London Ambulance Service NHS Trust

This bulletin has been issued by The Medical Directorate

- ECG case studies
- Hot topics of discussion
- Useful links

ISSUE 20 | Dec 2009

Clinical update

We would love to hear from anyone wishing to submit their own work, be it a case study or piece of work on a topic which you feel your colleagues could learn from (this would also be great evidence for your CPD). In addition, any suggestions for improving this publication or ideas for future articles would be welcomed. To submit work or to make suggestions for future editions please contact the Medical Directorate.

REMINDER!
Have you seen the recent Medical Directorate Bulletins?

OP Airways **22/07/09**

Emergency gynaecological provision at Central Middlesex A&E **25/08/09**

Age Ranges for Defibrillation **22/09/09**

Stroke care in the SE. **29/10/09** South Bulletin

Available on *the pulse*

Swine Flu

Staff are reminded to stay up to date with swine flu guidance on *the pulse*.

Paediatric Bag and Mask

Staff are reminded that the paediatric bag and mask is to be stored in the oxygen bag and does NOT form part of the PALS kit.

McIlroy Funnel and Newborn Care

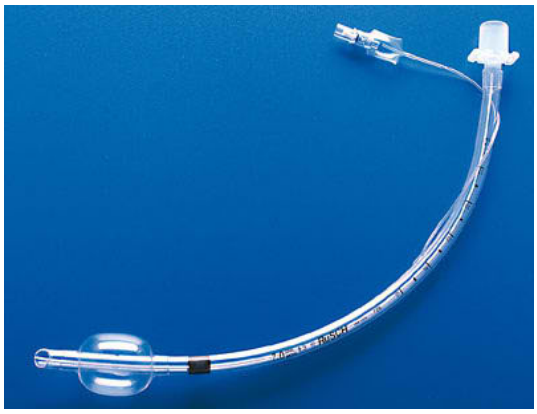
JRCALC and Service Guidelines must be followed for all infants requiring active resuscitation at birth and a bag and mask is excellent at delivering oxygen to the distressed newborn baby who needs this emergency assistance. The clinical value of McIlroy funnels is debatable, if an infant requires oxygen supplementation, they must be breathing well and this further oxygen can be given effectively via a paediatric non-rebreather face mask. Giving oxygen by a McIlroy mask to an infant who is not breathing well will not assist in the resuscitation of the infant – ventilation/aeration is the key life saving component.

This is reflected in JRCALC and UK Resuscitation Council neonatal guidance.

As part of a rolling plan McIlroy funnels will be removed from the PALS kits by the logistics department.

They should not be used in clinical practice.

Recognition of Life Extinct



Staff are reminded that following a termination of resuscitation all indwelling devices should be left in place. This includes all airway devices (ET, LMA) and access devices (EJV, IV, IO).

This allows for proper examination during a post mortem evaluation and is at the request of all the London coroners.

Any on scene difficulties in adhering to this can be discussed on a case by case basis with the clinical support desk in EOC.

Remember - It is not the responsibility of the Service to remove deceased patients from public or private places. *(Except under two year olds or in exceptional circumstances with a named coroner's officer approval)*

Naloxone Hydrochloride

A number of queries to both the Clinical Support Desk and the Medical Directorate have highlighted the following minor point.

The JRCALC pocket book in the paediatric section only mentions IV / IO routes for Naloxone Hydrochloride.

However the main JRCALC text and the pocket book entry for the drug endorse use of the drug via the IM route.

To clarify, Naloxone Hydrochloride (Narcan) can be administered via the following routes in all ages :

- Intramuscular (IM)
- Intravenous (IV)
- Intraosseous (IO)

It is the decision of the lead clinician on scene to decide the most appropriate route.

Mental Health

Supervised Community Treatment

The Supervised Community Treatment Order is a relatively new part of the Mental Health Act and replaces the old supervised discharge procedure.

Patients detained in hospital for treatment will have to be considered for supervised community treatment (SCT) if they are receiving more than seven days of home leave. There will be a conditions set on the SCT some of which are standard and others will be individual to the patient.

When placed on an SCT order there is a named responsible clinician (RC). If there is concern regarding the patient or they breach their conditions they can be recalled.

The only person who can recall a SCT patient is the responsible clinician. The patent is informed of this recall in writing via a CTO3 form (handed directly to the patient, put through their letter box or posted, first class, to their last known address).

Recall does not have to be to the same hospital however once recalled the patient is no longer on community treatment and must return to hospital. Recall times can vary - (immediately if the recall note is handed to the patient, at 00.01hrs the next day if put through the letter box and the next but one working day if posted)

The code of practice for the revised Mental Health Act makes reference to the ambulance service and police assisting as needed in return of these patients.

Once returned to hospital there is a 72 hour period (Section 17 F) in which they can assess or treat the patient as needed. By the end of this period they either must revoke the SCT order and the patient is then detained under their initial section or they are discharged back to the community under the SCT order. This decision is made between the Approved Mental Health Professional (*Formerly ASW)* and the responsible clinician.

If called to this type of patient by either the responsible clinician or the Approved Mental Health Professional, the actions to be undertaken should be explained by the relevant professional to the attending ambulance crew.

Unlike a standard sectioning there is no need for "papers" to travel with the patient as they are already held under section.

Mephedrone

Mephedrone is a “legal high” that is showing increasing use in the UK recreational drug market. It is a derivative of the class C drug compound cathinone which causes sympathomimetic effects. In the UK derivatives of class C drugs are not illegal. As a “legal high” it is often sold and branded as plant food.

The effect is often described as a cross between ecstasy, cocaine and amphetamines.

The common features requiring emergency care / ambulance attendance are:

Agitation, tachycardia, hypertension (leading to seizures), hyperpyrexia, arrythmias, intracerebral haemorrhage.

Standard JRCALC treatment of overdose and transport to hospital applies if a patient presents as symptomatic.

Consider accessing enhanced advice via the clinical support desk (CSD) in EOC if attending a patient for drug overdose. CSD can access both Toxbase and the National Poisons Information Service.

Furosemide

The Medical Directorate has taken the decision to start withdrawing furosemide as a treatment for acute pulmonary oedema.

This process will take approximately six months and will be conducted alongside work looking into the role and feasibility of continuous positive airway pressure (CPAP).

CPAP is considered to be superior to drug treatment in the early stages of acute cardiogenic pulmonary oedema.

Further information will be made available over the coming months – until then use of furosemide should continue as per JRCALC guidance.

Type 2 Diabetes – Hypoglycaemia

The following is based heavily upon an article published in the Emergency Medicine Journal (EMJ) in July 2009 (Emerg. Med. J. 2009;26;472-478). emj.bmj.com/cgi/reprint/26/7/472

With diabetes on the increase in the UK it stands that ambulance staff will see more cases of hypoglycaemia (defined as a blood glucose reading below 4mmol/l).

Staff will often record whether or not the patient is a type 1 (formerly known as Insulin Dependent Diabetes mellitus), or Type 2 (formerly known as Non Insulin Dependent Diabetes mellitus). However, some of the subtle differences between the two types and their response to treatment in the pre-hospital arena is probably not as well understood, or indeed taught.

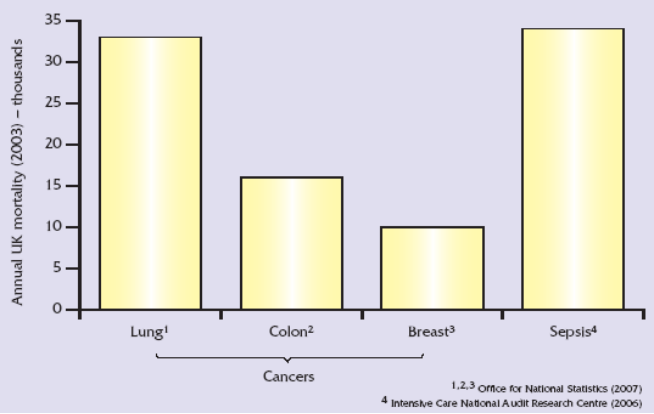
Type 2 diabetics have an inability to either fully utilize the insulin being produced, or have an increased glucose output. Type 2 diabetes results in a relatively slow and insidious decrease in glycaemic control which also becomes harder to control as the decades increase.

Very often oral hypoglycaemic agents (OHAs) will be used to control Type 2 diabetes e.g. metformin, gliclazide, nateglinide, acarbose & the glitazones. Each of the OHAs act in differing ways.

Patients being treated with OHAs are at risk of a rebound hypoglycaemic episode after apparently recovering well from a hypoglycaemic episode. Often both patients and ambulance staff are happy to leave a “recovered” Type 2 hypoglycaemic patient at home, and in care, with instructions to seek medical help from their GP / Diabetic Nurse / Diabetic Clinic ASAP. However, the article provides compelling information that suggests that a number of this group of patients can suffer a “rebound hypoglycaemic episode” within 24 hours. The article therefore strongly suggests that even though apparently recovered – Type 2 diabetics who have apparently responded well to treatment for a hypoglycaemic episode should be very strongly persuaded to attend hospital.

The Medical Directorate are looking at the implication(s) of this paper and there will be further information promulgated.

Sepsis
The Unknown Killer?



Despite the significant health care and cost implications, sepsis receives little attention compared to other UK mortalities e.g. cancer, heart disease and stroke.

With an increasingly aged population sepsis is increasing at a rate of 1.5 per cent per year.

Early recognition and the ability to provide early goal directed therapy (EGDT) is key to survival and outcome.

In 2002 Surviving Sepsis was set up with an aim to reduce annual deaths 25 per cent by 2009.

The Surviving Sepsis Campaign

The Surviving Sepsis Campaign is an educational programme aimed at medical and nursing staff. It's intention is to highlight the need for rapid intervention for patients showing signs of severe sepsis outside of the critical care environment.

This can equally be applied to the pre-hospital field, in that rapid recognition of sepsis and appropriately rapid access to definitive healthcare can massively improve patient outcome.

While signs and symptoms of infection are common in ambulance practice, early recognition and rapid intervention are essential if signs of organ involvement are present.

The red warning flags of increased oxygen demand, decreased systolic blood pressure or reduced urine output all point toward systemic and possibly life threatening infection.

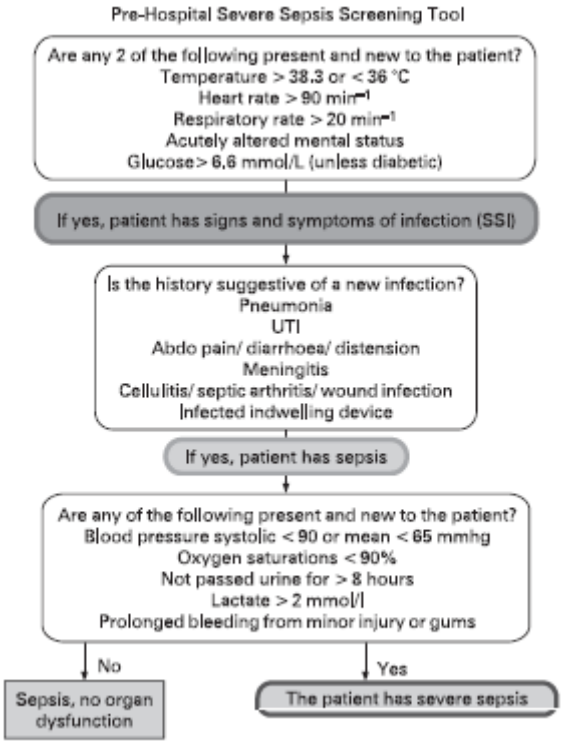
Recognition is the key to survival.

Surviving Sepsis Campaign®

For further information see www.survivingsepsis.org

Robson W, Nutbeam T, Daniels R. Sepsis: a need for prehospital intervention?. Emerg Med J 2009 **26**: 535-538

Recognising Severe Sepsis



*****Lactate testing is not available in UK prehospital practice**

If Severe Sepsis – Remember:

- **High Flow Oxygen as per JRCALC new oxygen guidance for critical illness.**
- **IV access and fluid consideration en route to hosp as per JRCALC.**
- **Pre-alert the hospital.**

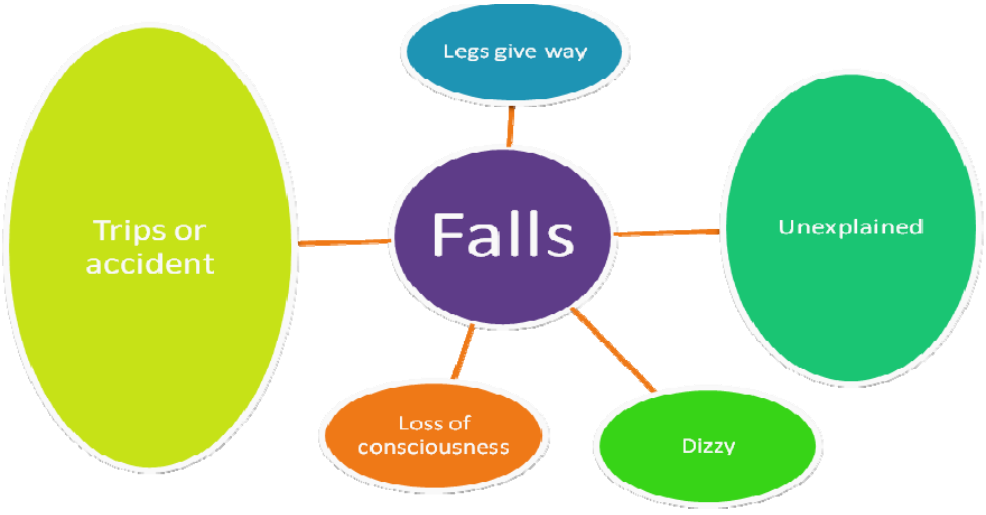
Elderly Falls

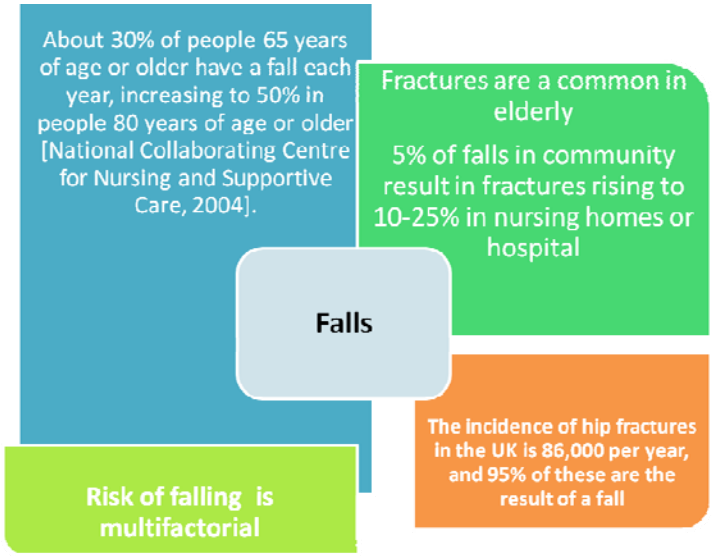
A symptom not a diagnosis

Causes of Falls

Causes of falls in older people are usually multi-factorial but can include the following examples:

- Accident and environmental hazards
- Gait and balance disorders or weakness
- Dizziness and vertigo
- Drop attack
- Confusion
- Postural hypotension
- Visual disorder
- Syncope
- Vasovagal
- Carotid sinus syndrome
- Arrhythmias
- Exertional dyspnoea
- TIA / Neurological
- Other specified causes including arthritis, acute illness, drugs, alcohol, pain, epilepsy and falling from bed
- Unknown





How should I assess risk of falling?

- Any falls in last year?
- How often?
- The circumstances
- Any associated symptoms
- History from witnesses?

The Service attend on average:

5500

Falls related calls a month

Further reading:

NICE Falls Prevention
www.nice.org.uk/CG021

NSF – Standard 6 Falls
www.dh.gov.uk

Take a Detailed Falls History

- Pattern or common feature to falls
- Activity at time of fall
- Loss of consciousness = neurological? or cardiac?
- Immediate post fall assess – ask witnesses
- Seizure activity – tongue biting?
- PMH – hypoglycaemia, arrhythmia, TIA etc.

Examine and Document

- Vital signs including sitting & standing BP, 12 Lead ECG, BM, Temp.
- FAST/Gait/Balance – Neurological assessment
- Respiratory and Cardiovascular system assessment
- General review of PMH and regular medications

Initiate a referral or convey to hospital for further investigation

Contact team leader/training officer for local referral options.

Risk Factors

- Alcohol excess
- history of falls
- gait deficit and/or balance deficit
- mobility impairment
- visual impairment
- cognitive impairment
- urinary incontinence
- home hazards - poor lighting, loose carpets
- number of medications / polypharmacy
- muscle weakness

Increasing rates of falls in the elderly:

- Poorer motor response, with some abnormal gaits, more common in the aged.
- Poorer protective mechanisms – where the elderly fail to put out their arms to save themselves, leading to reduced upper limb mobility and increased damage to other structures.
- Loss of fitness as a result of disuse.
- Appropriateness and use of mobility aids as level of mobility decreases.

STEMI Analgesia Campaign

Morphine use in pain management

As part of the Service's constant dedication to maintaining high standards of patient care and continuously improving our Service, the Clinical Audit and Research Unit contribute to the National Clinical Performance Indicator (CPI) Audit, facilitated by the National Ambulance Clinical Audit Steering Group (NACASG). These National CPI Audits compare our performance to other ambulance services across the country in five clinical areas: STEMI, cardiac arrest, stroke, hypoglycaemia and asthma. These areas have been chosen as they represent either a high volume of the patients attended by ambulance services or are a clinical area where there is evidence that pre-hospital care can impact on patient outcome.

The National STEMI CPI Audit assesses administration of Aspirin and GTN to patients, the measurement of patient's initial pain score and subsequent pain scores, and analgesia given to patients. The measures were developed from existing evidence-based guidance as per their impact on patient outcome.

Figures from the latest National STEMI CPI Audit show that crews are excellent at documenting the measurement of pain scores; however, delivery of analgesia in STEMI patients is an improvement that can be made so our care has most benefit to patients. To date, two cycles of these National STEMI CPI Audits have been completed. Data from the first cycle has shown overall analgesia was delivered to 61 per cent of patients, and cycle 2 has shown improvement in analgesia administration to 68 per cent of patients.

When examining the data further we found that Morphine was given to 78 per cent of patients receiving pain relief, this is the lowest percentage of STEMI patients receiving Morphine in the audit. Morphine and Entonox are the recommended analgesia for STEMI patients. Morphine is the first choice of analgesic when a patient is experiencing pain associated with a suspected STEMI and a paramedic is present. Morphine's ability as a drug to dilate blood vessels, aiding blood flow to the heart, makes it an extremely effective drug to be used for STEMI patients; therefore it is important all STEMI patients receive this form of analgesia when it is appropriate. On further examination, it was found that where pain relief was indicated and at least one paramedic was present, 58 per cent received Morphine, and where technician only crews attended only 19 per cent received Entonox.

Staff are encouraged to offer and provide analgesia to STEMI patients when it is required. Improving our analgesia administration will help to improve the quality of patient care we provide as a service and help us achieve our 100 per cent target. Look out for posters at stations!

For further information please contact Frances Sheridan
Email: Frances.sheridan@lond-amb.nhs.uk

Vulnerable Children

The National Institute for Clinical Excellence (NICE) has recently published extensive guidance to aid professionals in recognising vulnerable children or child maltreatment.

This guidance is contained within NICE guidance CG89 and is available for review at the following web address:

http://guidance.nice.org.uk/CG89

The guidance is essentially broken into 7 distinct areas:

- **Physical Features**
  e.g. cigarette burns
- **Sexual Abuse**
  e.g. STD in an under 13 y/o
- **Neglect**
  e.g. poor hygiene
- **Emotional Wellbeing**
  e.g. deliberate self harm
- **Clinical Presentation**
  e.g. unexplained poisoning
- **Fabricated / Induced Illness**
  e.g. multi hospital attendance / illogical clinical history
- **Parent - Child Interaction**
  e.g. Parent hostility to child / exposure to domestic violence.

The sections provide an enhanced framework to health and social care professionals when deciding to CONSIDER or SUSPECT vulnerability / abuse.

This guidance can be used to enhance and inform pre-hospital practice in conjunction with TP / 018 and referral form LA279.

Additionally, to ensure proper follow up. An LA279 should be completed for any child who resides at an address where an infant, child or adolescent has suffered an unexpected death – this is on the recommendation of the London Safeguarding Board.
www.londonscb.gov.uk

See Med Dir Bulletin – 18th Feb 2009

Service Resuscitation Guidance 2009

The following changes have been made to the Service's resuscitation practice.

(Further detailed information will be made available to clinical staff via team leaders and training officers.)

- **An LMA (with ETCO2) is now considered to be an advanced airway device for the purposes of registered paramedic termination of resuscitation.**

  In the past intubation was mandatory for Paramedic/ALS termination after 20 minutes of resuscitation in the asystolic patient – this is no longer the case.

- **Drugs should no longer be administered via the endobronchial route.**

  This change has been made after seeking expert opinion as it is no longer considered an appropriate route of administration.

- **Patients should not be moved whilst definitive VF/VT persists.**

  The possibility of survival will always be greater by staying on scene until a stable rhythm has been achieved. If a patient remains in VF/VT after multiple shocks (18 shocks for a Paramedic/ALS resuscitation), contact should be made with the clinical support desk for further advice.

- **Use of adrenaline 1:10000 for post resuscitation care should be decided by absence of radial pulse and not systolic BP.**

  This is in line with expert opinion to prevent a recurrence of VF/VT in the post resuscitation phase due to unnecessary doses of adrenaline. (A bolus of 250ml saline is still the first line treatment in a hypotensive ROSC patient.)

Remember – Always use a service bougie when intubating and utilise a skilled assistant.
Gain an early PRINT of ETCO2 once intubated and on arrival at hospital.

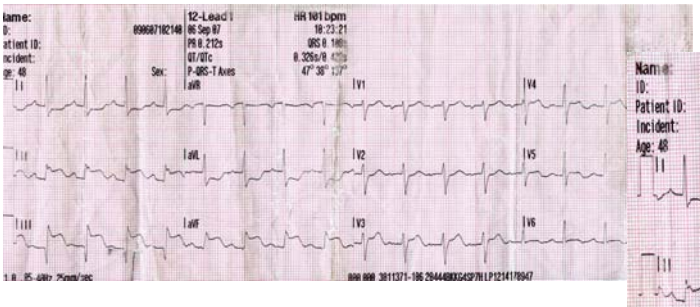
Major Trauma Centre – The future of trauma care in London.

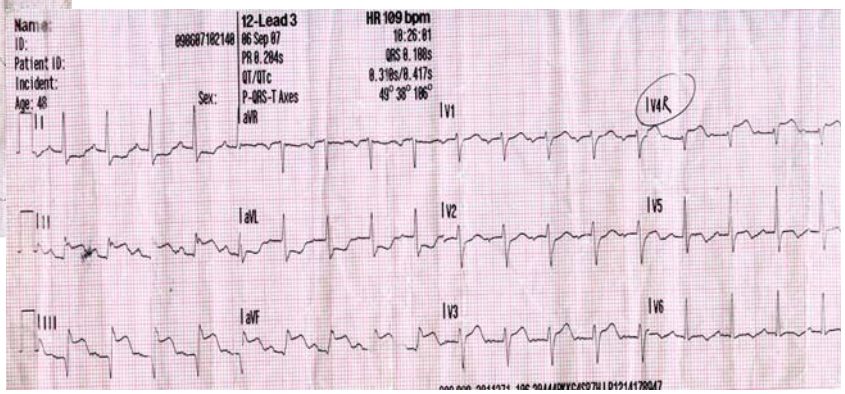
From April 2010 London will have the largest trauma network in the world spread amongst four Major Trauma Centres (MTC).

- The Royal London
- Kings College Hospital
- St Georges Hospital
- St Marys Hospital (Oct 2010)

London Ambulance Service will be critical to the functioning of this trauma network ensuring that appropriate trauma patients receive timely care in one of these 4 centres. Information has recently been issued to team leaders for complex level education and further guidance will be issued to staff over the next three months prior to implementation.

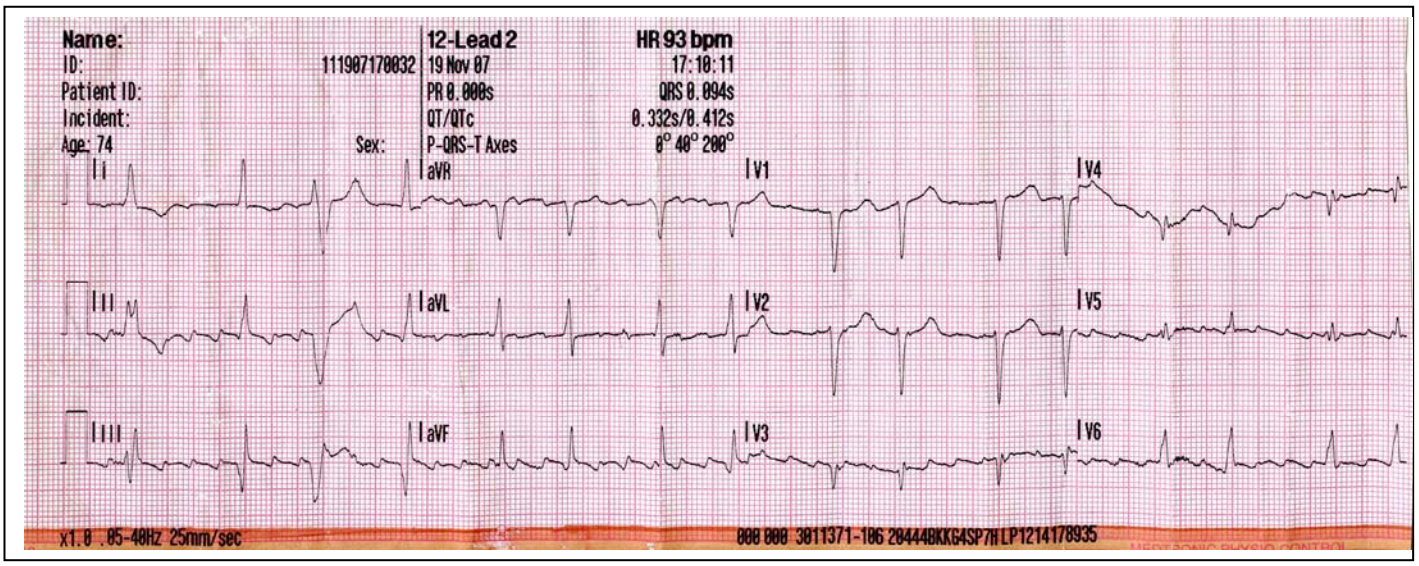
Last issue's ECG (below): The first ECG shows an inferior MI evidenced by ST elevation in II, III & aVF. The second ECG shows the V4r view, where an electrode has been placed on the right side of the chest in the 5th intercostal space. This view indicates ST elevation in lead V4r. Ideally this should be recorded in a patient suspected of having right sided involvement (due to clinical presentation) and/or presenting with an inferior STEMI. If hypotension below 80mmHG systolic is present GTN should not be administered and a SINGLE bolus of 250ml of normal saline is permitted. *For further guidance see the Medical Directorate Bulletin dated 23 August 2005.*





This Issue's ECG (below): This 74 year old female patient presented a primary complaint of palpitations and dyspnoea on exertion. Earlier in the day the patient had what they describe as "a funny turn". The patients initial observations were a pulse of 101, respiratory rate of 22, BP 140/92 and saturations on air of 96 per cent. She has a PMH of heart disease, COPD and hypertension controlled by beta-blockers.

What is the underlying rhythm of this ECG? What other abnormalities are visible?



Edited by Neil Scott, Clinical Adviser to the Medical Director