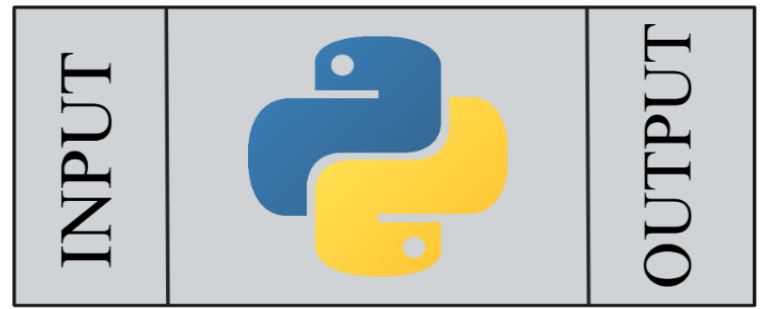
Perfusate chemistry readings from real-time sensors (e.g. pH)

Perfusate hemodynamics from in-line sensors (e.g. pressure)



Display monitors for user interface

Automated hemostatic adjustment (see Table below)

Variable	Condition	Automated Response	Additional Manual Interventions
pH	*Above 7.45*	Increase CO2% gas inflow into HA (by 1% until back in range)	Increase dialysis blood pump speed to shunt more blood through filter
	Below 7.35	Increase rate of N2 inflow into PV (by 5mL/min until back in range)	Addition of bicarbonate
pO2 (Artery)	*Above 130*	Stop gas flow into HA (resumes at low flow until back in range)	N/A
	Below 100	Increase O2 % and/or rate into HA (by 1% until back in range)	N/A
pO2 (Vein)	*Above 85*	Set N2% to 100%, Increase rate of N2 inflow into PV (by 5mL/min until back in range)	N/A
	Below 60	Increase O2 % and/or rate into PV (by 1% or 1mL/min until back in range)	N/A
pCO2	*Above 30*	Increase rate of N2 and/or O2 inflow into PV (by 5 mL/min until back in range)	Increase dialysis blood pump speed to shunt more blood through filter
	Below 10	Increase CO2% inflow into HA (by 1% until back in range)	Addition of bicarbonate
Hct/Hgb	*Above 45*	Dialysis inflow pump increases with respect to outflow to add volume	Dilution with saline
	Below 30	Dialysis outflow pump increases with respect to inflow to draw off volume	Addition of more blood (cleaned RBC packs) if available
Lactate/K/Na	*Above 5/6/150*	When K exceeds 6, dialysis speed increases	Increase dialysis blood pump speed to shunt more blood through filter
	Below X/X/140	N/A	If Na low, add bicarbonate (Lactate and K are physiologically low)
Pressure (PV/HA)	*Above 8/100*	Decrease pump speed (currently working on implementing this automation)	Adjust cannula trajectory; bolus epoprostenol
	Below 2/70	Increase pump speed (currently working on implementing this automation)	Bolus phenylephrine