

Using a Mixed Methods Partnered Approach to Evaluating the Implementation of the Innovative TBI Intensive Evaluation and Treatment Programs (IETP)

Jolie N. Haun PhD EdS
Risa Richardson, PhD
Mary Jo Pugh PhD RN

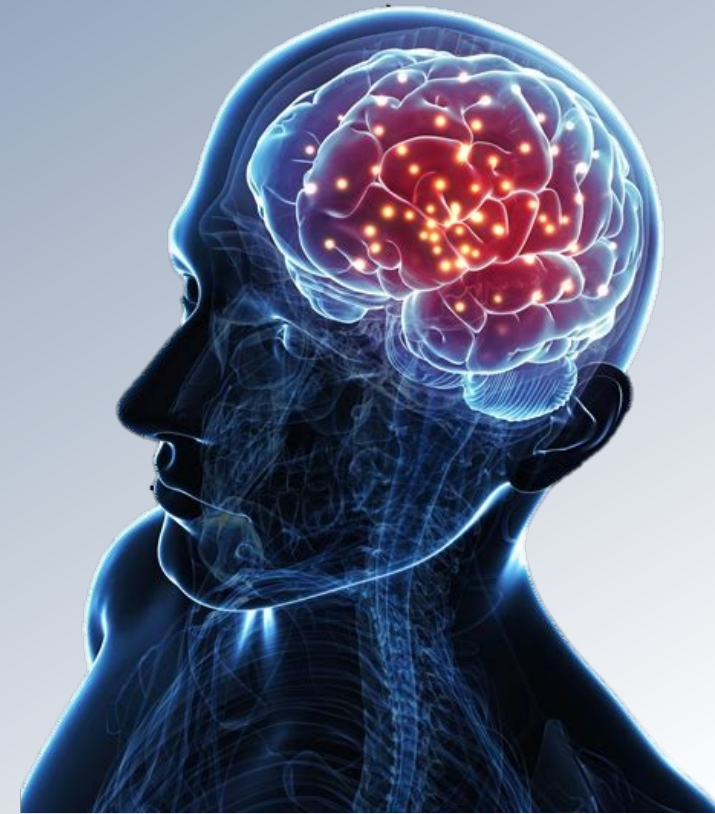
James A. Haley Veterans Hospital, FL
VA Salt Lake City Health Care, UT

Contact: Jolie.Haun@va.gov



Thank You to Our Partners:

- IETP Patients
- Physical Medicine & Rehabilitation (PM&R) Services
- IETP Site Partners at VA hospitals in:
 - Minneapolis, Minnesota (RENEW)
 - Palo Alto, California (PTRP)
 - Richmond, Virginia (STAR)
 - San Antonio, Texas (PACER)
 - Tampa, Florida (PREP)
- Department of Defense Representatives
- IETP PEI Project Team



Today's Presentation

Identify the value of implementation science in characterizing and evaluating rehabilitation programs, such as IETP

Describe the mixed methods approach to characterizing and evaluating IETP

Provide an overview of preliminary findings and products

Describe opportunities, challenges, and lessons learned as part of the partnered evaluation process



The Value of Implementation Science and a Partnered Approach in Characterizing and Evaluating Rehabilitation Care Programs –

The Implementation Roadmap

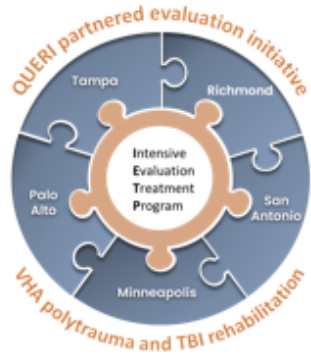
Project Background

- Since 2000, a total of 430,720 service members have been diagnosed with TBI, and the majority (82.4%) have been diagnosed with mild TBI
- Sequelae from mild TBI may co-occur with at least 1 of the following: posttraumatic stress disorder (PTSD), chronic pain, and visual and balance disturbances
- **Special operational forces (SOF)** population has a unique presentation of TBI sequela

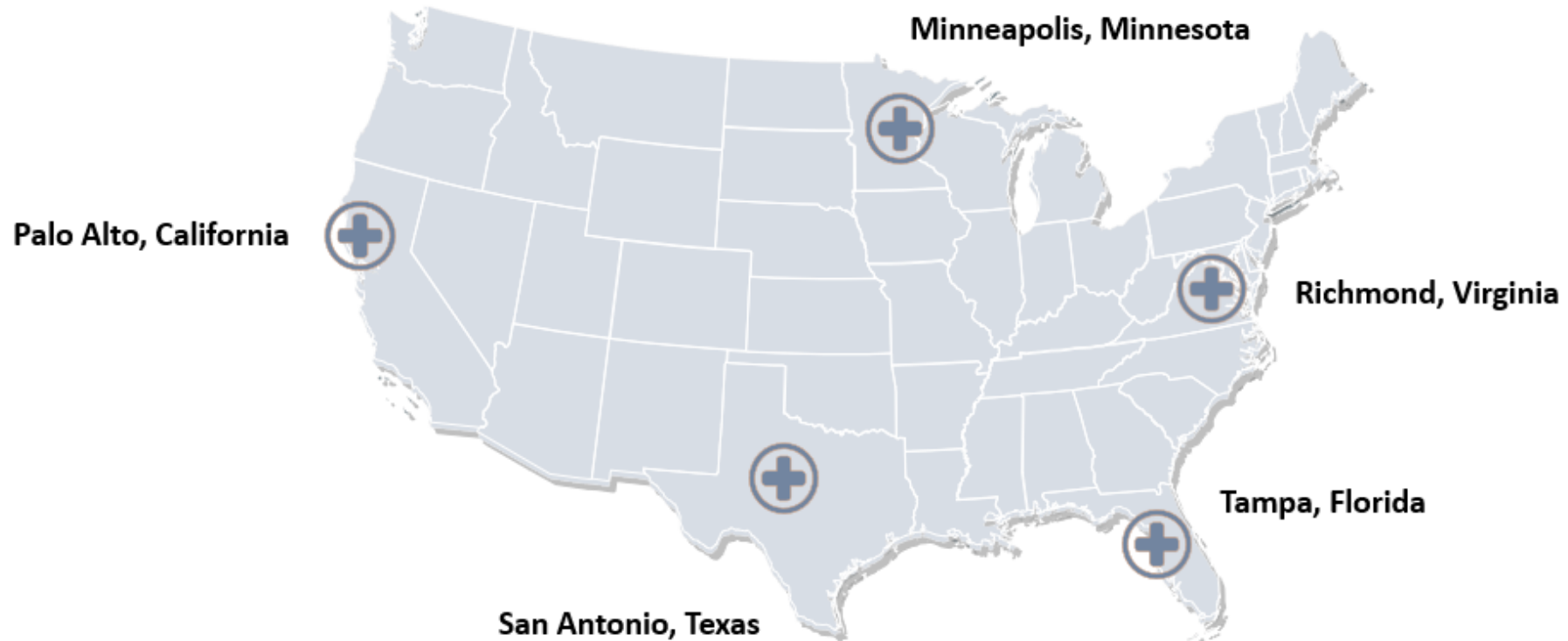
To meet the demand for rehabilitation services required by SOF service members and veterans with TBI, the Veterans Health Administration (VHA) Physical Medicine and Rehabilitation (PM&R) National Program Office developed the TBI Intensive Evaluation and Treatment Program (IETP)



Five Intensive Evaluation and Treatment Program (IETP) sites



- Tampa, Florida**=Post-deployment rehabilitation and evaluation program (**PREP**)
- Richmond, Virginia**=Service member transitional advanced rehabilitation (**STAR**) program
- San Antonio, Texas**=Post-deployment accelerated comprehensive evaluation and rehabilitation (**PACER**) program
- Minneapolis, Minnesota**=Rehabilitation evaluation and neurologic enhancement for warriors (**RENEW**) program
- Palo Alto, California**=Polytrauma transitional rehabilitation program (**PTRP**)



Project Background

TBI Intensive Evaluation and Treatment Program (IETP) delivers residential evidence-based care per mTBI guidelines for common co-morbidities

Our goal is to develop and incorporate IETPs as a part of the polytrauma treatment programs established at all PM&R Centers of Excellence. The IETP will be unique to each site's current mTBI treatment programs

Project Aims

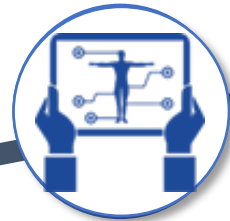
Aim 1

To identify IETP program services and create an inventory of items (i.e. staff, equipment, etc.) for successful integration of IETP based on feedback from the medical director, staff, and patients



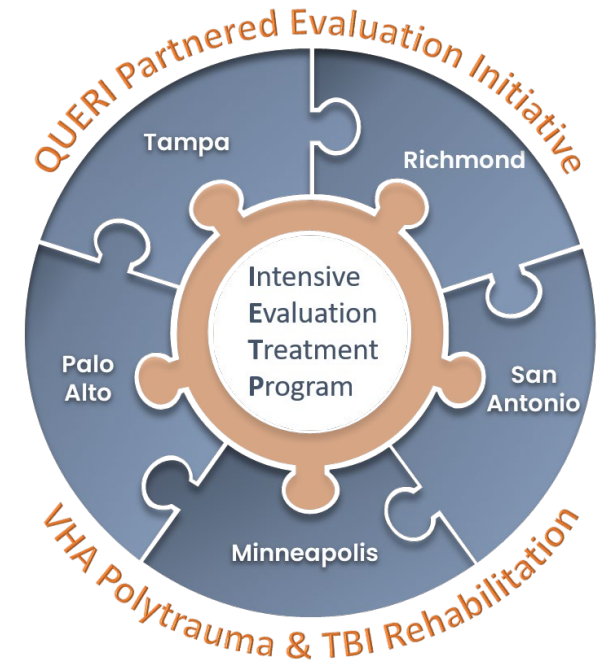
Aim 2

To identify relationships between IETP program services received, treatment outcomes, and patient profile (i.e. clinical symptoms and socio-demographics)



Aim 3

To disseminate findings to operational and clinical partners to inform continued IETP implementation and evaluation



Partnered Evaluation Collaborative Roles

Operational Partner Physical Medicine and Rehabilitation National Program Office

Oversees the addition of IETP to the CoEs polytrauma programs.

Site Partners

Liaise with project leadership regarding site needs, concerns, interviews, visits, and data collection.

TBI Centers of Excellence (CoEs) Medical Directors

Ensures the program is aligned with the goals, mission, and vision of each site.

Project Champions

Guides the process for adding “best practice” elements of the IETP to their individual site polytrauma program.

Department of Defense (DoD) Stakeholders

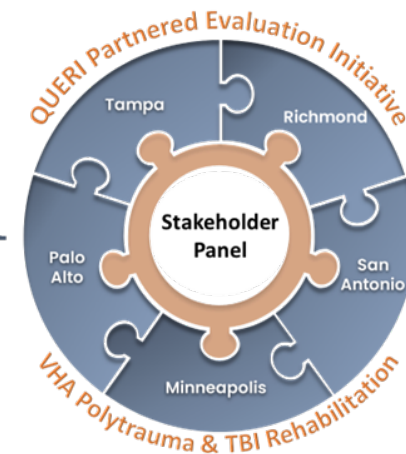
Provides information about referrals and care collaboration across government entities.

Service Members and Veterans

Participate in the IETP programs and share their experiences with the stakeholder panel and evaluation project team.

Evaluation Project Team

Interviews staff and patients to identify site needs for optimal functionality of the IETP.



Integration of the Quality Enhancement Research Initiative Implementation Roadmap Conceptual Model: Partnered Evaluation Gear-Up



Aims and partner goals	Partner-identified challenge	Partnered evaluation initiative solution
Identify and align needs and goals	Work with a team that understands needs and goals from the TBI and implementation perspective	Ongoing communication and meetings to understand needs and identify priorities
Engage stakeholders	Prior push to implement not successful	Site representatives recruited to facilitate a bottom-up pull and buy-in from local staff. Input on study design and findings were sought from a stakeholder panel including veterans, service members, VA and DoD administrators, and clinicians
Develop measures and data	Program evaluation data are not standardized and readily accessible	Site representatives recruited to facilitate engagement of stakeholders for data collection. Meetings with PM&R partners and various stakeholders to identify and prioritize outcomes

Integration of the Quality Enhancement Research Initiative Implementation Roadmap Conceptual Model: Data to Knowledge



Aims and partner goals	Partner-identified challenge	Partnered evaluation initiative solution
Aim 1: characterize consumer demand	IETP value from referrals within VA and DoD is unknown	Use of qualitative data collection with patients treated across fully and partially implemented sites
Aims 1-2: fully characterize the innovation (IETP)	IETP is a black box with poor characterization to duplicate and sustain across systems	Use of qualitative interview technique and quantitative analyses of administrative data sets to identify effective practice core elements and adaption options
Aim 2: determine early and late outcomes from IETP	Outcome monitoring has not been the focus on the existing programs	Leverage existing data (eg, IETP data) and collect prospective outcomes data to identify measures of success and establish baseline performance at the fully implemented site

Integration of the Quality Enhancement Research Initiative Implementation Roadmap Conceptual Model: Knowledge to Implementation



Aims and partner goals	Partner-identified challenge	Partnered evaluation initiative solution
Aim 1: characterize the degree of implementation	IETP innovations have occurred asynchronously with variation of implementation	Qualitative data collection with a purposive sample of clinicians at each site to understand the degree of implementation, inform selection, and tailor implementation to each site
Aim 3: disseminate and promote IETP implementation	Continued fundings for TBI rehabilitation services in a competitive fiscal environment across the VA organizational hierarchy	Use participatory approach to (1) promote a bottom up pull for "IETP evidence-based" practices, (2) disseminate implementation content, and (3) gather feedback for each site. Leverage existing reporting structures to summarize findings for reports to Congress including VA and DoD administrators, and clinicians for uptake and sustainment

Integration of the Quality Enhancement Research Initiative Implementation Roadmap Conceptual Model: Performance to Data

Aims and partner goals	Partner-identified challenge	Partnered evaluation initiative solution
Implement IETP	Funding mechanism and timeline insufficient to achieve all partner goals	Will develop future proposals to evaluate the uptake of IETP, evaluate the ongoing implementation, and inform continuous learning



**A Mixed-Methods Approach to Evaluating a
System-Wide Implementation of a TBI
Intensive Evaluation and Treatment Program –**

Paving the way

Characterization, Evaluation, and Implementation of Innovative TBI Intensive Evaluation and Treatment Programs

JMIR RESEARCH PROTOCOLS

Haun et al

Protocol

Traumatic Brain Injury Intensive Evaluation and Treatment Program: Protocol for a Partnered Evaluation Initiative Mixed Methods Study

Jolie N Haun^{1,2}, EdS, PhD; Risa Nakase-Richardson^{1,3}, PhD; Christine Melillo¹, RN, PhD; Jacob Kean⁴, PhD; Rachel C Benzinger¹, BA; Tali Schneider¹, PhD; Mary Jo V Pugh⁵, EdM, MA, PhD

Project Aims

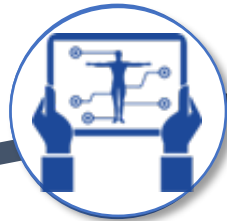
Aim 1

To identify IETP program services and create an inventory of items (i.e. staff, equipment, etc.) for successful integration of IETP based on feedback from the medical director, staff, and patients



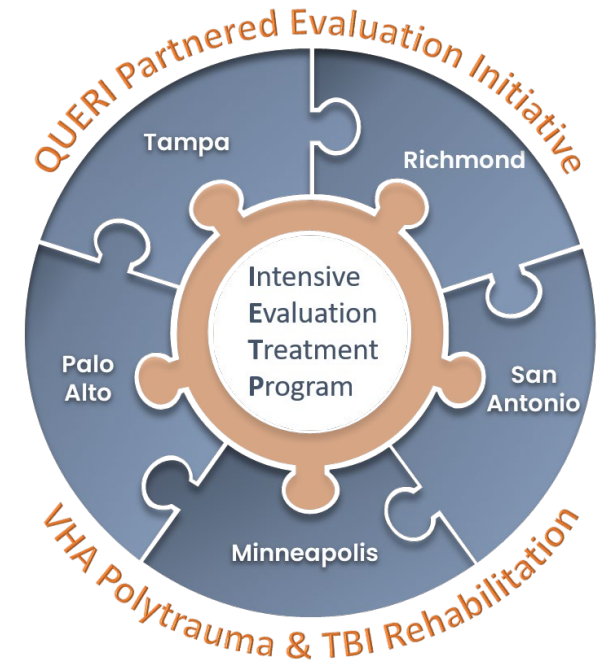
Aim 2

To identify relationships between IETP program services received, treatment outcomes, and patient profile (i.e. clinical symptoms and socio-demographics)



Aim 3

To develop products that inform disseminating findings that allow for IETP to be fully implemented at each site



Summary of Project Aim Activities & Deliverables

Activities

- Conduct site visits
- Conduct interviews with key program representatives, staff, and patients

Deliverables

- Summary table of site-specific program services
- Implementation Logic Model that maps strategies and mechanisms of action required for successful integration of site-specific IETP
- Inventory of IETP care elements (i.e. staff, equipment, etc.) for optimal integration

Aim

1

Activities

- Identify and summarize IETP patient characteristics, clinical services provided, and TBI-IETP outcomes into a table
- Identify improvement and sustainment trajectories of patient recovery
- Compare patient care outcomes with clinical service received and patient characteristics

Deliverables

- Data summaries and reports

Aim

2

Activities

- Develop report from data summaries
- Present findings to VA, PM&R, DoD, and other stakeholder communities

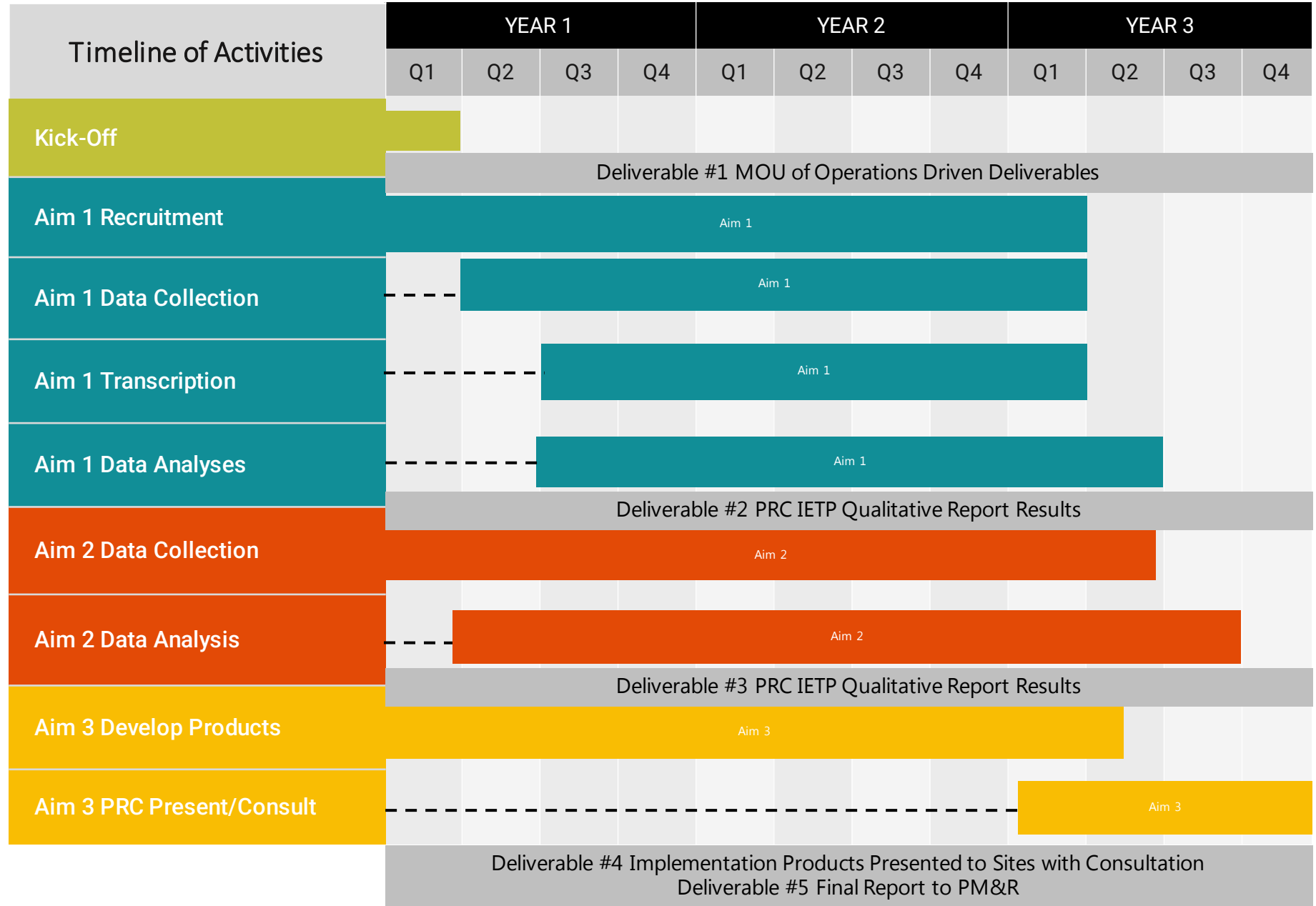
Deliverables

- Final report
- Site-specific implementation

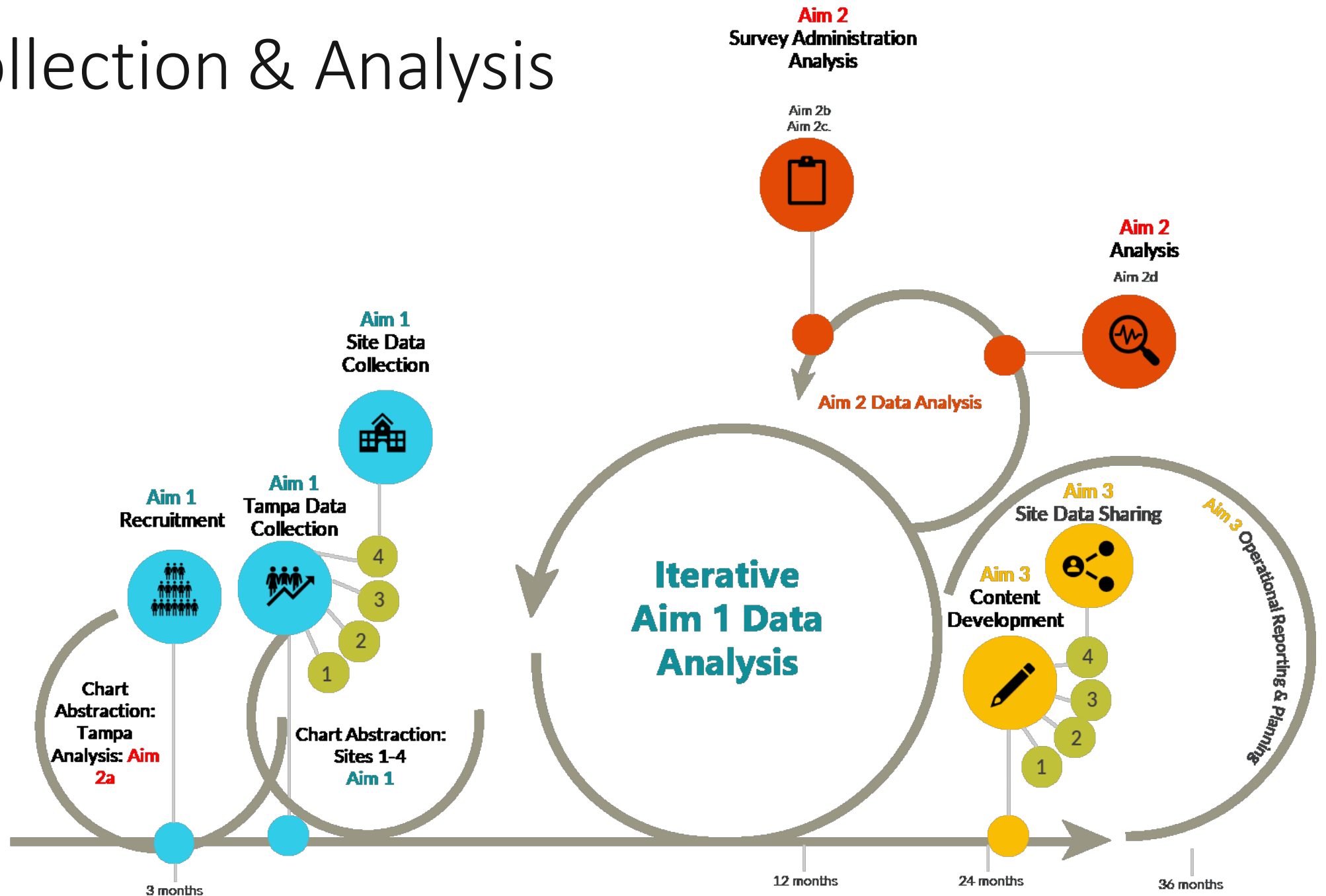
Aim

3

Project Timeline



Data Collection & Analysis Process



Aim 1 Details

Identify IETP program services and create an inventory of items (i.e. staff, equipment, etc.) for successful integration of IETP based on feedback from interviews

VA Staff Interviews

Key program representatives and clinical staff

Patient Interviews

Active Duty and Veteran participants




DoD Interviews

DoD referral sources and stakeholders

Site Visits

Observe two days at each site

Aim 1 Qualitative Recruitment

 Activity	 Participants	 Sample Site
Key Program Representative Interviews	Clinical team from CoE	1
Site Visit Observation	CoE representatives, leadership & clinician	N/A
Focus Groups (FG)	Physician, nurse, therapist, etc.	15
DoD Interviews	DoD IETP stakeholders	Identify at each site
IETP Patient Telephone Interviews	Veterans/Service Members who previously received IETP	12
Demographic Questionnaires	Physician, nurse, therapist, etc.	15
Follow-up Interviews	Sub-sample of KI & FG participants	15

Aim 1 Data Analysis

Concurrent Rapid Iterative Content & Thematic Analysis

Matrix Analysis Across Sites & Samples

Taxonomies



Implementation Research Logic Model

Determinants – CFIR

- Counts of Endorsement
- Prioritized Themes & Examined Sub-domains

Outcomes - RE-AIM

- Implementation, Service & Clinical

Aim 2 Details

Identify relationships between IETP program services received, treatment outcomes and patient profile (i.e. clinical symptoms & socio-demographics)

Patient Characteristics

Characterize Patients

- Socio-demographics
- Military characteristics and context
- Current military status
- Clinical characteristics

IETP Treatment

Identify clinical services received

- Develop medical chart abstraction tool
- Abstract IETP services received

IETP Care Components

Identify sustainment and improvement trajectories

- Site and patient feedback
- Trajectory of improvement
- Common core outcome measures
- Program satisfaction



Aim 2: Data Collection

Chart abstraction

- IETP participants
 - Characteristics
 - Services received

Communication

- Format, platform
- Assurance for data use

AIM 2 OUTCOME MEASURES: IETP CONSENSUS SURVEY

	Scale Category	Core Measures	# of Questions/Items	Completion Time (Minutes)
Required	Neurobehavior	Neurobehavioral Symptom Inventory	22	10
		M2Pi	8	8*
	Mental Health	PTSD Checklist (PCL-5)	20	5-10
	Pain	PROMIS Pain Interference-6b	6	5*
	IETP Services	Satisfaction with IETP Services	5	-
Optional	IETP Patient Goal	Goal Attainment Scale (GAS)	1-6	5*
	Sleep	Pittsburg Sleep Quality Index (PSQI)	19/5	15*
		Epworth Sleepiness Scale	8	-
	Headaches	Headache Impact Test (HIT-6)	6	5*
		Migraine Disability Assessment Scale (MIDAS)	7	-
	Assistive Technology	Satisfaction with Assistive Technology	2	2*

* Approximate time in minutes to complete scale

Aim 2 Data Analysis

Primary Survey Data Collection

- Descriptive Statistics
- Latent Variable Mixture Model

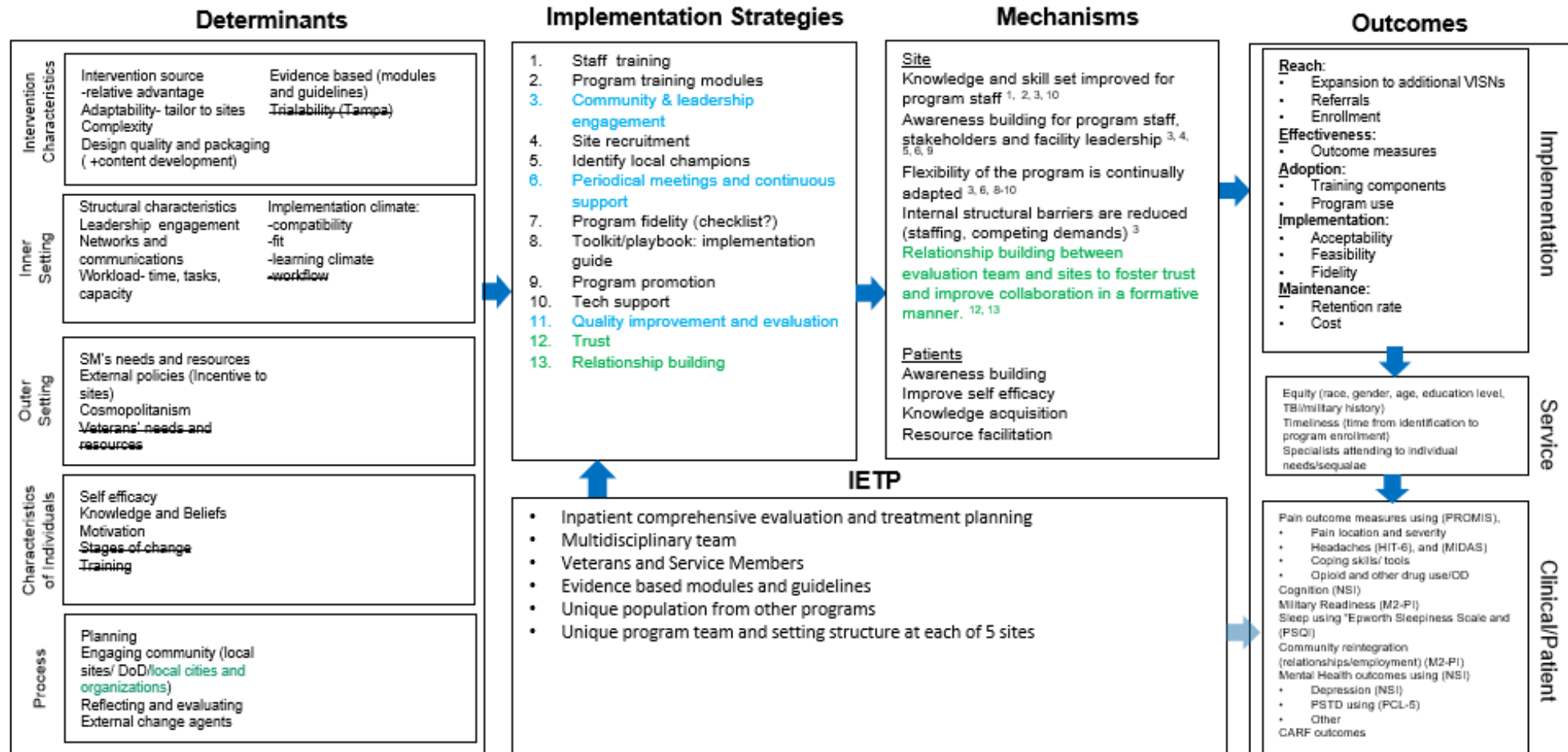
Secondary Chart Abstractions

- Characteristics of Participants
- Types of Care Received

Data Sources, Data Triangulation,
and Outcomes –

The Data Super-Highway

IETP Implementation Research Logic Model (v2.0)



© Smith, J.D., Li, D., & Rafferty (2020)

[New Tools to Improve the Rigor of Implementation Research: The Implementation Research Log... \(va.gov\)](#) Video resource

9/25/2023

Legend:

~~Strikethrough~~—not demonstrated in the data as theorized so removed from this version
Blue font—strong demonstration in the data
Green font—new idea demonstrated in data and added to this version.

IETP Process Map

Intensive Evaluation and Treatment Program (IETP) Care Continuum

Pre-Appointment

Check-In

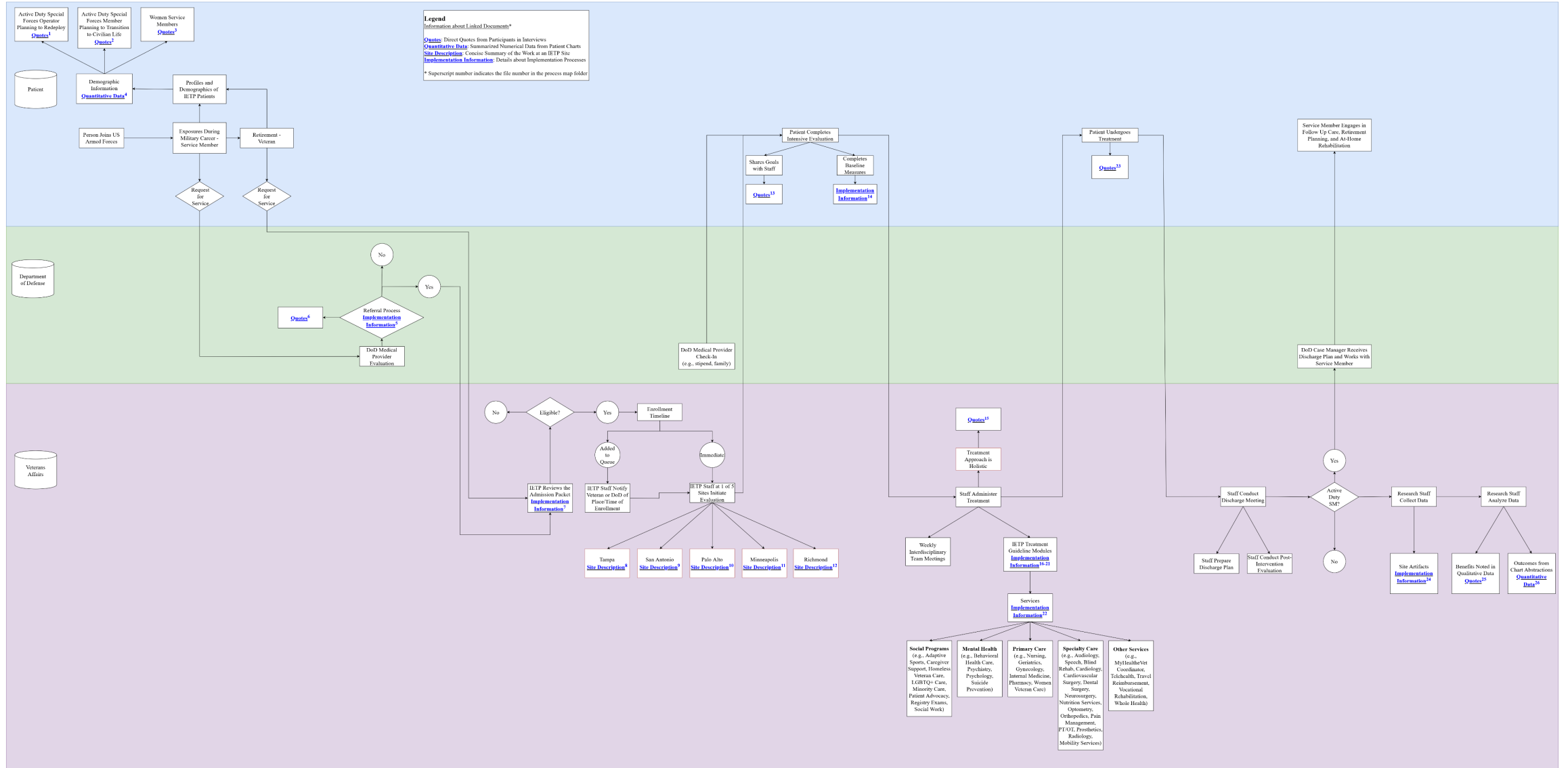
History/Examination

Diagnosis

Treatment Plan and Care

Check-Out

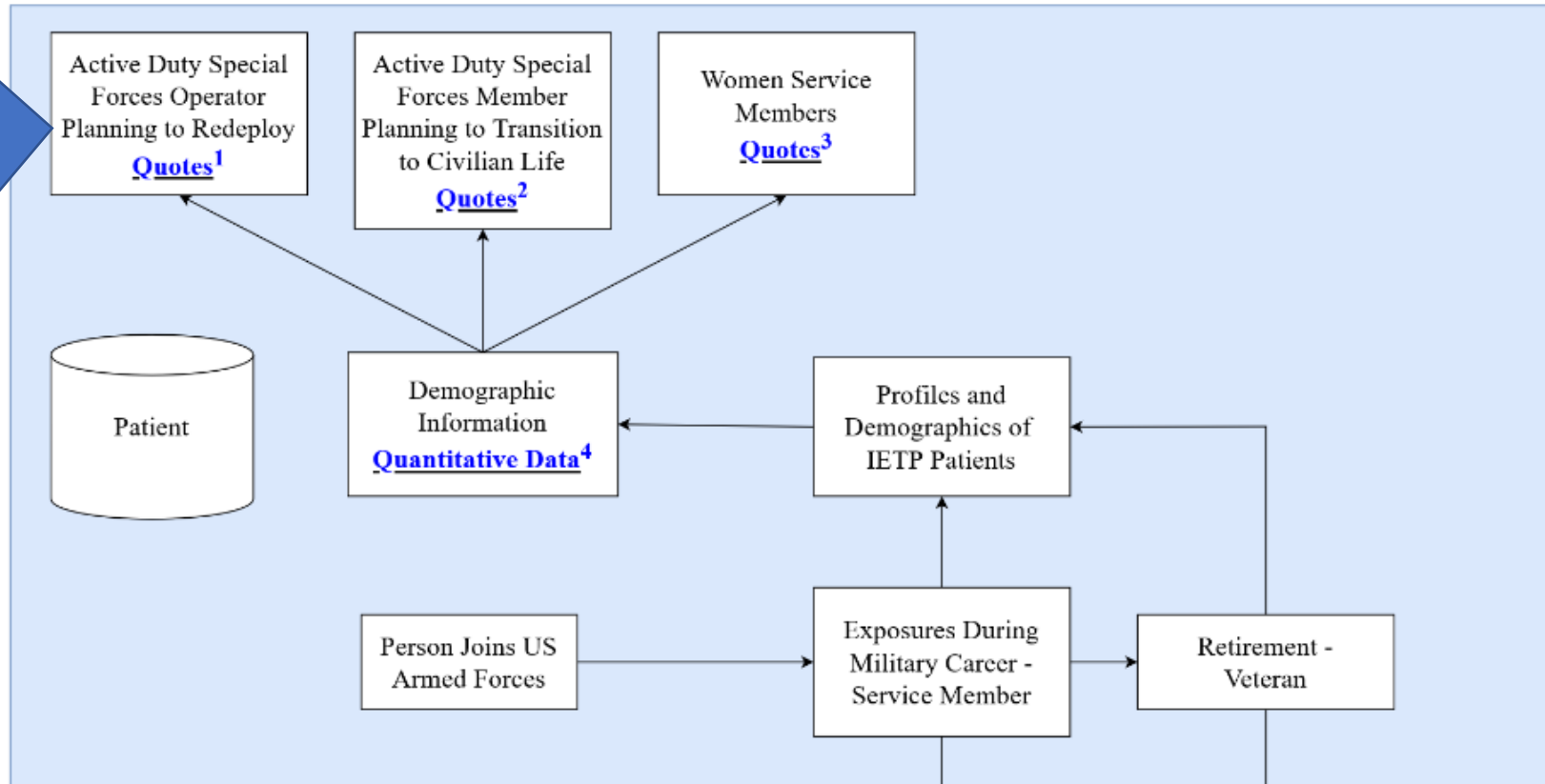
Post-Appointment



IETP Process Map

1

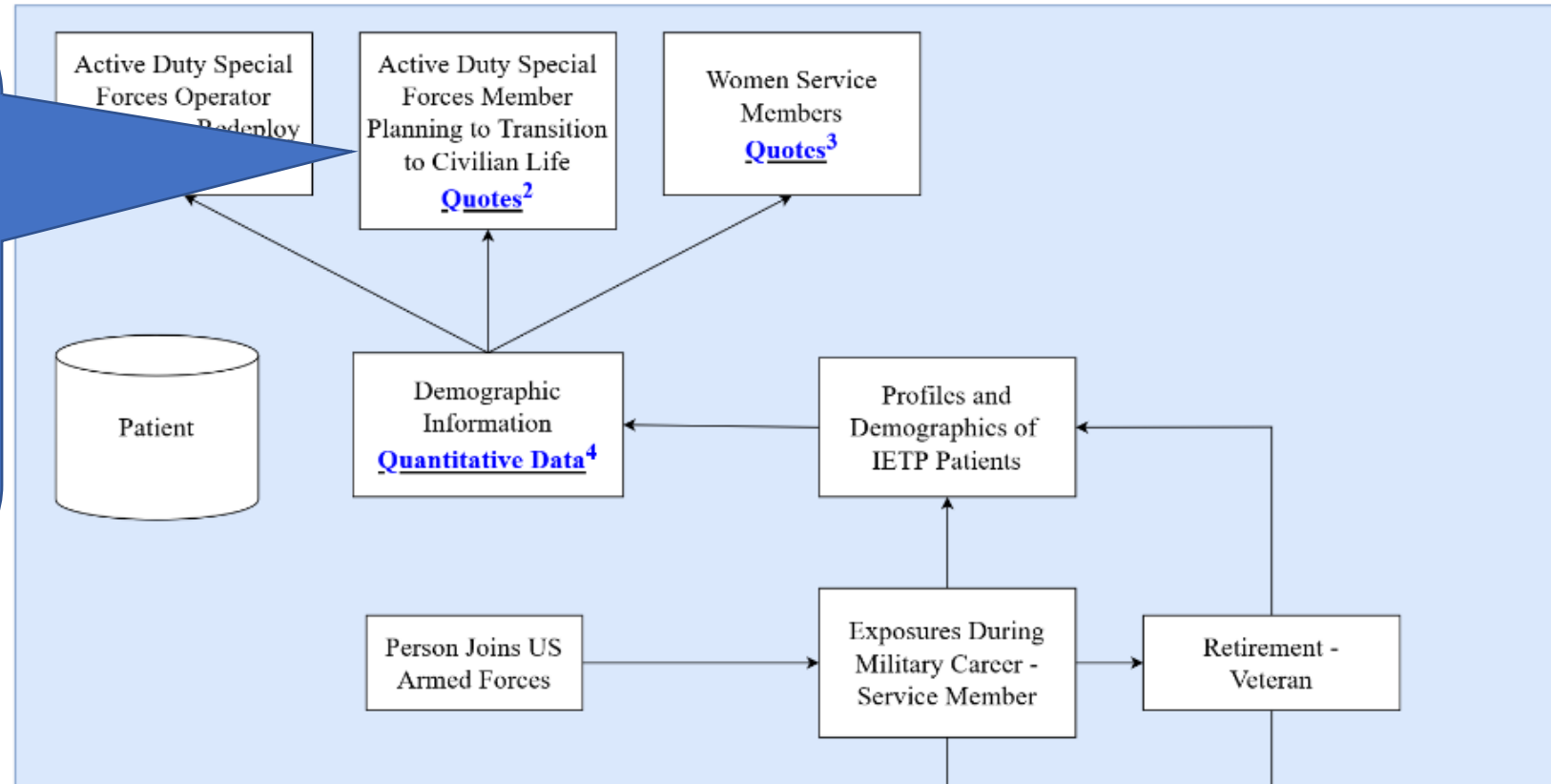
“...coming out of there [IETP Program] with a thought process on potentially on what I want to do when I transition out of the military and having a resume and some networking connections already set up and then being able to come back to work kind of with like renewed vigor, hey I only have so much time left, but I still want to make sure I’m doing everything I can to help and be productive.”



IETP Process Map

2

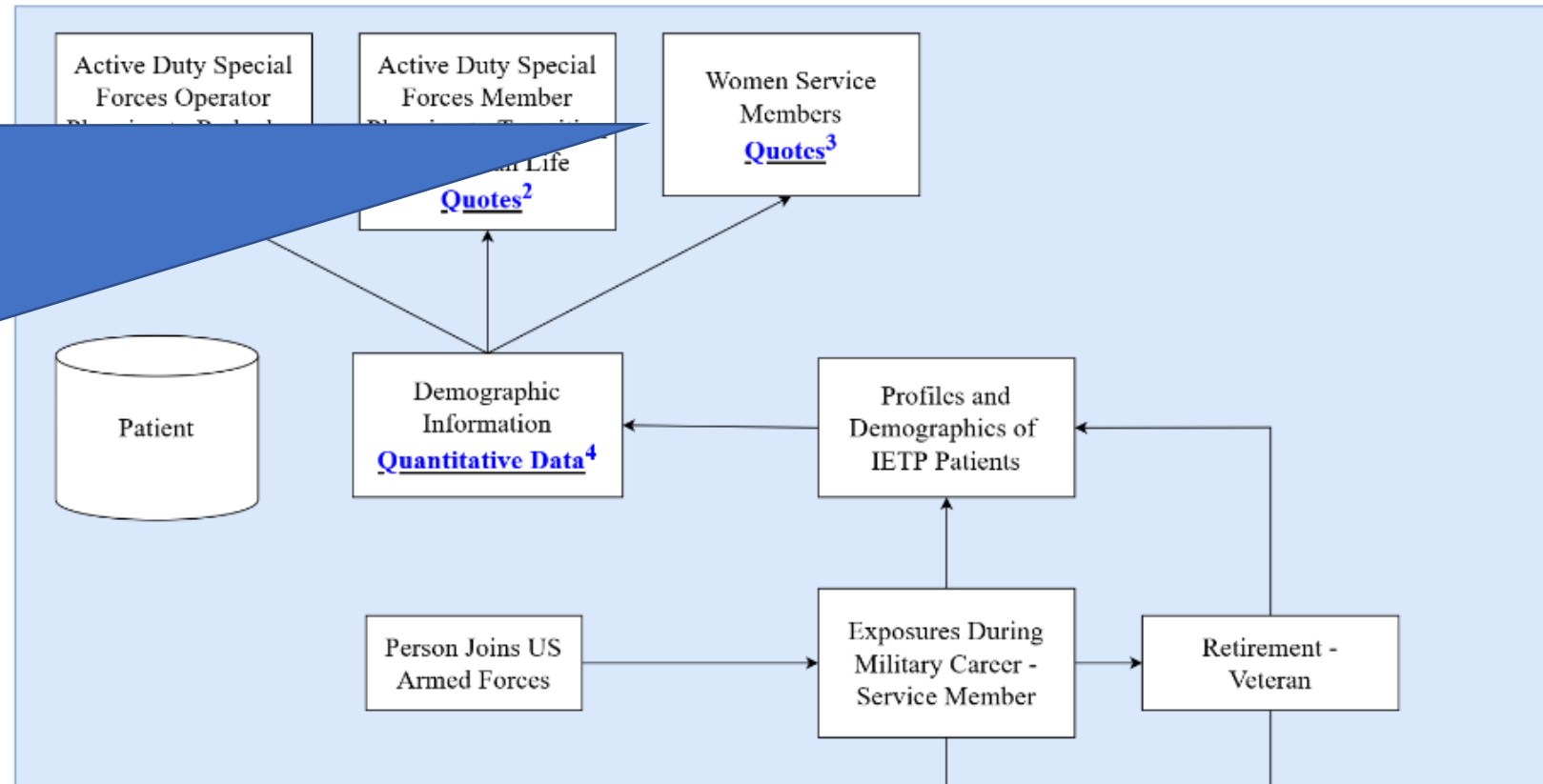
“So, any findings or anything that, you know, is documented through that is already through VA channels; so, it kind of -- well, I’ll let you know when I get there, but streamlines that process once the retirement window comes up”



IETP Process Map

3

“I think my initial personal challenge was, like, being grateful for being there but at the same time, not wanting to be there. It’s hard to admit that you need that level of help. I think, personally, it was a little challenging to be the only woman there, but I feel like that’s just kind of just the name of the game in the military sometimes.”

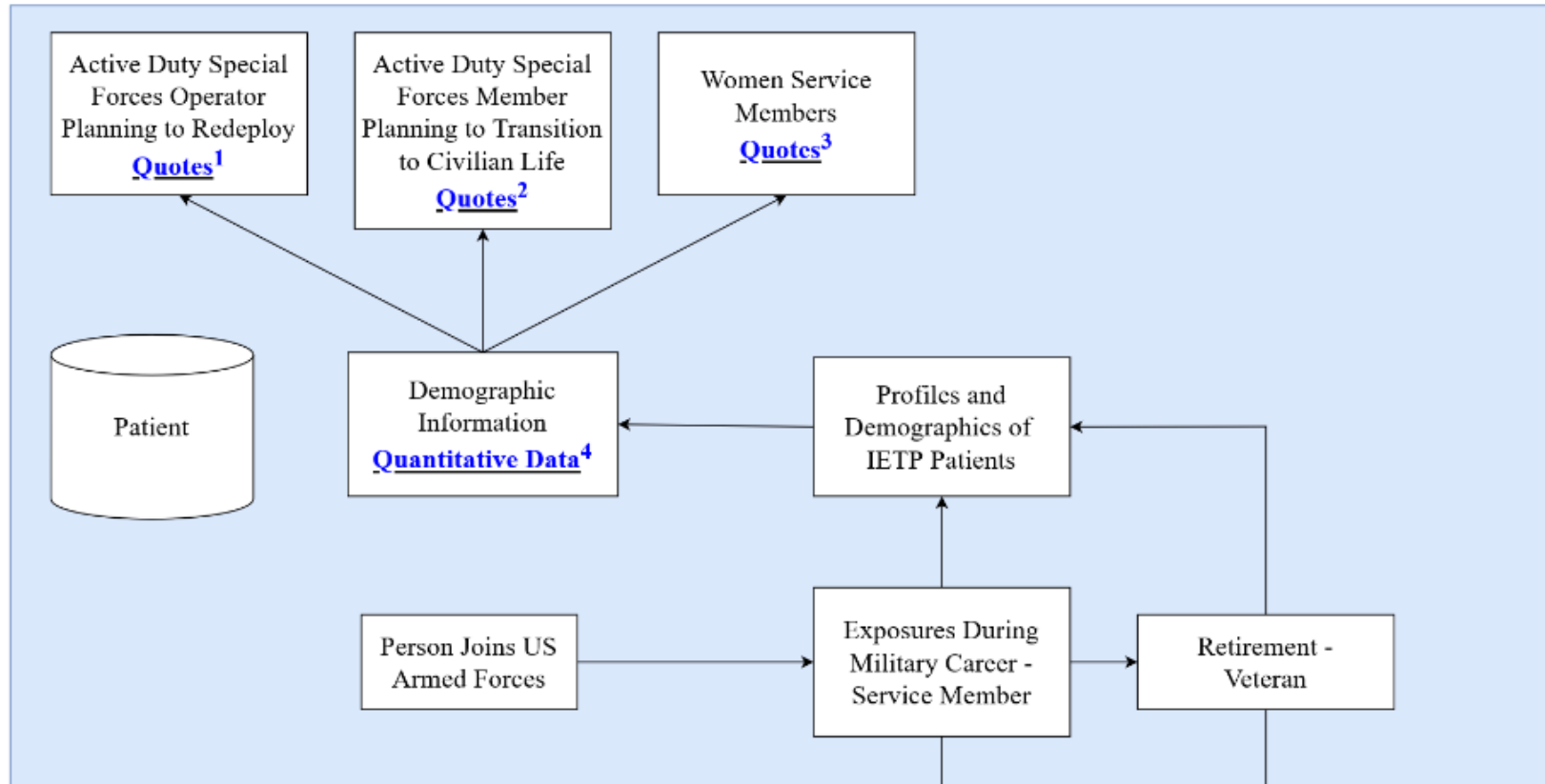


IETP Process Map

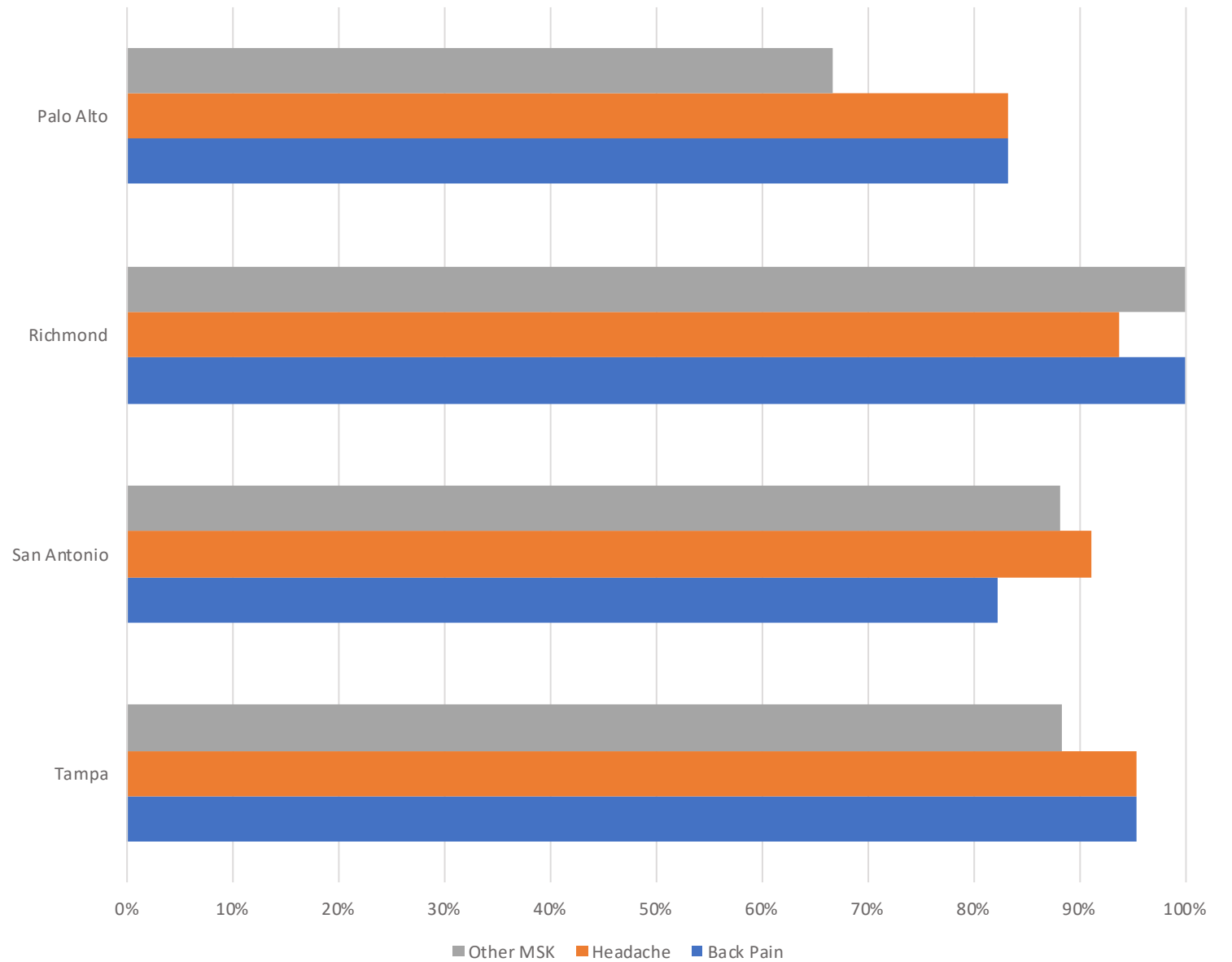
4

Demographic information collected from IETP interviews with consenting participants (n = 41)

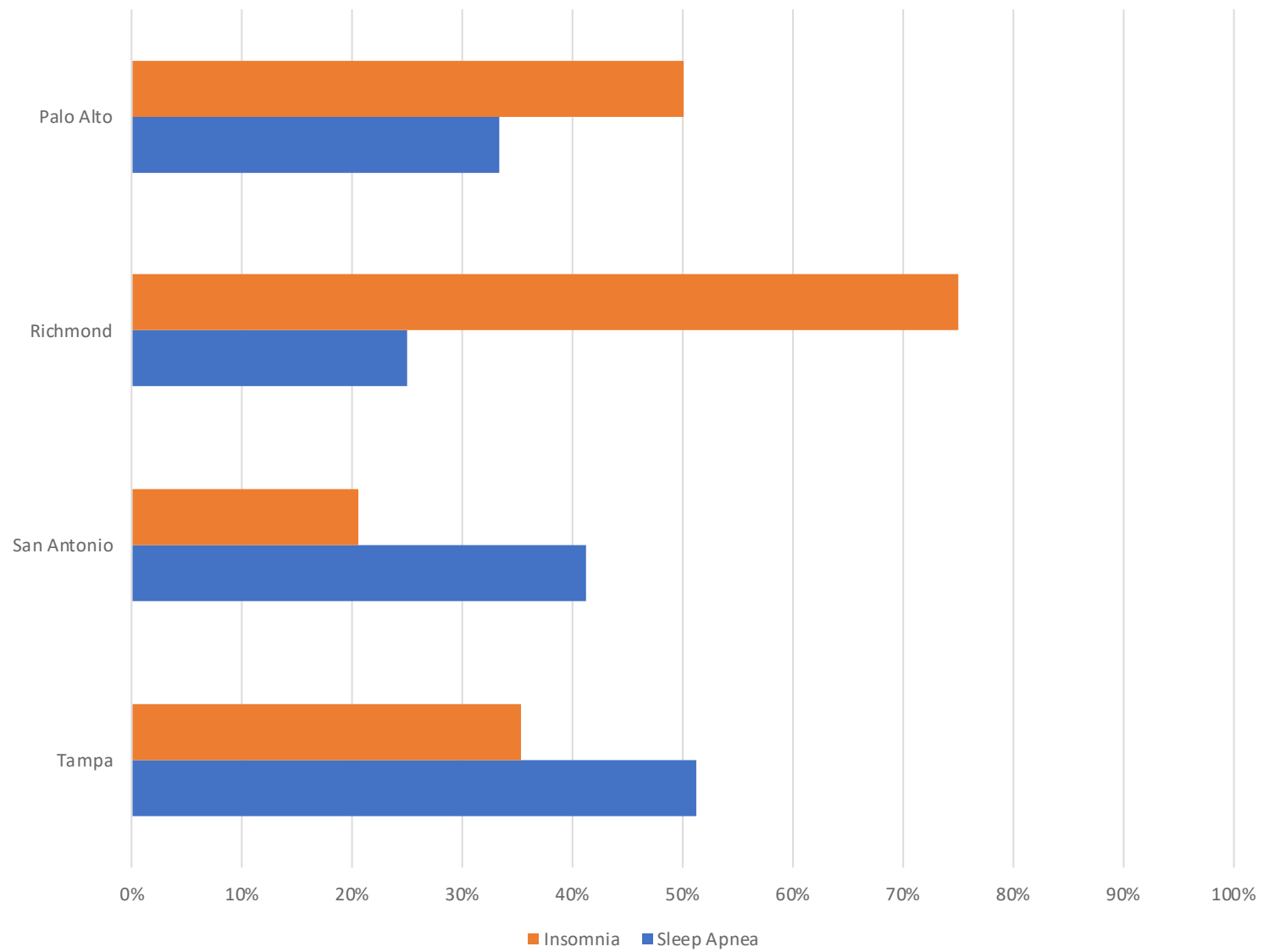
Variable	n	%
Gender		
Male	40	97.56
Female	1	2.44
Military Service Status		
Active Duty	36	87.80
Veteran	5	12.20
Age		
	M	SD
	41.15	6.26



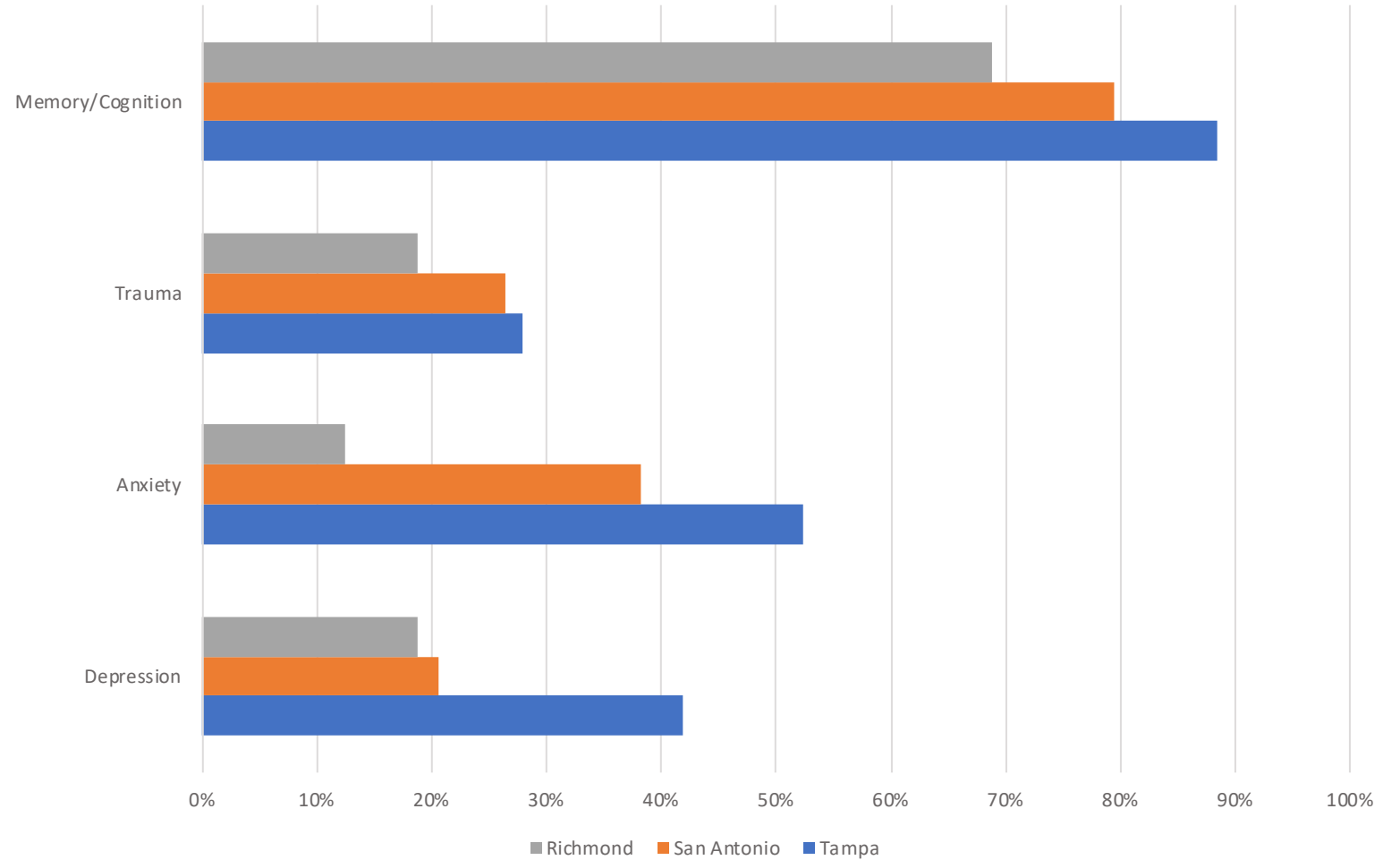
Frequency of Pain Conditions



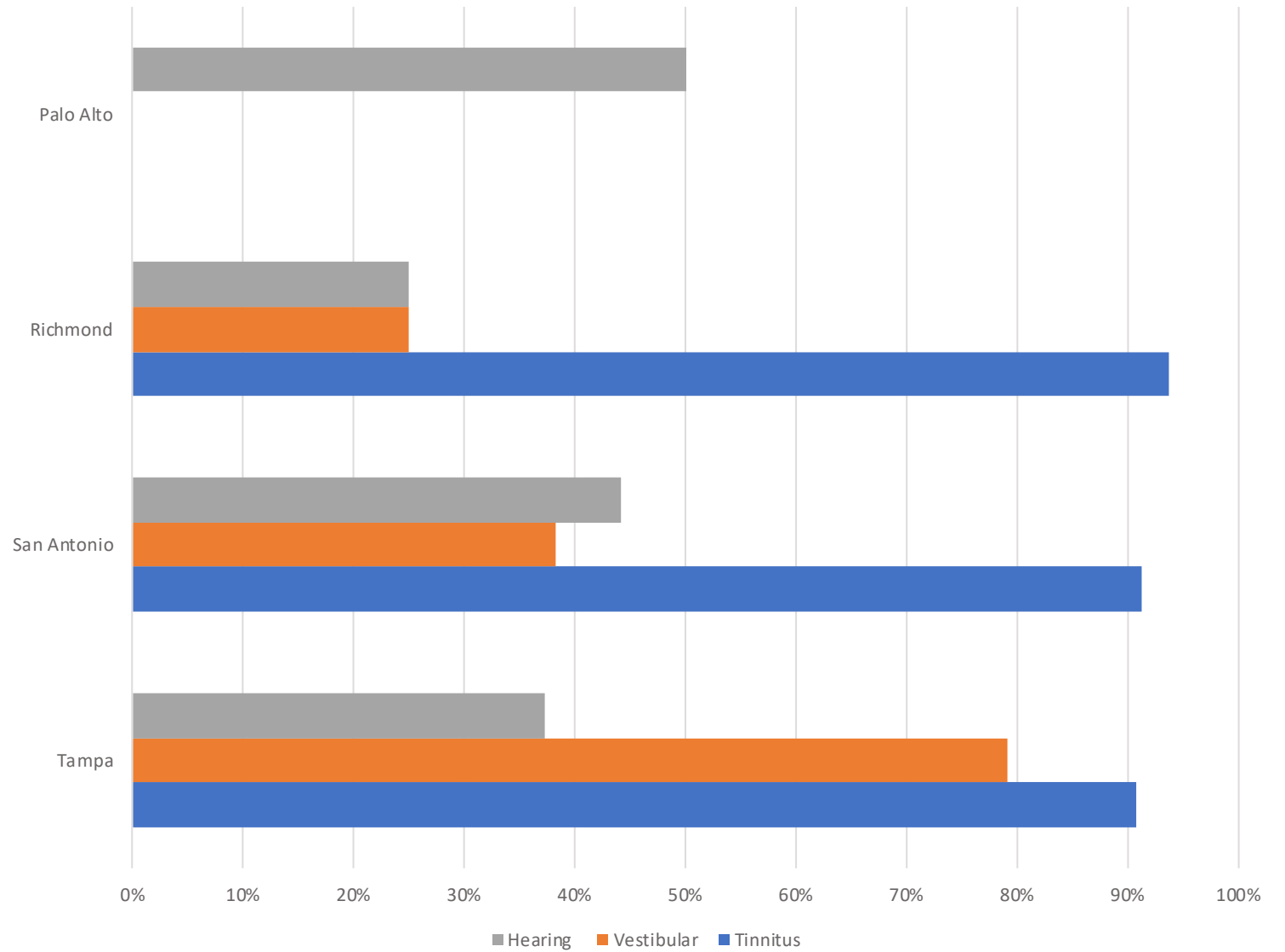
Diagnoses of Sleep Conditions



Behavioral Health Diagnoses



Sensory Diagnoses



IETP Process Map

5

JAMES A. HALEY VETERAN'S HOSPITAL AND CLINICS
POST-DEPLOYMENT REHABILITATION AND EVALUATION PROGRAM



James A. Haley Veterans' Hospital & Clinics
13000 Bruce B. Downs Blvd.
Tampa, FL 33612

Approved by Hospital Veteran/Family Health Education Committee 2020 #x

10/20/2020

Department
of Defense

[Quotes⁶](#)

Referral Process
[Implementation
Information⁵](#)

DoD Medical
Provider
Evaluation

No

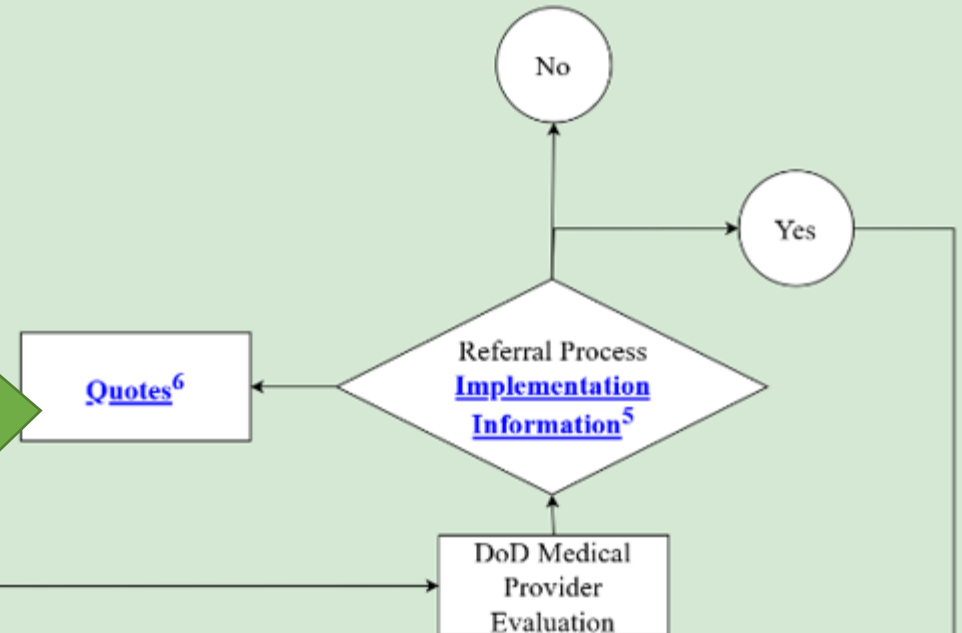
Yes



IETP Process Map

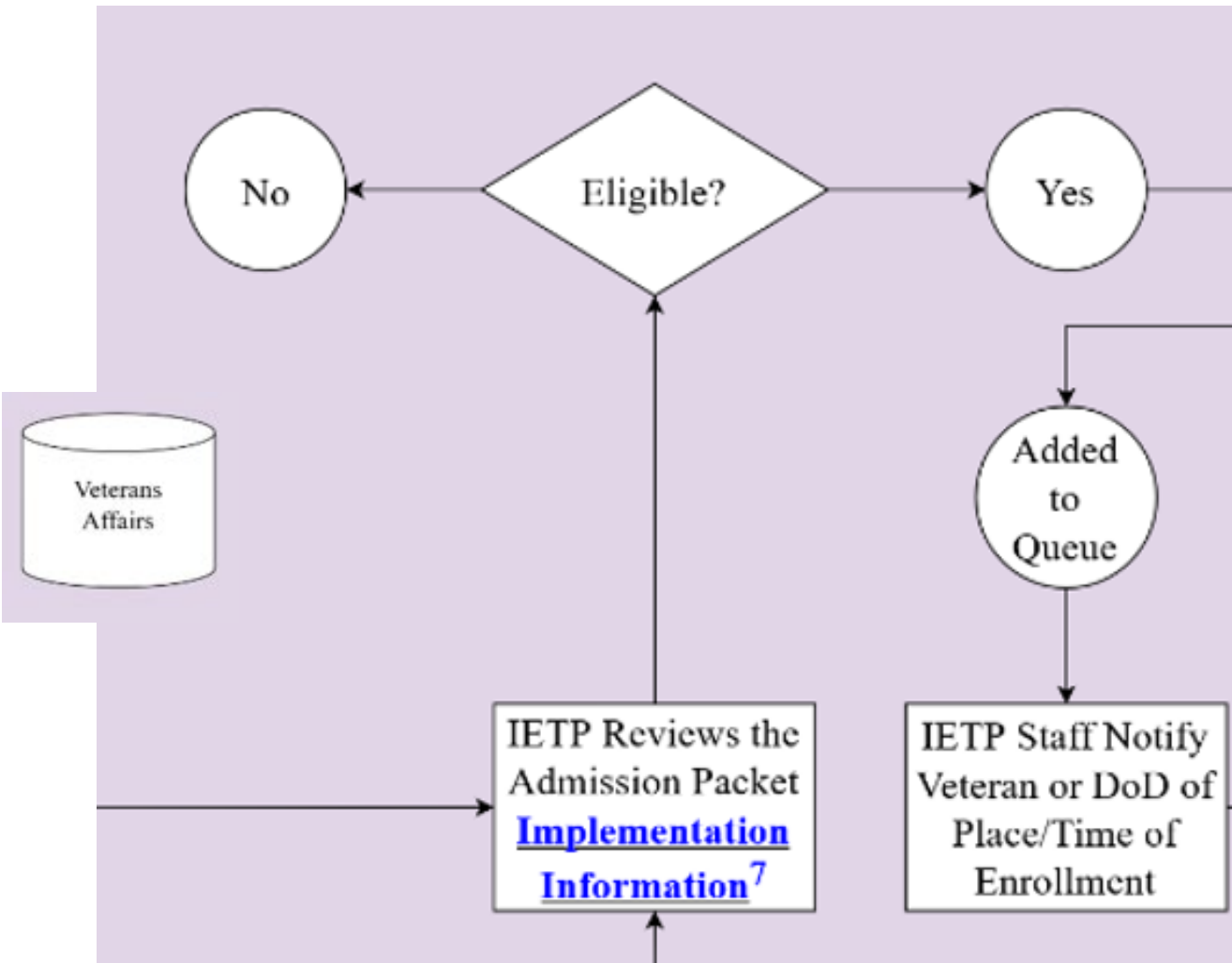
6


"I make sure the referring physician has all the appropriate documentation and forms that your program requires and then help put the referral packet together. You know, there's specific things that you look for in terms of medical records, certain testing results, things of that nature as well as your program specific forms. So, my job is to coordinate that, make sure everything is put together for the referral packet and then make sure that they get submitted."



IETP Process Map

7



VA |  U.S. Department of Veterans Affairs
Veterans Health Administration
Minneapolis VA Health Care System

One Veterans Drive
Minneapolis, MN 55417
www.minneapolis.va.gov

Polytrauma Transitional Rehabilitation Program (PTRP)
RENEW Program Admission Application

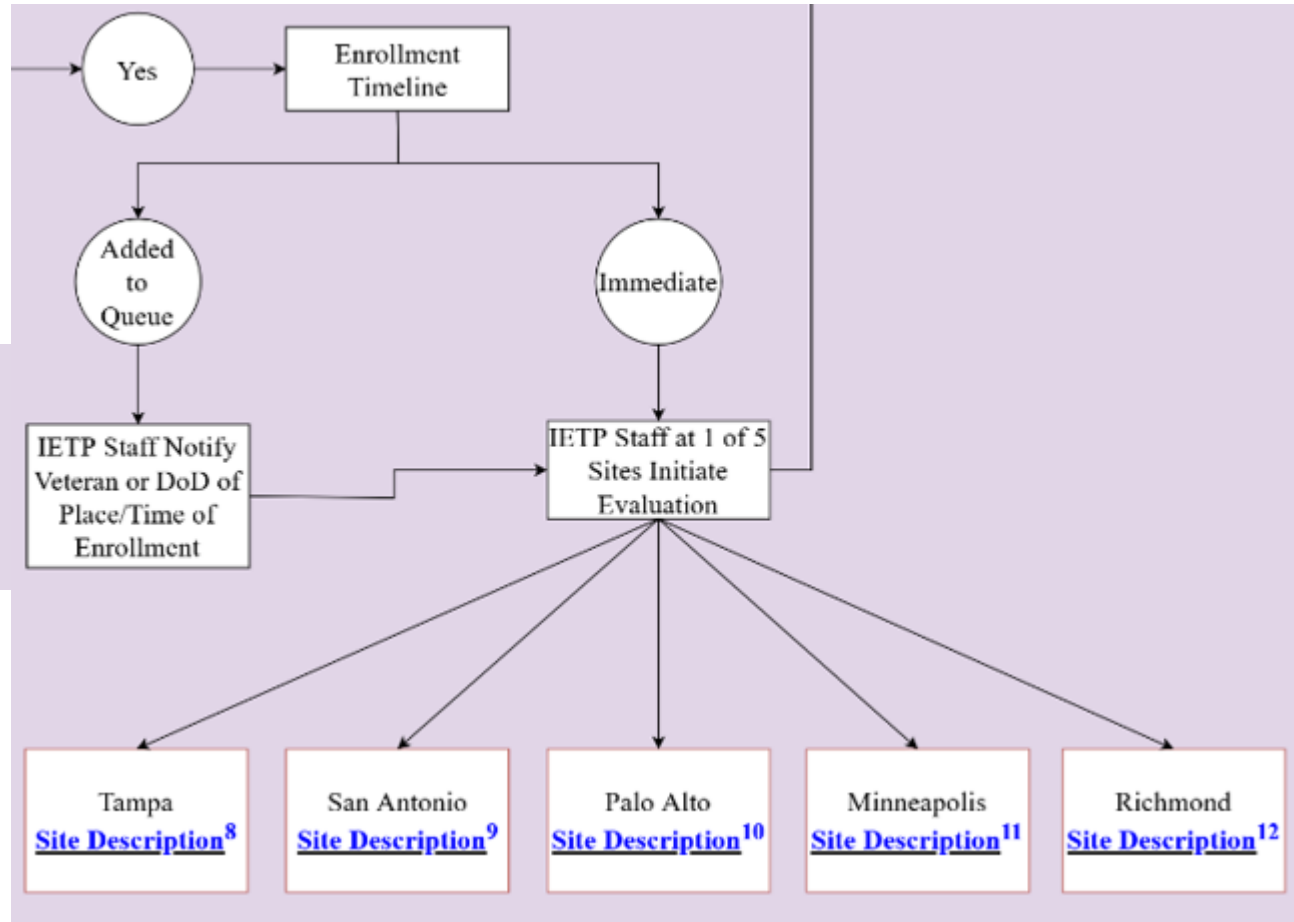
- PTRP is a comprehensive, inpatient transitional rehabilitation program serving veterans and active duty service members (ADSM) with a variety of presenting concerns.
- We offer three distinct program tracks that are tailored to different rehabilitation needs:
 - ❖ **Brain Injury Rehab Program** – serves veterans and ADSMs with a history of moderate to severe traumatic brain injury (TBI), acquired brain injury, or other neurologic injury.
 - ❖ **Living Large Program (LLP)** – serves veterans with Parkinson’s disease using the Lee Silverman Voice Treatment (LSVT)[™] BIG[®], SPEAK OUT![®], & LOUD[®] therapy protocols.
 - ❖ **Rehabilitation Evaluation & Neurologic Enhancement for Warriors (RENEW) Program** – serves veterans and ADSMs (including, but not limited to Special Operations Forces [SOF]) with a history of concussion or mild Traumatic Brain Injury (mTBI) that have complex post-deployment interdisciplinary rehabilitation needs.
- We also offer a short stay, **Comprehensive Evaluation**, with a typical length of stay of 1-2 weeks. In this program, we offer interdisciplinary rehabilitation evaluation for Veterans and Active Duty Service Members (ADSM) with a history of brain injury or other acquired neurologic injury that are impairing an individual’s daily functioning. Comprehensive results, treatment plan, and recommendations are provided in coordination of care with local care team, military command, family, and/or other care providers.
- Additionally, we offer a brief 1-3 week **Prosthetic Training** program which assists veterans and ADSMs with a history of amputation adjust to a new prosthesis by engaging in fitting and training with a skilled interdisciplinary amputation rehabilitation team.
- Mental health services are available but limited. Patients with predominant mental health issues are usually not appropriate for our program as we are not able to adequately address these complex issues.
- While it is a group-based program, we collaborate with patients to develop a unique, individualized treatment program specific to their needs.
- During a patient’s stay on PTRP, they are encouraged to have family/friends visit or to go on occasional passes to visit home/family/friends*. However, the expectation is that patients spend the majority of their evenings/weekends on the unit to participate in recreational therapy services on days when scheduled programming occurs. A patient who cannot commit to participating in evening/weekend programming is not appropriate for our program.
- Patients being referred to PTRP should have some history of outpatient therapy referrals/ services (OT, PT, SLP, psychology, etc.).
- *Individuals must be medically stable for admission to PTRP.*


* = Not allowed during current phase of COVID restrictions; please see PTRP Welcome Packet for additional details. Restrictions subject to change.

Revised 7/1/2022


IETP Process Map

12






SERVICE MEMBER TRANSITIONAL ADVANCED REHABILITATION



INTRODUCTION AND SETTING

The Service Member Transitional Advanced Rehabilitation (STAR) program was established as a pilot in 2012 as a result of a Joint DoD/VA task force which identified a deficit in services for service members who had sustained amputations and other polytrauma injuries and were transitioning out of the military to civilian life. The STAR program converted from a pilot to a permanent program in 2013. In 2019, the program transitioned to focus on providing services for the Special Operations Forces (SOF) population.

The facility is a separate building from the main hospital. STAR offers an aesthetically pleasing environment which promotes camaraderie and a supportive milieu. Each patient has their own room and bathroom. Core therapies are offered within the building, and patients have access to specialty consultative services located within the main hospital. Nursing is on-site and available 24-hours per day, seven days per week. Green space surrounding the building provides for a non-institutional feeling.








STAR is a **comprehensive rehabilitation program** for service members, with a focus specifically on the SOF population, to facilitate recovery and promote successful community reintegration, return to duty, or transition to employment.

Facility: Central Virginia VA Health Care System, Richmond, Virginia

KEY CHARACTERISTICS, REFERRAL AND ADMISSION

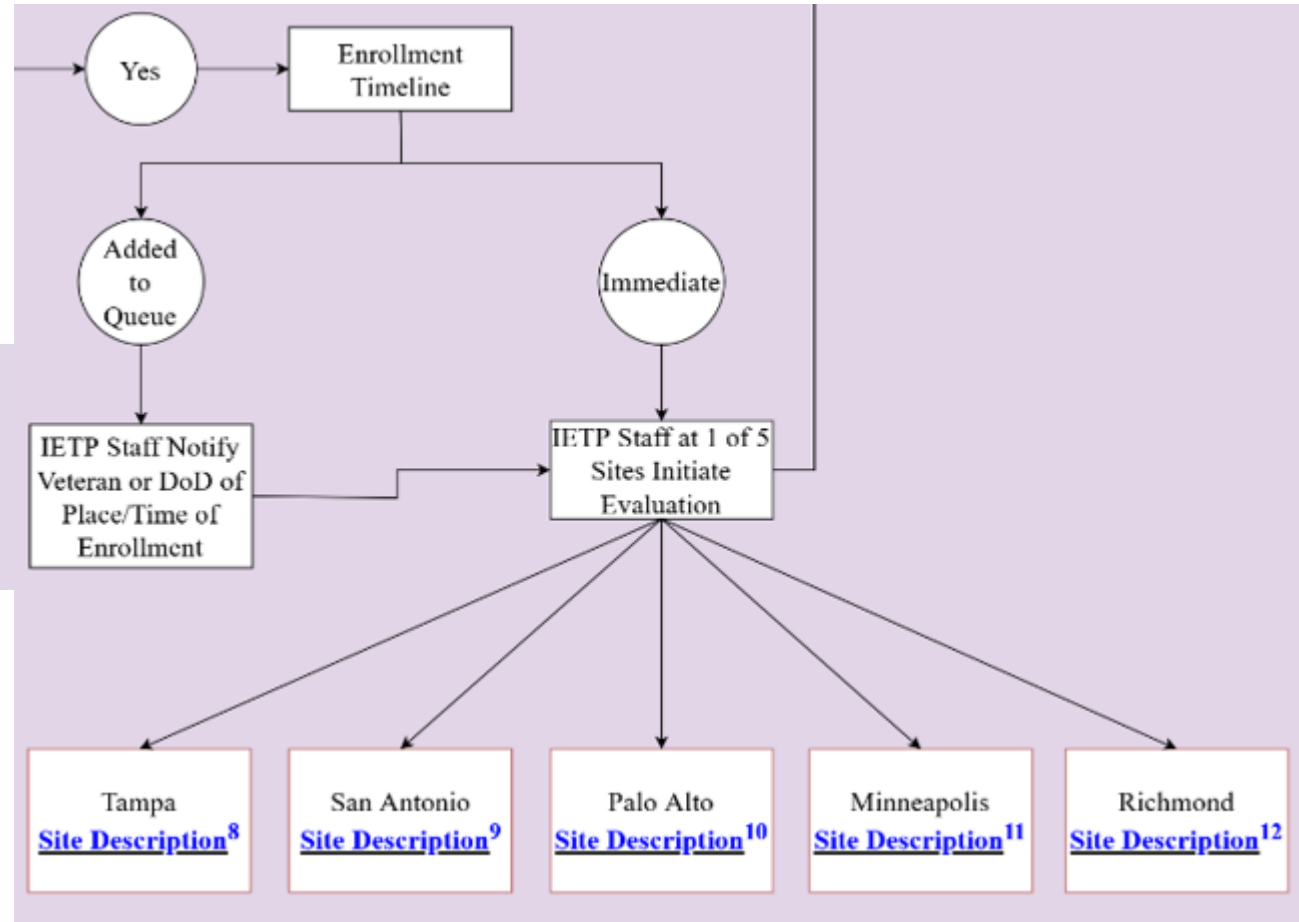
STAR has an onsite nurse case manager dedicated to admissions and maintains consistent contact with identified stakeholders and facilitates in the admissions process. STAR team members formed an internal marketing committee to conduct stakeholder site visits and provide education about the program.

	Capacity:	10-bed facility; typically with 9 SOF participants.
	Staff:	All staff maintain continuing education pertinent to identified patient population to insure best practice.
	Format:	Services are offered in a residential setting.
	Program Duration:	Average length of stay is 60 days.
	Evaluation and Treatment:	The first two weeks are devoted to evaluation and development of a treatment plan, followed immediately by implementation. The program offers individualized treatment and the ability to consult with specialty care services as clinically indicated. A interdisciplinary rehabilitative model is utilized.

Page 1

IETP Process Map

12



SUCCESS MEASURES

- Measures extracted from medical record and program database
- Pre/Post surveys capture service impact
- Participants' feedback
- Satisfaction survey upon discharge
- Follow-up surveys 6 and 12-months post-discharge (conducted by third-party vendor)

STRENGTHS & FACILITATORS

- Cohesive interdisciplinary team of experts
- Strong program leadership
- Program lengths allows for sufficient time for personalized assessment, treatment, and continuity of care
- Devoted time away from home and/or work to focus on self
- Separate care environment on hospital campus
- Comprehensive evaluations
- Efficient communication with DoD

CHALLENGES

- Long waitlist for program admission
- Expand team to include additional innovative therapies
- Establish 6:1 patient-therapist ratio
- Program growth requires more space
- Restrict leave policies due to COVID-19
- Redundant application process and paperwork

WISH LIST

- Shortened placement wait time
- Increase bed capacity and/or new building to allow expansion of core team and ability to offer an array of additional services
- Eliminate redundant paperwork

STAR PROGRAM

Team Roles	FTE	Team Roles	FTE
Medical Director	1.0	Physical Therapist	1.0
Nurse Case Manager	1.0	Recreational Therapist	1.0
Speech Language Pathologist	1.0	Physical Therapy Assistant	1.0
Occupational Therapist	1.0	Psychologist	1.8
Social Worker	1.0	Chiropractor	0.25
Kinesiotherapist	1.0	BROS	1.0
Vocational Rehab Counselor	2.0	Knowledge Translation	Position Posting
Nurse Supervisor	1.0	Nurse Educator	1.0
Licensed Practical Nurse	8.0	Registered Nurse	6.0
Total FTE: 30.5			

EVALUATION, TREATMENT AND PATIENTS' CHARACTERISTICS

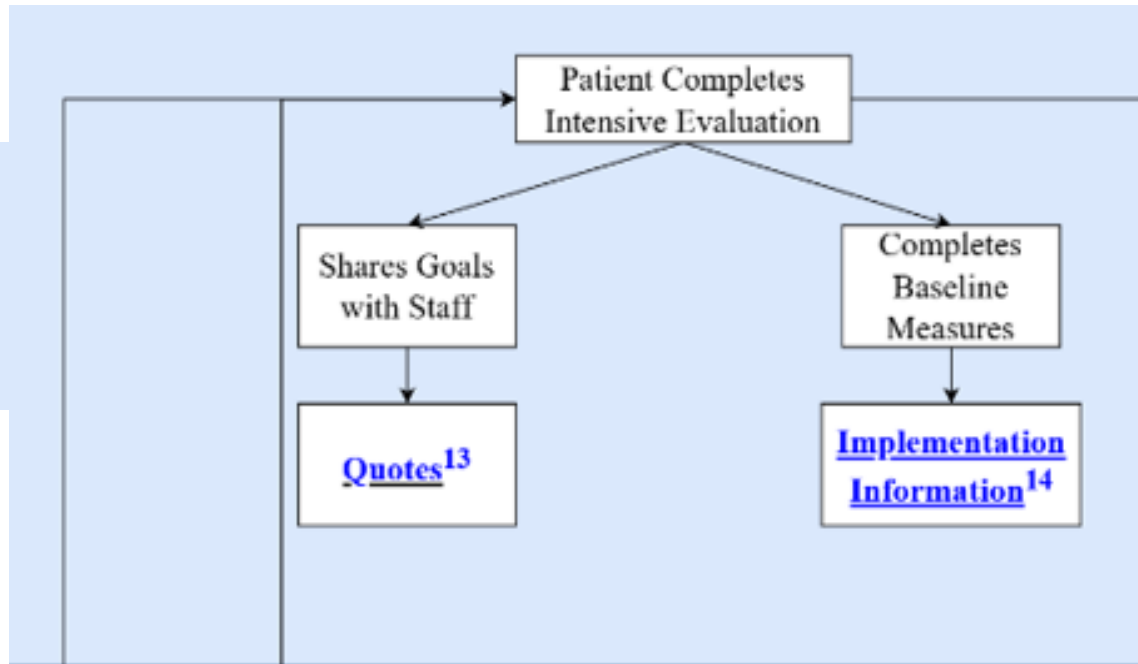
The STAR program serves the SOF population with common diagnoses of mild TBI, orthopedic injuries, chronic pain, headaches, trauma, and PTSD.

SUMMARY

Staff and FTE: Core team of 14.5 FTE with a 24/7 nursing team of 16 FTE (tabled above). Cross coverage from the Polytrauma Transitional Rehabilitation Program team includes Physical Therapist, Occupational Therapist, Psychologist, Kinesiotherapist, and a Speech Language Pathologist with 0.5 FTE each.

Program delivery: Inpatient

IETP Process Map



IETP PEI Data Inquiry Results

The TBI Intensive Evaluation and Treatment Program (IETP) is an innovative modality for delivering evidence-based care in a residential, inpatient format. IETP programs provide bundled evidence-based assessment, treatment, referral, and case management practices in concordance with existing guidelines for mild TBI and common co-occurring comorbidities. An aim of this Partnered Evaluation Initiative (PEI) is to describe IETP services and the state of implementation of these services at five sites to identify opportunities for adaptation and scale. The report below provides a brief summary of data collected as a means to better understand data collection and analysis processes in the IETP. Respondents at each of the five sites completed an open ended survey and a follow up interview designed to solicit information about outcome measures used, modes of data collection, current practices around using the data, and ideas for advancement/sustainability. We summarized the data into key themes for each question, providing quotes to embellish certain findings. Additionally, the PEI team – along with the respondents – offer recommendations.

1.) What program outcomes data are currently collected at your site (e.g., specific instruments, measures)?

- Sites collect data on several constructs, many of which are similar
 - Data are available on pain, PTSD, depression, anxiety, TBI, self-efficacy, and other social outcomes (e.g., satisfaction with life, social roles/activities)
 - Site #2 stated "outcomes include an admission self-report packet." (See Table 1)
 - Recommendation: IETP outcome measures vary across sites and constructs. A core of outcome measurements is recommended to support a learning health care system (e.g., national IETP database).

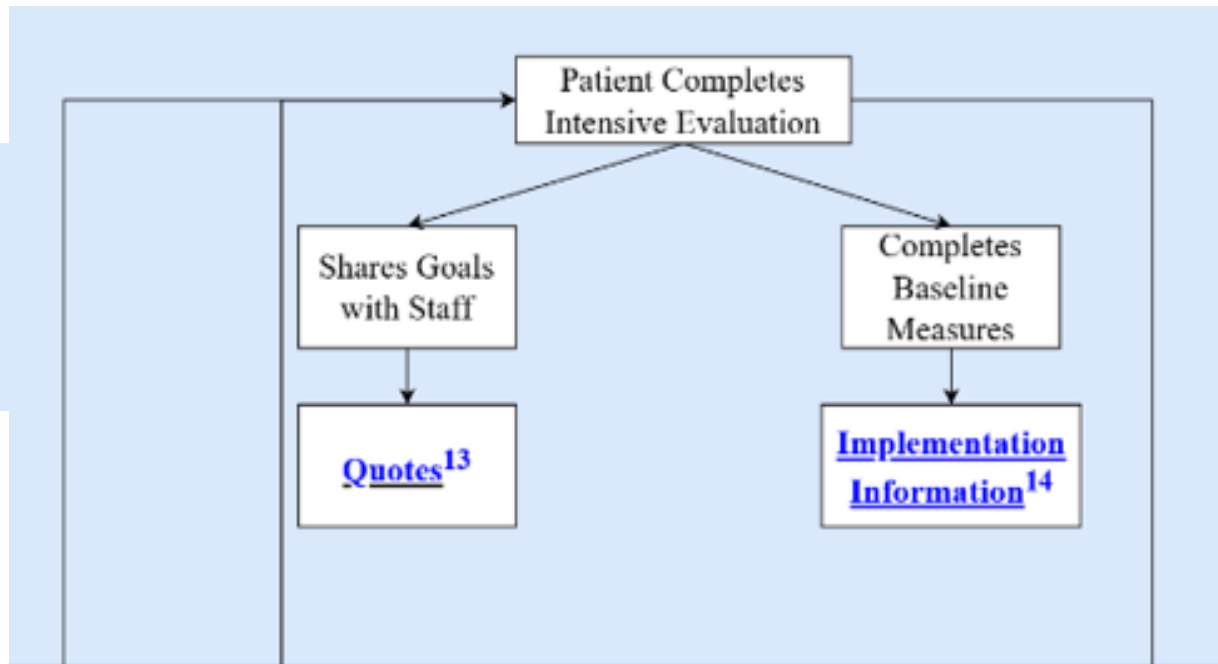
Table 1. Outcomes measures collected by site.

Site	Pain	PTSD	Depression	Anxiety	TBI & Related Measures	Functional	Self-Efficacy Measures	Other
1	PSEQ	PCL-5	PHQ-9	GAD-7	NSI	N/A	N/A	PSQI
2	PROMIS-29	PCL-5	PHQ-9	GAD-7	TBI-QOL; MPAL-4	SAGE; COPM; Gait Speed; PSFS; BRIEF-A	SESM	SWLS; LSS; PROMIS-SPS; PGIC
3	PSEQ	PCL-5	PHQ-9	GAD-7	NSI	N/A	GSE	N/A
4	PCS	PCL-5	PHQ-9	GAD-7	NSI; MPAL-4	ISI	HMSE	MIDAS
5	PROMIS-29	PCL-5	PHQ-9; BDI	BAI	NSI; M2PI	COPM; SDS-CL-25; ISI; DBAS-16	N/A	WPS; JRS; VPET; LSS

Note. PROMIS-29 = Patient-Reported Outcomes Measurement Information System (Measures Other Constructs Besides Pain as Well); PCL-5 = Posttraumatic Stress Disorder Checklist for DSM-5; PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-7; TBI-QOL = Traumatic Brain Injury Quality of Life; MPAL-4 = Mayo-Portland Adaptability Inventory-4; NSI = Neurobehavioral Symptom Inventory; SAGE = Self-Administered Gerocognitive Exam; COPM = Canadian Occupational Performance Measure; PSFS = Patient Specific Functional Scale; BRIEF-A = Behavior Rating Inventory of Executive Function-Adult; SESM = Self-Efficacy for Symptom Management; GSE = General Self-Efficacy; SWLS = Satisfaction with Life Scale; LSS = Leisure Satisfaction Scale; PROMIS-SPS = Patient Reported Outcomes Measurement Information System-Satisfaction with Social Roles and Activities; PGIC = Patients' Global Impression of Change; PCS = Pain Catastrophizing Scale; MIDAS = Migraine Disability Assessment; Insomnia Severity Index; HMSE = Headache Management Self Efficacy; PSQI = Pittsburgh Sleep Quality Index; PSEQ = Pain Self-Efficacy Questionnaire; BDI = Beck Depression Indicator; BAI = Beck Anxiety Inventory; M2PI = Mayo Portland Participation Index; SDS-CL-25 = Sleep Disorders Symptom Checklist-25; DBAS-16 = Dysfunctional Belief and Attitudes About Sleep; WPS = Work Perception Survey; Job Readiness Survey; VPET = Vocational preparation Effectiveness Tool; LSS = Leisure Satisfaction Survey; N/A = Not Available

IETP Process Map

14



2.) How are the data collected (e.g., paper, phone, electronic)?

- Data are collected by varying means across sites
 - Respondents indicated that self-report patient data is collected on paper and then transferred to a shared database on a VA server, although some sites are in the process of transitioning to electronic data collection (i.e., a link is given to the patient through Qualtrics)
 - Site #2 stated "the self-report packets are collected via paper-pencil."
 - Recommendation: [Site respondents indicate that patient data should ideally be collected by an electronic survey platform accessible \(i.e., FISMA compliant\) outside of the VA firewall \(e.g., Qualtrics\) for follow-up.](#)

3.) At what time frames is the data collected (e.g., baseline, at discharge, 3 months, and 6 months post discharge)?

- Data collection frequency varies by site
 - While all sites collect or plan to collect data at baseline, discharge, and at a 6-month follow-up, other sites collect data with additional follow-up points (i.e., 2 sites collect data at 3 months post discharge and 1 site collects data at 12 months post discharge). These procedures vary across sites due to stage of program implementation and intended compliance with VACO recommendations.
 - Site #2 noted that "the self-report packets, in-session functional assessments, and team ratings are collected at admission, discharge, and at 6 months post discharge."
 - Recommendation: [Must determine core measurements to collect at similar intervals, with a focus on follow-up assessments, as this could enhance the evidence-basis for the IETP program as a learning health care system.](#)

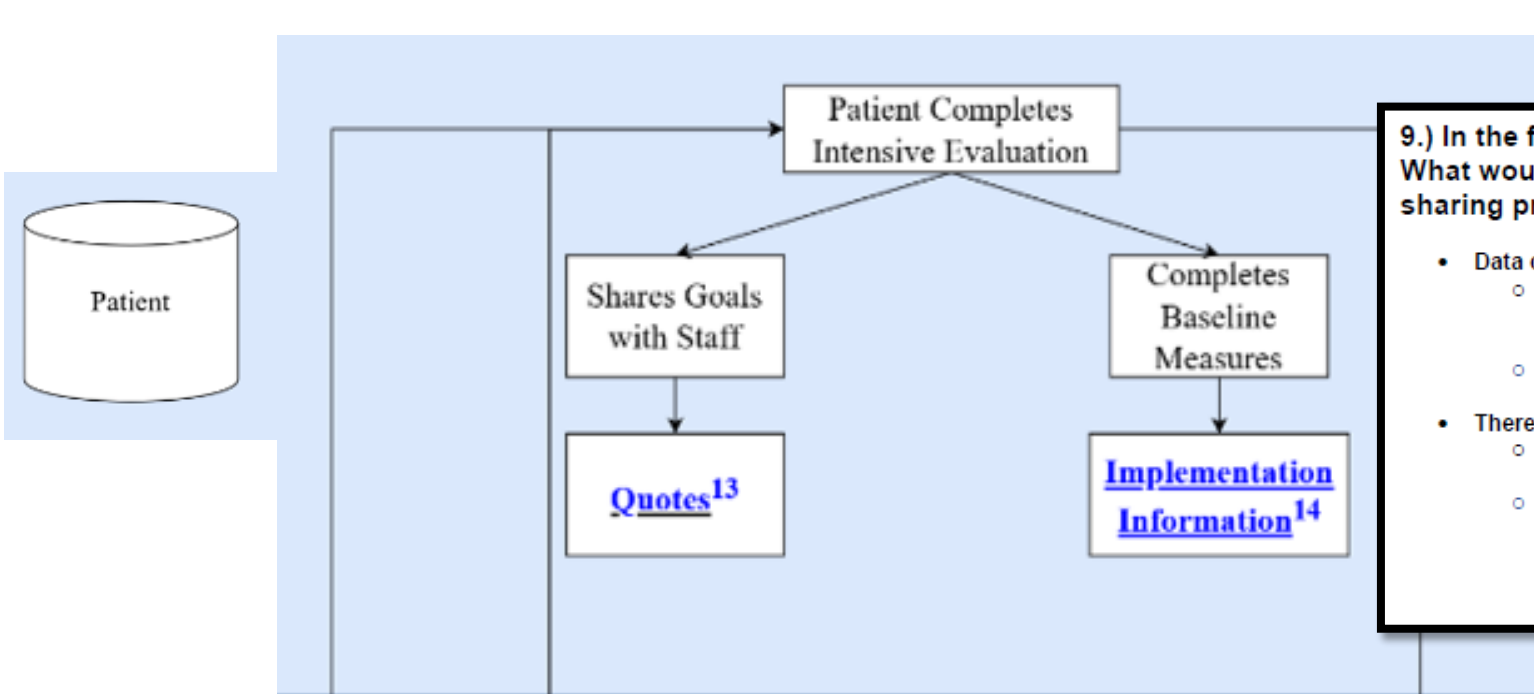
4.) Who collects the data (i.e., what role)?

- Data are collected via support staff or clinicians
 - Results of the analysis showed that each discipline (e.g., nursing, psychology) has a clinician or a support person who collects data. Sites using clinicians to collect data described needs for additional support (i.e., see responses to question 8).
 - Site #5 stated "typically this is distributed across disciplines and is discipline-specific."
 - Recommendation: [Centralized electronic data collection through an online survey that patients can complete on their own will reduce the burden of data collection on support staff within each service area. The centralized platform will integrate measures collected across disciplines. The current VA TBI MS database platform could be leveraged for this effort.](#)

5.) Who enters the data (i.e., role) and where is the data entered?

- Data are typically entered into a VA shared drive by a clinician or support person
 - The staff/clinicians in specific disciplines (e.g., psychology) who collect the data are the ones who enter the data into a shareable spreadsheet. Sites using clinicians to enter data described needs for additional support (i.e., see responses to question 8).
 - Site #2 indicated "the data is double-entered on VA computers into an Excel spreadsheet in a protected folder on the VA servers."
 - Recommendation: [Online data collection procedures for patient self-report, as mentioned above, could also alleviate the burden associated with data entry.](#)

IETP Process Map

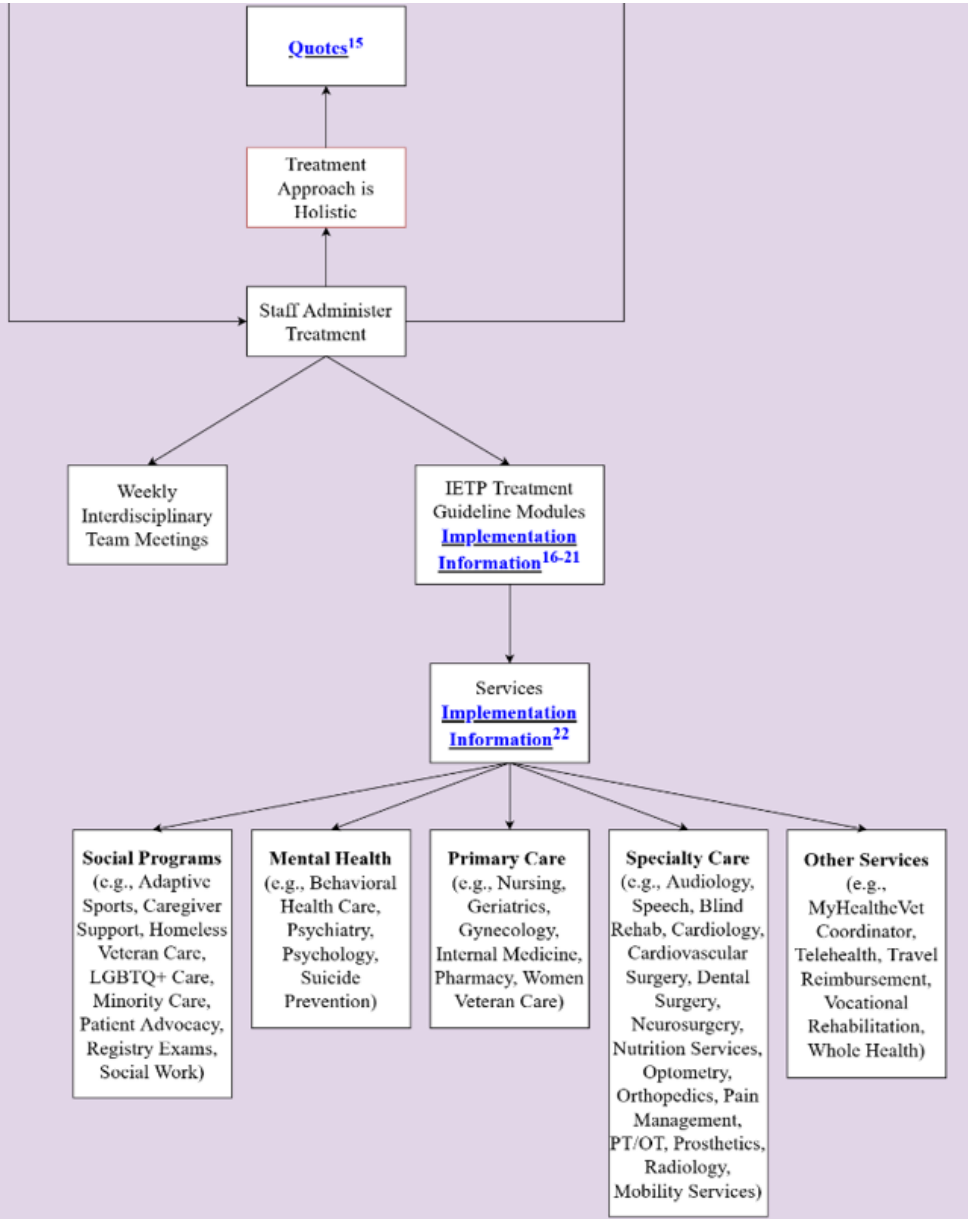


14

9.) In the future, PM&R may want to develop a national data sharing process. What would you anticipate are your needs to best facilitate a national data sharing process?

- Data collection efficiency is needed
 - Current pencil/paper format perceived as inefficient for providers/patients
 - Site #2 stated "an online portal [would be useful] so the self-report measures can be entered directly by the patients ... [and] reduce burden on patients and staff members."
 - Recommendation: Electronic data collection across sites on a centralized platform is needed.
- There is a need for outcome measure and programmatic standardization
 - Currently, outcome measures vary across sites; respondents suggest standardization
 - Site #5 stated "everyone [should] implement the SAME assessments."
 - Recommendation: Standardization of a core group of outcome measures across sites is needed.

IETP Process Map



Legend Denoting Program Providers: A=physician, B=psychologist, C=psychiatrist, D=SLP, E=PT, E=OT, F=Rec Therapy, G=Nursing, H=Art Therapy, I=Other.

Legend Denoting Evidence:

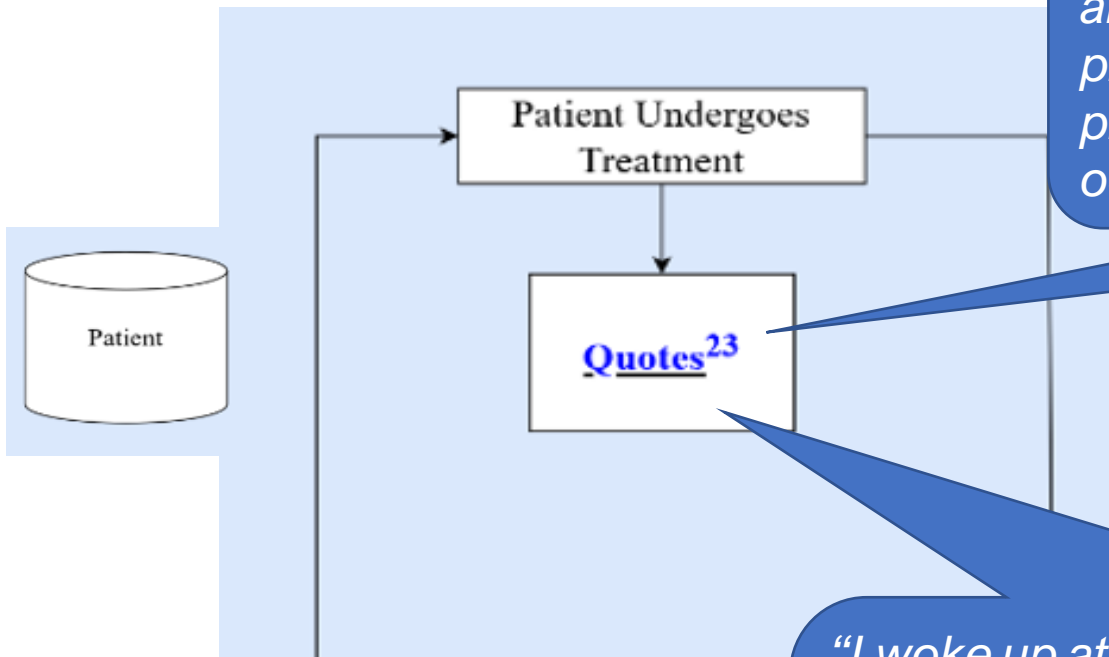
1. VA/DoD Clinical Practice Guideline for the Management of Concussion-Mild Traumatic Brain Injury. VA DoD Clinical Practice Guidelines Website. <https://www.healthquality.va.gov/guidelines/rehab/mtbi/index.asp>. Accessed May 24, 2021.
2. VA/DoD Clinical Practice Guideline for the Management of Chronic Insomnia and Obstructive Sleep Apnea. VA DoD Clinical Practice Guidelines Website. <https://www.healthquality.va.gov/guidelines/CD/insomnia/index.asp>. Accessed May 24, 2021.
3. VA/DoD Clinical Practice Guideline for the Primary Care Management of Headache. VA DoD Clinical Practice Guidelines Website. <https://www.healthquality.va.gov/guidelines/Pain/headache/>. Accessed May 24, 2021.
4. VA/DoD Clinical Practice Guideline for the Management of Posttraumatic Stress Disorder and Acute Stress Disorder. DoD Clinical Practice Guidelines Website. <https://www.healthquality.va.gov/guidelines/MH/ptsd/>. Accessed May 24, 2021.
5. VA/DoD Clinical Practice Guideline for the Management of Major Depressive Disorder. DoD Clinical Practice Guidelines Website. <https://www.healthquality.va.gov/guidelines/MH/mdd/>. Accessed May 24, 2021.
6. VA/DoD Clinical Practice Guideline for the Management of Substance Use Disorders. DoD Clinical Practice Guidelines Website. <https://www.healthquality.va.gov/guidelines/MH/sud/>. Accessed May 24, 2021.
7. VA/DoD Clinical Practice Guideline for the Assessment and Management of Patients At-Risk for Suicide. DoD Clinical Practice Guidelines Website. <https://www.healthquality.va.gov/guidelines/mh/srb/index.asp>. Accessed May 24, 2021.

IETP Characterization Table: Summary of IETP program evidence-based and clinician self-reported practice-based interventions

Domains Addressed in the VA/DOD Mild TBI Guidelines	Actor	Actions During Tampa IETP Inpatient Program			Evidence-Base (see legend)
		Assessment	Treatment	Referral	
Headache	Provider				1, 2, 5
	A	✓	✓	✓	2, 3
	B	✓	✓		
	H	✓	✓	✓	9
	F	✓	✓	✓	
Other Pain	E	✓	✓	✓	1, 3, 12, 15
	A	✓		✓	
	B	✓	✓		8
	H	✓	✓	✓	9
	F	✓			
Dizziness and Disequilibrium	E	✓	✓	✓	15
	B			✓	
	G		✓		
	E	✓	✓	✓	13, 14
	F	✓	✓	✓	
Tinnitus	E	✓	✓	✓	11, 13, 14, 20
	B			✓	
	H	✓		✓	9, 10
	E	✓	✓	✓	1, 15, 20
Sleep	A	✓	✓	✓	2

IETP Process Map

23



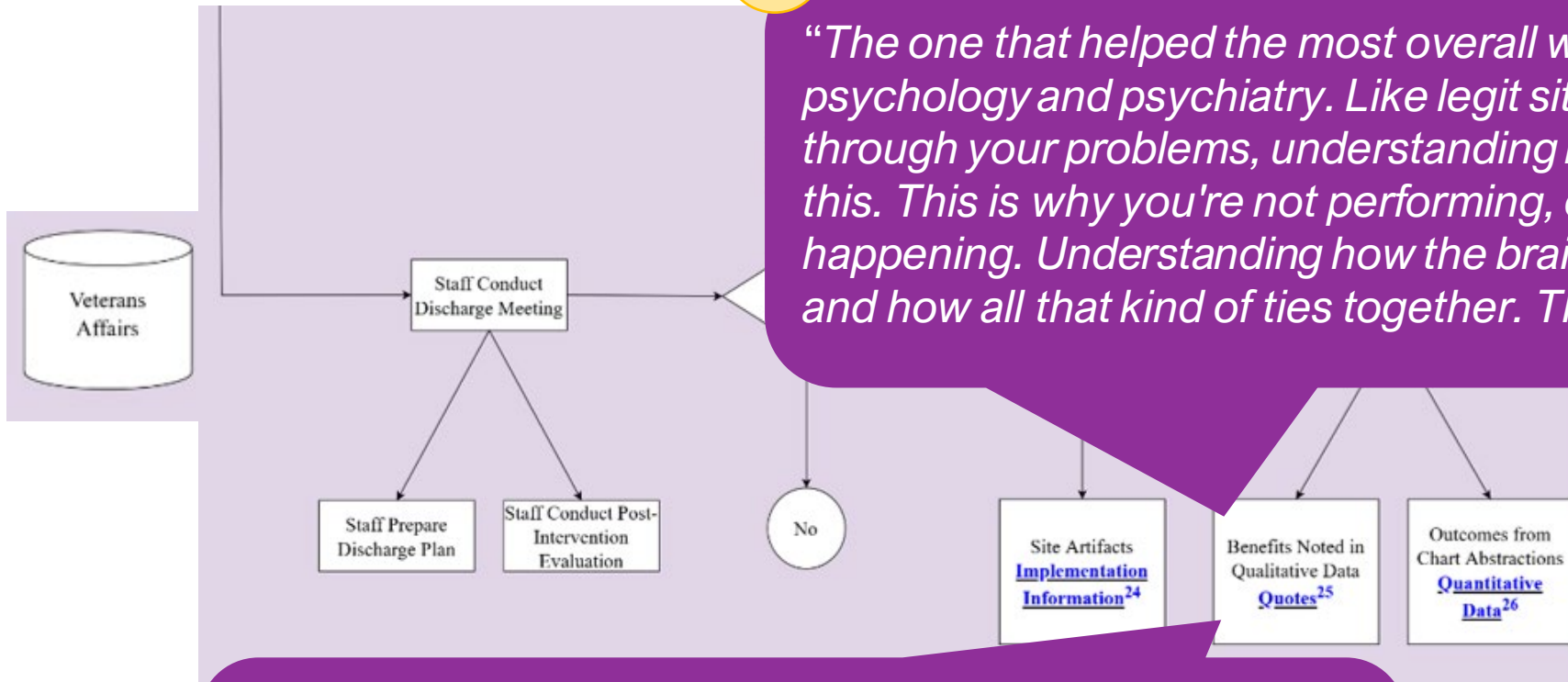
"...they don't only look at...what's going on in your head. They also looked at what's going on in your diet; what's going on ... physiologically with...the way you move, and ... just all the other problems...they have a very comprehensive occupational/physical therapy team."

"I woke up at my normal time, I had a couple cups of coffee, and then I went and worked out, and then I went to my first appointment by 8 in the morning, and then it was appointment after appointment after appointment. And it's very intense, which is awesome because for a lot of -- for SOF guys, we want intense. It's the only thing we know is intense."

IETP Process Map

25

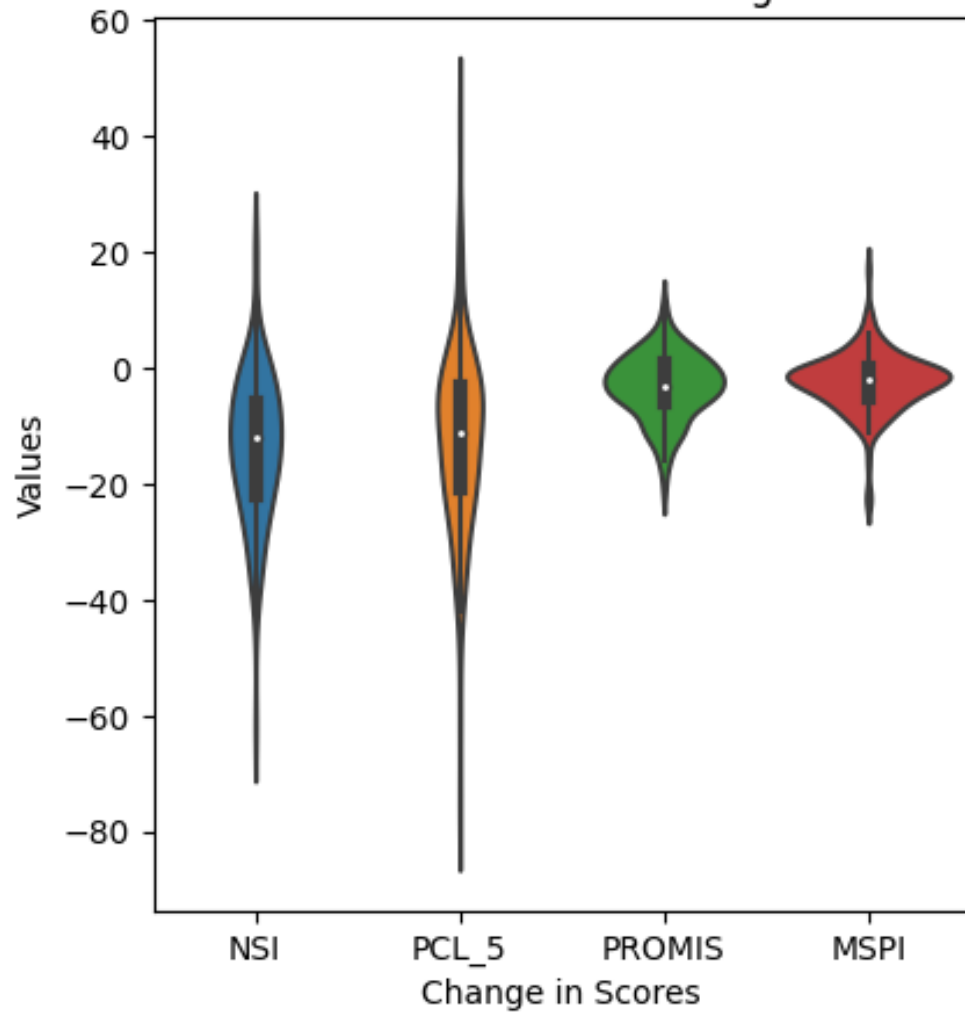
"The one that helped the most overall was probably just psychology and psychiatry. Like legit sitting down, thinking through your problems, understanding like hey, your sleep does this. This is why you're not performing, or this is why this is happening. Understanding how the brain works with the body and how all that kind of ties together. That was huge."



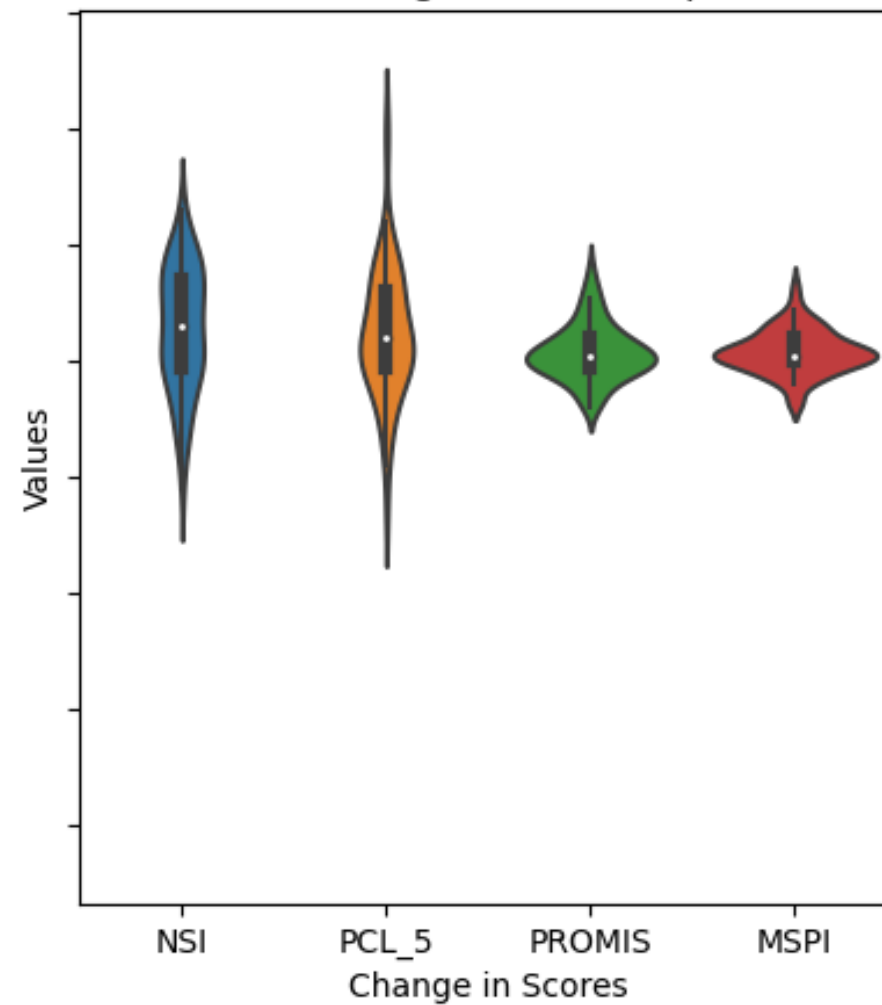
"It has drastically improved it, and it has given me the tools and resources to not regress as hard as what I had been regressing when it comes to physical and mental health, and to notice those regressions on the front end and be able to, you know, prepare myself or notice them and change my habitat or behavior to accommodate."

Assessment Score Change Across Program

Admissions to Discharge



Discharge to Follow Up



IETP Process Map

Intensive Evaluation and Treatment Program (IETP) Care Continuum

Pre-Appointment

Check-In

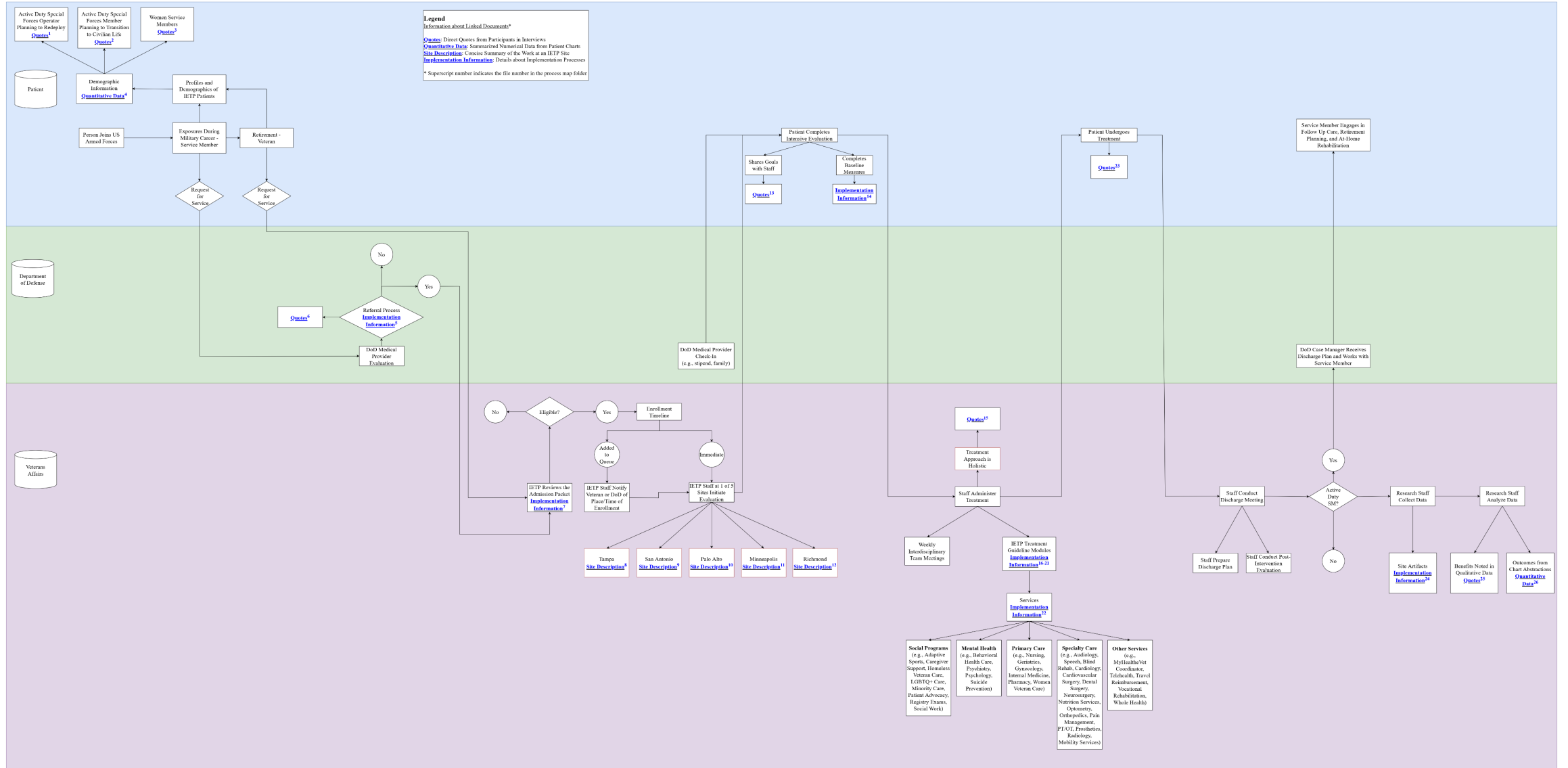
History/Examination

Diagnosis

Treatment Plan and Care

Check-Out

Post-Appointment



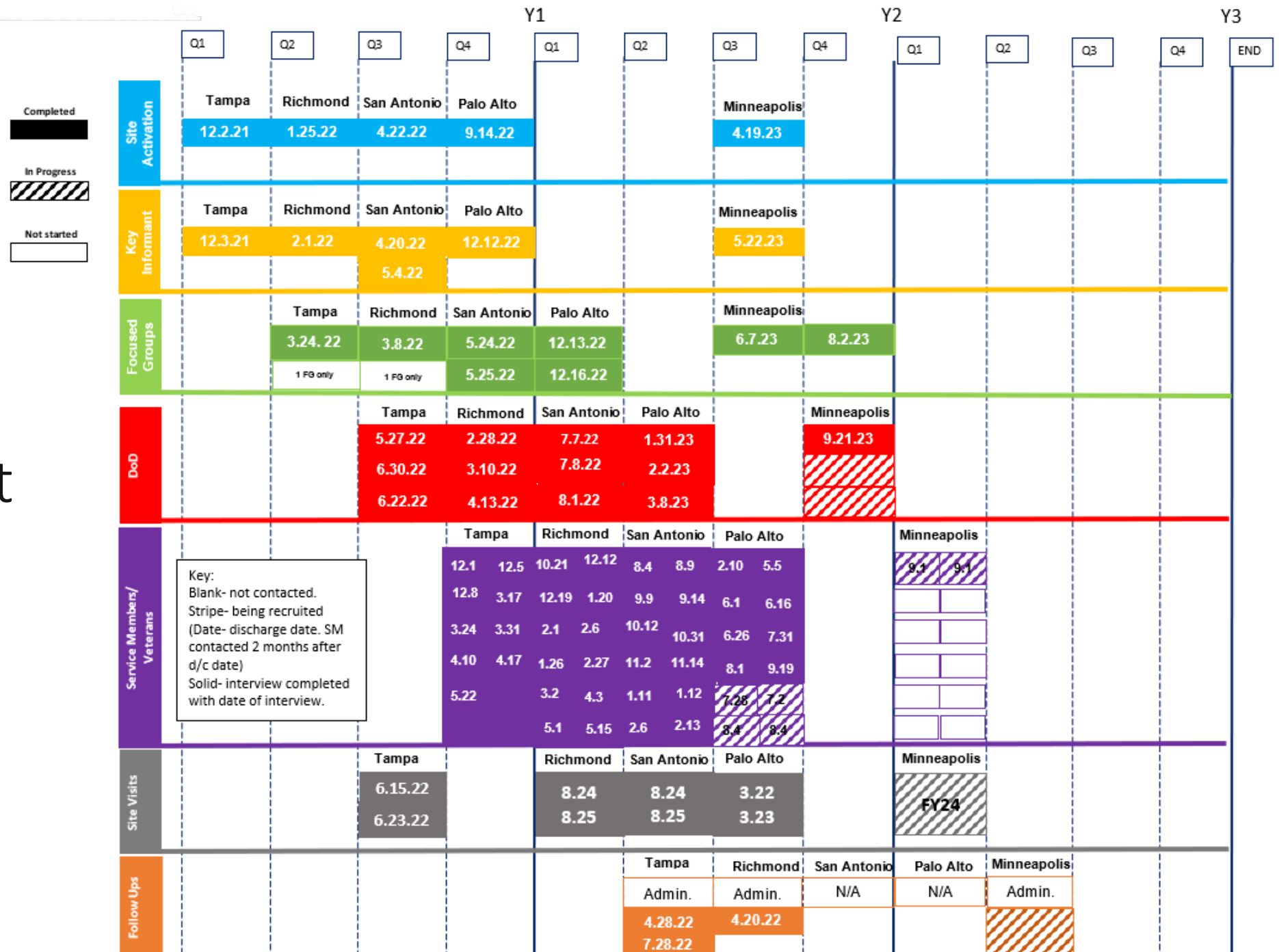
Opportunities, Challenges, and Lessons Learned

– It's a Journey, Not a Destination

Challenges and Solutions

Challenge	Solution
Site buy-in and team member trust	Team membership, site visits, early adopters, collaborative iterative design
Data collection & analysis bottleneck	Data prioritization
Multiple datasets and products	Process Map
IRLM not practical for all stakeholders	Program Logic Model
Recruitment challenges with DoD and SMs	Collaboration with site team liaisons
Delayed site start of implementation	Adapted data collection timeline
Stakeholder requests beyond project scope.	Prioritization, adherence to protocol, extension
Site specific interest of outcome measures	Site specific measures added to core measures

Project Activities Tracking Chart



Project Timeline

ACTIVITY		YEAR 1				YEAR 2				YEAR 3			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Tampa	Site Activation	█											
	Recruitment		█	█	█	█							
	Data Collection		█	█	█	█	█						
	Data Analyses			█	█	█	█	█	█				
Richmond	Site Activation		█										
	Recruitment			█	█	█	█						
	Data Collection			█	█	█	█						
	Data Analyses				█	█	█	█	█				
San Antonio	Site Activation			█									
	Recruitment				█	█	█	█					
	Data Collection				█	█	█	█					
	Data Analyses					█	█	█	█	█			
Palo Alto	Site Activation				█								
	Recruitment					█	█	█	█				
	Data Collection					█	█	█	█	█			
	Data Analyses						█	█	█	█	█		
Minneapolis	Site Activation					█							
	Recruitment						█	█	█	█			
	Data Collection						█	█	█	█	█		
	Data Analyses							█	█	█	█	█	

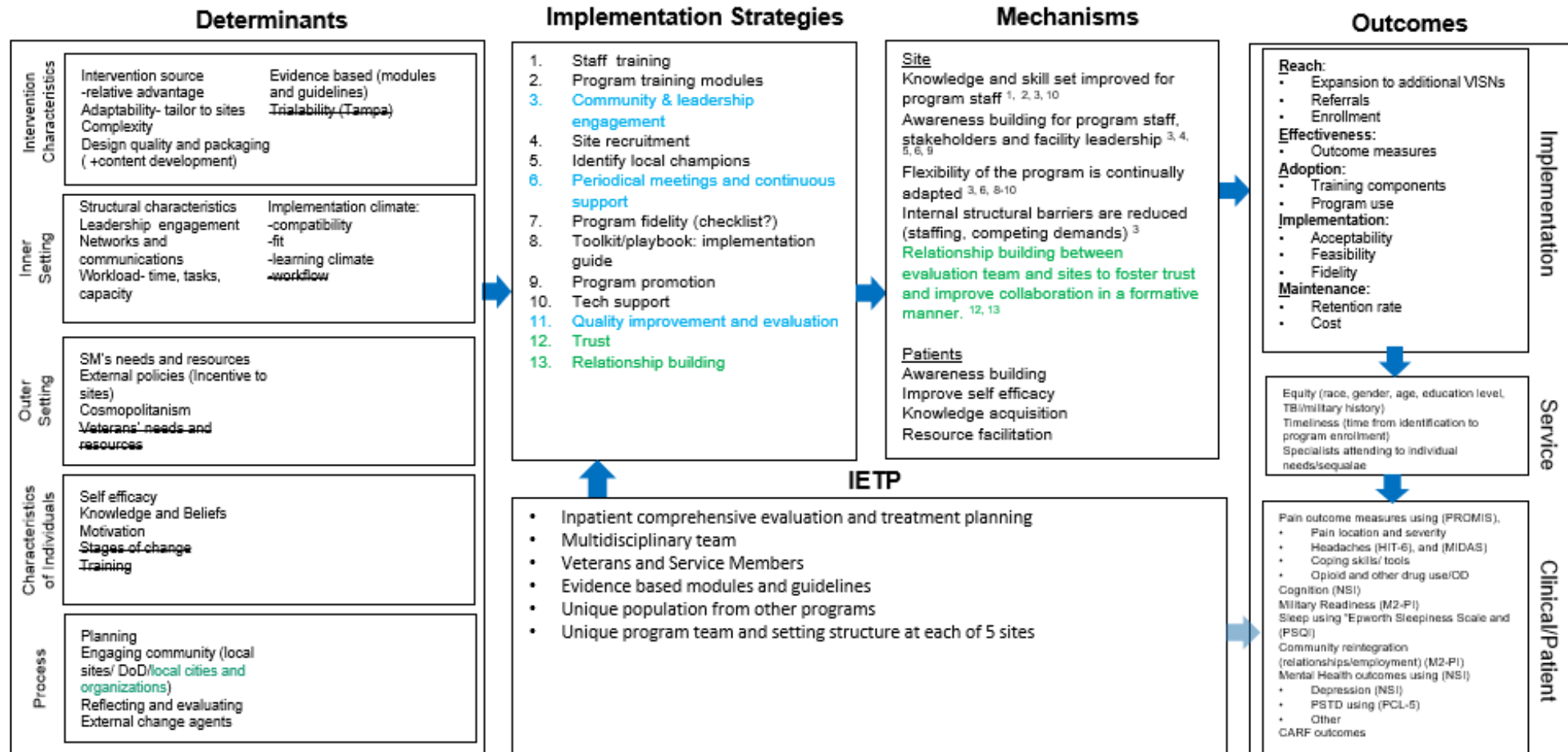
Constructs Identified & Coded

	Palo Alto Gr=101; GS=5	Richmond Gr=303; GS=10	San Antonio Gr=530; GS=12	Tampa Gr=253; GS=8	Totals
Totals	232	598	916	453	2199
● BF_facilitators Gr=287	32	83	123	41	279
● BF_Benefits Gr=223	23	59	82	44	208
● CI_Knowledge and Beliefs Gr=214	9	33	94	67	203
● IC_Complexity Gr=198	22	60	67	36	185
● PC_Outcomes Gr=192	22	43	76	36	177
● PC_Context Gr=157	21	41	48	41	151
● BF_barriers Gr=135	13	40	42	30	125
○ Recommendations Gr=103	11	28	43	16	98
● IS_RI_Available Resources Gr=94	13	32	27	19	91
● Pr_EN_Innovation participants Gr=96	8	27	36	20	91
● CI_Individual Stage of Change Gr=95	7	17	47	15	86
● PC_Activities Gr=88	1	1	68	15	85
● OS_Needs and resources of those served Gr=68	11	14	24	16	65
● IS_Networks & Communications Gr=58	5	24	18	9	56
● IC_Relative Advantage Gr=54	4	10	26	8	48
● CI_Other Personal Attributes Gr=39	2	9	14	13	38
● IS_Culture Gr=39	10	15	8	3	36
● PC_Resources_inputs Gr=35	0	1	24	5	30

Challenges and Solutions

Challenge	Solution
Site buy-in and team member trust	Team membership, site visits, early adopters, collaborative iterative design
Data collection & analysis bottleneck	Data prioritization
Multiple datasets and products	Process Map
IRLM not practical for all stakeholders	Program Logic Model
Recruitment challenges with DoD and SMs	Collaboration with site team liaisons
Delayed site start of implementation	Adapted data collection timeline
Stakeholder requests beyond project scope.	Prioritization, adherence to protocol, extension
Site specific interest of outcome measures	Site specific measures added to core measures

IETP Implementation Research Logic Model (v2.0)



© Smith, J.D., Li, D., & Rafferty (2020)

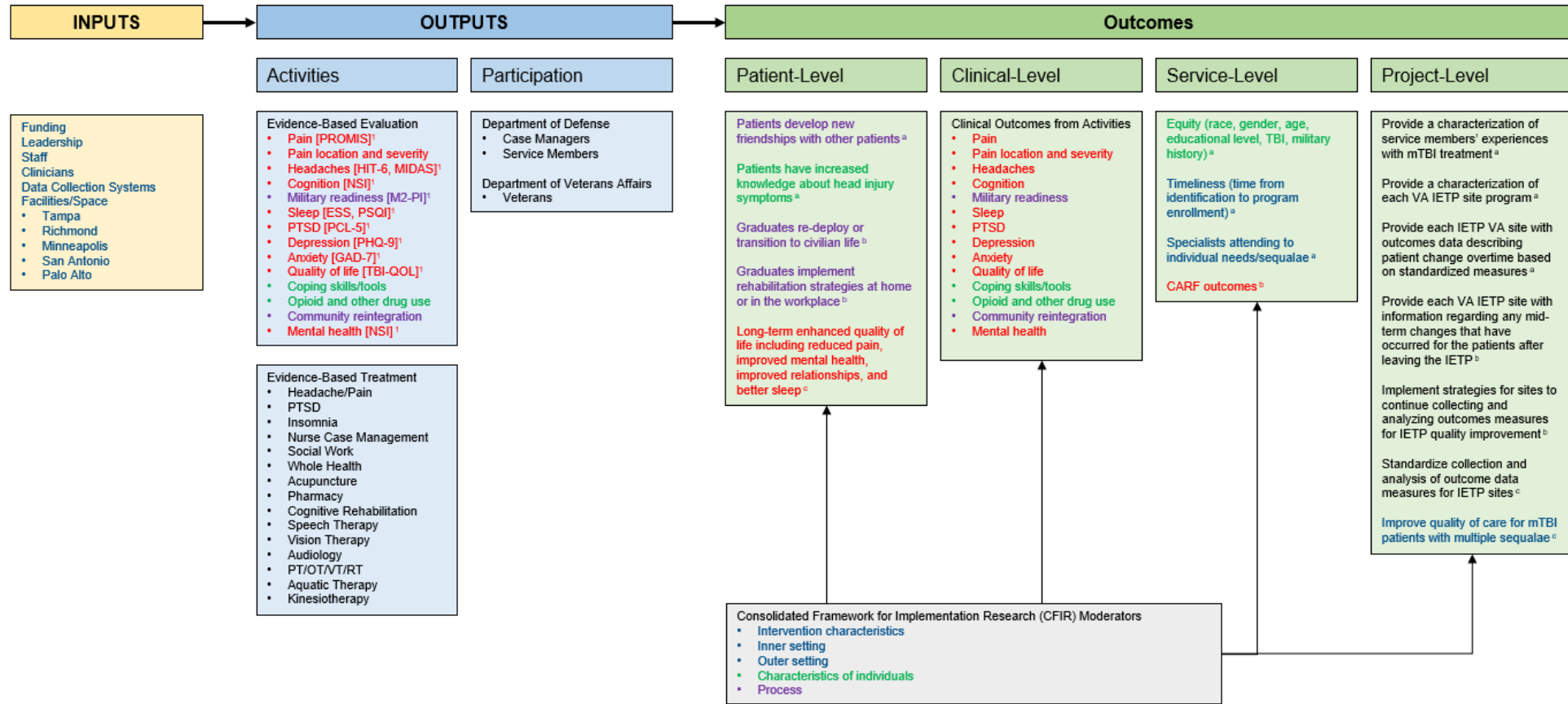
[New Tools to Improve the Rigor of Implementation Research: The Implementation Research Log... \(va.gov\)](#) Video resource

9/25/2023

Legend:

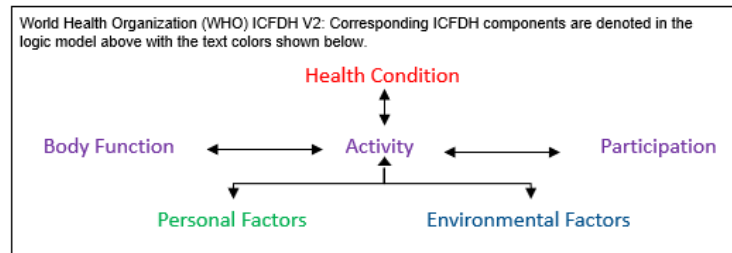
~~Strikethrough~~—not demonstrated in the data as theorized so removed from this version
Blue font—strong demonstration in the data
Green font—new idea demonstrated in data and added to this version.

Program Logic Model



¹ PROMIS = Patient Reported Outcomes and Measurement Information System; HIT-6 = Headache Impact Test-6; MIDAS = Migraine Disability Assessment; NSI = Neurobehavioral Symptom Inventory; M2-PI = Mayo-Portland Adaptability Inventory Participation Index; ESS = Epworth Sleepiness Scale; PSQI = Pittsburgh Sleep Quality Index; PCL-5 = Posttraumatic Stress Disorder Checklist; PHQ-9 = Patient Health Questionnaire-9; GAD-7 Generalized Anxiety Disorder-7; TBI-QOL = Traumatic Brain Injury Quality of Life

^a Immediate outcome
^b Intermediate outcome
^c Long term outcome



Challenges and Solutions

Challenge	Solution
Site buy-in and team member trust	Team membership, site visits, early adopters, collaborative iterative design
Data collection & analysis bottleneck	Data prioritization
Multiple datasets and products	Process Map
IRLM not practical for all stakeholders	Program Logic Model
Recruitment challenges with DoD and SMs	Collaboration with site team liaisons
Delayed site start of implementation	Adapted data collection timeline
Stakeholder requests beyond project scope	Prioritization, adherence to protocol, extension
Site specific interest of outcome measures	Site specific measures added to core measures

Summary

- Final data collection with 5th site and outcomes data with patients
- Prioritized data to inform matrix analyses across sites and samples
- Product development to include:
 - IRLM
 - Process Map
 - Products developed by site & sample
 - Program Logic Model
- In tandem with FY22-24 evaluation completion, propose FY25-26 extension

From here, we pull up our bootstraps and we complete final phases of data collection and analysis to complete FY22-24 evaluation goals and deliverables... Stay Tuned, there's more to come!

Questions?

