

International Examination and Synthesis of the Primary and Secondary Surveys in Paramedicine



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Background

To guide their care paramedics routinely rely upon two assessment and treatment algorithms, known as the primary survey and the secondary survey.

No clear consensus of the concepts (assessments and interventions) that are, or should be, included in these algorithms exist internationally.

Methods

This study evaluated Australasian paramedic clinical practice guidelines (CPGs), as well as six other international paramedic CPGs (USA, Republic of Ireland, United Kingdom, South Africa, Qatar, and the United Arab Emirates) in order to identify which concepts are currently described in best-practice recommendations for paramedics.

The authors also contributed additional concepts that they deemed important based on their experiences as paramedics and paramedic educators in these systems, and in Canada (no national CPGs exist).

Results

The resulting amalgamation of concepts identified in each term was then formed into two mnemonics which, together sequentially list approximately 100 specific clinical concepts that paramedics routinely consider in their care of patients.

We describe these as the “International Paramedic Primary and Secondary Surveys”. They are presented here using two mnemonics:

1. Safety FIRST. GET ABCDEs.
2. I C I HAD Vitals Assessed and Treated.

Conclusion

The primary and secondary surveys presented in this paper represent an evidence-based guide to the best practice in conducting a primary and secondary survey in the paramedic context.

Findings will be of use to paramedics, paramedic students, and other clinicians working in remote or isolated practices.

1. The International Paramedic Primary Survey

Safety	Take universal/standard precautions pm* (gloves, eye protection, helmet, safety gear, etc.)
F: Fear:	Does anything make you fear that the scene may be unsafe? (obvious or subtle dangers)
I: Incident:	Determine the nature of the incident while entering
R: numberR:	Determine the number of patients involved while entering
S: Send for help:	Send for appropriate help (as required)
T: Trauma or Triage:	Consider Trauma to the patient's c-spine pm <OR> Perform Triage in MCI
G: General Impression	Develop an impression of the situation (report to dispatch, pm)
	Patient's approximate age, gender, location/position found, and apparent level of distress/acuity
E: Estimate Levels of Awareness	
	Determine AVPU (Alert, responding to Verbal, responding to Pain, or Unresponsive) Include motor score of the GCS if responding to painful stimulus only
	Determine if oriented to person, place and time (if appropriate)
T: Assess for any immediate Threats to self, team, patient and bystanders before beginning the ABCDE's	
	Consider: 'POPE' (People, Objects, Places, Environment) and control of life-threatening haemorrhage pm
ABCDEs: Use a 'find-it, fix-it, move-forward' approach	
A Airway	
	Assess:
	<ul style="list-style-type: none"> Is the airway patent? Does it need clearing? Are there current, or impending, obstructive difficulties?
	Consider:
	<ul style="list-style-type: none"> Positioning Suctioning Foreign Body Airway Obstruction removal (Magill forceps/laryngoscope/back blows/chest thrusts) Basic airway adjuncts (oro/nasopharyngeal airways, supraglottic airway device) Advanced airway adjuncts (endotracheal intubation +/- pharmacological assistance) Surgical airway (for the "can't intubate-can't ventilate" patient)
B Breathing	
	Assess:
	<ul style="list-style-type: none"> Look, listen, feel for breathing and assess respiratory effort Consider rapid 4 point auscultation (if appropriate) Consider oxygen saturation (SpO2) and end tidal carbon dioxide (EtCO2) measurement (pm)
	Consider:
	<ul style="list-style-type: none"> Establishing breathing using a bag valve mask Initiating oxygen administration (mask, nasal cannula, bag valve mask) for hypoxemia Chest Needle Decompression or Finger Thoracotomy (pm for life threatening tension pneumothorax, or hemo-pneumothorax)
C Circulation	
	Assess:
	<ul style="list-style-type: none"> If there is a pulse or not Pulse rate, strength, and regularity Perfusion estimation - adequate vs inadequate For uncontrolled external haemorrhaging Skin condition (colour, temperature, diaphoresis)
	Consider:
	<ul style="list-style-type: none"> Direct pressure/tourniquet for uncontrolled haemorrhage Cardiopulmonary resuscitation if vital signs absent Intravenous initiation Electrocardiogram determination pm
D Disability	
	Assess:
	<ul style="list-style-type: none"> Medical: "BANG ZAP PUSH" <ul style="list-style-type: none"> Benzodiazepine treatment for prolonged seizures Adrenaline (epinephrine) for life threatening bronchospasm (e.g. anaphylaxis, asthma) Naloxone for narcotic overdose with inadequate ventilation Glucose for hypoglycaemia ZAP: Defibrillation or Cardioversion pm Push (fluids): IV fluids in suspected hypovolemic hypotension Trauma: "Badly Broken or Bleeding" <ul style="list-style-type: none"> Broken bones causing complications (especially the cranium, spine, ribs, pelvis or femurs) Internal bleeding or pneumothorax Patients acuity <ul style="list-style-type: none"> Not sick, Sick, Very sick, or Dead
	Consider: Any other treatment required immediately based on presentation so far
E Extrication	
	Assess:
	<ul style="list-style-type: none"> Current environmental conditions (e.g. heat, cold, wind, rain, direct sun, impending danger) Egress route to transportation (manual handling considerations, obstacles, dangers)
	Consider
	<ul style="list-style-type: none"> Immediate/emergent extrication (e.g. if unsafe scene) Expedited extrication (e.g. 'load and go' for time critical patients) Protection from potentially adverse environmental conditions if staying on scene Requesting additional assistance (e.g. higher level medical assistance, rescue services in cases of entrapment or complex egress, law enforcement, animal control, etc.) Appropriate transport method (e.g. bariatric, air transport) Appropriate transport destination (e.g. cardiac or trauma bypass, paediatric centre, neuro centre, etc.)

2. The International Paramedic Secondary Survey

I: Identify Patient
Name
Age/Date of Birth
Address
Health Identification number (if applicable)
C (See): Chief Complaint (or Condition)
Open question (e.g. 'what seems to be wrong, or, 'how can I help you'?)
Focused questions (to clarify the presenting complaint or condition)
Prioritize the assessment of Ischaemic Chest Pain (ICP), Shortness of Breath (SOB), and/or Altered Mental Status (AMS)
Ask "Anything else"? – be sure to exhaust all aspects of the presenting complaint or condition, e.g. "is there any other pain or discomfort in your head, neck, chest, belly, back, arms or legs"?
I: Incident History (using the mnemonic 'NOPQRSTU' as appropriate)
N: When did the patient last feel 'Normal' (for them)?
O: Describe the Onset of this situation (time and rate of onset, activity at onset, possible causes)
P: Which actions are now Provocative or Palliative?
Q: What is the Quality of the pain or sensation the patient is feeling?
R: Is there any Radiation of discomfort? If so, where, and under which conditions?
S: What is the Severity of the complaint? (using 0-10, or mild/mod/severe, or visual analogue scale pm)
T: Is this Typical for the patient? <AND> was there any precipitating Trauma?
U: Undigested food? When did the patient last eat or drink? What did they eat or drink?
H: History: Medical and Social
Any existing medical conditions? (Cardiac, Respiratory, Neuro, etc. Any disabilities?)
Ask "Anything else"? – be sure to exhaust all aspects of the patient's medical history
Who is their regular medical provider? Alternative health-care providers?
Problem focused history (e.g. respiratory focused system history/interview for the SOB patient)
Family history: Adopted? Parents alive/dead – what cause? Any diseases in blood relatives?
Social history: Gender-at-birth, Education, Occupation, Socioeconomic status, Sexual history, Marital/partner status, Alcohol, Cigarettes, Caffeine, Other drug use, Recent travel (where and when), Previous hospital experiences and preferences.
A: Allergies
Environmental?
Chemical?
Food?
Ask "Anything else"? – be sure to exhaust all aspects of the patient's allergies
D: Drugs
Alternative/Complimentary "Remedies"?
Over the counter medications? (e.g. acetylsalicylic acid, acetaminophen, vitamins)
Prescription? (be sure to inquire about compliance)
Illicit drugs?
Ask "Anything else"? – be sure to exhaust all aspects of the patient's drug usage
Vitals: Vital Signs (perform if appropriate)
Levels of Responsiveness (e.g. Glasgow Coma Scale, AVPU, etc.)
Level of Pain (e.g. VAS, Wong-Baker etc.)
Skin condition (colour, temperature, diaphoresis, turgor)
Pupil shape, size, equality, response to light and accommodation
End tidal carbon dioxide (EtCO ₂)
Temperature (peripheral/core pm)
Respiratory rate, depth, effort, and pattern
Electrocardiogram (ECG)
Blood pressure
Pulse rate, rhythm and strength (noting any absent pulses)
Blood sugar levels (if appropriate)
Oxygen/Haemoglobin saturation (SpO ₂)
Assessed: Physical Assessment
In general trauma a comprehensive head to toe examination
In isolated trauma a focused examination of the injury
In medical cases a focused, systems-based examination based on the presenting complaint or condition
(and) Treated: Treatment & Response
What treatment was performed prior to your arrival? Results?
Development of a treatment plan
Results of your interventions (with ongoing reassessments of the patient)
Recommendations for further referral, assessments or treatments that may be appropriate as part of a comprehensive care pathway

