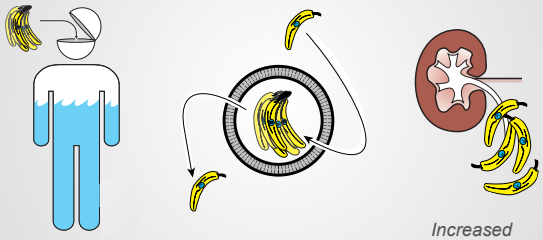
Hypokalemia

Increased renal losses:
Vomiting

Three processes of hypokalemia

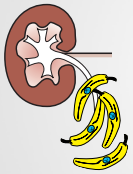


Decreased intake

Intracellular shift

Increased renal excretion

Increased renal excretion



Increased renal excretion

Increased renal excretion

Secondary hyperaldosteronism	Diuretics Salt wasting nephropathies Vomiting
Primary hyperaldosteronism	Actual Apparent
Unreabsorbable anions	Proximal RTA Drugs
Potassium wasting nephropathy	Polyuria Distal RTA Hypomagnesemia

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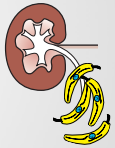
Increased potassium losses: GI

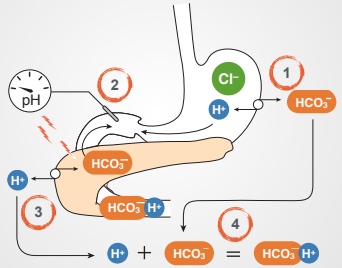


Vomiting

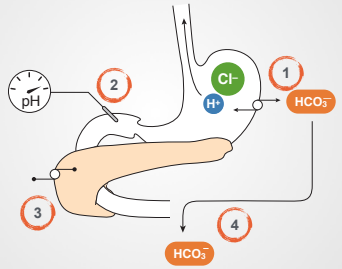
TABLE 2.1 *Composition of gastrointestinal secretions*

Type of Secretion	Volume (mL/24 hr)	Na (mEq/L)	K (mEq/L)	Cl (mEq/L)	HCO_3^- (mEq/L)
Saliva	1,000–1,500	5–10	20–30	5–15	25–30
Stomach	1,000–2,000	60–90	10–15	100–130	—
Pancreas	600–800	135–145	5–10	70–90	95–115
Bile	300–600	135–145	5–10	90–110	30–40
Small intestine	2,000–3,000	120–140	5–10	90–120	30–40

Vomiting Normal Physiology



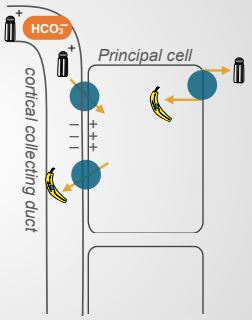
Vomiting Normal Physiology



Vomiting

To compensate for ↑ HCO_3^- the kidney increases HCO_3^- excretion

Volume loss increases aldosterone



Implications of the renal loss of potassium in vomiting

- Patients with renal failure do not get hypokalemia with vomiting

  No urine, no hypokalemia

- Using proton pump inhibitors prevents hypokalemia

Implications of the renal loss of potassium in vomiting

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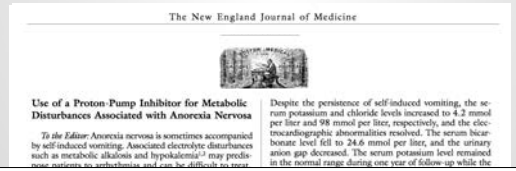

The New England Journal of Medicine

Use of a Proton-Pump Inhibitor for Metabolic Disturbances Associated with Anorexia Nervosa

To the Editor: Anorexia nervosa is sometimes accompanied by self-induced vomiting. Associated electrolyte disturbances such as metabolic alkalosis and hypokalemia[1,2] may predis-

Despite the persistence of self-induced vomiting, the serum potassium and chloride levels increased to 4.2 mmol per liter and 98 mmol per liter, respectively, and the electrocardiographic abnormalities resolved. The serum bicarbonate level fell to 24.6 mmol per liter, and the urinary anion gap decreased. The serum potassium level remained in the normal range during one year of follow-up while the

- **Vomiting**