

**TECHNICAL MANUAL
LEADER'S/OPERATOR'S
MANUAL
FOR
HUMAN, MULTI-DOMAIN**

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Value Proposition for a PMCS Approach



- Provides detailed assessment of a soldiers' operational readiness for that day's mission
- Expands a soldier's and his/her leaders understanding of Human Systems especially in the Cognitive and Belief Domains
- “One off” to “Known” Program - Known POR will provide platform for technology transition (Human Toolbox)
- Daily and sensor reporting will lead to “Big Data” analysis
- Soldier baseline and updated operating profiles can be feed into advanced STE training systems.
- Soldier baseline and updated operating profiles will provide significant enhancement of data necessary to do detailed Human System Engineering.

Soldier -10 PMCS Manual Content



Chapters

Chapter 1 – Introduction

Chapter 2 – Human/Soldier’s Operating Systems.

Chapter 3 – Soldier’s Operational Baseline (SOB), Soldier Annual Service Checks (SAS), Pre/Post Deployment Checks, Services and Procedures:

Chapter 4 – Soldier Systems Daily PMCS Checks.

Appendices

Appendix A – Human Systems Toolbox.

Appendix B – List of Abbreviations.

Appendix C – Human Systems Checklists, Reporting Forms and Records.

Appendix D – Glossary.

Appendix E – References.

Chapter 2 – Major Human Systems Categories:



SECTION III. HUMAN PHYSICAL OPERATING SYSTEMS (BODY)

- Genome
- Physical Systems
- Cognitive Systems
- Beliefs Systems

2-5 Introduction to Physical Systems (Body)

2-5.A Physiological Overview of the Human Body

2-5.A.1 Human Body: The human body is the structure of a human being. It is composed of many different types of cells that together create tissues and subsequently organ systems. They ensure homeostasis and the viability of the human body. It comprises a head, neck, trunk (which includes thorax and abdomen), arms and hands, legs, and feet. The study of the human body involves anatomy, physiology, histology and embryology. The body varies anatomically in known ways. Physiology focuses on the systems and organs of the human body and their functions. Many systems and mechanisms interact in order to maintain homeostasis, with safe levels of substances such as sugar and oxygen in the blood.

- Wiki – [List of Systems of the Human Body](#)
- Wiki – [Human Body](#)
- YouTube – National Geographic – [Human Body 101](#)

2-5.A.2 Composition of the Human Body: “Body composition may be analyzed in various ways. This can be done in terms of the chemical elements present, or by molecular type e.g., water, protein, fats (or lipids), hydroxyapatite (in bones), carbohydrates (such as glycogen and glucose) and DNA. In terms of tissue type, the body may be analyzed into water, fat, connective tissue, muscle, bone, etc. In terms of cell type, the body contains hundreds of different types of cells, but notably, the largest number of cells contained in a human body (though not the largest mass of cells) are not human cells, but bacteria residing in the normal human gastrointestinal tract.” (Wiki – [Source](#))

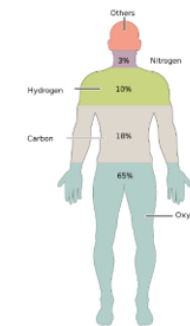


Diagram 2-5.A.3 ([Source](#))

Chapter 2 – Human Subsystems Information:

- **General description of the human subsystem**
- **Importance to Soldier's Operational Readiness**
- **Factors Influencing the Operational Performance**
- **How to Access the human subsystem**
- **How to maintain or correct deficiencies at the Soldier level**
- **Additional References and Information Resources**

Chapter 3 – Human Baseline/Annual/Deployment



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Assessment Areas	Characteristics for SOB/S-COP	Assessment Methods	Examination			Records (If Changed)				
		(Note: Need to determine which tests are good enough for baseline and follow on examinations)	SOB	S-AOR	S-P/P DOR	Med	SOB	S-AOR	S-P/P DOR	S-COP
Medical Health	Short Term Medical Issues	Procedures outlined in DD Form 3024 Apr 2016 Navy and Marine Corps TM NMCPHC-TM OM6260 - Medical Matrix Clinical Methods, 3rd Edition	X	X	X	X		IC	IC	IC
	Long Term Medical Issues		X	X	X	X	X	IC	IC	IC
	Medical Surveillance		X	X	X	X	X	IC	IC	IC
	NIH - Clinical Methods		X	X	X	X		IC	IC	IC
Anthropometric/ Body Type	Height	AR 600-9 Outlines checks for Body Composition, Bioelectrical Impedance Analysis FM 21-20 Chp 5 Body Composition (Old)	X	X	X	X	X	IC	IC	IC
	Weight		X	X	X	X	X	IC	IC	IC
	Girth		X	X	X	X	X	IC	IC	IC
	Bone Density		X	X	X	X	X	IC	IC	IC
	Body Fat		X	X	X	X	X	IC	IC	IC
	Body Circumferences		X	X	X	X	X	IC	IC	IC
Skin and Appendages	Skin & Appendages Overview	Clinical Methods - Skin and Appendages Exam - Fitzpatrick Scale	X	X	X	X	X	IC	IC	IC
	Type: normal, <u>dry</u> , oily, combination, sensitive		X	X	X	X	X	IC	IC	IC
	Burn Risk Type		X	X	X	X	X	IC	IC	IC
Hydration	Total Body Water (TBW)	Blood Indices, Urine Indices, Bioelectrical Impedance Analysis	X	X	X	X	X	IC	IC	IC
	Fat-Free (FMW)		X	X	X	X	X	IC	IC	IC
	Pulmonary System	Clinical Methods - Overview	X	X	X	X	X	IC	IC	IC

Chapter 4 – PMCS

1. Self Assessment Done Daily 20-30 Min
 - a. Before Checks
 - b. During Checks
 - c. After Checks
2. Soldier must think through all his human systems and subsystems to ID issues that might affect that day's mission
3. The Soldier must then Rate himself/herself as:
 - a. Fully Mission Capable (FMC)
 - b. Limited Mission Capable (LMC) and Why
 - c. Non-Mission Capable (NMC) and Why
4. Report – Ideally by App and/or direct sensor feed

NOTE: This is an initial draft will need assistance from experts and operators on what is reasonable to check and how to assess their status

SOLDIER/LEADER CHECKS - COGNITIVE HUMAN SYSTEM TM PMCS						
Item No	Interval			Functions to be Inspected	Procedures Check for & have repaired or adjust as necessary	Not Mission Ready
	B	D	A			
NOTE - the term "Mission" includes: Operations, Training, Education, Personal Maintenance or that <u>days</u> activities. Assessments needs to consider impact of Cognitive faults and Below Baseline Normal Performance for that day's Mission(s)						
NOTE - Annotate all faults, readiness ratings, and corrective actions on digital tablet DA <u>Form 4988-H</u> or manual DA Form 2404-H						
NOTE - Cognitive Checks are critical for Leaders and Commanders who must make operational decisions at all level. For those leaders who are assessed at LMC they will need to look for decision making support assistance to reduce risks. For those leaders who are assessed to be NMC they or their superiors will need to determine if they should or should not participate in that <u>days</u> mission(s) or has support assistance to reduce operational risks. In either case the leader him/herself needs to understand their limitations for that <u>days</u> mission.						
C1	X	X	X	General Behavior	Check to see if the soldier is exhibiting behavior/actions that are not in line with his/her normal behavior - if <u>so</u> then go to detailed checks in the area you identify as the potential issue/problem and/or refer to appropriate medical/psychological support. For leaders and commanders check to see if their decision making actions our outside his/her norms (irrational, slow, not in line with normal behavior)	FMC - if no impact on mission LMC - if behavior issue(s) could <u>degrade</u> mission success NMC - If behavior threatens Mission Success or personal safety
C2	X			<u>Executive Functions (EF)</u> Attention Control Cognitive Inhibition Inhibitory Control Working memory Cognitive Flexibility Spatial Reasoning Planning Fluid Intelligence	Check to see if the soldier is below or above his EF S-COP using either a short Q&A or ideally a EF App test (e.g. Stroop's Test) - Note make list of EF Tool Box Tools that could be used for this assessment. Determine potential cause (e.g., Sleep deprivation, other). Based on the degree beyond normal determine impact on mission and personal safety. If there is	FMC - if no impact on mission LMC - if behavior issue(s) could <u>degrade</u> mission success NMC - If EF test is well below <u>soldiers</u> norm and it will <u>effect</u> the success of the mission or learning abilities or personal safety

PMCS Checks – 4 Basic Questions:



- 1. Using the PMCS checklist are any of your systems working below normal or has an issue?**
- 2. Based on any identified issues how will they impact today's mission? Can these issues be mitigated?**
- 3. If you are opposing someone during this day's mission can the opposition use any of my issues or biases to gain an advantage? Can I mitigate that advantage?**
- 4. If you are a leader/commander how will your subordinate unit's operational readiness reports affect today's operational mission?**

Questions



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