**VITAL SIGNS** (LO 1.3)

As a first aider we need to recognise when someone is injured or unwell. A casualty may have an obvious injury which can be serious but not life-threatening – Equally someone else may feel mildly unwell but have a potentially life-threatening condition.

Look at the pictures and ask yourself *Is this life threatening?*



So how do we assess a casualty who may have no obvious signs of injury or who may be unresponsive or uncommunicative?

The answer is to assess their **VITAL SIGNS** or **LIFE SIGNS**.

In first aid we use 4 vital signs – ***colour, temperature, breathing and level of response***. If we know what is normal for these vital signs then it may be a cause for concern if our casualty’s vital signs fall outside the normal average range but remember that what is normal for one person may not be normal for another – always check with the casualty or with someone with them if their vital signs are normal for them eg do you usually have a very pale skin? Is your breathing normally this fast?

We can gather a lot of information about a casualty’s condition just by interacting with them – speaking, looking, listening, touching.

**When assisting someone who is conscious we must always ask for consent first. “would you like some help” If you need to touch them, ask for consent and explain why you need/want to do something.**

The first vital sign we assess is the ***LEVEL OF RESPONSE*** and we use the ***AVPU*** scale to determine a sliding scale of responsiveness - where ***A*** stands for ***Alert*** through to ***U*** for ***Unresponsive.***

Is our casualty ***RESPONSIVE*** or ***ALERT***? This means they will respond appropriately to our questions eg Do you need any help? Can you tell me what happened?

If they do not appear ***ALERT*** will they respond to your ***VOICE*** and simple commands like ‘open your eyes’ Will they turn in your direction when you speak to them?

If they do not respond to your **VOICE**, will they respond to **PAIN**? These days we do not want to subject our casualty to anything painful so instead we may tap the casualty on the shoulders or squeeze their trapezium (shoulder) muscles. Be cautious if you suspect a back or neck injury – we do not want to encourage our casualty to move their head which could exacerbate any injury. If it is likely they have been involved in an accident, consider the ‘mechanism of injury’ – could they have fallen from height, been thrown onto a hard surface or hit with force onto their back or neck – a good idea is to speak to them directly above their face or gently hold their head when speaking to them.

If our casualty does not respond to our voice or a noxious stimuli (pain) we say they are ***UNRESPONSIVE***

***The next vital sign we assess is Breathing*** – On average an adult breathes somewhere between 12-20 breaths/minute. Children breathe faster than adults (see table)

 Normal breathing is ***quiet, regular and effortless.***

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| **AGE** | **NORMAL RESPIRATION RATE** |
| Infant (<1 year) | 30-53 |
| Toddler (1-2 yr) | 22-37 |
| Pre-school (3-5 yr) | 20-28 |
| 6-11 yr | 18-25 |
| 12 yr – adult | 12-20 |
| Adult respiratory rates of <10 or >25 are a cause for concern |

Breathing that deviates from the norm **MAY** be cause for concern

First we need to assess whether or not the casualty is breathing ***Yes/No?***

If your casualty is conscious count how many times their chest rises and falls in one minute. You might also ask “is this breathing normal for you” Underlying medical conditions can cause people to breath faster than what is considered normal.

***How do we assess for breathing on an unresponsive casualty?***

Get down low so your cheek is close to the casualty’s face – Look down their body, listen for breathing and feel for breaths on your cheek for no more than 10 seconds.

***Once we’ve established our casualty is breathing we need to consider whether they’re breathing normally or not.***

Assess the ***RATE & RHYTHM*** of the breathing – is it fast or slow? Regular or irregular? – is the casualty breathing at all?

Assess the ***SOUND*** of the breathing – is it noisy? Wheezing, gasping, gurgling, rattling.

Assess the ***EFFORT*** required for breathing? Is it painful, difficult, laboured?

***Agonal Breathing*** is not normal breathing and is an indicator of Cardiac Arrest – breathing is often observed to be fewer than 10-12 times/minute (that’s 1 breath every 10 seconds) In one study paramedics found 56% of patients who suffered OHCA (out of hospital cardiac arrest) exhibited agonal breathing – characterised by gasping for air, snorting, gurgling, moaning or grunting. This is not normal breathing but rather a brainstem reflex. Agonal breathing often occurs because the heart is no longer circulating oxygen-rich blood and the blood pressure falls. It is associated with end of life

***Our next vital sign is SKIN COLOUR***

Perhaps the vital sign we observe most regularly is changes in ***SKIN COLOUR*** – It is often the first thing that prompts us to be concerned about a person’s well-being. A persons skin colour can give us information about the oxygen levels in their blood. A ***PINK*** complexion tells us the blood is oxygenated and circulating well around the body to the organs and importantly the brain. On darker skins assessing skin colour is not always easy but there are three windows into a person’s circulation that we can use regardless of ethnicity. so there are practical ways we can assess for good circulation.

* Look inside the lower eyelid and lower lip
* Capillary Refill – apply pressure to the nailbed for 5 seconds. If the colour returns in less than 2 seconds we know there is good blood flow to the extremities.

If the skin is pale it could suggest there is a problem with circulation. Excessive bleeding, internal bleeding, hypothermia, heart attack and shock can all cause oxygen levels in the blood to decrease. Certainly if the lips are blue (cyanosis) we would say the casualty is hypoxic and this suggests that oxygen levels in the blood are dangerously low. This is **NOT** normal!

Equally a very red skin may also be cause for concern and can be indicative of a major head injury, fever, sepsis or anaphylaxis to name a few. Ask yourself is this normal for the environment we’re in? If your casualty has been exercising hard on a hot day then it’s probably completely normal to be red and sweaty. It’s probably not normal if your casualty is sitting at his desk in a well ventilated office space.

Our final vital sign is ***TEMPERATURE –*** the normal body temperature for an adult is around 37C - it is normal to feel ***WARM & DRY*** . We do not normally walk around with themometers in our pockets so the easiest way to check temperature is to use the back of your hand against the casualty’s forehead. If we are outside, we will get a more reliable sense of temperature if we slip our hand inside the clothing between the shoulder blades but do be aware this can feel invasive – always ask permission and explain why you’re doing it – if the casualty is not comfortable with this then don’t do it!

***What’s NOT normal?***

Cold & clammy = suggests not enough blood circulating = shock

Cold & dry = hypothermia

Hot & sweaty = infection, fever

Hot & dry = (could be) heatstroke

**SO TO RECAP:**

Ask yourself is this normal? Ask the casualty – is this normal for you and if the casualty can’t speak ask anyone with them – is this normal for them? If it’s not normal, the casualty could be very unwell and we may need to call 999 for an ambulance right away. Vital signs give us important information about a casualty’s condition and helps us to make decisions about their care and treatment.





**Swift First Aid**

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