

To BCG or Not to PPD, That is the Question

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What is “BCG”?

- Bacillus of Calmette-Guerin [BCG]
- Live bacterial vaccine
 - Derived from strain of *Mycobacterium bovis*
 - Attenuated by Calmette and Guerin at the Pasteur Institute
 - 1921 - First human use



What is “BCG”?

- Many different BCG vaccines available worldwide for the prevention of tuberculosis [TB]
- All currently used vaccines derived from the original *M. bovis* strain
- Current vaccine available in US
 - Tice strain developed at Univ of Illinois

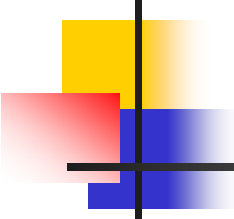


Who receives BCG vaccination?

- The World Health Organization [WHO] recommends BCG vaccination at birth without booster doses to prevent childhood complications of TB infections
- Efficacy is known to be inconsistent
 - 52-100% for prevention of TB meningitis & miliary TB
 - 2-80% for prevention of pulmonary TB
- MMWR 45 [RR-4];1-18

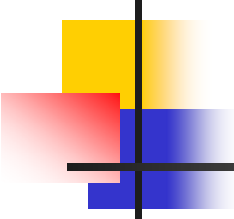
Are tuberculin skin tests contraindicated in BCG-vaccinated persons?





To BCG or Not to PPD, That is the Question

- How should we manage a patient with a positive PPD and prior BCG vaccination?
 - Prior BCG increases the likelihood of a positive response to tuberculosis 5TU purified protein derivative [PPD] skin test
 - Ranges from no induration to 19mm
 - Post-vaccine reactivity wanes with time

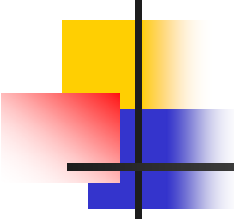


To BCG or Not to PPD, That is the Question

- Children who have received BCG vaccine demonstrate PPD skin test reaction of 3 to 19 mm several months after vaccination
- The size of the reaction does NOT correlate with degree of protection conferred by the vaccine

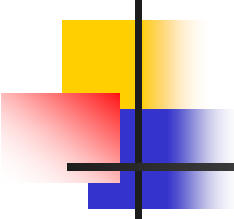
What do you do with a positive PPD in a BCG vaccine recipient?





To BCG or Not to PPD, That is the Question

- The response varies with:
 - Age at vaccination
 - Number of Years since BCG vaccination
 - Number of times vaccinated
 - Number of PPDs performed
- An induration of greater than 14 mm is unlikely to be due to prior BCG vaccination



To BCG or Not to PPD, That is the Question

- Responses considered indicative of new TB infection:
 - Increases in size test reactivity of $> 10\text{mm}$ induration in persons < 35 y.o.
 - Increased in size test reactivity of $> 15\text{mm}$ induration in persons > 35 y.o.
 - If baseline values are not available, reactivity should be treated as for unvaccinated persons



Alternative to PPD testing

- QuantiFERON-TB Gold test
 - Blood test detects interferon-gamma in the serum of people sensitized to *Mycobacterium tuberculosis*
 - Specific for proteins found in *M. tuberculosis*
 - No-cross reactivity with BCG
 - Recommended by the CDC in 2005



To BCG or Not to PPD, Here is the Answer!

- 1. Prior BCG vaccination is not a contraindication to PPD screening
- 2. $> 10\text{mm}$ should not be attributed to BCG. Patient should be evaluated for active disease risk
- 3. CDC recommends screening of high risk populations with PPD testing or QuantiFERON-TB Gold test