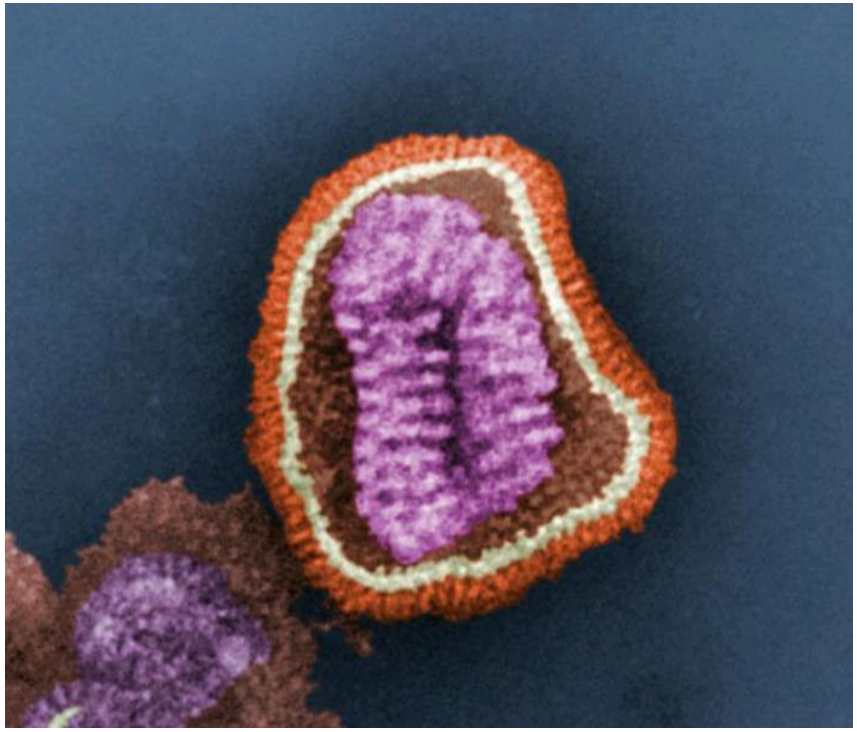
South East Coast Ambulance Service NHS
NHS Foundation Trust

Influenza Training

Your service, your call

Influenza

- Highly infectious respiratory illness
- Influenza virus first identified in 1933
- Three main types which cause infection
  - Influenza A
  - Influenza B
  - Influenza C
- Influenza A and B are responsible for most clinical illnesses
- Influenza A cause of most outbreaks and epidemics



Epidemiology

- Most cases in the UK tend to occur during 6-8 week period in the winter
- Affects 10-15% of the population annually
- Affects all age groups
- Up to 5000 excess deaths each year are attributed to influenza

Clinical features

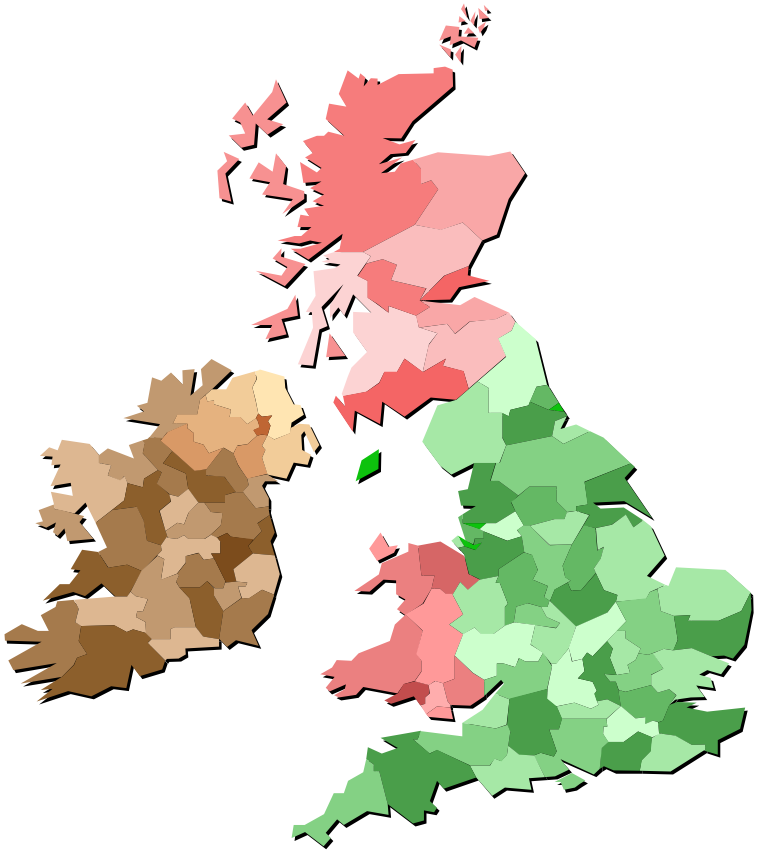
- Sudden onset of fever, chills, headache, muscle aches, myalgia and extreme fatigue
- Other common symptoms include dry cough, sore throat or stuffy nose
- 30-50% of people will be asymptomatic
- Up to 25% of children may also have nausea, vomiting or diarrhoea
- Incubation period usually 1-3 days, occasionally up to 5 days
- Infectious period from one day before until 3-5 days after onset of symptoms in adults

Mode of transmission

- Mainly spread by aerosol droplets
- Through contact with handkerchiefs or tissues contaminated with nasopharyngeal secretions
- Through contact with contaminated surfaces infected with respiratory secretions
- Is thought to be facilitated by indoor crowding that takes place during the winter months

Influenza epidemics in the UK

- Serious outbreak in a single community, population or region (drift)
- An epidemic is declared when the weekly incidence of reported influenza is greater than a certain number of cases per 100,000 population.
- England > 400 cases
- Wales > 400 cases
- Scotland > 1000 cases



Pandemics

- A pandemic is a worldwide epidemic of the disease (shift)
- May occur when a new virus appears against which the human population has no immunity
- The resulting disease can be mild or severe
- Severity of the pandemic can change over the course of the pandemic
- Three influenza pandemics occurred in the last century
  - 1918 – “Spanish flu” – H1N1 – 250,000 deaths in UK
  - 1957 – “Asian flu” – H2N2 – 33,000 deaths in UK
  - 1968 – “Hong Kong flu” – H3N2 – 30,000 deaths in UK

Other strains – current concern

- **A(H7N9)**
  - 135 cases of human infection reported (up to 26 September 2013)
  - 44 have died (case fatality 33%)
  - Main reservoir – animals
  - No evidence of sustainable human to human transmission – however some suggestion of limited transmission in families and in healthcare settings
- **MERS-C0V**
  - 4 cases confirmed in England (two imported & two linked cases)
  - 77 suspected cases
  - A further 126 confirmed cases internationally
  - Middle East – Jordan, Qatar, Saudi Arabia & United Arab Emirates
  - 58 have died (case fatality 45%)
  - Concern for UK with returning travellers – Hajji

Influenza vaccine composition for 2013

Northern Hemisphere Winter

- A/California/7/2009 (H1N1) pdm 09-like virus
- A(H3N2) virus antigenically like the cell-propergated prototype virus A/Victoria/361/2011
- B/Massachusetts/2/2012 – like virus

And quadrivalent influenza vaccines will in addition include

- B/Brisbane/60/2008-like virus New strain/new composition each year
- New strain/new composition each year = Revaccination each year!!!

Influenza programme

- Objective of programme is to protect those who are most at risk of serious illness or death should they develop influenza
- After immunisation antibody levels may take up to 10 to 14 days to reach protective levels
- Therefore ideal to immunise during September and October before the start of the significant levels of influenza activity in the community

Who needs influenza vaccine?

- All front line healthcare staff
  - Those who are in direct contact with patients/clients should be vaccinated by their employers as part of an occupational health programme
  - If you vaccinate anyone from one of the other groups recommended to receive vaccine then please inform that patients GP
- All those in target groups

Target groups for 2013/2014 campaign

- All those aged 65 years and over
- All those aged 6 months or over in a clinical risk group
  - Chronic respiratory disease (asthma that requires continuous or repeated use of inhaled or systemic steroids or with previous exacerbations requiring hospital admission)
  - Chronic heart disease
  - Chronic renal disease
  - Chronic liver disease
  - Chronic neurological disease
  - Diabetes
  - Immunosuppression

Target groups for 2013/2014 campaign

- Pregnant women at any stage of pregnancy
- 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)
- Those who are in receipt of a carers allowance, or those who are the main carer of an older or disabled person whose welfare may be at risk if the carer falls ill (given on an individual basis at the GPs discretion)

New for 2013/14

- First year children not in clinical risk groups being offered influenza immunisations
- Children aged two or three years old
- Fluenz® (live attenuated vaccine) is being used for the campaign
- All children will receive this unless contraindicated
- Single dose

Why vaccinate health & social care workers?

- Reduce potential transmission from infected health care staff to vulnerable patients
- Reduce the risk of potential transmission from infected patients to health care workers and their families
- To reduce the level of sickness or absences which could have an impact on the ability of the NHS and social care establishments to provide a service

Egg allergy

- Individuals who have egg allergy are at increased risk of reaction to influenza vaccine
- However, influenza vaccines are available now that are either egg-free or have very low ovalbumin content (<0.12µg/ml) – shown to be safe in patients with egg allergy
- Patients with confirmed anaphylaxis to egg or egg allergy with uncontrolled asthma (BTS SIGN step 4 or above) can be immunised with an egg free influenza vaccine in primary care (check Green Book and SPC to ensure patient is eligible)
- If no egg-free vaccine is available, refer patient to hospital for vaccination with low ovalbumin content vaccine
- Check doses and schedule in Green Book and on SPC

Adverse reactions

- Commonly reported reactions
  - Pain, swelling and redness at the injection site
  - Low grade fever, malaise, shivering, fatigue, headache
  - Myalgia arthralgia (muscle/joint pain)
  - Painless nodule (induration)

- Intermediate reactions
  - Urticaria (skin rash)
  - Angioedema
  - Bronchospasm
  - Anaphylaxis

Adverse reactions

- Rare reactions
  - Neuralgia
  - Paraesthesia
  - Convulsions
  - Guillain-Barre

Contraindications

- The vaccine should not be given to those people who have had a confirmed anaphylactic reaction to
  - previous dose of the vaccine
  - to any component of the vaccine
  - hypersensitivity to egg products as the vaccine is prepared in hens' eggs

Summary

- There will always be some people who have an adverse reaction to some vaccines, however these reactions are not usually as severe as the diseases they prevent.

- Reactions are not an indication to withhold vaccination, however advice should be sought from a medical practitioner

Maintenance of the cold chain

WHAT

- What exactly do we mean by the cold chain?
- It is the storage and transportation of pharmaceutical products between 2^{o} – 8^{o} C

WHY

- Storage conditions are specified on Summary of Product Characteristics(SPC) and thus form part of the product licence.
- Failure to comply could be used by the manufacturer as the basis for denying liability in the event of litigation. A minimum of two people at each site should be trained to :

WHO

- Understand the importance of the correct storage of vaccines,
- Maintain an electronic record of the vaccines coming into the practice this should include, date, time, batch number, name of vaccine etc.

Maintenance of the cold chain

- Stock should immediately be placed in the fridge
- The delivery note should be checked and the supplier notified of discrepancies or short dated stock
- Examine for leakage or damage
- Care for the fridge
    - To adjust it to maintain the correct temperature
    - Know how to contact the manufacturer for advice.

Incorrect storage of vaccines results in:

- Loss of potency
- Increased risk of side effects
- Reduced efficacy and failure to produce immunity
- Stock can not be returned
- Risk of contamination
- Reduced shelf life for vaccines
- Use outside SPC

Freezing

- Destruction of vaccine
- Cracking of ampoule/vial/pre-filled syringe
- Contamination

Elevated temperature

- Shortening of expiry date
- Loss of potency
- Increased side effects

Do's

- Keep minimum stock
- Rotate stock
- Check expiry dates
- Store boxes tidily
- Open the door only when necessary
- Keep temperature between 2º-8ºC

Don'ts

- Over-fill the fridge
- Store items in the door
- Store stock near the sides, top or freezing unit
- Remove from original packaging
- Block air circulation
- Use the fridge to store other items e.g. food or drink

Recording the temperature

- Record the temperature daily (this should be in book that is specific for one fridge)
- Reset thermometer after reading
- Use a maximum/ minimum thermometer
- Keep the temperature between 2º - 8ºC
- Move the thermometer occasionally to check uniformity of temperature
- Do not rely on externally mounted dial thermometer

Transportation

- Must maintain cold chain
- Use cool packs at fridge temperature
- Fill cool box with packaging which has been chilled for at least 24 hours
- Take only the number of doses needed
- Mark boxes that have been moved
- Do not transport any vaccines more than twice
- Use validated cool boxes

Most common breaches of the cold chain

- Fridge switched off accidentally
- Vaccines left out after immunisation sessions
- Overstocking fridges preventing air circulating
- Reliance on ‘safe zone’ indicator

Disruption of cold chain

- Return to correct temperature as soon as possible
- Mark vaccines affected
- Note how long the temperature was high/low
- Note actual min/max readings
- When was correct temperature last noted?
- Which vaccines have been affected?
- Which vaccines are urgently required?
- When is next session?
- SEEK ADVICE

Vaccination session

- Adrenaline (epinephrine) must be available - check expiry date before session
- Maintain cold chain until point of use
- Don’t leave vaccines out
- Don’t draw up vaccines in advance
- Destroy opened vials at end of session/reconstitution time limit
- Record batch number and site of administration
- Clear up spills quickly

Disposal of vaccines

- Unused doses and expired stock must be disposed of safely
- Legal requirement to dispose correctly according to the Environmental Protection Act
- Falls within the definition of Pharmaceutical waste either hazardous or non hazardous
  - Follow Trust policy!!

Patient Group Directions

- **Patient Group Directions (PGDs)** are written instructions for the supply or administration of medicines to groups of patients who may not be individually identified before presentation for treatment
- Constitute a legal framework which allows certain healthcare professionals to supply and administer medicines to a group of patients that fit the criteria laid out in the PGD
- Individuals may not be individually identified before presentation for immunisation
- Organisations have the responsibility to ensure that only fully competent trained healthcare professionals use PGDs
- Healthcare professional is responsible for assessing that the patient fits the criteria in the PGD

PGDs

- Must contain specific information as per legal requirements
  - Clinical criteria for a patient to be included
  - Criteria for a patient to be excluded
  - When to obtain further advice
  - Dosage
- Signed by doctor, pharmacist and organisational lead
- Signed by named healthcare professionals
- Every patient must fit *exactly* criteria in PGD
- Must have start/expiry date
- Must be reviewed at least every two years (for influenza every year due to changing vaccines)

Scope and limitations of PGDs

- Healthcare professionals signing up to PGDs must be fully competent qualified and trained in all aspects of immunisation
- Patients may present directly to a healthcare professional working to PGDs in their service, without seeing a doctor
- Healthcare professionals working to a PGD is responsible for assessing that the patient fits the criteria in the PGD
- Should be used in limited situations where it offers advantages for patient care without compromising safety

Consent

- Work in partnership with patient
- Listen to patients and respect their views
- Discuss the proposed treatment
- Share the information they want or need to make decisions
- Maximise patients opportunities and abilities to make decisions
- Respect patients decisions
- Legal and ethical principle that valid consent must be obtained before starting treatment, physical investigation or providing physical care.
- Patients' rights to determine what happens to their own bodies
- A healthcare professional who does not respect this principle may be liable both to legal action by the patient and to action by their professional body.

Consent process should include

- What immunisation(s) are to be given
- Which disease(s) will be prevented
- Benefits and risks of immunisation versus risks of disease(s)
- Possible side effects and how to treat
- Any follow-up/action required
- Any new information
- Agreement to proceed

Administration of vaccines

- Preparing for the vaccine session
- Before starting a vaccination session, best practice ensures that the health care worker will have received training and is competent in the administration of vaccinations.
- You should be conversant with local policy on needle stick injury
- Make sure someone is aware that a vaccination session is taking place
- Ensure the room is suitable e.g. adequate seating, lighting, ventilation, hand cleansing, and telephone facilities
- You have all the equipment required e.g. vaccine, needles, syringes, sharps box, telephone, documentation and anaphylaxis pack
- Be familiar with the vaccine to be administered, the contra-indications and side effects

Preparation of vaccine

- Check storage conditions (temperature monitor chart)
- Read Manufacturers information leaflet (SPC)
- Check name and expiry date on vaccine
- Check colour and appearance of vaccine are correct
- Check the dose is appropriate for patients age
- Vaccines should only be drawn up when required, not in advance
- Vaccines should be checked to ensure that they are the right product and the right dose

Skin preparation – Is it necessary?

- Skin cleansing is not necessary in socially clean patients
- Soap and water are adequate if you feel cleansing is required
- Alcohol wipes should be allowed to dry thoroughly as may inactivate live vaccines

Vaccination sites

- Most vaccines are given intramuscularly (IM) as are less likely to cause local reactions
- Vaccines should not be given intravenously
- If patients have a bleeding disorder then the SC route is preferred to reduce the risk of bleeding

Post-vaccination

- Recipients of any vaccine should be observed for immediate adverse reactions (ADR)
- Suspected ADR's should be reported to the Commission on Human Medicines using the Yellow card system especially if black triangle and in children

What needs to be documented?

- Name of vaccine
- Product name
- Expiry date (recording this is evidence it has been checked)
- Batch number (in case of future problems/recall)
- Date vaccine is given
- Site of injection
- The name and signature of vaccinator