Seirbhís Sláinte Níos Fearr á Forbairt | Building a Better Health Service

Seasonal influenza vaccination programme for children 2020/2021

HSE National Immunisation Office

Introduction

Target groups for seasonal flu vaccine 2020/21

- **Children aged 2-12 years**
- Aged 6 months to 64 years with underlying health conditions e.g. heart disease, cancer, COPD
- Aged ≥65 years
- Pregnancy
- People with Down syndrome
- Healthcare workers
- Carers
- Household contacts of people at-risk
- People in close contact with poultry or pigs

What's new

- All children (both healthy and at-risk) aged **2-12 years** will be offered seasonal influenza vaccine
- **Vaccine:** Live Attenuated Influenza Vaccine (LAIV)

Other children (aged 6 months-23 months, and ≥13 years) should receive quadrivalent inactivated influenza vaccine (QIV) if they are **in an at-risk group**

Learning objectives

- Understand the rationale and evidence-base for administration of influenza vaccine to children
- Explain which influenza vaccine should be used to vaccinate children
- Explain the contraindications and precautions to Live Attenuated Influenza Vaccine (LAIV)
- Explain how LAIV is given
- Explain the possible side effects of LAIV
- Understand the importance of the role of healthcare professionals in promoting influenza vaccination with parents and guardians of children
- Identify sources of additional information

1. Influenza in children

Influenza in children

The World Health Organization recommends children under 5 are target group for influenza vaccination:

They have a greater risk of severe influenza disease or complications.

Common complications of flu are:

- Bronchitis
- Otitis media
- Sinusitis
- Secondary bacterial pneumonia

Less commonly:

- Meningitis
- Encephalitis
- Primary influenza pneumonia

Influenza in children

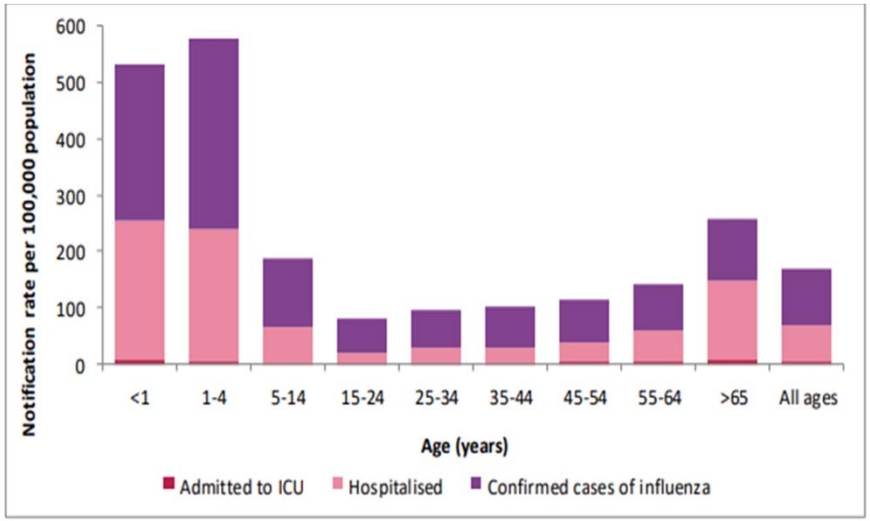
Up to 10% of all children under 15 attend GP with influenza

Rates highest in younger children leading to excess doctor visits, hospital admissions and antibiotic prescriptions

High risk of complications in children under 5 years

High age-specific rates of

- hospitalisation in children (second only to those aged ≥65)
- admission to ICU, especially children < 5 years



Age specific notification rates/100,000 population for influenza, by hospitalisation status, during the 2018/2019 season, in Ireland
Source: HPSC

Burden of paediatric influenza on Irish health system 2009/10-2018/19

>11,000 notified influenza confirmed cases

>4750 confirmed influenza hospitalisations

183 critical care admissions for confirmed influenza

41 notified influenza cases died

Slide courtesy of Lisa Domegan, Health Protection Surveillance Centre

Influenza in children

- Children transmit influenza to others for longer than adults; 10 or more days (compared to 6 days in adults)

- Children attending day-care centres and schools are important transmitters of influenza in the community

The rationale for influenza vaccination of healthy children

Aims to reduce:

- morbidity and mortality from influenza in children

- the number of people with influenza
- the number of hospital admissions
- transmission of influenza to the elderly and persons in risk groups
- transmission to health care workers in families with children
- absenteeism of children from school and their parents from work

Decrease the burden on health services is particularly important during Covid-19 pandemic

Recommendations and implementation

- The National Immunisation Advisory Committee (NIAC) has recommended influenza vaccine for all children aged 2 to 17 years inclusive to prevent cases of influenza in children and reduce transmission to others
- The Department of Health has provided funding for influenza vaccination for children aged 2-12 years
- **HSE programme is for influenza vaccination for children aged 2-12 years**
- **Free vaccine and administration for all (i.e. regardless of medical card/GP visit card)**

2. Which influenza vaccine for children?

Types of influenza vaccines

- Two types of influenza vaccine
- Both egg based quadrivalent vaccines 2 influenza A and 2 B

Flu vaccine	Type of vaccine	Route of administration	Trade name and manufacturer
Quadrivalent inactivated influenza vaccine (QIV)	Inactivated 	IM	Quadrivalent Influenza Vaccine (split virion inactivated)/Vaxigrip Tetra *Sanofi Pasteur*
Live attenuated influenza vaccine (LAIV)	Live attenuated 	Nasal	Fluenz Tetra *Astra Zeneca*

Influenza vaccines for children: what's new?

Age	Healthy children	At-risk children (underlying health conditions)
6*-23 months	Not indicated	QIV
2**-12 years	LAIV	LAIV
≥13 years	Not indicated	QIV

* QIV is not licensed and not recommended for children under 6 months of age
** LAIV is not licensed and not recommended for children under 2 years of age

What is live attenuated influenza vaccine?

- First licensed in US in 2003
- Licensed in Europe since 2011 for 2 to 17 years inclusive
- *Fluenz Tetra*® manufactured by Astra Zeneca
- Not licensed under 2 years: increased risk of wheezing
- Intranasal administration
- Can be given at the same time or at any time before or after any other live (e.g. MMR or varicella) or non-live vaccine

Live attenuated influenza vaccine

The live viruses in LAIV

- are attenuated (weakened)
- have been adapted to cold
- can only replicate at the lower temperature found in the nasal passages
- cannot replicate elsewhere in the body such as the lungs
- mimic natural infection - induces more durable immune memory (so offers better long-term protection to children than QIV)

LAIV has been shown to be more effective in children compared to inactivated influenza vaccines

Childhood vaccination programme
Why LAIV?

- Efficacy against confirmed influenza disease of 83%
- May offer some protection against strains not in the vaccine as well as virus strains that have undergone antigenic drift
- Nasal route easier to administer and more acceptable to parents and children

How many doses of LAIV are required?

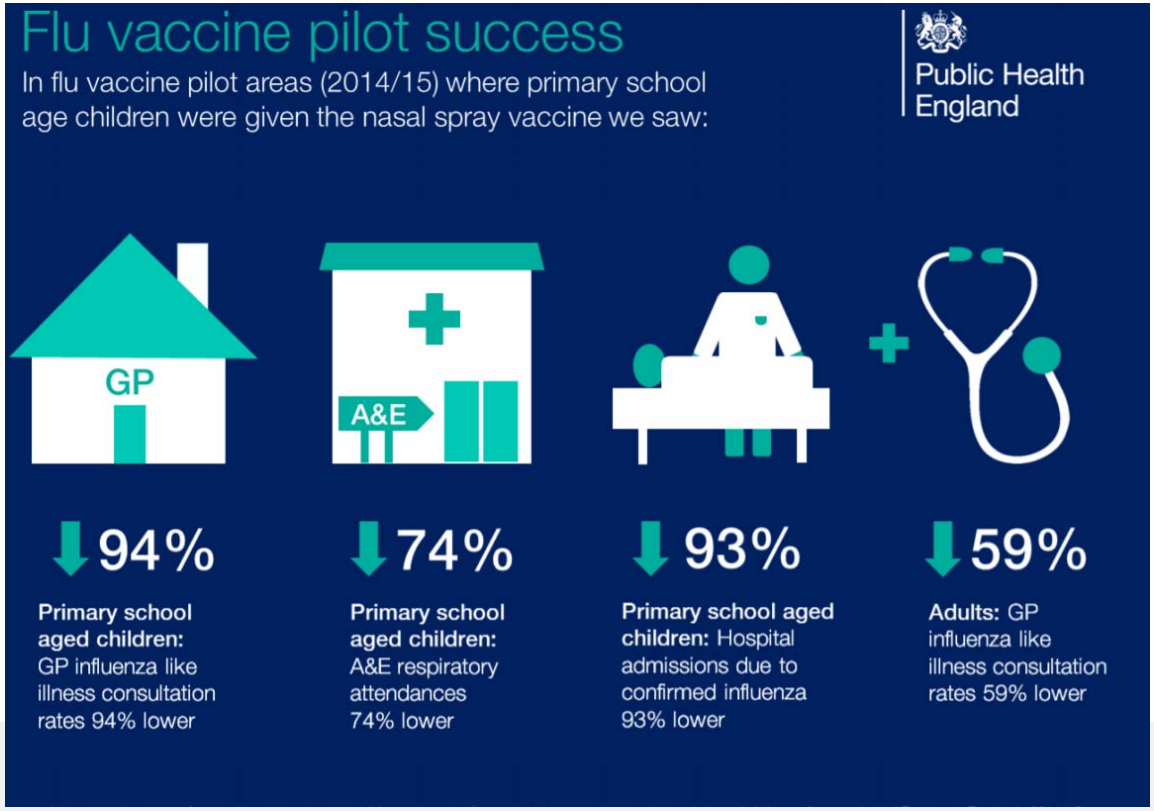
- Licensed documentation
  - all previously unvaccinated children =>2 doses 4 weeks apart
- Evidence of adequate efficacy after one dose of LAIV in healthy children
- NIAC recommends 1 dose for healthy children
- UK and Finland also recommend 1 dose for healthy children

Group	Age	Previous vaccination	Dose
Medically at risk	2 to 8 years	Have never had any influenza vaccine	Two doses 4 weeks apart
		Have had any influenza vaccine before	One dose
	9 to 12 years	Not relevant	One dose
Healthy	2 to 12 years	Not relevant	One dose

LAIV: experience in other countries

- Since it was first licensed in 2003, millions of doses of LAIV have been given to children across the world including US and Canada
- In UK and Finland, LAIV is given to children in the national seasonal influenza programme
- In UK has been given to children as part of seasonal influenza programme since 2013

Impact of LAIV in children in England



Administration of LAIV

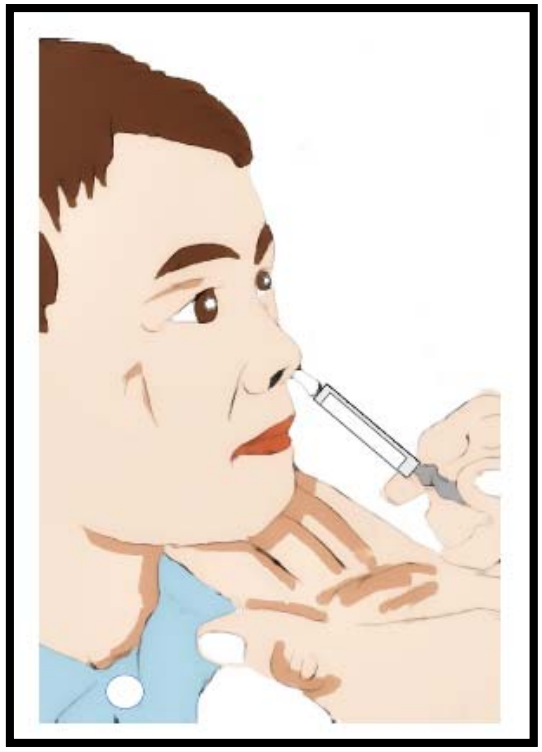


Image: Peter Darcy

How is LAIV presented?

- Supplied in a box containing 10 single applicators
- Pre-filled nasal applicator
- Each applicator contains 0.2ml nasal suspension
- Ready to use. No reconstitution or dilution needed
- Pale yellow, clear to opalescent; small white particles can appear

Constituents of LAIV

Egg-based vaccine.

Constituents are:

- Sucrose
- Dipotassium phosphate
- Potassium dihydrogen phosphate
- Gelatin (porcine, Type A)
- Arginine hydrochloride
- Monosodium glutamate monohydrate
- Water for injection
- Virus strains (attenuated) as recommended by WHO

Note communication from the Chair of the Irish Council of Imams that vaccines containing gelatin are permissible

Contraindications

- Anaphylaxis following a previous dose of influenza vaccine or any constituents (except ovalbumin – see precautions)
- Asthma
    - if an acute exacerbation of symptoms, increased wheezing and/or additional bronchodilator treatment in the last 72 hours
    - Severe asthma if on regular oral steroids or have had previous ICU/Critical care for asthma, seek advice
- Significant immunosuppression due to disease or treatment
- Children who live with severely immunosuppressed persons (e.g. post haematopoietic stem cell transplant)
- Concomitant use of aspirin/salicylates

Contraindications continued

- Influenza antiviral medications within the previous 48 hours
- Pregnancy
- Those with severe neutropoenia (absolute neutrophil count <0.5 × 109/L) to avoid an acute vaccine related febrile episode
- Those on combination checkpoint inhibitors (e.g. ipilumumab plus nivolumab) because of a potential association with immune related adverse reactions

QIV should be given if LAIV is contraindicated (provided not contraindicated)

The following are not contraindications to LAIV

- Asymptomatic HIV infection
- Children receiving:
    - topical or inhaled corticosteroids
    - low dose systemic corticosteroids
    - replacement therapy corticosteroids (e.g. for adrenal insufficiency)

Precautions

- Defer until recovered from an acute severe febrile illness

- NIAC advises that as LAIV has an ovalbumin content <0.1 micrograms per dose, it can be given to children with confirmed egg anaphylaxis or egg allergy in a primary care setting.

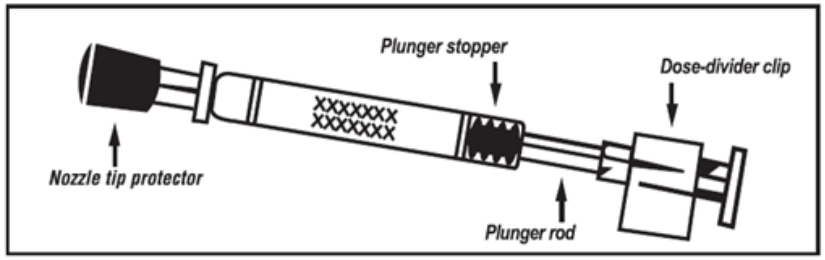
The exception is children who have required ICU/critical care admission for a previous severe anaphylaxis to egg who should be given LAIV in hospital

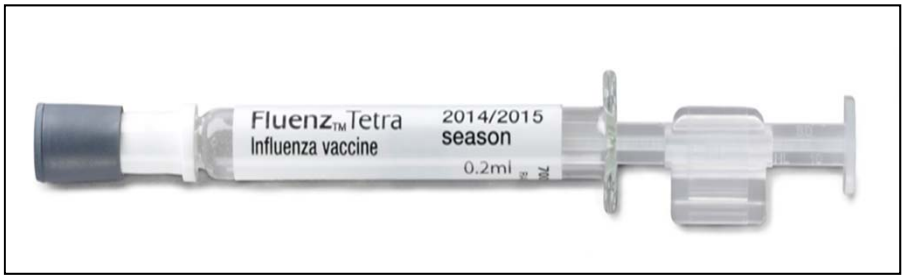
PPE for LAIV administration

- Surgical/medical mask worn as per HPSC guidance for healthcare staff
- Careful hand hygiene procedures should be performed before and after each child contact
- Gloves, aprons or eye protection are not required
- Check HPSC website for latest guidance on infection prevention and control for healthcare workers: https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/

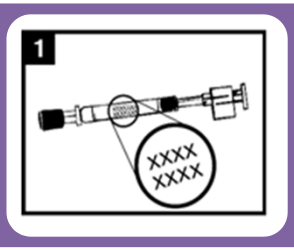
Administration

- Given as a divided dose in both nostrils (0.1ml per nostril)
- Dose divider clip on applicator allows for administration of 0.1ml in each nostril
- Child should breathe normally - no need to actively inhale or sniff
- The vaccine is rapidly absorbed so no need to repeat either half of dose if patient sneezes, blows their nose or their nose drips following administration





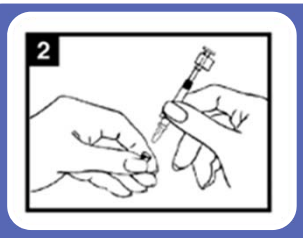
Steps in intranasal administration of LAIV



Step 1

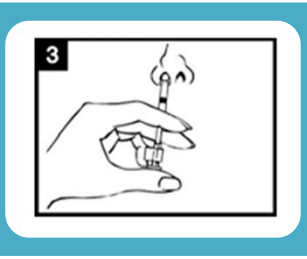
Only take 1 applicator out of the fridge at a time

Check expiry date



Step 2

- Remove the nozzle tip protector
- Do not remove dose divider clip

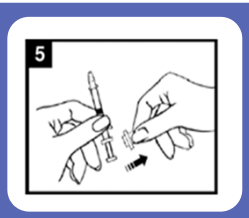


Step 3

- Place tip of applicator inside RIGHT nostril (child in upright sitting position)
- Advise the child to breathe normally. There is no need to inhale or sniff.

Step 4

Depress plunger quickly until dose divider clip prevents further administration



Step 5

Pinch and remove dose divider clip

Step 6

- Insert applicator inside the LEFT nostril
- Depress plunger as quickly as possible until all the vaccine has been given

- Dispose of nasal applicator in sharps bin
- Record vaccine administration

Expiry date of LAIV

Expiry date of LAIV is much shorter than other vaccines

- 18 weeks after the date of manufacture

The expiry date is written on the side of the nasal applicator as a day, month and year and is the last date the vaccine can be administered

The expiry date **may not necessarily be the last day of the month**

<u>Always check the expiry date carefully</u>

Adverse effects

Very common or common (More than 1 in 10 to 1 in 100):

- nasal congestion/rhinorrhoea
- decreased appetite
- malaise
- fever (overall rates of fever are similar to the rates following other childhood vaccines and were generally mild and of short duration)
- headache
- Myalgia

Very rare (less than 1 in 10,000):

- immediate allergic reactions/anaphylaxis
- very rare cases of Guillain-Barré syndrome (GBS) have been observed in the post-marketing setting following influenza vaccination. The risk of GBS following influenza infection is significantly greater than that following influenza vaccination.

After vaccination

- Paracetamol or ibuprofen can be given for common side effects

- Avoid
    - aspirin/ salicylates for 4 weeks unless medically indicated (Reye's syndrome reported after salicylate use during wild-type influenza infection)
    - antiviral medication for 2 weeks

What to do if?

- **Child sneezes or nose drips**

The vaccine does not need to be repeated

LAIV immediately absorbed after administration and there is a surplus of attenuated virus particles in the vaccine required for immunity

- **LAIV is only given into one nostril**

The vaccine does not need to be repeated

A 0.1 ml dose given into one nostril contains enough attenuated viral particles to induce an immune response

- **All of vaccine is given into same nostril**

The vaccine does not need to be repeated

Vaccine ordering and storage

Expected deliveries: mid-October 2020-after QIV (September 2020)

LAIV can be ordered from the HSE National Cold Chain Service using the online ordering system ordervaccines.ie

LAIV should be stored in a pharmaceutical fridge which maintains temperature between +2°C to +8°C immunisation.ie

Your role in promoting vaccination

- Recommendation by a healthcare professional has been shown to increase uptake of vaccines – a recommendation to get the vaccine makes a difference
- Healthcare professionals are **the most** trusted source of information on vaccines
- Reminders work-----text, phone, write

Additional resources

E-learning HSEland module on Influenza Vaccine in Children

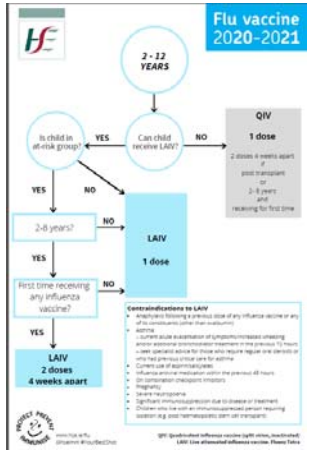
Frequently asked questions on LAIV for healthcare workers

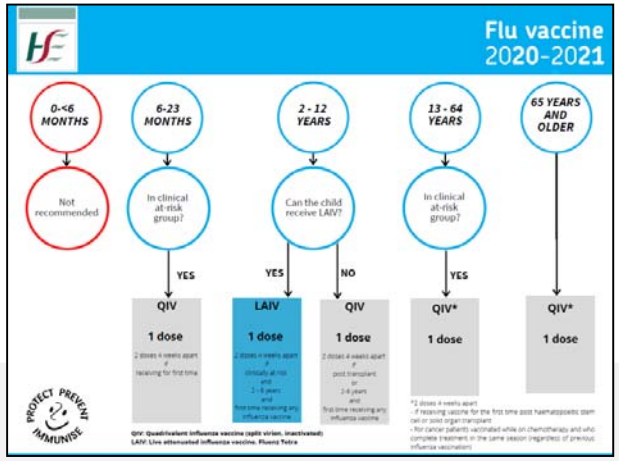
Algorithms for administration of influenza vaccine

Materials for parents

www.immunisation.ie website

National Immunisation Advisory Committee: National Guidelines for Ireland





Acknowledgments

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