DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
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REPLY TO
ATTENTION OF

DASG-PPM-NC

22 July 2010

MEMORANDUM FOR Commanders, MEDCOM Major Subordinate Commands

SUBJECT: Army Acute Respiratory Disease Surveillance Program

1. Updated guidance on the Army Acute Respiratory Disease (ARD) Surveillance Program is forwarded for implementation, replacing previous guidance. While the ARD Surveillance Program is formally implemented only at Basic Combat Training posts, information contained in this document is valuable to preventive medicine, primary care, and laboratory personnel worldwide.

2. ARD is a leading cause of morbidity in the military, and basic trainees have a particularly high risk of illness. The Army ARD Surveillance Program collects and disseminates timely, installation-specific information concerning ARD activity, allowing preventive medicine personnel to rapidly detect and respond to ARD outbreaks. Detailed instructions for implementing the ARD Surveillance Program are provided in the enclosure, including recommended control measures in the event of an ARD outbreak.

3. Points of contact for this program are Mr. John Ambrose, the Reportable Medical Events Project Officer, (410) 436-7605, DSN 584-7605, john.ambrose1@us.army.mil; LTC Laura Pacha, Program Manager, Disease Epidemiology Program, Directorate of Epidemiology and Disease Surveillance, US Army Public Health Command (Provisional) (410) 436-1054, DSN 584-1054, laura.pacha@us.army.mil; and COL Robert Mott, Preventive Medicine Staff Officer, Office of The Surgeon General, (703) 681-3160, DSN 761-3160, robert.l.mott@us.army.mil.

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DASG-PPM-NC
SUBJECT: Army Acute Respiratory Disease Surveillance Program

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Army Acute Respiratory Disease (ARD) Surveillance Program

1. References.

a. AR 40-5, Preventive Medicine, 25 May 07.

b. AR 40-562, Immunizations and Chemoprophylaxis, 29 Sep 06.

c. DA Pam 40-11, Preventive Medicine, 19 Oct 09.

d. Memorandum, HQDA, SGPS-PSP, 19 Apr 94, Subject: Implementation of New Medical Surveillance System.

e. Memorandum, HQDA, DASG-HS-PM, 13 Jan 00, Subject: Adenovirus Vaccine and Disease Control.

f. Memorandum, MEDCOM, MCHO-CL-W, 21 Jan 00, Subject: Adenovirus Disease Control.

g. Memorandum, MEDCOM, DASG-PPM-NC, 12 Jun 06, Subject: Army Acute Respiratory Disease Surveillance Program.

2. General.

a. This document provides guidelines and requirements for the Army Acute Respiratory Disease (ARD) Surveillance Program and replaces reference 1g. The objective of this program is to collect and disseminate timely, installation-specific information concerning ARD activity to assist preventive medicine personnel to rapidly detect and respond to ARD outbreaks. While the ARD Surveillance Program is formally implemented only at installations conducting Basic Combat Training (BCT), information contained in this document is valuable for preventive medicine, primary care, and laboratory personnel worldwide.

b. ARD is a leading cause of morbidity in the military, and basic trainees have a particularly high risk of illness. The absence of adenovirus vaccine since 1999 has resulted in increased ARD rates among basic trainees. However, work is underway to re-establish the adenovirus vaccine, pending Food and Drug Administration (FDA) approval. Once adenovirus vaccine is available, weekly tracking of administration is needed to assess efficacy and to monitor ARD rates and outbreaks.

c. Historically, outbreaks of streptococcal disease have had a significant impact on military training camps, and there is concern that such outbreaks will continue to occur. Benzathine penicillin G (Bicillin®) prophylaxis is administered to trainees at some installations to prevent Group A beta-hemolytic streptococcal (GABHS) disease. However, Bicillin® shortages have negatively affected prevention and control of ARD

outbreaks. Weekly tracking of indicators of streptococcal disease activity identifies populations at risk and provides a basis for prompt intervention. Indicators include the Strep Recovery Rate and the Strep-ARD Surveillance Index (SASI) (see Appendix A). The Streptococcal Disease Surveillance and Control Plan (Appendix B) describes appropriate responses to a diagnosis of acute rheumatic fever (ARF) or an elevated SASI.

d. Routine surveillance of ARD among basic trainees has been conducted since 1966. Efforts to identify, define, and control these outbreaks must continually be emphasized. The Army ARD program is a vital surveillance system for early detection of potential ARD outbreaks among basic trainees.

3. ARD Surveillance Reporting Procedures at BCT Installations.

a. Weekly ARD reports must be submitted by 1200 hrs (EST) each Wednesday to the ARD Surveillance System maintained by the US Army Public Health Command (Provisional). This information may be submitted via e-mail to disease.epidemiology@amedd.army.mil, or faxed to DSN 584-5449 or commercial (410) 436-5449.

b. ARD reports will include data from the previous week (i.e., Sunday through Saturday). Required data elements are included in a spreadsheet template provided by USAPHC (Prov). The following data from each unit must be included: unit designators (unit identification code, company, battalion, brigade), week of training, type of training, barracks type, type(s) of adenovirus vaccine administered, number of Bicillin® doses administered to the unit, number of males/females assigned, number of male/female ARD cases, number of throat cultures (or rapid streptococcal antigen tests) performed on all ARD cases, and number of positive Streptococcus (groups A, C, or G) throat cultures or positive rapid streptococcal antigen test results. From these count data, ARD rates, Strep Recovery Rates, and Strep-ARD Surveillance Index (SASI) will be automatically calculated in the aforementioned spreadsheet template. An example of the first page of a properly completed weekly ARD Surveillance Report is included in Appendix C.

c. Prior to submission of the weekly report, the Chief of Preventive Medicine at each BCT installation must review the report for accuracy and identify potential outbreaks that require prompt investigation. Unit identification and barracks type will be reviewed at least annually, to ensure identifiers reflect the organization correctly.

d. USAPHC (Prov) will consolidate weekly reports from each BCT installation into one summary report. Copies of the weekly summary report will be distributed each Wednesday by close of business to the Proponency Office for Preventive Medicine (POPM), the preventive medicine officer at each Regional Medical Command (RMC), the United States Army Training and Doctrine Command (TRADOC) Surgeon, and the Chief of Preventive Medicine at each ARD reporting site.

4. ARD Surveillance Reporting Procedures at USAPHC (Prov).

a. Weekly ARD reports submitted via BCT sites will be entered by close of business (COB) on each Wednesday into the ARD tracking log within the USAPHC (Prov). USAPHC (Prov) will ensure that each BCT site has submitted data for the week and will be responsible for contacting facilities that report discrepancies or incorrect data feeds.

b. ARD rates will be calculated and reported back to sites by COB Wednesday.

5. ARD Case Definition.

a. This definition is intended for ARD case identification and reporting purposes only and should not be construed as strict criteria for admission to a military treatment facility. Cases must be counted similarly at all BCT installations to ensure comparability of data among installations. Thus, **for surveillance purposes**, only count trainees with **ALL** of the following criteria:

(1) **Oral temperature $\geq$ 100.5° F**.

(2) Recent onset of **at least one** sign or symptom of acute respiratory tract inflammation (e.g., sore throat, cough, runny nose, chest pain, shortness of breath, headache, tonsillar exudates, or tender cervical lymphadenopathy).

(3) Given a **limited duty profile** by the examining physician (to include limitations on physical fitness training) or removed from duty for at least 8 hours. Trainees removed from duty may be then sent to the hospital, infirmary, or a medical hold or quarters barracks.

b. Clinical providers will order a throat culture (or rapid streptococcal antigen test) for all trainees who meet the ARD case definition.

c. Preventive medicine personnel at installations that conduct initial entry training must assess the effect of local admission policies and procedures on disease control efforts. In general, year-round use of the above definition of ARD as an admission standard is adequate for disease control practices. More liberal admission criteria may be appropriate during periods of increased ARD activity.

6. ARD Case Identification.

a. Outpatients. The majority of ARD cases (defined in paragraph 4a) will be identified among non-hospitalized trainees. These cases would typically be identified from Troop Medical Clinic (TMC) or Emergency Department (ED) or Urgent Care-type Clinic (UCC) visits. ARD surveillance staff should be aware of local TMC hours as cases are more likely to present to the UCC/ED during periods of TMC closure.

b. Inpatients. Since the majority of ARD cases will present in outpatient settings,

available resources for case identification should be focused on outpatient case identification. However, in circumstances where ARD rates are increasing or surveillance for severe streptococcal disease is warranted, capture of hospitalized cases becomes extremely important. ARD surveillance staff should identify additional cases of ARD among hospitalized trainees by reviewing daily hospital admission reports (usually available in CHCS). Attempts to identify inpatient ARD cases should not be limited to the case definition in paragraph 4a; it is important to search for a range of diagnoses in order to capture ALL inpatient cases that may be consistent with ARD, such as mononucleosis. A list of complications of streptococcal infections is provided in Appendix A (Suppurative Complications of Streptococcal Infections).

7. Calculation of ARD indices (Note: these are automatically calculated when using the spreadsheet template provided).

a. The ARD rate is calculated as the number of trainees with ARD multiplied by 100, then divided by the total number of trainees at risk.

b. The Strep Recovery Rate is calculated as the number of positive streptococcal throat cultures among ARD cases (or positive rapid streptococcal antigen tests) multiplied by 100, then divided by the total number of throat cultures (or rapid strep tests) among ARD cases (see Appendix A). Diagnosis of respiratory disease secondary to streptococcal infections is based upon isolation of Streptococcus groups A, C, or G from throat culture (or positive rapid streptococcal antigen test results). It is important to note that Streptococcus groups C and G can also be significant respiratory pathogens, along with Group A, and should be included when calculating the Strep Recovery Rate. The laboratory may characterize these other isolates as non-group A Streptococcus.

c. The Strep-ARD Surveillance Index (SASI) is calculated by multiplying the Strep Recovery Rate by the number of ARD cases (x 100), then dividing by the total number of trainees at risk.

8. Outbreak Identification and Reporting.

a. An outbreak investigation should be initiated when the ARD rate exceeds 1.5% for two consecutive weeks. The SASI should also be closely monitored. A SASI exceeding 25 for two consecutive weeks is an indicator of significant streptococcal morbidity and should be promptly investigated.

b. All occurrences of ARF disease will be immediately reported to USAPHC (Prov) through the medical event reporting system in place (RMES, NDRSi, or ADRSi). Additionally, any outbreaks of ARD (as defined in paragraph 7) must be telephonically reported to the Reportable Medical Events Project Officer at (410) 436-7605 or DSN 584-7605 (after duty hours call 1-800-222-9698 or 410-436-4375, DSN 584-4375).

9. Outbreak Investigation.

a. The Chief of Preventive Medicine at each BCT installation will determine the nature and scope of the investigation in consultation with the local Director of Health Services. Early communication with Preventive Medicine officials at the RMC, USAPHC (Prov), and POPM is encouraged. The investigation team should include at least one physician. The leader of the investigation team will inform Commanders of affected units about the outbreak, need for investigation, findings, implications, and recommendations for mitigation and prevention. Following completion of the investigation, a report will be submitted through the respective RMC to POPM, with copies to USAPHC (Prov).

b. In the event that local capabilities are insufficient to conduct an appropriate investigation, the Chief of Preventive Medicine will contact the supporting RMC Preventive Medicine Section for assistance. If necessary, RMCs can request an Epidemiological Consultation (EPICON) by sending a Request for Assistance (RFA) to the Office of The Surgeon General.

10. ARD Control Plan. In the event of an ARD outbreak, specific actions must be taken to reduce pathogen transmission. Preventive medicine officers should educate commanders to emphasize hygiene measures, reinforce hand washing and use of hand sanitizers, ensure sleeping space/positioning requirements are followed, and take other appropriate measures to eliminate disease reservoirs and to reduce troops' personal contact with potentially infectious secretions. The Streptococcal Disease Surveillance and Control Plan (Appendix B) describes appropriate responses to an elevated SASI.

11. Responsibilities of the Chief of Preventive Medicine. The Chief at each BCT installation should closely supervise the process of collecting ARD data, incorporating the following elements to ensure data quality and completeness:

a. Strict adherence to ARD case definition (paragraph 5a).

b. Education of epidemiology and disease control personnel on the importance of the ARD surveillance program and required procedures.

c. Coordination with clinical providers and laboratory personnel to ensure successful program implementation (note paragraph 5b).

d. Complete capture of outpatients at TMCs and UCC/ED locations (and surveillance of inpatients, as indicated; see paragraph 6b).

e. Complete capture of lab data (throat cultures or rapid streptococcal antigen test results).

f. Review of weekly report prior to submission to USAPHC (Prov). Promptly investigate any upward trends to determine the extent and nature of respiratory morbidity. Notify USAPHC (Prov) and POPM when an ARD outbreak investigation is initiated or with any occurrence of ARF.

12. Points of contact for this program are: Preventive Medicine Staff Officer, OTSG (DSN 761-3160); Disease Epidemiology Program Manager, US Army Public Health Command (P) (DSN 584-1054); and Reportable Medical Events Project Officer, USAPHC (Prov), (DSN 584-7605).

Appendices
A. Indicators of Streptococcal Disease Activity
B. Streptococcal Disease Surveillance and Control Plan
C. ARD Surveillance Report
D. Information Paper: Use of Prophylactic Benzathine Penicillin G in Basic Trainees

APPENDIX A

INDICATORS OF STREPTOCOCCAL DISEASE ACTIVITY

Throat Culture-Based Indices

Name of Index	Formula	Comments
Strep Recovery Rate	$\frac{\text{Positive Strep cultures* among ARD cases x 100}}{\text{Total cultures* among ARD cases}}$	Calculate weekly. Observe over time for trends. (Only positive cultures* from trainees meeting the case definition are included in the numerator.)
Strep-ARD Surveillance Index (SASI)	$\frac{\text{Strep Recovery Rate x \# ARD Cases x 100}}{\text{Total \# Trainees}}$	Calculate weekly. Indicates significant streptococcal disease activity if > 25 for two consecutive weeks.

*Include throat cultures positive for Streptococcus (groups A, C, or G) or positive rapid streptococcal antigen test results.

Suppurative Complications of Streptococcal Infections

Complications	Comments
Peritonsillar abscess Paranasal sinusitis Otitis media Mastoiditis Suppurative adenitis Suppurative thrombophlebitis Metastases to joints or bones Meningitis Pneumonia	Monitor these events through admission/discharge diagnoses, ED logs, or through regular correspondence with appropriate clinical services. A marked increase in any of these events may be a sensitive, early indicator of an incipient acute rheumatic fever outbreak.

APPENDIX B

STREPTOCOCCAL DISEASE SURVEILLANCE AND CONTROL PLAN

	Phase I	Phase II	Phase III	Phase IV
Streptococcal Disease Activity	No cases of ARF AND SASI **not** > 25 for two or more consecutive weeks	One case of ARF OR SASI **is** > 25 for two or more consecutive weeks	At least two cases of ARF	Occurrence of ARF cases despite antibiotic prophylaxis
Control Measure (see below)	A	A and B	A and B	A, B, and C

A. Perform throat cultures (or rapid streptococcal antigen tests) on all symptomatic patients and administer a single dose of 1.2 million units IM benzathine penicillin G* (Bicillin®) to those with cultures positive for GABHS or positive rapid antigen tests.

B. Administer benzathine penicillin G* (Bicillin®) to cadre, current trainees and all new trainees as they enter the Reception Station.

C. Administer a second dose of benzathine penicillin G* (Bicillin®) to all trainees four weeks after the first.

*Unless contraindicated by allergy; consider 10-day course of erythromycin or 5-day course of azithromycin (Note: GABHS resistance to macrolides has been reported to be as high as 14%; treatment failures require re-treatment based on results of culture and antibiotic sensitivity testing of isolates).

APPENDIX C

ACUTE RESPIRATORY DISEASE SURVEILLANCE REPORT

TO: Disease Epidemiology Program (MCHB-TS-DPH) 5158 Blackhawk Rd APG, MD 21010				FROM: Preventive Medicine, Installation Name POC Name, DSN XXX-XXXX					Week Ending Date:				Date Submitted.			
UNIT DESIGNATION									MALE TRAINEES				FEMALE TRAINEES			
UIC	CO	BN	BDE	WEEK OF TRAINING	TYPE OF TRAINING	TYPE OF BARRACKS	BICILLIN DOSES*	ADENO Vaccine*	Unit Strength	ARD Cases	Strep Test Done	Strep Positive[3]	Unit Strength	ARD Cases	Strep Test Done	Strep Positive[3]
								Total for Report.	0	0	0	0	0	C	0	0

Question 1: Was Bicillin® administered to all recruits inprocessing during the	Yes		(choose from list)
recruits?			(mm/dd/yyyy)
Question 2: Were adenovirus vaccines (Type 4 & 7) administered to all recruits			(choose from list)
recruits?			(mm/dd/yyyy)

	Total
ARD Rate:	#DIV/0!
Strep Recovery Rate:	#DIV/0!
Strep-ARD Surveillance Index (SASI):	#DIV/0!

Note: Above rates are calculated automatically based on values from "Tots for Report" (any above). Rates are per 100 trainees.

Spreadsheet Key/Footnotes

Week Ending Date	Week of Training	Type of Training		Barracks Type
The date of the last day of the week of the report (i.e., Saturday)	PRE: In Reception Station 01-14: Actual training week 00: Assigned to unit, not yet training	BCT: Basic Combat Training AIT: Advanced Individual Training (BCT-AIT)		3SB: 3-story brick barracks 3BM: 3-story block, mess hall attached 3NM: 3-story block, no mess hall attached 2NM: 2-story block, no mess hall attached 1NM: 1-story block, no mess hall attached SSP: Modern, concrete "starship" type

ARD Case Definition: ALL three of the following conditions must be present:

(1) Oral temperature ≥ 100.5 °F

(2) Recent onset of at least one sign or symptom of acute respiratory tract inflammation (i.e., sore throat, cough, runny nose, chest pain, shortness of breath, headache, tonsillar exudates, tender cervical lymphadenopathy)

(3) Trainee is issued a limited duty profile by examining physician (to include limitations of physical fitness training) OR trainee is removed from duty (i.e. sent to the hospital, infirmary, or a medical holding barrack) for at least 8 hours.

* If available, number of doses (0, 1, or 2) of Bicillin® received per trainee by unit

[2] Number of throat cultures (or rapid streptococcal antigen tests) performed.

[3] Based upon isolation of group A beta-hemolytic Streptococcus from throat culture or positive rapid streptococcal antigen test.

*Administration of adenovirus vaccine (0=not given; 1=both Type 4 and 7; 4=Type 4 only 7=Type 7 only)

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APPENDIX D

INFORMATION PAPER

MCHB-TS-DPH
17 May 2010

SUBJECT: Use of Prophylactic Benzathine Penicillin G in Basic Trainees

1. Purpose: To provide information regarding the use of benzathine penicillin G or other antibiotic prophylaxis during in-processing of basic trainees.

2. Facts:

a. Throughout history, acute respiratory diseases (ARD) have been a significant cause of morbidity in military training camps. Adenoviruses, influenza viruses, and Group A beta-hemolytic streptococcus (GABHS) are the most important ARDs to monitor and prevent. The U.S. Army has conducted routine surveillance of ARDs in basic trainees since 1966. Since 1985, all trainees with fever and respiratory symptoms have been cultured for GABHS.

b. Benzathine penicillin G (BPG), also known by the trade name Bicillin®, is a long-acting (3-4 weeks), injectable antibiotic delivered in a single dose to recruits during inprocessing at some military training centers. In the late 1980s, several installations began administering routine prophylaxis with BPG in response to outbreaks of invasive GABHS disease (pharyngitis, peritonsillar abscesses, streptococcal toxic shock, necrotizing fasciitis, pneumonia, rheumatic fever, etc.). Currently, Army basic trainees routinely receive BPG upon inprocessing at Forts Sill, Benning, and Leonard Wood.

c. Risk factors associated with GABHS infection include recent entry to the military, crowding, lack of prophylaxis, close contact with an *S. pyogenes* carrier, and close contact with a trainee who has not received antibiotic prophylaxis.

d. Numerous studies and investigations support the use of prophylactic BPG in basic trainees. One retrospective study analyzed a BPG program instituted after an outbreak of rheumatic fever at an Army training installation. The findings supported the hypothesis that BPG has a broad effect in the prevention of ARD that extends beyond the simple elimination of GABHS infection (Gunzenhauser, 1992). Also in the early 1990's, Heggie, et al, reviewed the prevalence of GABHS in Navy recruits receiving single-dose BPG prophylaxis. They concluded that BPG prophylaxis was an effective control of GABHS infections and prevention of acute rheumatic fever in Navy recruits.

e. In recent years there have been sporadic outbreaks of GABHS-related disease, most notably at Fort Leonard Wood (FLW) in 2006. Some of these outbreaks had life-threatening consequences among military trainees, including two cases of necrotizing fasciitis in the 2006 FLW outbreak, one of which resulted in a hand amputation. Like

many similar outbreaks at FLW over the past three decades, the 2006 event resulted from interruption of the BPG prophylaxis program (although in this instance the discontinuation in use of BPG was due to manufacturing problems that interrupted supply).

f. Prophylaxis options in penicillin-allergic trainees include erythromycin and azithromycin. Due to fewer side effects and a more acceptable dosing regimen, azithromycin (500mg taken orally once a week for 4 weeks) is the preferred option. Due to the small number of truly penicillin-allergic trainees and concerns over selection of resistant strains, some sites forego prophylaxis of these trainees without apparent outbreaks of GABHS disease. There is, however, a risk of creating a bacterial reservoir by not providing alternative prophylaxis to penicillin-allergic trainees (Gray, 1991).

g. Discontinuing BPG prophylaxis, a proven infectious disease countermeasure, heightens the risks of significant GABHS disease and leads to increases in all-cause ARD rates. US Army Public Health Command supports the continued use of prophylactic BPG at basic training installations. See the attached list of references for more details on the role of BPG prophylaxis in the prevention of ARD.

MAJ Pacha/410-436-1054

Approved by: LTC Cersovsky

Prophylactic Use of Benzathine Penicillin G in Military Trainees

Selected References

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