

# IMMUNE STATUS OF INDIAN PAEDIATRIC HEALTH CARE WORKERS AGAINST VARIOUS VACCINE PREVENTABLE DISEASES

**Sanjay Verma, Ravinder Kaur Sachdeva, Vidushi Mahajan, Amit Rawat, Urvashi Nehra, Vignesh Subramani, Monika Jassal, Bhavneet Bharti**

*Department of Paediatrics, Post Graduate Institute of Medical Education & Research and Government Medical College, Chandigarh, INDIA*



## BACKGROUND

- Health care workers (HCWs) pose a potential risk to acquire and spread various infections.
- This study was planned to assess the immune status of HCWs in paediatric departments of two tertiary care hospitals in Northern India.

## MATERIAL AND METHODS

- Cross-sectional, observational study having a study period from July 18 – June 20 (2 years)
- Apparently healthy HCWs (Indian), working in paediatric departments of these hospitals were enrolled after taking written consent and 5-ml venous blood was collected.
- Institute Ethics Committee clearance was obtained, before enrolling subjects.
- Serum was tested for antibodies against Diphtheria toxin (DT), Pertussis-toxin (PT), Measles, Mumps, Rubella, Varicella, Hepatitis-B (HbsAb), and Hepatitis-A using commercial IgG (quantitative) ELISA kits.

## RESULTS

- A total of 160 HCWs (M:F=77:83) were enrolled having mean age of  $30.6 \pm 7.8$  years
- Out of 160 HCWs, 106 (66.3%) were resident doctors, 31 (19.4%) Nursing Officers, 18 (11.3%) Faculty member, 3 (1.8%) Research staff and 2 (1.2%) Paramedical staff.

### (I) Diphtheria:

**Table-1: Anti Diphtheria toxin (DT) antibody titers**

Antibody titres (IU/ml)	Number (%) (n=160)	Interpretation
< 0.01	7 (04%)	No protection
0.01 to 0.1	118 (74%)	Minimal protection
>0.1	35 (22%)	Good protection

### (II) Pertussis:

**Table-1: Anti Pertussis toxin (PT) antibody titers**

Antibody titres (IU/ml)	Number (%) (n=160)	Interpretation
< 30	97 (60%)	Most susceptible for infection
30 - <100	52 (33%)	-
≥ 100	11 (07%)	Least susceptible for infection

## RESULTS

### (III) Measles, Mumps, Rubella, and Varicella :

**Table-3: Measle, Mumps, Rubella and Varicella IgG antibody titers**

Antibodies	Seronegative Number (%) (N=160)
Measles (<12 IU/ml)	5 (03%)
Mumps (<12 IU/ml)	21 (13%)
Rubella (<10 IU/ml) <i>Out of these 16 rubella seronegatives, 13 were females</i>	16 (10%)
Varicella (<12 IU/ml) <i>(For varicella, 86 out of 160 revealed having varicella rash in past, 80 of them had protective titers)</i>	28 (18%)

### (IV): Hepatitis-B and Hepatitis-A:

**Table-4: Hepatitis-A (IgG) and Hepatitis-B antibody (HbsAb) titers**

Antibodies	Seronegative Number (%) (N=160)
Hepatitis-B (HbsAb) (<20 mIU/ml)	40 (25%)
Hepatitis A (<10 mIU/ml)	25 (16%)

## CONCLUSIONS

- Alarming proportions of paediatric HCWs had low antibody titers against Diphtheria toxin (78%) and Pertussis toxin (60.6%), necessitating a dose of Tdap.
- A total of 10%, 18%, and 16% lacked protective antibodies against Rubella, Varicella, and hepatitis-A.
- A quarter of the screened population had low anti-Hbs titers, necessitating completing the 3-dose schedule and documentation of protective tiers, after that.
- Our study emphasizes the urgent need for improving immunization status of pediatric HCWs; as they continue to remain susceptible to various vaccine-preventable infectious diseases.

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