DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
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DASG-PPM-NC

12 June 2006

MEMORANDUM FOR SEE DISTRIBUTION

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 control measures in the event of an ARD outbreak.

3. Points of contact for this program are COL Bruno Petruccelli, Director, Epidemiology and Disease Surveillance, US Army Center for Health Promotion and Preventive Medicine, (410) 436-4655, DSN 584-4655, bruno.petruccelli@us.army.mil; LTC (P) Scott Stanek Preventive Medicine Staff Officer, Office of The Surgeon General, (703) 681-3160, DSN 761-3160, scott.stanek@us.army.mil; and CPT Paul Ciminera, the Reportable Medical Events Project Officer, Army Medical Surveillance Activity, (202) 782-0471, DSN 662-0471, paul.ciminera@us.army.mil.

FOR THE SURGEON GENERAL:

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Army Acute Respiratory Disease (ARD) Surveillance Program

1. References.

a. AR 40-5, Preventive Medicine, 22 Jul 05.

b. AR 40-562, Immunizations and Chemoprophylaxis, 1 Nov 95.

c. DA Pam 40-11, Preventive Medicine, 22 Jul 05.

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, 18 Jul 01, 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. Trainees are given vaccinations against influenza, measles, mumps, rubella, tetanus, diphtheria, pertussis, hepatitis A & B, varicella, and meningococcal serogroups A, C, Y, and W135. The absence of adenovirus vaccine since 1999 has resulted in increased ARD rates among basic trainees.

c. Outbreaks of streptococcal disease have been historically important in military training camps, and there is significant 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, shortages in the supply of Bicillin® 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 Army Medical Surveillance Activity (AMSA), United States Army Center for Health Promotion and Preventive Medicine (USACHPPM). This information may be submitted to AMSA via e-mail to dmss@amsa.army.mil, or faxed to DSN 662-0612 or commercial (202) 782-0612.

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 AMSA. 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, 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.

d. AMSA 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 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 the sent to the hospital, infirmary, or a medical hold barracks.

b. Clinical providers should 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.

5. 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) visits. ARD surveillance staff should be aware of local TMC hours as cases are more likely to present to the 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 logs. 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 attributable to ARD. Most uncomplicated cases of ARD are

easily recognized on the daily admission log. Many other diagnoses, some of which are listed below, are closely related to ARD and also should be included when calculating the true burden of disease. A list of complications of streptococcal infections is also provided in Appendix A (Suppurative Complications of Streptococcal Infections).

Diagnosis	ICD-9 Code
Acute nasopharyngitis	460
Acute pharyngitis	462
Acute respiratory disease	460-465
Acute bronchitis	466
Varicella (chickenpox)	052
Influenza	487
Infectious mononucleosis	075
Mycoplasma	041.81
Otitis media	381-382
Peritonsillar abscess	475
Pneumonia	480-486
Sinusitis	461
Streptococcal sore throat	034
Acute tonsillitis	463
Acute upper respiratory infection	465

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

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.

7. Outbreak Identification. 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.

8. Outbreak Investigation.

a. The Chief of Preventive Medicine at each BCT installation will determine the nature and scope of the investigation. The investigation team will include at least one physician. Following completion of the investigation, a report will be submitted through the respective RMC to POPM, with copies to AMSA and USACHPPM.

b. The investigation team leader will inform commanders of affected units about the outbreak, need for investigation, findings, implications, and recommendations for mitigation or prevention.

c. In the event that local capabilities are insufficient to conduct an appropriate investigation, the Chief of Preventive Medicine will contact the Regional Preventive Medicine Service for additional assistance. If necessary, an Epidemiological Consultation can be requested from the Office of The Surgeon General through the Directorate of Epidemiology and Disease Surveillance, USACHPPM.

d. All occurrences of ARF disease will be immediately reported to AMSA through the Reportable Medical Events System. Additionally, any outbreaks of ARD (as defined in paragraph 7) must be telephonically reported to the Reportable Medical Events Project Officer at DSN 662-0471 or commercial (202) 782-0471.

9. 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 reduce troops' personal contact with potentially infectious secretions. The Streptococcal Disease Surveillance and Control Plan (Appendix B) describes appropriate responses to an elevated SASI.

10. 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 4a).

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 4b).

d. Complete capture of outpatients at TMCs and ED locations (and surveillance of inpatients, as indicated; see paragraph 5b).

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

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

11. Points of contact for this program are: Preventive Medicine Staff Officer, OTSG (DSN 761-3160); Director, Epidemiology and Disease Surveillance, USACHPPM (DSN 584-4655); and Reportable Medical Events Project Officer, Army Medical Surveillance Activity, (DSN 662-0471).

Appendices
A. Indicators of Streptococcal Disease Activity
B. Streptococcal Disease Surveillance and Control Plan
C. ARD Surveillance Report

APPENDIX A

INDICATORS OF STREPTOCOCCAL DISEASE ACTIVITY

Throat Culture-Based Indices

Name of Index	Formula	Comments
Strep Recovery Rate	$\frac{\text{Positive Strep cultures* among ARD cases} \times 100}{\text{Total cultures* among ARD cases}}$	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)	$\frac{\text{Strep Recovery Rate} \times \text{\# ARD Cases} \times 100}{\text{Total \# Trainees}}$	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: Army Medical Surveillance Activity BLDG T-20 Room 213 (MCHB-TS-EDM) 6900 Georgia Ave., N.W. Washington, DC 20307-5001	FROM: **Preventive Medicine** **Ft Benning, GA 31905** SGT Snuffy DSN XXX-XXXX	Week ending date: 4-Mar-06	Date submitted: 8-Mar-06

UNIT DESIGNATION								MALE TRAINEES				FEMALE TRAINEES			
UIC	CO	BN	BDE	WEEK OF TRAINING	TYPE OF TRAINING	TYPE OF BARRACKS	BICILLIN DOSES*	Unit Strength	ARD Cases	Cultures Done†	Cultures Positive§	Unit Strength	ARD Cases	Cultures Done†	Cultures Positive§
W2L5K1	A	1-19	ITB	3	OSUT	SSP	1	397				0			
W2L5K2	B	1-19	ITB	7	OSUT	SSP	1	316	1	1	1	100	2	2	0
W2L5K3	C	1-19	ITB	3	OSUT	SSP	1	209				109			
W2L5K4	D	1-19	ITB	4	OSUT	SSP	1	303				0			
W2L5K5	E	1-19	ITB	n/a	OSUT	SSP	1	80				0			
W2L5K7	F	1-19	ITB	4	OSUT	SSP	1	173				0			
W2L5K9	G	1-19	ITB	3	OSUT	SSP	1	98				0			
W2L5E1	A	2-54	ITB	n/a	OSUT	SSP	1	256				0			
W2L5E2	B	2-54	ITB	n/a	OSUT	SSP	1	62				55			
W2L5E3	C	2-54	ITB	13	OSUT	SSP	1	220	1	1	0	45	1	1	1
W2L5E4	D	2-54	ITB	5	OSUT	SSP	1	207				41			
W2L5E5	E	2-54	ITB	n/a	OSUT	SSP	1	126				0			
W2L5E7	F	2-54	ITB	n/a	OSUT	SSP	1	78				0			
W2L5C1	A	2-58	ITB	6	OSUT	SSP	1	227	2	2	1	0			
W2L5C2	B	2-58	ITB	7	OSUT	SSP	1	256				0			
W2L5C3	C	2-58	ITB	11	OSUT	SSP	1	222				0			
W2L5C4	D	2-58	ITB	n/a	OSUT	SSP	1	225				0			
W2L5C5	E	2-58	ITB	n/a	OSUT	SSP	1	82				0			
W2L5C6	F	2-58	ITB	13	OSUT	SSP	1	190				0			
W2L5H2	A	30AG	BCTB	PRE	n/a	SSP	0	665				0			
W2L5H3	B	30AG	BCTB	PRE	n/a	SSP	0	0				0			
W2L5B1	C	30AG	BCTB	PRE	n/a	SSP	0	1				0			
W2L5B2	D	30AG	BCTB	PRE	n/a	SSP	0	0				0			
W2L5H4	FTU	30AG	BCTB	PRE	BCT/OSUT	SSP	1	123				6			
W2L5K6	A	2-19	ITB	10	OSUT	SSP	1	231	1	1	0	22			
W2L5E6	B	2-19	ITB	n/a	OSUT	SSP	1	72				0			
W2L522	C	2-19	ITB	6	OSUT	SSP	1	233				0			
W2L523	D	2-19	ITB	4	OSUT	SSP	1	206				0			
W2L524	E	2-19	ITB	n/a	OSUT	SSP	1	79				0			
W2L552	F	2-19	ITB	n/a	OSUT	SSP	1	2				0			
W2L54P	G	2-19	ITB	n/a	OSUT	SSP	1	0				0			
Total this page								5339	5	5	2	378	3	3	1
Total for report (all pages)								8000	19	19	5	1129	10	10	3

	Total	Male	Female
ARD Rate	0.3	0.2	0.9
Strep Recovery Rate	27.6	26.3	30.0
Strep-ARD Surveillance index (SASI)	17.9	6.3	26.6

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 OSUT: One-Station Unit 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
			WW2: Wooden, World War II vintage	

ARD Case Definition: ALL three of the following conditions are present: (1) Oral temperature ≥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, tender cervical lymphadenopathy); and (3) Trainee is issued a limited duty profile by examining physician (to include limitations on physical fitness training) or trainee is removed from duty (e.g., sent to the hospital, infirmary, or a medical holding barracks) for at least 8 hours.

*Number of doses (0, 1, or 2) of Bicillin® received by each unit.

†Each trainee who is identified as an ARD case should have a throat culture (or rapid streptococcal antigen test) performed.

§Based upon isolation of Streptococcus (groups A, C, or G) from throat culture or positive rapid streptococcal antigen test results.