Diabetes and Military Service

0945-1045

7 April 2022

Presenter

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Learning Objectives

At the conclusion of this knowledge-based activity, participants will be able to:

1. Review Military Evaluation Board (MEB) process
2. Analyze the healthcare team workflow, roles, and actions in the management of a PWD
3. Summarize implication of a diagnosis of diabetes for the active duty patient

Key Takeaways

- Overview of diabetes in the military
- Air Force policies for diabetes and retention
- MEB process and information
- Active duty diabetes screening recommendations
- Diagnostic considerations
- Diabetes and deployment

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Background

- Slightly more than 1% of the active duty population are diagnosed with diabetes
  - Rate remained stable from 2006-2010
  - Diagnosis more common as age increases
  - Type 2 diabetes more common
- Of active duty service members diagnosed with type 2 diabetes
  - Mean age at diagnosis 35.2 years old
  - Average 13.6 years of military service at time of diagnosis
  - Similar risk factors compared to the general US population

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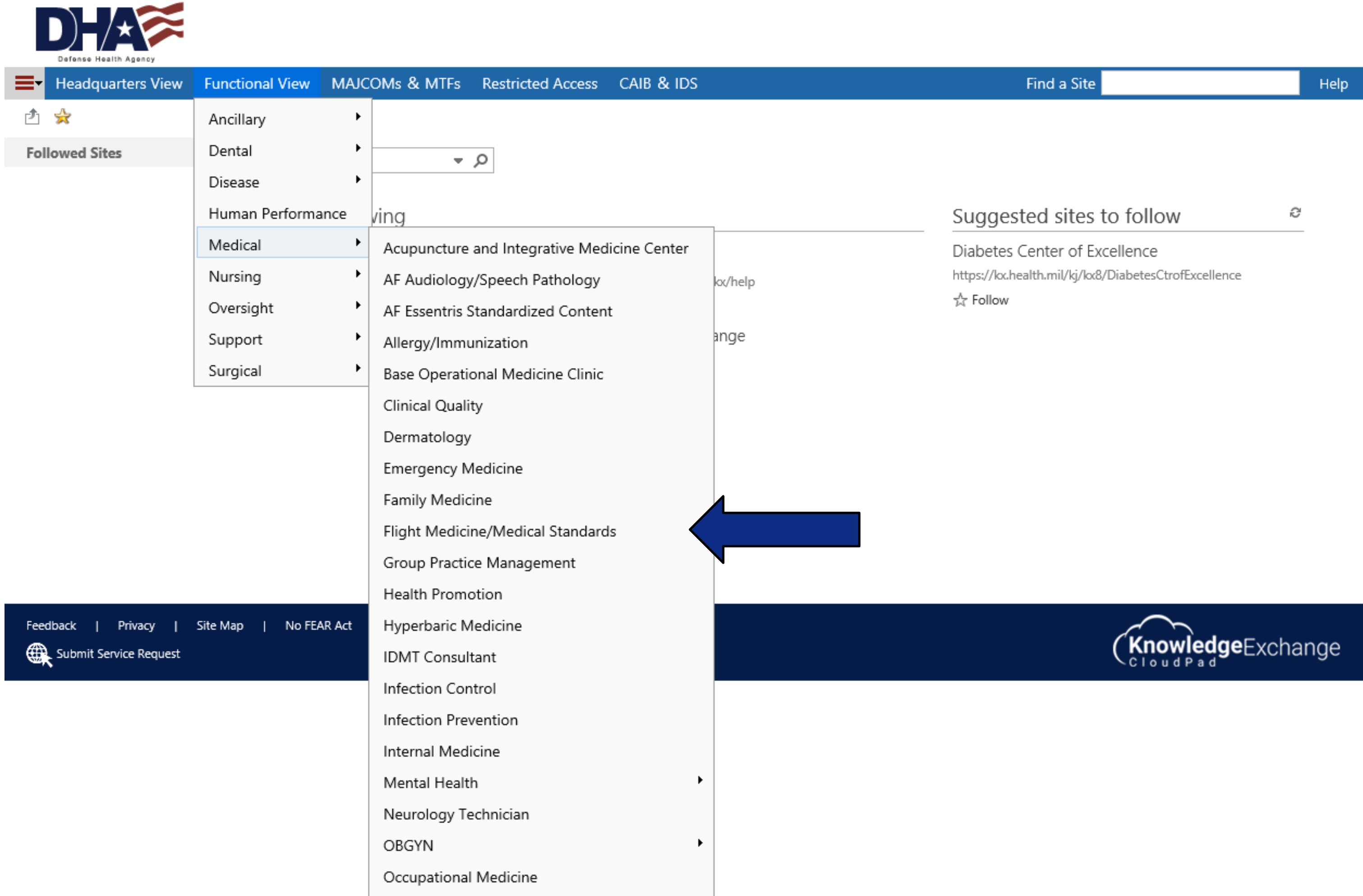
Medical Standards Directory

- Access the each services standards through the DHA Kx
  - AF - Medical Standards Directory (MSD)
  - Army – AR 40-501
  - Navy – NAVMED P-117

Knowledge Exchange https://kx.health.mil/kj/kx4



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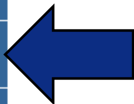
- RAMpage
  - Separation History & Physical Exam (SHPE)
- Medical Standards & Waivers
  - AFI 48-123 Med Exams & Standards
  - Medical Standards Directory (MSD) 13 May 2020
  - Aircrew Medication List 13 May 2020
  - Ground Based Operator (GBO) Medication List 13 May 2020
  - OTC Medication List 27 Feb 2020
  - Waiver Guide
  - Sister Service Requirements



- Air Force Chief of Aerospace Medicine Policy and Operations
- AFMRA Flight & Operational Medicine Branch Directory
- Flight & Operational Medicine
- Air Force Personnel Reliability Assurance Program
- Occupational Medicine
- AFPC Retention Medical Standards
- Useful links
- Aerospace Medicine Signed Documents
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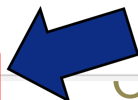

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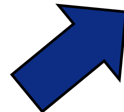
US Navy



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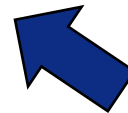

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US Army

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  - BOMC (Home)

Naval Aerospace Medical Institute (NAMI)

Manual of the Medical Department (MANMED), NAVMED P-117

Aeromedical Reference and Waiver Guide

Navy Forms

AERO

DCOE
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Enlistment Standards

- DoD Instruction 6130.03 Medical Standards for Appointment, Enlistment, or Induction into the Military Services
  - Applies to all branches of the military
- Section 5: Disqualifying Conditions
- Applies for those entering military AND first six months of service
- If new diagnosis of diabetes in an Air Force trainee, notify Trainee Health at Reid Clinic (210) 671-5535

Enlistment Standards

- Diabetes is a disqualifying medical diagnosis
- Diabetic disorders including:
  - History of Diabetes Mellitus
  - History of unresolved pre-diabetes mellitus (as defined by the American Diabetes Association) within the last 2 years
  - History of gestational diabetes mellitus
  - Current persistent glycosuria, when associated with impaired glucose metabolism or renal tubular defects

Integrated Disability Evaluation System (IDES)

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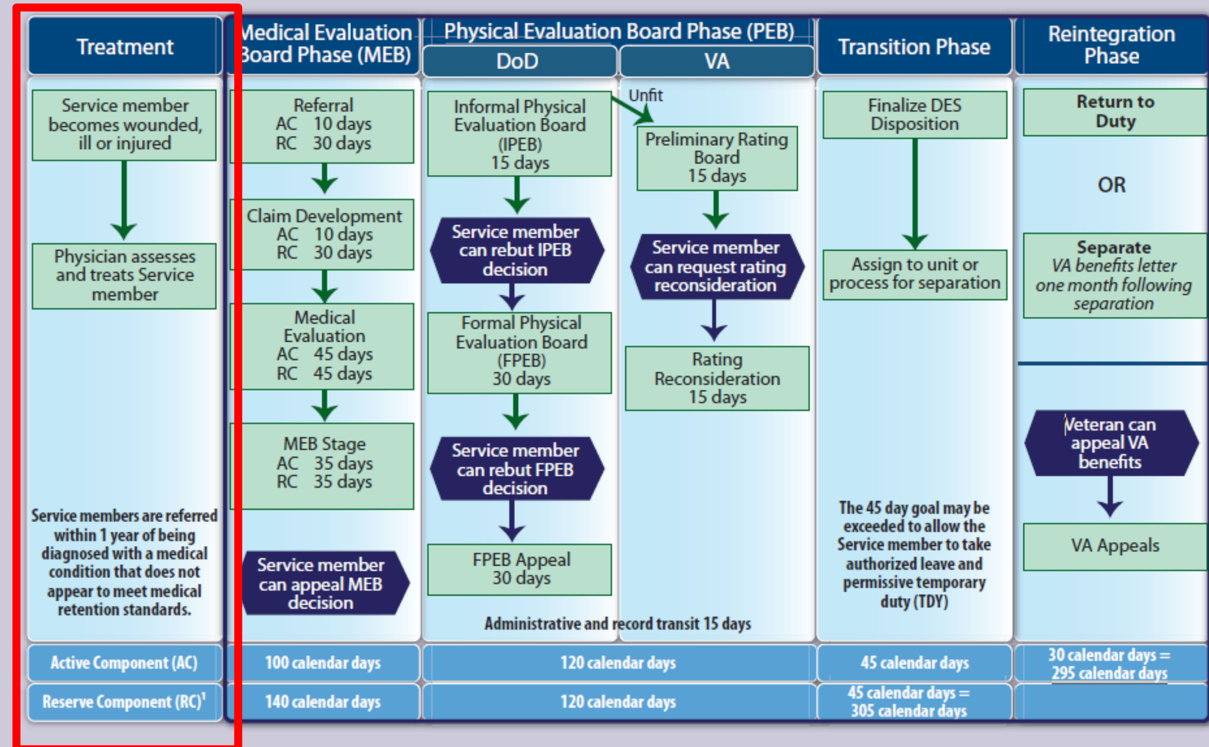
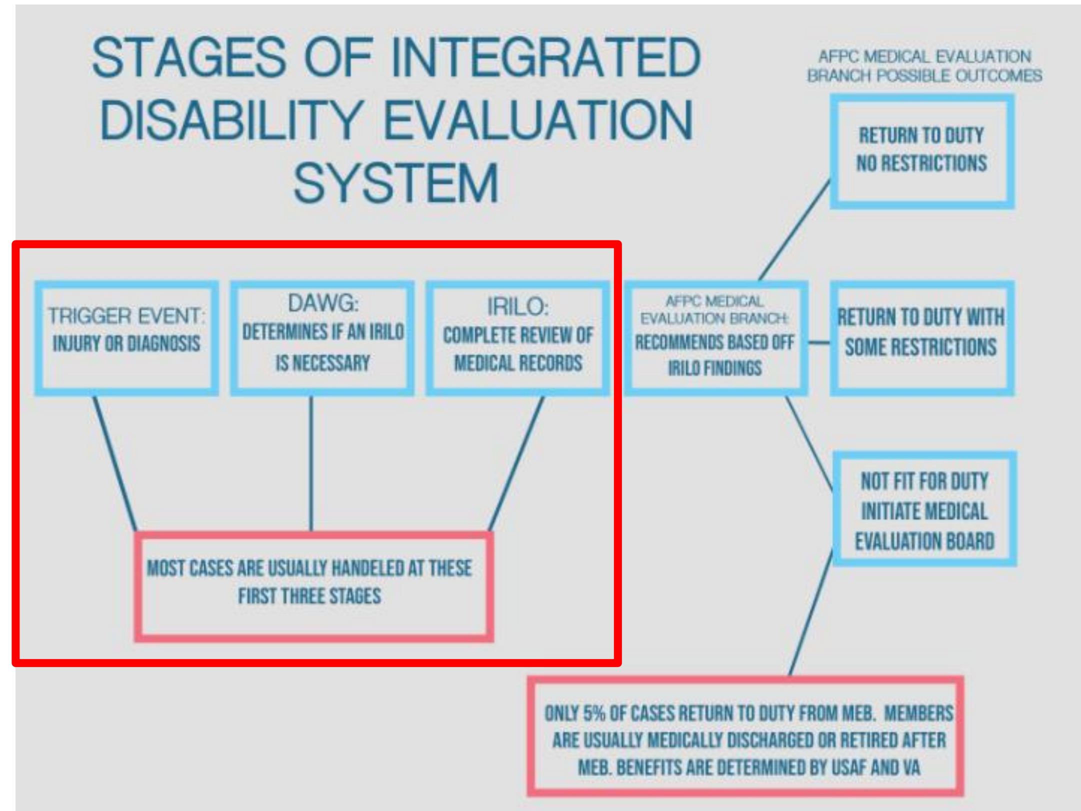
Commonly used Acronyms:

- **DES** – Disability Evaluation System
- **FPEB** – Formal Physical Evaluation Board
- **IDES** – Integrated Disability Evaluation System
- **IPEB** – Informal Physical Evaluation Board
- **MEB** – Medical Evaluation Board
- **MSC** – (VA) Military Service Coordinator
- **PEB** – Physical Evaluation Board
- **PEBLO** – (DoD) Physical Evaluation Board Liaison Officer



PRE - Integrated Disability Evaluation System (IDES)



All profiles are evaluated monthly by the Deployment Availability Working Group (DAWG) to identify service disqualifying conditions

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Medical Evaluation Board

- PCM refers members to the Deployment Availability Working Group (DAWG) who reviews the case and can recommend MEB
  - Notify your clinic DAWG representative or BOMC/MSME of need for a new MEB, to ensure accurate profiling
- PCM or specialist completes Narrative Summary for the condition being evaluated by MEB
  - Template provided by PEBLO
- The PEBLO assists each service member's through MEB process
- PEBLO required to submit a completed MEB package to AFPC w/in 30 days of the dictated Narrative Summary

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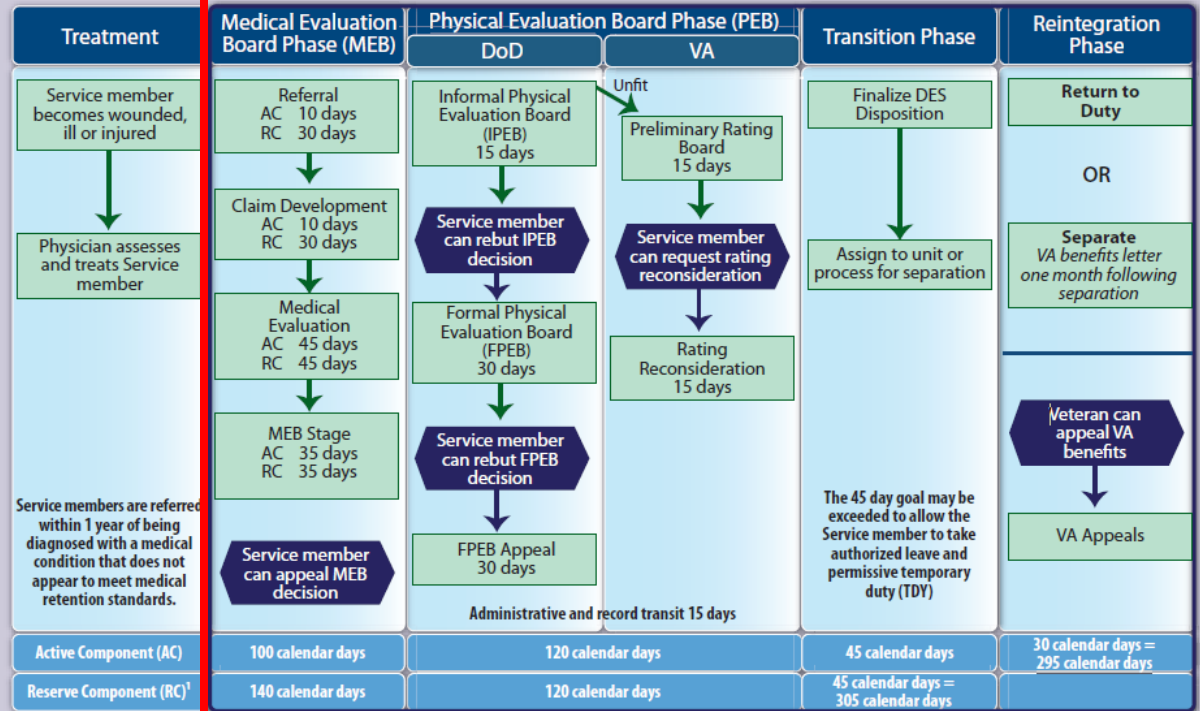

USAF Disability Evaluation System

- Two major components:
  - Medical Evaluation Board (MEB)
  - Physical Evaluation Board (PEB Informal and Formal)
- Two of the three physician members of the DAWG are the Chief of Aerospace Medicine (SGP) and Chief of the Medical Staff (SGH)

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AF Medical Standards Directory

Section M: Endocrinology and Metabolic USAF Medical Standards

Combat Controller (1C2X1): Continued service must meet FCIII and GBC standards. In addition, initial exams need to meet interservice school requirements (SSR). SSR PAGE
CRO and STO (13DXA and 13DXB): Must meet FCIII standards. In addition, must meet sister school requirements to attend school. SSR PAGE
Combat Weather (1W0X1, 1W0X2, 15WXX): Must meet FCIII standards. In addition, must meet sister school requirements to attend school. SSR PAGE
Pararescue (1T2X1): Must meet FCIII standards. In addition, must meet sister school requirements to attend school. SSR PAGE
RPA Sensor Operator (1U0X1): Must meet GBC standards.
SERE: Must meet SERE requirements on SERE tab. Also must meet FCIII requirements for continued jump status and interservice requirements to attend school. SERE SSR
TAC-P (1C4X1, 13LX), if Ground Only: GBC standards. Otherwise must meet FCIII and GBC standards. In addition, initial exams must meet sister service requirements to attend school. SSR PAGE

	Endocrine and Metabolic Disqualifying Conditions	"X" = Standard applies								Comments
		Retention	Flying Class I/IA	Flying Class II	RPA Pilot	Flying Class III	Ground Based Controller (GBC)	Missile Operation Duty (MOD)	Operational Support Flying Duty	
M1	Acromegaly.	X	X	X	X	X	X	X	X	
M2	Adrenal hyperfunction not responding to therapy or when requiring ongoing specialty f/u more than annually.	X	X	X	X	X	X	X	X	
M3	Adrenal insufficiency or Addison's Disease.	X	X	X	X	X	X	X	X	
M4	Adrenal dysfunction of any degree including pheochromocytoma.		X	X	X	X	X	X		
M5	Diabetes insipidus.	X	X	X	X	X	X	X	X	
M6	Diabetes mellitus, type 1 or type 2, including diet controlled and those requiring insulin or oral hypoglycemic drugs. Note: Gestational diabetes is not specifically disqualifying; however, these aircrew members are at increased risk of subsequent development of diabetes mellitus and should be closely followed.	X	X	X	X	X	X	X	X	See AMWG.
M7	Persistent glucosuria from any cause, including fasting renal glucosuria is disqualifying. Glucosuria post-prandially, or during glucose loading challenge, is not disqualifying in the absence of any renal disease, or history of recurrent genitourinary infections. However, this finding requires evaluation.		X							
M8	Gout, with frequent acute exacerbations in spite of therapy, or with severe bone, joint, or kidney damage.	X	X	X	X	X	X	X	X	See AMWG.
M9	Gout.		X	X		X				See AMWG.
M10	Hyperinsulinism, when caused by a malignant tumor, or when the condition is not readily controlled.	X	X	X	X	X	X	X	X	
M11	Hyperinsulinism, confirmed, symptomatic.		X	X	X	X	X	X		
M12	Hyperparathyroidism, when residuals or complications are present, or when requiring ongoing specialty follow-up more than annually.	X	X	X	X	X	X	X	X	
M13	Parathyroid dysfunction.		X	X	X	X	X	X		

Knowledge Exchange
https://kx.health.mil/kj/kx4

Medical Services

Army Regulation 40–501

Standards of Medical Fitness

Chapter 3
Medical Fitness Standards for Retention and Separation, Including Retirement

3–29. Endocrine and metabolic
The causes for referral to the DES are as follows:

d. Diabetes mellitus.
(1) All cases of type 1 disease.
(2) All cases of type 2 disease requiring medications for glycemic lowering.
(3) All cases of diabetes mellitus with microvascular or macrovascular complications.
(4) All cases with HbA1C greater than 7.0 percent despite lifestyle modification for 6 months, intolerance, or declination of medical therapy.
(5) If a Servicemember who has been previously found fit for duty while taking oral diabetic information and has a change requiring insulin should be referred back to the DES as this requires refrigeration of medication.

Army Personnel

- Army service members diagnosed with diabetes may also need a MEB
- This process should be triggered through the profiling system

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Diagnostic Considerations: Gestational Diabetes

- Active Duty women with gestational diabetes do not require MEB
- Increased risk of developing recurrent gestational diabetes, prediabetes and type 2 diabetes
- Recommend retest 4 to 12 weeks after delivery
  - Two hour 75g oral GTT recommended
    - Diabetes diagnosed if fasting glucose ≥126 or two hour glucose ≥200
  - A1c can be used but less accurate in postpartum period due to increased peripartum red cell turnover
- Repeat testing at LEAST every three years

Diabetes and Deployment

- Little research exists regarding deployment and diabetes
- Deployment leads to increased physical demand
- Deployed locations may be austere
  - Limited access to electricity, refrigeration and clean water
  - Extremes of temperature and altitude
  - Limited medical treatment capabilities

Folaron et al., 2018

Effect of Military Deployment on Diabetes Mellitus in Air Force Personnel

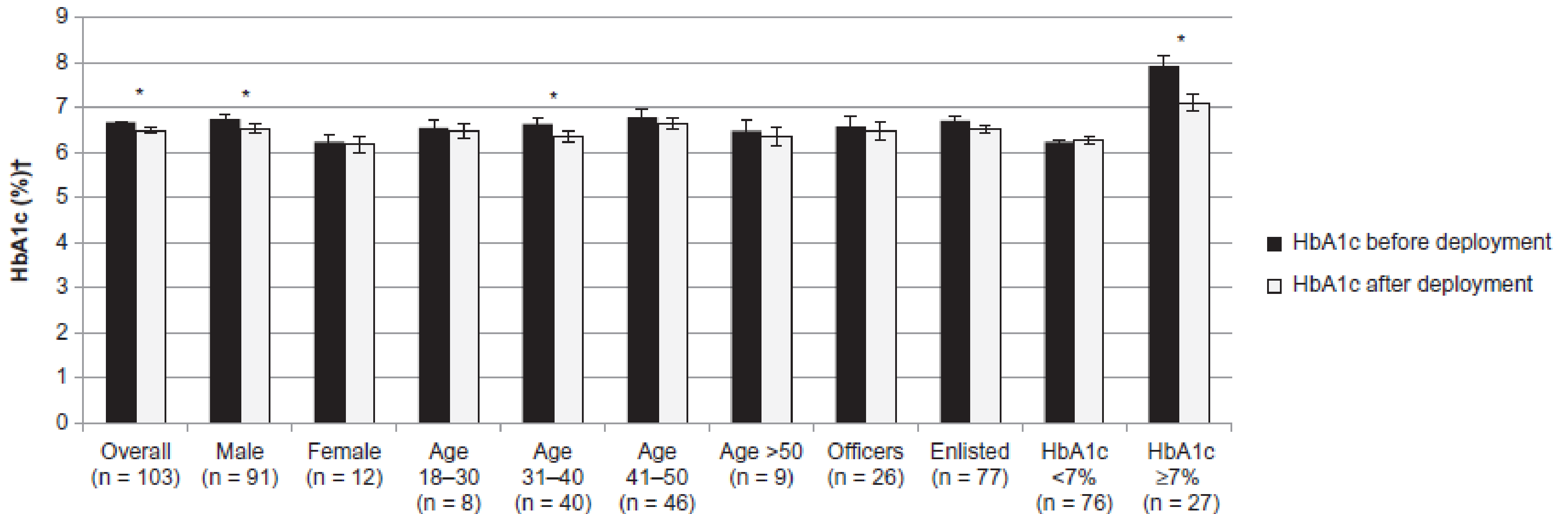

FIGURE 1. HbA1c before and after deployment for the overall population and subgroups. Data represents mean HbA1c +/− SE. $*p < 0.05$. †[10.93 × HbA1c%]−23.5 = mmol/mol.

Folaron et al., 2018

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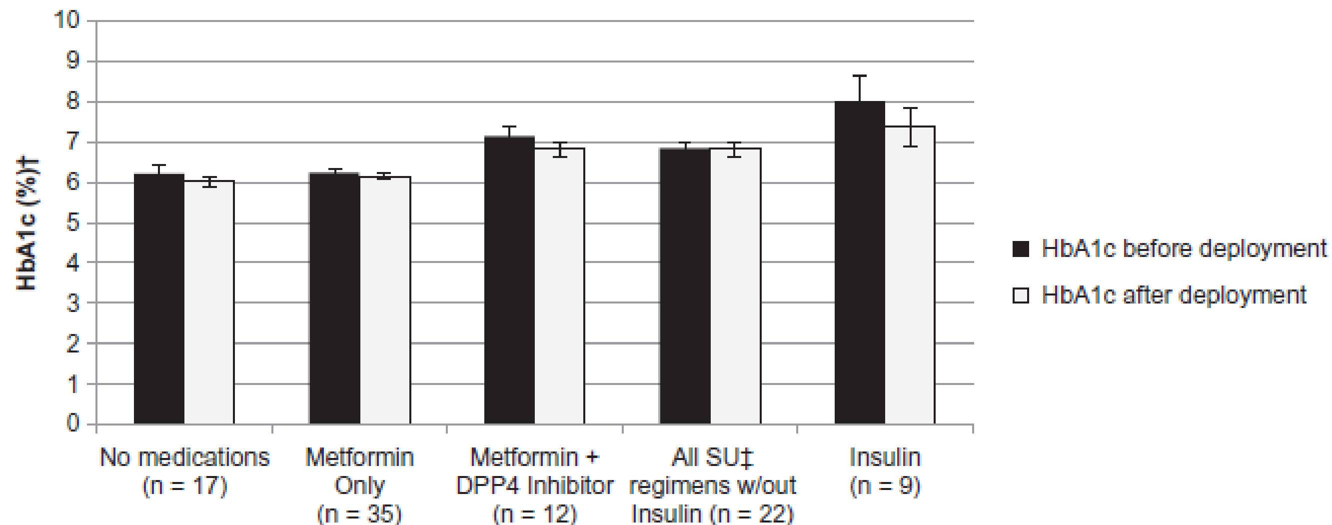

FIGURE 2. HbA1c before and after deployment based on therapeutic interventions. Data represents mean HbA1c +/− SE for those with paired HbA1c values. †[10.93 × HbA1c%]–23.5 = mmol/mol. ‡Sulfonylurea-containing.

Folaron et al., 2018

Effect of Military Deployment on Diabetes Mellitus in Air Force Personnel

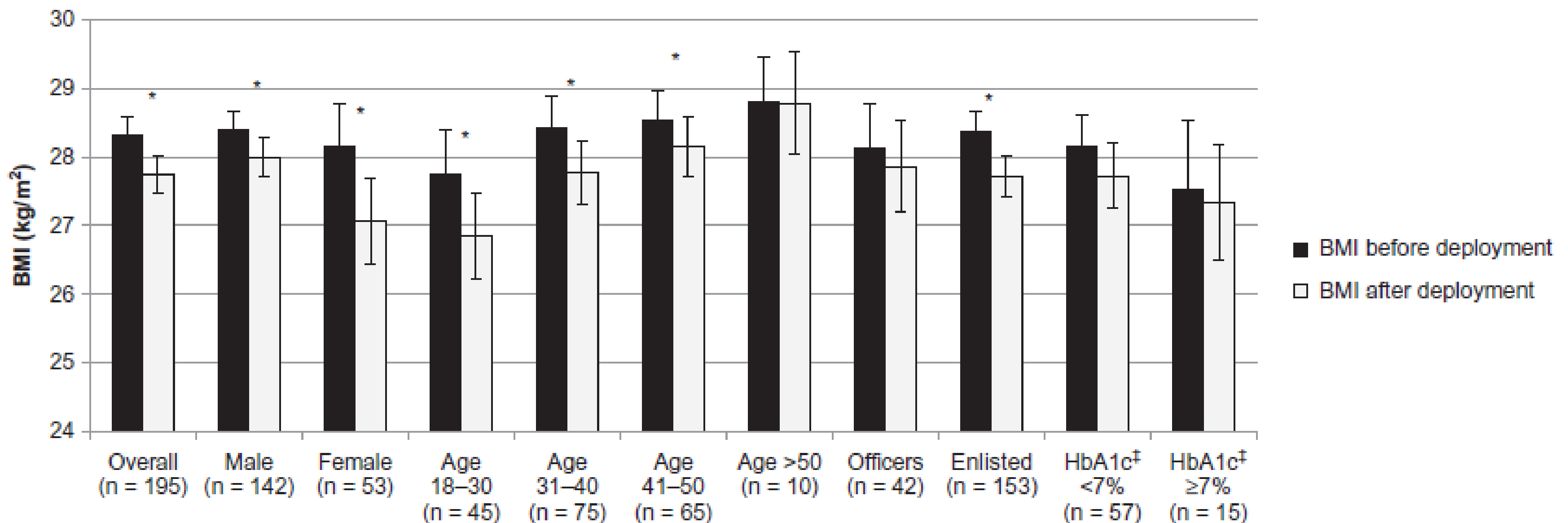

FIGURE 3. BMI before and after deployment for the overall population and subgroups. Data represents mean BMI +/– SE. $*p < 0.05$. ‡Data represents those with paired HbA1c and BMI values.

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Folaron et al., 2018

- Recommend A1c <7% as an appropriate threshold for deployment, using ADA guidelines
- Assess for history of severe hypo or hyperglycemia prior to deployment
- Oral medications preferable due to portability, stability and ease of administration
  - Metformin has an adequate safety profile for deployment
- Sulfonylureas have risk for hypoglycemia, not optimal
- Insulin usage has risk of hypoglycemia, challenges with storage (refrigeration)

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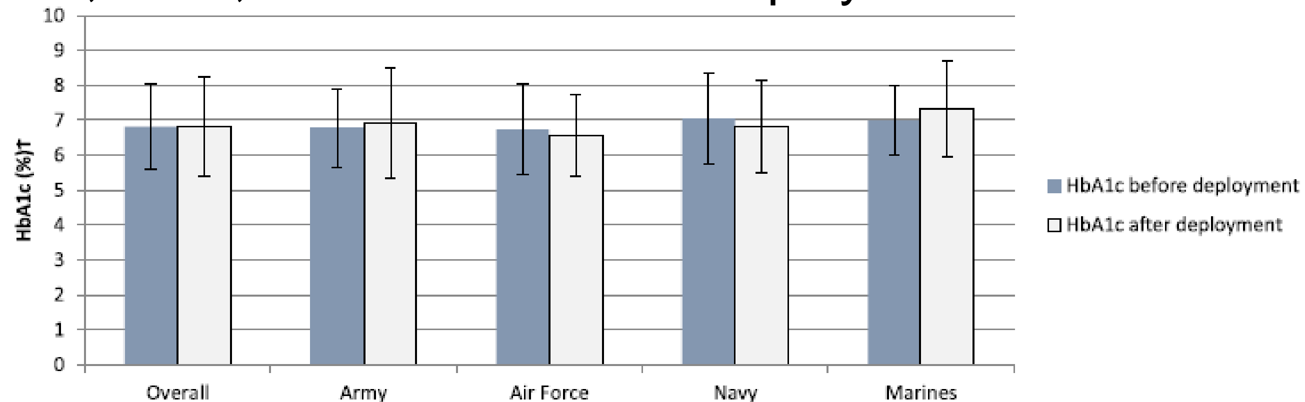
Folaron et al., 2020

Diabetes by Air, Land, and Sea: Effect of Deployments on HbA1c and BMI



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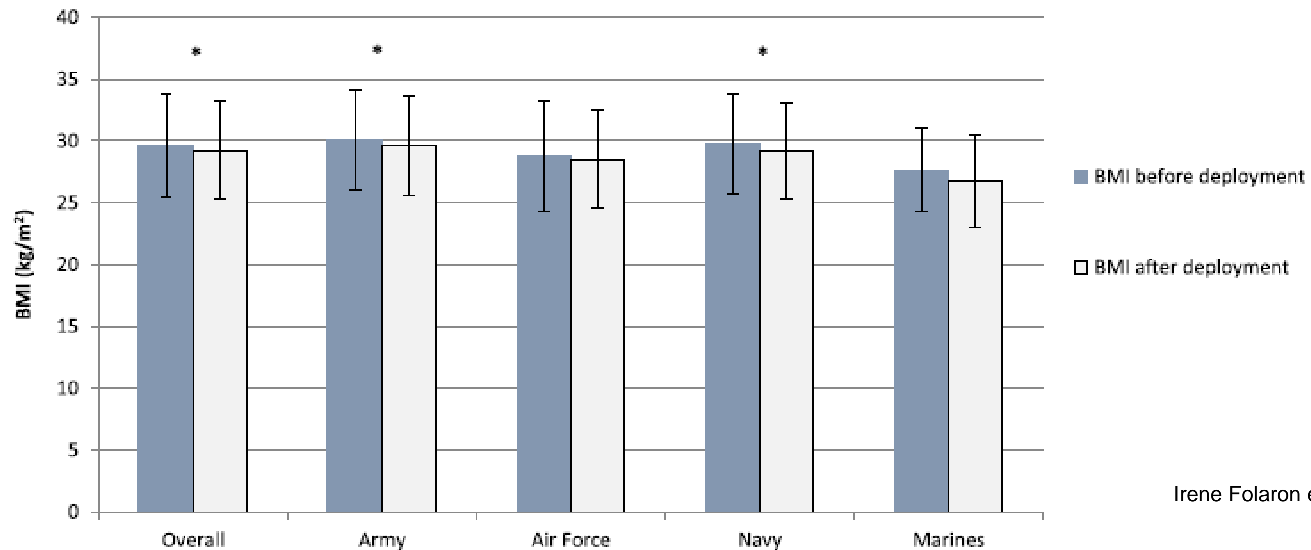

FIGURE 3. BMI before and after deployment. Data represents mean BMI +/− SD. *$P < 0.05$.

Irene Folaron et al. Mil Med, 2020

Folaron et al., 2020

Irene Folaron et al. Diabetes by Air, Land, and Sea: Effect of Deployments on HbA1c and BMI, *Military Medicine*, Volume 185, Issue 3-4, March-April 2020, Pages 486–492, https://doi.org/10.1093/milmed/usz311

Diabetes by Air, Land, and Sea: Effect of Deployments on HbA1c and BMI

- Majority of deployments with HbA1c <7%
- BMI overall declined
- Interestingly HbA1c did not
    - However, did not deteriorate which shows safe when appropriate population is selected

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Army Deployment Standards

Table 5–1
Guidance on deployment of Soldiers with diabetes

Factor	OK to Deploy	Should Not Be Deployed
Hgb A1C (for patient)	At target	Not at target
Monofilament discrimination	Present	Absent
Autonomic neuropathy	Absent	Present
Knowledge of sick day rules	Sufficient	Insufficient
Proliferative diabetic retinopathy	Absent	Present
Macular edema	Absent	Present
Severe hypoglycemia (an episode requiring another person's assistance)	Infrequent	Frequent
History of diabetic ketoacidosis in previous 6 mos.	No	Yes
Self-management skills	Good	Poor
Hypoglycemia unawareness	Absent	Present
Parameters of permanent profile can be followed	Yes	No
Significant co-morbidities (for example, congestive heart failure, chronic kidney disease, significant coronary artery disease, poorly controlled hypertension) requiring intensive management	Absent	Present
Risk of hypoglycemia is high if meals are missed or delayed	No	Yes
Duty will place the Soldier in an OCONUS-Isolated area where appropriate medical care and means to monitor and support him/her are not available	No	Yes

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Question

- When an active duty member is diagnosed with diabetes, they:

  a) Will be medically discharged
  b) Will be medically evaluated to determine if "fit for duty" and retention
  c) Will no longer be deployable
  d) Will receive treatment; no administrative action needed

Case Study
APF

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APF

32 y/o African American female, AD Major with Type 2 DM, HTN, HLP

Reason for appointment

Results of pregnancy test

Concerns: She is due to deploy within 2 months

A1C: 8.2%

APF

Vital Signs/Intake:
BP 128/76 P 72 BMI 26.31 Ht 67 in Wt 168 lb Non-smoker

Labs:
A1C 8.2% Creat 1.1 mg/dL Chol 194 LDL 143 HDL 31 Trig 214
MicroAlb 20 (Prev 35 x2) Pregnancy test negative

Meds:
Sitagliptin/metformin 50 mg/ 1000mg Glipizide XL 10 mg daily
Atorvastatin 40 mg daily Lisinopril 40 mg daily

Other:
History of GDM with 1st child (2 yo)
Retinal Exam: 2 months ago
Glucose log averages: B 132 L 164 S 188 BT 297

Treatment options:

- **Medications:**

Sitagliptin/metformin 50 mg/ 1000mg
Atorvastatin 40 mg daily
Glipizide XL 10 mg daily
Lisinopril 40 mg daily

  - Glycemic med adjustment
    - Options
    - Advantages/disadvantages
  - Cholesterol med adjustment?
  - Blood pressure med adjustment?
  - Other medications?

Education:

Question

- What recommendations would be appropriate for a female taking Sitagliptin, Metformin, and Glipizide who desires pregnancy?

  a) Stop oral medications, implement insulin regimen
  b) Consider continuing oral medications if patient declines insulin
  c) A & B
  d) Expectation to control blood glucose with diet and exercise only

APF

Deployment considerations

- A-RILO
- Diabetes medications
  - Oral vs insulin
  - Glucose management
  - Resources at deployed site and waiver requirements
- Pregnancy
  - Desire for pregnancy
  - Birth control

Case Studies
BKM

34 y/o Caucasian male, AD TSgt (Security Forces)

Reason for appointment

Follow-up post-hospitalization for ACL repair

Concerns: “Needs to get off insulin”

New onset Diabetes

BKM

Vital Signs/Intake:

BP 114/76 P 70 BMI 26.58 Ht 71 in Wt 193 lb Smoker

Labs:

A1C 12.3% Creat 0.9 mg/dL Chol 207 LDL 120 HDL 28 Trig 295

Meds:

Metformin 1000 mg bid Lisinopril 10 mg qd Esomeprazole 20 mg qd
Glargine 12 units daily SSI Aspart 1:50>150 before meals/bedtime
Hydrocodone/APAP prn pain

Other:

Retinal Exam: none

Glucose log averages: B 182 L 264 S 248 BT 323

BKM—Treatment Options

- **Medications:**

Metformin 1000 mg bid Lisinopril 10 mg daily Esomeprazole 20 mg daily
Glargine 12 units daily SSI Aspart 1:50>150 before meals/bedtime
Hydrocodone/APAP prn pain

  - Glycemic med adjustment
    - Options
    - Advantages/disadvantages
  - Cholesterol med adjustment?
  - Blood pressure med adjustment?
  - Other diagnosis options?
  - Other medication options?

- **Education:**

BKM—Treatment Options

GAD results:

Glut Dcarb AB >30

Islet Cell AB 39

Insulin AB 0.5

TPO 15

Medication options?

MEB Considerations

- Different for each service
  - Air Force (AFI 36-3212)
  - Army (AR 40-501)
  - Navy (SECNAV I 1850)
- Factors to influence retention
  - AFSC/MOS
  - Time in service
  - Deployability
  - Disease management
- VA eligibility
  - Disability rating
  - Defer to VA representative (va.gov)

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Questions