

# **JOINT FORCE FITNESS: OPERATION LIVE WELL**

UNDERSTANDING AND OVERCOMING THE CHALLENGE OF  
OBESITY AND OVERWEIGHT IN THE ARMED FORCES:  
A WORKSHOP

MAY 7, 2018



PERSONNEL AND READINESS



# Total Force Well-Being

## *Enhancing Individual Readiness and Resiliency*

Supporting the Total Force to navigate the challenges of military life requires a comprehensive approach to well-being throughout their career.

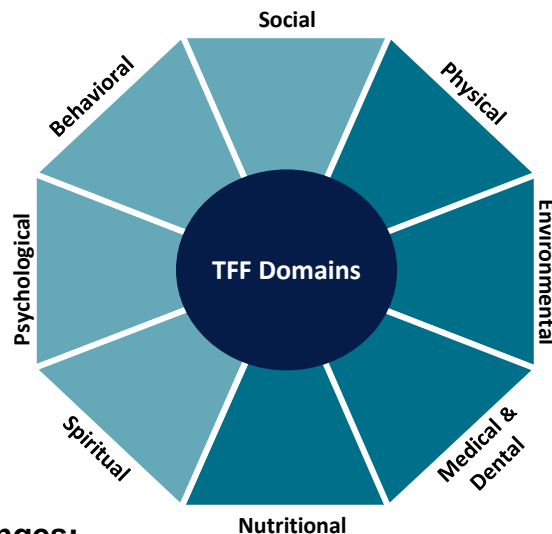


**Readiness:** The state of being prepared to effectively navigate the challenges of daily living experienced in the unique context of military Service.<sup>1</sup>



**Resiliency:** The ability to withstand, recover, and grow in the face of stressors and changing demands.<sup>2</sup>

### Total Force Fitness (TFF)



### Challenges:

- 64% of the Total Force is Army
- 100,000 soldiers, or 10% of the Army, is non-deployable
- 80,000 due to medical conditions<sup>3</sup>

### DoD Deployment Lifecycle



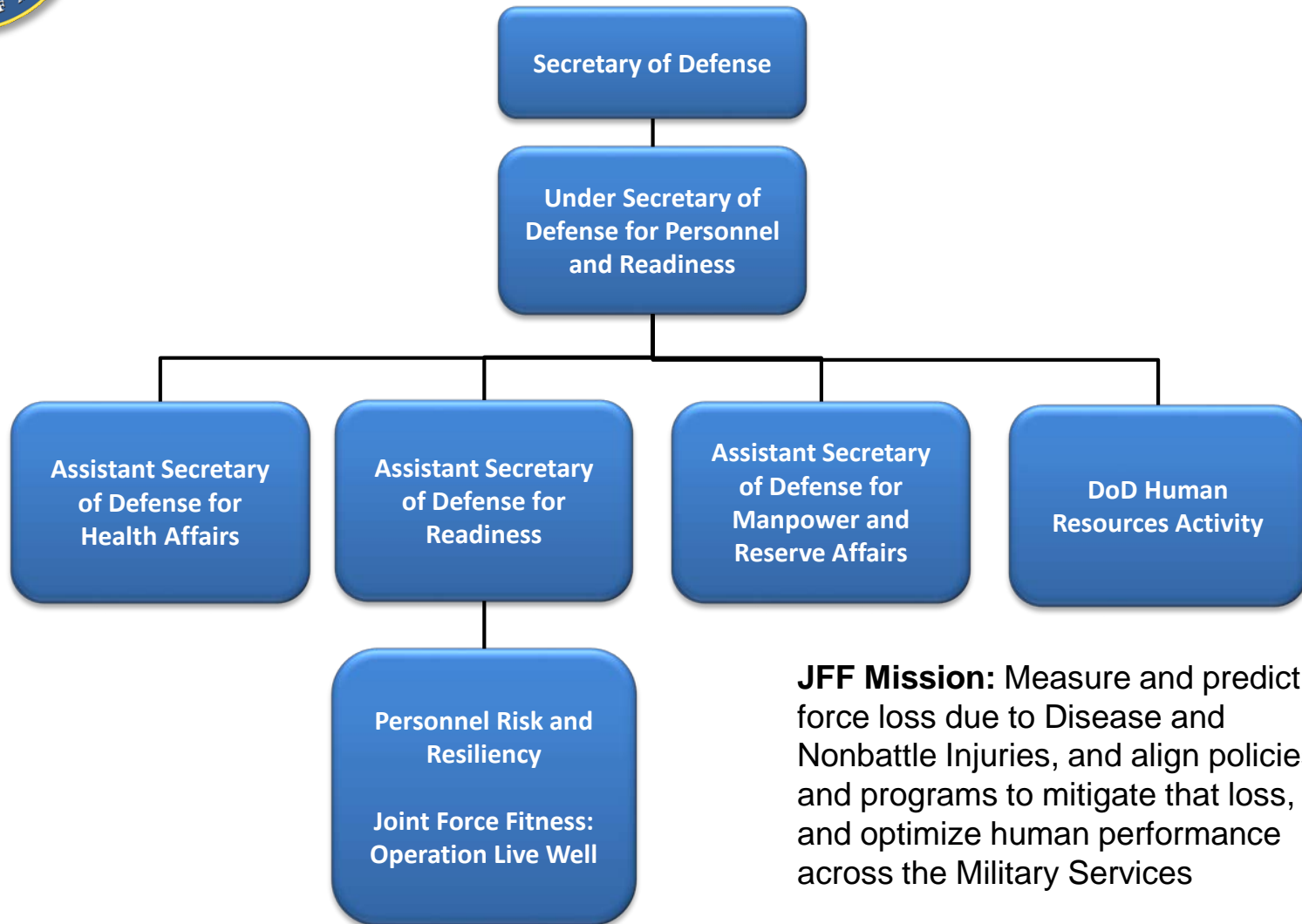
<sup>1</sup> Definition found in DoDI 1342.22, 2012.

<sup>2</sup> Definition found in CJCSI 3405.01, 2011.

<sup>3</sup> Maucione, Federal News Radio, (2016)



# Positioned for Success





## Joint Force Fitness and Predicting Readiness

- JFF Readiness Prediction Model (RPM) is developing a key capability to:
  - Quantifiably **define** individual readiness
  - **Predict** and report the level of deployability DoD may achieve
  - **Identify** the root causes of non-deployability
  - In partnership with the Services, provide information that drives policies, programs, and training to improve deployability, readiness, and lethality



# RPM has Identified that Army Programs May Mitigate Root-Causes of Non-Deployability

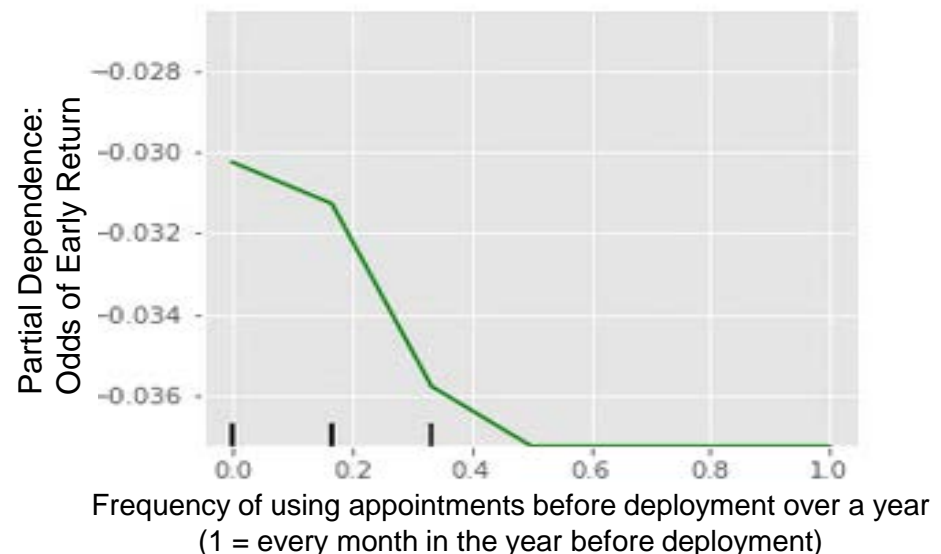
## How can we take advantage of it for our Service members?

- Army programs that improve readiness can be compared and contrasted to parallel programs in the other Services.
- DoD can use best practices from the Army to develop and establish analogous programs in the other Services.
- Analysis using the Readiness Prediction Model may identify and quantify which program features are effective in improving readiness outcomes.

**Example Program:** Wellness appointments may reduce deployment incompleteness rates.

- Feature: Appointments may include wellness center visits, that aim to minimize musculoskeletal injuries (MSKI)
- Root-cause: Analysis identifies MSKI as a frequent medical “point of failure” (40% of deployments result in an MSKI visit)
- Results: Machine learning indicates deployment incompleteness rates decrease with wellness appointment visits.

Odds of Incomplete Deployment  
against Wellness Appointments





# Quantitative Analysis Approach: Using Public and other Federal Data for Readiness Risk Factors

- CDC outcome data correlated with personnel Readiness (Health Related Quality of Life) were modeled using 19 community risk factors to identify DoD populations at risk.
- HRQOL

| HRQoL Metrics             | Measure Methodology   | Measure Source                             |
|---------------------------|---|--|
| Poor or fair health       | Percentage of adults reporting fair or poor health (age-adjusted)                   | Behavioral Risk Factor Surveillance System |
| Poor physical health days | Average number of physically unhealthy days reported in past 30 days (age-adjusted) | Behavioral Risk Factor Surveillance System |
| Poor mental health days   | Average number of mentally unhealthy days reported in past 30 days (age-adjusted)   | Behavioral Risk Factor Surveillance System |

| Predictor Metric (Subset) | Measure Methodology  | Measure Source                                |
|---------------------------|--|---|
| Adult obesity             | Percentage of adults that report a BMI of 30 or more                                   | CDC Diabetes Interactive Atlas                |
| Food environment index    | Index of factors that contribute to a healthy food environment, 0 (worst) to 10 (best) | USDA Food Environment Atlas, Map the Meal Gap |
| Physical inactivity       | Percentage of adults aged 20 and over reporting no leisure-time physical activity      | CDC Diabetes Interactive Atlas                |
| Excessive drinking        | Percentage of adults reporting binge or heavy drinking                                 | Behavioral Risk Factor Surveillance System    |
| Uninsured                 | Percentage of population under age 65 without health insurance                         | Small Area Health Insurance Estimates         |
| Unemployment              | Percentage of population ages 16 and older unemployed but seeking work                 | Bureau of Labor Statistics                    |
| Air pollution             | Average daily density of fine particulate matter in micrograms per cubic meter (PM2.5) | Environmental Public Health Tracking Network  |

## Criteria for Inclusion:

- Geospatial, county-level
- Covers one or more of the eight TFF domains
- Recently created (2013-2016)
- Robust data: only included measures with less than 25% missing values
- Including DMDC demographic data for Reserve Component population data

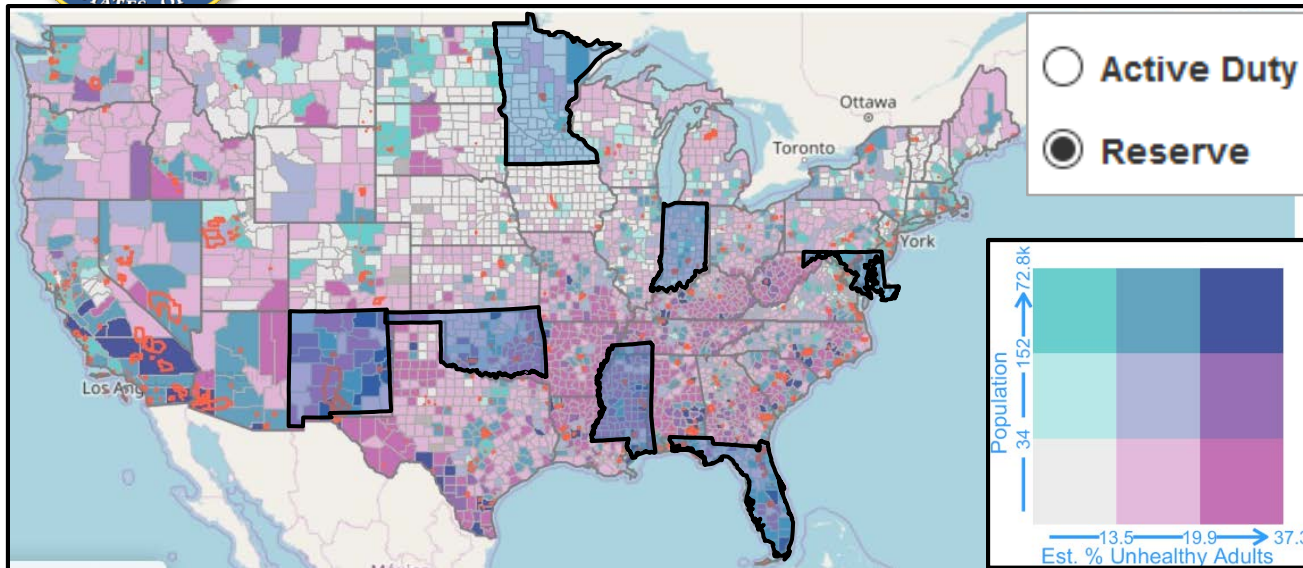
## Datasets Evaluated:







# Tying it Together: BHMC Rapid Needs Assessments Augment Quantitative Findings to Address Readiness



**Public Data Bivariate Map v 1.0:** Overlay of Reserve Population and Health Metric

**Qualitative Analysis:** Rapid Needs Assessment Visits, executed in conjunction with USUHS CHAMP, validate our quantitative findings and identify new gaps through on-the-ground intel. The effort also identifies additional program resources available to local Servicemembers.

**An Example of 'Improved Targeting':** Public-data analysis provided guidance to RNA visits. Identifies preliminary 'hot-zones' to visit and priority areas that can improve Readiness.

1. Identifies RC groups at-risk geographically by HRQOL at the county level
2. Predicts root-causes of Readiness issues, and prioritizes them, based on initial modelling

**Proposed Use:** Targeted Recruitment. Army National Guard (ARNG) had expressed interest optimizing recruitment strategies to identify healthier population pools.

## Partners

- Reserve Component Service Chiefs
- National Guard Bureau
- State Coordinators
- Centers for Disease Control and Prevention
- National Park Service
- Robert Wood Johnson Foundation
- State Health and Human Services Departments
- Others

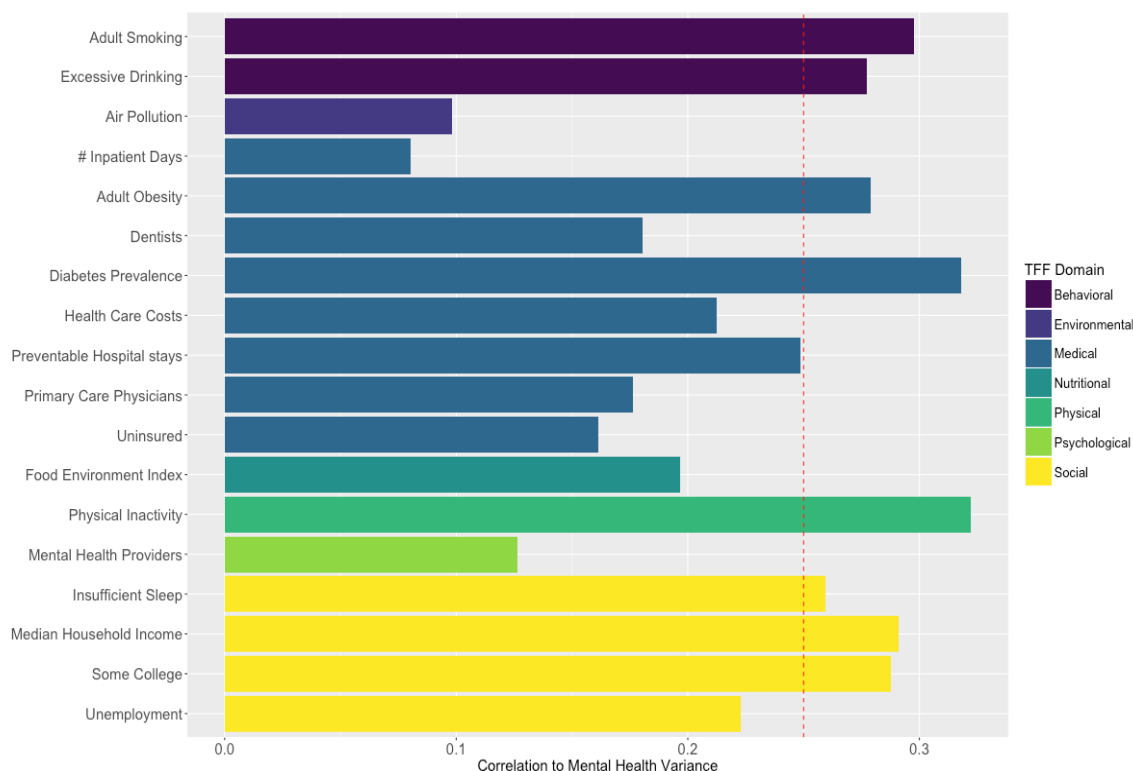
## Participating States

- Mississippi: 3/12-3/16
- Indiana: 4/2-4/6
- Oklahoma: 4/16-4/20
- Florida: 5/7-5/11
- Minnesota: 5/14-5/18
- Maryland: 6/11-6/16
- New Mexico: 6/25-6/29



# Finding the Underlying Community Factor

- Principal Components Analysis revealed a single primary component that loads heavily on Nutrition and obesity related outcomes.
- Initial analysis reveals that 40% of our deployed cohort acquired Musculoskeletal injuries (CAPER, 2011-2016), an outcome heavily correlated with nutrition and obesity.
- Current analysis, joined with DoD datasets, will enable program evaluation—to tease out how nutrition programs and interventions improve medical outcomes and improve program targeting.







# DoD Food Environment

Systematic challenges in the DoD food environment inhibit Service members from achieving and sustaining nutritional fitness

ISSUE

## Financial Impact

**\$6.5B**

Annual cost to treat the effects of obesity, alcohol, and tobacco illness

## Recruitment

**64%**

Of potential recruits will not qualify for service due to their weight by 2030

## Retention

**1,200**

Firm term enlistees discharged before end of contract due to weight problems annually

## Readiness and Resiliency

**47%**

More likely to experience a musculoskeletal injury if overweight or obese.

Segmenting the food environment enabled DoD to assess the differences between the Services in their commitment, approaches, and challenges to improving nutritional fitness.

In order to transition from treatment-based care to a prevention-focused community, the DoD needs to **improve coordination efforts across all sectors of the food environment:**



Food Acquisition



Food Preparation



Food Delivery & Access



Nutrition Education



Research/Assessment

SOLUTION



# Align, Integrate, and Coordinate

- OLW championed and promoted reforms to improve nutritional standards across the DoD
  - Incorporated Recess Before Lunch into the DoD Student Meal Program (DoDI 1015.05)
  - Reorganized the roles and responsibilities of the DoD Nutrition Committee (DoDI 1338.10)
  - Integrated nutrition standards into policies affecting food acquisition (DoDI 1338.10)
- OLW supported or funded initiatives to enhance nutritional fitness of Service members
  - Revised Go For Green® to eliminate the logistical challenges of implementing nutrition messaging across the Services
  - Updated the Armed Forces Recipes to enable dining facilities to meet the nutritional standards for Military Dietary Reference Intakes (mDRI)
  - RD Manpower study is an ongoing effort to determine the optimal RD staffing ratio in the military



# Building Healthy Military Communities Pilot

## Problem

DoD increasingly relies on the Reserve Component (RC) due to factors such as personnel and funding reductions, and this population is increasingly living off of the installation.<sup>1,2</sup> Therefore, the DoD must prioritize the integration of community and military resources to achieve heightened Total Force Fitness.<sup>3</sup>

## Proposed Solution

- **Understand requirements for optimizing well-being and readiness** for geographically dispersed RC Service members **and current capabilities** to meet these requirements.
- **Design a strategic plan** to coordinate and integrate DoD, federal, state, regional, and local efforts to better support the needs of geographically dispersed service members and their families through community capacity building.

## Desired Impact

### Process Measures:

- Aligned initiatives and increased efficiencies.

### Outcome Measures:

- Increased Health Related Quality of Life (HRQoL), a multidimensional concept that “goes beyond the direct measures of health and focuses on the quality-of-life consequences of health status”.
- Increased readiness, measured by % ready to deploy.

1. RAND Corporation, 2008.

2. U.S. Senate Committee on Armed Services

3. TFF is a methodology for understanding, assessing, and maintaining Serves members' well-being and sustaining their ability to carry out missions.



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