

Management of patients with thyroid cancer scheduled for thyroidectomy at RCHSD

Pre-Operative labs – To be drawn when Thyroidectomy for the management of thyroid cancer is first considered

- Vitamin D-25 OH
- CMP (in order to check calcium and alkaline phosphatase along with electrolytes)
- TSH, Total T4 or Free T4
- Anti TPO-Ab and Anti-Thyroglobulin antibodies

Pre-Operative supplementation with Vitamin D3

- VD-25OH = 20-29 ng/ml : Start with 1000 IU of Vitamin D3 daily if normal weight
2000 IU of Vitamin D3 daily if obese
- VD-25 OH <20 ng/ml: Start with 2000 IU of Vitamin D3 daily if normal weight
4000 IU of Vitamin D3 daily if obese
- VD-25 OH <10 ng/ml: Start with 5000 IU of Vitamin D3 daily if normal weight
10,000 IU of Vitamin D3 daily if obese
Add celiac panel with next blood draw
- Consider calcium supplementation if Vitamin D < 20 ng/ml

Post-Operative management for Total or Completion Thyroidectomy

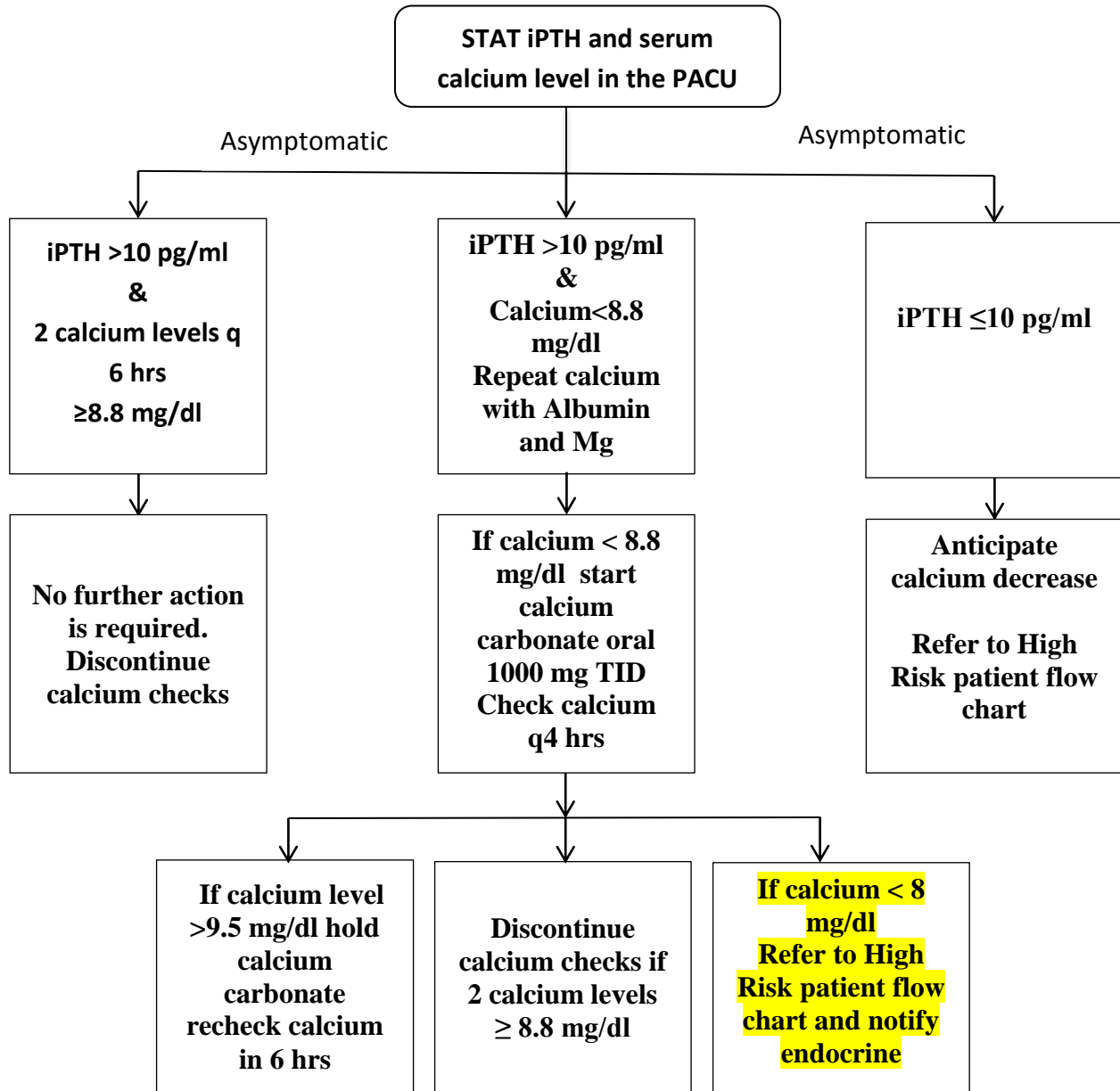
General measures

- All patients should be on telemetry overnight after thyroidectomy
- ENT physician should page Endocrine on call at the completion of the surgery in order to relay information as to the extent of the resection and the status of the parathyroid glands.
- iPTH intact and calcium level should be drawn in the PACU to be run STAT.
- Endocrine on call should be notified if iPTH level is < 10 pg/ml or calcium level is <8 mg/dL

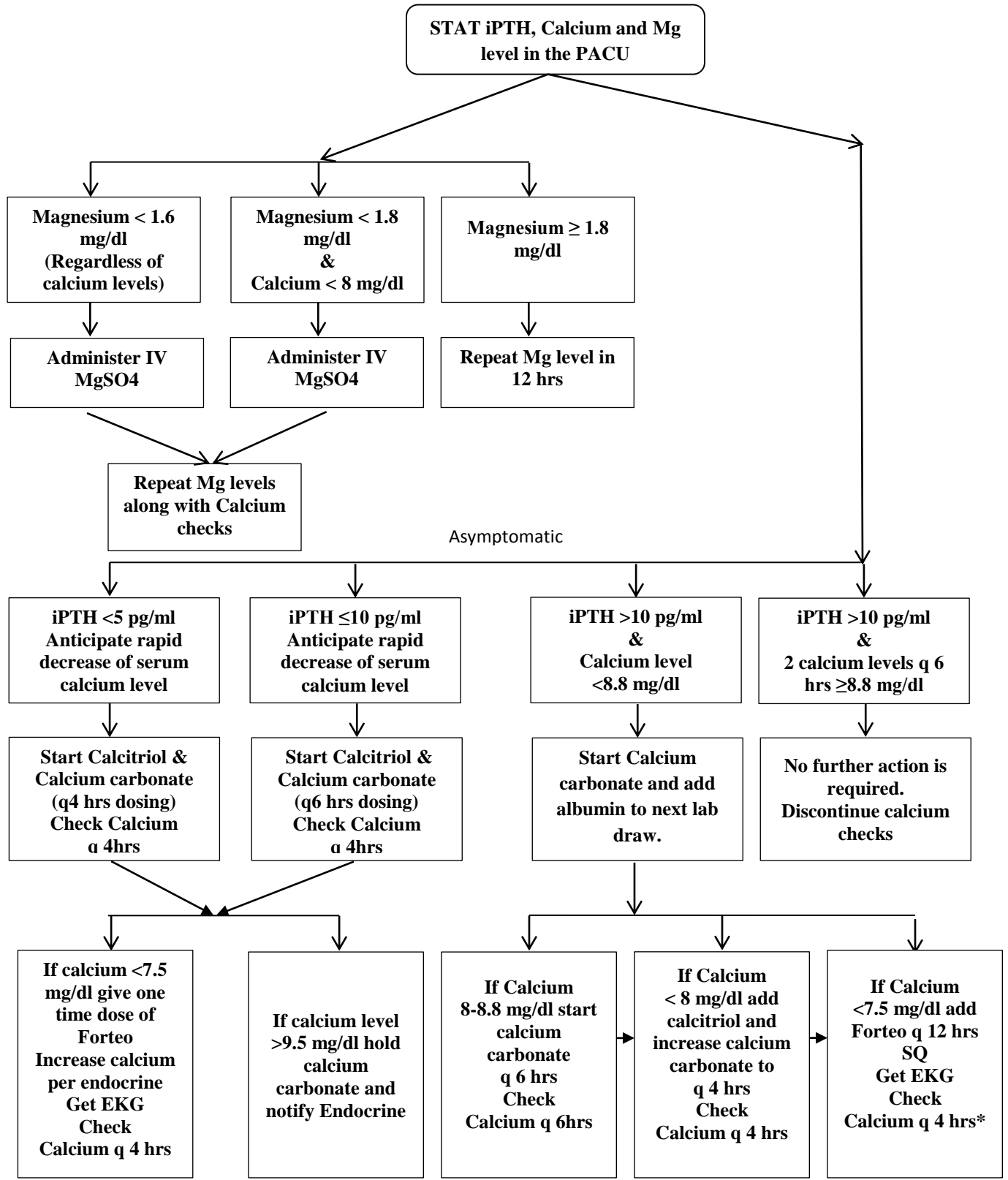
Risk Stratification for post-operative hypocalcemia

	Definition
Low Risk patient	<ul style="list-style-type: none">• Total thyroidectomy or uncomplicated completion thyroidectomy without central neck dissection• Parathyroid glands visualized and left intact and well vascularized at the end of the procedure
High Risk patient	<ul style="list-style-type: none">• Thyroidectomy with central neck dissection• Complicated or prolonged re-operative cases• Cases with parathyroid re-implantation• Cases in which parathyroid glands were removed or were not visualized well• Hyperthyroid patients

I. Low risk patient flowchart



II. High risk patient flowchart



* If symptomatic Hypocalcemia refer to step III (Symptomatic Hypocalcemia or Calcium ≤ 7 mg/dl)

III. Symptomatic Hypocalcemia or Calcium <7 mg/dl (In addition to the High risk patient flowchart)

- Notify ENT and Endocrine on call and consider PICU admission
- Obtain an EKG to evaluate QTc and cardiac rhythm
- Secure a central line or a good antecubital vein for administration of IV calcium
- Order IV calcium infusion given as Calcium (total) Gluconate 10% at 100-200 mg/kg over 5-10 minutes for tetany
- Order SQ Forteo q 12 hrs
- Transfer patient to the PICU if Calcium <7mg/dl or QTc >470 msec, for closer cardiac monitoring
- Make sure Calcitriol based on High risk patient flowchart has been ordered

Doses for medications used in the protocol

Calcitriol PO: If < 30 kg 0.25 mcg BID
 If 30-50 kg 0.5 mcg BID
 If > 50 kg 1 mcg BID

If unable to take oral calcitriol use IV calcijex at the above dosages

Calcium Carbonate:	If < 30 kg 500 mg Q 4 hrs	If < 30 kg 500 mg Q 6 hrs
(Total calcium)	If 30-50 kg 750 mg Q 4 hrs	If 30-50 kg 750 mg Q6 hrs
	If > 50 kg 1000 mg Q 4 hrs	If > 50 kg 1000 mg Q 6 hrs

If unable to take oral calcium use IV calcium (total) gluconate 100 mg/kg over one hour q 6hrs

Forteo SQ: If < 30 kg 10 mcg
 If 30-50 kg 15 mcg
 If > 50 kg 20 mcg

Magnesium Sulfate IV: 25 mg/kg (Max 1 gram) over 4 hrs

Goals for Discharge

- Off IV calcium for at least 12 hrs prior to discharge
- Stable calcium levels >7.8 mg/dl (at least in 2 consecutive blood draws) over a 12 hr period
- If the patient is discharged home on supplements (calcitriol or PO calcium or SQ Forteo), repeat calcium and magnesium levels 2-3 days after discharge
- If the patient is high risk and is discharged home without calcium supplementation repeat

calcium levels with thyroid levels in 2 weeks.

- Patients and caregivers must receive adequate education in recognizing signs and symptoms of hypocalcemia prior to discharge

Clinical manifestations of hypocalcemia – Mild to Moderate Hypocalcemia

- Paresthesias and numbness of the fingertips and perioral area
- Spontaneous muscle cramps
- Muscle stiffness and myalgia
- Chvostek's sign: Twitching of the ipsilateral facial musculature (perioral, nasal, and eye muscles) by tapping over cranial nerve VII at the ear.
It is neither sensitive nor specific for hypocalcemia: it is absent in 30% of patients with hypocalcemia and is present in roughly 10-15% of normocalcemic patients
- Trousseau's sign of latent tetany: Carpopedal spasm induced by inflation of the blood pressure cuff around the arm.
More sensitive and specific than Chvostek's sign: present in 94% of hypocalcemic patients and only observed in 1% of normocalcemic patients.
- Prolongation of QTc in the EKG
- Asthma not controlled with routine bronchodilators

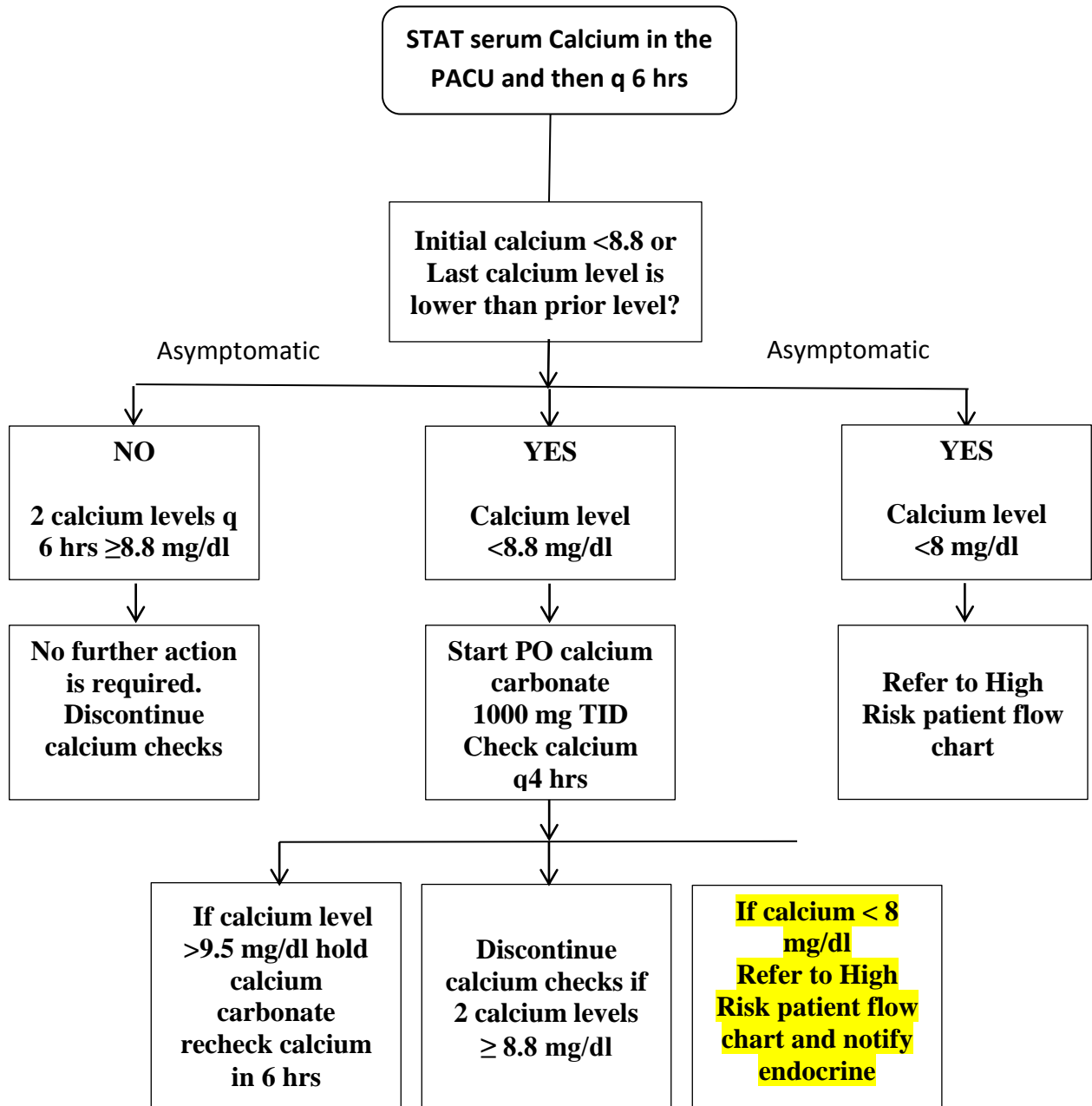
Clinical manifestations of hypocalcemia – Severe Hypocalcemia

- Stridor and/or dyspnea induced by prolonged contraction of the respiratory and laryngeal muscles
- Anxiety or agitation
- Mental status changes
- Seizures
- Prolongation of QTc in the EKG
- Arrhythmia on EKG

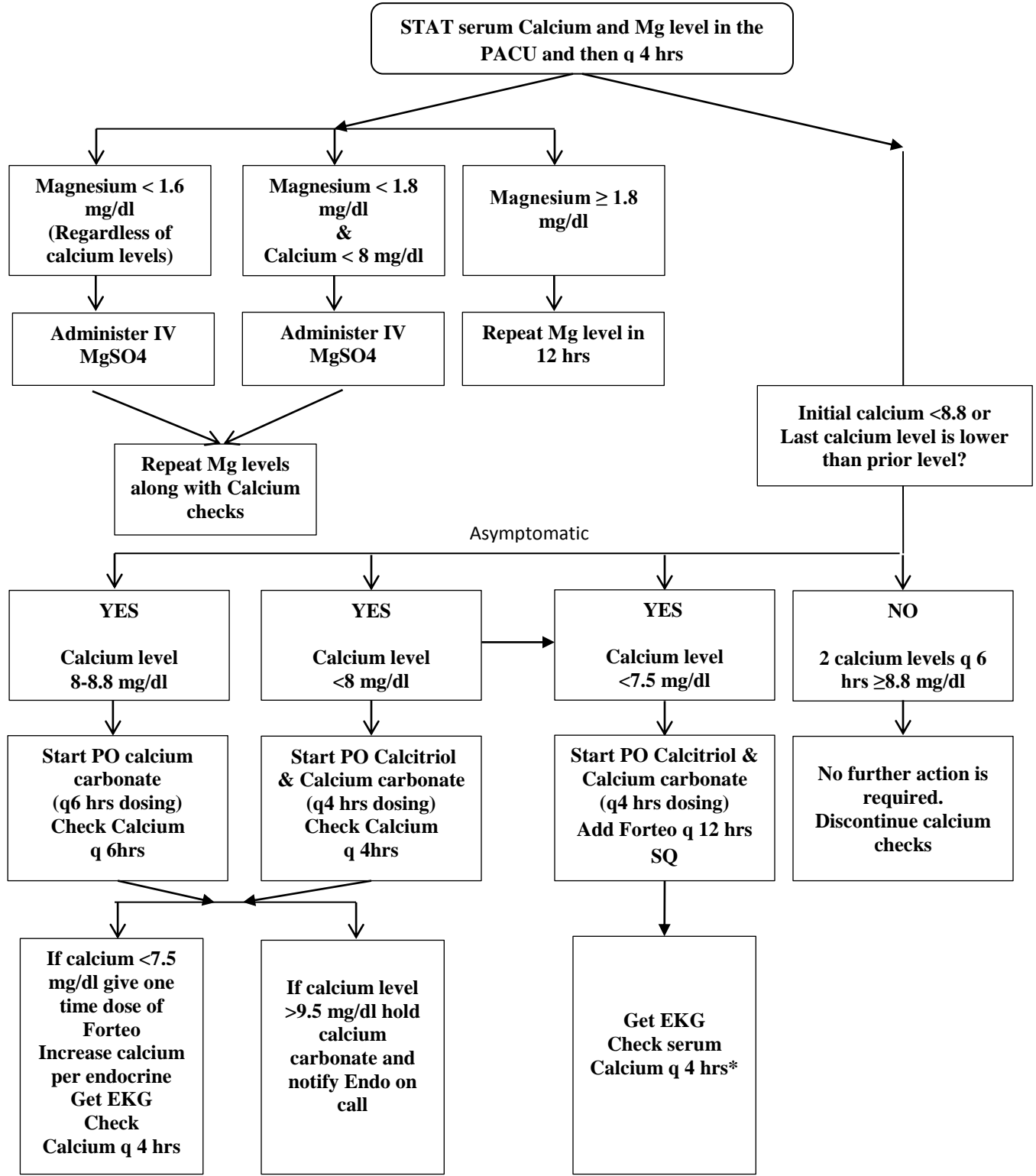
APPENDIX

Adapted flowchart if iPTH is not available in house

I. Low risk patient flowchart



II. High risk patient flowchart



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