



Department of Defense **INSTRUCTION**

NUMBER 6465.01

July 17, 2015

USD(P&R)

SUBJECT: Erythrocyte Glucose-6-Phosphate Dehydrogenase Deficiency (G6PD) and Sickle Cell Trait Screening Programs

REFERENCES: See Enclosure 1

1. **PURPOSE.** This instruction:

a. Reissues DoD Instruction 6465.1 (Reference (a)) in accordance with the authority in DoD Directive 5124.02 (Reference (b)) to establish policy, assign responsibilities, and provide procedures for G6PD and sickle cell trait screening, in accordance with sections 1074a and 10206 of Title 10, United States Code (Reference (c)) and DoD Directive 6200.04 (Reference (d)).

b. Establishes screening requirements for the presence of G6PD deficiency in all personnel entering the Military Services and those Service members on active duty who have not previously been tested.

c. Establishes screening requirements for sickle cell trait following established clinical and preventive medicine recommendations for the Military Services' operational requirements.

2. **APPLICABILITY.** This instruction applies to OSD, the Military Departments (including the Coast Guard at all times, including when it is a Service in the Department of Homeland Security by agreement with that Department), the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the DoD (referred to collectively in this instruction as the "DoD Components").

3. **POLICY.** It is DoD policy that:

a. All personnel entering the Military Services will be screened for G6PD deficiency.


b. Sickle cell trait screening will be done according to Service-specific operational requirements.

4. RESPONSIBILITIES. See Enclosure 2.

5. PROCEDURES: See Enclosure 3.

6. RELEASABILITY. **Cleared for public release**. This instruction is available on the Internet from the DoD Issuances Website at <http://www.dtic.mil/whs/directives>.

7. EFFECTIVE DATE. This instruction is effective July 17, 2015.



Brad Carson
Acting Under Secretary of Defense
for Personnel and Readiness

Enclosure

1. References
2. Responsibilities
3. Procedures

Glossary

ENCLOSURE 1

REFERENCES

- (a) DoD Instruction 6465.1, "Hemoglobin S and Erythrocyte Glucose-6-Phosphate Dehydrogenase Deficiency Testing Program," July 29, 1981 (hereby cancelled)
- (b) DoD Directive 5124.02, "Under Secretary of Defense for Personnel and Readiness (USD(P&R))," June 23, 2008
- (c) Title 10, United States Code
- (d) DoD Directive 6200.04, "Force Health Protection (FHP)," October 9, 2004, as amended
- (e) DoD Instruction 8320.02, "Sharing Data, Information, and Information Technology (IT) Services in the Department of Defense," August 5, 2013
- (f) DoD Directive 5400.11, "DoD Privacy Program," October 29, 2014
- (g) DoD 5400.11-R, "Department of Defense Privacy Program," May 14, 2007
- (h) DoD 6025.18-R, "DoD Health Information Privacy Regulation," January 24, 2003
- (i) DoD Instruction 6130.03, "Medical Standards for Appointment, Enlistment, or Induction in the Military Services," April 28, 2010, as amended
- (j) DoD Instruction 6040.45, "Service Treatment Record (STR) and Non-Service Treatment Record (NSTR) Life Cycle Management," October 28, 2010

ENCLOSURE 2

RESPONSIBILITIES

1. ASSISTANT SECRETARY OF DEFENSE FOR HEALTH AFFAIRS. Under the authority, direction, and control of the Under Secretary of Defense for Personnel and Readiness, the Assistant Secretary of Defense for Health Affairs:

a. Oversees the development and implementation of the G6PD and sickle cell trait screening programs.

b. Recommends changes or revisions to policy and issues Military Health System guidance, as necessary, to implement this instruction.

c. Establishes performance measures and goals, provides guidance for the development of metrics, and monitors metrics implementation and analysis.

d. Requires appropriate information sharing, except where limited by law, policy, or security classification. Data produced as a result of the assigned responsibilities must be visible, accessible, and understandable to the rest of the DoD, as appropriate, in accordance with DoD Directive 8320.02 (Reference (e)), DoD Directive 5400.11 (Reference (f)), DoD 5400.11-R (Reference (g)), and DoD 6025.18-R (Reference (h)).

e. Ensure that the policies and procedures of this instruction are implemented to protect the privacy of individuals in the collection, use, maintenance, and distribution of personally identifiable information, as required by References (f) and (g).

2. DIRECTOR, DEFENSE HEALTH AGENCY. Under the authority, direction, and control of the Assistant Secretary of Defense for Health Affairs, the Director, Defense Health Agency:

a. Establishes implementation procedures in a Defense Health Agency procedural instruction.

b. Monitors the implementation of this instruction.

c. Establishes quality assurance and quality control parameters for the uniform implementation of the G6PD screening program, and defines follow-on education activities for those with G6PD deficiency.

d. Establishes minimum requirements and criteria for the development of Service-specific requirements during the implementation of the sickle cell trait screening program, and defines follow-on education activities for those with sickle cell trait.

e. Establishes quality assurance and quality control parameters for defined inclusion criteria in the implementation of a sickle cell trait screening program by the Military Services.

3. SECRETARIES OF THE MILITARY DEPARTMENTS AND COMMANDANT OF THE U.S. COAST GUARD. The Secretaries of the Military Departments and the Commandant of the U.S. Coast Guard:

a. Develop and implement a comprehensive plan to screen for G6PD deficiency.

(1) Ensure all Service members are screened upon entry for G6PD deficiency and assessed to determine whether the condition found during the testing is consistent with continuation of military service, in accordance with DoD Instruction 6130.03 (Reference (i)).

(2) Develop medical education programs for all Service members identified during the screening for G6PD deficiency and ensure the programs include the nature of the condition with associated risk factors and activities in all areas, including operational, occupational, environmental, and recreational.

(3) Ensure Service members identified to have G6PD deficiency participate in selected medical education programs.

(4) Ensure medical personnel are trained in the administration of a comprehensive medical education program on G6PD deficiency.

b. Develop and implement a comprehensive plan to screen for sickle cell trait.

(1) Define case definition criteria, special situations and populations, operational requirements, and clinical indications in the sickle cell trait screening plan.

(2) Develop medical education programs for all Service members identified during the screening for sickle cell trait.

(3) Ensure the medical education program includes the nature of the condition with associated risk factors and activities in all areas including operational, occupational, environmental, and recreational, as well as the genetic implications.

(4) Include mitigation strategies and self-awareness assessments along with Service-specific restrictions and requirements in the education programs.

c. Provide the necessary resources to support these programs.

ENCLOSURE 3

PROCEDURES

1. G6PD SCREENING PROCESS

a. All personnel entering or on active duty in the Military Services will be screened for the presence of G6PD deficiency and results will be documented in their electronic health record (EHR) and in the Service Treatment Record when the EHR is not accessible in accordance with DoD Instruction 6040.45 (Reference (j)).

b. Personnel who already have been screened do not need to be retested, provided documentation in the Service member's EHR and Service Treatment Record is adequate.

c. Personnel identified as having G6PD deficiency will participate in an educational program directed by trained medical personnel.

d. Participation in the educational program for personnel identified as having G6PD deficiency must be documented in the Service member's EHR (or Service Treatment Record when the EHR is not accessible).

2. SICKLE CELL TRAIT SCREENING PROCESS

a. Sickle cell trait screening will be done only on those Service members who meet demographic, clinical, or operational criteria as developed by the Military Services.

b. The results of testing must be documented into the Service member's EHR (or Service Treatment Record when the EHR is not accessible).

c. Personnel identified as having sickle cell traits will participate in an educational program administered by trained medical personnel, documented in accordance with paragraph 1d of this enclosure.

GLOSSARY

PART I. ABBREVIATIONS AND ACRONYMS

EHR electronic health record

G6PD glucose-6-phosphate dehydrogenase

PART II. DEFINITIONS

These terms and their definitions are for the purposes of this instruction.

G6PD. A red blood cell enzyme that catalyzes the first step in a metabolic pathway that serves as precursor for important molecules. The red blood cell is particularly dependent on G6PD for protection against oxidative stress because, unlike other cells in the body, red blood cells lack a nucleus, mitochondria, and other organelles necessary to produce the proteins involved in alternate pathways that can generate nicotinamide adenine dinucleotide phosphate, responsible for cellular respiratory, oxidative, burst. Red blood cells deficient in G6PD are therefore susceptible to oxidation and hemolysis under conditions of oxidative stress.

G6PD deficiency. The most prevalent human enzyme deficiency in the world, the disorder stems from an intrinsic metabolic defect of the red blood cells. The majority of people with G6PD deficiency are unaware of their status, living out their lives with no anemia, no symptoms, and no complications. The disorder becomes recognized when an episode of acute hemolysis (rupture of the red blood cell) is triggered by exposure to oxidant drugs, infection, or ingestion of fava beans.

personally identifiable information. Information that can be used to distinguish or trace an individual's identity, such as their name, social security number, date and place of birth, mother's maiden name, biometric records, including any other personal information that is linked or linkable to a specified individual.

screening. A method of surveillance used in a population to identify an unrecognized disease in individuals without signs or symptoms.

sickle cell trait. All conditions in which an individual carries the sickle hemoglobin gene mutation on only one beta globin gene. If the other beta globin gene is normal, the individual has sickle cell trait, which is not a disease and does not alter the individual's life expectancy. Individual knowledge of carrier status is important for family planning to assist in the prevention of new cases of sickle cell disease. Sickle cell trait is generally a benign carrier condition, usually with none of the symptoms of sickle cell anemia. In rare instances some individuals with sickle cell trait, when subjected to the extremes of exertion, in particular when compounded by the environmental challenges of altitude or heat, have been shown to possess an increased

relative risk for organ infarct, fulminant exertional rhabdomyolysis, and exertional nontraumatic sudden death.

sickle cell disease. A hereditary condition, also called sickle cell anemia, that causes a type of faulty hemoglobin in red blood cells. Some red blood cells can become hard, change shape and don't move well through the smallest blood vessels. This can stop or slow blood flow to parts of the body, causing less oxygen to reach these areas. The sickle cells also die earlier than normal blood cells, which can cause a shortage of red blood cells in the body. For most people, there is no cure for sickle cell disease.