

# IMMUNISATION AWARENESS CAMPAIGN 2001

## EPI(SA) & AVENTIS PASTEUR PARTNERSHIP



### EPI(SA) FACT SHEET VACCINES



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#### 1. VACCINES ARE DIFFERENT

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Vaccines are given to healthy children, and mostly the results are unseen, with the children protected from most of the dreaded diseases of the past.

Vaccines and other biological products are different from regular pharmaceuticals, and need to be managed differently. Vaccines are made from either live or killed bacteria or viruses, and are produced by growing them.

This process is lengthy and subject to many pitfalls, not the least of which is failure of sterility, leading to batch failures. When a batch fails, the process has to start from scratch again, causing months of delay resulting in stock-outs.

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#### 2. THERMOSTABILITY OF VACCINES

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Vaccines are sensitive to temperature changes, with some being more sensitive to heat, and others to freezing. It is for this reason that vaccine storage conditions are so specific, and need to be monitored constantly.

The vaccine most sensitive to heat is the oral polio vaccine (OPV), and each vial of OPV now bears a vaccine vial monitor (VVM), which gives an indication of the potency of that vial at any given time.

Correct interpretation of the VVM in association with the expiry date ensures that the children are receiving vaccine at its optimal potency.

VVMs are presently being attached to other antigens and in the near future we will be able to determine if there has been heat damage to any of the children's vaccines.

Freezing of vaccines is another problem. Hepatitis B vaccine freezes at  $-0,5^{\circ}\text{C}$ , and once frozen, there is significant reduction in

potency. Vaccines are easily frozen when they are pushed up against the evaporator plate of a domestic refrigerator, or when they are placed in cooler boxes for transportation and come into contact with the ice packs.

Many of the local ice packs freeze at temperatures far below  $0^{\circ}\text{C}$  because they are not filled with water, but are gel filled, and this gel has a lower freezing point, often as low as  $-16^{\circ}\text{C}$ .

DTP-Hib vaccine is more complicated, due to its conjugate formulation. Although the Hib portion is freeze-dried, this process in production is very quick. If, in the facility, Hib vaccine is frozen, the conjugate will be destroyed, rendering the vaccine useless.

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#### 3. SOUTH AFRICA'S NATIONAL COLD CHAIN POLICY FOR EPI VACCINES

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A few of the vaccines may be safely frozen, and OPV is one of these. Recommended storage of OPV in a depot or sub-depot is freezing at  $-20^{\circ}\text{C}$ .

At this temperature, the VVM will not change colour, and the vaccine is stable until the expiry date. In the facilities where OPV is used, the recommendation is that OPV is stored in the coldest section of the refrigerator, normally on the top shelf of the fridge. In this position, at a temperature between  $2^{\circ}\text{C}$  and  $8^{\circ}\text{C}$ , it will have a shelf life of six months, at which stage the VVM will indicate that the vaccine should be discarded.

Freezing of OPV in the facilities is not recommended because there is a danger of defrosting the OPV each time warm ice packs are returned to the freezing compartment, and the potency of the vaccine will be reduced with constant freezing and defrosting.

Measles vaccine and BCG may also be stored frozen, but it should be remembered that their corresponding vials of diluent might burst on freezing. The rest of the vaccines should be stored on the shelves of the fridge, and never in the door or in the vegetable trays.

These latter areas are designed to be slightly warmer than the main storage areas so that the tomatoes will not freeze, and the butter is easy to spread.

It is important that there is a good flow of air in the fridge. If there are too many vaccines in the fridge, airflow will be restricted, and the temperature, especially on the lower shelves will rise.

Opening the fridge too many times during the day will also cause a rise in temperature.

The temperature inside the fridge should be monitored twice a day, early in the morning, and late in the afternoon. Recording these readings is a management tool, and a sudden temperature rise or fall outside of the recommended range will give an early warning that there might be a problem developing with the fridge.

If the power supply is interrupted, there are guidelines to follow, and no vaccines should be thrown away without the advice of the Provincial Vaccine Coordinator.

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#### **4. EPI'S MULTI-DOSE VIAL OR OPENED VIAL POLICY**

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Many of the multi-dose vaccines administered in the EPI programme contain preservatives. These vaccines may be used in subsequent immunisation sessions up to one month subject to the following conditions:

- Sterility is ensured
- The cold chain is maintained
- The expiry date has not passed, or the VVM at discard point
- Programmatic instructions are followed.
- There is no suspicion of contamination of the vaccine.

Lyophilised DTP-Hib vaccine is stable for 7 days after opening and needs to be dated and monitored as above for subsequent use.

Measles vaccine and BCG do not contain preservatives and must be destroyed at the end of each immunisation session, or after 6 hours.

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#### **5. SAFETY OF INJECTIONS**

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Unsafe injection practices spread disease. Health workers striving to improve people's health may unintentionally be spreading disease each time they drop a used disposable needle in a waste bin. EPI plays but a small part in the overall picture, accounting for approximately 10% of injections overall, but this programme has taken the lead in attempting to find a solution to this problem.

Each year in the world there are from 8 million to 16 million new hepatitis B infections, 2,3 million to 4,7 million new hepatitis C infections and 80,000 to 160,000 new HIV infections as a result of unsafe injection practices.

These chronic infections are responsible for an estimated 1,3 million early deaths and lead to US\$ 535 million in direct medical costs<sup>1</sup>. Used sharps (needles) need to be disposed of correctly. Funds need to be made available for safe disposal and destruction of used syringes and needles.

Although there is a greater awareness, and indeed measures to conform to safe injection practices in the urban areas, many rural districts still have no access to safe disposal practices.

There is a Provincial Vaccine Coordinator in each province, responsible for the ordering, handling and distribution of vaccines in every province. More information about the Cold Chain and Immunisation Operations can be obtained from the Provincial Vaccine Coordinators.

<b>Provincial Vaccine coordinators</b>		
Eastern Cape	Mrs C vd Walt	040 609 4103
Free State	Mr M Hoosen	051 4055663
Gauteng	Mrs L Botham	011 3553582
KwaZulu-Natal	Mr J Friggens	031 4626146
Mpumalanga	Mr K Brink	017 7122323
Northern Cape	Mrs J Herbst	
Northern Province	Mr D Meyer	015 290 9197
North West	Mrs T Mazibuko	018 3875248
Western Cape	Mrs K Blackbeard	021 9181526

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<sup>1</sup> GAVI Immunisation Focus March 2001.

