

Managing pain during vaccine administration

A training module
for health workers

May 2017



How to use this training module?

*The content in this training module is intended to be **practical and adaptable** for almost any setting.*

*Prior to the training, we recommend that the programme manager/trainer **adjust the content** to allow for any local considerations.*

Learning objectives

- At the end of the module, the participant will:
 - Understand the **impact of pain** at the time of immunization and **why it is important** to be managed well
 - Outline the **role of health workers** in managing pain during vaccination
 - Describe what health workers can **say, do and act** to help manage pain
 - Identify **important considerations (caregiver involvement, breastfeeding during vaccination and multiple injections)** in pain management
- Duration: 2 hours approximately

Pain at the time of vaccination is common.

Addressing pain is important to...

- Decrease **distress** among infants, children, adults, and health care workers
- Decrease **anxiety** about vaccination
- Decrease **risk of acquiring a fear of needles (i.e. needle phobia)** that can prevent people from coming forward for healthcare because of a fear of procedures

Not adequately managing these factors can make individuals less likely to accept vaccination

Pain at the time of vaccination

- **Unpleasant physical sensation** caused by the needle penetrating skin and muscles, and the chemical properties of the vaccine
- May be described as a **poke or a sting, and some pushing**
- Perception of pain is **very variable** among individuals
- **Children often perceive needles to be more painful** than adults and describe any procedure related to needles to be one of the most frightening health related events
- **Anticipation** of pain can cause fear

*Pain during vaccination is **expected and normal**, but it can be modified. Health workers have an ethical obligation to minimize pain caused during vaccination.*

Pain **during** vaccination is **different** from pain that develops **after** vaccination

Pain that develops **AFTER** immunization may present with **redness, tenderness and/or swelling** at the injection site:

- Usually mild and not serious
- May be **associated with other common, mild adverse events following immunization (AEFI)** such as:
 - Fatigue
 - Headache
 - Nausea
 - Dizziness or fainting (most common in adolescents)

A health worker **can reduce pain *DURING*** vaccination

These factors are **modifiable by health workers** by managing...



Interaction
with health
worker



What to **say**?



Technique of
vaccine
administration



What to **do**?



Comfort during
the visit



How to **act**?

Remember...

The approach to managing pain during vaccination
varies by age/developmental stage

2 to 17
years old

Adults, elderly,
and pregnant women

Babies to
2 years
old





What to say?

- Before vaccination
- During vaccination
- After vaccination

BEFORE vaccination

- If giving vaccines to a young child, **ask caregiver if and how much the child understands** about vaccination
- Use **language appropriate** to the caregiver's and patient's **level of understanding**
- **Acknowledge and normalize** the feelings of the patient/caregiver:
 - “It is normal to feel nervous before getting a needle.”*
- **BE HONEST** that the needle may hurt, but is normal, only brief, and resolves on its own.
 - Do NOT say “It doesn't hurt” or attempt to reassure by saying “It'll be over soon.” These approaches are not helpful and may promote distrust or actually increase distress.

BEFORE vaccination (cont.)

- **Prepare the patient/caregiver** by briefly explaining to them what to expect in terms of:
 - What the **vaccine or vaccines prevent against**: *“Remember that these vaccines provide important protection against...”*
 - How you will **carry out the vaccination and take steps to minimize discomfort**: e.g. *“I will inject the vaccine as carefully and quickly as possible”*
 - Describe how the vaccination will **feel** without inferring that they may or may not happen: *“You may feel a poke or pinch and some pushing for a few seconds.”*
- **If aiming to provide distraction, offer limited but realistic choices** and let the child/ patient choose:
“Would you like to sing a song or look at this book while I give you the vaccine?”

DURING vaccination

- If patient is an **infant**, ask the caregiver to hold the infant in a position that is comfortable for both of them:
 - Encourage breastfeeding at the time of vaccination (if appropriate) as it also helps with relaxation
- If a patient is an **older child or an adult**, ask them to **relax their arm** (they can rest their hand on the upper leg if sitting)
- Give neutral **verbal signal** before administering the needle:
 - “I’m going to count 3,2,1”*
 - “Here I go!”*
- If caregiver is holding the child, a **request to stay still is important** while administering needle

AFTER vaccination

- **Smile, encourage and praise** patient for their bravery:
“Well done, you stayed very calm / very still!”
- **Ask for feedback** and use that to plan for next time:
“How did that feel?”
- Provide instructions on **aftercare**:
*“Make sure to move your arm around.
Keeping it too still may make your arm hurt more”*
- Inform about **signs and symptoms** they should **watch out for**,
i.e. adverse events following immunization (AEFI)
*“It is normal to see some redness and swelling at the site of injection, and this
should go away after a few days”*



ROLE PLAYING (10-15 min)

5 min for role playing, 5 – 10 min for discussion with group

In groups of 2 or more

- **Person 1:** Act as a **vaccine hesitant individual who is fearful about pain from needles during vaccination**
- **Person 2:** Act as the **health worker** applying skills discussed previously before vaccinating the patient
- **Other(s): Observers**

Practice the interaction with the aim of reassuring the hesitant individual



What to do?

- Positioning of the patient
- Distraction / active management
- Skilful vaccination technique

Positioning of the patient

A comfortable position **reduces anxiety** in the patient and the caregiver, and **allows for more control** while administering vaccines. If the infant is held by the caregiver, it also helps the **infant to feel secure and relaxed.**

Babies to 2 years old



- Infants – Caregiver can hold the infant **skin to skin against your chest**
- Young children – Have them **sit on caregivers' lap** with caregivers' arm over the child's arm.

If injecting the upper thigh:



If injecting the arm:



Positioning of the patient (cont.)

2 to 17 years old



- Younger children: Sitting on **caregivers' lap**
- Sitting up in a **chair**
- **Lying down** if they have a history of fainting



Adults, elderly,
and pregnant
women



- **Sitting up** in a chair
- **Lying down** if they have a history of fainting

Distraction / Active management

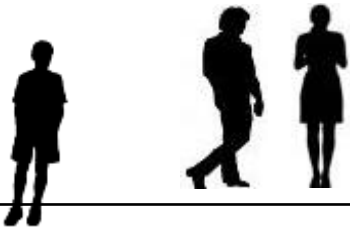
This varies by the individual and setting. Some may prefer to watch the procedure as it is their style of coping.

Babies to 2 years old



- **Breastfeed** during vaccination (if appropriate) as it helps the baby to be well positioned and relaxed during injection, and reduces pain
- **Toys or books**, if available

2 to 17 years old and Adults



- **Verbal distraction**, e.g., talking, singing
- **Toys, books, music, videos, if available**
- If history of fainting, ask patient to **tense abdominal and leg muscles** (do NOT tense arm that are vaccinating as this can increase pain)
- **Breathing**. Ask adults to slightly cough or take deep breath in and hold during vaccination

Skilful vaccination technique

Good technique helps to minimize pain.

It is important to be safe but also quick when vaccinating.

- **Locate the injection site** where the vaccine will be administered

UPPER THIGH (right/left side)

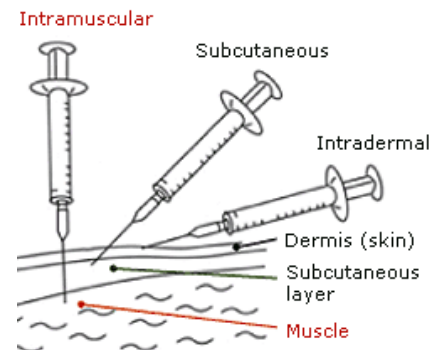
Preferred for infants



UPPER SHOULDER (right/left side)



- **Angle the needle** according to type of vaccine, i.e. what level the vaccination should be administered



Skilful vaccination technique (cont.)

- **Avoid movement of the needle** once penetrated the skin and muscle. Be safe but quick.
- **Do NOT aspirate**, i.e. do not pull back on the syringe after inserting in the injection site as it increases the pain:
 - There are no large blood vessels at the recommended injection sites or injection into a large vessel, so no risk of major bleeding.
 - Very minor bleeding at the site after injection is not a concern.
- **Retain pressure** on skin around the injection site with thumb and index finger. Beware of applying excessive pressure or rubbing the injection site after injection, as this can ease pain.





How to act?

- **Calm, prepared and confident**
 - **Respectful**

Be calm, prepared, and confident

Being calm, prepared and confident puts the patient/caregiver at ease

- **Do NOT preload syringes** beforehand as it increases the risk of contamination and immunization programme error.
- **Keep supplies nearby** (e.g. syringes, vaccines, tray, cotton ball or gauze etc.), so doses can be prepared quickly.
- These strategies **combined with skilful injection techniques** will allow you to feel and demonstrate confidence to caregivers and patients.

Be calm, prepared, and confident (cont.)

Prior to vaccination, prepare by knowing what vaccines you will administer, and administer them in a manner that reduces pain. Use the following proven strategies:

- ***Administer the least painful vaccine first (most painful last)***
- If a patient is to receive oral rotavirus vaccine in addition to injectable vaccines, ***give the oral rotavirus vaccine first*** as it contains sucrose which can decrease pain from the injectable vaccines that follow

Be respectful

*A respectful and professional demeanour can demonstrate a health care provider is **positive, caring and approachable.***

- Patients and caregivers perceive health workers as a trusted source of information
- Respectful interactions include:
 - Allowing the patient/caregiver to **express** their concerns
 - Patiently **listening**
 - Trying to **understand** and **acknowledging** concerns
 - **Offering options and working together** to address concerns
 - **Honouring** their decision

Important considerations

- Involving caregivers
- Breastfeeding during vaccination
 - Multiple injections

Involving caregivers

- When vaccinating children, **caregivers should be involved** as this respects the preferences of children and parents can assist in efforts to minimize child distress.
- Engage them in **positioning and distracting the infant or child.**
- If appropriate and feasible, mothers can **breastfeed** infants during vaccination as this facilitates positioning and decreases pain.

Breastfeeding during vaccination

- If appropriate and feasible, encourage the breastfeeding mother to breastfeed **before and during** immunization
- Try to ensure there is a **good latch** before proceeding with immunization for optimal effects
- Vaccinating during breastfeeding does NOT increase the risk of aspiration



Multiple injections

*Pain is perceived as a **greater barrier** when multiple injections are administered in the same visit.*

IN ADDITION to the strategies highlighted so far,
pay special consideration to...

What to say	<ul style="list-style-type: none">• Acknowledge concerns about multiple injections and provide reassurance for pain management• Highlight advantages of multiple injections: early protection and fewer vaccination visits
What to do	<ul style="list-style-type: none">• Apply one or more of the pain management techniques, as available and appropriate• Give the oral vaccine(s) first and most painful injectable vaccine last• Position the patient such that sites for multiple vaccines are accessible• If giving multiple injections in the same area, separate them as far apart as possible (preferable 2.5 cm) or give them in the other arm/leg

Multiple injections (cont.)

How to act

Being prepared is especially important as it presents the health worker as both calm and confident. In particular:

- Know what vaccines you are giving
- Obtain all supplies needed for the multiple vaccines
- Seek assistance from a colleague in preparing vaccines, if available

Commonly asked questions on **multiple injections and pain**

- ***Will vaccines be as effective when given alone vs. together?***

Yes, an infant's immune system is ready and able to respond to multiple vaccines. Research has shown these vaccines are equally as effective when given at the same time or alone. Waiting for another visit puts infants at risk of exposure to the disease. Without the protection of vaccination, the infant is not prepared to fight the infection and may get sick and have serious complications from the infection.

- ***Is there a greater chance of having adverse effects with multiple injections?***

The vaccines that are given at the same visit have all been tested to give at the same time without a higher risk of adverse effects observed. It is safe to give them at the same time.

Commonly asked questions on multiple injections and pain (cont.)

- ***Can I come tomorrow for the next vaccine?***

We recommend that you/your child get all vaccines in this visit, if possible. Sometimes, things happen and people are not able to return and then children are not protected from the disease. Also, I wouldn't want you to experience the inconvenience of having to come back for one more vaccine that we can give now.

- ***What if blood comes out of injection site?***

Noticing a small amount of blood coming out after an intermuscular injection is normal. It is not a sign of a problem. You can apply gentle pressure if you wish.

What happens when pain leads to **vaccine hesitancy**?

- Be **patient**. Allow the patient to voice their concerns and fears. Acknowledge them.
- Follow up with caring questions to understand any underlying concern(s).
- Do **not be directive or argumentative** in your response.
- Engage in a conversation that would allow you to **assist the patient** in exploring their own motivations and **allow you to understand** how you can help.
- Be **reassuring** and **present options** for managing pain with immunization.

What happens when pain leads to **refusal of vaccines?**

If there is refusal of vaccination because of concerns around pain:

- Inform the patient that **there are options to manage pain** and you are able to plan a way to minimize pain so the vaccination can go ahead.
- **Book a future visit** for more conversation and hopefully immunization. If patient has serious needle phobia, you may need expert advice.

When applying this guidance to your setting...

*ADAPT the suggestions depending on
availability of resources, time and
specific setting*

Summary

- Pain at the time of immunization is a **very common concern** leading to fear, anxiety and possible hesitancy.
- It is important to **acknowledge** the concerns of the patient or caregiver regarding pain and respond to it.
- **Health workers have an important role to play** in addressing fears and increasing confidence in vaccination.
- When vaccinating children, **caregivers should be involved** to fulfil the wishes of children and assist with implementing good management pain.
- Special pain management considerations need to be made when administering multiple injections.

SUMMARY OVERVIEW

What to say	What to do	How to act
<p>Before vaccination</p> <ul style="list-style-type: none"> • Involve caregiver/patient • Ask about understanding • Acknowledge feelings • Provide realistic choices • Be honest about pain • Describe pain 	<p>Positioning of the patient</p> <ul style="list-style-type: none"> • Skin to skin • Sitting on caregivers' lap • Sitting on chair • Lying down if history of fainting 	<p>Calm, prepared, confident</p> <ul style="list-style-type: none"> • Know what vaccines to be administered • Prepare supplies • Locate the injection site
<p>During vaccination</p> <ul style="list-style-type: none"> • Ask to relax arm • Provide verbal signal • Use verbal distraction • Encourage breastfeeding, if appropriate 	<p>Distraction/ active management</p> <ul style="list-style-type: none"> • Toys, verbal, music, videos • Holding deep breath • Squeezing a ball 	<p>Respectful</p> <ul style="list-style-type: none"> • Allow expression of concerns • Listen patiently • Understand and acknowledge fears • Honour decision
<p>After vaccination</p> <ul style="list-style-type: none"> • Smile, encourage, praise • Provide instructions on aftercare • Inform about AEFI 	<p>Good technique</p> <ul style="list-style-type: none"> • Angle needle according to site • Avoid movement of needle • Do not aspirate • Retain pressure with thumb and index finger 	<p><i>See the Appendix for a summary of evidence based strategies to decrease pain during vaccination.</i></p>

Thank you for your attention!

Appendix

Summary of evidence-based strategies
to decrease pain during vaccination

Evidence based strategies to decrease pain during immunization (1)

Recommended	NOT Recommended
Globally – All Ages	
<ul style="list-style-type: none"> • No aspiration • Administer vaccines in order of increasing painfulness • Proper positioning • Use of neutral words; avoiding language that increases anxiety and/or promotes distrust 	<p><u>Effective but not practical</u></p> <ul style="list-style-type: none"> • Topical anaesthetic <p><u>Unknown effectiveness:</u></p> <ul style="list-style-type: none"> • Changing the needle • Looking at vs. away from needle • Aspects of the setting: privacy, environment <p><u>Ineffective:</u></p> <ul style="list-style-type: none"> • Manual tactile stimulation <p><u>Ineffective with potential harms:</u></p> <ul style="list-style-type: none"> • Oral analgesics • Warming the vaccine
Infants	
<ul style="list-style-type: none"> • Caregiver presence • Breastfeeding during immunization, if appropriate and feasible 	<p><u>Effective but not practical:</u></p> <ul style="list-style-type: none"> • Pacifiers and finger/thumb sucking <p><u>Equivocal effectiveness and impractical:</u></p> <ul style="list-style-type: none"> • Distraction <p><u>Ineffective:</u></p> <ul style="list-style-type: none"> • Vapocoolants (“cold sprays”)

Evidence based strategies to decrease pain during immunization (2)

Children	
<ul style="list-style-type: none"> Caregiver presence <p><u>Conditional recommendations:</u></p> <p>Distraction (e.g. Music)</p>	<p><u>Ineffective:</u></p> <ul style="list-style-type: none"> <u>Vapocoolants</u> (a “cold spray”)
Adolescents and Adults	
<p><u>Conditional recommendations:</u></p> <ul style="list-style-type: none"> Distraction (no evidence that effective in adolescents) e.g. Breathing interventions (cough, breath-hold) 	<p><u>Equivocal effectiveness and not practical:</u></p> <ul style="list-style-type: none"> Vapocoolants (no evidence that effective in adolescents) <p><u>Ineffective:</u></p> <ul style="list-style-type: none"> Visual distraction Music distraction

References:

- Position Paper on reducing pain at the time of vaccination (WHO, Sept. 2015) <http://www.who.int/wer/2015/wer9039.pdf>
- Taddio, A., Appleton, M., Bortolussi, R., Chambers, C., Dubey, V., Halperin, S., ... & Midmer, D. (2010). Reducing the pain of childhood vaccination: an evidence-based clinical practice guideline. *Canadian Medical Association Journal*, 182(18), E843-E855.