Ensuring Hepatitis B Protection for Healthcare Personnel (HCP): Future Considerations

Sarah Schillie, MD, MPH, MBA

Advisory Committee on Immunization Practices

June 20, 2012

National Center for HIV/AIDS, Viral Hepatitis, STD & TB Prevention
Division of Viral Hepatitis

Synopsis of Issue-I

- Post-vaccination serologic testing recommended 1-2 months after Hepatitis B (HepB) vaccine series for HCP with high risk for blood and body fluid exposure[1]
- An increasing proportion of HCP entering training and the workforce have received the HepB vaccine series in infancy (as part of universal infant HepB vaccination) without post-vaccination serologic testing

[1]MMWR 2005

Synopsis of Issue-II

- Antibody to hepatitis B surface antigen (anti-HBs) wanes over time and may no longer meet level defining seroprotection
- Post-vaccination serologic testing for evidence of protection might not distinguish vaccine responders, delayed responders, or non-responders
- Implication of failure to respond to a challenge dose unknown

Synopsis of Issue-III

- Risks to HCP continue (e.g., blood and body fluid exposures, source patients with hepatitis B infection)
- Healthcare schools and institutions are seeking guidance regarding ensuring protection for HCP who received HepB vaccine series in remote past without post-vaccination serologic testing

Recommendations Under Discussion Apply to HCP With:

- **Documentation of a primary HepB vaccine series**
- **No post-vaccination serologic testing or no record of post-vaccination serologic test result**
- **Reasonably anticipated risk for blood and body fluid exposure, which includes:**
  - All HCP trainees (all assumed to have reasonably anticipated risk for blood and body fluid exposure)
  - Some non-trainees

Preference for Same Approach for Trainees[1] and Non-Trainees

- **Advantage**
  - Simplicity, improved compliance
- **Limitation**
  - "Best" approach may differ for trainees and non-trainees

[1]Trainees defined as persons entering school and/or obtaining new job skills that involve contact with patients or with blood or other body fluids from patients in a healthcare, laboratory, or public-safety setting (provisional Work Group definition adapted from MMWR 2001)

Two Recommendations Under Discussion by Work Group

Post-exposure evaluation

→ 1. All sources (HBV-negative, positive, or unknown)

b. HBV-positive or unknown sources

Pre-exposure evaluation

→ 2. Anti-HBs testing; HepB dose if necessary

3. HepB dose, anti-HBs testing

Hybrid evaluation

a. Pre-exposure HepB dose; post-exposure, all sources

Characteristics of Post- and Pre-Exposure Approaches

	(1.) Post-exposure		(2.) Pre-exposure	
ICER	1st year	10th year	1st year	10th year
Trainees	$128,565	$57,756	$247,754	$42,275
Non-trainees	$360,416	$252,970	$692,833	$169,334
HBV infections (per 100,000)				
Trainees	47	--	4	--
Non-trainees	7	--	0	--
Additional protection against unrecognized/ unreported exposures	No		Yes	
Burden on occupational health staff	"Less work now, more work later"		"More work now, less work later"	

ICER=incremental cost-effectiveness ratio

Future Considerations

- Ascertain vaccination/vaccine response history from HCP surveillance cases
- Identify implementation issues
- Determine Work Group preference
- Update (replace) current HCP recommendations?

Questions?

sschillie@cdc.gov

Acknowledgements

ACIP Hepatitis Work Group

Division of Viral Hepatitis, NCHHSTP
Trudy V. Murphy
Meredith Reilly
Kathleen Ly
Henry Roberts
Emily Smith
Ruth Jiles
Elizabeth Hughes
Kathy Byrd

Division of Healthcare Quality Promotion, NCEZID
Ronda Sinkowitz-Cochran
Tara MacCannell

Immunization Services Division, NCIRD
James Singleton

Division of Surveillance, Hazard Evaluations, and Field Studies, NIOSH
Winnie Boal

Research Triangle Institute, Int.
Tom Hoerger
Christina Ludlow-Bradley

International Healthcare Worker Safety Center
Ginger Parker