# Highlights in Pediatric Infectious Diseases

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# The 2009 Antimicrobial Resistance Surveillance Program Progress Report

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- Resistance data for 24, 684 isolates
  - Respiratory 29%
  - Urine 23%
  - Blood 18%
  - Wounds 16%

| Pathogen | Antimicrobial | % Resistance | |
|---|---|---|---|
| | | 2008 | 2009 |
| Enteric pathogens: | | | |
| •*Salmonella typhi* | Ampicillin | 0.4 | 0.5 |
| | Cotrimoxazole | 0.9 | 0.5 |
| | Chloramphenicol | 0 | 0 |
| | Ciprofloxacin | 0 | 0 |
| •*Nontyphoidal Salmonella* | Chloramphenicol | 5 | 10 |
| | Ampicillin | 18 | 17 |
| | Cotrimoxazole | 14 | 17 |

| Pathogen | Antimicrobial | % Resistance | |
|---|---|---|---|
| | | 2008 | 2009 |
| Enteric pathogens: | | | |
| •*Shigella* | Cotrimoxazole | 54 | 75 |
| | Ciprofloxacin | 0 | 0 |
| | Nalidixic acid | 0 | 0 |
| •*Vibrio cholerae* | Tetracycline | | 0 |
| | Cotrimoxazole | | 0 |
| | Chloramphenicol | | 0 |

| Pathogen | Antimicrobial | % Resistance | |
|---|---|---|---|
| | | 2008 | 2009 |
| ARI Pathogens | | | |
| •*Streptococcus pneumonia* | Penicillin | 0 | 0 |
| | Cotrimoxazole | 23 | 22 |
| | Chloramphenicol | 5 | 5 |
| •*H.influenzae* | Cotrimoxazole | 22 | 39 |
| | Ampicillin | 10 | 17 |
| | Chloramphenicol | 21 | 21 |
| •*Staphylococcus aureus* | Oxacillin | 31 | 45 |
| | Vancomycin | 0 | 0 |

| Pathogen | Antimicrobial | % Resistance | |
|---|---|---|---|
| | | 2008 | 2009 |
| ARI Pathogens | | | |
| •*Staphylococcus epidermidis* | Oxacillin | 65 | 70 |
| | Cotrimoxazole | 43 | 48 |
| | Erythromycin | 52 | 54 |
| | Vancomycin | 0 | 0 |
| •*E. fecalis and E. faecium* | Vancomycin | 22 | 8 |
| | | | 6 |

| Pathogen | Antimicrobial | % Resistance | |
|---|---|---|---|
| | | 2008 | 2009 |
| Gram negative bacilli | | | |
| •*Pseudomonas* | Ceftazidime | 15 | 15 |
| | Ciprofloxacin | 28 | 22 |
| | Piperacillin/tazobactam | 11 | 16 |
| | Netilmycin | | 0 |
| | Aminoglycosides: | | |
| | Amikacin | | 12 - 21 |
| | Tobramycin | | |
| | Gentamicin | | |

| Pathogen | Antimicrobial | % Resistance | |
|---|---|---|---|
| | | 2008 | 2009 |
| Gram negative bacilli | | | |
| •*E. coli* | Cotrimoxazole | 65 | 67 |
| | Ampicillin | 78 | 80 |
| | Ceftriaxone | 12 | 18 |
| | Cefepime | | 21 |
| | 2nd gen cephalosporin | 14 | 20 |
| | Ampicllin-sulbactam | 25 | 30 |

| Pathogen | Antimicrobial | % Resistance | |
|---|---|---|---|
| | | 2008 | 2009 |
| Gram negative bacilli | | | |
| •*Klebsiella* | Ceftriaxone | 19 | 29 |
| | Cefepime | 8 | 14 |
| | Ampicillin-sulbactam | 25 | 26 |
| | Cephalothin | | 53 |
| | Cefuroxime | | 29 |
| | Ampicllin-sulbactam | | 32 |
| | Gentamicin | | 31 |
| | Amikacin | | 20 |
| | Imipenem | | 0.7 |

| Pathogen | Antimicrobial | % Resistance | |
|---|---|---|---|
| | | 2008 | 2009 |
| Neisseria gonorrheae | Ciprofloxacin | 48 | 83 |
| | Ofloxacin | 54 | 79 |
| | Tetracycline | 82 | 47 |
| | Spectinomycin | | 0 |
| | Ceftriaxone | | 0 |
| | Cefixime | | |

# Recommendations

1. In view of the high rate of methicillin/oxacillin resistance among staphylococci in 2008, indication to shift empiric treatment of suspected staphylococcal infections from oxacillin to vancomycin. However, guidelines for judicious use of vancomycin should be followed

2. Infections secondary to S. pneumoniae can be covered with penicillin or chloramphenicol although there is a need to closely monitor the changing trends of resistance among pneumococci

3. Empiric treatment for susceptible uncomplicated Typhoid fever could still consist of either chloramphenicol or cotrimoxazole or amoxicillin/ampicillin

4. The fluoroquinolones and 3rd generation cephalosporins are better treatment options for non-typhoidal salmonella. However MDs should be aware of the existence of fluoroquinolone resistant nontyphoidal salmonella in a small proportion of cases

5. Ciprofloxacin may be considered as the drug of choice for treatment of suspected Shigellosis among adult patients while nalidixic acid may be considered as empiric treatment for the pediatric age group.

- In view of emerging resistance of Shigella to the quinolones, continued surveillance of the organism should be pursued with the possibility of considering alternative antimicrobials e.g. Ceftriaxone or azithromycin

6. Tetracycline, chloramphenicol and cotrimoxazole remain good treatment options for cholera cases

7. Due to the significant rise of resistance of H. influenzae to ampicillin in 2009 (10% in 2008 and 17% in 2009) and since ampicillin resistance in H. influenzae is usually mediated by beta lactamase production, empiric treatment for suspected H. influenzae infections may consist of beta lactam-beta lactamase inhibitor combinations, extended spectrum oral cephalosporin and the newer macrolides. Laboratories should screen all isolates of H. influenza for beta lactamases as part of its antimicrobial susceptibility test procedures

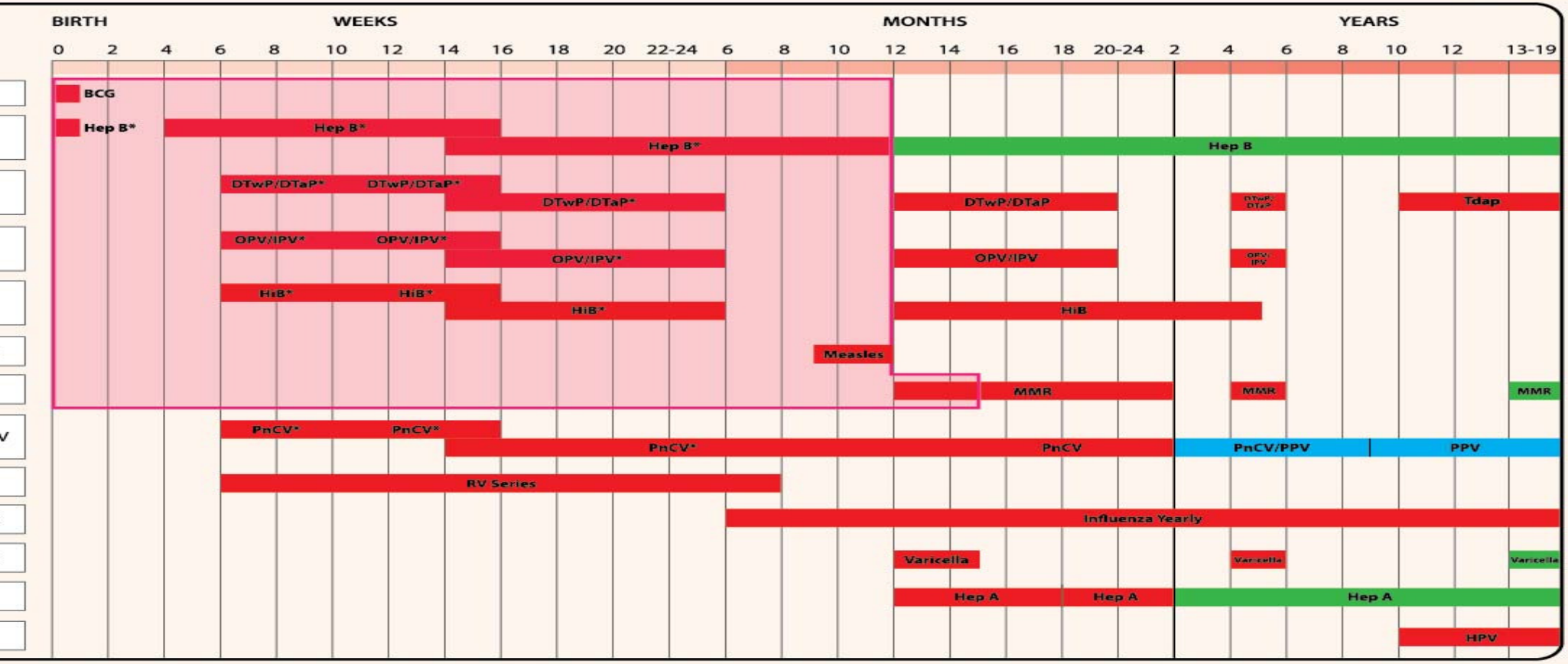
8. Hospitals should base their treatment recommendations for the Enterobacteriaceae on their institutions prevailing resistance patterns as these patterns have been found to be variable from hospital to hospital

- There is need to closely monitor the presence of ESBLs from among the Enterobacteriaceae in hospitals in view of the very limited antibiotics i.e. carbapenems, beta lactam-beta lactamase inhibitors which can be used for patient therapy in the presence of such enzymes

9. The continued rise in MRSA rate and cases of infections secondary to ESBL may indicate very inadequate implementation of infection control procedures in some hospitals that DOH should look into

10. Cefixime and Ceftriaxone can remain as empiric antibiotics of choice for gonococcal infections

# Childhood Immunization Schedule 2011



- **PHILIPPINE EPI VACCINES:**

Vaccines in the pink area, enclosed in parenthesis, are vaccines given in the Philippine Expanded Program of Immunization (EPI) of the Department of Health. Vaccines in the EPI include: BCG, DTwP, OPV, Measles, Hepatitis B, MMR and Hib.

- **OTHER RECOMMENDED VACCINES:**

Other Recommended Vaccines are the vaccines outside the pink area. These vaccines are not part of the Philippine EPI but because of merit are advocated by the PPS, PIDSP, and the PFV. Other recommended vaccines include: MMRV, Hepatitis A, DTaP, Tdap, IPV, Pneumococcal, Rotavirus, Influenza, and Human Papilloma virus (HPV) Vaccine.

- **VACCINES FOR SPECIAL GROUPS:**

These are vaccines which are not part of the Philippine EPI or Other Recommended Vaccines but available data support its use in certain conditions or in selected populations. Vaccines for Special Groups include: Meningococcal, Typhoid and Rabies Vaccines.

- **BCG:** Given Intradermally (ID)

BCG should be given at the earliest possible age after birth preferably within the first 2 months of life. For healthy infants and children >2 months who are not given BCG at birth, PPD prior to BCG vaccination is not necessary. However, PPD is recommended prior to BCG vaccination if any of the following are present:: suspected congenital TB, history of close contact to known or suspected infectious cases of TB, clinical findings suggestive of TB and/or chest x-ray suggestive of TB. In the presence of any of these conditions, an induration of ≥5mm is considered positive. The dose of BCG is 0.05ml for infants <12 months of age and 0.1 ml for children ≥12 months of age.

- **MEASLES**

Given subcutaneously (SC). Measles vaccine is given at 9 months of age but may be given as early as 6 months of age in cases of outbreaks.

- **HEPATITIS B VACCINE**

Given intramuscularly (IM). The first dose is given within the first 12 hours of life. The hepatitis B birth dose may be used as the first dose in a 3-dose primary series. Doses are given at least 4 weeks apart. A fourth dose is needed for the following:

If the third dose is given at age <6 months. If no birth dose is given using the EPI schedule of 6, 10, and 14 weeks.For preterms less than 2 kgs, the initial dose should not be counted in the 3-dose immunization schedule.

- **PNEUMOCOCCAL VACCINES (PnCV/PPV)**

Given intramuscularly (IM). The minimum age for pneumococcal conjugate vaccine (P**n**CV) is 6 weeks of age and for pneumococcal polysaccharide vaccine (PPV) is at 2 years of age. PPV is recommended for high risk children >2 years of age in addition to PnCV. For healthy children, no additional doses of PPV are needed if the PnCV series is completed.

**HEPATITIS A**

Given intramuscularly (IM)

Hepatitis A vaccine is recommended for all children aged ≥12 months. A second dose of the vaccine is given 6 to 12 months after the first dose.

**ROTAVIRUS VACCINE (RV)**

Given per orem (PO). The monovalent human rotavirus vaccine (RV1) is given as a 2-dose series. The pentavalent human bovine rotavirus vaccine (RV5) is given as a 3-dose series. The first dose of the vaccine is administered from age 6 weeks to 14 weeks and 6 days. There is insufficient data on safety of the first dose of rotavirus vaccine in older infants. The minimum interval between doses is 4 weeks. The second dose of RV1 should not be administered later than 24 weeks of age. The 3rd dose of RV5 should not be administered later than 32 weeks of age.

**MEASLES, MUMPS, RUBELLA (MMR)**
Given subcutaneously (SC)
Minimum age is 12 months. Administer the second dose at age 4 through 6 years. However, the second dose may be administered at an earlier age provided the interval between the first and second dose is at least one month.

**MEASLES, MUMPS, RUBELLA, VARICELLA (MMRV)**
Given subcutaneously (SC)
Combination MMRV may be given as an alternative to separately administered MMR and Varicella vaccine for healthy children 12 months to 12 years of age. A second dose of MMRV is administered at age 4-6 years or at an earlier age provided the interval between the first and the second dose is at least 3 months.

4 **VARICELLA VACCINE**

Given subcutaneously (SC)

The first dose of the vaccine is administered from age 12-15 months. The second dose of the varicella vaccine is administered at age 4-6 years or at an earlier age provided the interval between the first and the second dose is at least 3 months. A second dose of the vaccine is recommended for children, adolescents, and adults who previously received only one dose of the vaccine. All individuals aged ≥13 years and without previous evidence of immunity should receive 2 doses of varicella vaccine given at least 4 weeks apart.

## INFLUENZA VACCINE

- Given intramuscularly or subcutaneously (IM/SC)
  All children from 6 months to 18 years should receive influenza vaccine.

- Children 6 months to 8 years receiving influenza vaccine for the first time should receive 2 doses of the vaccine separated by at least 4 weeks. If only one dose was administered during the previous influenza season, administer 2 doses of the vaccine then one dose yearly thereafter.

- Children who received a single dose of influenza vaccine for 2 consecutive years should continue receiving single annual doses. Yearly vaccination should preferably be given between February to June.

**HUMAN PAPILLOMAVIRUS VACCINE (HPV)**

Given intramuscularly (IM)

Primary vaccination consists of a 3-dose series administered to females 10-18 years of age. The recommended schedule is as follows:

- Bivalent HPV at 0, 1 and 6 months; Quadrivalent HPV at 0, 2, and 6 months.
- The minimum interval between the first and second dose is at least one month and the minimum interval between the second and third dose is at least 3 months.

*Use in males 10-18 years of age for the prevention of anogenital warts is optional.

**TETANUS AND DIPTHERIA TOXOIDS AND ACELLULAR PERTUSSIS (Tdap)**

Given intramuscularly (IM)

Children and adolescents 10 -18 years of age should receive a single dose of Tdap instead of Td for booster immunization against tetanus, diphtheria, and pertussis if they have not completed the recommended childhood DTwP/DTaP immunization series and if they have not received either Td or Tdap. Thereafter, Td booster given every 10 years is recommended. An interval of at least 5 years from the last Td dose is recommended if Tdap is used as booster to reduce the risk of local and systemic reactions.

**TYPHOID VACCINE**

Given intramuscular (IM)

Recommended for travelers to areas where there is risk of exposure to S. typhi and for persons with frequent exposure to S. typhi. A single dose may be given as early as 2 years of age with revaccination every 2 to 3 years if there is continued exposure to S. typhi.

**MENINGOCOCCAL VACCINE**

Tetravalent meningococcal (A,C.Y.W-135) conjugate vaccine (MCV4) given intramuscularly (IM), tetravalent meningococcal (A,C,Y,W-135) polysaccharide vaccine (MPSV4) given subcutaneously (SC) **OR** bivalent meningococcal polysaccharide A and C vaccine given IM/SC.

- Children aged 2-18 years, who are known to be at high risk for meningococcal disease should preferably receive one dose of MCV4 (MPSV4 and Bivalent meningococcal polysaccharide A & C vaccines are acceptable alternatives).
- There is limited data on the use of meningococcal vaccines in children less than 2 years of age. However, in outbreak situations, meningococcal vaccines (preferably MCV4) may be given in those less than 2 years of age (minimum age of 3 months) using 2 doses 3 months apart.
- Revaccination with MCV4 may be considered 3-5 years after receipt of any meningococcal vaccine for persons who remain at high risk for infection.

**RABIES VACCINE**

Given intramuscularly or intradermally (IM/ID)

- The Anti-rabies Act of 2007 recommends routine rabies pre-exposure (PreP) for children aged 5-14 years in areas where there is high incidence of rabies (incidence > 2.5 human rabies/million population). There are 2 recommended regimens for **Pre-exposure Prophylaxis**:

1. Intramuscular dose: PVRV 0.5ml or PCECV 1ml given on days 0,7,21 or 28.
2. Intradermal dose: PVRV or PCECV 0.1ml given on days 0,7,21 or 28.
    - Rabies vaccine should never be given in the gluteal area since absorption is unpredictable. For the intradermal dose, a repeat dose should be given if the vaccine is inadvertently given subcutaneously.

- After completion of 3 doses of rabies vaccine as pre-exposure prophylaxis, periodic booster doses in the absence of exposure are not recommended for the general population. Any exposure, regardless of interval between re-exposure and last dose of the vaccine should receive a booster dose on day 0 and day 3. Doses may be given intramuscularly (0.5ml PVRV or 1ml PCECV) or intradermally (0.1ml PVRV or PCECV). There is no need to give rabies immune globulin (RIG).

# 2010 INTERIM GUIDELINES ON FLUID MANAGEMENT OF DENGUE FEVER AND DENGUE HEMORRHAGIC FEVER


**MEMBERS OF THE TECHNICAL WORKING GROUP ON THE 2010 PPS INTERIM GUIDELINES ON FLUID MANAGEMENT OF DF/DHF**

Overall Chair and Chair, Committee on Dengue, HIV/AIDS, and other Emerging Infectious Diseases:

**Ma. Liza Antoinette M. Gonzales, MD**

Co-Chair, Committee on Dengue, HIV/AIDS, and other Emerging Infectious Diseases:

**Maria Anna P. Banez, MD**

- Dengue fever (DF) and Dengue Hemorrhagic Fever (DHF)/ Dengue Shock Syndrome (DSS) continue to be significant causes of morbidity and mortality in the Philippines

- Since the release of the first Evidence-based Guidelines on Dengue Fever/Dengue Hemorrhagic Fever in 2008 by the Philippine Pediatric Society, the World Health Organization (WHO) published a document entitled "Dengue Guidelines for Diagnosis, Treatment, Prevention and Control- New edition 2009."2 This new document, referred to as the 2009 WHO Dengue Guidelines, is a joint publication of the WHO and the Special Programme for Research and Training in Tropical Diseases (TDR) and was meant to supersede the recommendations in the 1997 WHO Dengue Guidelines.

- The two most important differences between the 2008 PPS Dengue evidence-based guidelines and the 2009 WHO Dengue Guidelines were identified to be on Dengue Case Classification and on Clinical Management

- However, while new studies are being retrieved and evaluated, the updated CPG will have to await results of the validation studies being conducted by the WHO on their proposed dengue case classification and management guidelines. This will be crucial in order to come up with more comprehensive data on which to base recommendations for best practices on the management of dengue. The results of the validation studies are expected to be available before the end of

Thank you !