



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
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Vol. 36 No. 19

03rd May – 09th May 2009

Counteracting anti immunization arguments

According to the definition of the IOM (2001), immunization is widely regarded as one of the most effective and beneficial tools for protecting health of the public. Vaccines present proteins or complex sugars derived from pathogenic organism to the immune system. The objective of immunization is to stimulate the natural immune response, creating antibodies and a memory of the infection without the danger of an actual infection. The invoked memory helps protect subjects if ever they were to be exposed to the pathogen of concern in the future. By receiving Vaccines, people acquire immunity to specific infectious diseases; protect themselves from potentially life-threatening infectious diseases. Individualized immunization yield indirect effects at the population level as it tends to protect communities from epidemics because immune people do not catch diseases nor do they efficiently pass them on to others. Certain infectious agents such as bacteria, viruses, and parasites depend entirely on human hosts and they are not found elsewhere in the nature. These organisms and the diseases caused by them are totally eradicable by immunizing people.

The revolutionary beginning of immunization to save the mankind from vaccine preventable diseases was initiated by Sir. Edward Jenner. Sir. Jenner observed that milkmaids who contracted cowpox did not get smallpox. Inoculating a person with cowpox caused a mild disease and the person did not become ill when later he was exposed to smallpox. This discovery led to the practice of vaccination to protect individuals from potentially deadly infections. Vaccination against smallpox was so effective that new cases dropped from around 50 million during the 1950s to 10-15 million by 1967. In that year, the World Health Organization launched an intensified international effort to eradicate the virus, which still threatened 60% of the world's population and claimed every fourth victim. Eradication of smallpox was possible because the smallpox virus depended on human-to-human transmission. There was no natural reservoir

for the virus to survive outside human. By making a large proportion of humans immune through vaccination, the virus ran out of susceptible people to infect. When the last infected people were identified and those around them were immunized, the virus had no ways and means for human to human transmission. In 1977, Ali Maalin of Somalia, the last person to naturally contract smallpox, recovered. The end of smallpox was certified worldwide in 1978. Thus, smallpox went into annals of history as the first communicable disease ever controlled by vaccination..

Following the success of vaccination against small pox, world grabbed the new opportunity with both hands. With the increased coverage of vaccination against individual antigens, diseases caused by them started to drop drastically over a period of few decades. However once the vaccine preventable diseases were brought under control, other problems related to vaccination became more prominent and invariably it had a huge impact on the acceptability of vaccines. Against this background of reduced disease burden and deaths, views related to the various side effects of vaccines, their harm, contaminants in vaccines started to dominate with a huge push towards the view that constituents of vaccines were likely to be damaging to the recipients .

Based on the above perceptions, a new movement called anti vaccination lobby was developed to plead against vaccination on many varied complex grounds. They include dogmatic religious or philosophical beliefs, unfounded concerns about safety and efficacy of vaccines and false beliefs that the vaccine- preventable diseases do not pose serious health risk to humans. Some even went to the extent of raising objections to mandatory immunization programmes, accusing governments of excessively interfering in their right to choice and objecting to immunization as being "unnatural".

Fortunately, worldwide this lobby represents a small minority worldwide. In fact, some groups of this lobby

| Contents | Page |
|--|------|
| 1. Leading Article - Counteracting anti immunization arguments | 1 |
| 2. Surveillance of vaccine preventable diseases & AFP (26 th April - 02 nd May 2009) | 3 |
| 3. Summary of newly introduced notifiable diseases (26 th April - 02 nd May 2009) | 3 |
| 4. Laboratory surveillance of dengue fever (26 th April - 02 nd May 2009) | 3 |
| 5. Summary of selected notifiable diseases reported (26 th April - 02 nd May 2009) | 4 |

WEEKLY EPIDEMIOLOGICAL REPORT SRI LANKA - 2009

do not decry vaccination, but ask for greater awareness and greater responsibility from the state or the body that administers or researches vaccines. In view of the great success story of vaccination worldwide, the medical profession firmly and solidly supports vaccination, despite the voice of the anti-vaccination lobby. Besides, the medical profession feels that some of this lobby's fears are unfounded and baseless. However, the intensified role of media in many countries and the quick disseminations of reports all over the world in a jiffy thanks to the information technology revolution presents a big challenge to the prescribers and recipients of vaccines. Because of this negative media coverage, the general public and health care professionals tend to feel confusion, fear and a lack of confidence in vaccines. The same has had a negative impact on decision makers, health managers and potential stakeholders forcing them to believe that advocating immunization is an unpopular, risky and divisive strategy. Since of late, a lot has been focused on animal rights. Some crusaders of animal rights consider testing of vaccines on animals is unethical. For example, measles virus is passed through chick embryos, poliovirus through monkey kidneys, and the rubella virus through human diploid cells -the dissected organs of an aborted fetus.

It has to be admitted that none of the vaccines are 100% successful. A miniscule proportion of recipients, however negligible they may be statistically, can catch the infection due to vaccine quality failure, faulty procedures related to administration (programme errors) or develop some other complications in the case of personal sensitivities. The possible hazards could be caused by adjuvant (antibody boosters) used in the preparation of vaccines. Some adjuvants like aluminum, formaldehyde, and mercury are potentially toxic substances with a long history of documented hazardous effects. They also have a fear that animal infection may cross over to the vaccine during preparation. There have been stray instances in the past when groups were vaccinated and unexpected infection spread along with vaccination. There is a suspicion that tampering with the immune system and taking vaccines prepared in animal bodies could cause immune deficiency diseases like AIDS acquired from animals.

As diseases become rare due to vaccination, forgetfulness that the disease can still pose risks combined with concerns about vaccine safety can lead to complacency and vaccine avoidance. However, the diseases that are rare in one place may be common in other parts of the world and increased and speedy globe trotting means that diseases can spread rapidly from one country to another. As individuals are supposed to make decisions about whether to vaccinate themselves and their children, they must consider the risk of being non-immune to an infection that can be reintroduced at any time. This is evidenced by examples of prevalence of measles and influenza in the history of vaccination in United States. Cases of measles in the United States dropped dramatically after the licensing of the vaccine in 1963. There was a resurgence of measles in 1989-1991 resulting in 55,622 cases and 123 deaths. Many of these cases were children under 5 years of age. This resurgence was due to low vaccination coverage. New influenza strains circulate around the world every year, and each strain may require a new vaccine. Occasionally, an entirely new strain arises to cause a pandemic, to which everyone is susceptible. These potential risks warrant the importance of continuing with vaccination. Based on the successful smallpox eradication effort, other diseases that depend on human-to-human transmission such as measles, polio, diphtheria and pertussis could be targeted for potential eradication. However, diseases which have sources of hosts other than human beings like animals or other sources in nature will not be eradicated but there is a possibility of

elimination as long as high coverage is maintained among susceptible humans.

In Italy, activities are focused on vaccine safety and efficacy to raise confidence, increase knowledge and restore trust among the public and health care professionals in an attempt to counteract the anti immunization arguments. First, clear, unified and confident messages are given to the public to begin the process of restoring the voice of the majority through public awareness campaigns using radio, posters and leaflets, question-and-answer sessions with immunization experts on television and radio, community information evenings in areas with low vaccination coverage and activities for schools, including a meeting with school authorities, a training day for teachers and targeted activities with students. As advocacy was underused at all levels, a second strategy was to use printed material and face-to-face meetings to increase decision-makers' awareness of the benefits of immunization and gain their commitment. Finally, health personnel received training and information through workshops and meetings. In Canada, there are some readily available resources that clinicians may find useful in their efforts at persuasion. The *Canadian Immunization Guide* contains a succinct table comparing the risks of the disease with the risks of vaccination (www.hc-sc.gc.ca/hpb/lcdc/publicat/immguide/comp_e.html), and the Canadian Immunization Awareness Program summarizes common misconceptions about immunization on its question-and-answer Web page (www.ciap.cpha.ca/q&a.htm). Public beliefs that vaccination is "unnatural" may be particularly challenging for physicians and debating with public who refuse vaccination may sometimes be futile. Make them understand that by and large vaccinations are safe. But it is always worthwhile to let them do the following before they receive vaccination.

- Be aware. Know the details about the vaccination you or your child is about to receive.
- Go to an authorized centre for vaccination. Be sure of their storage and handling facilities.
- Make sure that they use disposable syringes.
- Tell your doctor if there is a family history of allergies, especially to eggs, feathers etc.
- If you are pregnant, be sure to tell your doctor that, before you take any vaccination.
- Monitor post vaccination reactions closely and preserve your vaccination record.

Although the arguments about safety will continue to rage, what is most compelling statistically is the difference in infant mortality rates between countries which provide immunizations and those that do not. Immunization has repeatedly been demonstrated to be one of the most effective medical interventions that prevent diseases, and it is estimated to save 3 million lives a year throughout the world.

Like any other medical intervention, immunization has risks. No medical procedure is 100% effective or 100% safe for every person. This cannot, however, be validly used as an argument against immunization, just as the occasional tragic outcome from surgery is not a valid argument for abolishing surgery. Immunization remains the only proven way to protect against vaccine-preventable diseases.

This article was compiled by Dr. Upekha Seneviratne

Table 1: Vaccine-preventable Diseases & AFP

26th April – 02nd May 2009 (18th Week)

| Disease | No. of Cases by Province | | | | | | | | | Number of cases during current week in 2009 | Number of cases during same week in 2008 | Total number of cases to date in 2009 | Total number of cases to date in 2008 | Difference between the number of cases to date in 2009 & 2008 |
|-------------------------|--------------------------|----|------------|------------|------------|------------|----|----|-----|---|--|---------------------------------------|---------------------------------------|---|
| | W | C | S | N | E | NW | NC | U | Sab | | | | | |
| Acute Flaccid Paralysis | 01 CB=1 | 00 | 00 | 01 MU=1 | 01 TR=1 | 02 PU=2 | 00 | 00 | 00 | 05 | 02 | 25 | 31 | -19.3% |
| Diphtheria | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | - |
| Measles | 00 | 00 | 00 | 00 | 00 | 01 | 00 | 00 | 00 | 01 | 01 | 46 | 42 | +9.5% |
| Tetanus | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 10 | 12 | -16.7% |
| Whooping Cough | 00 | 00 | 01 GL=1 | 00 | 00 | 00 | 00 | 00 | 00 | 01 | 01 | 22 | 14 | +57.1% |
| Tuberculosis | 216 | 30 | 15 | 00 | 02 | 26 | 11 | 10 | 02 | 312 | 225 | 3068 | 2988 | +2.7% |

Table 2: Newly Introduced Notifiable Disease

26th April – 02nd May 2009 (18th Week)

| Disease | No. of Cases by Province | | | | | | | | | Number of cases during current week in 2009 | Number of cases during same week in 2008 | Total number of cases to date in 2009 | Total number of cases to date in 2008 | Difference between the number of cases to date in 2009 & 2008 |
|---------------|--------------------------|----|--------------------|-----|----|------------|------------|----|------------|---|--|---------------------------------------|---------------------------------------|---|
| | W | C | S | N | E | NW | NC | U | Sab | | | | | |
| Chickenpox | 38 | 10 | 18 | 374 | 06 | 10 | 06 | 07 | 22 | 491 | 119 | 6493 | 2153 | +201.6% |
| Meningitis | 02 CB=1 GM=1 | 00 | 01 GL=1 | 00 | 00 | 02 PU=2 | 00 | 00 | 02 RP=4 | 07 | 21 | 366 | 598 | 38.8% |
| Mumps | 04 | 02 | 03 | 02 | 00 | 00 | 02 | 04 | 03 | 20 | 51 | 642 | 870 | -26.2% |
| Leishmaniasis | 00 | 00 | 08 HB=5 MT=3 | 00 | 00 | 00 | 01 AP=1 | 00 | 00 | 09 | Not available* | 362 | Not available* | - |

Key to Table 1 & 2

Provinces: W: Western, C: Central, S: Southern, N: North, E: East, NC: North Central, NW: North Western, U: Uva, Sab: Sabaragamuwa.
 DPDHS Divisions: CB: Colombo, GM: Gampaha, KL: Kalutara, KD: Kandy, ML: Matale, NE: Nuwara Eliya, GL: Galle, HB: Hambantota, MT: Matara, JF: Jaffna, KN: Killinochchi, MN: Mannar, VA: Vavuniya, MU: Mullaitivu, BT: Batticaloa, AM: Ampara, TR: Trincomalee, KM: Kalmunai, KR: Kurunegala, PU: Puttalam, AP: Anuradhapura, PO: Polonnaruwa, BD: Badulla, MO: Moneragala, RP: Ratnapura, KG: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps.

Special Surveillance: Acute Flaccid Paralysis.

Leishmaniasis is notifiable only after the General Circular No: 02/102/2008 issued on 23 September 2008.

Table 3: Laboratory Surveillance of Dengue Fever

26th April – 02nd May 2009 (18th Week)

| Samples | Number tested | Number positive | Serotypes * | | | | |
|------------------------------|---------------|-----------------|-------------|----|----|----|----------|
| | | | D1 | D2 | D3 | D4 | Negative |
| Number for current week | 06 | 04 | 01 | 02 | 01 | 00 | 00 |
| Total number to date in 2009 | 38 | 08 | 02 | 02 | 04 | 00 | 00 |

Sources: Genetic Laboratory, Asiri Surgical Hospital

* Not all positives are subjected to serotyping.
 NA= Not Available.

Table 4: Selected notifiable diseases reported by Medical Officers of Health
26th April – 02nd May 2009 (18th Week)

| DPDHS Division | Dengue Fever / DHF* | | Dysentery | | Encephalitis | | Enteric Fever | | Food Poisoning | | Leptospirosis | | Typhus Fever | | Viral Hepatitis | | Human Rabies | | Returns Received Timely** |
|------------------|---------------------|-------------|------------|-------------|--------------|-----------|---------------|------------|----------------|------------|---------------|-------------|--------------|------------|-----------------|------------|--------------|-----------|---------------------------|
| | A | B | A | B | A | B | A | B | A | B | A | B | A | B | A | B | A | B | % |
| Colombo | 75 | 763 | 7 | 68 | 0 | 5 | 4 | 75 | 0 | 27 | 20 | 198 | 1 | 4 | 0 | 29 | 0 | 3 | 92 |
| Gampaha | 16 | 392 | 3 | 53 | 0 | 6 | 1 | 22 | 0 | 9 | 2 | 104 | 0 | 3 | 1 | 29 | 0 | 2 | 64 |
| Kalutara | 15 | 210 | 3 | 104 | 0 | 3 | 1 | 28 | 0 | 11 | 6 | 77 | 0 | 0 | 0 | 4 | 0 | 1 | 83 |
| Kandy | 54 | 750 | 8 | 139 | 0 | 3 | 0 | 14 | 0 | 52 | 0 | 81 | 4 | 58 | 3 | 18 | 0 | 0 | 84 |
| Matale | 14 | 253 | 2 | 37 | 0 | 2 | 1 | 16 | 0 | 5 | 9 | 186 | 0 | 2 | 1 | 6 | 0 | 2 | 92 |
| Nuwara Eliya | 1 | 29 | 13 | 154 | 0 | 0 | 2 | 75 | 2 | 22 | 1 | 19 | 1 | 27 | 0 | 24 | 0 | 0 | 62 |
| Galle | 3 | 42 | 1 | 68 | 0 | 7 | 0 | 1 | 0 | 6 | 2 | 65 | 0 | 2 | 0 | 6 | 0 | 3 | 84 |
| Hambantota | 57 | 133 | 1 | 30 | 0 | 6 | 0 | 2 | 0 | 5 | 1 | 27 | 2 | 31 | 0 | 7 | 0 | 0 | 82 |
| Matara | 16 | 204 | 6 | 132 | 0 | 2 | 0 | 4 | 3 | 7 | 1 | 68 | 2 | 61 | 1 | 7 | 0 | 0 | 94 |
| Jaffna | 0 | 8 | 2 | 47 | 0 | 3 | 2 | 81 | 2 | 22 | 0 | 0 | 6 | 94 | 2 | 15 | 0 | 2 | 50 |
| Kilinochchi | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 |
| Mannar | 0 | 3 | 0 | 14 | 0 | 1 | 0 | 56 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 25 |
| Vavuniya | 0 | 4 | 184 | 281 | 0 | 2 | 14 | 21 | 0 | 2 | 0 | 2 | 0 | 0 | 45 | 45 | 0 | 0 | 50 |
| Mullaitivu | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 00 |
| Batticaloa | 13 | 252 | 3 | 54 | 0 | 10 | 0 | 5 | 2 | 39 | 0 | 4 | 0 | 0 | 0 | 4 | 0 | 1 | 36 |
| Ampara | 0 | 34 | 7 | 22 | 0 | 0 | 0 | 5 | 0 | 4 | 0 | 7 | 0 | 0 | 0 | 4 | 0 | 0 | 43 |
| Trincomalee | 9 | 148 | 1 | 33 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 3 | 0 | 5 | 0 | 4 | 0 | 1 | 50 |
| Kurunegala | 12 | 286 | 4 | 62 | 0 | 4 | 1 | 25 | 0 | 1 | 1 | 42 | 0 | 42 | 0 | 24 | 0 | 5 | 63 |
| Puttalam | 2 | 61 | 0 | 50 | 0 | 5 | 0 | 37 | 0 | 0 | 1 | 41 | 0 | 20 | 0 | 6 | 0 | 1 | 33 |
| Anuradhapura | 5 | 160 | 0 | 30 | 0 | 3 | 0 | 3 | 0 | 2 | 0 | 66 | 0 | 22 | 0 | 6 | 0 | 0 | 53 |
| Polonnaruwa | 1 | 28 | 1 | 14 | 0 | 2 | 1 | 12 | 0 | 6 | 0 | 38 | 0 | 0 | 0 | 4 | 0 | 0 | 71 |
| Badulla | 6 | 37 | 10 | 97 | 0 | 2 | 1 | 20 | 0 | 13 | 0 | 36 | 1 | 30 | 3 | 90 | 0 | 0 | 67 |
| Monaragala | 2 | 13 | 0 | 19 | 0 | 0 | 0 | 9 | 0 | 7 | 0 | 8 | 3 | 36 | 0 | 17 | 0 | 1 | 82 |
| Ratnapura | 10 | 106 | 8 | 233 | 1 | 15 | 0 | 25 | 1 | 3 | 1 | 42 | 0 | 16 | 1 | 8 | 0 | 1 | 78 |
| Kegalle | 24 | 430 | 0 | 50 | 0 | 4 | 0 | 15 | 0 | 5 | 1 | 46 | 0 | 12 | 0 | 62 | 0 | 3 | 64 |
| Kalmunai | 0 | 83 | 0 | 51 | 0 | 1 | 0 | 5 | 0 | 1 | 0 | 2 | 0 | 1 | 1 | 7 | 0 | 0 | 38 |
| SRI LANKA | 335 | 4429 | 264 | 1844 | 1 | 87 | 28 | 559 | 10 | 253 | 47 | 1162 | 20 | 466 | 58 | 442 | 0 | 26 | 66 |

Source: Weekly Returns of Communicable Diseases (WRCD).

*Dengue Fever / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.

**Timely refers to returns received on or before 02nd May, 2009 Total number of reporting units =311. Number of reporting units data provided for the current week: 206

A = Cases reported during the current week. B = Cumulative cases for the year.

PRINTING OF THIS PUBLICATION IS FUNDED BY THE UNITED NATIONS CHILDREN'S FUND (UNICEF).

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to chepid@sltnet.lk.

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