

Risk scales: Fear the diseases, not the vaccines

This document is intended to support immunization programme managers and staff in their efforts to secure sustainable funding for immunization.

HOW TO USE THIS DOCUMENT

Some stakeholders may believe that vaccines are not safe and may fear the possible side-effects of vaccines. The key message here is that **you need to fear the diseases, not the vaccines**. The illustrations in this document can be used to support this message.

The risk of side-effects following vaccination needs to be compared with the risk associated with the disease. However, the risk of side-effects of the treatment used to alleviate the symptoms of the disease should also be taken into account.

This document illustrates both of these types of risk comparisons for three types of vaccines that are used to prevent highly infectious diseases: measles vaccine, pneumococcal conjugate vaccine and Hib vaccine.

Use the document to prepare for meetings or as a hand-out to partners or decision-makers.



Measles

Possible unwanted side effects of measles vaccine

VERY COMMON

- Mild, local reactions, such as redness and pain at the injection site, occur in more than 10% of vaccinations.

COMMON

- Fever occurs in 5-10% of vaccinations.
- Rash occurs in 5% of vaccinations.

RARE

- Fever with convulsions occur in less than 0.1% of vaccinations.

VERY RARE

- Inflammation of brain and spinal cord (encephalomyelitis) occurs in 1 out of 1 million vaccinations.
- Low blood platelet count (thrombocytopenia) occurs in 1 out of 30 000-40 000 vaccinations.
- Serious allergic reaction (anaphylaxis) occurs in 3.5 out of 10 million vaccinations.

VACCINE

Possible complications of the disease and possible side effects of its treatment

Possible complications of measles

OTITIS (EAR INFECTION)

- 7-9% of infected people.

DIARRHEA

- 6% of infected people.

CHRONIC AND PROGRESSIVE BRAIN INFLAMMATION (SSPE)

- 1 out of every 100 000 infected people.

PNEUMONIA

- 1-6% of infected people.

INFECTION THAT CAUSES BRAIN SWELLING (ENCEPHALOMYELITIS)

1 out of every 2000 infected people.

DEATH

- 0.1-1 out of every 1000 infected people.

DISEASE

Most common unwanted side-effects of paracetamol

(often used to treat fever in measles patients)

COMMON

(One or more of the following occurs in 1-9% of people who use the drug):

- Irritation and inflammation inside the nose (rhinitis).
- Severe shortness of breath (dyspnea).
- Coughing, heaviness and tightness in the chest or wheezing (paroxysmal bronchial spasm).
- Bleeding from the gastrointestinal digestive tract (gastrointestinal haemorrhage).
- Indigestion or upset stomach (dyspepsia).
- Abdominal pain.
- Ulcer.
- Other.

IN ADDITION

- Liver and kidney damage may occur in case of an overdose.
- Serious complications may occur in combination with other drugs.

TREATMENT



Hib¹

Possible unwanted side effects of mono-Hib conjugated vaccine

VACCINE

VERY COMMON

- Mild soreness at the injection site occurs in more than 10% of vaccinations.

COMMON

- Fever occurs in 2% of vaccinations.

Possible complications of the disease and possible side effects of its treatment

Possible complications of *Haemophilus influenzae type B* (Hib) infection

DISEASE

INFLAMMATION OF JOINTS (SEPTIC ARTHRITIS)

Can lead to:

- Meningitis occurs in 10-30% of cases.
- Bacterial skin infection (cellulitis) in 10-30% of cases.
- Bone infection (osteomyelitis) in 5-10% of cases.
- Pneumonia in 5% of cases.

MENINGITIS OCCURS IN 50-65% OF ALL INVASIVE HIB CASES

Can lead to:

- Death in 2-5 % of cases.
- Long-term effects such as hearing loss or other chronic neurologic conditions, in 15-30% of those who survive.

PNEUMONIA

Can lead to:

- Death.
- Collection of puss inside the body (empyema and abscess).
- Inflammation near to the heart (pericarditis).
- Collapse or closure of the lung (atalectasis).
- Blockage of respiration (endobronchial obstruction).

INFLAMMATION AT THE BACK OF THE TONGUE (EPIGLOTTITIS)

Occurs in 14.7 out of every 100 000 infected children (0-4 yrs).

Can lead to:

- Death.
- Respiratory failure.
- Pneumonia.
- Meningitis.
- Sepsis.

BACTERIAL SKIN INFECTION (CELLULITIS)

- Progresses rapidly.
- Involves face, head or neck.
- Requires antibiotic treatment.

Possible unwanted side-effects of anti-inflammatory therapy with dexamethasone (commonly used to treat Hib and prevent hearing loss)

TREATMENT

COMMON (occurs in more than 1%):

- Aggression.
- Anxiety.
- Irregular heartbeat.
- Swelling of fingers, hands, feet and legs.
- Troubled breathing when resting.
- Headache.
- Dizziness.
- Blurred vision.
- Other.

RARE (occurs in less than 1%):

- Cardiac arrest.
- Enlarged liver (reversible hepatomegaly).
- Blood clot inside deep veins (thromboembolism).
- Severe depression.
- Other.

Possible unwanted side-effects of antibacterial treatment with cefotaxime (commonly used to treat Hib-related infections)

TREATMENT

COMMON (occurs in more than 1%):

- Colitis, diarrhea, nausea, vomiting.
- Pseudomembranous colitis (inflammation of the colon).
- Rash, pruritus, urticaria, anaphylaxis (severe allergic reaction)
- Injection site inflammation.
- Fever.
- Dizziness.

RARE (occurs in less than 1%):

- Low count of leukocytes, thrombocytes, neutrocytes (neutropenia, thrombocytopenia, neutropenia).
- Irregular heartbeat (Arrhythmia).
- Headache.
- Encephalopathy (brain dysfunction).
- Vaginitis, moliniasis.
- Interstitial nephritis.
- Toxic epidermal necrolysis.
- Other.

¹ Hib: *Haemophilus influenzae type b* – a bacteria which can cause serious diseases like meningitis.

Sources: WHO Global Manual on Adverse Events Following Immunization. CDC, The Pink Book: Course Textbook - 12th Edition Second Printing (May 2012). Drugs.com – <http://www.drugs.com/sfx/dexamethasone-side-effects.html>.



PCV

Possible unwanted side effects of pneumococcal conjugate vaccine (PCV)

VACCINE

VERY COMMON

- Mild soreness at the place of injection for less than 3 days occurs in more than 10% of vaccinations.

UNCOMMON

- Slightly raised temperature occurs in less than 1% of vaccinations.

VERY RARE

- Serious allergic reaction occurs for 1 in 1 million vaccinations (not fatal).

Possible complications of the disease and possible side effects of its treatment

Possible complications of a pneumococcal infection (*Streptococcus pneumoniae*)

DISEASE

EAR INFECTIONS

- Repeated ear infections requiring ear tubes.

MENINGITIS

Can lead to:

- Death (1 in 10).
- Inflammation of the protective coverings of the brain and spinal cord,
- Hearing loss.
- Developmental delay.

PNEUMONIA

Can lead to:

- Death.
- Collection of puss inside body/thoracic cavity (empyema and abscess).
- Inflammation near to the heart (pericarditis).
- Collapse or closure of the lung (atelectasis).
- Blockage of respiration (endobronchial obstruction).

SEPSIS

Can lead to:

- Death (4 in 100).
- A severe blood infection that can lead to organ failure and death.

SINUS INFECTION

Most common unwanted side effects of paracetamol*

(commonly used to treat a mild case of pneumonia)

TREATMENT

COMMON (occurs in 1-9%):

- Irritation and inflammation inside the nose (rhinitis).
- Severe shortness of breath (dyspnea).
- Coughing, heaviness and tightness in the chest or wheezing (paroxysmic bronchial spasm).
- Bleeding from the gastrointestinal tract (gastrointestinal haemorrhage).
- Indigestion or upset stomach (dyspepsia).
- Abdominal pain.
- Ulcer.
- Other.

IN ADDITION

- Liver and kidney damage may occur in the case of an overdose.
- Serious complications may occur in combination with other drugs.

Possible unwanted side-effects of basic antibiotics*

(commonly used to treat a mild case of pneumonia)

TREATMENT

COMMON (occurs in 1-9%):

- Upset stomach, diarrhea, nausea, vomiting, abdominal pain.
- Impaired hearing.
- Eye problems, including drooping eyelids, blurred vision.
- Difficulty in speaking or swallowing, muscle weakness.
- Signs of liver problems.

RARE (occurs in 0.01-0.1%):

- Fast/irregular heartbeat.
- Severe dizziness.
- Fainting.

IN ADDITION

- Serious complications may occur in combination with other drugs.