

# **Immunization and screening for infectious disease for health care workers in long-term care facilities**

On behalf of the AGS Clinical Practice Committee, the following author drafted this position statement:

**Patrick P. Coll, MD, AGSF**

Associate Director, Center on Aging, University of Connecticut Health Center

## **Address correspondence and reprint requests to:**

Sara Reinthaler

American Geriatrics Society

The Empire State Building

350 Fifth Avenue, Suite 801

New York, NY 10118

Fax: 212-832-8646

[info.amger@americangeriatrics.org](mailto:info.amger@americangeriatrics.org).

1 **Background:**

2 Residents of long-term care facilities are at increased risk of developing infectious  
3 diseases. Health care workers (HCW) in long term care (LTC) facilities are both a  
4 potential source of infection and at risk for contacting infections from residents of the  
5 facility. Physicians, physician assistants, nurse practitioners and nurses are called upon  
6 to assist long term care facilities with the development and implementation of policies  
7 pertaining to employee health and it's impact on infection control. There are guidelines  
8 that address these issues for HCW's in general, (1,2) but in order to promote and assist in  
9 the development of evidence based infection control efforts for HCW's in LTC , the  
10 American Geriatrics Society has adopted the following position statements.

11

12 **Positions:**

- 13 1. All long-term care employees should be offered and encouraged to receive an  
14 annual influenza vaccination, unless there is a specific contraindication to do so.

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16 Rationale: Residents of long-term care are at increased risk of both being infected by  
17 influenza and suffering serious influenza related complications. Employees because they  
18 live in the community and are likely to be in contact with others who are infected with  
19 influenza during a community outbreak and because they may have close personal  
20 contact with long term care residents are a mechanism of entry for influenza into a LTC  
21 facility. Influenza vaccination is effective in preventing HCW's from becoming infected  
22 with influenza and high rates of employee vaccination has been demonstrated to reduce  
23 influenza related mortality in long-term care residents. (3)

24

25 Employees may be reluctant to be immunized because of the perceived discomfort  
26 associated with the inoculation and or concerns about adverse effects from the vaccine.

27 Employee vaccination rates have been increased in facilities that educate staff about  
28 influenza and emphasize the safety of the vaccine and the health benefits of vaccination  
29 for staff and residents of the facility. Egg allergy is a contraindication to influenza  
30 vaccination.

31

32 LTC facilities can consider offering the newly available nasal influenza vaccine to their  
33 employees who are not willing to be given the intramuscular vaccine. This is a more  
34 expensive vaccine, but the facility may recoup the cost by reducing employee sick leave.

35

36 2. All long-term care employees should be screened for Mycobacterium tuberculosis  
37 at the time of initial employment and on a regular basis thereafter.

38

39 Rationale: Long-term care residents are at increased risk of developing Mycobacterium  
40 tuberculosis (TB). Outbreaks of TB have been reported in skilled nursing facilities. Long-  
41 term care employees are a potential reservoir of TB and are at risk for contacting TB  
42 following closes contact with infected residents. The Centers for Disease Control (CDC)  
43 consider residents and employees of long-term care residential facilities to be among  
44 those at high risk of developing clinical TB. (4,5) Foreign born persons are also included  
45 in the high-risk categorization. In some parts of the United States, many direct care  
46 providers in LTC facilities were born in countries with endemic TB. TB screening helps

47 detect employees who may have clinical or latent tuberculosis and also allows the facility  
48 to identify employees who may have been exposed to TB if a clinical case is  
49 subsequently identified in the facility.

50

51 Tuberculin skin testing is the standard method for identifying persons infected with TB  
52 (6). The Mantoux test (i.e., the intracutaneous administration of five units of purified  
53 protein derivative {PPD} tuberculin) best detects infection. An induration of  $\geq 10$  mm is  
54 classified as positive in all employees of nursing homes and other long-term facilities for  
55 the elderly. (4,5) In areas with high rates of tuberculosis infection LTC facilities should  
56 consider using a two-step skin test at the time of initial employment. When tuberculin  
57 skin testing of adults is repeated periodically, as in employee-health or institutional  
58 screening programs, an initial two-step approach can reduce the likelihood that a boosted  
59 reaction will be misinterpreted as a recent infection. If the first tuberculin test result is  
60 negative, a second 5-TU test should be administered 1 week to 3 weeks later. A positive  
61 second result probably indicates boosting from a past infection or prior BCG vaccination.  
62 Persons having a boosted reaction should be classified as reactors, not converters. If the  
63 second result is negative, the person is probably uninfected, and a positive reaction to  
64 subsequent tests indicates a true tuberculin skin-test conversion. Employees who have  
65 had a BCG vaccination should be encouraged to be skin tested in the standard manner.  
66 (7) New employees with prior positive skin testing who are reluctant to have an  
67 additional skin test or in whom the induration was large and uncomfortable, should have  
68 a chest radiological exam done or have the results of an exam available. For these  
69 employees annual screening can be conducted by administering a brief questionnaire that

70 assesses the presence of clinical symptoms commonly associated with TB ( persistent  
71 fever, night sweats, unexplained weight loss, persistent cough ) A positive response to  
72 any question warrants a chest radiological examination.

73

74 The need for repeat skin testing should be determined by the likelihood of  
75 continued exposure to TB. All tuberculin-negative persons should be retested if  
76 they are exposed to an infectious person. In long-term care facilities the risk for  
77 exposure is enough to justify repeat testing at regular intervals. The frequency of  
78 repeat testing depends on the degree of risk for exposure, as determined by locally  
79 generated data. Most facilities conduct annual screening.

80

81 3. All employees of long term care facilities who come into close contact with  
82 residents should be immunized against Hepatitis B.

83

84 Rationale: HCW's are at risk of contacting hepatitis B virus (HBV). The risk for  
85 acquiring HBV infection from occupational exposures is dependent on the frequency of  
86 percutaneous and permucosal exposures to blood or body fluids containing blood.

87 Depending on the tasks he or she performs, any health-care worker may be at high risk  
88 for HBV exposure. Health care workers (HCWs) who have a reasonable expectation of  
89 being exposed to blood on the job should be offered hepatitis B vaccine. (2) The OSHA  
90 Federal Standard requires employers to offer hepatitis B vaccine free of charge to  
91 employees who are occupationally exposed to blood or other potentially infectious  
92 materials. Pre vaccination serologic screening for previous infection is not indicated for

93 persons being vaccinated because of occupational risk. Post vaccination testing for  
 94 antibody to hepatitis B surface antigen (anti-HBs) response is indicated for HCWs who  
 95 have blood or patient contact and are at ongoing risk for injuries with sharp instruments  
 96 or needlesticks (e.g., physicians, nurses, dentists, phlebotomists, medical technicians and  
 97 students of these professions). Knowledge of antibody response aids in determining  
 98 appropriate post exposure prophylaxis. Post vaccination anti-HBs immunology 1-2  
 99 months after completion of vaccination is recommended. Booster doses are not  
 100 considered necessary. Vaccine-induced antibodies to HBV decline gradually over time,  
 101 and less than or equal to 60% of persons who initially respond to vaccination will lose  
 102 detectable antibodies over 12 years. Studies among adults have demonstrated that, despite  
 103 declining serum levels of antibody, vaccine-induced immunity continues to prevent  
 104 clinical disease or detectable viremic HBV infection. For this reason routine periodic  
 105 serology testing is not recommended after an initial test to evaluate the immunological  
 106 response to vaccination.

107

108 If an employee has experienced a potential exposure to HBV the following approach is  
 109 recommended.

Recommended postexposure prophylaxis for exposure to hepatitis B virus

Vaccination and antibody response status of exposed workers*	Treatment	
	Source HBsAg <sup>†</sup> positive	Source HBsAg negative

<b>Unvaccinated</b>	HBIG <sup>§</sup> x 1 and initiate HB vaccine series <sup>¶</sup>	Initiate HB vaccine series	Initiate HB vaccine series
<b>Previously vaccinated</b>  Known responder**	No treatment	No treatment	No treatment
Known nonresponder <sup>††</sup>	HBIG x 1 and initiate revaccination or HBIG x 2 <sup>§§</sup>	No treatment	If known high risk source, treat as if source were HBsAg positive
Antibody response unknown	Test exposed person for anti-HBs <sup>¶¶</sup>  1. If adequate,** no treatment is necessary  2. If inadequate, <sup>††</sup> administer HBIG x 1 and vaccine booster	No treatment	Test exposed person for anti-HBs  1. If adequate,** no treatment is necessary  2. If inadequate, <sup>††</sup> administer vaccine booster and recheck titer in 1–2 months

\* Persons who have previously been infected with HBV are immune to reinfection and do not require postexposure prophylaxis.

† Hepatitis B surface antigen

§ Hepatitis B immune globulin; dose is 0.06 mL/kg intramuscularly.

¶ Hepatitis B vaccine

\*\* A responder is a person with adequate levels of serum antibody to HBsAg (i.e., anti-HBs  $\geq$  10 mIU/mL).

†† A nonresponder is a person with inadequate response to vaccination (i.e., serum anti-HBs < 10 mIU/mL).

§§ The option of giving one dose of HBIG and reinitiating the vaccine series is preferred for nonresponders who have not completed a second 3-dose vaccine series. For persons who previously completed a second vaccine series but failed to respond, two doses of HBIG are preferred.

¶¶ Antibody to HBsAg

Source: "Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis," MMWR, June 29, 2001, Vol. 50 (RR-11): 22

114 4. Employees who believe that they have not had varicella should be tested for  
115 immunity and if non-immune should be offered and encouraged to receive a  
116 varicella vaccination.

117

118 Rationale: HCW's in LTC may through contact with patients who have varicella zoster (  
119 shingles ) become infected with varicella and develop clinical chickenpox. Varicella  
120 infection during pregnancy can result in fetal abnormalities. Data available to date  
121 indicate that in the health care setting, a positive history of disease is a reliable predictor  
122 of positive immune status. (8,9) Among tested health care workers > 97-99% of those  
123 with a positive history had antibodies when tested. Employees who do not have a  
124 convincing history of prior varicella should be considered susceptible and serological  
125 testing can be offered to determine immune status. Serologic screening of adults with a  
126 negative or uncertain history is cost-saving compared with vaccinating all those without a  
127 definite history, because 70% to 90% are actually immune when tested. Health care  
128 workers from tropical climates are more likely to be susceptible to varicella as adults than  
129 persons born in the U.S. Two doses of varicella vaccine are given 4 –8 weeks apart. If  
130 more than 8 weeks lapses between the administration of the first and second vaccine,  
131 there is no need to repeat the initial inoculation. Routine serologic testing for varicella  
132 immunity after administration of two doses of vaccine is not considered necessary  
133 because 99% of persons become seropositive after the second dose. The following HCW  
134 should not receive the varicella vaccine.

- 135 • persons taking large doses of corticosteroids (>20mg/day of  
136 prednisone or its equivalent);

- 137                   • persons with a moderate or severe concurrent illness;
- 138                   • women who are pregnant;
- 139                   • persons who have received blood products (such as whole blood or
- 140                   immune globulin) during the previous 5 months;
- 141                   • and persons with a family history of congenital hereditary
- 142                   immunodeficiency in first degree relatives unless they are known
- 143                   to be immunocompetent.

144

- 145           5. Unless they are performing surgical procedures, LTC HCW's should not be
- 146           routinely tested for HIV disease.

147

148   Rationale: The CDC supports the position that HCW's with known HIV infection can be

149   prevented from performing procedures (primarily surgical) that might risk exposing a

150   patient to HIV. It is very unlikely that a LTCHCW will perform a surgical procedure,

151   though minor surgical procedures may be conducted in a skilled nursing facility. There is

152   no evidence to suggest that HCW,s transmit HIV to their patients in the course of

153   delivering routine, non-surgical care.

154

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160 Patrick P. Coll, MD in collaboration with the clinical practice committee of the AGS  
161 prepared the position statement. Dr. Coll reviewed extant expert/professional  
162 recommendations, position statements, including some articles. Dr. Coll drafted the  
163 statements and made minor revisions as requested by the AGS Clinical Practice  
164 Committee.

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***References:***

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