Clinical Practice Guidelines:
Medical/Hyperkalaemia

Policy code	CPG_ME_HK_0120
Date	January, 2020
Purpose	To ensure consistent management of patients with hyperkalaemia.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
Source of funding	Internal – 100%
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Hyperkalaemia

The gradient between intracellular potassium (98%) and extracellular potassium (2%) plays a vital role in generating action potentials. In hyperkalaemia, extracellular potassium increases, interfering with normal action potential generation, having a detrimental effect in both skeletal muscle function, and profoundly affecting normal cardiac function.[1]

Hyperkalaemia is defined as a serum potassium greater than 5.5 mEq/L.[3] Hyperkalaemia can occur from any condition that causes an increase in extracellular potassium. The most common causes are: [3]

Medical

- Renal impairment
- DKA
- Addison's disease
- Metabolic acidosis.

Medications

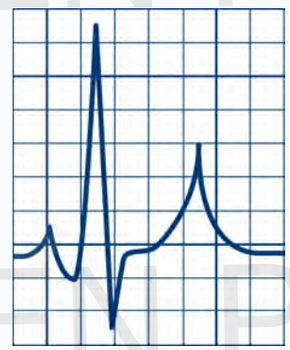
- Potassium-sparing diuretics
- ACE inhibitors (primary used to treat hypertension)
- Nonsteroidal anti-inflammatory drugs (NSAIDs).

NOTE: *Medication-induced hyperkalaemia usually occurs concurrently in patients with some degree of renal impairment.*

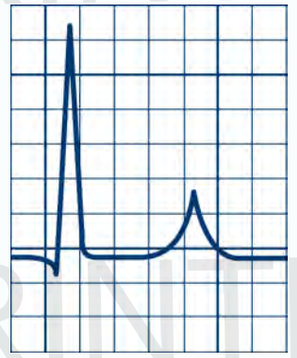
The 12-Lead ECG is one of the most important diagnostic tests in hyperkalaemia. Figure 1. shows the classically predictive changes seen on the 12-lead in hyperkalaemia, although not all patients will progress through this pattern.[1]

Clinical features

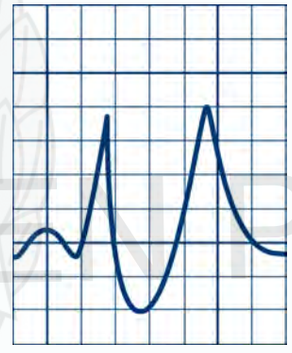
Figure 1: ECG findings in hyperkalaemia



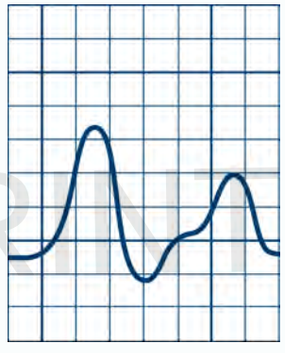
Peaked T-waves
(Potassium 5.5–6 mEq/L)



Flat/lost P-waves
(Potassium 7–8 mEq/L)



Wide QRS
(Potassium 7–7.5 mEq/L)



Fusion with T-wave forming sine wave (Potassium > 9 mEq/L)

Nonspecific clinical features may include:

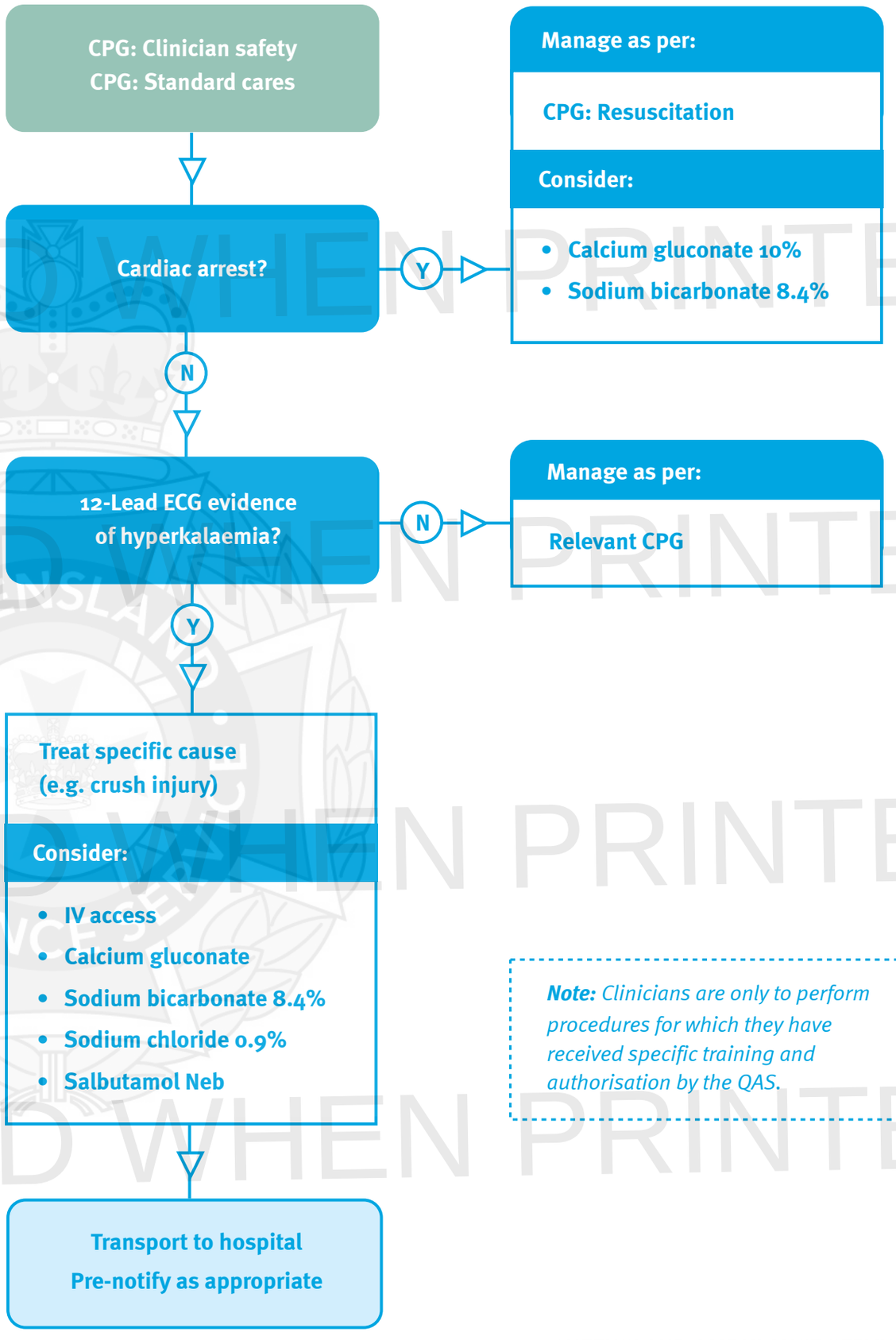
- General weakness, paraesthesia.
- Lethargy & confusion
- Nausea, vomiting, diarrhoea.
- Signs of underlying cause, e.g. renal impairment, burn, metabolic acidosis.

Risk Assessment

- Nil in this setting

Additional information

- Calcium gluconate provides immediate stabilisation of the myocardium, however it does not reduce serum potassium levels.[4]
- Sodium bicarbonate 8.4% will reduce serum potassium levels by 0.5 – 1 mmol/L and provide temporary effect whilst the underlying cause is treated.
- Continuous nebulised salbutamol reduces serum potassium levels by 0.5 – 1 mmol/L within 30 minutes.[5]



Note: *Clinicians are only to perform procedures for which they have received specific training and authorisation by the QAS.*