TPN practice questions

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chemotherapy for	r breast cancer. She	e is to be placed on TPN. Labs are:
sodium	133 mEq/L	normal range 135 – 150 mEq/L
potassium	3.8 mEq/L	normal range 3.5 – 5.0 mEq/L
chloride	99 mEq/L	normal range 100 – 106 mEq/L
bicarbonate	32 mEq/L	normal range 24 – 30 mEq/L
BUN	4 mg/dL	normal range 8 – 20 mg/dL
creatinine	0.5 mg/dL	normal range $0.6 - 1.2 \text{ mg/dL}$
glucose	113 mg/dL	normal range 70 – 110 mg/dL, fasting
calcium	7.9 mEq/L	normal range 8.5 – 10 mEq/L
phosphate	2.5 mg/dL	normal range $2.6 - 4.5 \text{ mg/dL}$
magnesium	2.0 mEq/L	normal range 1.8 – 2.5 mEq/L
preablumin	< 7.0 mg/dL	normal range 16 – 40 mg/dL (acute nutritional status)
albumin	2.3 g/dL	normal range 3.5 – 5 g/dL (long-term nutritional status)
trigycerides	111 mg/dL	desired range < 200 mg/dL (if these are high need to limit fat calories)

1. A 42yo, 148 lb, 5' 6.5" female is admitted with nausea, vomitting, dehydration, and inability to eat secondary to

TPN Worksheet using pre-set volumes	age:	sex:	
height:cm ABW:kg	IBW:	_kg feed weight:	kg
Targets: 1. Daily fluid needs. >20 kg: 1500ml + (20 ml)(W - 20 kg), or 30 - 35 ml/kg/day	calculated target:	ml/day	
2. Protein requirements. normal, unstressed individual: 0.8g/kg/day hospitalized patient: 1-1.2g/kg/day stressed patient: 1.5-2g/kg/day	calculated target:	g protei	in/day
3. Non-protein calories $BEE_{men} = 66.67 + 13.75(W) + 5.0(H) - 6.76(A)$ $BEE_{women} = 665.1 + 9.56(W) + 1.86(H) - 4.68(A)$ activity factors: confined to bed: 1.2, out of bed: 1.3 stress factors: surgery: 1.2; infection: 1.4; trauma: TDE = (BEE) (activity factor) (stress factor)	calculated target: 1.5; burns: 1.7	kcals/da	ay
Amounts: 4. Total TPN volume ml/day; volum	e for each TPN:	ml/bag; # bags/	day:
5. Protein Volume choose one: 27.5g in 500ml 5.5% AA 42.5g in 500ml	8.5% AA	50g in 500ml 10% AA	or
10% AA calculated volume: ml			
6. Dextrose volume (3.4 kcals/g)choose one100g in D20W 500ml250g in D50W	500ml	3.5 mg/kg/min = 350g in D70W 500ml	g/day or
D70W calculated volume: ml			
7. Fat volume (9 kcals/g)choose one:550kcals/500ml 10% lipid900kcals/ 500ml	ıl of 20% lipid	or	
20% lipid calculated volume: ml	plus sterile w	ater volume:	ml
Electrolytes: 8. Daily electrolyte needs total a amt/1000 calories (amt)(sodium 40-50 mEq potassium 40mEq magnesium 8-12mEq calcium 2-5 mEq phosphate 15-25mMol	mount of kcals/day f # daily cals)/1000 	from fat and dextrose: amount/bag	
9. Calculate the volume of each electrolyte solution sodium chloride 23.4% (4mEq/ml) sodium acetate 16.4% (2mEq/ml) potassium phosphate: 3mMol phosphate/ml, 4.4 mE potassium chloride 2mEq/ml magnesium sulfate 4mEq/ml calcium gluconate 10% (0.465mEq/ml) infusion rate: ml/hr	o n that you will add Eq potassium/ml	l volume to add	ml ml ml ml ml ml

TPN Worksheet using pump	age:	sex:	
height:cm ABW:kg	IBW:	kg feed weight:	kg
Targets: 2. Daily fluid needs. >20 kg: 1500ml + (20 ml)(W - 20 kg), or 30 - 35 ml/kg/day	calculated targe	et: ml/day	7
2. Protein requirements. normal, unstressed individual: 0.8g/kg/day hospitalized patient: 1-1.2g/kg/day stressed patient: 1.5-2g/kg/day	calculated targe	et:g prote	in/day
3. Non-protein calories $BEE_{men} = 66.67 + 13.75(W) + 5.0(H) - 6.76(A)$ $BEE_{women} = 665.1 + 9.56(W) + 1.86(H) - 4.68(A)$ activity factors: confined to bed: 1.2, out of bed: stress factors: surgery: 1.2; infection: 1.4; traum TDE = (BEE) (activity factor) (stress factor)	calculated targe 1.3 a: 1.5; burns: 1.7	et:kcals/d	ay
Amounts: 4. Total TPN volume ml/day; vol	ume for each TPN: _	ml/bag; # bags/	day:
5. Protein Volume choose one: 27.5g in 500ml 5.5% AA 42.5g in 500ml	0ml 8.5% AA	50g in 500ml 10% AA	or
10% AA calculated volume: ml	l		
6. Dextrose volume (3.4 kcals/g)choose one100g in D20W 500ml250g in D50	0W 500ml	3.5 mg/kg/min = 350g in D70W 500ml	g/day or
D70W calculated volume: ml	l		
7. Fat volume (9 kcals/g) choose one: 550kcals/500ml 10% lipid 900kcals/ 50	00ml of 20% lipid	or	
20% lipid calculated volume: ml	l plus sterile	water volume:	ml
Electrolytes: 8. Daily electrolyte needs tota amt/1000 calories (an	al amount of kcals/day	y from fat and dextrose:	
sodium 40-50 mEq potassium 40mEq magnesium 8-12mEq calcium 2-5 mEq phosphate 15-25mMol			
9. Calculate the volume of each electrolyte solus sodium chloride 23.4% (4mEq/ml) sodium acetate 16.4% (2mEq/ml) potassium phosphate: 3mMol phosphate/ml, 4.4 potassium chloride 2mEq/ml magnesium sulfate 4mEq/ml calcium gluconate 10% (0.465mEq/ml)	ution that you will a mEq potassium/ml	dd <u>volume to add</u>	ml ml ml ml ml ml
infusion rate: ml/hr			

2. A 72yo, 96 lb, 5' 2" female receives a colon	resection after a diagnosis of	obstructive colon cancer	. She is to be
placed on TPN while her bowel heals. Labs are	:		

F		
sodium	132 mEq/L	normal range 135 – 150 mEq/L
potassium	3.2 mEq/L	normal range $3.5 - 5.0 \text{ mEq/L}$
chloride	99 mEq/L	normal range 100 – 106 mEq/L
bicarbonate	29 mEq/L	normal range 24 – 30 mEq/L
BUN	3 mg/dL	normal range $8 - 20 \text{ mg/dL}$
creatinine	0.5 mg/dL	normal range $0.6 - 1.2 \text{ mg/dL}$
glucose	101 mg/dL	normal range 70 – 110 mg/dL, fasting
calcium	7.8 mEq/L	normal range 8.5 – 10 mEq/L
phosphate	3.1 mg/dL	normal range 2.6 – 4.5 mg/dL
magnesium	1.4 mEq/L	normal range 1.8 – 2.5 mEq/L
preablumin	< 7.0 mg/dL	normal range 16 – 40 mg/dL (acute nutritional status)
albumin	2.1 g/dL	normal range 3.5 – 5 g/dL (long-term nutritional status)
trigycerides	125 mg/dL	desired range $< 200 \text{ mg/dL}$ (if these are high need to limit fat calories)

TPN Worksheet using pre-set volumes	age:	sex:	_
height:cm ABW:kg	IBW:	_kg feed weight:	kg
Targets: 3. Daily fluid needs. >20 kg: 1500ml + (20 ml)(W - 20 kg), or 30 - 35 ml/kg/day	calculated target:	ml/day	
2. Protein requirements. normal, unstressed individual: 0.8g/kg/day hospitalized patient: 1-1.2g/kg/day stressed patient: 1.5-2g/kg/day	calculated target:	g protei	n/day
3. Non-protein calories $BEE_{men} = 66.67 + 13.75(W) + 5.0(H) - 6.76(A)$ $BEE_{women} = 665.1 + 9.56(W) + 1.86(H) - 4.68(A)$ activity factors: confined to bed: 1.2, out of bed: 1.3 stress factors: surgery: 1.2; infection: 1.4; trauma: 1 TDE = (BEE) (activity factor) (stress factor)	calculated target: .5; burns: 1.7	kcals/da	ay
Amounts: 4. Total TPN volume ml/day; volume	for each TPN:	ml/bag; # bags/d	day:
5. Protein Volume choose one:27.5g in 500ml 5.5% AA42.5g in 500ml	8.5% AA	50g in 500ml 10% AA	or
10% AA calculated volume: ml			
6. Dextrose volume (3.4 kcals/g)choose one100g in D20W 500ml250g in D50W 5	00ml	3.5 mg/kg/min = 350g in D70W 500ml	g/day or
D70W calculated volume: ml			
7. Fat volume (9 kcals/g)choose one:550kcals/500ml 10% lipid900kcals/ 500ml	of 20% lipid	or	
20% lipid calculated volume: ml	plus sterile w	ater volume:	ml
Electrolytes: total an amt/1000 calories (amt)(# sodium 40-50 mEq potassium 40mEq magnesium 8-12mEq calcium 2-5 mEq phosphate 15-25mMol	nount of kcals/day f daily cals)/1000	rom fat and dextrose: amount/bag	
9. Calculate the volume of each electrolyte solution sodium chloride 23.4% (4mEq/ml) sodium acetate 16.4% (2mEq/ml) potassium phosphate: 3mMol phosphate/ml, 4.4 mEd potassium chloride 2mEq/ml magnesium sulfate 4mEq/ml calcium gluconate 10% (0.465mEq/ml) infusion rate: ml/hr	n that you will add q potassium/ml	volume to add	ml ml ml ml ml

TPN Worksheet using pump	age:	sex:	
height:cm ABW:kg	IBW:	_kg feed weight:	kg
Targets: 4. Daily fluid needs. >20 kg: 1500ml + (20 ml)(W - 20 kg), or 30 - 35 ml/kg/day	calculated target:	ml/day	
2. Protein requirements. normal, unstressed individual: 0.8g/kg/day hospitalized patient: 1-1.2g/kg/day stressed patient: 1.5-2g/kg/day	calculated target:	g protein/	'day
3. Non-protein calories $BEE_{men} = 66.67 + 13.75(W) + 5.0(H) - 6.76(A)$ $BEE_{women} = 665.1 + 9.56(W) + 1.86(H) - 4.68(A)$ activity factors: confined to bed: 1.2, out of bed: 1. stress factors: surgery: 1.2; infection: 1.4; trauma: TDE = (BEE) (activity factor) (stress factor)	calculated target: 3 1.5; burns: 1.7	kcals/day	
Amounts: 4. Total TPN volume ml/day; volume	me for each TPN:	ml/bag; # bags/da	y:
5. Protein Volume choose one:27.5g in 500ml 5.5% AA42.5g in 500ml	ıl 8.5% AA	50g in 500ml 10% AA	or
10% AA calculated volume: ml			
6. Dextrose volume (3.4 kcals/g)choose one100g in D20W 500ml250g in D50W	7 500ml	3.5 mg/kg/min = 350g in D70W 500ml	g/day or
D70W calculated volume: ml			
7. Fat volume (9 kcals/g)choose one:550kcals/500ml 10% lipid900kcals/ 500	ml of 20% lipid	or	
20% lipid calculated volume: ml	plus sterile w	vater volume:	ml
Electrolytes: 8. Daily electrolyte needs total amt/1000 calories (amt) sodium 40-50 mEq	amount of kcals/day t)(# daily cals)/1000	from fat and dextrose: amount/bag	
magnesium 8-12mEq			
calcium 2-5 mEq phosphate 15-25mMol			
9. Calculate the volume of each electrolyte solut sodium chloride 23.4% (4mEq/ml) sodium acetate 16.4% (2mEq/ml) potassium phosphate: 3mMol phosphate/ml, 4.4 m potassium chloride 2mEq/ml magnesium sulfate 4mEq/ml calcium gluconate 10% (0.465mEq/ml)	ion that you will add nEq potassium/ml	l <u>volume to add</u>	ml ml ml ml ml
infusion rate: ml/hr			

3. A 80yo, 86 lb, 5' 0" female with pneumonia and dementia is refusing to eat. She is to be placed on TPN while her infection resolves, in the hope that she will begin eating again. Labs are:

infection resolves	, in the hope that s	ne win begin eating again. Labs are.
sodium	135 mEq/L	normal range 135 – 150 mEq/L
potassium	4.4 mEq/L	normal range 3.5 – 5.0 mEq/L
chloride	104 mEq/L	normal range 100 – 106 mEq/L
bicarbonate	26 mEq/L	normal range 24 – 30 mEq/L
BUN	26 mg/dL	normal range 8 – 20 mg/dL
creatinine	0.6 mg/dL	normal range 0.6 – 1.2 mg/dL
glucose	123 mg/dL	normal range 70 – 110 mg/dL, fasting
calcium	8.5 mEq/L	normal range 8.5 – 10 mEq/L
phosphate	3.7 mg/dL	normal range 2.6 – 4.5 mg/dL
magnesium	2.1 mEq/L	normal range 1.8 – 2.5 mEq/L
albumin	2.0 g/dL	normal range 3.5 – 5 g/dL (long-term nutritional status)

TPN Worksheet using pre-set volumes	age:	sex:	-
height:cm ABW:kg	IBW:	kg feed weight:	kg
Targets: 5. Daily fluid needs. >20 kg: 1500ml + (20 ml)(W - 20 kg), or 30 - 35 ml/kg/day	calculated target:	ml/day	
2. Protein requirements. normal, unstressed individual: 0.8g/kg/day hospitalized patient: 1-1.2g/kg/day stressed patient: 1.5-2g/kg/day	calculated target:	g proteir	n/day
3. Non-protein calories $BEE_{men} = 66.67 + 13.75(W) + 5.0(H) - 6.76(A)$ $BEE_{women} = 665.1 + 9.56(W) + 1.86(H) - 4.68(A)$ activity factors: confined to bed: 1.2, out of bed: 1.3 stress factors: surgery: 1.2; infection: 1.4; trauma: 1. TDE = (BEE) (activity factor) (stress factor)	calculated target: 5; burns: 1.7	kcals/da	у
Amounts: 4. Total TPN volume ml/day; volume	for each TPN:	ml/bag; # bags/d	ay:
5. Protein Volume choose one: 27.5g in 500ml 5.5% AA 42.5g in 500ml 8	3.5% AA	50g in 500ml 10% AA	or
10% AA calculated volume: ml			
6. Dextrose volume (3.4 kcals/g)choose one100g in D20W 500ml250g in D50W 500ml	00ml	3.5 mg/kg/min = 350g in D70W 500ml	_ g/day or
D70W calculated volume: ml			
7. Fat volume (9 kcals/g)choose one:550kcals/500ml 10% lipid900kcals/ 500ml	of 20% lipid	or	
20% lipid calculated volume: ml	plus sterile w	ater volume:	_ml
Electrolytes:8. Daily electrolyte needstotal amamt/1000 calories(amt)(#sodium40-50 mEqpotassium40mEqmagnesium8-12mEqcalcium2-5 mEqphosphate15-25mMol	ount of kcals/day f daily cals)/1000	rom fat and dextrose: amount/bag	- - - - -
9. Calculate the volume of each electrolyte solution sodium chloride 23.4% (4mEq/ml) sodium acetate 16.4% (2mEq/ml) potassium phosphate: 3mMol phosphate/ml, 4.4 mEc potassium chloride 2mEq/ml magnesium sulfate 4mEq/ml calcium gluconate 10% (0.465mEq/ml) infusion rate: ml/hr	n that you will add potassium/ml	volume to add	_ ml _ ml _ ml _ ml _ ml _ ml

TPN Worksheet using pump	age:	sex:	_
height:cm ABW:kg	IBW:	kg feed weight:	kg
Targets: 6. Daily fluid needs. >20 kg: 1500ml + (20 ml)(W - 20 kg), or 30 - 35 ml/kg/day	calculated targe	t: ml/day	
2. Protein requirements. normal, unstressed individual: 0.8g/kg/day hospitalized patient: 1-1.2g/kg/day stressed patient: 1.5-2g/kg/day	calculated targe	t:g protei	n/day
3. Non-protein calories $BEE_{men} = 66.67 + 13.75(W) + 5.0(H) - 6.76(A)$ $BEE_{women} = 665.1 + 9.56(W) + 1.86(H) - 4.68(A)$ activity factors: confined to bed: 1.2, out of bed: stress factors: surgery: 1.2; infection: 1.4; trauma TDE = (BEE) (activity factor) (stress factor)	calculated targe 1.3 a: 1.5; burns: 1.7	t:kcals/da	Ŋ
Amounts: 4. Total TPN volume ml/day; volume	ume for each TPN:	ml/bag; # bags/c	lay:
5. Protein Volume choose one:27.5g in 500ml 5.5% AA42.5g in 500	ml 8.5% AA	50g in 500ml 10% AA	or
10% AA calculated volume: ml			
6. Dextrose volume (3.4 kcals/g)choose one100g in D20W 500ml250g in D50	W 500ml	3.5 mg/kg/min = 350g in D70W 500ml	_ g/day or
D70W calculated volume: ml			
7. Fat volume (9 kcals/g)choose one:550kcals/500ml 10% lipid900kcals/ 50	0ml of 20% lipid	or	
20% lipid calculated volume: ml	plus sterile	water volume:	_ml
Electrolytes: 8. Daily electrolyte needs tota amt/1000 calories (arr	ll amount of kcals/day	v from fat and dextrose:	
and Tool calories(and tool calories)sodium40-50 mEqpotassium40mEqmagnesium8-12mEqcalcium2-5 mEqphosphate15-25mMol			
9. Calculate the volume of each electrolyte solu sodium chloride 23.4% (4mEq/ml) sodium acetate 16.4% (2mEq/ml) potassium phosphate: 3mMol phosphate/ml, 4.4 potassium chloride 2mEq/ml magnesium sulfate 4mEq/ml calcium gluconate 10% (0.465mEq/ml)	ution that you will ac mEq potassium/ml	ld <u>volume to add</u>	_ ml _ ml _ ml _ ml _ ml _ ml

4. A 88yo, 154 lb, 5' 4" female is admitted for intestinal obstruction. She is to be placed on TPN until the her gut starts working again. Labs are:

	8.8	
sodium	136 mEq/L	normal range 135 – 150 mEq/L
potassium	2.9 mEq/L	normal range $3.5 - 5.0 \text{ mEq/L}$
chloride	97 mEq/L	normal range 100 – 106 mEq/L
bicarbonate	29 mEq/L	normal range $24 - 30 \text{ mEq/L}$
BUN	70 mg/dL	normal range $8 - 20 \text{ mg/dL}$
creatinine	1.7 mg/dL	normal range 0.6 – 1.2 mg/dL
glucose	117 mg/dL	normal range 70 – 110 mg/dL, fasting
calcium	8.8 mEq/L	normal range 8.5 – 10 mEq/L
phosphate	3.8 mg/dL	normal range 2.6 – 4.5 mg/dL
magnesium	2.6 mEq/L	normal range 1.8 – 2.5 mEq/L
albumin	2.7 g/dL	normal range $3.5 - 5$ g/dL (long-term nutritional status)

Calculate her nutritional needs using both the pre-set volume and the pump methods.

A note: the serum creatinine in this patient would normally indicate kidneys that are not working well (calculated creatinine clearance around 20 ml/min) and so volume restriction might normally be considered. However, in patients who are volume depleted (i.e., low blood volume in their vascular system), the BUN and creatinine will both be elevated and the BUN will elevate faster than the creatinine. A BUN:creatinine ratio of greater than 20 is a hallmark of volume depletion. This woman's BUN:creatinine ratio is 70:1.7 or 41:1 and so she is definitely volume depleted. Once her intravascular volume is restored, her serum creatinine will drop and her kidney function will appear more normal. Bear in mind, however, that kidney function tends to decrease with increasing age, so this 88 year old woman is unlikely to have "normal" kidney function and thus her volume status (weight, urine output, blood pressure, edema, crackles in the lung) will need to be checked carefully every day.

TPN Worksheet using pre-set volumes	age:	sex:	_
height:cm ABW:kg	IBW:	_kg feed weight:	kg
Targets: 7. Daily fluid needs. >20 kg: 1500ml + (20 ml)(W - 20 kg), or 30 - 35 ml/kg/day	calculated target:	ml/day	
2. Protein requirements. normal, unstressed individual: 0.8g/kg/day hospitalized patient: 1-1.2g/kg/day stressed patient: 1.5-2g/kg/day	calculated target:	g protei	n/day
3. Non-protein calories $BEE_{men} = 66.67 + 13.75(W) + 5.0(H) - 6.76(A)$ $BEE_{women} = 665.1 + 9.56(W) + 1.86(H) - 4.68(A)$ activity factors: confined to bed: 1.2, out of bed: 1.3 stress factors: surgery: 1.2; infection: 1.4; trauma: 1 TDE = (BEE) (activity factor) (stress factor)	calculated target:	kcals/da	ay
Amounts: 4. Total TPN volume ml/day; volume	e for each TPN:	ml/bag; # bags/d	dav:
5. Protein Volume choose one: 27.5g in 500ml 5.5% AA 42.5g in 500ml	8.5% AA	50g in 500ml 10% AA	or
10% AA calculated volume: ml			
6. Dextrose volume (3.4 kcals/g)choose one100g in D20W 500ml250g in D50W 5	500ml	3.5 mg/kg/min = 350g in D70W 500ml	_ g/day or
D70W calculated volume: ml			
7. Fat volume (9 kcals/g)choose one:550kcals/500ml 10% lipid900kcals/ 500m	1 of 20% lipid	or	
20% lipid calculated volume: ml	plus sterile w	vater volume:	ml
Electrolytes: total ar 8. Daily electrolyte needs total ar amt/1000 calories (amt)(# sodium 40-50 mEq potassium 40mEq magnesium 8-12mEq calcium 2-5 mEq phosphate 15-25mMol	nount of kcals/day f # daily cals)/1000	From fat and dextrose: amount/bag	
9. Calculate the volume of each electrolyte solutio sodium chloride 23.4% (4mEq/ml) sodium acetate 16.4% (2mEq/ml) potassium phosphate: 3mMol phosphate/ml, 4.4 mE potassium chloride 2mEq/ml magnesium sulfate 4mEq/ml calcium gluconate 10% (0.465mEq/ml) infusion rate: ml/hr	n that you will add q potassium/ml	volume to add	ml ml ml ml ml

TPN Worksheet using the pump	age:	sex:	
height:cm ABW:kg	IBW:	_kg feed weight:	kg
Targets: 8. Daily fluid needs. >20 kg: 1500ml + (20 ml)(W - 20 kg), or 30 - 35 ml/kg/day	calculated target:	ml/day	
2. Protein requirements. normal, unstressed individual: 0.8g/kg/day hospitalized patient: 1-1.2g/kg/day stressed patient: 1.5-2g/kg/day	calculated target:	g protein/day	
3. Non-protein calories $BEE_{men} = 66.67 + 13.75(W) + 5.0(H) - 6.76(A)$ $BEE_{women} = 665.1 + 9.56(W) + 1.86(H) - 4.68(A)$ activity factors: confined to bed: 1.2, out of bed: 1.3 stress factors: surgery: 1.2; infection: 1.4; trauma: 1 TDE = (BEE) (activity factor) (stress factor)	calculated target:	kcals/day	
Amounts: 4. Total TPN volume ml/day; volume	e for each TPN:	ml/bag; # bags/day: _	
5. Protein Volume choose one: 27.5g in 500ml 5.5% AA 42.5g in 500ml	8.5% AA	50g in 500ml 10% AA or	
10% AA calculated volume: ml			
6. Dextrose volume (3.4 kcals/g)choose one100g in D20W 500ml250g in D50W 5	500ml	3.5 mg/kg/min = g/d 350g in D70W 500ml or	ay
D70W calculated volume: ml			
7. Fat volume (9 kcals/g)choose one:550kcals/500ml 10% lipid900kcals/ 500m	1 of 20% lipid	or	
20% lipid calculated volume: ml	plus sterile w	ater volume: ml	
Electrolytes: 8. Daily electrolyte needs total ar amt/1000 calories (amt)(# sodium 40-50 mEq potassium 40mEq magnesium 8-12mEq calcium 2-5 mEq phosphate 15-25mMol	nount of kcals/day f # daily cals)/1000	Trom fat and dextrose: amount/bag	
9. Calculate the volume of each electrolyte solutio sodium chloride 23.4% (4mEq/ml) sodium acetate 16.4% (2mEq/ml) potassium phosphate: 3mMol phosphate/ml, 4.4 mE potassium chloride 2mEq/ml magnesium sulfate 4mEq/ml calcium gluconate 10% (0.465mEq/ml) infusion rate: ml/hr	n that you will add Cq potassium/ml	volume to add ml ml ml ml ml	

5. A 41yo, 134 lb, 5' 5'' female is admitted for surgical removal of a large adrenal tumour. She is to be placed on TPN in anticipation of a prolonged NPO post-operative course. Labs are:

TPN in anticipation of a prolonged NPO post-operative course. Labs are:				
sodium	139 mEq/L	normal range 135 – 150 mEq/L		
potassium	3.7 mEq/L	normal range 3.5 – 5.0 mEq/L		
chloride	102 mEq/L	normal range 100 – 106 mEq/L		
bicarbonate	28 mEq/L	normal range 24 – 30 mEq/L		
BUN	12 mg/dL	normal range 8 – 20 mg/dL		
creatinine	0.6 mg/dL	normal range 0.6 – 1.2 mg/dL		
glucose	157 mg/dL	normal range 70 – 110 mg/dL, fasting		
calcium	10.1 mEq/L	normal range 8.5 – 10 mEq/L		
phosphate	1.6 mg/dL	normal range 2.6 – 4.5 mg/dL		
magnesium	1.7 mEq/L	normal range 1.8 – 2.5 mEq/L		
albumin	3.1 g/dL	normal range 3.5 – 5 g/dL (long-term nutritional status)		

TPN Worksheet using pre-set volumes	age:	sex:	_
height:cm ABW:kg	IBW:	kg feed weight:	kg
Targets: 9. Daily fluid needs. >20 kg: 1500ml + (20 ml)(W - 20 kg), or 30 - 35 ml/kg/day	calculated target:	ml/day	
2. Protein requirements. normal, unstressed individual: 0.8g/kg/day hospitalized patient: 1-1.2g/kg/day stressed patient: 1.5-2g/kg/day	calculated target:	g protei	n/day
3. Non-protein calories $BEE_{men} = 66.67 + 13.75(W) + 5.0(H) - 6.76(A)$ $BEE_{women} = 665.1 + 9.56(W) + 1.86(H) - 4.68(A)$ activity factors: confined to bed: 1.2, out of bed: 1.3 stress factors: surgery: 1.2; infection: 1.4; trauma: 1. TDE = (BEE) (activity factor) (stress factor)	calculated target: .5; burns: 1.7	kcals/da	ıy
Amounts: 4. Total TPN volume ml/day; volume	for each TPN:	ml/bag; # bags/c	łay:
5. Protein Volume choose one:27.5g in 500ml 5.5% AA42.5g in 500ml 500	8.5% AA	50g in 500ml 10% AA	or
10% AA calculated volume: ml			
6. Dextrose volume (3.4 kcals/g)choose one100g in D20W 500ml250g in D50W 5	00ml	3.5 mg/kg/min = 350g in D70W 500ml	_ g/day or
D70W calculated volume: ml			
7. Fat volume (9 kcals/g)choose one:550kcals/500ml 10% lipid900kcals/ 500ml	of 20% lipid	or	
20% lipid calculated volume: ml	plus sterile w	ater volume:	_ml
Electrolytes:8. Daily electrolyte needstotal amamt/1000 calories(amt)(#sodium40-50 mEqpotassium40mEqmagnesium8-12mEqcalcium2-5 mEqphosphate15-25mMol	nount of kcals/day f daily cals)/1000	rom fat and dextrose: amount/bag	
9. Calculate the volume of each electrolyte solution sodium chloride 23.4% (4mEq/ml) sodium acetate 16.4% (2mEq/ml) potassium phosphate: 3mMol phosphate/ml, 4.4 mEo potassium chloride 2mEq/ml magnesium sulfate 4mEq/ml calcium gluconate 10% (0.465mEq/ml) infusion rate: ml/hr	n that you will add q potassium/ml	volume to add	ml ml ml ml ml

TPN Worksheet using the pump	age:	sex:	
height:cm ABW:kg	IBW:	_kg feed weight:	kg
Targets: 10. Daily fluid needs. >20 kg: 1500ml + (20 ml)(W - 20 kg), or 30 - 35 ml/kg/day	calculated target:	ml/day	
2. Protein requirements. normal, unstressed individual: 0.8g/kg/day hospitalized patient: 1-1.2g/kg/day stressed patient: 1.5-2g/kg/day	calculated target:	g protein/da	ay
3. Non-protein calories $BEE_{men} = 66.67 + 13.75(W) + 5.0(H) - 6.76(A)$ $BEE_{women} = 665.1 + 9.56(W) + 1.86(H) - 4.68(A)$ activity factors: confined to bed: 1.2, out of bed: 1 stress factors: surgery: 1.2; infection: 1.4; trauma TDE = (BEE) (activity factor) (stress factor)	calculated target: 3 : 1.5; burns: 1.7	kcals/day	
Amounts: 4. Total TPN volume ml/day; volu	me for each TPN:	ml/bag; # bags/day:	
5. Protein Volume choose one:27.5g in 500ml 5.5% AA42.5g in 500ml	nl 8.5% AA	50g in 500ml 10% AA or	
10% AA calculated volume: ml			
6. Dextrose volume (3.4 kcals/g)choose one100g in D20W 500ml250g in D50W	W 500ml	3.5 mg/kg/min = g 350g in D70W 500ml or	/day
D70W calculated volume: ml			
7. Fat volume (9 kcals/g)choose one:550kcals/500ml 10% lipid900kcals/ 500	Oml of 20% lipid	or	
20% lipid calculated volume: ml	plus sterile w	vater volume: m	ıl
Electrolytes: 8. Daily electrolyte needs total amt/1000 calories (ami	l amount of kcals/day f t)(# daily cals)/1000	from fat and protein: amount/bag	
sodium40-50 mEqpotassium40mEqmagnesium8-12mEqcalcium2-5 mEqphosphate15-25mMol			
9. Calculate the volume of each electrolyte solu sodium chloride 23.4% (4mEq/ml) sodium acetate 16.4% (2mEq/ml) potassium phosphate: 3mMol phosphate/ml, 4.4 m potassium chloride 2mEq/ml magnesium sulfate 4mEq/ml calcium gluconate 10% (0.465mEq/ml)	tion that you will add nEq potassium/ml	l <u>volume to add</u> m m m m m	11 11 11 11 11 11