Table 19.4 Clinical risk groups who should receive the influenza immunisation. Influenza vaccine should be offered to people in the clinical risk categories set out below.

Clinical risk category	Examples (this list is not exhaustive and decisions should be based on clinical judgement)
Chronic respiratory disease	Asthma that requires continuous or repeated use of inhaled or systemic steroids or with previous exacerbations requiring hospital admission. Chronic obstructive pulmonary disease (COPD) including chronic bronchitis and emphysema; bronchiectasis, cystic fibrosis, interstitial lung fibrosis, pneumoconiosis and bronchopulmonary dysplasia (BPD). Children who have previously been admitted to hospital for lower respiratory tract disease. see precautions section on live attenuated influenza vaccine
Chronic heart disease	Congenital heart disease, hypertension with cardiac complications, chronic heart failure, individuals requiring regular medication and/or follow-up for ischaemic heart disease.
Chronic kidney disease	Chronic kidney disease at stage 3, 4 or 5, chronic kidney failure, nephrotic syndrome, kidney transplantation.
Chronic liver disease	Cirrhosis, biliary atresia, chronic hepatitis
Chronic neurological disease (included in the DES directions for Wales)	Stroke, transient ischaemic attack (TIA). Conditions in which respiratory function may be compromised due to neurological disease (e.g. polio syndrome sufferers). Clinicians should offer immunisation, based on individual assessment, to clinically vulnerable individuals including those with cerebral palsy, learning disabilities, multiple sclerosis and related or similar conditions; or hereditary and degenerative disease of the nervous system or muscles; or severe neurological disability.
Diabetes	Type 1 diabetes, type 2 diabetes requiring insulin or oral hypoglycaemic drugs, diet controlled diabetes.
Immunosuppression (see contraindications and precautions section on live attenuated influenza vaccine)	Immunosuppression due to disease or treatment, including patients undergoing chemotherapy leading to immunosuppression, bone marrow transplant, HIV infection at all stages, multiple myeloma or genetic disorders affecting the immune system (e.g. IRAK-4, NEMO, complement disorder) Individuals treated with or likely to be treated with systemic steroids for more than a month at a dose equivalent to prednisolone at 20mg or more per day (any age), or for children under 20kg, a dose of 1mg or more per kg per day. It is difficult to define at what level of immunosuppression a patient could be considered to be at a greater risk of the serious consequences of influenza and should be offered influenza vaccination. This decision is best made on an individual basis and left to the patient's clinician. Some immunocompromised patients may have a suboptimal immunological response to the vaccine.
Asplenia or dysfunction of the spleen	This also includes conditions such as homozygous sickle cell disease and coeliac syndrome that may lead to splenic dysfunction.
Pregnant women	Pregnant women at any stage of pregnancy (first, second or third trimesters). see precautions section on live attenuated influenza vaccine
Morbid obesity (class III obesity)*	Adults with a Body Mass Index ≥40 kg/m²

* Many of this patient group will already be eligible due to complications of obesity that place them in another risk category

Other groups

The list above is not exhaustive, and the medical practitioner should apply clinical judgment to take into account the risk of influenza exacerbating any underlying disease that a patient may have, as well as the risk of serious illness from influenza itself. Influenza vaccine should be offered in such cases even if the individual is not in the clinical risk groups specified above. Vaccination should also be offered to household contacts of immunocompromised individuals, i.e. individuals who expect to share living accommodation on most days over the winter and therefore for whom continuing close contact is unavoidable. This may include carers (see below).

In addition to the above, immunisation should be provided to healthcare and social care workers in direct contact with patients/clients to protect them and to reduce the transmission of influenza within health and social care premises, to contribute to the protection of individuals who may have a suboptimal response to their own immunisations, and to avoid disruption to services that provide their care. This would include:

- health and social care staff directly involved in the care of their patients or clients
- those living in long-stay residential care homes or other long-stay care facilities where rapid spread is likely to follow introduction of infection and cause high morbidity and mortality (this does not include prisons, young offender institutions, university halls of residence etc.)
- those who are in receipt of a carer's allowance, or those who are the main carer of an elderly or disabled person whose welfare may be at risk if the carer falls ill. Vaccination should be given on an individual basis at the GP's discretion in the context of other clinical risk groups in their practice
- others involved directly in delivering health and social care such that they and vulnerable patients/clients are at increased risk of exposure to influenza (further information is provided in guidance from UK health departments)

Children

Studies suggest that two doses of inactivated influenza vaccine may be required to achieve adequate antibody levels in younger children who have not received influenza vaccine before (Allison *et al*., 2006; Neuzil *et al*., 2006; Ritzwoller *et al*., 2005; Shuler *et al*., 2007; Wright *et al*., 1977). LAIV has been shown to provide greater protection for children than inactivated influenza vaccine (Belshe *et al*., 2007; Ashkenazi *et al*., 2006; Fleming *et al*., 2006) and studies have also shown meaningful efficacy after a single dose of LAIV in previously unvaccinated children (Bracco Neto *et al*., 2009; Block *et al*., 2009). Given this, JCVI has advised, as set out below, the use of different dosage schedules of influenza vaccine for children depending on their age, the clinical indications, the type of vaccine offered and whether they have received influenza vaccine previously. This advice differs from some of the SPCs.

Children aged two to less than seventeen years old NOT IN clinical risk groups

Starting from September 2013, an extension of the programme to all children aged two to less than seventeen years old is being phased in from the youngest age groups. Please see the respective annual flu letters for England and the Devolved Administrations for the cohorts of children that are eligible for influenza vaccination for the coming/current season.

A single dose of LAIV should be offered per season, unless contraindicated, irrespective of whether influenza vaccine has been received previously.

Children aged six months to less than two years of age IN clinical risk groups

These children should be offered the recommended inactivated quadrivalent influenza vaccine. Those who have not received influenza vaccine previously should be offered a second dose of vaccine, at least four weeks later. The inactivated influenza vaccines are interchangeable; the second dose, if required, should be given at least four weeks after the first dose in accordance with the manufacturer's SPC for that vaccine.

Children aged two to less than 18 years of age IN clinical risk groups

Children aged two years to less than 18 years in clinical risk groups should be offered LAIV unless it is medically contraindicated or otherwise unsuitable (see contraindications and precautions sections). Those children who have never received influenza vaccine before and are aged between two and less than nine years should be offered a second dose of LAIV at least four weeks later. If LAIV is unavailable for this second dose (due to batch expiry) an inactivated influenza vaccine can be given.

For those children in clinical risk groups for whom LAIV is medically contraindicated, a suitable quadrivalent inactivated influenza vaccine should be offered. The quadrivalent vaccine has both lineages of influenza B and may therefore provide better protection against the circulating B strain(s) than trivalent inactivated influenza vaccines. Children aged two to less than nine years old who have not received influenza vaccine previously should be offered a second dose of the vaccine at least four weeks later.

The inactivated influenza vaccines are interchangeable; the second dose, if required, should be given at least four weeks after the first dose in accordance with the manufacturer's SPC for that vaccine.

Table 19.5 summarises the advice on influenza vaccination for children

Preterm infants

It is important that preterm infants who have risk factors have their immunisations at the appropriate chronological age. Influenza immunisation should be considered after the child has reached six months of age.

Table 19.5 Influenza vaccination for children under 18 years old

Eligible cohort	Vaccine available: Children in clinical risk groups*	Vaccine available: Children not in clinical risk groups[1]
Six months to less than two years old	Offer suitable quadrivalent inactivated flu vaccine.	Not applicable.
Children aged two years to less than 18 years old[1]	Offer LAIV (Fluenz® Tetra) (unless medically contraindicated[2])	Offer LAIV (Fluenz® Tetra)

* Children in clinical risk groups aged six month to less than nine years who have not received flu vaccine before should be offered two doses of the appropriate flu vaccine (given at least four weeks apart).

1 Please see the respective annual flu letters for England and the Devolved Administrations for the cohorts of children not in clinical risk groups that are eligible for influenza vaccination for the coming/current season.

2 If LAIV is medically contraindicated or otherwise unsuitable, then offer quadrivalent inactivated flu vaccine.