,	/	0					
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 $8 - 20 \text{ mg/dL}$					
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)					

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:

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

Analysis of patient situation:

- She is post-surgical and the surgery was more than minor surgery but probably not at the level of trauma, so probably needs a stress adjustment of 1.2 1.4.
- Her ABW = 61 kg and IBW = 57 kg, so a feed weight could be anything at either end or between these numbers. In this case I will use her IBW as her feed weight.
- Her calculated creatinine clearance is anywhere from 66 110 ml/min/ depending upon whether you correct the serum creatinine to 1.0 or leave it as it is. Either number indicates that her kidneys are in good shape and as far as you know she doesn't have any concomitant volume-sensitive disease states so you don't need to worry about volume overload.
- Her albumin is a little low. Her calcium corrects to a number that is high. Hypercalcemia (high serum calcium concentrations) is relatively common with some malignancies. We hope that removal of the tumour will allow normalization of her serum calcium, but will go on the low end of the calcium recommendations; some pharmacists may choose to omit the calcium entirely until normalization occurs and this is also an option.
- Her phosphate is a bit low so may choose a phosphate amount in the higher end of the recommended range.
- Her chloride and her bicarb are fine, so there is no need to worry about acidosis or alkalosis. Can give sodium as the chloride salt.

		iumes	age: <u>41</u>		sex: <u>F</u>
height: <u>165</u> c	m ABW:	<u>60</u> kg	IBW: <u>57</u>	<u>kg</u> <i>any</i>	feed weight: <u>57</u> kg thing 57-60 would be fine here
Targets: 1. Daily fluid	needs.				
>20 kg: 1500r 30 - 35 ml/kg/o	nl + (20 ml)(W - 20 day <i>1710 - 1995</i>	kg) 2240	calculate	d target:	<u>1700 – 2200</u> ml/day
2. Protein req	uirements.	o/ko/dav	calculate	d target:	68 - 80 g protein/day
hospitalized pa stressed patien	tient: 1-1.2g/kg/day t: 1.5-2g/kg/day	1.2 – 1.4 si	nce she's betwee	en hospit	alized and stressed
3. Non-protei	n calories			-	
$BEE_{men} = 66.67$ $BEE_{women} = 66.67$	7 + 13.75(W) + 5.0(W) + 1.8(W) + 1.8(H) - 6.76(A) 6(H) - 4.68(A	calculate () <i>1325</i>	d target:	2000 kcals/day
activity factors stress factors: s	: confined to bed: surgery: 1.2; infection	<u>1.2</u> , out of be on: 1.4; traun	ed: 1.3 na: 1.5; burns:	1.7 1.0 –	1.1
TDE = (BEE)	(activity factor) (stre	ess factor) (13	385)(1.2)(1.2 – 1	(.4) = 19	00 – 2200 kcals/day
Amounts:					
4. Total TPN she'll	volume <u>1700</u> 1 be getting fat separ	ml/day; vo <i>ately, so wen</i>	olume for each T t with lower end	PN: <u>100</u> of volun	<u>00_</u> ml/bag; # bags/day: <u>1.7</u> ne target
5. Protein Vol	ume choose one:				
27.5g in 500m	1 5.5% AA	42.5g in 50 72 g/day	00ml 8.5% AA		50g in 500ml 10% AA or
6. Dextrose vo	olume (3.4 kcals/g)	choose one		3.5 mg/k	g/min = 287 g/day = 143 g/ba
6. Dextrose vo 100g in D20W	olume (3.4 kcals/g) / 500ml	choose one 250g in D	50W 500ml	3.5 mg/k	g/min = 287 g/day = 143 g/ba 350g in D70W 500ml or
6. Dextrose vo 100g in D20W 50% is theoret	blume (3.4 kcals/g) 7 500ml <i>ically too high, but i</i>	choose one 250g in De f we go with	50W 500ml 20%, she would	3.5 mg/k	g/min = 287 g/day = 143 g/ba 350g in D70W 500ml or get 71% of her calories from fat,
6. Dextrose vo 100g in D20W 50% is theoret too high. In thi	blume (3.4 kcals/g) / 500ml ically too high, but i is case, then, we'll u	choose one 250g in D f we go with se the higher	50W 500ml 20%, she would sugar amount (2	3.5 mg/k have to { 5.2 mg/kg	ag/min = 287 g/day = 143 g/ba 350g in D70W 500ml or get 71% of her calories from fat, ag/minute) and watch her chloride
6. Dextrose vo 100g in D20W 50% is theoret too high. In thi concentrations	blume (3.4 kcals/g) / 500ml ically too high, but i is case, then, we'll u to see if she become 445 hoch CHO = 51	choose one 250g in D f we go with se the higher es acidotic. (2 55 korde to ci	50W 500ml 20%, she would sugar amount (2 250 g/bag)(1.7 b	3.5 mg/k have to g 5.2 mg/kg ags/day)	g/min = 287 g/day = 143 g/ba $350g in D70W 500ml or get 71\% of her calories from fat, g/minute) and watch her chloride. (3.4 \ kcals/g) = 1445 \ kcals \ CHO$
6. Dextrose vo 100g in D20W 50% is theoret too high. In thi concentrations 2000 kcals – 1-	blume (3.4 kcals/g) / 500ml ically too high, but i is case, then, we'll u to see if she become 445 kcals CHO = 52	choose one 250g in D: if we go with se the higher es acidotic. (2 55 kcals to gi	50W 500ml 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat	3.5 mg/k have to { 5.2 mg/k{ ags/day}	ag/min = 287 g/day = 143 g/ba 350g in D70W 500ml or $get 71% of her calories from fat, g/minute) and watch her chloride.(3.4 kcals/g) = 1445 kcals CHO$
6. Dextrose vo 100g in D20W 50% is theoret too high. In thi concentrations 2000 kcals – 1- 7. Fat volume	blume (3.4 kcals/g) 7 500ml ically too high, but if is case, then, we'll u to see if she become 445 kcals CHO = 52 (9 kcals/g) choose nl 10% lipid	choose one 250g in D: if we go with se the higher es acidotic. (2 55 kcals to gi one: 90	50W 500ml 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 200kcals/ 500ml o	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% li	ag/min = 287 g/day = 143 g/ba 350g in D70W 500ml or $get 71% of her calories from fat, g/minute) and watch her chloride.(3.4 kcals/g) = 1445 kcals CHO$
6. Dextrose vo 100g in D20W 50% is theoret too high. In thi concentrations 2000 kcals – 1- 7. Fat volume 550kcals/500r	blume (3.4 kcals/g) 7 500ml ically too high, but i is case, then, we'll u to see if she become 445 kcals CHO = 52 (9 kcals/g) choose nl 10% lipid	choose one 250g in D f we go with se the higher es acidotic. (2 55 kcals to gi one: 90	50W 500m] 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% li	ag/min = 287 g/day = 143 g/ba $350g in D70W 500ml or get 71% of her calories from fat, g/minute) and watch her chloride. (3.4 \ kcals/g) = 1445 \ kcals \ CHO$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 1-7. Fat volume 550kcals/500r Electrolytes: 8. Daily electrolytes: 	blume (3.4 kcals/g) 7 500ml ically too high, but if is case, then, we'll u to see if she become 445 kcals CHO = 55 (9 kcals/g) choose nl 10% lipid olyte needs total if	choose one 250g in D2 if we go with 1 se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/	50W 500m] 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lij	$g/\min = 287 g/day = 143 g/ba$ 350g in D70W 500ml or get 71% of her calories from fat, g/minute) and watch her chloride. (3.4 kcals/g) = 1445 kcals CHO pid $1445 + 550 = 1995 kcals (28\%)$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 14 7. Fat volume 550kcals/500r Electrolytes: 8. Daily electrolytes: 	blume (3.4 kcals/g) / 500ml ically too high, but if is case, then, we'll ut to see if she become 445 kcals CHO = 5: (9 kcals/g) choose nl 10% lipid olyte needs total a amt/1000 calorie	choose one 250g in D3 if we go with 1 se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/o es (a	50W 500m] 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals)	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lij dextrose 0/1000	$g/\min = \underline{287} g/day = 143 g/ba$ $350g \text{ in D70W 500ml or}$ $get 71\% of her calories from fat, g/minute) and watch her chloride,$ $(3.4 \ kcals/g) = 1445 \ kcals \ CHO$ pid $e: \underline{1445 + 550 = 1995 \ kcals} (28\% amount/bag)$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 14 7. Fat volume 550kcals/5000 Electrolytes: 8. Daily electrolytem sodium 	blume (3.4 kcals/g) / 500ml ically too high, but if is case, then, we'll u to see if she become 445 kcals CHO = 52 (9 kcals/g) choose nl 10% lipid olyte needs total a amt/1000 calorie 40-50 mEq	choose one 250g in D: if we go with se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/0 es (a 8	50W 500m] 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals) 0 - 100	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lij dextrose <u>/1000</u> divide	$g/\min = \underline{287} g/day = 143 g/ba$ $350g \text{ in D70W 500ml or}$ $get 71\% of her calories from fat, g/minute) and watch her chloride.$ $(3.4 \ kcals/g) = 1445 \ kcals \ CHO$ pid $e: \underline{1445 + 550 = 1995 \ kcals} (28\% amount/bag 52 mEq$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 14 7. Fat volume 550kcals/500r Electrolytes: 8. Daily electrolytes: sodium potassium 	blume (3.4 kcals/g) 7 500ml ically too high, but if is case, then, we'll u to see if she become 445 kcals CHO = 55 (9 kcals/g) choose nl 10% lipid olyte needs total a amt/1000 calorie 40-50 mEq 40mEq	choose one 250g in D: if we go with se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/o 28 (a 8 8	50W 500ml 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals) 0 - 100 0	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lig dextrose <u>/1000</u> divide each	$g/\min = \underline{287} g/day = 143 g/ba$ $350g \text{ in D70W 500ml or}$ $get 71\% of her calories from fat, g/minute) and watch her chloride.$ $(3.4 \ kcals/g) = 1445 \ kcals \ CHO$ pid $e: \underline{1445 + 550 = 1995 \ kcals} (28\%)$ $\underline{amount/bag}$ $\underline{52} \qquad \text{mEq}$ $\underline{47} \qquad \text{mEq}$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 10 7. Fat volume 550kcals/500r Electrolytes: 8. Daily electrolytes: sodium potassium magnesium 	blume (3.4 kcals/g) 7 500ml ically too high, but if is case, then, we'll ut to see if she become 445 kcals CHO = 55 (9 kcals/g) choose ml 10% lipid olyte needs total a <u>amt/1000 calorie</u> 40-50 mEq 40mEq 8-12mEq	choose one 250g in D: if we go with 1 se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/o $\frac{8}{8}$ 1	50W 500ml 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals) 0 - 100 0 6 - 24	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lij dextrose <u>have</u> divide each by 1.7	$g/\min = \underline{287} g/day = 143 g/ba$ $350g \text{ in D70W 500ml or}$ $get 71\% of her calories from fat, g/minute) and watch her chloride.$ $(3.4 \ kcals/g) = 1445 \ kcals \ CHO$ pid $e: \underline{1445 + 550 = 1995 \ kcals} (28\%)$ $\underline{amount/bag}$ $\underline{52} \qquad \text{mEq}$ $\underline{47} \qquad \text{mEq}$ $\underline{12} \qquad \text{mEq}$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 14 7. Fat volume 550kcals/5000 Electrolytes: 8. Daily electrom sodium potassium magnesium calcium 	blume (3.4 kcals/g) 7 500ml ically too high, but if is case, then, we'll ut to see if she become 445 kcals CHO = 55 (9 kcals/g) choose nl 10% lipid olyte needs total a amt/1000 calorise 40-50 mEq 40mEq 8-12mEq 2-5 mEq	choose one 250g in D2 if we go with 1 se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/0 es (a 8 8 1 4	50W 500m] 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals) 0 - 100 0 6 - 24 - 10	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lij dextrose <u>/1000</u> divide each by 1.7 to get	$g/min = \underline{287} g/day = 143 g/ba$ $350g \text{ in D70W 500ml or}$ $get 71\% of her calories from fat, g/minute) and watch her chloride,$ $(3.4 \ kcals/g) = 1445 \ kcals \ CHO$ pid $\frac{1445 + 550 = 1995 \ kcals}{amount/bag}$ $\frac{52}{47} mEq$ $\frac{12}{2.3} mEq$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 14 7. Fat volume 550kcals/500r Electrolytes: 8. Daily electrolytes: sodium potassium magnesium calcium phosphate 	blume (3.4 kcals/g) / 500ml ically too high, but if is case, then, we'll u to see if she become 445 kcals CHO = 55 (9 kcals/g) choose nl 10% lipid olyte needs total a amt/1000 calorie 40-50 mEq 40mEq 8-12mEq 2-5 mEq 15-25mMol	choose one 250g in D: if we go with 1 se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/0 $\frac{8}{8}$ $\frac{1}{4}$ $\frac{4}{3}$	50W 500ml 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals) 0 - 100 0 6 - 24 - 10 0 - 45	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lij dextrose <u>/1000</u> divide each by 1.7 to get amt/bag	$g/\min = \underline{287} g/day = 143 g/ba$ $350g \text{ in D70W 500ml or}$ $get 71\% of her calories from fat, g/minute) and watch her chloride.$ $(3.4 \text{ kcals/g}) = 1445 \text{ kcals CHO}$ pid $\frac{1445 + 550 = 1995 \text{ kcals}}{\text{amount/bag}}$ $\frac{52}{12} \text{ mEq}$ $\frac{47}{12} \text{ mEq}$ $\frac{12}{21} \text{ mMol}$ $chalk test: (21)(2) + 23 = 443$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 19 7. Fat volume 550kcals/500r Electrolytes: 8. Daily electrolytes: sodium potassium magnesium calcium phosphate 9. Calculate the sector of the sector o	blume (3.4 kcals/g) / 500ml ically too high, but if is case, then, we'll u to see if she become 445 kcals CHO = 55 (9 kcals/g) choose ml 10% lipid olyte needs total a amt/1000 calorie 40-50 mEq 40mEq 8-12mEq 2-5 mEq 15-25mMol me volume of each e	choose one 250g in D: if we go with is se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/o 28 (a 8 8 1 4 3 electrolyte so	50W 500ml 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals) 0 - 100 0 6 - 24 - 10 0 - 45 lution that you	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lij dextrose <u>1000</u> divide each by 1.7 to get amt/bag will add	$\frac{287}{9} \text{ g/day} = 143 \text{ g/ba}$ $350\text{g in D70W 500ml or}$ $\frac{350}{9} \text{ in D70W 500ml or}$ $\frac{360}{9} \text{ in D70W 500ml or}$ $\frac{350}{9} \text{ in D70W 500ml or}$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 100 7. Fat volume 550kcals/500r 7. Fat volume 550kcals/500r Electrolytes: 8. Daily electrolytes: 8. Daily electrolytes: 9. Calculate the sodium chlorice and the sodium chlore	blume (3.4 kcals/g) / 500ml ically too high, but if is case, then, we'll u to see if she become 445 kcals CHO = 55 (9 kcals/g) choose nl 10% lipid olyte needs total if amt/1000 calorie 40-50 mEq 40mEq 8-12mEq 2-5 mEq 15-25mMol ne volume of each e le 23.4% (4mEq/m	choose one 250g in D: if we go with is se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/o es (a 8 8 1 4 3 electrolyte so al)	50W 500ml 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals) 0 - 100 0 6 - 24 - 10 0 - 45 lution that you	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lij dextrose /1000 divide each by 1.7 to get amt/bag will add	$g/\min = \underline{287} g/day = 143 g/ba$ $350g \text{ in D70W 500ml or}$ $get 71\% of her calories from fat, g/minute) and watch her chloride.$ $(3.4 \text{ kcals/g}) = 1445 \text{ kcals CHO}$ pid $\frac{52}{47} \text{ mEq}$ $\frac{52}{12} \text{ mEq}$ $\frac{47}{21} \text{ mEq}$ $\frac{21}{21} \text{ mMol}$ $chalk test: (21)(2) + 2.3 = 44.3$ $\frac{13.0}{2.0} \text{ ml}$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 14 7. Fat volume 550kcals/500r Electrolytes: 8. Daily electrolytes: 9. Calculate the sodium chloric sodium acetate 	blume (3.4 kcals/g) / 500ml ically too high, but if is case, then, we'll ut to see if she become 445 kcals CHO = 55 (9 kcals/g) choose nl 10% lipid olyte needs total if amt/1000 calorie 40-50 mEq 40mEq 8-12mEq 2-5 mEq 15-25mMol ne volume of each e le 23.4% (4mEq/ml = 16.4% (2mEq/ml	choose one 250g in D: if we go with is se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/0 es (a 8 8 1 4 3 electrolyte so nl)	50W 500ml 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals) 0 - 100 0 6 - 24 - 10 0 - 45 lution that you	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lig dextrosed /1000 divide each by 1.7 to get amt/bag will add	$ig/min = \underline{287} g/day = 143 g/ba$ $350g in D70W 500ml or$ $get 71\% of her calories from fat, g/minute) and watch her chloride.$ $(3.4 \ kcals/g) = 1445 \ kcals \ CHO$ pid $ig \underline{52} \qquad mEq$ $\underline{47} \qquad mEq$ $\underline{12} \qquad mEq$ $\underline{21} \qquad mMol$ $chalk \ test: \ (21)(2) + 2.3 = 44.3$ $\underline{volume \ to \ add}$ $\underline{13.0} \qquad ml$ $\underline{0.0} \qquad ml$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 14 7. Fat volume 550kcals/5000 Electrolytes: 8. Daily electrom sodium potassium magnesium calcium phosphate 9. Calculate the sodium chloric sodium acetate potassium pho 	blume (3.4 kcals/g) / 500ml ically too high, but if is case, then, we'll u to see if she become 445 kcals CHO = 55 (9 kcals/g) choose nl 10% lipid olyte needs total a amt/1000 calorie 40-50 mEq 40-50 mEq 40mEq 8-12mEq 2-5 mEq 15-25mMol ne volume of each e le 23.4% (4mEq/ml sphate: 3mMol pho	choose one 250g in D: if we go with se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/o es (a 8 1 4 3 electrolyte so 1)) sphate/ml, 4.4	50W 500m] 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals) 0 - 100 0 6 - 24 - 10 0 - 45 lution that you 4 mEq potassiun	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lij dextrose <u>0/1000</u> divide each by 1.7 to get amt/bag will add	$\frac{287}{9} \text{ g/day} = 143 \text{ g/ba}$ $350\text{g in D70W 500ml or}$ $\frac{350\text{g in D70W 500ml or}}{9} \text{ or}$ $\frac{350\text{g in D70W 500ml or}}{9} \text{ or}$ $\frac{350\text{g in D70W 500ml or}}{9}$ $\frac{360\text{g in D70W 500ml or}}{9} \text{ and watch her chloride.}$ $(3.4 \text{ kcals/g}) = 1445 \text{ kcals CHO}$ $(3.4 \text{ kcals/g}) = 1445 \text{ kcals CHO}$ $\frac{52}{47} \text{ mEq}$ $\frac{12}{12} \text{ mEq}$ $\frac{2.3}{21} \text{ mEq}$ $\frac{21}{21} \text{ mMol}$ $\frac{13.0}{9} \text{ ml}$ $\frac{3.0}{9.0} \text{ ml}$ $\frac{7.0}{9.0} \text{ ml}$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 14 7. Fat volume 550kcals/500n Electrolytes: 8. Daily electrom sodium potassium magnesium calcium phosphate 9. Calculate the sodium chloric sodium acetate potassium pho potassium chloric sodium acetate potassium chloric sodium chlo	blume (3.4 kcals/g) / 500ml ically too high, but if is case, then, we'll u to see if she become 445 kcals CHO = 52 (9 kcals/g) choose nl 10% lipid olyte needs total a amt/1000 calorie 40-50 mEq 40mEq 8-12mEq 2-5 mEq 15-25mMol ne volume of each e le 23.4% (4mEq/ml sphate: 3mMol pho oride 2mEq/ml	choose one 250g in D: if we go with is se the higher es acidotic. (2 55 kcals to gi one: 90 amt of kcals/0 2s (a 8 8 1 4 2 electrolyte so nl)) sphate/ml, 4.4	50W 500m] 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals) 0 - 100 0 6 - 24 - 10 0 - 45 lution that you 4 mEq potassiun	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% li dextrose <u>(1000</u> divide each by 1.7 to get amt/bag will add	$\frac{287}{9} \text{ g/day} = 143 \text{ g/ba}$ $350\text{g in D70W 500ml or}$ $\frac{350\text{g in D70W 500ml or}}{9} \text{ or}$ $\frac{350\text{g in D70W 500ml or}}{9} \text{ or}$ $\frac{350\text{g in D70W 500ml or}}{9}$ $\frac{360\text{g in D70W 500ml or}}{9}$
 6. Dextrose vol 100g in D20W 50% is theoret too high. In this concentrations 2000 kcals – 14 7. Fat volume 550kcals/500r Electrolytes: 8. Daily electrolytes: 8. Daily electrolytes: 9. Calculate the sodium chlorid sodium ch	blume (3.4 kcals/g) / 500ml ically too high, but if is case, then, we'll ut to see if she become 445 kcals CHO = 55 (9 kcals/g) choose nl 10% lipid olyte needs total if amt/1000 calorie 40-50 mEq 40-50 mEq 40-50 mEq 2-5 mEq 15-25mMol ne volume of each e le 23.4% (4mEq/ml isphate: 3mMol pho oride 2mEq/ml fate 4mEq/ml pate 10% (0.465mE	choose one 250g in D: if we go with 1 se the higher es acidotic. (2 55 kcals to gi one: 9(amt of kcals/o 28 (a 8 8 1 4 3 electrolyte so and) sphate/ml, 4.4 5a/ml	50W 500ml 20%, she would sugar amount (2 250 g/bag)(1.7 b ve as fat 00kcals/ 500ml o day from fat and mt)(# daily cals) 0 - 100 0 6 - 24 - 10 0 - 45 lution that you 4 mEq potassium	3.5 mg/k have to g 5.2 mg/kg ags/day) of 20% lij dextrose <u>1000</u> divide each by 1.7 to get amt/bag will add	$\frac{287}{9} \text{ g/day} = 143 \text{ g/ba} 350g in D70W 500ml or get 71% of her calories from fat, g/minute) and watch her chloride. (3.4 kcals/g) = 1445 kcals CHO pid \frac{52}{47} \text{ mEq} (28\%) \frac{52}{47} \text{ mEq} (21) \text{ mMol} chalk test: (21)(2) + 2.3 = 44.3 volume to add (13.0) ml (0.0) ml (7.0) ml (8.0) ml (3.0) ml (5.0) ml $

TPN Worksheet using pump		<u>1</u> se	ex: <u>F</u>		
height: <u>165</u> cm ABW: <u>60</u> kg	IBW:	57_kg fe anyth	eed weight: <u>57</u> kg ing 57-60 would be fine here		
Targets:					
 >20 kg: 1500ml + (20 ml)(W - 20 kg) 2240 30 - 35 ml/kg/day 1710 - 1995 	calcula	ted target: <u></u>	1 <u>700 – 2200</u> ml/day		
2. Protein requirements. normal, unstressed individual: 0.8g/kg/day hospitalized patient: 1-1.2g/kg/day stressed patient: 15-2g/kg/day	calcula $4 = 68 - 80 g/da$	ted target: <u>7</u>	75 g protein/day		
successed patient. $1.3-2g/\text{kg/day}$ $1.2 = 1.5$	r = 00 - 00 g/uu	y			
3. Non-protein calories $BEE_{men} = 66.67 + 13.75(W) + 5.0(H) - 6.76(A)$ calculated target: <u>2000</u> kcals/day $BEE_{women} = 665.1 + 9.56(W) + 1.86(H) - 4.68(A)$ <i>1325</i> activity factors: <u>confined to bed: 1.2</u> , out of bed: 1.3 stress factors: surgery: 1.2; infection: 1.4; trauma: 1.5; burns: $1.7 \ 1.0 - 1.1$ TDE = (BEE) (activity factor) (stress factor) (<i>1385</i>)(<i>1.2</i>)(<i>1.2</i> - <i>1.4</i>) = <i>1900</i> - <i>2200</i> kcals/day					
Amounts: 4. Total TPN volume 2000 ml/day; volume for each TPN: 2000 ml/bag; # bags/day: 1 I will use a larger amount here since fats will be included in TPN volume					
5. Protein Volume					
10% AA calculated volume: 750 ml	(75 g/day)(100 g	nl/10 g) = 73	50 ml		
6. Dextrose volume (3.4 kcals/g) D70W calculated volume: <u>460</u> ml	3.5 mg/kg/min = (320 g/day)(100 (460 ml)(70 g/l 2000 kcals – 10	= <u>287</u> g/day ml/70 g) = 4 00 ml)(3.4 kc 95 CHO kcal	y; 4 mg/kg/day = 328 g/day 457 \approx 460ml eals/g) = 1095 kcals from CHO ts = 905 kcals to give as fat		
7. Fat volume (9 kcals/g)			and the second se		
(905 kcals fat)(1 g fat/9 kcals)(100 ml/20 g fat) = 500 ml 20% fat					
20% lipid calculated volume: <u>500</u> ml	plus sterile	water volum	e: <u>210</u> ml		

2000ml - 750ml AA - 460 ml CHO - 500 ml fat = 290 ml remaining; 77 ml given as e'lytes so 210 given as water

Electrolytes:

8. Daily electrolyte needs total amt of kcals/day from fat and dextrose: $1095 + 900 = 1995$ kcals (45% fat)							
	amt/1000 calories	(amt)(# daily cals)/1000		amount/	<u>bag</u>		
sodium	40-50 mEq	80-100		92	mEq		
potassium	40mEq	80		80	mEq		
magnesium	8-12mEq	<u>16 – 24</u>		20	mEq		
calcium	2-5 mEq	4 - 10		4.65	mEq		
phosphate	15-25mMol	<u>30 - 50</u>		39	mMol		
<i>chalk test:</i> $(39)(2) + 5 = 83 \div 2 = 41.5/L$ so OK							
9. Calculate the volume of each electrolyte solution that you will add volume to add							
sodium chloride	23.4% (4mEq/ml)			23.0	ml		
sodium acetate 1	6.4% (2mEq/ml)			0.0	ml		
potassium phosphate: 3mMol phosphate/ml, 4.4 mEq potassium/ml				13.0	ml		
potassium chlorid	e 2mEq/ml			11.4	ml		
magnesium sulfat	e 4mEq/ml			5.0	ml		
calcium gluconate	e 10% (0.465mEq/ml)			10.0	ml		
vitamins, other ad	ditives			15.0	ml		
			total:	77	ml		
infusion rate: <u>83</u> ml/hr							