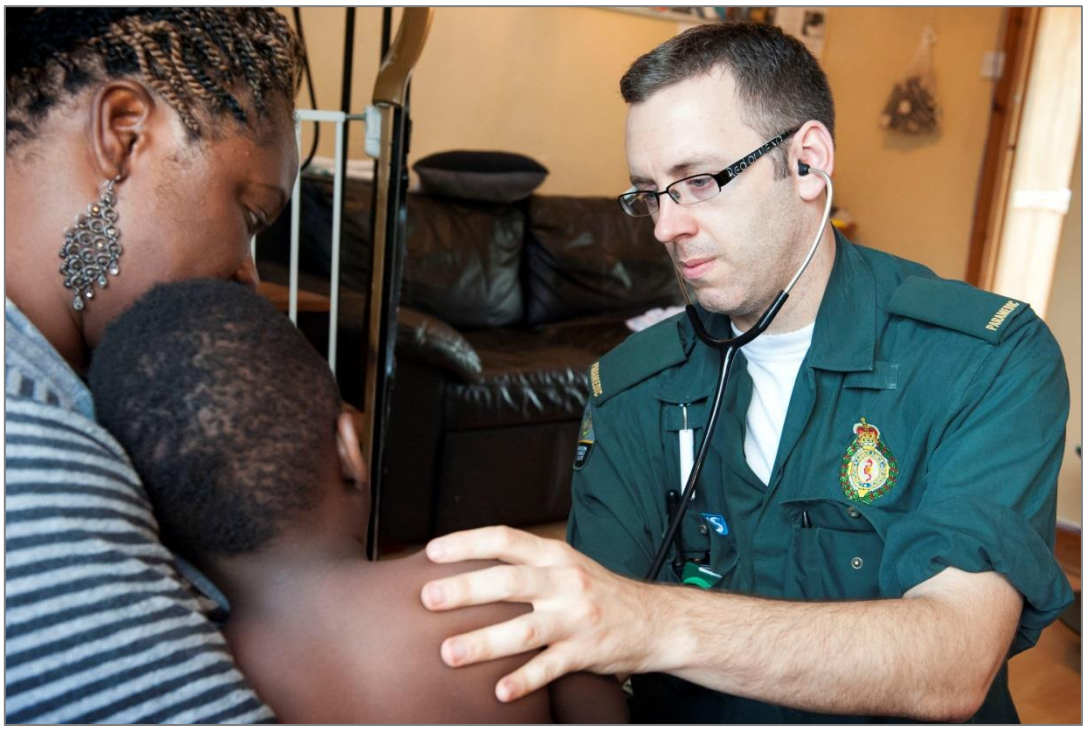
London Ambulance Service NHS Trust

Paramedic Pathfinder

Workbook

&

Discriminator Dictionary



Adapted from:

Paramedic Pathfinder and Community Care Pathways,
North West Ambulance Service NHS Trust (2013)

Version 3

Contents

Introduction

The demand for emergency ambulances is increasing every year and the range of conditions, and changing clinical patterns of patients continue to challenge us as ambulance clinicians.

Many patients can be treated in an urgent care setting, such as an Urgent Care Centre or Minor Injury Unit, or by Community Care services. It can be challenging for the ambulance clinician to differentiate between patients who require assessment and management in the Emergency Department from those who may be safely triaged to an urgent care setting. Paramedic Pathfinder is a clinical decision support tool which is designed to aide the ambulance clinician in assessing patients in the pre-hospital environment. Paramedic Pathfinder aides the clinician by enabling the exclusion of serious discriminators before consideration is given to pathways other than the traditional conveyance to the ED.

Designed by North West Ambulance Service NHS Trust, Paramedic Pathfinder is a consistent and clinically safe triage system designed to enable accurate face-to-face assessment of individual patients on scene.

Derived from the Manchester Triage System, Paramedic Pathfinder utilises a flowchart of specific symptoms, determining the most appropriate pathway for the patient. Winner of the Health Service Journal Clinical Redesign Award 2011, Paramedic Pathfinder will assist the clinician to accurately stream individual patients to the most appropriate care pathway, accurately identifying patients who clinically require assessment in the Emergency Department (ED) and those who can be managed within co-located Urgent Care Centres (UCCs) or by utilising other Appropriate Care Pathways (ACPs).

Triage

Triage is a process of prioritising patients based on the severity of their condition and assigning them the most effective and efficient resources. Therefore, in order to ensure optimal care it is used as an effective system of risk management to manage patients efficiently when resources are under pressure or insufficient to manage demand.

Triage may result in determining the order and priority of emergency treatment, the order and priority of emergency transport, or the transport destination for the patient. Triage may also be used for patients arriving at the emergency department, or in telephone medical advice systems among others.

Modern approaches to triage are often based on both physiological early warning scores and assessment findings. They are generally algorithm based, employing a systematic reductionist approach, assuming that the patient's condition is time critical until proved otherwise. The Manchester Triage System is a well established example of this reductive approach and has been used to inform the Pathfinders.

General Principles

Use of the Pathfinders is restricted to use by staff of Emergency Medical Technician 3 (or equivalent) and above. This refers to the application of the triage tool only, and staff must refer to their scope of practice in respect of autonomous non-convey/ discharge from care decisions. Students and trainees may use the tool under direct supervision of an appropriately qualified clinician.

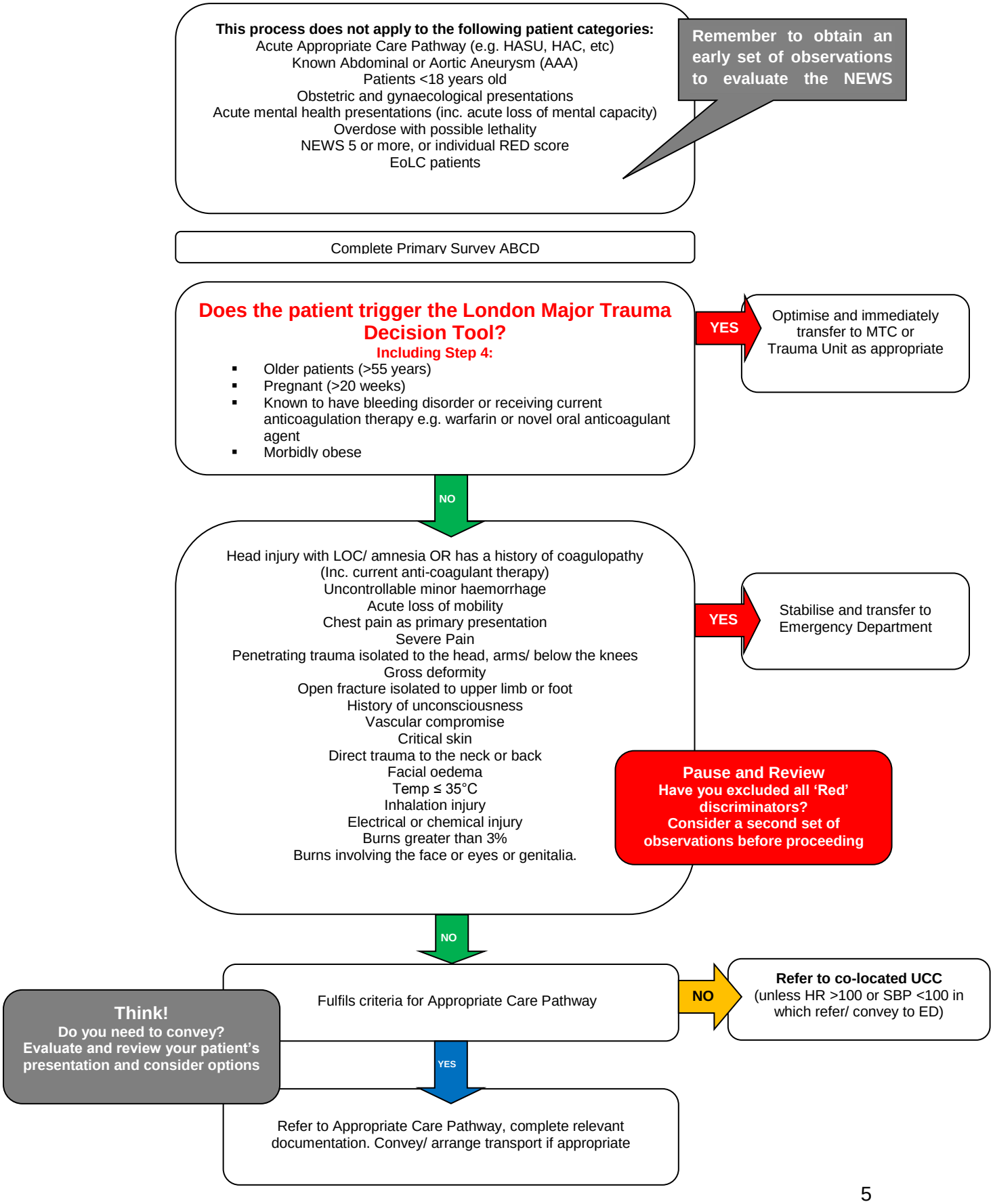
The following categories of patients are excluded from the Pathfinders:

- Acute Appropriate Care Pathway (e.g. HASU, HAC, etc)
- Known Abdominal or Aortic Aneurysm (AAA)
- Patients <18 years old
- Obstetric and gynaecological presentations
- Acute mental health presentations (inc. acute loss of mental capacity)
- Overdose with possible lethality
- NEWS 5 or more, or individual RED score
- EoLC patients
- End of life care patients

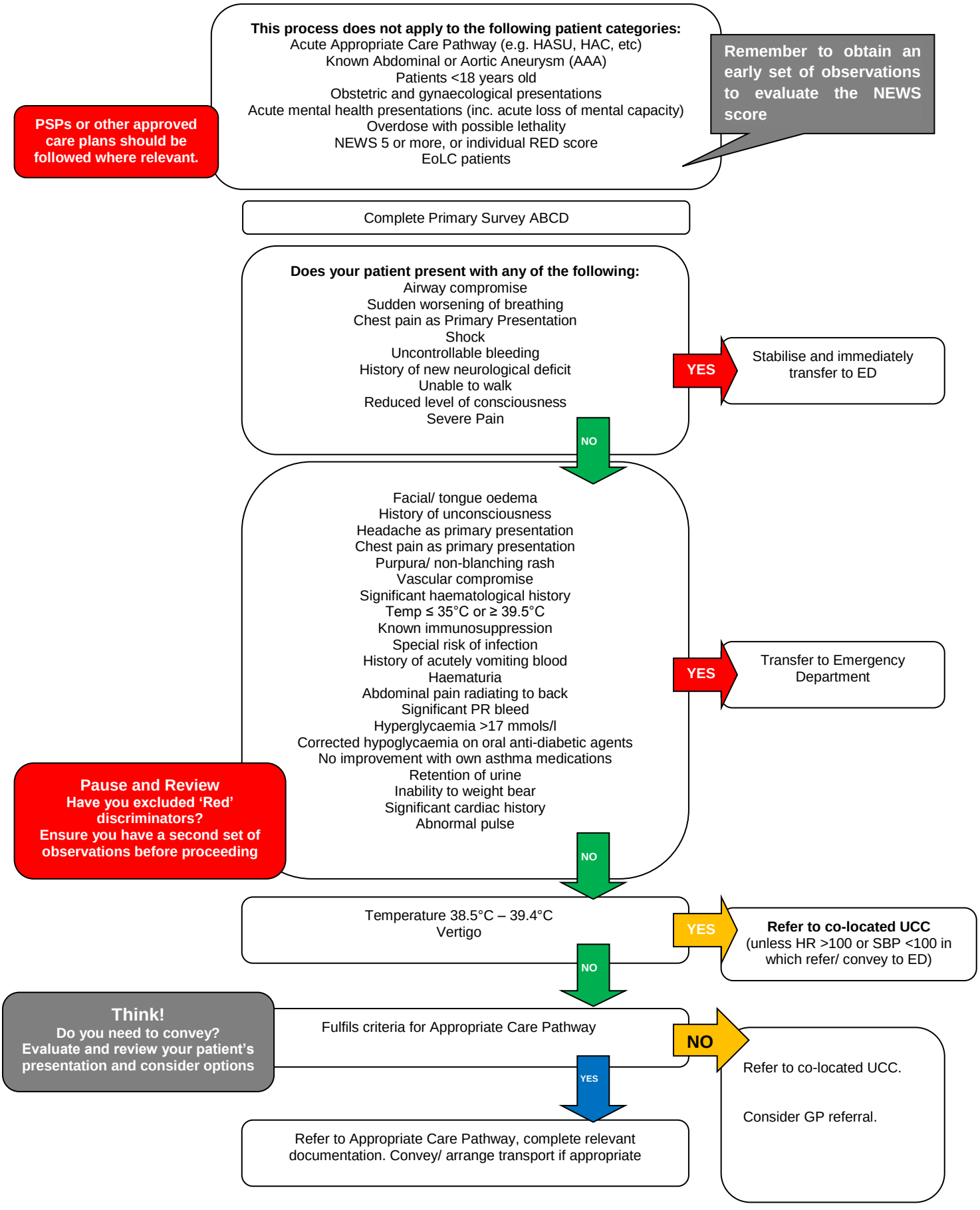
Paramedic Pathfinders are available for medical and traumatic presentations; however it must be observed that only patients who do not trigger the London Major Trauma Decision Tool are suitable for triage using the Trauma Pathfinder.

Acutely unwell patients will always require assessment and early intervention within the ED and Pathfinder will ensure that these patients are recognised at an early stage in the assessment process. Use of the Pathfinders will also assist staff in safely and confidently identifying patients whose condition can be managed in a less acute setting.

Paramedic Pathfinder (Trauma) v1 (Adapted from NWAS v11)



Paramedic Pathfinder (Medical) v2 (Adapted from NWAS v10)



General Discriminator Dictionary

Discriminator	Group	Description	Suggested Questions/ Advice
Abdominal pain radiating to back	Abdominal pain in adults	Any abdominal pain associated with back pain that is felt intermittently or constantly.	Do you have pain in your tummy? Does the pain go through to your back?
Abnormal pulse	Abnormal pulse Current palpitations	A bradycardia (<60 in adults), a marked tachycardia (>120 in adults) or an irregular rhythm. A feeling of the heart racing that is still present.	Does your heart feel like it is fluttering?
Acute loss of mobility	Unable to walk Inability to weight bear	Patients whose normal ability to mobilise is compromised. Inability to carry the full weight of the body through one or both limbs. **Patients who are normally unable to walk due to chronic illness or disability are not included in this category.**	Can they walk? Can they hobble about? Does it hurt to walk?
Acute mental health presentations	Mental Illness	An acute mental health presentation is characterised by sudden or rapid onset of significant and distressing symptoms of a mental illness requiring immediate treatment. This may be the person's first experience of mental illness, a recent episode or the worsening of symptoms of an often continuing mental illness. The reason for the inclusion of 'Acute' in Pathfinder as opposed to just 'mental health presentations' was to ensure that patients with other acute problems that co-exist with chronic mental illness, such as dementia are not excluded from alternative pathways of care.	Does the patient have a history of mental health problems and/ or a named community mental health worker? Does the patient take medication for mental health problems? If so have they recently stopped taking this? Have the patient's symptoms changed suddenly/ progressively worsened? Does the patient present a risk to themselves or others? Has the patient self-harmed or do they have a history of self-harm? Is the patient acutely distressed or disruptive?
Airway Compromise	Airway Compromise Stridor Drooling/ inability to swallow	An airway may be compromised either because it cannot be kept open or because the airway protective reflexes (that stop inhalation) have been lost. Failure to keep the airway open will result in intermittent or total obstruction or in partial obstruction. This will manifest itself as snoring or bubbling sounds during inspiration or expiration. Saliva running from the mouth due to inability to swallow.	Are they awake? Are they struggling to breathe? Can they get their breath in? Do they make a gurgling sound when they breathe?
Cerebrovascular accident (CVA)/ Stroke		Stroke is the rapid loss of brain function due to disturbance in the blood supply to the brain. This can be due to ischaemia (lack of blood flow) caused by blockage (thrombosis, arterial embolism), or a haemorrhage. As a result, the affected area of the brain cannot function, which might result in an ability to move one or more limbs on one side of the body, inability to understand or formulate speech, or an inability to see one side of the visual field.	FAS Test – Is the face drooping? Is there any arm weakness? Or Any speech difficulty?

Discriminator	Group	Description	Suggested Questions/ Advice
Coagulopathy		Coagulopathy (also called clotting disorder and bleeding disorder) is a condition in which the blood's ability to clot is impaired. This condition can cause prolonged or excessive bleeding, which may occur spontaneously or following an injury or medical or dental procedures.	Does the patient have a history of anti-coagulant therapy or clotting disorder?
Facial/ Tongue oedema	Facial oedema Facial swelling Oedema of the tongue	Diffuse swelling around the face usually involving the lips. Any swelling around the face which may be diffuse or localised. Swelling of the tongue of any degree.	Is your face swollen? Is it swollen in a particular place or all over? How swollen is it? Is their tongue swollen?
Frank Haematuria/ haematuria	Haematuria	Red discolouration of the urine caused by blood.	Is there blood in your urine? Is your urine red?
Headache as primary presentation	Abrupt onset headache Headache	Any patient whose main presenting symptom is headache or who experience symptoms of headache with onset within seconds or minutes. May cause wakening from sleep.	Do you have a headache? Is your headache your main symptom? How long ago did it start? When did it come on? Did it come on suddenly?
History of acutely vomiting blood		Frank haematemesis, vomiting of altered blood (coffee grounds) or of blood mixed in the vomit in the last 24 hours.	Have you vomited any blood? Have you vomited up any brown stuff? How long ago did the vomiting start?
History of new neurological deficit	New neurological deficit Acute neurological deficit	These may include altered or lost sensation, weakness of the limbs (either transiently or permanently), or alterations in bladder or bowel function. This includes symptoms that may have come on in the past 24 hours.	Can you move all your arms and legs? Do you have any tingling or numbness? When did this start?
History of unconsciousness		There may be a reliable witness who can state whether the patient was unconscious (and for how long). If not a patient who is unable to remember the incident should be assumed to have been unconscious.	Were you (they) unconscious? Have you (they) been knocked out?
Hyperglycaemia >17 mmols/l (without ketosis)		Glucose >17mmol/l without signs of acidosis (deep sighing resps etc).	Do you test your blood for glucose? What is it? Do you have ketones in your urine (if available).

Discriminator	Group	Description	Suggested Questions/ Advice
(Corrected) Hypoglycaemia with significant medical history		Glucose less than 4 mmol/l with a pre-existing medical condition requiring continual medication or other care.	How do you control your diabetes? Do you take oral antiglycaemic medication?
Known immunosuppression		Any patient on immunosuppressive drugs (including long term steroids) or who is HIV positive.	Are you taking any immunosuppressive drugs at the moment? Have you had chemotherapy in the last 3 weeks?
No improvement with own asthma medications		This history should be available from the patient. A failure to improve with bronchodilator therapy given by the GP or paramedic is equally significant.	Have you taken your reliever inhaler? Did it help? Have you been ventilated previously for an asthma attack? Have you been admitted to hospital for asthma in the last year?
Obstetric and gynaecological presentations		Obstetric and Gynaecological presentations are any symptoms/ pathology/ associated with the female reproductive organs in their pregnant and non-pregnant state, respectively. They do not include symptoms/ pathology associated with the urinary tract or system.	Is the patient pregnant/ possibly pregnant? Is the blood loss PV (per vaginum)? Are there clots present?
Overdose with possible lethality	Overdose and poisoning	Overdose with possible lethality	What has been ingested? How much has been ingested? How long ago was the substance taken?
Progressive or sudden worsening of breathing	Inadequate breathing Acutely short of breath Unable to talk in sentences Exhaustion	Breathing which is increasing in severity or extent in relation to their normal respiratory pattern and depth. This includes shortness of breath that comes on suddenly or a sudden exacerbation of chronic shortness of breath. They may be unable to talk in sentences as they are so breathless. Exhausted patients appear to reduce the effort they make to breathe despite continuing respiratory insufficiency. This is pre-terminal.	Are they breathing? What colour are their lips/ tongue? Can they talk to you in sentences? Are they fighting for their breath? Is their breathing faster than usual? Are there signs of exhaustion? Are they grunting or using accessory muscles? Have you suddenly become more short of breath? Are you more short of breath than normal?
Purpura/ non-blanching rash	Rashes	A rash on any part of the body that is caused by small haemorrhages under the skin. A purpuric rash does not blanch (go white) when pressure is applied to it.	Does the rash blanch when pressure is applied?

Discriminator	Group	Description	Suggested Questions/ Advice
Reduced level of consciousness		Not fully alert. Either responding to voice or pain only or unresponsive.	Do they open their eyes or move when you speak to them, or gently shake their shoulders?
Retention of urine	Urinary problems	Inability to pass urine per urethra associated with an enlarged bladder. The condition is usually very painful unless there is altered sensation.	Can you pass water? When did you last pass water? Is it painful?
Severe pain		Pain that is unbearable – often described as the 'worst ever'.	Can you describe how bad the pain is? Use normal pain assessment tools.
Shock		Shock is inadequate delivery of oxygen to the tissues. The classical signs include sweating, pallor, tachycardia, hypotension, and reduced levels of consciousness.	Are they pale and sweaty? Do they have a rapid, weak pulse? Is their breathing shallow?
Significant cardiac history		The patient has a history of a cardiac event/ surgery/ condition or a long term condition that impacts upon cardiac function. The most common cardiac symptoms and history are: Chest pain/ tightness/ discomfort, shortness of breath, palpitations, syncope (blackouts/ faints/ collapse) or dizziness. Related cardiovascular history, including TIA, stroke, peripheral vascular disease and peripheral oedema.	Any history of raised BP, heart problems, fainting fits, dizziness or collapses? Any history of MI, angina, cardiac procedures or operations – type and date of intervention and outcome? Has the patient's level of lipids ever been checked (and known?) Does the patient have a history of stroke or diabetes? Any history of rheumatic fever or heart problems as a child?
Significant haematological history		A patient with a haematological disorder that is known to deteriorate rapidly.	Any history of haematological disorders? Any history of sickle cell disease or thalassemia? Haemophilia or other inherited bleeding disorder
Significant PR bleed	Passing fresh or altered blood PR Black or redcurrant stools	In active massive GI bleeding dark red blood will be passed PR. As GI transit time increases this becomes darker, eventually becoming malaena. A dark red stool is classically seen in intussusception. Flecks of fresh blood seen after defaecation is not classed as significant PR blood loss.	Are you passing blood from the back passage at the moment? What colour is it?
Special risk of infection		Known exposure to a dangerous pathogen, or travel to an area with an identified, current serious infectious risk	Have you recently returned from abroad? Has a close family member recently returned from abroad? Have they been unwell?
Tachycardia >120		Heart rate above 120 bpm	

Discriminator	Group	Description	Suggested Questions/ Advice
Temp ≤35 or ≥40°C	Very hot adult Cold	Any temperature in the range ≤35 or ≥40°C is considered very hot or cold. If the skin feels cold then the patient is clinically said to be cold (a core temperature should be taken as soon as possible).	
Temp ≥ 38.5°C	Hot adult	Any temp above 38.5°C is considered hot.	
Uncontrollable bleeding		A haemorrhage that is not rapidly controlled by the application of sustained direct pressure and which continues to bleed or soak through large dressings	Are they bleeding a lot? Where is the blood coming from? Is the bleeding torrential or pumping out? Can you stop the bleeding?
Vascular compromise		There will be a combination of pallor, coldness, altered sensation and pain with or without absent pulses distal to the site affected.	Does the limb look a different colour below the injury when you compare it to the other side?
Vertigo		An acute feeling of spinning or dizziness, possibly accompanied by nausea and vomiting	Are there any rotatory or spinning symptoms? Do you (they) feel like you are going to pass out? Are you (they) light-headed? How long have you (they) had it?

Additional trauma discriminators

Discriminator	Group	Description	Suggested Questions/ Advice
Chemical injury	Exposure to chemicals	Any substance splashed onto to placed onto the body that causes stinging, burning, reduced vision or any other symptoms	Have you been exposed to a chemical or unknown liquid/ gas/ product Is there any skin blistering, shortness of breath, stridor, facial or tongue oedema? When was the contact?
Critical skin		A fracture or dislocation may leave fragments or ends of bone pressing so hard against the skin that the viability of the skin is threatened. The skin will be white and under tension.	
Direct trauma to the neck or back	Direct trauma to the neck Direct trauma to the back	Back – this may be top to bottom (loading) for instance when someone falls and lands on their feet, bending (forwards, backwards or to the side) or twisting. Neck – this may be top to bottom (loading) for instance when something falls onto the head, bending (forwards, backwards or to the side), twisting, or distracting such as hanging.	

Discriminator	Group	Description	Suggested Questions/ Advice
Electrical injury		Any injury caused or possibly caused by electric current. This includes AC and DC and both artificial and natural sources.	Is the source of the injury still present? Is it a domestic or industrial source? How long ago did the incident occur? Is there any evidence of a burn or local inflammation?
Gross deformity/ open fracture		This will always be subjective. Gross and abnormal angulation or rotation is implied. All wounds in the vicinity of a fracture should be regarded with suspicion; if there is any possibility of communication between the wound and the fracture then the fracture should be assumed to be open.	Is there a cut near the broken bone? Is there bone sticking out?
Inhalation injury		A history of being confined in a smoke filled space is the most reliable indicator of smoke inhalation. Carbon deposits around the mouth and nose and hoarse voice may be present. History is also the most reliable way of diagnosing inhalation of chemicals – there will not necessarily be any signs.	Were they (you) confined in a place that was filled with smoke? Is there any soot in the nostrils or mouth?
Penetrating trauma of head, neck or torso	Penetrating eye trauma Penetrating trauma	A recent physically traumatic event involving penetration of the globe. A recent physically traumatic event which involved discrete penetration of any body area stated by a knife, bullet or other object.	Has it gone into your eye? Has anything struck your eye? Have you been shot? Have you been stabbed?
Uncontrolled minor haemorrhage		A haemorrhage that is not rapidly controlled by the application of sustained direct pressure and in which blood continues to flow slightly or ooze.	Are they bleeding a lot? Where is the blood coming from? Can you stop the bleeding?

Major Trauma

Ambulance clinicians are reminded that Paramedic Pathfinder should only be used once one steps 1 to 5 of the major trauma decision tool have be excluded.

National Early Warning Score[1]

The Pathfinders are designed to assist the clinician distinguish between patients who can be managed in the urgent care setting from those who require assessment and management in the ED. It is accepted that physiological deterioration precedes critical illness and that clinicians require tools to establish a critical level of deterioration.

NEWS is used in the context of Paramedic Pathfinder to identify patients for who triage using the Pathfinder algorithms is inappropriate. Used in this context, NEWS does not require any additional training or equipment in order for clinicians to generate a physiological score.

The score relies on observation parameters that suggest deviation from normal levels. Small changes in individual observations may predict deterioration in the seriously unwell patient before obvious, and often too late, critical changes in condition occur. It does not predict patient outcome. Each parameter (vital sign) will generate a score ranging from 0-3 respectively. For each vital sign you check, add up the scores and record the total on the Patient Report Form. If the total score exceeds 4 or if any parameter triggers an individual red score, the patient should be conveyed to the nearest Emergency Department unless being conveyed to a specialist destination (such as HAC, HASU or MTC).

National Early Warning Score (NEWS)

PHYSIOLOGICAL PARAMETERS	3	2	1	0	1	2	3
Respiration Rate	≤8		9 - 11	12 - 20		21 - 24	≥25
Oxygen Saturations	≤91	92 - 93	94 - 95	≥96			
Any Supplemental Oxygen		Yes		No			
Temperature	≤35.0		35.1 - 36.0	36.1 - 38.0	38.1 - 39.0	≥39.1	
Systolic BP	≤90	91 - 100	101 - 110	111 - 219			≥220
Heart Rate	≤40		41 - 50	51 - 90	91 - 110	111 - 130	≥131
Level of Consciousness				A			V, P, or U

The NEWS Score Initiative flowed from the Royal College of Physicians' NEWS Development and Implementation Group (NEWSDIG) report, and was jointly developed and funded in collaboration with: The Royal College of Physicians, The Royal College of Nursing, The National Outreach Forum, and NHS Training for Innovation

[1] More information on NEWS is available here: https://www.rcplondon.ac.uk/resources/national-early-warning-score-news

NEWS Case Study

You are called to a 19 year old male, Peter.

Peter's mother has called 999 because he has been unwell for a few weeks, complaining of general tiredness and lethargy. He had been managing to just about get up and go to college, because he is a really committed student, but today he can't get out of bed.

Attempts to contact his GP have been unsuccessful, and his mother is very concerned about him.

On arrival you find Peter in bed. He is rousable to speech, and once roused in able to answer your questions accurately. His colour and temperature are normal.

Patient Information

Peter has been feeling fatigued for two to three weeks, but has just thought that he had a bit of a virus, and has been working hard at college too.

A	is normal
B	is not laboured, but is more rapid than normal, 24 rpm
C	115 bpm, regular
D	is A on AVPU
BP	is 100/70 mmHg
SpO_2	is 96% on air
Temp	is 37.2°C
BM	is 23.2 mmol/l

Peter is previously well, with no medical history. He drinks recreationally and denies taking any non-prescription drugs.

Now calculate the patient's score.

Next Steps

Each Pathfinder should be applied on a reductive basis, i.e. work from the top (time critical) to the bottom, eliminating all preceding discriminators before proceeding to the next step. The process is colour coded as follows:


Arrange transport to the Emergency Department


Arrange transport or referral to co-located UCC


Consider if the patient meets the criteria for an appropriate care pathway


Proceed to next priority box

Any discriminator eliciting a red directional arrow must be transported to the nearest ED. Patients eliciting an amber arrow can be considered for transport to a co-located Urgent Care Centre… and so on.

It should be noted that although many units in London who offer urgent care services are known as UCCs, for the purposes of Paramedic Pathfinder patients who exit the algorithm at an amber discriminator have been triaged as suitable for co-located, rather than standalone UCCs. In most circumstances amber discriminators must be excluded before a patient is triaged to a non co-located UCC, as non co-located units are unlikely to be able to meet the patient's needs.

The primary survey is the initial part of the patient assessment, intended to rapidly and systematically identify and treat any immediately life threatening problems. It follows the standard ABCD format. Assessment and treatment proceed simultaneously – as a problem is identified, appropriate action should be taken before moving on. After any intervention, or if there is any sign of a change in condition, repeat the primary survey.

You have now reached this phase of the Pathfinder:

This process does not apply to the following patient categories:
Acute Appropriate Care Pathway (e.g. HASU, HAC, etc)
Known Abdominal or Aortic Aneurysm (AAA)
Patients <18 years old
Obstetric and gynaecological presentations
Acute mental health presentations (inc. acute loss of mental capacity)
Overdose with possible lethality
NEWS 5 or more, or individual RED score
EoLC patients

Complete Primary Survey ABCD

There are no differences between the medical and trauma pathfinders at this stage of the algorithm.

It is important to establish which Pathfinder you are going to use for triage purposes. The MTS discriminators have been mapped against the 50 presentation algorithms and subsequently separated into trauma and medical filters. The first part of the triage process

requires the practitioner to select the appropriate pathfinder based on the presenting condition of the patient. By identifying the correct pathfinder, the appropriate discriminators will be identified, allowing the clinical priority and destination to be determined.

It is recognised that some patients will present on each pathfinder. For example a patient collapsing may have sustained a traumatic injury as a result of the fall. Where traumatic injuries are sustained secondary to a medical cause, both algorithms should be applied to the patient.

Decision making

Accuracy of triage decisions is a major influence on patient outcomes. Triage is an area in which you must know what you are doing, why you are doing it, and which actions to take to achieve a satisfactory outcome. Through initial on-scene assessment, you must be able to prioritise the patient on the basis of appropriate decision making.

The ability to interpret, discriminate, and evaluate the information gathered during patient assessment, and critically reflect upon actions following the decision, is essential for good patient care

The decision process

The Pathfinders are designed to enable the assessing clinician to confidently and accurately determine the most appropriate pathway, based on the clinical need of the patient. The algorithms contain a number of exclusions, together with a physiological early warning score, all of which preclude entry into the main algorithm. It is essential that patients in those categories or with a physiological score of >4 are conveyed to the nearest ED or specialist treatment centre.

Trauma Pathfinder

Does the patient trigger the London Major Trauma Decision Tool? Including Step 4:

- Older patients (>55 years)
- Pregnant (>20 weeks)
- Known to have bleeding disorder or receiving current anticoagulation therapy
- Morbidly obese

NO

The trauma Pathfinder is only suitable for use with patients who have not triggered the London Major Trauma Decision Tool. The purpose of the Pathfinder is to assist staff in safely and confidently identifying patients who require assessment and management in the ED from those who can be safely be triaged to a less acute place of care. The Pathfinder relies on all steps of the London Major Trauma Decision Tool being excluded prior to application of the algorithm. If the patient triggers the London Major Trauma Decision Tool they should be optimised and transported to the Major Trauma Centre or Trauma Unit as appropriate. If the major trauma triggers can be eliminated, follow the colour coded arrow to the next step of the Pathfinder.

Head injury with LOC/ amnesia OR has a history of coagulopathy
(Inc. current anti-coagulant therapy)
Uncontrollable minor haemorrhage
Acute loss of mobility
Chest pain as primary presentation
Severe Pain
Penetrating trauma isolated to the head, arms/ below the knees
Gross deformity
Open fracture isolated to upper limb or foot
History of unconsciousness
Vascular compromise
Critical skin
Direct trauma to the neck or back
Facial oedema
Temp ≤ 35°C
Inhalation injury
Electrical or chemical injury
Burns greater than 3%
Burns involving the face or eyes or genitalia.

YES → Stabilise and transport to Emergency Department

NO

This section of the algorithm indicates patients whose condition may not be immediately life-threatening, or represent 'major trauma' however conveyance to the ED is still the most appropriate destination. If all of the 'red' discriminators in this stage of the algorithm have been excluded the patient may be safely triaged to a less acute place of care; move on to the next stage of the algorithm.

Fulfils criteria for Appropriate Care Pathway
(Other than co-located UCC)

NO → **Transfer/ refer to co-located UCC.**

(unless HR >100 or SBP <100 in which refer/ convey to ED)

YES

Refer to Appropriate Care Pathway, complete relevant documentation.
Convey/ arrange transport if appropriate

At this stage it is important to 'pause and review' and ensure that all 'red' discriminators have been excluded. Also consider if there are complicating factors such as safeguarding concerns or social issues which a less acute service may be unable to address. If the patient meets the criteria for an Appropriate Care Pathway (other than a co-located UCC) consider utilising that pathway. Relevant ACPs to be considered include the falls pathway, non co-located UCCs and MIUs. If the patient does not meet the criteria for an ACP, consider transport or referral to a co-located UCC.

Trauma Case Study 1

You are called to a 46 year old female, Lucy. On a walking trip Lucy has fallen 2-3 metres down a steep slope. She didn't lose consciousness but gave a howl of pain and sat back up more annoyed than anything else. She was reluctant to get up though. Lucy is breathing with no difficulty and is talking in full sentences.

On examination you find an already swollen right ankle with tenderness over the lateral malleoli. You try to get Lucy to her feet but she can't weight bear.

Patient information

Lucy denies any dizziness prior to the fall.
She claims this was a simple slip.
ABC and D are normal
Pain score is 6/10
There is no critical skin
There is no vascular compromise
There is no haemorrhage

Lucy's observations are as follows:

Heart rate	88, regular
Respiratory rate	22
BP	146/88

Sats are not available.
She is not cyanotic or pale.

GCS	15/15
Temperature	36.7°C
BM	6.7 mmol/l

Now calculate the patient's NEWS score.

What is the most appropriate destination for this patient?

Trauma Case Study 2

You are called to a 33 year old male, Stuart, who has been fitting a laminate floor in his lounge. He has been using a circular saw to cut the lengths of laminate and had dropped the saw against his right leg. Blood is seeping through his trousers but since the incident he has been holding a towel against his leg and has been too scared to look at the wound.

On arrival at scene Stuart is lying on his left side holding the towel against his leg. There is some blood on the floor beside his leg and the tea towel seems soaked. He has not tried to weight bear since the incident approximately twenty minutes ago. Stuart is a good colour and has remained conscious throughout. He is communicating normally.

On initial examination Stuart has an 8-10cm laceration to the lateral aspect of his right lower leg with visible contamination of the wound by shredded trouser material. Blood continues to seep from the wound site.

Patient Information

Stuart advises that he simply dropped the saw in a rush to complete the job. There has been no loss of consciousness. He seems to be managing the pain well and when asked admits to a pain score of 7/10. You apply several bandages to the wound site which struggles to control the haemorrhage. Stuart has full range of movement to his ankle and foot which are a good colour. His CRT is <2s and he has palpable distal pulses.

A	Clear
B	Normal
C	Pulse 102, regular, BP as below.
D	None

Observations are as follows:

HR	102 regular
RR	22
BP	122/72
SpO_2	97% on air
GCS	15/15
Temp	36.9°C
BM	5.7 mmol/l

Stuart is previously well. He takes no current medication. He is a five year, one pack cigarette smoker and consumes >20 units of alcohol per week.

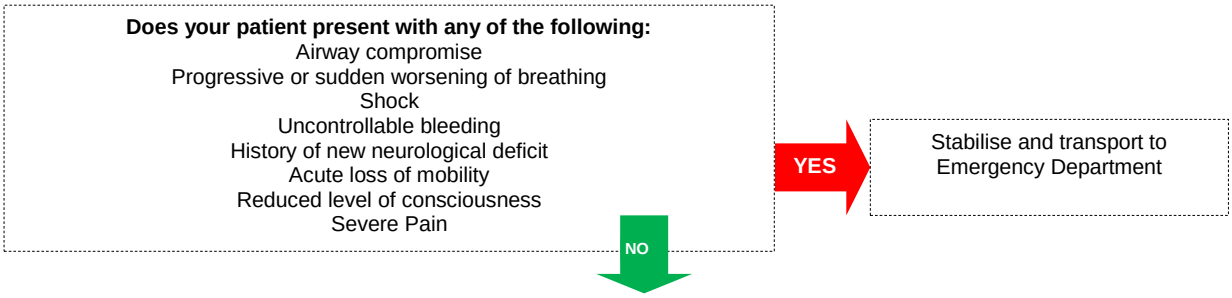
Now calculate the patient's NEWS score.

What is the most appropriate destination for this patient?

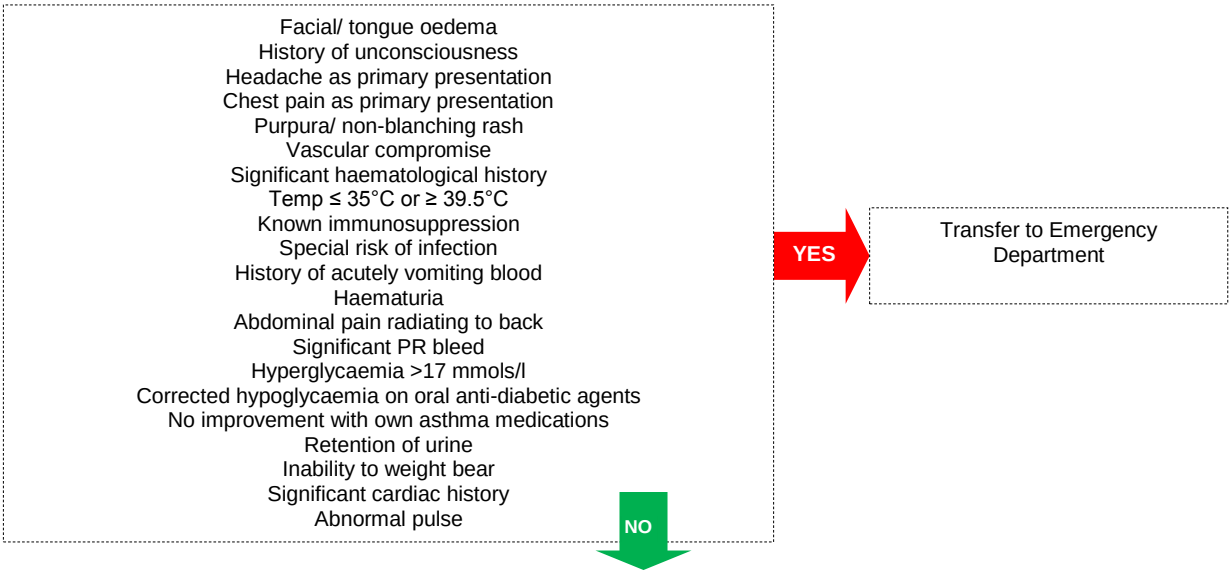
Medical Pathfinder

The exclusions to the Medical Pathfinder remain consistent with those of the Trauma Pathfinder. The primary survey component is also shared with both Pathfinders; therefore this section will begin with the second phase of the algorithm.

This phase of the algorithm is designed to eliminate the presence of potentially time critical conditions that may require hospital standby and a priority call. Inability to exclude all discriminators within this box should result in stabilisation and immediate transportation to the nearest ED. If these discriminators can be ruled out, proceed to the next stage of the algorithm.

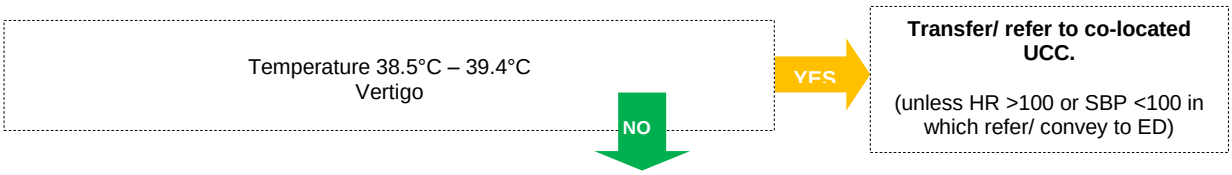


This algorithm adopts the same reductive method as the Trauma Pathfinder. This stage contains discriminators designed to filter cohorts of patients who have been identified as potentially high risk in previous studies. Discriminators such as 'headache as primary presentation' have been incorporated to capture patients with potentially life threatening conditions such as sub-arachnoid haemorrhage. Depending on the individual patient's presentation some of these patients will benefit from hospital standby and a priority call. If these discriminators can be ruled out, proceed to the next stage of the algorithm.

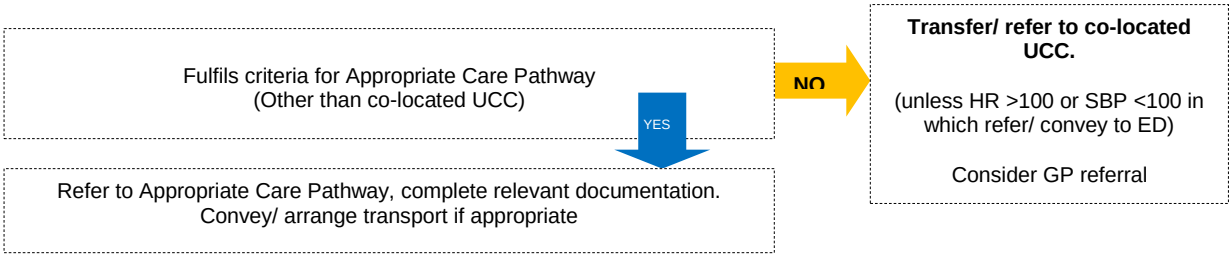


In this next phase of the algorithm you will again see a prompt reminding you to 'pause and review' and ensure you have repeated a set of observations before moving through the next set of discriminators. This is to ensure that the patient's condition has not deteriorated and that any patient clinically unsuitable for a co-located UCC has been streamed to the ED. Any patient presenting in the latter stages of the algorithm will now be considered clinically

suitable for co-located UCC assessment and therefore clinicians should be confident that all 'red' discriminators have been excluded.



Consider conveying patients who display any of the presentations in the above box to a co-located UCC, consideration should be also be given to any PSPs or local care plans that may in operation for individual patients.



Elimination of discriminators in the first three stages of the medical Pathfinder should identify patients who can be considered for use of an Appropriate Care Pathway other than a co-located UCC, such as the diabetic or falls pathway, or a non co-located UCC or other suitable ACP. If a suitable alternative ACP is not available, patients should be referred to the nearest co-located UCC.

Where a solo responder is making the assessment in the case of both medical and trauma Pathfinders, patients who exit the algorithm at amber or blue stages should prompt consideration of the most appropriate transport option to maximise the availability of resources for potentially life threatening incidents.

Medical Case Study 1

You are called to a 51 year old female, Margaret, whose daughter is concerned. Margaret has developed redness, warmth, and skin tightness to her lower left leg. The area is becoming tender to the touch. She has been feeling feverish for the past day or two. On arrival at scene Margaret is sat in a chair, looks alert and orientated. She is breathing with no difficulty and is conversing normally.

On initial examination you find an area of hot, raised, tender skin extending to app. 75% circumferentially along the entire length of her lower leg. The margins are relatively well demarcated. There appears to be signs of a pre-tibial abrasion although this is not a recent injury. She has been feeling generally unwell and fatigued for 2-3 days but has not sought previous advice or assistance until now. Margaret denies rigors at this stage.

Patient Information

The affected area has developed rapidly over the past 24 hours. Margaret denies nausea or vomiting. Margaret is complaining of pain to the affected area with a pain score of 4.

ABC and D are normal.
Observations are as follows:

HR	98 regular
RR	20
BP	104/68 mmHg
SpO_2	98% on air
GCS	15/15
Temp	38.4°C
BM	5.4 mmol/l

Margaret has a previous medical history of Type 2 Diabetes. She is prescribed Metformin 500mg bd. Her diabetes is normally well controlled. Margaret also takes oestrogen only HRT as she has had a hysterectomy.

Now calculate the patient's NEWS score.

What is the most appropriate destination for this patient?

Medical Case Study 2

You are called to a 71 year old male, Malcolm, who is complaining that his breathing is more difficult than usual. His wife is concerned and has called 999. Malcolm has apparently been suffering with URTI symptoms for the past week but is now struggling to breathe especially at night time. His cough is worsening and he is producing thick green sputum.

On arrival at scene Malcolm is sat in a chair leaning forward and coughing intermittently. You witness green-yellow purulent sputum with no visible sign of blood. Malcolm is not complaining of chest pain unless he coughs. His breathing is dyspnoeic and he is struggling to complete short sentences. His colour is slightly blue, although his wife states that this is normal for him. He is overweight.

Patient Information

Malcolm has been worsening since his 'cold' began 7-10 days ago. He is drinking plenty of fluid but he has a reduced appetite. He is a known COPD patient with pre-exacerbation SATs of 92-94% on air. His GP is encouraging him to quit his 10-15 per day cigarette habit and he has managed to reduce to 5-10 in recent months. He has been offered 'patches' but declined. He has also been encouraged to take exercise and improve diet as his current BMI is 32. AC & D are normal. Breathing rate has increased to 22 BPM with accessory muscle use.

Malcolm denies any pain unless coughing when his chest feels tight. Malcolm's observations are as follows:

HR	88 regular
RR	22
BP	157/92
SpO_2	92% on room air
GCS	15/15
PEFR	390
Temp	37.8°C
BM	5.8 mmol/l

Malcolm has a previous history of COPD (Chronic Bronchitis). He is prescribed Combivent with good effect.

Now calculate the patient's NEWS score.

What is the most appropriate destination for this patient?

FAQs

Can Pathfinder only be used by solos?

No, the algorithms can be used by staff resourcing double crewed ambulance as well as solo response vehicles.

Do I have to be trained in Transport Options to use Pathfinder?

No, Transport Options are simply a method of communicating which type of transporting resource is needed to transfer a patient to the receiving care facility and are distinct from Pathfinder which is a triage tool. Transport Options do not require any additional training to use.

The tool is entitled Paramedic Pathfinder, does this mean that only paramedics can use it?

EMT3+ (or equivalent) staff who have received the training may use the algorithms; it should be noted that this relates to use of the triage tool only. Staff should refer to their scope of practice in respect of the authority to make non-convey and/ or discharge of care decisions.

How do the outcomes on Pathfinder correlate to Transport Options?

There is no direct correlation. Pathfinder will assist triaging the patient to a particular type of destination and staff should use their judgement to make a decision.

Do I still need to make a clinician to clinician referral for ACPs?

Yes, where the need for this is indicated by the ACP document.

If the patient exits Pathfinder at an Amber outcome, do we still need to go through triage and/ or streaming at the hospital?

Yes, where hospitals are operating this system please continue to follow that process.