (see Appendices A and B), highlights from interview results and feedback regarding content, and mapping the SCI/D care continuum. We also addressed these goals individually by phone and email with multiple (select) Advisory Board members throughout Q3 and Q4.
    b. Subtask 2 – Interview MHS-VHA clinical/administrative executive informants (n=6-12)
        i. Target: Y1Q1-2; 100% response rate met in Q4, n=10
        ii. We engaged in purposive sampling with our Advisory Board to identify Advisory Board members to interview as clinical/administrative executive informants. We completed nine of ten interviews in Q3, 90%. The 10th informant was unavailable in Q3 due to involvement in drafting VHA SCI/D COVID-19 policy; this informant's interview (130 minutes) was completed in Q4.
    c. Subtask 3 – Review published literature, policy documents regarding the SCI/D care continuum and beneficiary perceptions of the system
        i. Target: Y1Q1-2; goal met in Q3 with ongoing thematic analyses in progress Q4
        ii. The study team employed PRISMA guidelines to conduct a systemic review of peer-reviewed SCI/D literature in health service databases, which generated approximately 4,000 titles. The research assistants then completed a title review to eliminate duplicate and non-applicable articles, leaving approximately 700 relevant titles. We then completed an abstract review resulting in 140 published articles relevant to this SCI/D study.

iii. We completed a thematic coding process of the abstract list (140 articles) using Porter's Value Chain Model described in the Statement of Work.
iv. We also received and reviewed directives, memoranda, and policy documents from key informants; this gray literature was added to the PRISMA analysis in Q4.

d. Subtask 4 – Validate delivery system components to develop additional mapping inputs in collaboration with Advisory Board
    i. Target: Y1Q2: goal met in Q2-3 with ongoing analyses of inputs in progress Q4
    ii. We conferred with Advisory Board members individually and by teleconference through Year 1 to validate and map SCI/D system delivery components. With the help of our Advisory Board, we identified several key care maps from policy documents outlining administrative and clinical components of the SCI/D MHS/VHA care continuum. Additionally, as in formants reported their specific facilities during Q3 and Q4, we engaged in a review of public descriptive data MHS and VHA SCI/D care sites.

b. Milestone(s) Achieved – Development of a generic SCI/D MHS-VHA care continuum mapping schema – inputs received in Q2-3 with ongoing analyses in Y1Q4 and Y2

Specific Aim 2: Evaluate a range of key stakeholders' perceptions regarding MHS-VHA services delivery components (intake, care delivery, hand-offs, and follow-ups) to understand how operational mechanisms promote or impede care with the potential to improve SCI/D patients' and caregivers' quality of life

iv. Major Task 3 – Interview stakeholders (Y1Q2-Q3)
    a. Research Question 2a: Subtask 1 – Develop two interview questionnaires (health system staff and patient instruments) and validate with Advisory Board
        i. Target: Y1Q2-3; goal met in Q3; Interview instruments reviewed, approved, and used in ongoing interviews
        ii. We engaged in iterative revisions of our two instruments (health system personnel and beneficiaries/caregivers, respectively) throughout Q3 via email correspondence and teleconference with our Advisory Board (Attachment 5). Additionally, we ended all interviews by asking informants for feedback on the content and scope of instruments in order to further ensure instrument validity and reliability.
        iii. Milestone achieved

v. Major Task 4 – Conduct interviews
    a. Research Question 2b: Subtask 1 – Develop list of potential key informants that fit inclusion/exclusion criteria; align by stakeholder group; approve informant stratification plan (most relevant to SCI/D patient population)
        i. Target: Y1Q3; ongoing recruitment and interviews in progress
        ii. The study team collaborated with Advisory Board through Year 1 to identify potential key health system informants at various MHS and VHA SCI/D care sites and to validate recruitment and marketing strategies to best reach health systems personnel, beneficiary, and caregiver informants. Strategies included distribution of PDF flyers, management of several social media study accounts (Facebook, Twitter, LinkedIn, Instagram), and calls for participants

shared by Paralyzed Veterans of America (PVA) and National MS Society through web platforms. Several Advisory Board members also shared materials through email, social media, and word-of mouth platforms.

b. Subtask 2 – Contact and interview key informant stakeholders identified through purposeful sampling (including but not limited to providers, administrators, staff, community organizations, patients); develop coding plan (n=60)
    i. Target: Y1Q3-Y2Q2; 34 of 60 informants interviewed in Q3 and Q4 (31 interviews); 56% complete
    ii. We employed the methods listed above to contact and interview informants that fit our inclusion/exclusion criteria. At the end of Y1 and employing purposive sampling where appropriate, we had interviewed:
        1. 20 health system informants (19 interviews) across multiple MHS and VHA sites and community support organizations. Informant roles included patient administrator, SCI/D chief, physiatrist, occupational therapist, social worker, rehabilitation psychologist, nurse manager, telehealth specialist, and president/chief executive officer. Informants represented a range of races/ethnicities and a balance of male to female and clinical to administrative perspectives.
        2. 14 beneficiaries and caregivers (12 interviews). Informants represented a diverse sample of participants with spinal cord injury and disabilities, including: beneficiaries from all military branches, female veterans, LGBTQ veterans, and persons of color. Several veterans also received VHA SCI/D care from urban hubs and/or rural spoke locations.

c. *Milestone Achieved:* Interviews completed—in process

vi. Major Task 5 – Analyze data

a. Subtask 3 – Transcribe audio recordings; code interviews to determine strengths and weaknesses
    i. Target: Y1Q4-Y2Q3; 40 interviews (n=44) were transcribed in Q3 and Q4; cleaning transcripts in progress, 40% completed; initial coding schema developed; coding to begin Y2Q1
    ii. The team has transcribed all 40 completed interviews, and has cleaned 40% of transcripts. The principal investigator also developed two a priori coding plans, one for system personnel's interviews and the other for beneficiaries' interviews; analyses will begin in Y2Q1.

b. Subtask 4 – Validate findings with Advisory Board, key informants, and further analyze data to answer additional questions;
    i. Target: Y2Q2-3, individual meetings and interviews with select Advisory Board members conducted – 100%; validation is ongoing through Y2Q3
    ii. The team initiated an iterative process of validating findings with Advisory Board members as we conducted interviews and answered additional questions.

c. *Milestone Achieved*: Validated key informant interview findings; Target: Y2Q3—in progress

What opportunities for training and professional development has the project provided?
If the project was not intended to provide training and professional development opportunities or there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe opportunities for training and professional development provided to anyone who worked on the project or anyone who was involved in the activities supported by the project. "Training" activities are those in which individuals with advanced professional skills and experience assist others in attaining greater proficiency. Training activities may include, for example, courses or one-on-one work with a mentor. "Professional development" activities result in increased knowledge or skill in one's area of expertise and may include workshops, conferences, seminars, study groups, and individual study. Include participation in conferences, workshops, and seminars not listed under major activities.

Nothing to report.

How were the results disseminated to communities of interest?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how the results were disseminated to communities of interest. Include any outreach activities that were undertaken to reach members of communities who are not usually aware of these project activities, for the purpose of enhancing public understanding and increasing interest in learning and careers in science, technology, and the humanities.

The research team shared select results and themes identified during interviews with members of the Advisory Board via teleconference and individual communication through Year 1 to enhance understanding of issues among MHS and VHA SCI/D system personnel and SCI/D community organizations. This included sharing SCI/D system barriers and gaps in care, such as: 1) lack of telehealth options during COVID-19 pandemic, and 2) sporadic use of marital/sexual health counseling for SCI/D beneficiaries and caregivers.

The team submitted abstracts to the 2021 Forum on Advances in Healthcare Management Research, American College of Health Care Executives (ACHE) and the 13th Annual Conference on the Science of Dissemination and Implementation in Health, AcademyHealth, respectively (Appendices C and D). These conference presentations support increased awareness and interest in SCI/D veterans' research and continuum of care to researchers, health care providers, and executives outside the MHS and VHA SCI/D systems of care.

The team also shared frequent updates on study progress and findings with veteran and civilian audiences through social media: Facebook, Instagram, and Twitter (see links below). Updates included: articles about study funding and purpose, bios and research interests of team members, and re-shares of external veteran and SCI/D resources related to COVID-19.

Instagram: https://www.instagram.com/veterans.with.scid/
Facebook: https://bit.ly/FacebookSCIeval
Twitter: https://twitter.com/uwscieval

What do you plan to do during the next reporting period to accomplish the goals?
If this is the final report, state "Nothing to Report."

Describe briefly what you plan to do during the next reporting period to accomplish the goals and objectives.

Specific Aim 1: Assess the nature and range of environmental and health system characteristics (Military Health System {MHS} and Veterans Health Administration {VHA}) that support or impede biopsychosocial services delivery based on previous research of active duty personnel and Veterans eligible for care from the MHS and/or VHA

v. Major Task 1 – IRB Approvals (Y1Q1-2)
    a. UW IRB Approval; Target: Y1Q1-2; 100% complete
        i. We will submit a modification request for any future protocol changes.
    b. HPRO Approval
        i. Target: Y1Q1-2: 100% complete

vi. Major Task 2 - Collect background information on administration of MHS – VHA SCI/D care continuum (Y1Q1-2)
    a. Subtask 1 – Leverage Advisory Board to identify clinical/administrative executive key informants (purposive sample) to outline SCI/D delivery system (intake, care delivery, hand-offs, and follow-ups) Target: Y1Q1-2; 100% complete; ongoing progress and revisions
        i. We will continue to consult with our Advisory Board to achieve purposive sampling, outline care delivery, and to validate study findings in Y2.
    b. Subtask 2 – Interview MHS-VHA clinical/administrative executive informants (n=6-12);
        i. Target: Y1Q1-2; 100% complete
    c. Subtask 3 – Review published literature, policy documents regarding the SCI/D care continuum and beneficiary perceptions of the system; Target: Y1Q1-2; goal met; ongoing progress and revisions
        i. The study team plans to continue to add to the list of relevant SCI/D published literature and policy documents as we identify new resources and/or as informants direct the team to additional resources. The team plans to leverage thematic coding and analysis of the literature review list to inform subsequent analyses.
    d. Subtask 4 – Validate delivery system components to develop additional mapping inputs in collaboration with Advisory Board; Target: Y1Q2: goal met; ongoing progress and revisions
        i. The study team will continue to review delivery components with the Advisory Board as we conduct additional informant interviews and analyze data.
    a. Milestone(s) Achieved – Development of a generic SCI/D MHS-VHA care continuum mapping schema – ongoing

i. The team will revise and combine individual policy documents into a single mapping schema as we conduct additional informant interviews and analyze data.

Specific Aim 2: Evaluate a range of key stakeholders' perceptions regarding MHS-VHA services delivery components (intake, care delivery, hand-offs, and follow-ups) to understand how operational mechanisms promote or impede care with the potential to improve SCI/D patients' and caregivers' quality of life

vii. Major Task 3 – Interview stakeholders (Y1Q2-Q3)
   a. Research Question 2a: Subtask 1 – Develop two interview questionnaires (health system staff and patient instruments) and validate with Advisory Board; Target: Y1Q2-3; 100% complete; ongoing progress and revisions
      i. The team will continue to seek feedback from the Advisory Board and informants regarding data collection and study results.
      ii. Milestone achieved – Interview instrument approved

viii. Major Task 4 – Conduct interviews
   a. Research Question 2b: Subtask 1 – Develop list of potential key informants that fit inclusion/exclusion criteria; align by stakeholder group; approve informant stratification plan (most relevant to SCI/D patient population); Target: Y1Q3; goal met; ongoing progress and revisions
      i. We will continue to 1) collaborate with the Advisory Board and informants to employ purposive and snowball sampling and 2) use social media accounts for recruitment, until we achieve the target and/or saturation.
   b. Subtask 2 – Contact and interview key informant stakeholders identified through purposeful sampling (including but not limited to providers, administrators, staff, community organizations, patients); develop coding plan (n=60) Target: Y1Q3-Y2Q2; 56% complete
      i. Interviews are ongoing, with multiple beneficiary and provider interviews scheduling for early Y1Q2. The initial coding plan aligns with the conceptual model and will incorporate elements of deductive and inductive coding approaches. Qualitative analyses will be led by the PI and supported by study team members.
   c. *Milestone Achieved:* Interviews completed

ix. Major Task 5 – Analyze data
      i. Subtask 3 – Transcribe audio recordings; code interviews to determine strengths and weaknesses; Target: Y1Q4-Y2Q3; 40 interviews (n=44) were transcribed in Q3 and Q4; cleaning transcripts in progress, 40% completed; initial coding schema developed; coding to begin Y2Q1
      ii. The study team will continue cleaning interview transcripts and will initiate coding transcripts in Y2Q1 so that the process is ongoing through subsequent quarters.
   b. Subtask 4 – Validate findings with Advisory Board, key informants, and further analyze data to answer additional questions; Target: Y2Q2-3, 100% complete yet will continue into Y2Q3
      i. The team will continue an iterative process of validating findings with Advisory Board members as we continue explore our research questions.

Specific Aim 3: Leverage key stakeholders' perceptions and suggestions (as well as best practices from the civilian sector) to make recommendations that effectively close gaps, improve patients' resilience, and encourage positive self-management by optimizing MHS-VHA systems' strengths and moderating weaknesses

x. Major Task 6 – Develop Recommendations
    a. Research Question 3a and 3b: Subtask 1 – develop recommendations that leverage strengths and mitigate weaknesses to improve practice environment across the care continuum
        i. Target: Y2Q4
    b. Research Question 3b: Subtask 2 - Validate draft recommendations with Advisory Board, VA SCI/D National Office
        i. Target: Y2Q4
    c. Research Question 3b: Subtask 3 - Share recommendations through various formats (meetings, white papers, presentations, etc.) with key stakeholders (including but not limited to facility partners, key informants)
        i. Target: Y2Q4
    d. Subtask 4 – Develop final report
        i. Target: Y2Q3-Q4
    e. Milestone Achieved: Provided final recommendations to key stakeholder groups; Deliver final report

xi. Major Task 7 – Disseminate Findings
    a. Subtask 1 – Develop presentation and publication materials
        i. Target: Y2Q4+
    b. Milestone Achieved: Presented at National Conference, Published Article
        i. Target: Y2Q4+

4. **IMPACT:** D*escribe distinctive contributions, major accomplishments, innovations, successes, or any change in practice or behavior that has come about as a result of the project relative to:*

What was the impact on the development of the principal discipline(s) of the project?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how findings, results, techniques that were developed or extended, or other products from the project made an impact or are likely to make an impact on the base of knowledge, theory, and research in the principal disciplinary field(s) of the project. Summarize using language that an intelligent lay audience can understand (Scientific American style).

By Y2Q3 and Q4, expect a broader discussion of results.

The purpose of this **action research partnership** is to **engage relevant stakeholders** (clinical practice, administrative executives, community partners, patients, and caregivers) in a process of collaborative, contextually relevant inquiry to (1) gauge the nature and range of service components that support or impede care delivery for patients suffering from SCI/D and (2) to make specific operational recommendations of strategic relevance to the MHS and VHA that leverage strengths and mitigate weaknesses in delivering coordinated (or integrated) care. Our primary focus is to improve patients' and caregivers' quality of life from acute injury through community integration

by **improving the service delivery** process, particularly organizational factors that affect patients' quality of life across the care continuum. **Results will enable researchers and practitioners** to examine, replicate, and/or improve upon a delivery model that can achieve more appropriately focused patient-centered outcomes. The proposed qualitative evaluation will also contribute to the scientific literature by **testing theoretical constructs of organization theory** through collaboration between academics and federal health system stakeholders.

What was the impact on other disciplines?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how the findings, results, or techniques that were developed or improved, or other products from the project made an impact or are likely to make an impact on other disciplines.

Nothing to report.

What was the impact on technology transfer?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe ways in which the project made an impact, or is likely to make an impact, on commercial technology or public use, including:

- *transfer of results to entities in government or industry;*
- *instances where the research has led to the initiation of a start-up company; or*
- *adoption of new practices.*

By Y2Q3 and Q4, expect a broader discussion of how we have reported recommendations to MHS/VHA leaders.

Transfer of results to the federal health system for consideration in adopting changes in policy or practice: Study results will add to our understanding of the challenges faced by two large **federal health systems**, MHS and VHA, undertaking a care coordination effort for SCI/D patients by summarizing: (a) consulting literature addressing factors that support or detract from care coordination and delivery, and (b) analyzing insights from stakeholders' interviews that explain best practices and gaps in aligning MHA-VHA service delivery components from point of injury through reintegration within the community. Given acknowledgement from the **broader field of health services delivery** that enhanced coordination is essential to achieve optimal patient outcomes, further guidance in mitigating obstacles through identification of strengths and weaknesses in service delivery and supports is necessary.

What was the impact on society beyond science and technology?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe how results from the project made an impact, or are likely to make an impact, beyond the bounds of science, engineering, and the academic world on areas such as:

- *improving public knowledge, attitudes, skills, and abilities;*
- *changing behavior, practices, decision making, policies (including regulatory policies), or social actions; or*

- *improving social, economic, civic, or environmental conditions.*

By Y2Q3 and Q4, expect a broader discussion of results and the potential impact on this vulnerable patient population. Nothing to report.

5. **CHANGES/PROBLEMS:** *The PD/PI is reminded that the recipient organization is required to obtain prior written approval from the awarding agency grants official whenever there are significant changes in the project or its direction. If not previously reported in writing, provide the following additional information or state, "Nothing to Report," if applicable:*

Changes in approach and reasons for change
Describe any changes in approach during the reporting period and reasons for these changes. Remember that significant changes in objectives and scope require prior approval of the agency.

Actual or anticipated problems or delays and actions or plans to resolve them
Describe problems or delays encountered during the reporting period and actions or plans to resolve them.

Response:

Due to the COVID-19 pandemic, all study work and meetings have been conducted remotely since early March 2020, as per University of Washington directives. The study team has adapted to the virtual environment to continue to follow the Statement of Work, including: conducting all meetings and interviews by video/audio teleconference, utilizing Web-based transcription and coding platforms, and employing remote UW desktop and voicemail systems. We plan to continue to conduct all study tasks virtually until the University of Washington approves a return to on-site work.

Comments on SOW:

Specific Aim 1:

i. Major Task 1 – IRB Approvals (Y1Q1-2)
    a. HPRO Approval
        i. Target: Y1Q1-2: goal met in Q2
        ii. As discussed in Section 3 of this report (Major Task 1 – IRB Approvals), we submitted our initial application to HRPO on 02 AUG 2020, and did not receive approval until 29 JAN 2020. As we could not initiate interviews until HPRO approval this delayed interview of MHS-VHA clinical/administrative executive informants to Q3. This delay was communicated to HRPO in previous reports.

i. Major Task 2 - Collect background information on administration of MHS – VHA SCI/D care continuum (Y1Q1-2)
    a. Subtask 2 – Interview MHS-VHA clinical/administrative executive informants (n=6-12) Target: Y1Q1-2; 100% complete

i. We were not able to initiate executive interviews until we obtained HRPO approval at the end of Q2. Additionally, during drafting of protocol, local and central VA IRB leaders expressed willingness to (1) share study information with health system staff and patients, (2) allow researchers access to VA databases, and (3) allow researchers to store any VA data collected at University of Washington. However, upon follow-up in Q2, VA IRB representatives modified their overall position regarding sharing study information, and storage and ownership of any collected data. We communicated with the VA representatives for several weeks and consulted the UW IRB in an attempt to work through the VA's new concerns. However, to maintain study timeline, we opted not to work through VA channels to advertise recruitment and collect data. We submitted a modification to the UW IRB to expand recruitment through use of Web-based platforms, word-of-mouth, and social media sites; this amendment was approved 24 Jan 2020. These delays moved Subtask 2 to Q3. All executive interviews were completed in Q3 and Q4 (100%).

b. Subtask 3 – Review published literature, policy documents regarding the SCI/D care continuum and beneficiary perceptions of the system
   ii. Target: Y1Q1-2; goal met in Q3 with ongoing thematic analyses in progress Q4
   iii. The initial literature search resulted in a higher number of articles than expected (approximately 4,000). This led to minor delays in completing the inclusion/exclusion process and verifying inter-rater reliability. Subsequently, this delayed the final step of an abstract review. Additionally, we were unable to request or obtain unpublished documents from system level informants due to the delay in HRPO approval. The factors delayed meeting Subtask 3 until Q3.

c. Subtask 4 – Validate delivery system components to develop additional mapping inputs in collaboration with Advisory Board
   i. Target: Y1Q2: goal met in Q2-3 with ongoing analyses of inputs in progress Q4
   ii. We were unable to initiate validation and mapping with system level informants and subsequently the Advisory Board until HRPO approval; goal met in Q2-3, ongoing revisions.

b. Milestone(s) Achieved – Development of a generic SCI/D MHS-VHA care continuum mapping schema – inputs received in Q2-3 with ongoing analyses in Y1Q4 and Y2

Specific Aim 2: Evaluate a range of key stakeholders' perceptions regarding MHS-VHA services delivery components (intake, care delivery, hand-offs, and follow-ups) to understand how operational mechanisms promote or impede care with the potential to improve SCI/D patients' and caregivers' quality of life

xii. Major Task 3 – Interview stakeholders (Y1Q2-Q3)

a. Research Question 2a: Subtask 1 – Develop two interview questionnaires (health system staff and patient instruments) and validate with Advisory Board
   i. Target: Y1Q2-3; goal met in Q3; Interview instruments reviewed, approved, and used in ongoing interviews

ii. Milestone achieved

xiii. Major Task 4 – Conduct interviews

a. Research Question 2b: Subtask 1 – Develop list of potential key informants that fit inclusion/exclusion criteria; align by stakeholder group; approve informant stratification plan (most relevant to SCI/D patient population)
    i. Target: Y1Q3; ongoing recruitment and interviews in progress through Y1Q4
b. Subtask 2 – Contact and interview key informant stakeholders identified through purposeful sampling (including but not limited to providers, administrators, staff, community organizations, patients); develop coding plan (n=60)
    i. Target: Y1Q3-Y2Q2; 34 of 60 informants interviewed in Q3 and Q4 (31 interviews); 56% complete
    ii. Paralyzed Veterans of America (PVA) agreed to share our study flyer and information with veterans in their April 2020 newsletter. However, due to the COVID-19 pandemic, April communications with veterans focused exclusively on COVID-19 crisis management and supports. This contributed to a delay in Q3 recruiting veterans and caregivers. PVA shared our study flyer their distribution list in May 2020, which led to an increase in study enrollment.
    iii. Additionally, we learned from PVA and study informants that veterans with SCI/D, being a high-risk group, experienced health and financial issues related to the COVID-19 pandemic. This may have influenced their interest in participating in the study through Q3. However, we experienced an increase in veteran recruitment and enrollment in Q4.

Changes that had a significant impact on expenditures

Describe changes during the reporting period that may have had a significant impact on expenditures, for example, delays in hiring staff or favorable developments that enable meeting objectives at less cost than anticipated.

During this reporting period, the study team was able to hire a part-time Research Assistant with the money saved in the PI's level of effort due to delays associated with the HRPO review process, as described above. Additional money was saved in hiring the Project Manager in late Y1Q1 rather than early Y1Q1. Expenditures for travel were saved due to COVID-19, yet interviews continued.

Significant changes in use or care of human subjects, vertebrate animals, biohazards, and/or select agents

Describe significant deviations, unexpected outcomes, or changes in approved protocols for the use or care of human subjects, vertebrate animals, biohazards, and/or select agents during the reporting period. If required, were these changes approved by the applicable institution committee (or equivalent) and reported to the agency? Also specify the applicable Institutional Review Board/Institutional Animal Care and Use Committee approval dates

Nothing to report.

Significant changes in use or care of human subjects

Nothing to report.

Significant changes in use or care of vertebrate animals

Nothing to report.

Significant changes in use of biohazards and/or select agents

Nothing to report.

6. PRODUCTS: *List any products resulting from the project during the reporting period. If there is nothing to report under a particular item, state "Nothing to Report."*

- **Publications, conference papers, and presentations**
  Report only the major publication(s) resulting from the work under this award.

  Journal publications. *List peer-reviewed articles or papers appearing in scientific, technical, or professional journals. Identify for each publication: Author(s); title; journal; volume: year; page numbers; status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

  Two conference presentation submissions:

  Appendix C: Evaluating Health Care Delivery and Supports for Service Members and Veterans with Spinal Cord Injury or Disability
  Status: Submitted/Under Review to 2021 Forum on Advances in Healthcare Management Research, American College of Health Care Executives

  Appendix D: A Qualitative Inquiry to Develop Dissemination and Implementation Guidelines for Improving Health Care Delivery and Supports for Service Members and Veterans with Spinal Cord Injury or Disability
  Status: Submitted/Under Review to 13th Annual Conference on the Science of Dissemination and Implementation in Health, AcademyHealth

  Books or other non-periodical, one-time publications. *Report any book, monograph, dissertation, abstract, or the like published as or in a separate publication, rather than a periodical or series. Include any significant publication in the proceedings of a one-time conference or in the report of a one-time study, commission, or the like. Identify for each one-time publication: author(s); title; editor; title of collection, if applicable; bibliographic information; year; type of publication (e.g., book, thesis or dissertation); status of publication (published; accepted, awaiting publication; submitted, under review; other); acknowledgement of federal support (yes/no).*

Nothing to report.

Other publications, conference papers and presentations. *Identify any other publications, conference papers and/or presentations not reported above. Specify the status of the publication as noted above. List presentations made during the last year (international, national, local societies, military meetings, etc.). Use an asterisk (*) if presentation produced a manuscript.*

Nothing to report.

- **Website(s) or other Internet site(s)**
  List the URL for any Internet site(s) that disseminates the results of the research activities. A short description of each site should be provided. It is not necessary to include the publications already specified above in this section.

  Instagram: https://www.instagram.com/veterans.with.scid/
  Facebook: https://bit.ly/FacebookSCIeval
  Twitter: https://twitter.com/uwscieval
  LinkedIn: https://bit.ly/LinkedinSCIeval
  Sign up link: http://bit.ly/uwscieval

- **Technologies or techniques**
  Identify technologies or techniques that resulted from the research activities. Describe the technologies or techniques were shared.

  Nothing to report.

- **Inventions, patent applications, and/or licenses**
  Identify inventions, patent applications with date, and/or licenses that have resulted from the research. Submission of this information as part of an interim research performance progress report is not a substitute for any other invention reporting required under the terms and conditions of an award.

  Nothing to report.

- **Other Products**
  Identify any other reportable outcomes that were developed under this project. Reportable outcomes are defined as a research result that is or relates to a product, scientific advance, or research tool that makes a meaningful contribution toward the understanding, prevention, diagnosis, prognosis, treatment and /or rehabilitation of a disease, injury or condition, or to improve the quality of life. Examples include:
  - *data or databases;*
  - *physical collections;*
  - *audio or video products;*
  - *software;*
  - *models;*

- *educational aids or curricula;*
- *instruments or equipment;*
- *research material (e.g., Germplasm; cell lines, DNA probes, animal models);*
- *clinical interventions;*
- *new business creation; and*
- *other.*

Nothing to report.

7. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

What individuals have worked on the project?
Provide the following information for: (1) PDs/PIs; and (2) each person who has worked at least one person month per year on the project during the reporting period, regardless of the source of compensation (a person month equals approximately 160 hours of effort). If information is unchanged from a previous submission, provide the name only and indicate "no change".

Example:

Name:	*Mary Smith*
Project Role:	*Graduate Student*
Researcher Identifier (e.g. ORCID ID):	*1234567*
Nearest person month worked:	*5*
Contribution to Project:	*Ms. Smith has performed work in the area of combined error-control and constrained coding.*
Funding Support:	*The Ford Foundation (Complete only if the funding support is provided from other than this award.)*

Response:

Name: Suzanne Wood
Project Role: Principal Investigator
Neared person month worked: 12 months (Level of effort/LOE=20%)
Contribution to Project: Dr. Wood's contributions included: revising interview instruments; recruitment, screening, and interviewing informants; leading weekly research team meetings; leading Advisory Board quarterly meetings, leading mapping and validation of system of care; supervising literature review; and providing one-to-one supervisory meetings with the project manager and research assistants.

Name: Paul Fishman
Project Role: Mentor
Neared person month worked: 12 months (LOE=5%)

Contribution to Project: Dr. Fishman attended team meetings and provided mentorship to the principal investigator, answering questions about specific approached to data collection, analyses, and reporting. He also provided mentorship to the research assistants as they completed their literature reviews.

Name: Christian Helfrich
Project Role: Mentor
Neared person month worked: 12 months (LOE=5%)
Contribution to Mr. Helfrich attended team meetings and Advisory Board meetings, and acted as a liaison to the Veterans Health Administration in study matters.

Name: Debra Revere
Project Role: Co-Investigator
Neared person month worked: 7 months (LOE=10%)
Contribution to Project: Ms. Revere attended team meetings, provided insight to recruitment and interview methods, and consulted with the principal investigator and research assistants regarding qualitative literature review strategies.

Name: Elin Teutsch
Project Role: Project Manager
Neared person month worked: 9 months (LOE=50%)
Contribution to Project: Ms. Teutsch drafted and managed weekly agenda, minutes, and deliverables; managed informant tracking and consent forms, assisted the principal investigator in recruitment, screening, and interview of informants; managed social media accounts and outreach; managed gray literature databases; and cleaned interview transcripts.

Name: Ronald Buie
Project Role: Research Assistant
Neared person month worked: 10 months (Level of effort/LOE=50%)
Contribution to Project: Mr. Buie attended weekly meetings; conducted a systematic literature review of SCI/D care research articles; drafted a literature review protocol summary; assisted with thematic coding of literature review results; authored an article on SCI/D barriers to care, authored a draft abstract for future conference submission; and cleaned interview transcripts.

Name: Cassidy Farrow
Project Role: Voluntary Research Assistant
Neared person month worked: 7 months (LOE=25% without compensation); 2 months (LOE=25% with compensation_
Contribution to Project: Ms. Farrow attended team teams, conducted a systematic literature review of SCI/D care research articles; managed background research and preparation of a descriptive table of MHS/VHA care sites, authored a draft manuscript on SCI/D barriers to care, and cleaned interview transcripts. She was employed as a part-time paid research assistant between 16 JUN 2020 and 15 SEP 2020.

Has there been a change in the active other support of the PD/PI(s) or senior/key personnel since the last reporting period?

If there is nothing significant to report during this reporting period, state "Nothing to Report."

If the active support has changed for the PD/PI(s) or senior/key personnel, then describe what the change has been. Changes may occur, for example, if a previously active grant has closed and/or if a previously pending grant is now active. Annotate this information so it is clear what has changed from the previous submission. Submission of other support information is not necessary for pending changes or for changes in the level of effort for active support reported previously. The awarding agency may require prior written approval if a change in active other support significantly impacts the effort on the project that is the subject of the project report.

Nothing to report.

What other organizations were involved as partners?
If there is nothing significant to report during this reporting period, state "Nothing to Report."

Describe partner organizations – academic institutions, other nonprofits, industrial or commercial firms, state or local governments, schools or school systems, or other organizations (foreign or domestic) – that were involved with the project. Partner organizations may have provided financial or in-kind support, supplied facilities or equipment, collaborated in the research, exchanged personnel, or otherwise contributed.

Provide the following information for each partnership:
Organization Name:
Location of Organization: (if foreign location list country)
Partner's contribution to the project (identify one or more)

- *Financial support;*
- *In-kind support (e.g., partner makes software, computers, equipment, etc., available to project staff);*
- *Facilities (e.g., project staff use the partner's facilities for project activities);*
- *Collaboration (e.g., partner's staff work with project staff on the project);*
- *Personnel exchanges (e.g., project staff and/or partner's staff use each other's facilities, work at each other's site); and*
- *Other.*

Organization Name: University of Washington
Location of Organization: Department of Health Services
1959 NE Pacific St
Magnuson Health Sciences Center
Seattle, WA 98195
Partner's contribution to the project (identify one or more): In-kind support, facilities

Organization Name: Military Health System
Location of Organization: United States

Partner's contribution to the project (identify one or more): Collaboration; members of organization served on Advisory Board

Organization Name: Veterans Health Administration
Location of Organization: United States
Partner's contribution to the project (identify one or more): Collaboration; members of organization served on Advisory Board

Organization Name: Paralyzed Veterans of America
Location of Organization: United States
Partner's contribution to the project (identify one or more): Collaboration; members of organization served on Advisory Board, distributed recruitment materials

See Appendix E for Advisory Board list.

8. SPECIAL REPORTING REQUIREMENTS

COLLABORATIVE AWARDS: *For collaborative awards, independent reports are required from BOTH the Initiating Principal Investigator (PI) and the Collaborating/Partnering PI. A duplicative report is acceptable; however, tasks shall be clearly marked with the responsible PI and research site. A report shall be submitted to* ***https://ers.amedd.army.mil*** *for each unique award.*

QUAD CHARTS: *If applicable, the Quad Chart (available on https://www.usamraa.army.mil) should be updated and submitted with attachments.*

9. APPENDICES:

Attach all appendices that contain information that supplements, clarifies or supports the text. Examples include original copies of journal articles, reprints of manuscripts and abstracts, a curriculum vitae, patent applications, study questionnaires, and surveys, etc.

Appendix A: KII Questionnaire – System Personnel

University of Washington
Evaluation of Services Delivery and Supports for Spinal Cord Injury-Disability
Key Informant Interview Questions – System Personnel
3.20.2020

Have you had a chance to review the information sheet and study consent document? Do you have any questions about this evaluation or interview? Do I have your permission to conduct the interview? Do I have your permission to record this interview?

Service delivery activities are those directly involved in ensuring access to, the provision of, and follow-up for services provided. Review the following questions and determine which of these represents an organizational strength or weakness.

Pre-service Considerations:

1. Describe the type(s) of services and/or supports your organization provides to complex care (SCI/D) patients and/or caregivers.

2. Do you consider public perception of your facility/organization a strength or weakness? Why?

3. How might complex care (SCI/D) patients and/or caregivers learn about the services your organization provides?

4. Describe your organization's initial contact and/or how complex care (SCI/D) patients and/or their caregivers would gain access to services you provide.

Point-of-Service Considerations:

5. What do you believe are important strengths and weaknesses in the services your organization provides for complex (SCI/D) patients and/or caregivers? Why?

6. Describe any important facilitators for service delivery functions.
   - *Internal facilitators*
   - *External facilitators*

7. Describe any important barriers to services delivery.
   - *Internal barriers*
   - *External barriers*

After-Service Considerations:

8. Consider whether your organization communicates with additional organizations to coordinate care or support services for complex patients. Describe the process for who engages, when, and how that communication process works.

9. Describe any facilitators (people, processes, or resources) that help or assist with the communication/coordination process.

   Probes: Internal to the organization?
   External to the organization?

10. What there barriers to this communication/coordination process?

    Probes: Internal to the organization?
    External to the organization?

11. How does the organization determine the effectiveness of the services it provides to complex (SCI) patients and/or caregivers?

12. Are you aware of any patient-related financial, legal, or other problems that can affect or have affected services delivery or transitions in care?

Support Activities:

Organizational Culture

13. Describe the overarching culture (norms, behaviors) of the organization. Do you believe this is a strength or weakness in the delivery of services to complex care (SCI/D) patients? Why?

Organizational Structure

14. Explain how the structure of the organization and its processes promote or impede the delivery of services or support activities (functions)?

Strategic Resources

15. Consider whether your organization has the resources (facilities, space, people, training, finances, services, etc.) available to deliver high quality services delivery to complex care (SCI/D) patients and/or their caregivers. Why or why not?
    Probe: Do you think any of these resources represent important strengths of your organization? Weaknesses?

Appendix B: KII Questionnaire – Beneficiary

University of Washington

Evaluation of Services Delivery and Supports for Spinal Cord Injury-Disability

Key Informant InterviewQuestions – Beneficiaries

4.19.2020

Have you had a chance to review the information sheet and study consent document? Do you have any questions about this evaluation or interview? Do I have your permission to conduct the interview? Do I have your permission to record this interview?

Review the following questions and determine which of these represents a **strength or weakness** in the services you received.

Pre-service Considerations:

1. Briefly **describe** the services you received when you were first injured or diagnosed with a spinal cord injury or disability.

   Probe: If you received services from both the military and Veteran's Health Administration, explain how you transitioned from one to the other.

2. What was your **first opinion (belief about)** of the facility(s)? Why?

   *Probe: Did your opinions about the facilities **change over time**?*

3. How did you first **learn** about the services each facility provided?

4. Describe your **first contact** and/or with the facility(s) you used for services.

Point-of-Service Considerations:

5. What do you believe were important **strengths** in the services you received or are receiving? Why?

   Probe: Describe any important **facilitators** (**helpers**) for services you received.
   - *Internal facilitators*
   - *External facilitators*

6. What do you believe were important **weaknesses** in the services received or are currently receiving? Why?

   Probe: Describe any important **barriers** for services you received or are currently receiving.

- *Internal barriers*
- *External barriers*

After-Service Considerations:

Consider whether the health care facility had to communicate with additional organizations to coordinate your care. Describe how that **coordination** process worked or is working.

Probe: With whom, when and why?

Probe: Is such coordination still necessary for your care? If so, is it working well for you? Why or why not?

7. Describe any **facilitators** (people, processes, or resources) that have helped or are assisting with the **coordination** process.

   Probes: Internal to the facility?
   External to the facility?

8. Have there been or are there **barriers** to this communication or coordination process?

   Probes: Internal to the facility?
   External to the facility?

9. How, if at all, were you asked to **judge** the effectiveness of the services you received for your care?

10. Have you experienced any financial, legal, or other problems that have affected your care or changes in your care?

Support Activities:

Organizational Culture (Character)

11. Describe the overarching **character** (behaviors, attitudes) of the organizations that provided care for you. Do you believe their character was a **strength or weakness** in the delivery of your care? Why or why not?

Organizational Structure

12. Explain how the **structure** (arrangement) of the health care organization and its processes have helped or hindered the delivery of your care.

Strategic Resources

13. Did you feel as though the health care organization had/has the **resources** (facilities, equipment, space, people, training, money, etc.) available to deliver high quality service? Why or why not?

Probes: Do you think any of these resources were important strengths of the organization? Weaknesses?

14. Based on your experiences of care related to this injury or disability, what **advice** would you give to the facilities that provided care?

Appendix C: Abstract - Evaluating Health Care Delivery and Supports for Service Members and Veterans with Spinal Cord Injury or Disability

Suzanne J. Wood, PHD, MS, FACHE, Ronald W. Buie, MS, Cassidy M. Farrow, MPH(s), Elin Teutsch, MS, Debra Revere, MLIS, MA, Paul Fishman, PHD, and Christian Helfrich, PHD

Objective: Health care delivery is challenged by an increasingly fragmented health care and social service system. For patients with multiple health problems and limited access to care, these challenges contribute to poor health outcomes. Within the U.S. federal system, Service Members and Veterans encounter additional challenges. Key barriers to care and delivery system weaknesses for these patients include lack of trust in the system, stigma and safety concerns, and wariness of care efficacy, among others. And for those with spinal cord injuries and related disorders (SCI/D), there may be additional and as yet unidentified barriers and challenges. According to the Office of Research, the Veterans Health Administration (VHA) delivers care through its system to more than 27,000 of an estimated 42,000 Veterans with SCI/D who are eligible for VHA care. And this population has grown: A study of combat casualties in Iraq and Afghanistan between 2005 and 2009 found that the incidence of spine trauma among Service Members was approximately 11.1% of combat wounded which exceeded reported rates from previous conflicts.

We report preliminary outcomes of a qualitative study that sought to identify implementation strategies to improve health services delivery in support of collaborative, whole person care for SCI-D Service members within the military health system (MHS) and VHA from point of injury through reintegration within the community.

Methods: For this qualitative study, two separate interview guides were designed based on Porter's Value Chain Model: health care system and patient perspective focused. Interview instruments were developed in collaboration with an 18 member advisory board of subject matter experts. Purposive sampling was utilized to enroll participants representing a range of both provider and patient care continuum perspectives: (a) MHS-VHA health services providers from hospitals engaged specifically in SCI/D services delivery as well as representatives from community-based support groups (n=30) and (b) SCI/D affected Service Members and Veterans and care givers (n=30). Provider interview informants were recruited from three major military treatment facilities (MTFs) and three VHA SCI/D Hub hospitals. Patient interview informants were recruited from a national sample of patient perspectives by leveraging a social media campaign through the Paralyzed Veterans of America, a national non-profit organization whose mission was to serve the needs of this narrowly defined population. Between April and December 2020, participants were contacted by phone or email to determine eligibility for the study. Following application of the study inclusion/exclusion criteria, enrolled participants were interviewed by phone or video teleconference. Interviews were recorded and transcribed, and then five study team members with qualitative data analysis expertise analyzed the transcripts.

Results: Analysis identified system strengths and weaknesses that both promoted and impeded service delivery across the MHS- VHA care continuum in three major areas: (a) pre-service, (b) point-of-service, and (c) after-service. Factors that influenced services delivery included

organizational culture, organizational structure, and strategic resources (e.g., human, financial, technological).
While perspectives differed among system personnel, significant areas of agreement regarding organizational barriers emerged, in particular the need for SCI/D training and employee stability and the use of electronic health records for continuity and coordination of care. While patient perspectives regarding whole-person care were congruent with providers, for example in recognizing the beneficial role of a patient-centered medical home service model, significant patient needs unrecognized by providers also emerged, such as the need for more specialized and intensive supports (e.g., marital counseling, sexual health, peer mentoring).

Relevance: The differing yet complementary missions of the MHS and VHA to deliver health services are to focus on Warfighter Readiness (MHS) and long-term wellness beyond the Service commitment (VHA). In support of the Defense Health Agency's (DHA) vision to integrate service components and deliver world-class care, is the creation of an evidence-based evaluation model designed to assess delivery of biopsychosocial (holistic) services to its SCI/D community and their caregivers. Results will enable various health systems and their stakeholders to examine, improve upon, and/or replicate the delivery model to achieve meaningful, sustainable patient-centered outcomes over the long-term.

Managerial Impact: This study adds to our understanding of challenges faced by two large federal health systems, MHS and VHA, undertaking a care coordination effort for SCI/D patients by summarizing: (a) consulting literature addressing factors that support or detract from care coordination and delivery, and (b) analyzing insights from stakeholders interviews that explain best practices and gaps in aligning MHA-VHA service delivery components from point of injury through reintegration within the community. Given acknowledgement from the field that enhanced coordination is essential to achieve optimal patient outcomes, further guidance in mitigating obstacles through identification of strengths and weaknesses in service delivery and supports is necessary.

Appendix D: Abstract - A Qualitative Inquiry to Develop Dissemination and Implementation Guidelines for Improving Health Care Delivery and Supports for Service Members and Veterans with Spinal Cord Injury or Disability

Suzanne Wood, PhD, MS, FACHE, Debra Revere, MLIS, MA, Elin Teutsch, Ronald Buie, Cassidy Farrow and Paul Fishman, PhD, University of Washington, Seattle, WA

Background: Since 2005, the number of Veterans with spinal cord injuries and related disorders (SCI/D) eligible for Veterans Health Administration (VHA) care has grown. It is known that Service Members and Veterans encounter unique challenges that may contribute to poor health outcomes when accessing the federal health care and social service system—including lack of trust in the system, stigma and safety concerns, and wariness of care efficacy, among others. For SCI/D patients, there may be additional and as yet unidentified barriers and challenges.

Methods: We conducted a qualitative study to understand how contextual barriers and facilitators affect implementation of health services delivery for SCI-D patients from the point of injury through reintegration within the community. Participants were enrolled using purposive sampling to ensure representation across a range of provider and patient care continuum perspectives and service delivery settings. Semi-structured interviews (n=30 providers; n=30 patients) were conducted, recorded, and transcribed. Qualitative analysis included directed content analysis, applying *a priori* and emergent codes, and resolving coding discrepancies via team discussion. Analysis identified system strengths and weaknesses that both promoted and impeded service delivery across three major phases in the health care delivery continuum—pre-service, point-of-service, and after-service.

Findings: Providing SCI/D-focused training for providers and staff, ensuring shared communications to support continuity and coordination of care, and expanding delivery of biopsychosocial (holistic) services to SCI/D patients and their caregivers emerged as significant across-the-continuum improvement objectives for both provider and patient groups. However, implementation of solutions to achieve these objectives need to align with VHA organizational culture, organizational structure, and resources (e.g., human, financial, technological). Synthesis of findings with contextual factors generated recommendations for designing dissemination and implementation strategies to improve health care delivery to SCI/D patients and create a culture of sustainable patient-centered outcomes.

Implications for D&I Research: Implementation interventions that address system-level strengths and weaknesses are needed. This study identified key facilitators for improving implementation efforts as well as challenges of organizational culture, structure and resources that merit consideration, particularly when seeking to deliver care and support to vulnerable and/or high-needs populations such as SCI/D patients and their caregivers.

Appendix E: Advisory Board List

Name	**Location**
Elizabeth Awodele	Naval Medical Center San Diego (NMCSD)
Cindy Childress	Brooke Army Medical Center (BAMC)
Kathy Dinegar	VA/DoD Health Affairs
Barry Goldstein	VA National Program Office SCI/D
Patrick Grady	VA/DoD Health Affairs
Sherri LaVela	Hines VA
Tim Lavis	Richmond VA
Megan Loftsgaarden	BAMC
Alan Lombardo	Sheltering Arms Institute
Meghan McHenry	Sheikh Shakhbout Medical City, Abu Dhabi
Mark Mellott	Cerner Government Services
Amanda Milisits	Paralyzed Veterans of America (PVA)
Matt Nathan	VADM (ret.), Surgeon General, U.S. Navy
Jennifer Sippel	VA National Program Office SCI/D
Bridget Smith	Hines VA
Philip Ullrich	Kaiser Permanente Seattle
Fran Weaver	Hines VA
David Zurfluh	PVA