DEFENSE HEALTH AGENCY
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FALLS CHURCH, VIRGINIA 22042-5101

Research and Engineering

MEMORANDUM FOR ALL RESEARCH AND ENGINEERING DIRECTORATE PERSONNEL

SUBJECT: Distribution of Approved Defense Health Agency Strategic Research Plan for Psychological Health

This memorandum signifies my approval of the attached Defense Health Agency (DHA) Strategic Research Plan (SRP) for Psychological Health. The DHA manages the Defense Health Program (DHP) medical research, development, test, and evaluation (RDT&E) appropriation. The DHA Research and Engineering (R&E) Directorate provides oversight and management of the DHP Science and Technology (S&T) annual budget to support research across critical investment areas to include systems.

The DHA Deputy Assistant Director (DAD), R&E will utilize SRPs to inform DHP S&T investments. SRPs outline the requirements deemed high priority based on the assessment of current and future medical and operational needs and existing research gaps of the military medical community. Adherence to SRPs will ensure the Program Objective Memorandum and spend plans are aligned to prioritized Joint and Service requirements.

My point of contact for the DHA Psychological Health SRP is Dr. Fuad Issa, DHA Psychological Health Portfolio Manager, fuad.issa.civ@health.mil. Thank you for your continued support.

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Sean Biggerstaff, Ph.D.
Acting Deputy Assistant Director
Research and Engineering (R&E)

Attachments:
As stated

cc:
Surgeon General of the Army
Surgeon General of the Navy
Surgeon General of the Air Force
President, Uniformed Services University of the Health Sciences

February 2024

Defense Health Agency Strategic Research Plan: Psychological Health

Defense Health Agency ®

REVISION HISTORY

Revision	Entered by	Reason	Date

CONTENTS

FIGURES

TABLES

1. OVERVIEW AND ORGANIZATION

The Defense Health Agency (DHA) Research and Engineering (R&E) Directorate leads the discovery of innovative medical solutions responsive to the needs of Combatant Commands, the Military Services, and the Military Health System (MHS). DHA R&E provides oversight and management of a Science and Technology (S&T) annual budget of approximately $500 to $800 million to support research across critical investment areas. The cornerstones of the DHA S&T management approach are as follows:

- Portfolio Managers directly accountable for the health and performance of their research Portfolios
- Alignment of research investments to validated and prioritized joint Capability Requirements
- Identification of the Capabilities needed to work toward fulfilling priority Capability Requirements
- S&T (Budget Activity [BA] 6.1, 6.2, and 6.3) efforts that focus on areas where Defense Health Program (DHP) investments can make the most impact and accelerate delivery of knowledge and materiel products to end users
- Multi-year (3 to 5 years) research investment plans and budgets that allow adaptation to emerging (or declining) requirements

The DHA Deputy Assistant Director (DAD) for R&E employs Strategic Research Plans (SRPs) to inform and describe how DoD medical capabilities will be developed over time. These SRPs will drive investment recommendations for Future Years Defense Program (FYDP) plans and serve as a critical tool for aligning investments with military medical health priorities. SRPs include information that will enable the Portfolio Manager to perform the following activities:

- Develop, on an annual basis, the FYDP plans in alignment with Capability Requirements and anticipate the resources that will be required for the respective Program Objective Memorandum (POM) cycle
- Provide the oversight and concurrence of Year of Execution (YOE) spend plans that Program Managers (PMs) will be responsible for developing as a recommendation to the Portfolio Manager
- Facilitate discussion with leadership and stakeholders regarding the research activities required to address Capability Requirements.
- Define the state of the science to leverage innovative technology solutions

SRPs are organized into four levels:

- **Capability Areas** (CAs) reflect the highest structural elements that encompass broad areas of medical research within a Portfolio
- **Capability Requirements** (CRs) are derived from key source documents (e.g., ICDs, Federal Laws, Presidential Memoranda) and outline Capabilities (knowledge or materiel) required to meet current or future military medical needs

- **S&T Paths** (STPs) describe the high-level research activities needed to support the transition of Capabilities to product development or other end users
- **Capabilities** describe the S&T knowledge and/or materiel products to be transitioned to product development or other partners

Figure 1-0 shows the hierarchical relationship as described, with the associated reference schema.

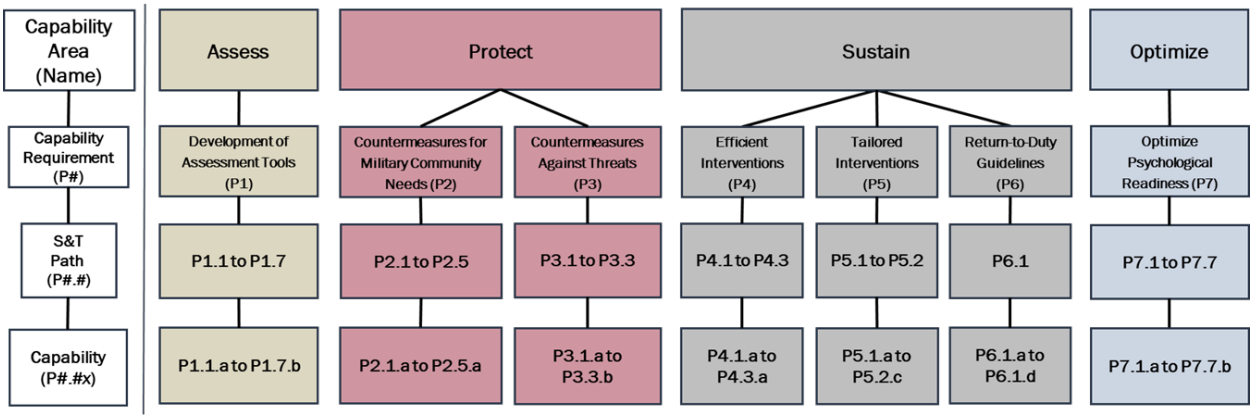

Figure 1-0 PH SRP Hierarchy

The scope of this Psychological Health SRP includes Capability Requirements relating to the advancement of psychological health research for the military community. Psychological Health encompasses multiple domains including clinical conditions and psychological readiness, and therefore Capability Requirements capture psychological health across domains that are not necessarily targeting a specific psychological health clinical condition. SRPs only outline the Capability Requirements deemed as priorities. These priorities have been identified based on assessment of the current and future medical and operational needs and/or existing research gaps of the military medical community.

The priority Psychological Health Capability Requirements in this SRP are organized into the following Capability Areas (see glossary for full descriptions), as shown in Figure 1-0 and described as:

- Assess: Determine and accurately represent Service Member (SM) psychological health, readiness, and performance capabilities to the Joint Forces
- Protect: Develop measures to prevent and/or counter immediate adverse effects of threats, hazards, and stressors to SM and family psychological health readiness and performance.
- Sustain: Restore and maintain psychological health, readiness, and performance, of the military community members across their life cycle
- Optimize: Improve and maximize SM psychological readiness and performance

Priority PH Capability Requirements (additional information on the prioritization process can be found in Appendix A) are listed in Table 1-0, with each Capability Requirement noted via a P number (e.g., P1, P2) Section 2 describes the STPs leading to defined Capabilities for each Capability Requirement. The numeric labeling schema is not meant to represent relative priority and is only intended to organize the CRs for ease of use.

Table 1-0 Capability Requirements Included in the Psychological Health SRP

P No.	Capability Requirement Name	Capability Requirement Description
P1	Development of Assessment Tools	Identify objective non-self-report factors that can provide the basis for the development of tools that assess, monitor, and document an individual's current psychological state which would provide a comparison across relevant time points, and enable decision-support interventions [1-6].
P2	Countermeasures for Military Community Needs and Vulnerabilities	Develop psychological health support and prevention solutions for SMs, their families, and the military community that match their needs; and enable the scaling up and adoption of these solutions [1, 4-10].
P3	Countermeasures Against Current and Emerging Threats	Identify evidence-based prevention strategies and develop prevention services that protect SM psychological health, readiness, and performance [1, 6].
P4	Models of Care for Efficient Interventions	Develop recognition, triage, and referral protocols, effective psychological health models, and/or models incorporating non-specialty medical personnel for early intervention of psychological health conditions [2, 3, 11].
P5	Models of Care for Tailored Interventions	Deliver tailored psychological health care for SMs, their families, and the military community which would restore and maintain psychological health, readiness, and performance across their lifecycle [2, 3, 12].
P6	Medically Appropriate Return-to-Duty Guidelines	Develop and validate core elements of Joint Services return to duty criteria [6].
P7	Solutions to Optimize Psychological Readiness	Develop SM, unit, and leadership tools to improve and maximize psychological readiness and performance [1, 10, 13].

2. CAPABILITY REQUIREMENTS AND ASSOCIATED S&T PATHS

This section outlines the Psychological Health priority CRs, STPs, and Capabilities. The Capabilities described are expected to transition to product development or other end users (e.g., members of the clinical or operational community) to aid in fulfillment of the requirement. The Capabilities represented will transition to product development or other transition partners when they reach the appropriate Technology Readiness Levels/Knowledge Readiness Levels (TRL/KRL). Product development will then perform, as appropriate, additional development activities required to mature these Capabilities to the extent to which they can be delivered for full clinical or operational use by the intended end user. Each CR in the sections that follow is depicted as a figure in the format shown in Figure 2-0.

Figure 2-0 Capability Requirement Example

2.1 Development of Assessment Tools (P1)

Psychological health assessments are essential to understand current SM and family readiness and facilitate the determination of changes in psychological health, early on and over time [1]. (P1.1) DoD data platforms and tools related to SM psychological health assessments allow for data collection, but a system is needed to access a set of common data elements across multiple time points. Tailored tools include but are not limited to molecular/biomarker, computational tools, portals, and a dashboard for screening or evaluation of SMs' psychological health to perform operations and activities and fitness for return-to-duty [1-3]. (P1.2) Objective measures that capture the full range of symptoms resulting from adverse exposures in addition to self-reporting or observer-reporting will provide valid data to evaluate. By converging methods, the measurement will make the condition diagnostic more reliable and less vulnerable to manipulation [2, 3]. (P1.3-P1.4) Assessment protocols and practice guidelines need ongoing refinement, based on current research and technology, to improve the ability to objectively screen, diagnose, and triage psychological injuries including comorbid and polymorbid health conditions across all operational environments [1-6]. (P1.5-P1.7) Figure 2-1 outlines the S&T Paths for this Capability Requirement and the planned Capabilities that will transition to product development or other intended transition partners (see Appendix B, Section B.3, Paragraphs 1.1, 1.2, and 1.3).

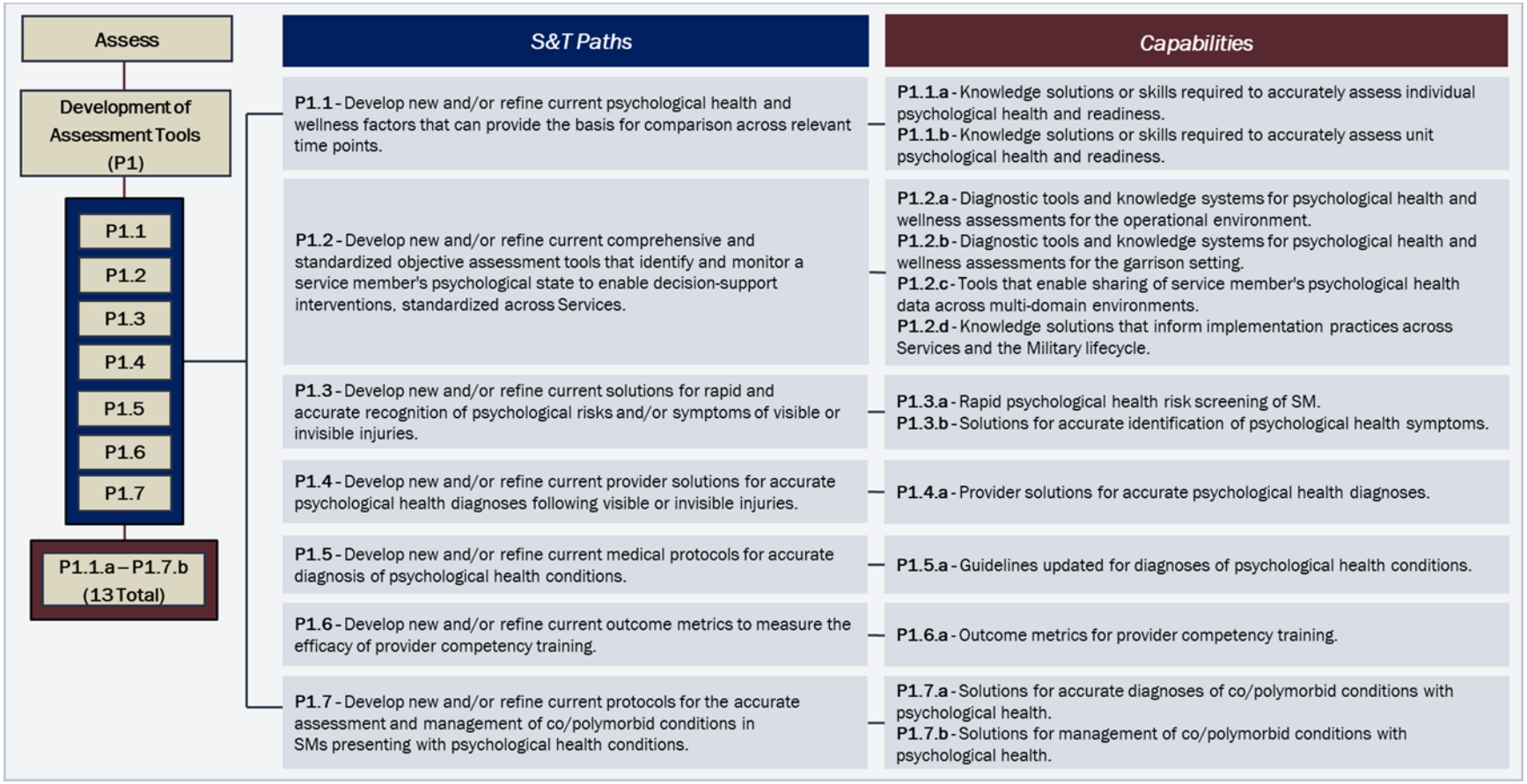

Figure 2-1 Development of Assessment Tools

2.2 Countermeasures for Military Community Needs and Vulnerabilities (P2)

Development measures to prevent and/or counter immediate adverse effects of threats, hazards, and stressors to SMs and family psychological health readiness and performance. Undergoing various types of military and/or psychological health care transitions may place SMs at risk for adverse psychological health outcomes (e.g., posttraumatic stress disorder, suicidal ideation, substance misuse) which might decrease the readiness of the force. Advances in monitoring could potentially revolutionize identification of individuals at risk for difficulty during key military lifecycle transitions (e.g., PCS, PCA, retirement) [4, 5, 7, 10]. (P2.1-P2.2) Socially disadvantaged groups, such as women; and sexual-orientation, racial, and ethnic minorities; may experience greater risk for certain psychological health conditions. Such groups may also experience differences in access to care and the type of care and/or treatment that is offered and provided [6, 9]. (P2.3) It is essential to develop effective, transparent processes related to the maturity and implementation of validated psychological health research findings and translate these processes into practice[1]. (P2.4) Implementation barriers affect the impact of prevention strategies, support, and resources delivered to the SM by other individuals (e.g., peers, leaders, and community and family members). Understanding these barriers will allow for more robust care. [8]. (P2.5) Figure 2-2 outlines the S&T Paths for this Capability Requirement within the Protect Capability Area and the planned Capabilities that will transition to product development or other intended transition partners (see Appendix B, Section B.3, Paragraph 2.1).

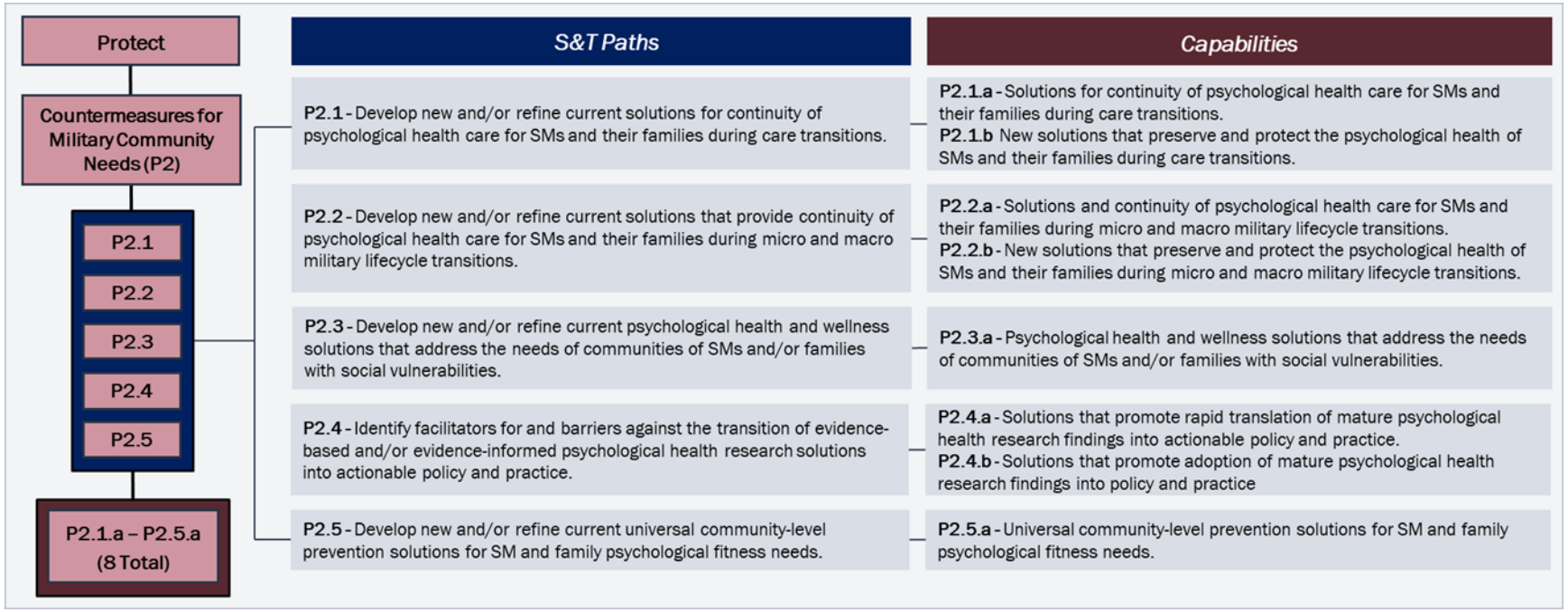

Figure 2-2 Countermeasures for Military Community Needs and Vulnerabilities

2.3 Countermeasures Against Current and Emerging Threats (P3)

Development measures to prevent and/or counter immediate adverse effects of threats, hazards, and stressors to SMs and family psychological health readiness and performance. Research is needed to identify prevention, support, and care activities, including community-engagement approaches, prior to injury that mitigate the effects of hazards and threats posed to short- and long-term psychological health and readiness. Hence, solutions that bolster resilience, readiness, and performance, and minimize stress-related decrements in psychological health [1]. (P3.1-P3.2) Identification of threats associated with future weapons systems' psychological consequences and poly-trauma due to exposures to blast, blunt, ballistic, directed energy, and non-ionizing radiation is needed. There is also a need to develop methods to help SMs and leaders psychologically manage the anticipation of threats posed by weapon systems [6]. (P3.3) Figure 2-3 outlines the S&T Paths for this Capability Requirements within the Protect Capability Area and the planned Capabilities that will transition to product development or other intended transition partners (see Appendix B, Section B.3, Paragraph 2.3).

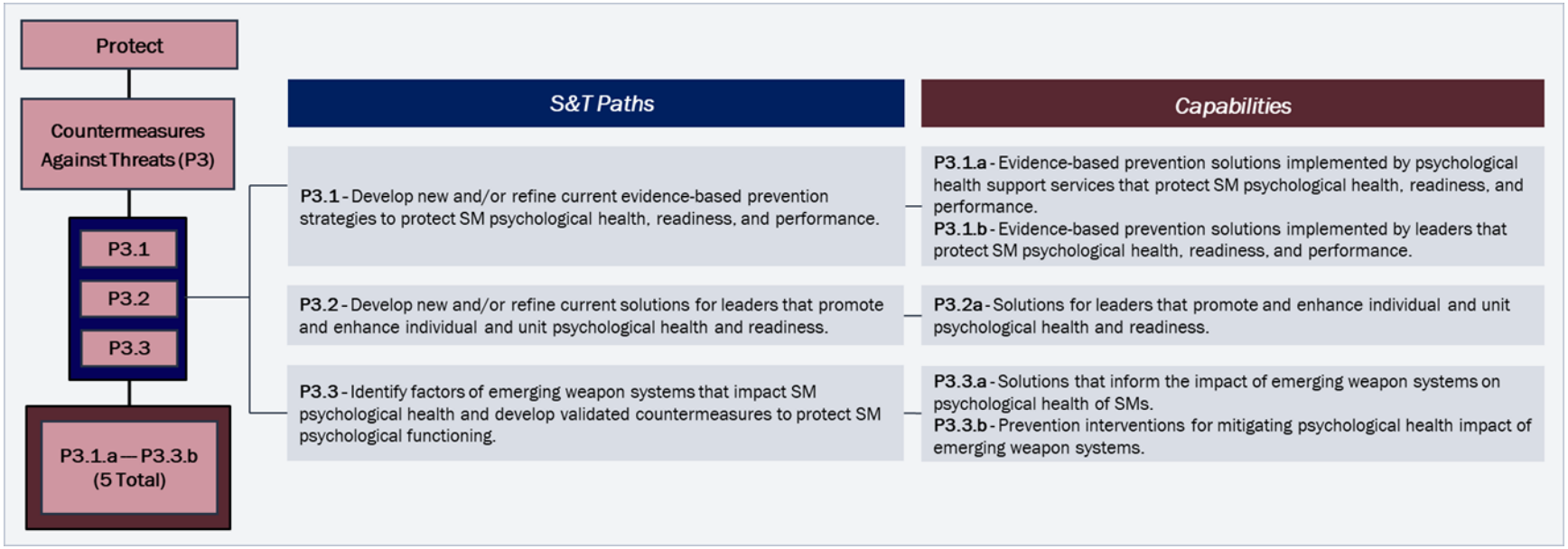

Figure 2-3 Countermeasures Against Current and Emerging Threats

2.4 Models of Care for Efficient Interventions (P4)

Development of models of care for efficient interventions seek to restore and maintain psychological health, readiness, and performance of the military community members across their lifecycle. Current studies suggest the utility of passive sensing in recognition and early identification of psychological conditions. A better understanding of the prevalence of psychological health service degradations and their contributing factors, across all stages of care, leading to early intervention for psychological health conditions is needed [2, 3]. (P4.1) Development of best practices and optimization of embedded health models, including models using non-specialty medical personnel, with a focus on factors that facilitate implementation and effectiveness is needed to provide opportunities for individual- and population-focused psychological health support and resilience building. [11]. (P4.2-P4.3) Figure 2-4 outlines the S&T Paths for this Capability Requirements within the Sustain Capability Area and the planned Capabilities that will transition to product development or other transition partners (see Appendix B, Section B.3, Paragraph 2.2).

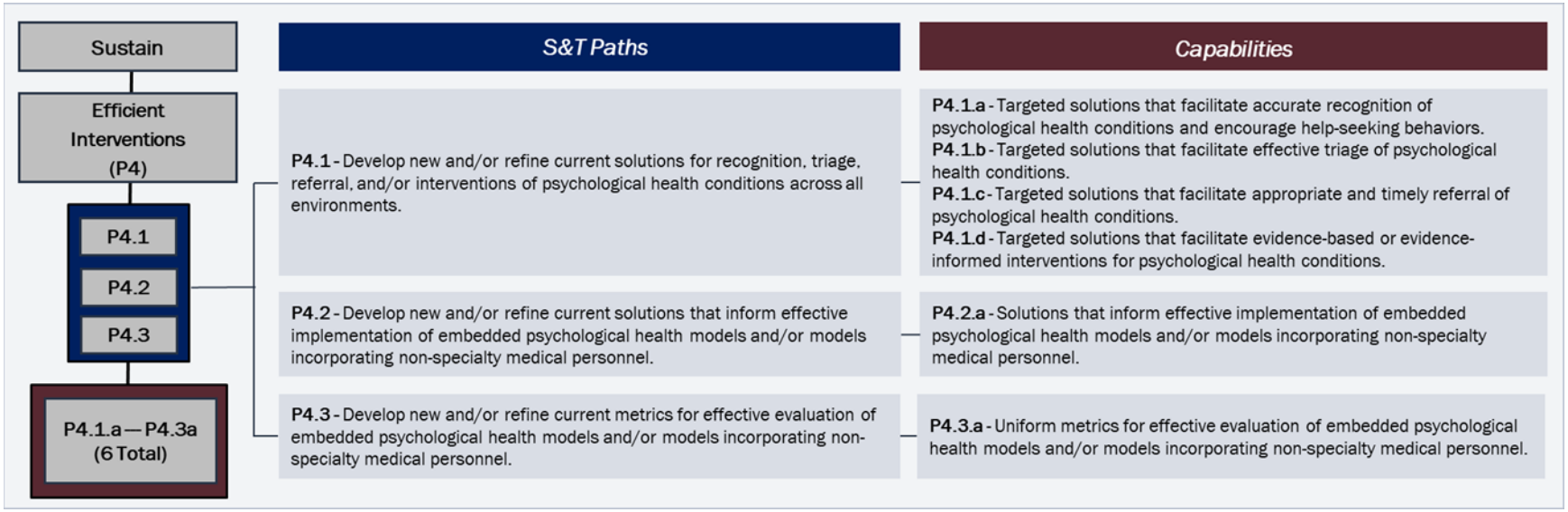

Figure 2-4 Models of Care for Efficient Interventions

2.5 Models of Care for Tailored Interventions (P5)

Development of models of care for tailored interventions seek to restore and maintain psychological health, readiness, and performance of the military community members across their lifecycle. Preservation and restoration of health care personnel psychological functioning for optimal operational performance, to include the identification of effective interventions and measures addressing the sustainment of mental health, well-being, and coping under stress [2, 3]. (P5.1) Tailored solutions that inform or impact SM health and performance across the full service life cycle is a priority to aid in the restoration of psychological functioning [12]. (P5.2) Figure 2-5 outlines the S&T Paths for this Capability Requirements within the Sustain Capability Area and the planned Capabilities that will transition to product development or other transition partners (see Appendix B, Section B.3, Paragraph 3.1).

Figure 2-5 Models of Care for Tailored Interventions

2.6 Medically Appropriate Return-to-Duty Guidelines (P6)

Development of medically appropriate Return-to-Duty guidelines seek to restore and maintain psychological health, readiness, and performance of the military community members across their lifecycle. There is a need for validated core elements of Joint Service standards for psychological return-to-duty assessment criteria that effectively consider the various factors contributing to optimal return status [6]. (P6.1) Figure 2-6 outlines the S&T Paths for this Capability Requirements within the Sustain Capability Area and the planned Capabilities that will transition to product development or other transition partners (see Appendix B, Section B.3, Paragraph 3.3).

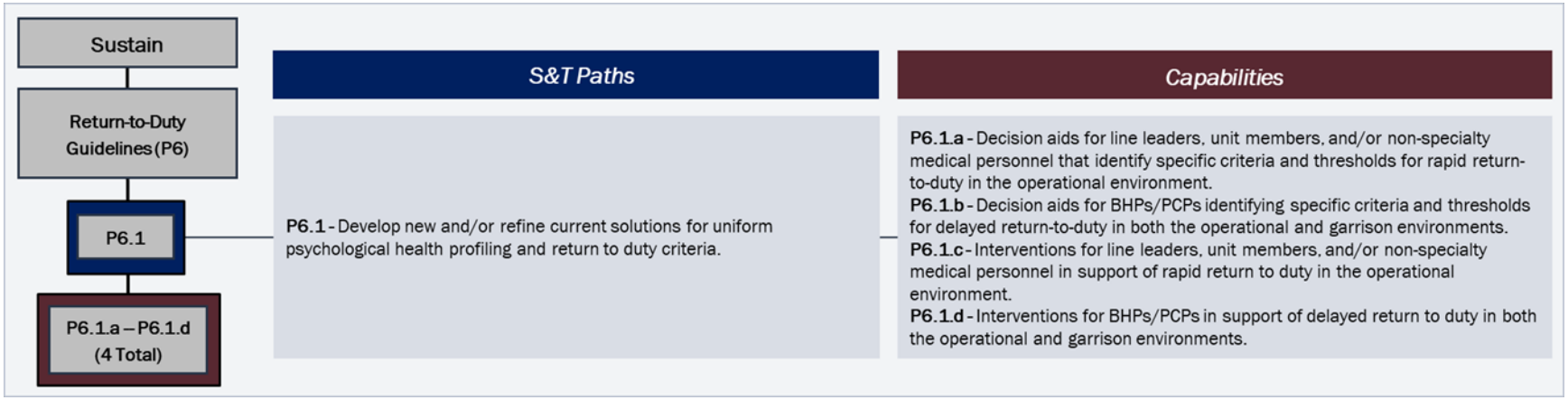

Figure 2-6 Medically Appropriate Return-to-Duty Guidelines

2.7 Solutions to Optimize Psychological Readiness (P7)

Development of solutions to improve and maximize SM psychological readiness and performance. Development of a Human Performance Optimization (HPO) solution is vital to train, monitor, and optimize SM performance, psychological health, and emotion regulation, and support SM readiness and mission efficacy [1]. (P7.1) A set of well-defined HPO outcome metrics is needed to ensure consistency in program evaluations to identify program efficacy and quantify return on investment [1]. (P7.2) There is a need for validated tools to enhance leadership knowledge, develop behaviors, and promote understanding of SM psychological readiness to support and inform their decision-making within their unit or command [10]. (P7.3) Additionally, the need for evaluation and assessment of circumstances which help inform the development and implementation of trainings and interventions for psychological resilience for individuals and units [10, 13]. (P7.4) Evidence-based findings of pharmacological and non-pharmacological interventions, including traditional, personalized, complementary, alternative, and integrative medicine modalities, would improve the treatment of psychological health conditions, especially in non-clinical settings (e.g., operational environments) [10]. (P7.5-P7.6) A systematic understanding of unit climate and culture by leaders is necessary to address underlying processes and create an effective team environment vital for operational effectiveness [1, 10]. (P7.7) Figure 2-7 outlines the S&T Paths for this Capability Requirement and the planned Capabilities that will transition to product development or other transition partners (see Appendix B, Section B.3, Paragraphs 4.1 and 4.2).

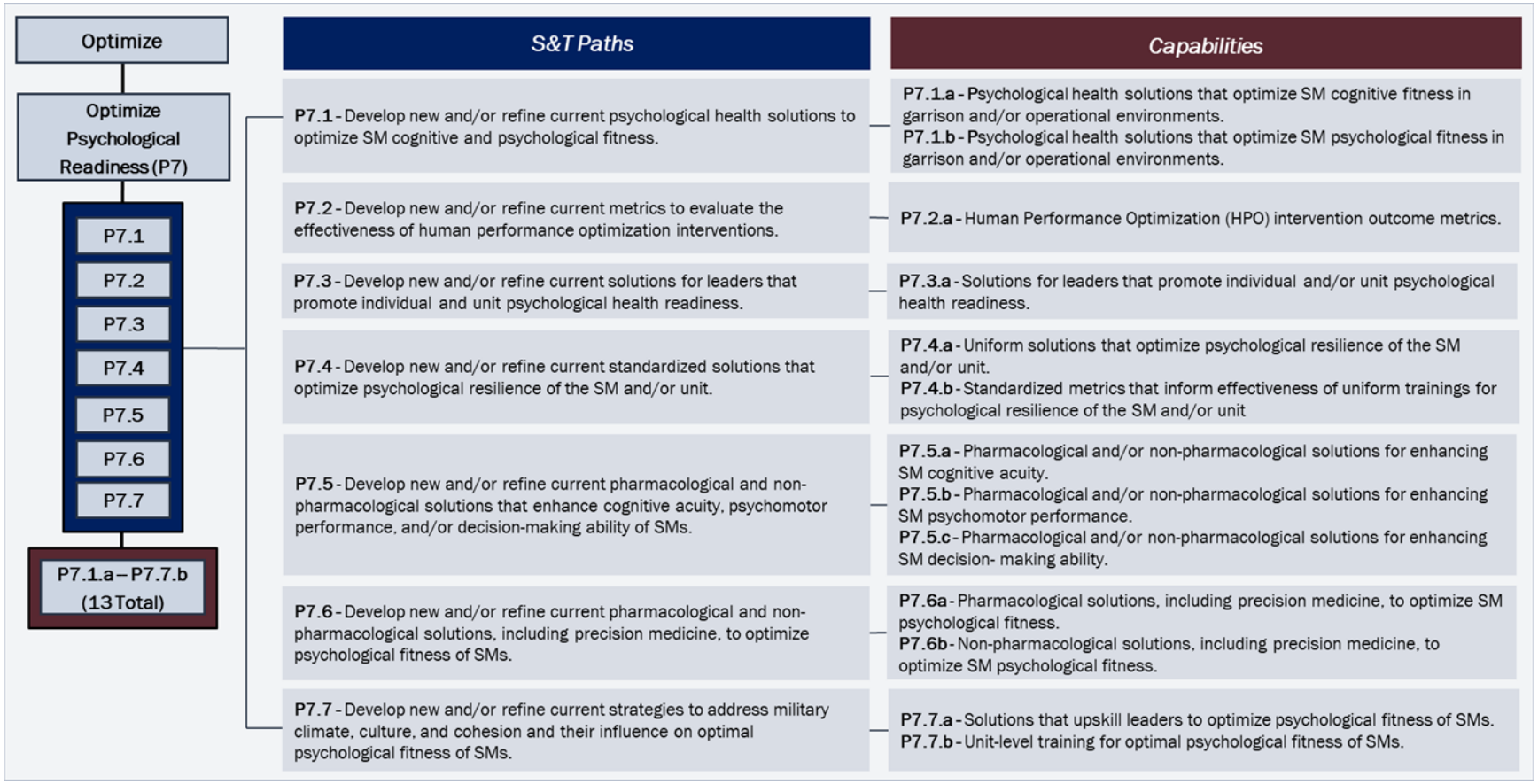

Figure 2-7 Solutions to Optimize Psychological Readiness

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APPENDIX A. GLOSSARY

Terminology	Definitions
6.1	(BA for Basic Research increases knowledge/understanding: discovery; hypothesis testing. ~ TRL/KRL 1–2 [20].
6.2	BA for Applied Research is the refinement of concepts into solutions: pre-clinical studies; drug formulation; device defined in animal model. ~TRL/KRL 2–3.
6.3	BA for Advanced Technology Development is candidate solution development; proof of concept and product safety demonstrated (e.g., Phase 1–2a trials). ~TRL/KRL 3–6.
Assess (Capability Area)	Activities that determine and accurately represent SM psychological health, readiness, and performance capabilities to the Joint Forces.
Budget Activity	Categories within each appropriation and fund account that identify the purposes, projects, or types of activities financed by the appropriation or fund.
Capability Area	Reflect the highest structural element that encompasses broad areas of medical research within a Portfolio.
Capability Requirement	A capability which is needed to meet an organization's roles, functions, and missions in current or future operations [21]. In this SRP, the Capability Requirement is derived from key source documents, and outline capabilities (knowledge or materiel) required to meet current or future military medical needs.
Capability	The ability to complete a task or execute a course of action under specified conditions and level of performance [22]. In this SRP, Capability refers to the S&T knowledge and/or materiel products to be transitioned to product development or other end users.
Capability Objective	A clearly defined, decisive, and attainable goal toward realizing the Capability Requirement.
Cognition	All forms of knowing and awareness, such as perceiving, conceiving, remembering, reasoning, judging, imagining, and problem solving [23].
Cognitive Acuity	Sharpness of perception, attention, learning, memory, understanding, awareness, reasoning, judgment, intuition, and language.
Cognitive Fitness	Capacity to deploy neurocognitive resources, knowledge, and skills to meet the demands of operational task performance [24].
Cognitive Performance	The ability to observe, orient, decide, and act to produce the best possible outcome [25].
Comorbid	Having more than one disease or condition at the same time; conditions can often be chronic or long-term.
Embedded Psychological Health Model	Mental health providers embedded into an operational unit to provide a range of behavioral health services inside the unit (e.g., prevention, early intervention, and treatment), as well as provide consultation to unit leaders [26].

Evidence-based	The integration of the best available research findings considered the gold standard into clinical practice in the context of patient characteristics, culture, and preferences.
Evidence-informed	The integration of the best available practice but lacking solid research support to be viewed as a gold standard, and use of clinical expertise in the context of patient characteristics, culture, and preferences.
Garrison	A military post; a permanent military installation [27].
Interdependency	Reliance of one S&T progression on the outcome of another or more S&T activities.
Intersection	Capabilities and associated S&T Paths in a Portfolio SRPs that have overlap with those in one or more other Portfolios.
Intervention Strategies	Actions performed to bring about change in people [28].
Invisible Injury	A type of injury including cognitive, emotional, and behavioral, that can be associated with trauma or serious adverse life events; examples include, but are not limited to, acute stress reaction, PTSD, concussion, and TBI.
Materiel Solution	A new item, developed or purchased to satisfy one or more Capability Requirements [29].
Mature Research	Research at a program element level 6.3 that is ready to transition to product development.
Medical Protocols	Processes or steps required to detect and/or prevent misdiagnosis.
Medical Readiness	Ensuring warfighters are healthy, protected from potential threats, and ready for operations or contingencies.
Military Community	SMs, beneficiaries, and DoD civilian personnel [30].
Military Lifecycle Transition	Duty station transitions, health care transitions (include both step-up and step-down scenarios), changes in assignment, changes in rank or pay grade, deployment, activation or deactivation, retirement, separation from the military, and additional micro or macro transitions.
Military Lifecycle	Timespan encompassing initial recruitment through retirement and beyond for the SM, and all transitions within [4].
Non-materiel Solution	Changes in doctrine, organization, training, (existing) materiel, leadership and education, personnel, facilities, and/or policy, implemented to satisfy one or more Capability Requirements without the need to develop or purchase a new materiel solution [29].
Non-pharmacological	Therapies that do not involve drugs; non-medication treatments.
Non-specialty Medical Personnel	Range of medical personnel rendering services for behavioral health conditions in the absence of specialty psychological health care; examples include corpsmen, medics, general physician assistants, operational medical personnel, and providers who may not have had specialty training.

Operational Effectiveness	The ability of an individual warfighter, unit, or force to successfully conduct its assigned tasks and accomplish its mission.
Operational Environment	The composite of the conditions, locations, and scenarios whereby military forces are employed to address crises and conflicts that are not limited to a geographic location.
Optimize (Capability Area)	Activities that improve and maximize SM psychological readiness and performance.
Pharmacological	Therapies that consider the use of drugs to treat and relieve pain.
Polymorbidity	Co-occurrence of at least two chronic health conditions.
Personalized Medicine	Approach to tailoring disease prevention and treatment that takes into account differences in people's genes, environments, and lifestyles [31].
Prevention Strategies	Prevent the onset of disease through risk reduction [32].
Priority Capability Requirement	A Capability Requirement that, through analysis by the Portfolio, is deemed worthy of funding and pursuit.
Product Development	Performs the additional development activities required to mature Capabilities developed in S&T to the extent to which they can be delivered for full clinical or operational use by the intended end user.
Protect (Capability Area)	Activities and/or measures that prevent and/or counter immediate adverse effects of threats, hazards, and stressors to SM and family psychological health readiness and performance.
Psychological Fitness	The ability to effectively cope with the unique mental stressors and challenges needed to ensure mission readiness [33].
Psychological Functioning	Ability to successfully achieve personal goals for self and/or the external environment. Includes an individual’s behavior, emotion, social skills, and overall mental health.
Psychological Readiness	Psychological performance attributes and competencies of a SM that enable them to meet the demands of assigned missions.
Psychological Resilience	The ability to cope, adapt, and/or recover from difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility in response to external and/or internal demands.
Psychomotor Performance	The ability to perform movement tasks that require cognitive and motor processes.
Research Gap/S&T Gap	The lack of S&T research activities identified through the RLA.
S&T Path	Describes the high-level research activities needed to support the transition of Capabilities to product development or other end users.
Social Vulnerability	The susceptibility of members of the military community to the impact of adverse psychological health events caused by external stressors.

Spiritual Fitness	Beliefs and practices that strengthen members of the military community connectedness with sources of hope, meaning, and purpose.
Sustain (Capability Area)	Activities that restore and maintain psychological health, readiness, and performance of military community members across their life cycle.
Universal	Psychological health care approaches intended for all members of the military community.
World View	A collection of attitudes, values, stories and expectations about the world, which inform thoughts and actions.

APPENDIX B. ACRONYMS

AHP	Analytical Hierarchy Process
BA	Budget Activity
BHP	Behavioral Health Professional
CA	Capability Area
CO	Capability Objective
CR	Capability Requirement
DAD	Deputy Assistant Director
DARPA	Defense Advanced Research Projects Agency
DHA	Defense Health Agency
DHHS	Department of Health and Human Services
DHP	Defense Health Program
DoD	Department of Defense
DOE	Department of Education
DVA	Department of Veterans Affairs
FY	Fiscal Year
FYDP	Future Years Defense Program
HPO	Human Performance Optimization
ICD	Initial Capabilities Document
JCIDS	Joint Capabilities Integration and Development System
JHU/APL	The Johns Hopkins University Applied Physics Laboratory
KRL	Knowledge Readiness Level
MASCAL	Mass Casualty
MH	Mental Health

MHS	Military Health System
MOM	Military Operational Medicine
MTF	Military Treatment Facility
NRAP	National Research Action Plan
P. Fit.	Psychological Fitness
PCP	Primary Care Physician
PF	Psychological Functioning
PH	Psychological Health
PI	Pandemic Influenza
PM	Program Manager
POM	Program Objective Memorandum
PoP	Period of Performance
PR	Psychological Readiness
PTSD	Posttraumatic Stress Disorder
R&D	Research and Development
R&E	Research and Engineering
RL	Research Landscape
RLA	Research Landscape Analysis
S&T	Science and Technology
SM	Service Member
SME	Subject-Matter Expert
SRP	Strategic Research Plan
TBI	Traumatic Brain Injury
TRL	Technology Readiness Level
USAMMDA	United States Army Medical Materiel Development

USAMRDC	United States Army Medical Research and Development Command
USD	U.S. Dollar
WII	Wounded, Ill, and Injured
YOE	Year of Execution