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Administration of vaccines

2017

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Learning Objectives

- List all stages of the immunisation process
- Locate correct sites for vaccination
- Describe techniques used to administer vaccines
- Describe interventions which can help to create a positive immunisation experience

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Prior to administration check ..

- You are up to date with your anaphylaxis training and adrenaline is immediately available
- there are no contraindications
- the vaccinee or carer is fully informed about the vaccine(s) to be given and understands the vaccination procedure
- possible adverse reactions (AEFI) and how to treat them has been explained

From online green book chapter 4
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/147915/Green-Book-Chapter-4.pdf

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Preparation of vaccines.. follow SPC

- Ensure cold chain has been maintained
- Reconstitute and drawn up when required
- Checked right product and correct dose
- Check expiry date
- Examine colour and composition of the vaccine
- Reconstitute with the correct volume of diluent,
- Used within the recommended period after reconstitution
- Draw up diluent using an appropriately sized syringe and 21G needle (green) and add slowly to the vaccine to avoid frothing.
- Change needle after drawing up
- Ensure needle attached securely to pre-filled syringe / syringe

From online green book chapter 4
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/147915/Green-Book-Chapter-4.pdf

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1

Correct person
No Contraindications

2

Consent
Which vaccine
Expected AEFI

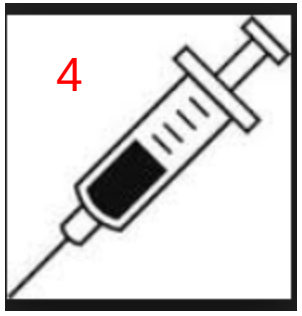
For all vaccines to be given

3

Infanrix IPV Hib*

Correct vaccine/dose
Cold chain maintained
Expiry date

4



Prepare/draw up as per SPC
Check appearance

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Injectable vaccines

How are these given?

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Injection technique

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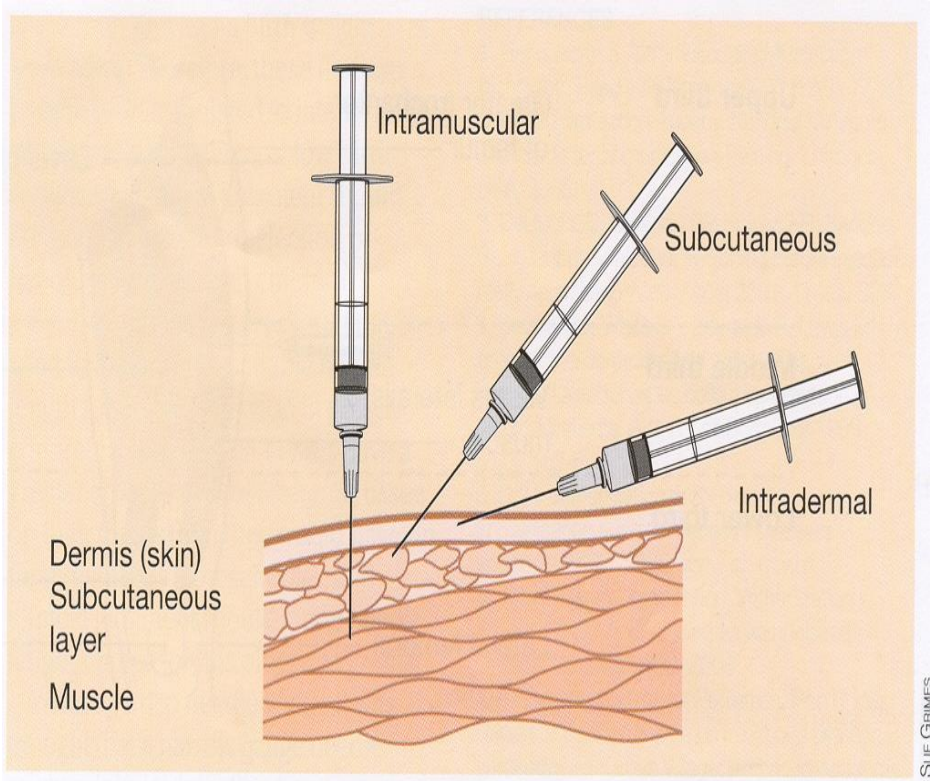
- Most vaccines IM
- Optimises immunological benefit
- Minimises local side effects
- Poor drainage channels in fat, retains injected material for longer
- SC tissue more susceptible to adverse effects of injection
- Only clean visibly dirty skin
- 2.5 cm between vaccines given in the same limb
- Avoid BCG site for at least 3 months due to risk of regional lymphadenitis



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Injection techniques
IM versus SC

Intramuscular

- Skin stretched flat between thumb and index finger
- Optimize insertion of the needle deep into the muscle
- Needle inserted at 90°
- Needle length long enough to reach muscle
- No need to aspirate

Subcutaneous

- Skin is bunched/pinched up
- Ensures insertion into the fatty tissue just below the skin
- Needle inserted at a 45°
- Needle length shorter to reduce chance of insertion into the muscle
- Used for those with bleeding disorders
- Zostavax (Shingles) use to be given SC now IM from Feb 2016

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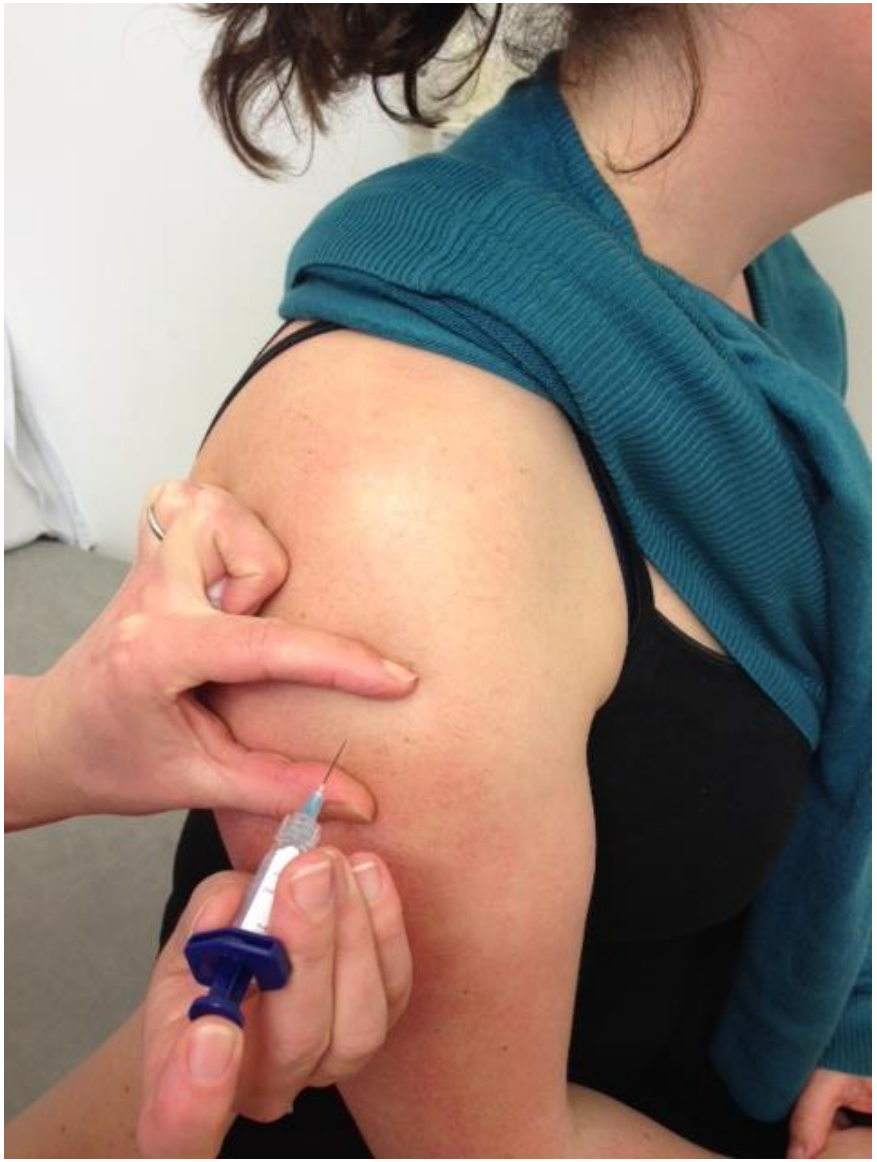
IM injection technique



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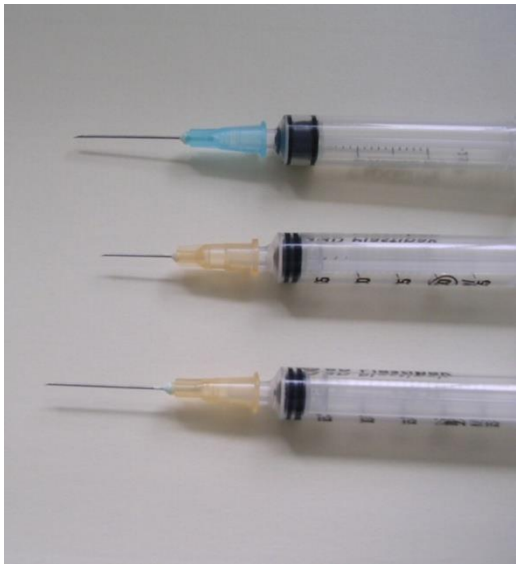
Needle size in infants

L Diggle et al (2006) BMJ 333.571

- Infants immunised at 2, 3 & 4 months of age
  - 23G 25mm (standard blue)
  - 25G 16mm (standard orange)
  - 25G 25 mm
- Longer needle (25mm) =

  less local reaction because ensures vaccine given IM
- Gauge (23G or 25G) – no difference for local reactions
- Evidence favours the **blue long**, 23G, 25 mm (1 inch) needle achieving comparable, if not superior immunogenicity



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Best Practice

Adults, children and infants	25 mm, 23G (blue) Or 25mm, 25G (long orange)
Larger adults	Consider 38mm, 21G (green)
Pre-term infants	Consider 16mm,25G (orange)

If need to give two injections in to the same limb give at least 2.5 cm apart

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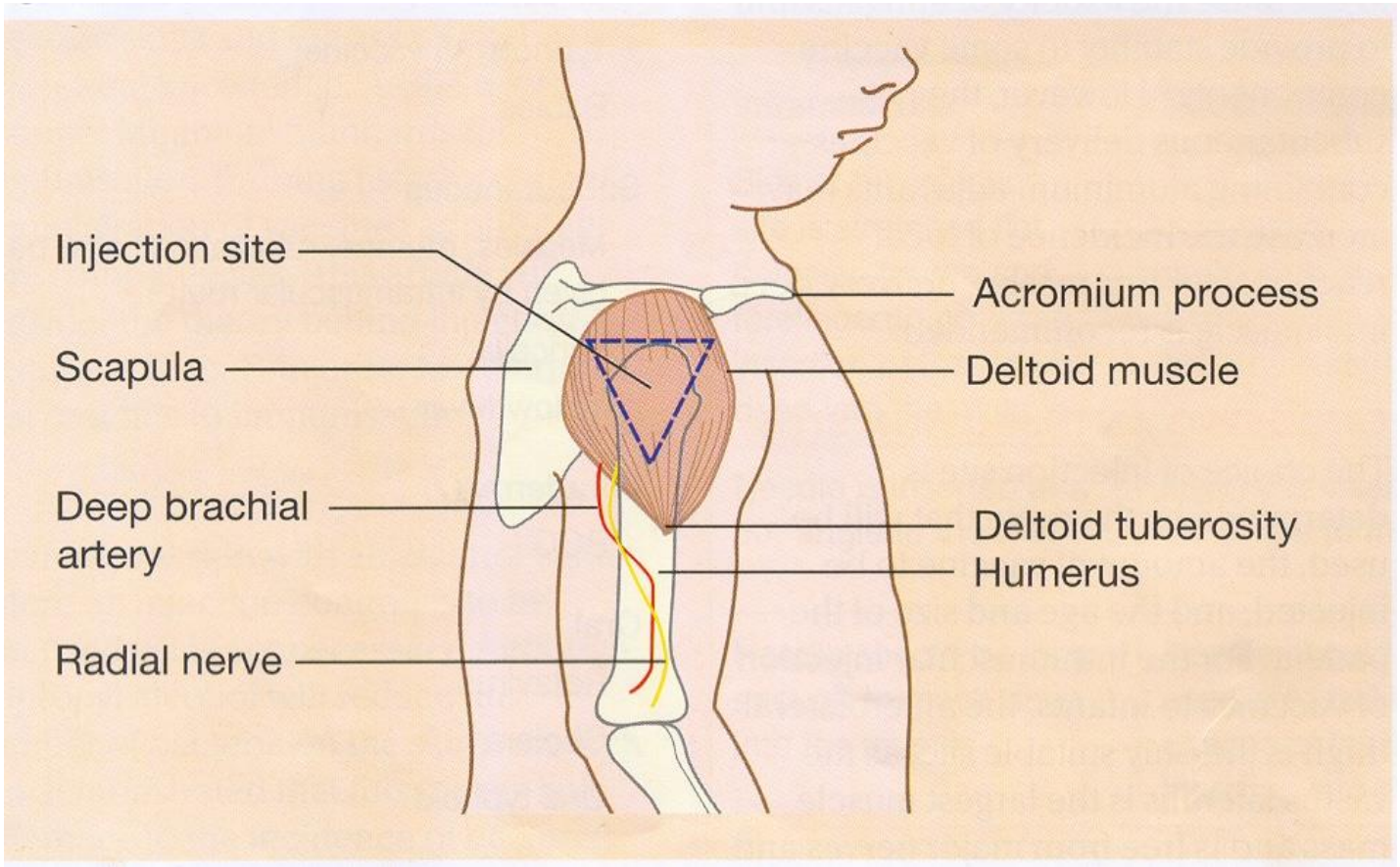
>12 months of age



Deltoid Muscle

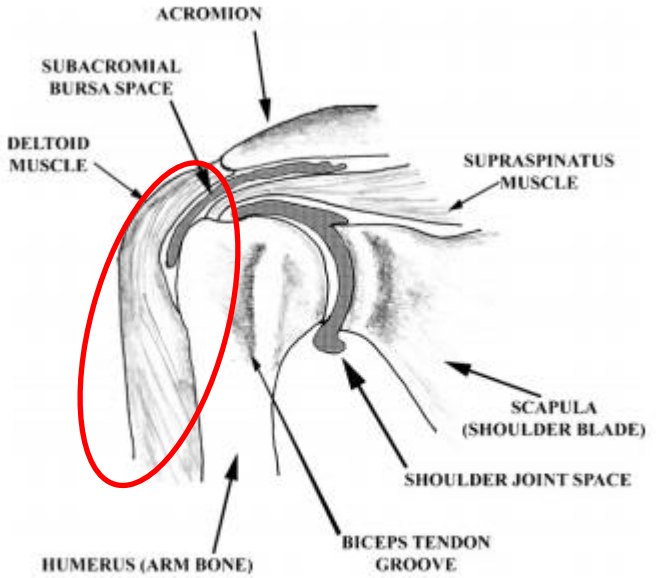


Fig. 1. Anatomy of the shoulder girdle. The relationships of the subdeltoid/subacromial bursa and shoulder joint space to the supraspinatus tendon and to the greater tuberosity on which it inserts.

S. Atanasoff et al. / Vaccine 28 (2010) 8049–8052

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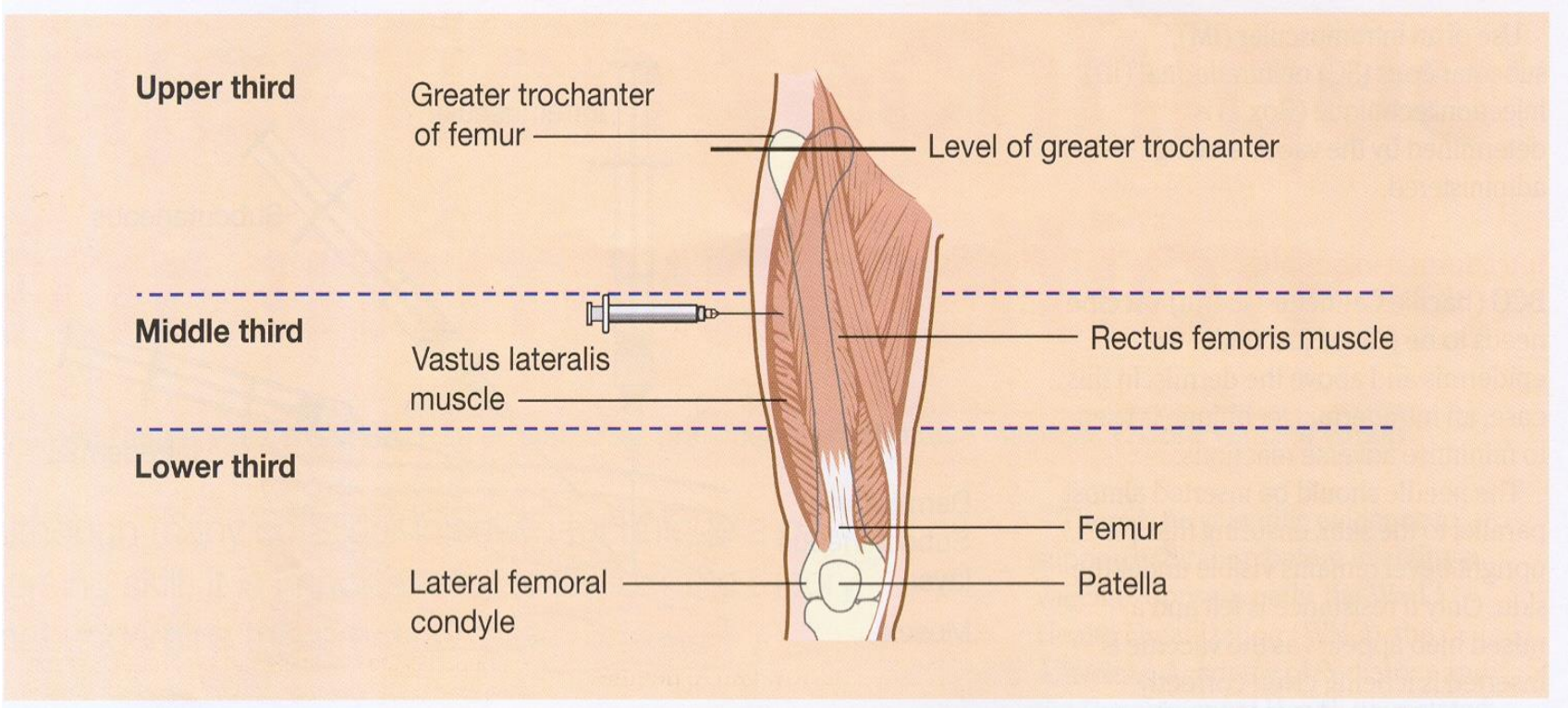
< 12 months



Anteriolateral Thigh Muscle

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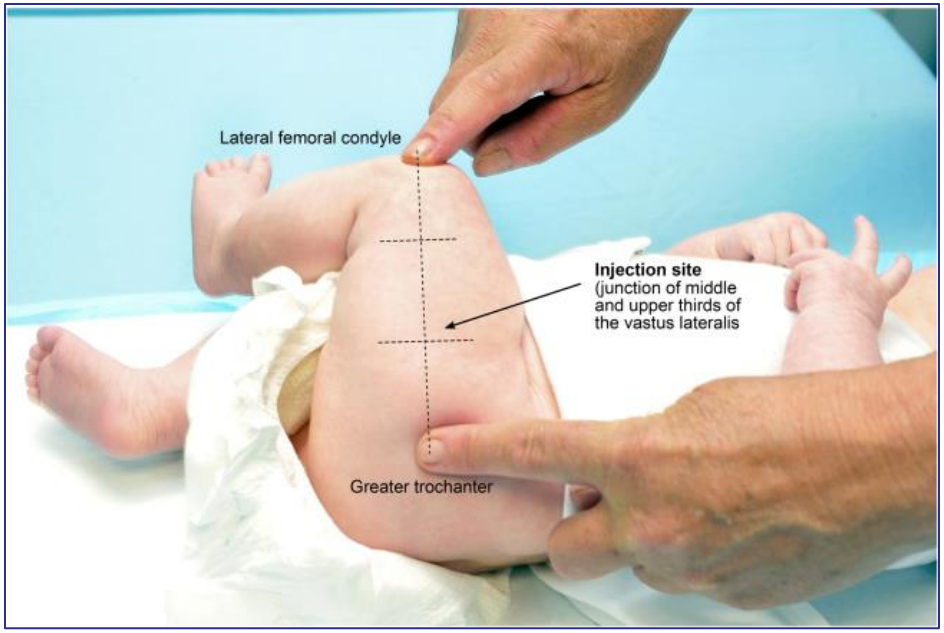

PLEASE DO NOT VACCINATE BABIES LYING DOWN!

http://immunisation.book.health.govt.nz/2+Processes+for+safe+immunisation/2.3+Vaccine+administration

VACCSline

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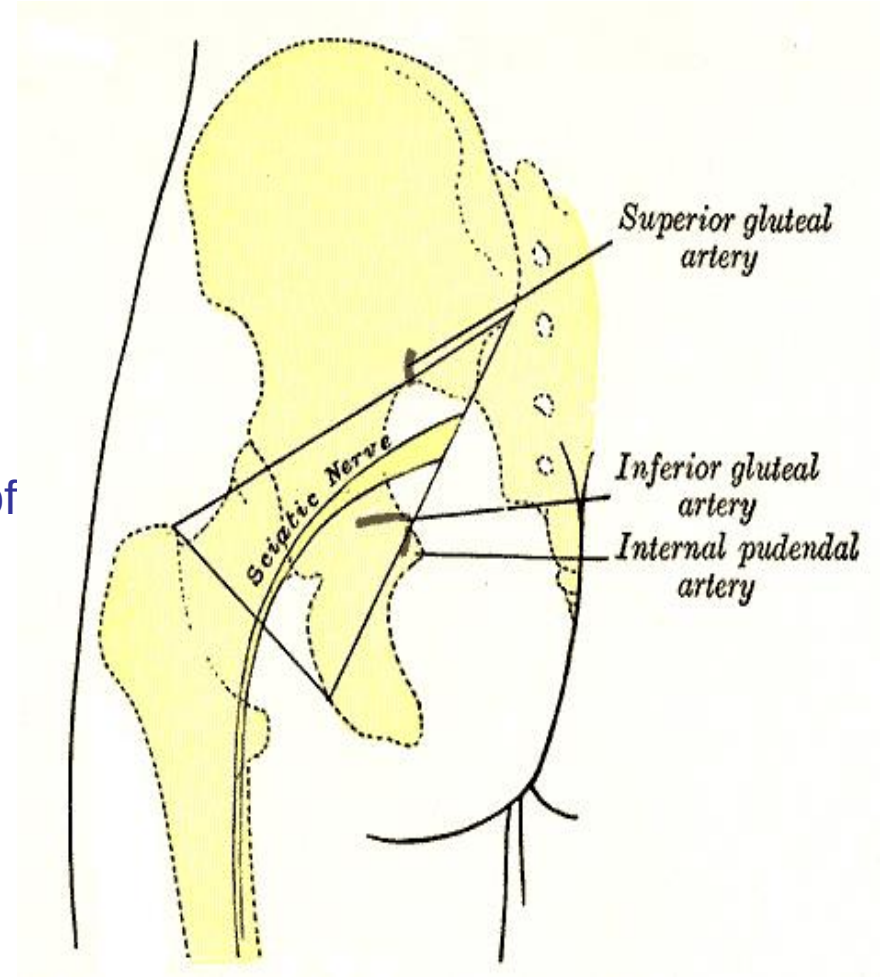
Why not use the buttock?

- Infants: sciatic nerve not fixed
- Adults: thicker layer of S/C fat – would need a 1½ inch needle
- Evidence of reduced immunogenicity of Hep B[1] & Rabies[2]



1. MMWR (1985)
2. Shill et al (1987)

How to hold an infant

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Immunisation positions for pre schooler or older child

Cuddle position

Straddle position

Reference: Australian Immunisation Handbook 2013

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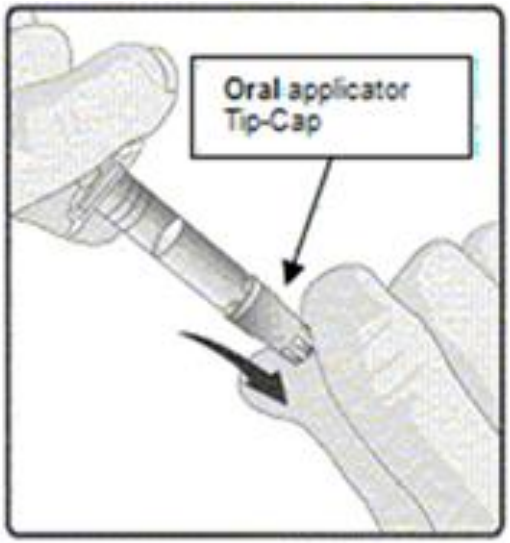
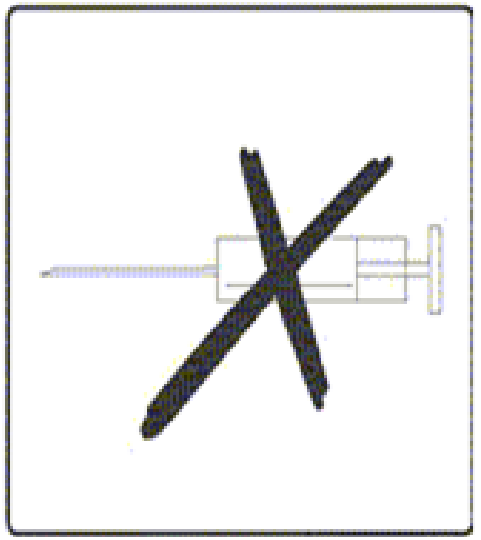
Administration of Rotarix®





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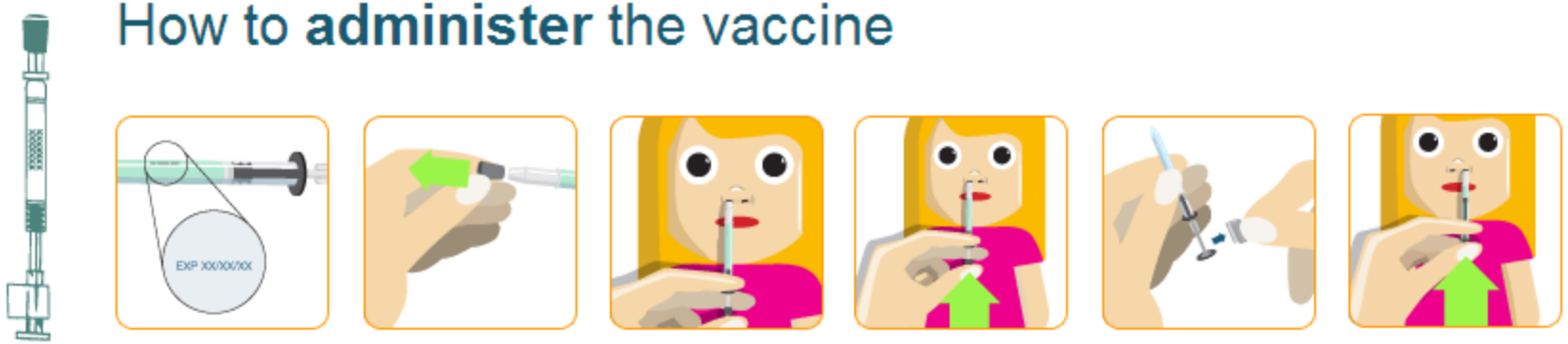
Facts about
Fluenz



http://www.nasalspraylearning.co.uk/18-0.html

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Live and non live vaccine intervals

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New guidance published 2nd September 2014, updated April 2015:

https://www.gov.uk/government/publications/revised-recommendations-for-administering-more-than-1-live-vaccine

Vaccine combinations	Recommendations
Yellow Fever and MMR	A four week minimum interval period should be observed between the administration of these two vaccines. Yellow Fever and MMR should **not** be administered on the same day.
Varicella (and zoster) vaccine and MMR	If these vaccines are not administered on the same day, then a four week minimum interval should be observed between vaccines.
Tuberculin skin testing (Mantoux) and MMR	If a tuberculin skin test has already been initiated, then MMR should be delayed until the skin test has been read unless protection against measles is required urgently. If a child has had a recent MMR, and requires a tuberculin test, then a four week interval should be observed.
All currently used live vaccines (BCG, rotavirus, live attenuated influenza vaccine (LAIV), oral typhoid vaccine, yellow fever, varicella, zoster and MMR) and tuberculin (Mantoux) skin testing.	Apart from those combinations listed above, these live vaccines can be administered at any time before or after each other. This includes tuberculin (mantoux) skin testing.

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Vaccine errors

- Vaccine loss/spillage
- Administering the wrong vaccine/expired vaccine

What actions would you take?

Vaccine errors should be reported to NHS England quality team:england.southcentralqualityteam@nhs.net

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Positive immunisation experience

distraction

1, 2, 3...

Talk
Be calm

Encourage teenagers/ adults to relax their muscle

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Recording - What information

- vaccine name, product name, batch number and expiry date
- dose administered
- site(s) used – including, clear description of which injection was administered in each site, especially where two injections were administered in the same limb
- date immunisation(s) were given
- name and signature of vaccinator.

From online green book chapter 4
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/147915/Green-Book-Chapter-4.pdf

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Recording - Where

- patient-held record or Personal Child Health Record (PCHR, the Red Book) for children
- patient's GP record or other patient record, depending on location
- Child Health Information System
- practice computer system.

From online green book chapter 4
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/147915/Green-Book-Chapter-4.pdf

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Summary

- Many steps in the immunisation process
- Most immunisation given IM
- Patients with bleeding disorders: use SC route
- Select injection site appropriate for age
- Zostavax (Shingles) now IM not SC
- Rotarix (Rotavirus) oral
- Fluenza (Live influenza vaccine) nasal
- Record accurately in all places vaccines given