Intent:

The normal laboratory range for potassium at VWCH is 3.5 to 5.1 mEq/L. Generally, hypokalemia is modest and not of major clinical concern. However, there are circumstances in which even modest hypokalemia may be very dangerous.

Indications:

Potassium treatment is indicated in patients with:

- Hypokalemia (With or without metabolic acidosis)
- Chronic digitalis intoxication
- Hypokalemic periodic paralysis

Potassium prophylaxis may be indicated to prevent hypokalemia in patients who would be at particular risk if hypokalemia were to develop. For example:

- Digitalized patients with cardiac arrhythmias
- Hepatic cirrhosis with ascites
- States of aldosterone excess with normal renal function
- Certain diarrheal states (including chronic laxative use)
- Prolonged vomiting
- Potassium losing nephropathy
- Long-term corticosteroid therapy
- Drug-induced nephrotoxicity from amphotericin B, aminoglycosides, and cisplatin.

Potassium Salts:

Potassium chloride:

- Usually the salt of choice
- Useful for metabolic alkalosis with concomitant chloride deficiency

Non-chloride salts, such as acetate or bicarbonate, are indicated for:

- Hypokalemia caused by renal tubular acidosis
- Drug-induced nephrotoxicity from amphotericin B
- Chronic diarrhea with bicarbonate loss

Oral Potassium:

The oral route is the preferred method of potassium administration, primarily because of safety. Oral potassium is almost completely absorbed from the gastrointestinal tract and rarely causes hyperkalemia in patients with normal renal function.
**Potassium-Sparing Diuretics:**
Potassium-soaring diuretics (e.g. spironolactone, triamterene, amiloride) offer an alternative to oral potassium supplements to prevent potassium loss and metabolic alkalosis associated with loop or thiazide diuretics and for repletion of potassium in milder cases of potassium deficiency (3 – 3.7 mEq/L). These agents are also useful for patients who have difficulty complying with potassium chloride therapy or for those with slowed gastrointestinal motility or peptic ulcer disease.

**Intravenous Potassium:**
Intravenous potassium administration is indicated only for patients in whom the oral route is not feasible or in cases of severe hypokalemia (serum potassium less than 3 mEq/L). In general, serum potassium can be corrected gradually over 24 to 48 hours. A gradual increase in the amount of potassium administered leads to an increased ability of the kidney to excrete potassium, thus preventing lethal hyperkalemia. Concentrated solutions can cause severe pain and thrombophlebitis with excessive rates of administration may result in inadvertent hyperkalemia and cardiac toxicity. Whenever possible, potassium should be added to maintenance fluids.

**Emergent Intravenous Therapy:**
Serum potassium levels less than 2 mEq/L always requires emergent therapy. Conditions which require emergent therapy of hypokalemia (less than 3.7 mEq/L) include, but are not limited to:
- Hypokalemic periodic paralysis
- Post percutaneous transluminal coronary angioplasty
- Post cardiothoracic surgery
- Cardiac arrhythmias
- Acute myocardial infarction
- Congestive heart failure
- Unstable angina- the concern in these patients is an increased arrhythmogenic state found in the presence of hypokalemia

Reference:
1. The Ohio State University. Intravenous Potassium Policy 1999.