

Vaccine Administration



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Objectives

Be more informed on :

Pre vaccination discussion with
clients/parents on;

Current schedule

Contraindications/precautions

Prescription and consent

Preparation and administration of vaccines

Post vaccination; advice, side effects, and
documentation

Primary Vaccination Schedule

Age	Immunisation	Comment
Birth	BCG	1 injection
2 months	DTaP/Hib/IPV/Hep B + PCV	2 injections
4 months	DTaP/Hib/IPV/Hep B + Men C	2 injections
6 months	DTaP/Hib/IPV/Hep B + PCV + Men C	2 injections
12 months	MMR + PCV	2 injections
13 months	Hib + Men C	2 injections
4-5 years	DTaP/IPV + MMR	2 injections

National Guidelines

- "The National Immunisation Guidelines of Ireland" 2013 (I.G.2013)
<http://www.immunisation.ie/en/HealthcareProfessionals/ImmunisationGuidelines/>
- Defaulters schedule ;
http://www.immunisation.ie/en/HealthcareProfessionals/Guidelinesforlateentrants/PDFFile_9494_en.pdf
- "Practical guide to Immunisation"
<http://www.immunisation.ie/en/HealthcareProfessionals/TrainingManual/>

Information leaflets and other literature can be ordered at [health info.ie](http://healthinfo.ie)

- Booklets "Your child's Immunisation , a parents guide" , use full information booklet .

- Translation leaflets
<http://www.immunisation.ie/en/LeafletTranslations/>

Prescription

- Vaccine course must be ***prescribed*** by a doctor. This can be done at the six or two week check.
- Prescription should be renewed after 6 months if delay in vaccine appointments
- A doctor **must** be in the premises while a vaccine is being administered.
- Scope of practice
(<http://www.nursingboard.ie/Scope>)
- Training in BLS and anaphylaxis every 2 years.

Contraindications

- **Anaphylaxis** to **any vaccine** or to one of its **constituents** or a constituent of the syringe, syringe cap or vial (e.g. Latex anaphylaxis).
- Live vaccines in **pregnancy** and **some immuno-compromising** conditions due to disease or treatment. (Chapter 3 , I.G.2013)

Precaution

- Acute severe febrile illness , defer.
- Severe local reaction. Can be referred to hospital : vaccines given in controlled environment.
- Immunoglobulin administration may impair the efficacy of MMR and varicella vaccines.
- Topical immunomodulators (Tacrolimus e.g. Protopic etc.) Concern for potential systemic absorption > immune suppression > caution live vaccines in this (chapter 3, I.G. 2013).

Conditions that are not contraindications

- Family history of adverse reaction following immunisation.
- Minor infections with fever $<38^{\circ}\text{C}$.
- Family or personal history of convulsions.
- History of vaccine-preventable infection.
- Prematurity or low birth weight (defer Hepatitis B vaccine in those under 2kg until 1 month of age unless there is a maternal history of HBV infection).

Not contraindications cont.

- Stable neurological conditions e.g. cerebral palsy
- Recent contact with an infectious disease.
- Low dose methotrexate (specific doses chapter 2, I.G.2013)
- Asthma, eczema, hay fever, or food allergy
- Antibiotic therapy
- Child's mother is pregnant

Not contraindications cont.

- ◉ Child being breastfed (unless mum on immune modulators)
- ◉ History of Jaundice
- ◉ Recent or imminent surgery or general anaesthesia
- ◉ Non-anaphylactic allergy is neither a contraindication nor a precaution to vaccination
- ◉ Corticosteroid therapy and Immunisation of specific groups (chapter 2, I.G.2013)

MMR

- Egg allergy/anaphylaxis is ***not*** a contraindication
- Allergy to egg, including anaphylaxis following egg
- Currently-used measles, mumps and rubella vaccines have small amounts of egg cross-reacting proteins
- Recent data suggests anaphylaxis following MMR is not associated with hypersensitivity to egg antigens but to other vaccine components (Gelatin or Neomycin)

Vaccine Spacing

- Live vaccines (MMR, Varicella and BCG) can give at same time or a 4 week interval between doses (exception rotavirus)
- 2 killed antigens give together or at any interval
- Killed and live antigens give together and at any interval

Consent

- An informed consent to be obtained by parent or guardian
- Discussion, prior to consent; about the vaccines, diseases to be vaccinated against, side effects and possible reactions to vaccines
- Allowing time to answer questions and allay fears

Possible Side effects

- Anaphylaxis –rare (1 in 2 million)
- Local reactions: pain, palpable lump, erythema
- General: fever, irritability due to a headache, G.I. symptoms
- MMR , 'Mini Measles' may occur 6-12 days (febrile convulsions 1 in 1,000)

Pain reduction

- ◉ Administering glucose or sucrose solutions of 24-30% ½ teasp. shown to reduce crying in infants or breast feeding
- ◉ Distraction, age appropriate
- ◉ Relaxed atmosphere
- ◉ Simultaneous administration of vaccines by two vaccinators insufficient evidence for or against this practice

Antipyretics

- Family history of seizures. Antipyretic drugs do not prevent febrile convulsions in at-risk children (Exception Meningitis B vaccine)
- Prophylactic antipyretics should not be recommended at vaccination (Hib DTaP)
- Advise not to over wrap, keep room cool, extra fluids

(Paracetamol or ibuprofen if fever > 39.5°C)

Advice Post Vaccine

- Child to stay in surgery for 15 minutes post vaccination, observe for immediate reaction.
- Give tear sheet /post vaccine advice sheet (available to order at healthinfo.ie)
- Advise to re pyrexia and pain how to manage.
- Monitor site for redness and swelling.
- Contact surgery if concerns.
- Remember to give date of next vaccine.

Preparation of vaccines

- Before Administration be familiar with Summaries of Product Characteristics (SPC) for each vaccine
- Examine colour and composition
- Freeze dried vaccines come with diluent
- Must be used within specific time of constitution
- It is the correct vaccine and within expiry date

Preparation of vaccines cont.

- Vaccines should be prepared according to the SPC.
- Some vaccines (e.g. 6 in 1, Men C, MMR) require reconstitution.
- Separate vaccines must not be mixed together and must be administered in different sites.

Drawing up Vaccines

- Care if air in pre-filled syringe, draw back slightly on the plunger to ensure no vaccine is expelled along with the air and then expel the air through the needle, until the hub is filled with vaccine.
- Do not prime the needle with any of the vaccine, as this may cause an increased local reaction.

Administration of Vaccine



5 Rights of Medication Administration

- Right Drug
- Right Patient
- Right Dose
- Right Route
- Right Time

Administration of vaccine

- Check vaccine with other health professional if alone and competent not necessary
- It can be checked with a parent
- Injecting the most painful vaccine (e.g. MMR, PCV, or HPV) last when multiple injections are being administered may also decrease the pain of injections.

Patient's age	Site	Needle size
Infants (Birth to 12 months of age)	Vastus lateralis muscle in anterolateral aspect of middle or upper thigh	25mm needle 23- 25 gauge (use a 16 mm length needle <2.5 kgs)
Toddlers (12 to 36 months of age)	Vastus lateralis muscle preferred until deltoid muscle has developed adequate mass.	25 mm needle 23-25 gauge
Toddlers (>36 months of age). Children and adults	Densest portion of deltoid muscle	25 mm needle 23 -25 gauge (40 mm needle in females >90 kg, males >118 kg)

Administration sites For I.M.

IM site for toddlers and Infants under 36 months of age

Vastus lateralis
(shaded area)



IM site for older toddlers, children and adults

Deltoid muscle
(shaded area)

IM injection site



How to Hold a child

- Parent embraces child and controls all four limbs
- Avoid 'holding down' or over powering the child
- Helps to steady and control the limb of the injection site

Cuddle Hold

- One of the child's arms embraces parent's back and is held under parent's arm
- The other arm is controlled by the parent's arm and hand.
- One hand can be used for smaller babies
- Both legs are anchored with the child's feet held firmly between the parent's thighs, and controlled by the parent's other arm.



Hold for Older Child

- The child is held on the carer's lap or stands in front of the seated parent.
- Parent's arms embrace the child during the process.
- Both legs are firmly between parent's legs.





Pre administration

- Hand washing and sharps management according to “Infection Prevention and Control for Primary Care in Ireland” A guide for general practice.(H.P.S.C.)
- No alcohol wipe, can sting and can affect live vaccines.
- Soap and water if skin visibly dirty
- Gloves only required if break in skin of vaccinator or recipient

Administration of vaccine

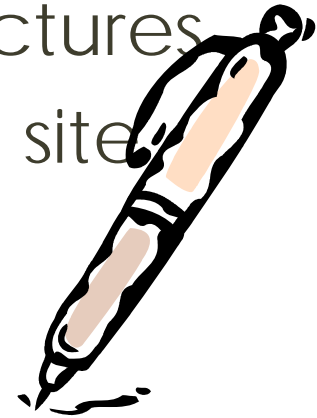
- Insert needle at a 90° angle to the skin. The tissue around the injection site may be bunched up in young infants.
- Retain pressure on skin around injection site with thumb and index finger while needle is inserted.
- It is not necessary to aspirate before injecting, as there are no large blood vessels at the preferred injection sites.
- Inject the vaccine into the muscle over 1-2 seconds.

Administration of vaccine cont.

- Rapidly withdraw the needle and apply light pressure to the injection site for several seconds with a dry cotton ball or gauze. Two injections given in the same limb should be separated by at least 2.5 cm.
- If some of the vaccine leaks out of the syringe during administration this vaccine would not be a valid dose. A further dose of the vaccine should be administered at a separate site at the same visit

Documentation

- Vaccine name, brand and manufactures
- Batch Number (on box), Expiry Date, site given.
- Vaccinator name
- Document in patient chart
- Mothers name and DOB for HSE record
- Date next vaccines due.
- Fill out passport for parents.



Observe for Anaphylaxis

Signs and symptoms:

- Flushing, itching, stridor, wheeze, dyspnoea, oedema of face, tongue, larynx, hypotension, tachycardia.
- Can occur 5-30 minutes post injection
- Anaphylaxis pack (including First line drugs- epinephrine 1:1000, hydrocortisone 4mg/kg, Chlorphenamine 0.25 mg/kg < 1 year
- Oxygen is a must if administering vaccines/ o2 rebreather mask
- Ambulance always called even if recovered

Defaulters

- Vaccines schedules can be interrupted for many reasons. If any doubt it is safer to give the vaccine rather than omit it.
- A combination of vaccines can be given to “catch up, as per the defaulter schedule in the guidelines.

http://www.immunisation.ie/en/HealthcareProfessionals/Guidelinesforlateentrants/PDFFile_94_94_en.pdf

Returns/Recall

- All childhood vaccines free
- Payment to GP's from HSE
- Vaccine returns to HSE on a monthly basis
- Mobile phone texting /letters to remind defaulters at least 2 recall attempts
- PHN for Immunisation can be contacted
- HSE send reminder letters

Finally

- Audit and review of current practices
- Protocols drawn up adhering to current guidelines
- Know your guidelines and watch for updates
- CPR /anaphylaxis training should be undertaken if involved in Immunisation(2 yearly)

Resources

- www.immunisation.ie
- Immunisation Guidelines for Ireland 2013
<http://www.immunisation.ie/en/HealthcareProfessionals/ImmunisationGuidelines/>
- www.dohc.ie
- Australian Government (2013). The Australian Immunisation Handbook.
<http://www.immunise.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home>
- An Bord Altranais 2007, Guidance to Nurses and Midwives on Medication Management
<http://www.nursingboard.ie>
- <http://www.hpsc.ie/A-Z/MicrobiologyAntimicrobialResistance/InfectionControlandHAI/Guidelines/File,14612,en.pdf>

Thank you

