

Physiological Measurements and Recognising a Deteriorating Patient



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Aim

- ❖ To be able to undertake and record physiological measurements
- ❖ To recognise when an individual's condition is deteriorating
- ❖ To be able to undertake and recorded **N**ational **E**arly **W**arning **S**core (NEWS)

Objectives

Undertake physiological measurements

Respirations

Oxygen Saturations

Blood pressure

Pulse

Conscious level

Temperature

Undertake NEWS

Identify signs and symptoms of the individuals that are deteriorating

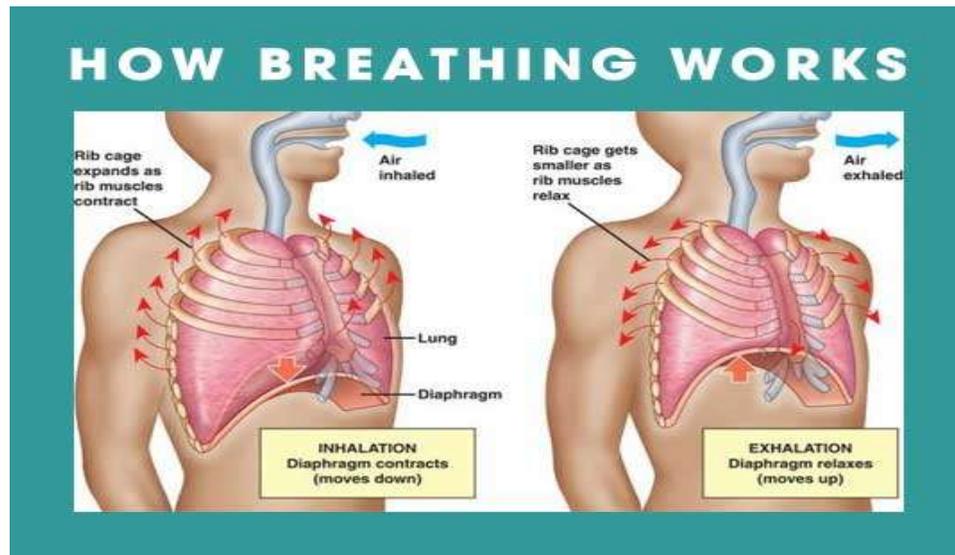
Report findings appropriately



Respirations

- The process where the lungs breath in and out, known as inhalation and exhalation.

One respiration = an inhalation + exhalation



- One is to breathe faster (respiratory rate) and the other is to breathe deeper (volume).

Rate-number of breaths/min

■ **Depth**-volume of air inhaled and exhaled with each breath.

■ **Rhythm**-regularity of breaths



Factors that affect breathing rate

Internal

- Stress – increase
- Anxiety - increase
- Medical conditions – increase or decrease
- Age

■ External

- Fear - increase
- Exercise – increase
- Medication – reduce or increase
- Weight
- Weather
- Pollen count



How to take a patients respiration rate

Measuring respiratory rate

- The human respiration rate is usually measured when a person is at rest.
- Record the number of breaths for **one full minute** by counting how many times the chest rises.
- When checking respiration, it is important to also note whether a person has any difficulty breathing.
- The invasiveness of touch/observation is enough to sometimes make significant changes in breathing. .

Normal ranges of respirations

| Age | Respirations rpm |
|---------------------------|------------------|
| Neonates less 28 days old | 30-55 |
| Infant 1 month – 1yr | 30-55 |
| Toddler 1-2 yrs | 20-30 |
| Pre school 3-5 yrs | 20-25 |
| School age 6-11 yrs | 14-22 |
| Adolescent 12-15yrs | 12-18 |
| Adult | 12-18 |

Elevated rate

- Powerful sign of acute illness
- Could be due to consequence of pain, distress, sepsis
- Could be due to Central Nervous System (CNS) disturbances (e.g.) acidosis

Reduced rate

- Important indicator of CNS depression and narcosis





Oxygen Saturations



- **Non-invasive method of measuring the oxygen saturations of arterial blood. This is a percentage of haemoglobin that is saturated with oxygen.**

- **Normal Oxygen saturations of an adult on air: 95-100%**
- **Normal oxygen saturations of an adult on oxygen: 92-99%**



Reasons for recording Oxygen Saturations

- Respiratory management
- Monitor unstable cardiac conditions
- Unwell individuals
- Diagnose respiratory illness
- Monitor effectiveness of oxygen/respiratory therapy
- During and after procedures that may require sedation/anaesthesia or potential respiratory depression



Factors that affect Saturations and undertaking Saturations

Internal

- Condition (COPD)
- Poor circulations
- Age
- Gender

External

- Environment
- Medication
- Nail varnish
- Cold hands



Pulse Saturations

Transmission type (currently the mainstream)

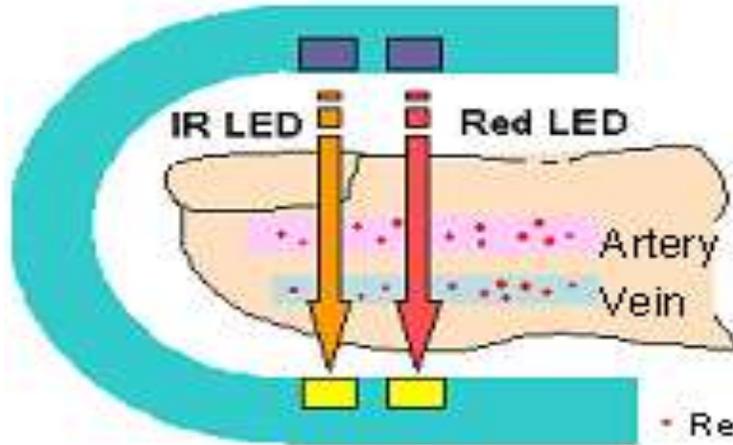
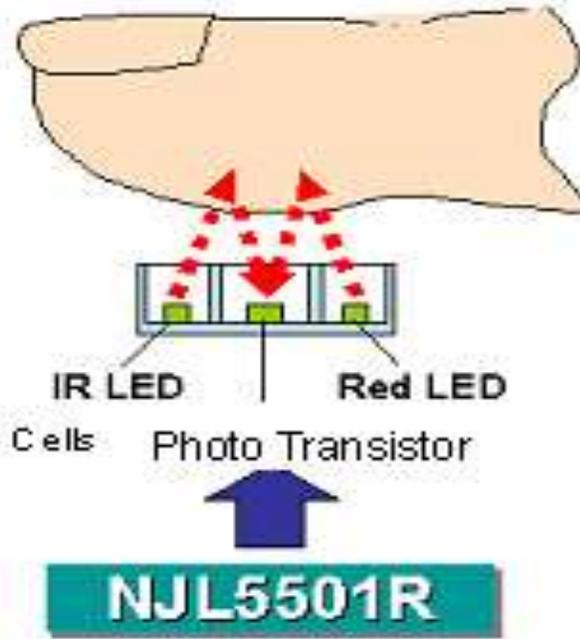


Photo Transistor

Reflective type



NJL5501R

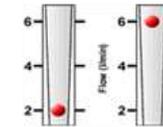


Oxygen Therapy



Oxygen Flow Meter

The Oxygen Flowmeter ball should be placed in the centre of the indicated line as show.



Nasal Cannula

Low flow Oxygen that put simply increases FiO₂ by 4% for every L/min of oxygen added

1L/Min = 24% FiO₂

2L/Min = 28%

3L/Min = 32%

4L/Min = 36%

5L/Min = 40%

} ***consider changing to Humidified face mask or Venturi Mask***



How can we minimise harm

Prescribing : Ensure prescription is present and correct. Target Oxygen saturation should always be documented and prescription reviewed every 24 hours

Monitoring: Observe patient for 5 minutes following initiation or change in oxygen dose. Observations should be done every 4 hours for continuous oxygen therapy and every 8 hours for intermittent. Pulse oximetry should be available when oxygen is in use. Monitor arterial oxygen saturation levels (if patient is receiving high flow or acutely unwell), Respiratory rate, visual signs such as skin and lip colour and for any signs of respiratory distress.

Administration : Check if connected, check if the mask or nasal cannula is fitted on the patient correctly and appropriate for % of oxygen delivery intended. Use correct venturi barrels if required.

Equipment : Used piped oxygen where possible. Report any leaks to estates immediately.



Pharmacy Fast Facts



Follow us in twitter @Medsafety_BCU

Oxygen



Safe use of Oxygen



Call Pharmacy department



Email addresses can be found via global

directory



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I am a medical gas that needs prescribing.
You can not see or touch me.
I am frequently administered
But often, I am not prescribed.

Who am I

OXYGEN



What can we do?

OXYGEN

is a medical gas & must be prescribed on the front of the all wales medication administration chart

In an emergency it can be administered immediately & documented retrospectively.
Oxygen is commonly used by a range of specialities and various health care practitioners in a hospital setting

Evidence of harm

: Oxygen can cause patient harm

Inadvertent administration of medical air instead of oxygen resulted in arrest due to hypoxia

Disconnection of Oxygen during transport resulted in breathing difficulties and the need for urgent medical care

British Thoracic Society 2015 audit showed 42.5 % of patient on oxygen did not have a valid prescription

Undocumented target saturation rates can lead to over or under-dose of oxygen placing patients at risk

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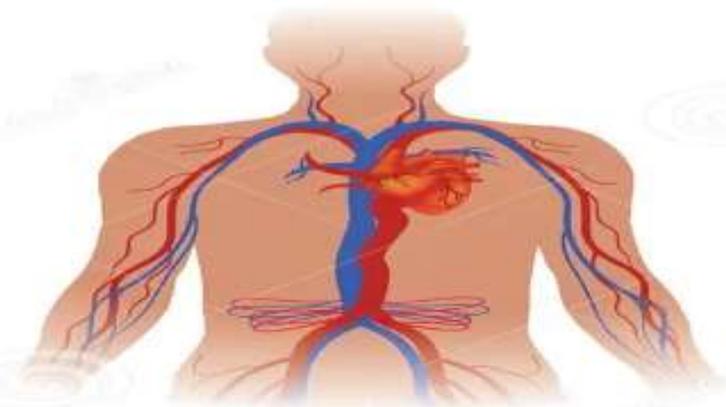
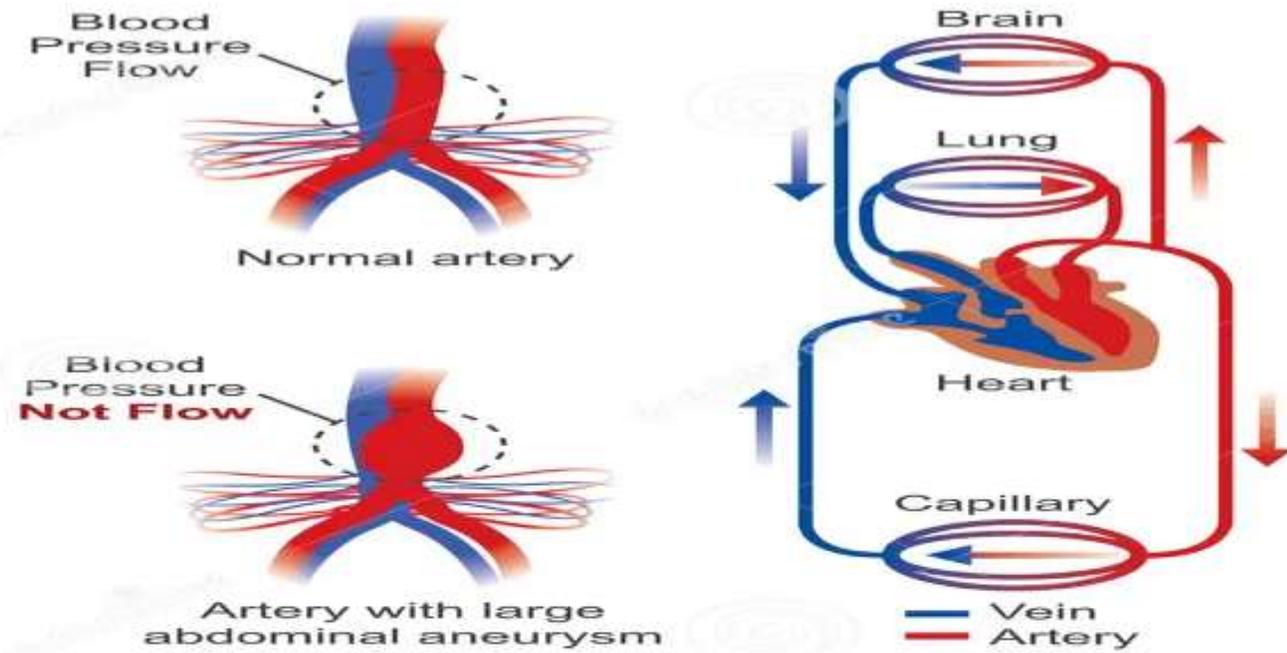
For more information search for adults in managed services

MM15: Policy for administration and use of emergency and non-emergency oxygen in on betsinet



Human Blood Pressure

Heart : pumps blood through the blood vessels of the circulatory system



Blood pressure is the pressure exerted on the artery walls by circulating blood

- People with high blood pressure are said to have **hypertension**
- People with low blood pressure are said to have **hypotension**

| Blood Pressure Category | Systolic (Upper) mm Hg | Diastolic (Lower) mm Hg |
|--|------------------------|-------------------------|
| Normal | Loss than 120 | Loss than 80 |
| Prehypertension | 120-139 | 80-89 |
| High Blood Pressure Stage 1 | 140-159 | 90-99 |
| High Blood Pressure Stage 2 | 160 or higher | 100 or higher |
| High Blood Pressure Stage 3 EMERGENCY CARE NEEDED | 180 and over | Higher than 110 |

Normal and Abnormal

Normal blood pressure can fluctuate within a wide range and still be considered normal.

- Normal systolic is usually between 100 and 140mmHg
- Normal diastolic is usually between 60 – 80 mmHg

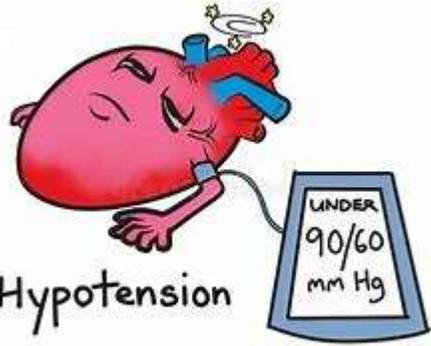
| Age | Blood pressure mmHg |
|---------------------------|---------------------|
| Neonates less 28 days old | 67/35 - 84/53 |
| Infant 1 month – 1yr | 80/55- 100/65 |
| Toddler 1-2 yrs | 90/55 - 105/70 |
| Pre school 3-5 yrs | 95/60 – 107/73 |
| School age 6-11 yrs | 95/60 -110/73 |
| Adolescent 12-15yrs | 110/70 -124 /79 |
| Adult | 110/70 -124 /79 |



Where can we take a blood pressure?

- **Brachial artery**
- **Left arm is far more accurate reflection of arterial blood pressure (There is a big difference between each arm)**
- **First reading should be done on both arms – if there is a large discrepancy then this should be reported. Highest reading should be the arm that is then always used for the recording of blood pressure**





Hypotension

- Systolic Blood pressure is below 100mmHG
- Can be the first sign of shock
- Insufficient pressure to pump blood



Hypertension

- Can be acute or chronic
- Recordings taken over a period of time to diagnose this.

Increase risk of:

- Stroke
- Heart attack



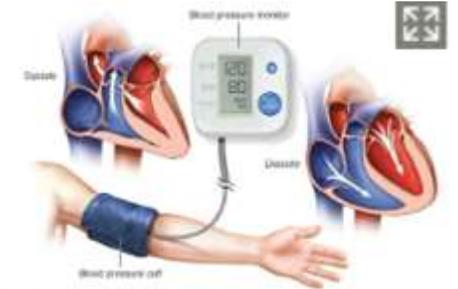
What affects Blood Pressure

Internal

- Blood volume –
Bleeding/dehydrated
- Emotion
Anxiety
Shock
Stress
- Pain
- Infection
- Age

External

- Exercise
- Weight
- Incorrect cuff size
- Medication
- Heat injury –cold / heat



Blood pressure measurement



Inappropriate sites for taking a BP

- On the affected side of a mastectomy - decrease already compromised lymphatic circulation
- On the same arm as a fistula or haemodialysis shunt - blood flow can be compromised
- The patient has trauma to the arm
- Intravenous fluids been administered
- Patient has had a stroke
- Patient has a history of Atrial Fibrillation - mechanical



How to take a electronic blood pressure



Blood pressure measurement

<https://youtu.be/G8QkaAygatE>

How to take a manual Blood pressure



<https://youtu.be/HZ1vV3PjMPo>



Cuff sizes

| | | Option 1 | Option 2 | | | | | | | |
|------------------------|----------|---|---|---------------|---------------|---------------|---------------|---------------|--------------------------|----------------|
| | | Attach above fittings directly to your current device tubing. | Buy FlexiPort cuffs with tubing and connectors to fit your blood pressure devices without making changes. | | | | | | | |
| | | No Tubes or Connectors Required | One-Tube | | | | Two-Tube | | | |
| | | | Screw | Tri-Purpose | Locking | Bayonet | Screw | Locking | Tri-Purpose & Empty Tube | Inflation Sys. |
| Size (each) | Range | FlexiPort | Screw | Tri-Purpose | Locking | Bayonet | Screw | Locking | Tri-Purpose & Empty Tube | Inflation Sys. |
| Small Infant (6) | 7-10 cm | REUSE-06 | REUSE-06-1SC | REUSE-06-1TP | REUSE-06-1MQ | REUSE-06-1HP | n/a | n/a | n/a | n/a |
| Infant (7) | 9-13 cm | REUSE-07 | REUSE-07-1SC | REUSE-07-1TP | REUSE-07-1MQ | REUSE-07-1HP | REUSE-07-2SC | REUSE-07-2MQ | REUSE-07-2TP | REUSE-07-2BV |
| Small Child (8) | 12-16 cm | REUSE-08 | REUSE-08-1SC | REUSE-08-1TP | REUSE-08-1MQ | REUSE-08-1HP | REUSE-08-2SC | REUSE-08-2MQ | REUSE-08-2TP | REUSE-08-2BV |
| Child (9) | 15-21 cm | REUSE-09 | REUSE-09-1SC | REUSE-09-1TP | REUSE-09-1MQ | REUSE-09-1HP | REUSE-09-2SC | REUSE-09-2MQ | REUSE-09-2TP | REUSE-09-2BV |
| Small Adult (10) | 20-26 cm | REUSE-10 | REUSE-10-1SC | REUSE-10-1TP | REUSE-10-1MQ | REUSE-10-1HP | REUSE-10-2SC | REUSE-10-2MQ | REUSE-10-2TP | REUSE-10-2BV |
| Adult (11) | 25-34 cm | REUSE-11 | REUSE-11-1SC | REUSE-11-1TP | REUSE-11-1MQ | REUSE-11-1HP | REUSE-11-2SC | REUSE-11-2MQ | REUSE-11-2TP | REUSE-11-2BV |
| Adult Long (11L) | 25-34 cm | REUSE-11L | REUSE-11L-1SC | REUSE-11L-1TP | REUSE-11L-1MQ | REUSE-11L-1HP | REUSE-11L-2SC | REUSE-11L-2MQ | REUSE-11L-2TP | REUSE-11L-2BV |
| Large Adult (12) | 32-43 cm | REUSE-12 | REUSE-12-1SC | REUSE-12-1TP | REUSE-12-1MQ | REUSE-12-1HP | REUSE-12-2SC | REUSE-12-2MQ | REUSE-12-2TP | REUSE-12-2BV |
| Large Adult Long (12L) | 32-43 cm | REUSE-12L | REUSE-12L-1SC | REUSE-12L-1TP | REUSE-12L-1MQ | REUSE-12L-1HP | REUSE-12L-2SC | REUSE-12L-2MQ | REUSE-12L-2TP | REUSE-12L-2BV |
| Thigh (13) | 40-55 cm | REUSE-13 | REUSE-13-1SC | REUSE-13-1TP | REUSE-13-1MQ | REUSE-13-1HP | REUSE-13-2SC | REUSE-13-2MQ | REUSE-13-2TP | REUSE-13-2BV |



Pulse Rate

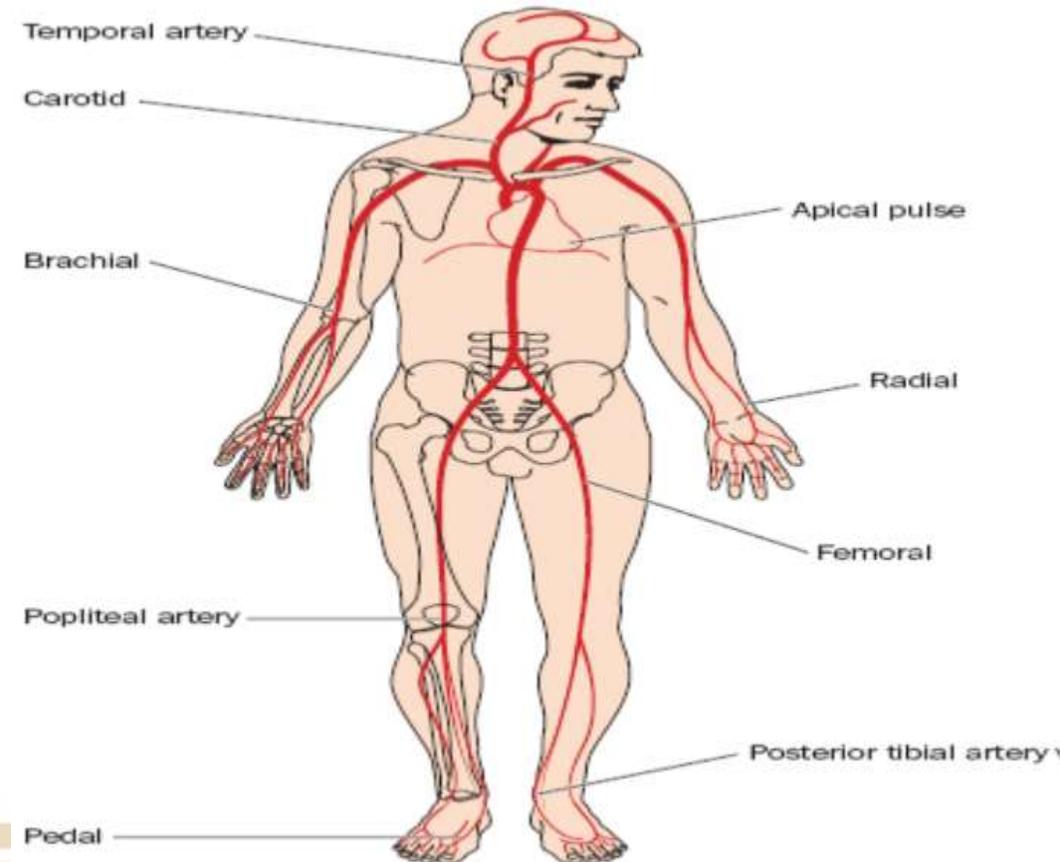
A pulse is the rate or number of times the heart beats in one minute. It is the rate at which the heart forces blood around the body.

Rate – How many beats per minute

Rhythm – Is it regular – this could be missed beats, long periods between beats, a added beat during the 1 minute observation

Volume – How strong is the pulse

Common sites to take a pulse



Factors that can influence a Pulse

Internal

- Anxiety – increase
- Pain –increase
- Infection
- Cardiac abnormalities –
arthrosclerosis
- Circulatory problems
- Reduced consciousness –
decrease
- Age

External

- Exercise - increase
- Medication – increase and
decrease
- Trauma – may not be accurate
- Temperature – weather
- Sleep – decrease
- Fitness – fit people lower pulse
rate
- High respiratory rate (40 and
above) - increase



Normal Values



| Age | Pulse bpm |
|---------------------------|-----------|
| Neonates less 28 days old | 100-165 |
| Infant 1 month – 1yr | 100-150 |
| Toddler 1-2 yrs | 70-110 |
| Pre school 3-5 yrs | 65-110 |
| School age 6-11 yrs | 60-95 |
| Adolescent 12-15yrs | 60-85 |
| Adult | 60-85 |

Terminology you may hear:

- ❖ A fast rate = **Tachycardia** (over 100bpm)
- ❖ A slow rate = **Bradycardia** (under 60bpm)



So what should you observe and Note

Observe the rate, rhythm and volume.

Is the rate regular or irregular?

- Regular - beats are evenly spaced with nice steady volume.
- Regular Irregular rhythm- regular pattern but with occasional "skipped" beats
- Irregularly Irregular - no real pattern, very irregular, difficult to measure rate accurately
- Record the rate and note any observation of abnormal volume and rhythm. If registered practitioner



ACVPU: LEVEL OF CONSCIOUSNESS



- **Alert-** Eyes open spontaneously, aware and responsive to the environment, follows commands
- **Confused-** Any history of previous confusion (e.g.) dementia, learning disabilities, mental health condition
- **Voice-** Eyes does not open spontaneously but open to verbal stimuli, able to respond in some meaningful way when spoken to
- **Pain-** does not respond to questions but moves or cries our in response to painful stimuli such as pinching skin or earlobe
- **Unresponsive-** Patient does not respond to any stimuli.



TEMPERATURE

Measuring the body temperature will provide information on how hot or cold the body is in relation to the amount of heat (energy) being used.



Why take a temperature?

- Fever
- Detect abnormal low body temperature
- Detect abnormal High temperature
- Detect hyperpyrexia (death of cells within the body and can be life threatening)
- Effects of medication (Paracetamol)
- Plan Pregnancy- Ovulation



Normal and abnormal temperature

Normal

- 36.1 – 38.0
- Fluctuates throughout the day between 0.5 C and 1.5
- Measured in Celsius

Abnormal

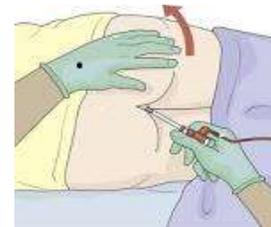
- 38.1 – above
- 36.0 – and below
- Fluctuates throughout the day between 0.5 C and 1.5
- Measured in Celsius

| Age | Temperature C | |
|---------------------------|---------------|-------------|
| | Oral | Ear |
| Neonates less 28 days old | 36.7–37.3°C | 37–37.9°C |
| Infant 1 month – 1yr | | |
| Toddler 1-2 yrs | 36.4–37.4°C | 37–37.9°C |
| Pre school 3-5 yrs | | |
| School age 6-11 yrs | | |
| Adolescent 12-15yrs | 35.6–36.7°C | 36.1–37.2°C |
| Adult | 35.6–36.7°C | 36.1–37.2°C |



Where is the body temperature measured?

- Forehead
- Ear – tympanic
- Armpit - axilla
- Mouth – oral
- Rectal



Factors that affect a temperature

Internal

- Ovulation
- Ageing
- Chronic disease
- Acute disease
- Age – babies

External

- Eating
- Exercise
- weather
- Clothing
- Medication



Signs of temperature?

Look – do they look hot or cold



Listen – do they say they feel hot or cold



Touch – do they feel hot, sweaty or cold

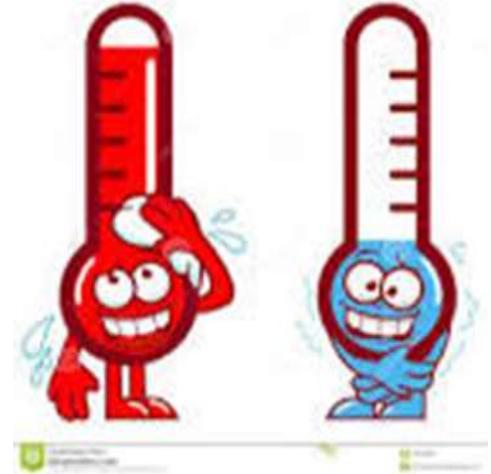


Terminology

Hyperthermia – high temperature

Hypothermia – low temperature

Pyrexia – high temperature



Any Questions?



Physiological Measurements and Recognising a Deteriorating Patient



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Recognising the Deteriorating Patient

Recognising Deterioration

S Seems different to usual
No matter how small the change, think: 'Stop & Watch'

W Weight change
Losing weight without trying

T Talks or communicates

A Ate less
Lack of

A Agitated
or more



Individuals at risk of deteriorating

- Any age – but elderly and the very young
 - Pre-existing diseases - renal, heart, lung
 - Acutely unwell
 - Fail to progress with treatment
 - Post Surgery – infections
 - Post massive blood transfusion
 - Step-down patients - CDU/HDU/ICU
 - Recently discharged patients
 - Anyone taking immunosuppressive medication i.e. transplant patients.
 - People with impaired immune system e.g. due to Chemo/Radiotherapy, AIDS, Diabetics
 - Pregnancy
- Any one can become a risk



Deteriorating Patients



Numbers to contact for help:

In-Hospital – **2222** (State name, full place name, and situation)

Community- **999** or **112**

APP-



- What are we looking at?
- What will these tell us?
- How do we assess a deteriorating patient?



First Impressions

- **Change in behaviour/ Acting inappropriately?**
- **General Appearance?**
- **Gut instinct?**
- **Sights/Smells/Noises?**



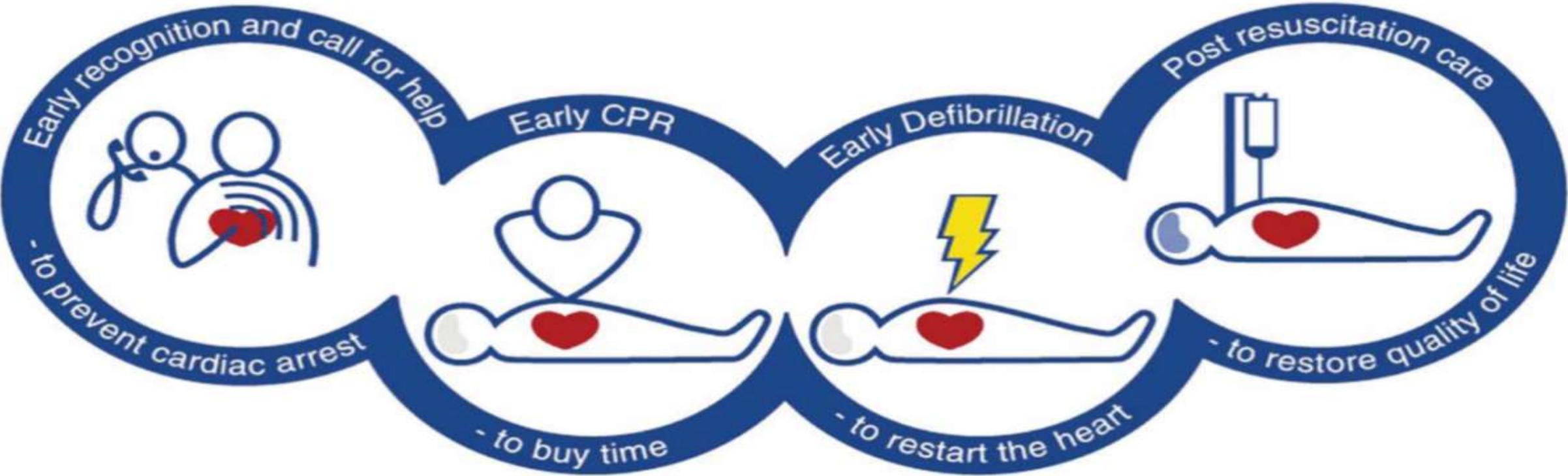
Recognising the Deteriorating Patient

- Once Cardiac arrest occurs, about 24% of patients having in-hospital cardiac arrest survive to go home
- Most in-hospital cardiac arrests are not sudden or unpredictable events: In 80% of cases, there is deterioration during the few hours before cardiac arrest. (Resuscitation Council UK,2021)

Resuscitation Council UK(2021) Immediate Life Support, 5th Edition May 21 2021



Chain of survival



Components of the ABCDE approach



Airway

A patent airway is a priority



Breathing

Effective breathing is essential



Circulation

Adequate oxygenation is crucial



Disability

Level of consciousness



Environment

Signs of concern on and around the patient's body

World Health Organization, 2018



A-Airway

- **Causes:**

Blockage in the Airway (e.g.) blood, food, secretions, vomit

Infection and oedema : direct trauma to face or throat

Narrowing of the airway: (e.g.)Laryngospasm, bronchospasms

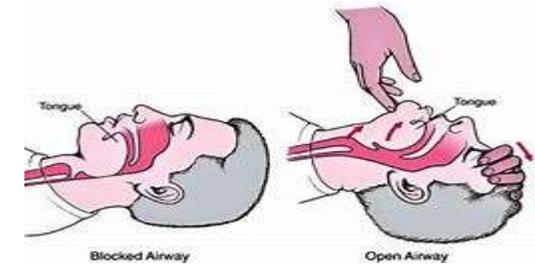
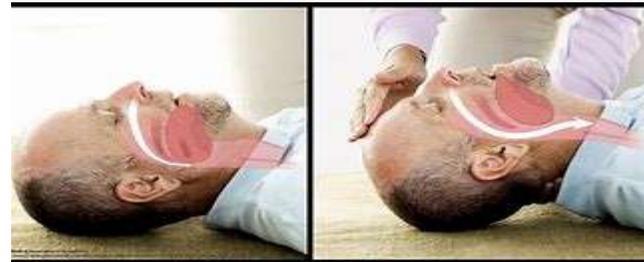
Central nervous system depression (e.g.) loss of airway patency due to head injury, hypoglycaemia, alcohol, drugs, general anaesthesia

- **Sign and symptoms of Airway problems:**

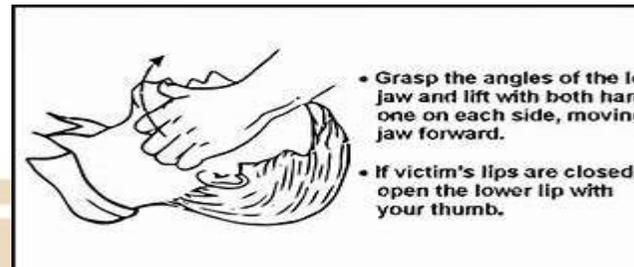
Snoring, Stridor, Gurgling, Coughing, Gaspings, Clutching at Throat, Red Face, Wheezing, spluttering, Crackling

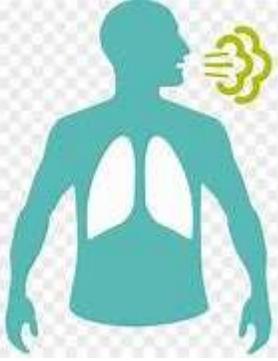
Treatment:

Head, Tilt, Chin Lift



- **Jaw Thrust**





B-Breathing

- May be acute or chronic (e.g.) **Acute:** Chest infection/Covid or **Chronic:** Asthma/COPD/
- Continuous or intermittent and severe enough to cause a person to stop breathing (apnoea or respiratory arrest)
- Listen and watch for breathing
- Look at rate, rhythm and depth

Sign and Symptoms:

Panting, hyperventilating, position of patient, clammy, hot, pink/red facial colour, wheezing, noisy breathing, using accessory muscles to breathe, amount of effort required to breathe

Treatment:

Oxygen saturations

Monitor respirations

Oxygen (use of non-rebreathe mask)



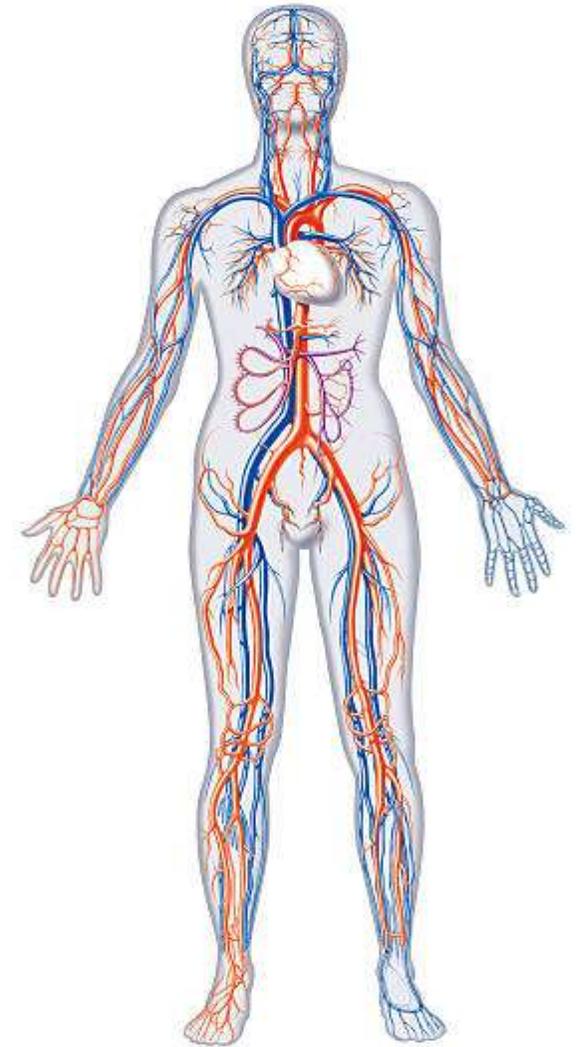
C- Circulation

Causes:

- Primary heart disease or heart abnormalities secondary to other problems.
- In acutely ill patients, circulation problems are most commonly caused by hypovolemia.

Signs and symptoms:

- **Colour of hands and fingers:** Blue, pink, mottled
- Cyanosis (Blue lips)
- **Touch-** do they feel cold or warm?
- **Capillary Refill Time (CRT)-** Normal value is 2 seconds
- Pulse, Blood pressure, bleeding



D-Disability

Some causes of unconsciousness:

Hypoxia,

Diabetes (Hyperglycaemia/Hypoglycaemia)

Drugs/alcohol

Head injury

Signs and symptoms

Blood Glucose Monitoring (BM) (e.g.) High/Low

Drug and alcohol (e.g.) illegal drugs, Sleeping tablets, Analgesia (Pain medication)

Head Injury: ACPVU/Glasgow Coma Scale (GCS)

Pupils:

Weakness down one side, sudden paralysis

Slurred speech

| Glasgow Coma Scale | | |
|--|---|----------|
| Response | Scale | Score |
| Eye Opening Response | Eyes open spontaneously | 4 Points |
| | Eyes open to verbal command, speech, or shout | 3 Points |
| | Eyes open to pain (not applied to face) | 2 Points |
| | No eye opening | 1 Point |
| Verbal Response | Oriented | 5 Points |
| | Confused conversation, but able to answer questions | 4 Points |
| | Inappropriate responses, words discernible | 3 Points |
| | Incomprehensible sounds or speech | 2 Points |
| Motor Response | No verbal response | 1 Point |
| | Obeys commands for movement | 6 Points |
| | Purposeful movement to painful stimulus | 5 Points |
| | Withdraws from pain | 4 Points |
| | Abnormal (spastic) flexion, decorticate posture | 3 Points |
| Extensor (rigid) response, decerebrate posture | 2 Points | |
| No motor response | 1 Point | |

Minor Brain Injury = 13-15 points; Moderate Brain Injury = 9-12 points; Severe Brain Injury = 3-8 points



Figure 2. Appearance of both eyes 1 hour after

E-Environment/Exposure

Sign and symptoms:

Examine for any:

- rashes,
- bruising, bleeding,
- fractures,
- bumps,
- swelling,
- Deformity



This could be done by

asking patient, relatives, other staff

Reading patient notes



Sepsis recognition

- ANY SCORE of 3 or more must be reported to a registered nurse.
- It could be SEPSIS.
- What is sepsis? (Septicaemia) is the bodies reaction to infection and means that your body attacks its own organs.
- **Sepsis accounts for 50,000 deaths annually in the UK each year (Sepsis Research, 2021)**

- Sepsis Research (2021) Annual Review 2020/21.



SEPSIS IS A RARE BUT SERIOUS CONDITION THAT CAN LOOK JUST LIKE FLU, GASTROENTERITIS OR A CHEST INFECTION.

SEEK MEDICAL HELP URGENTLY IF YOU DEVELOP ANY ONE OF THE FOLLOWING:

- S** LURRED SPEECH
- E** XTREME SHIVERING OR MUSCLE PAIN
- P** ASSING NO URINE (IN A DAY)
- S** EVERE BREATHLESSNESS
- "I** FEEL LIKE I MIGHT DIE"
- S** KIN MOTTLED OR DISCOLOURED

THE UK SEPSIS TRUST

EMAIL: INFO@SEPSISTRUST.ORG FOR MORE INFORMATION

Your Role in sepsis

- **To carry out observations**
- **Identify NEWS score**
- **Report any concerns if patient has any signs of deterioration and you suspect sepsis**



Sepsis



- Think sepsis at NEWS score of 3 or above ?



National Early Warning Score (NEWS) 2

- NEWS is a tool developed by the Royal College of Physicians – Improve detection and response to clinical deterioration in adult patients
- It also allows healthcare professionals to communicate about deteriorating patients in a common language



Difference between NEWS & NEWS 2

| Physiological Parameters | 3 | 2 | 1 | 0 | 1 | 2 | 3 |
|----------------------------------|-------|--------|-----------|-----------|-----------|---------|------|
| A Respiratory rate (bpm) | ≤8 | | 9-11 | 12-20 | | 21-24 | ≥25 |
| B O ₂ Saturations (%) | ≤91 | 92-93 | 94-95 | ≥96 | | | |
| Any supplemental Oxygen | | Yes | | None | | | |
| C Systolic BP (mmHg) | ≤90 | 91-100 | 101-110 | 111-219 | | | ≥220 |
| Pulse (bpm) | ≤40 | | 41-50 | 51-90 | 91-110 | 111-130 | ≥131 |
| D CAVPU score | | | | Alert | | | CVPU |
| E Temperature (°C) | ≤35.0 | | 35.1-36.0 | 36.1-38.0 | 38.1-39.0 | ≥39.1 | |

Concern about a patient should lead to escalation, regardless of the score.

SpO₂ Scale 2[†]
 Oxygen saturation (%)
 Use Scale 2 if target range is 88–92%, eg in hypercapnic respiratory failure.

***ONLY use Scale 2 under the direction of a qualified clinician**

Chart 1: The NEWS scoring system

| Physiological parameter | Score | | | | | | |
|--------------------------------|-------|--------|-----------|---------------------|-----------------|-----------------|---------------|
| | 3 | 2 | 1 | 0 | 1 | 2 | 3 |
| Respiration rate (per minute) | ≤8 | | 9–11 | 12–20 | | 21–24 | ≥25 |
| SpO ₂ Scale 1 (%) | ≤91 | 92–93 | 94–95 | ≥96 | | | |
| SpO ₂ Scale 2 (%) | ≤83 | 84–85 | 86–87 | 88–92 ≥93 on air | 93–94 on oxygen | 95–96 on oxygen | ≥97 on oxygen |
| Air or oxygen? | | Oxygen | | Air | | | |
| Systolic blood pressure (mmHg) | ≤90 | 91–100 | 101–110 | 111–219 | | | ≥220 |
| Pulse (per minute) | ≤40 | | 41–50 | 51–90 | 91–110 | 111–130 | ≥131 |
| Consciousness | | | | Alert | | | CVPU |
| Temperature (°C) | ≤35.0 | | 35.1–36.0 | 36.1–38.0 | 38.1–39.0 | ≥39.1 | |



Documents used to score NEWS

Chart 1: The NEWS scoring system

The image shows a detailed NEWS scoring form. It is a grid with multiple columns and rows. The columns represent different physiological parameters, and the rows represent individual patient observations. The cells are color-coded: red for scores of 3, orange for 2, yellow for 1, and white for 0. The form includes sections for patient information, vital signs, and a total score calculation.

| Physiological parameter | Score | | | | | | |
|--------------------------------|-------|--------|-----------|---------------------|-----------------|-----------------|---------------|
| | 3 | 2 | 1 | 0 | 1 | 2 | 3 |
| Respiration rate (per minute) | ≤8 | | 9–11 | 12–20 | | 21–24 | ≥25 |
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| Consciousness | | | | Alert | | | CVPU |
| Temperature (°C) | ≤35.0 | | 35.1–36.0 | 36.1–38.0 | 38.1–39.0 | ≥39.1 | |



National Early Warning Score - For a NEWS- you need to record:

- Respiratory Rate
- Oxygen Saturations
- Temperature
- Systolic BP
- Pulse
- Level of consciousness



National Early Warning Score (NEWS) 2

NEWS scores change over time and the frequency of observations should be increased to track improvement and deterioration in a patients condition

Parameters: **New/worsening confusion**

Acceptable limits added

NEWS 3-5: Observations 4 hourly

NEWS 6-8: Observations 1 Hourly

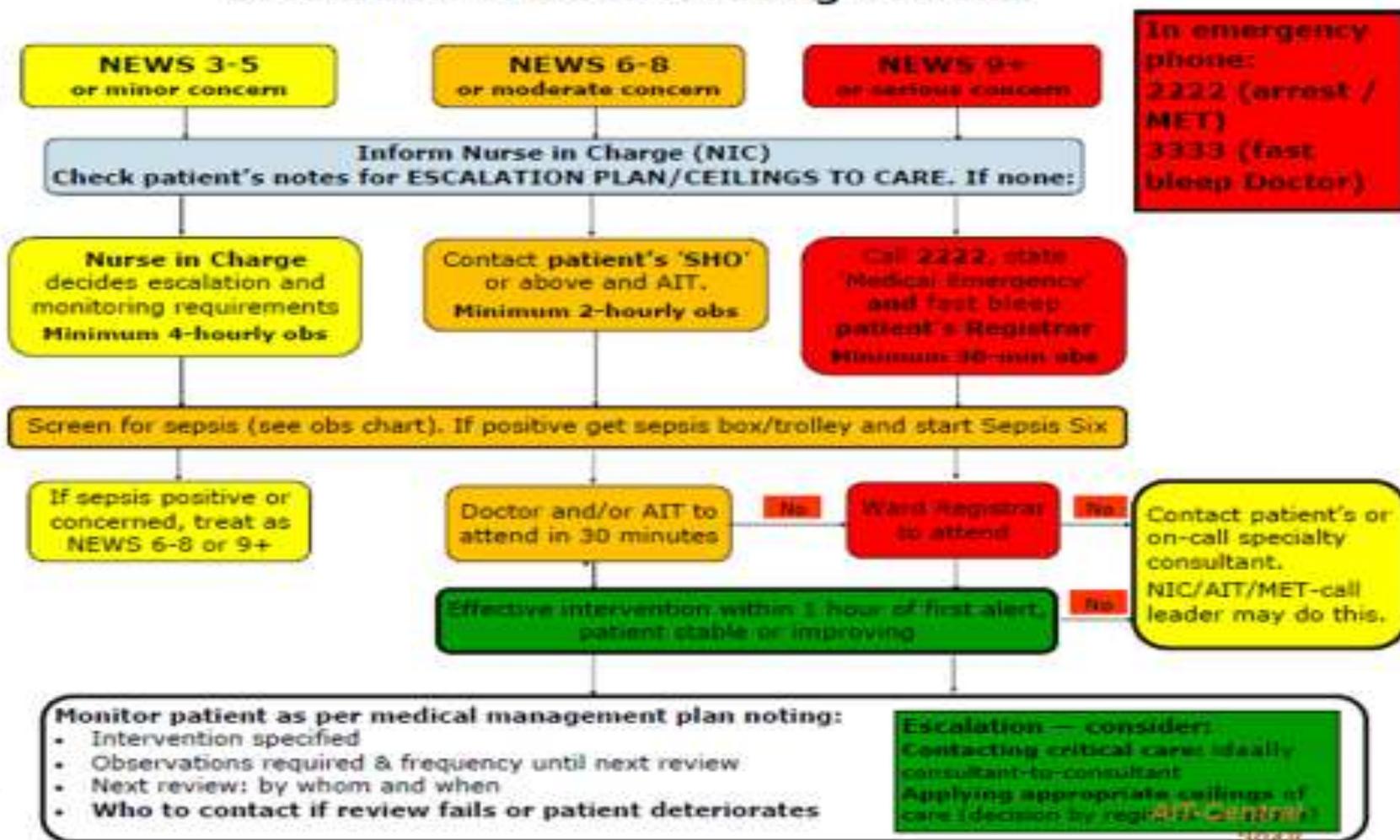
NEWS 9-11 Rapid Response call 2222

NEWS OVER 12: Cardiac Arrest response

Any NEWS score of 3 or over- Must be Reported



Escalation of Deteriorating Patient



NEWS 2

Caution with partial observations – if only partial set recorded inaccurate NEWS score. A NEWS cannot be obtained from partial physiological observations .

Misplotting of observations and miscalculations of NEWS could lead to failure to recognise the unwell individual



Example Scenario

Example Scenario

Mr Smith is 52 year old gentleman who attends the emergency department with fever, cough and pleuritic pain with following vitals:

- Respiratory rate: 21/min
- Oxygen saturation : 93%
- On air
- Systolic blood pressure: 120 mmHg
- Heart rate : 95/min
- Consciousness: Alert
- Temperature: 38.5 °C

| Physiological Parameters | 3 | 2 | 1 | 0 | 1 | 2 | 3 |
|--------------------------|-------|--------|-----------|-----------|-----------|---------|------|
| A Respiratory rate (bpm) | ≤8 | | 9-11 | 12-20 | | 21-24 | ≥25 |
| B O2 Saturations (%) | ≤91 | 92-93 | 94-95 | ≥96 | | | |
| Any supplemental Oxygen | | Yes | | None | | | |
| C Systolic BP (mmHg) | ≤90 | 91-100 | 101-110 | 111-219 | | | ≥220 |
| Pulse (bpm) | ≤40 | | 41-50 | 51-90 | 91-110 | 111-130 | ≥131 |
| D CAVPU score | | | | Alert | | | CVPU |
| E Temperature (°C) | ≤35.0 | | 35.1-36.0 | 36.1-38.0 | 38.1-39.0 | ≥39.1 | |

Concern about a patient should lead to escalation, regardless of the score.



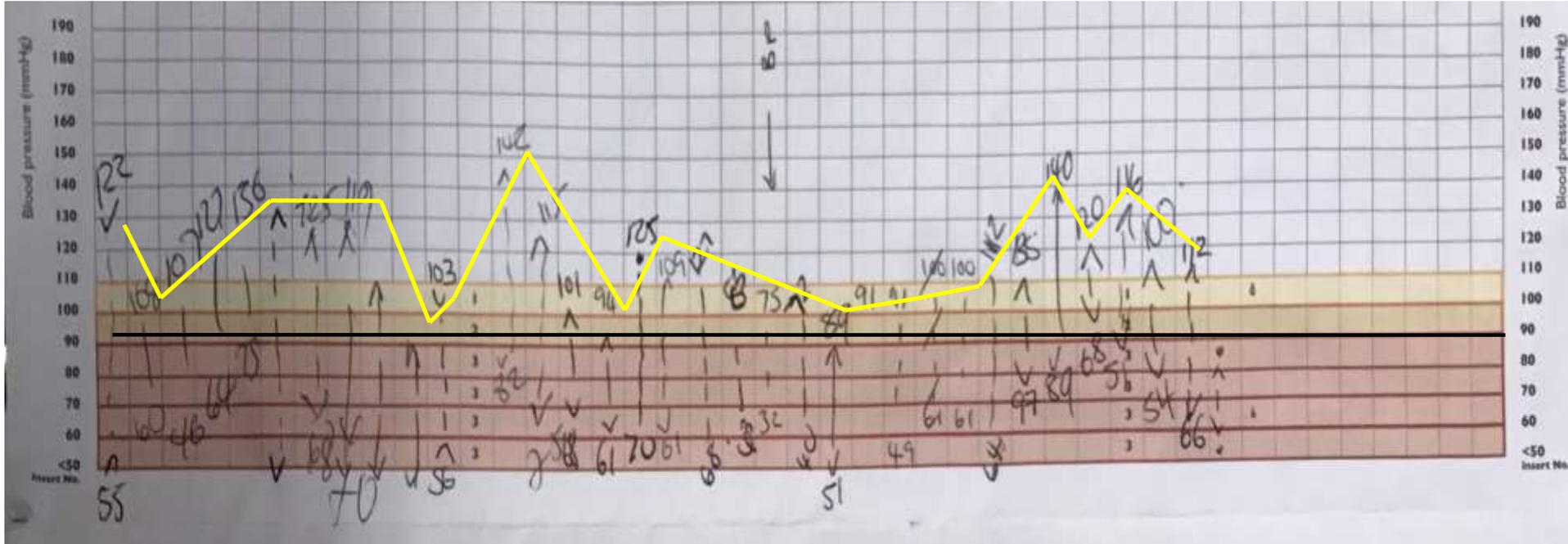
| National Early Warning Score (NEWS) 2 | | | |
|---------------------------------------|--------------|--------------------------|-------|
| Parameter | | Value | Score |
| Respiration rate (per minute) | | 21 | |
| Oxygen Saturation (%) | SpO2 Scale 1 | 93 | |
| Air or Oxygen | | Patient on Air | |
| Systolic Blood Pressure (mm Hg) | | 120 | |
| Pulse (per minute) | | 95 | |
| Consciousness | | Alert | |
| Temperature (°C) | | 38.5 | |
| | | Total NEWS2 Score | |



Documentation

- Ensure the correct score for each observation recorded.
- Make sure the numbers add up correctly
- Do not falsify records
- Don't score a NEWS if observations are incomplete.



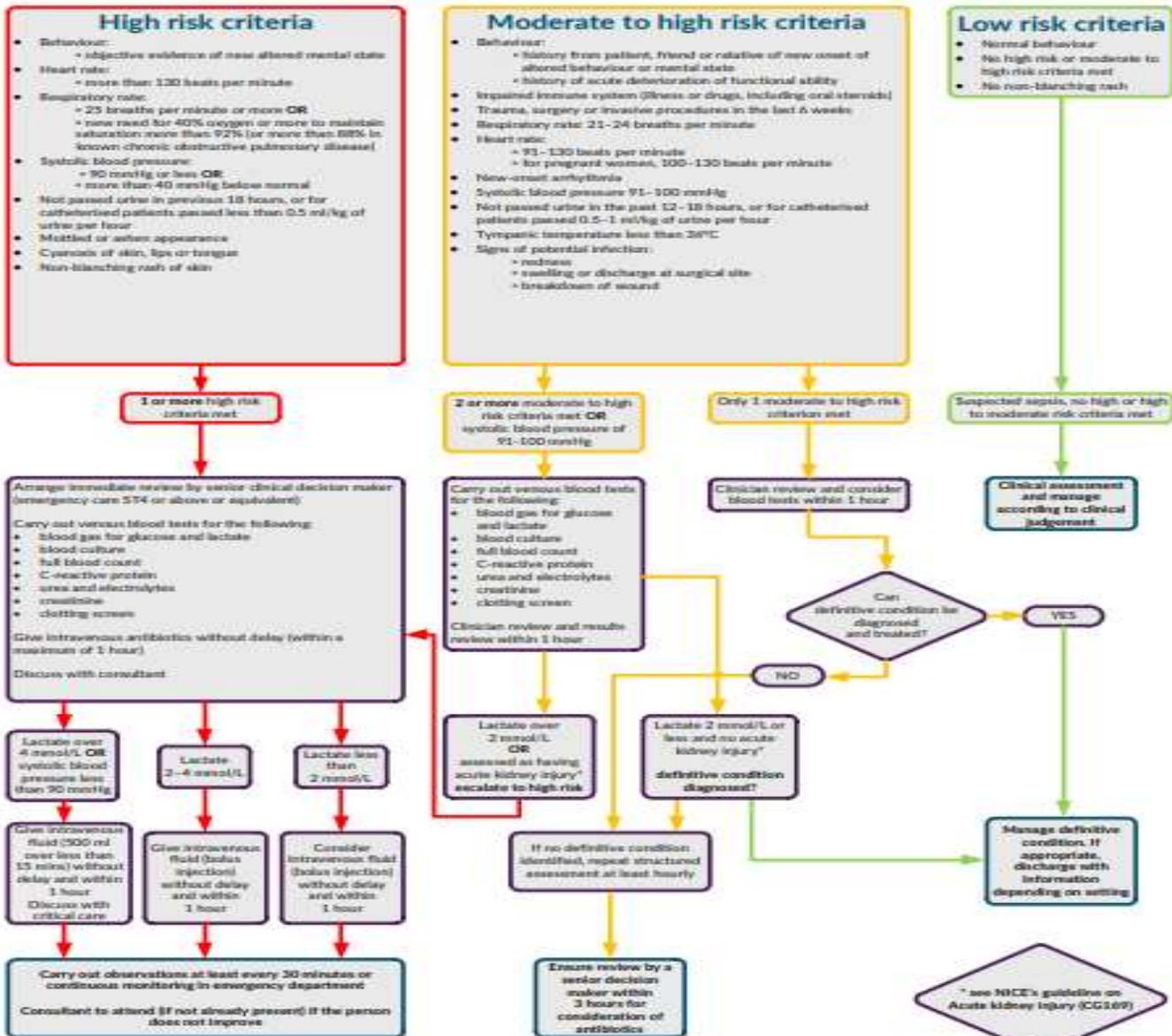


Types of assessment charts

- Sepsis flow chart and policy for Maternity
- Flowchart for over 65yrs
- Cancer and Palliative care
- BCUHB Sepsis policy and flow chart



Sepsis risk stratification tool: people aged 18 and over in hospital



Summary

- Recognition and escalation of deteriorating individuals ensure prompt medical decisions.

- **Effective Team work is crucial!!!!!!!!!!!!!!!!!!!!**



Remember

Can everyone make sure that all the workbooks are submitted by 07/04/23 otherwise this will affect your ability to pass this course.

If it then continues until 21st April then your managers will be informed.

If it persists into May then you will be asked to redo the course from week one.

- After the 3 induction dates, Learners will have until 3 days following the final day to submit completed workbooks.
- Failure to submit will result in a email to Line manager.



Actions



Please remember that if you do not complete the competencies and have completed everything relating to this unit, you will not be able to undertake physiological measurements within the workplace.



Any Questions?

