Appendix 1:

Patient with ID 4: Pt is on Nocturnal intermittent peritoneal dialysis 3 Exchanges of 2 L using one 6-liter 2.5% dextrose dialysate bag. Total fill volume is 6 liters. Glucose concentration in the effluent was 1134 mg/dl (1.134 g/dl or 11.34 g/L) and the effluent volume 6877 ml (6.877L).

Glucose exposed:

Dextrose is hydrated glucose with molecular weight of 198 g and anhydrous glucose has molecular

weight of 180 g

Thus 1 g of dextrose = 0.91 g glucose and 2.5 % Dextrose is equal to 2.27 % of glucose

Amount of glucose in 1 L of 2.5% dextrose PD fluid (2.27% glucose) is 22.7 g and in 6 L it would be 22.7 x 6 = 136.2 g.

Initial amount of glucose in the dialysate = 136.2 g .

Amount of glucose in the effluent: 11.34 x 6.877 = 77.985 g of glucose is left in the effluent after the dwell.

Hence, glucose absorbed = Initial amount of glucose in the dialysate – Amount of glucose in the effluent = 136.2 – 77.98 = 58.21 g.

Therefore, out of 136.2 g of the exposed glucose, 58.21 g is absorbed.

Appendix 2:

Patient on Continuous cycling peritoneal dialysis 4 Exchanges of 2 L and a Last Fill (LF) of 2 L using two 6-liter 1.5% dextrose dialysate bags.

Total fill volume is 10 liters (8 L for the night time exchanges and 2 L for the LF).

Average dwell time for each cycler exchange is 1 hour and 45 minutes (t1) and the LF is 3 hours (t2)

I g of dextrose = 0.91 g glucose.

1.5 % Dextrose has 1.36 % of glucose

The amount of glucose in 1 L of 1.5% Dextrose dialysate is 13.6 grams, so 10 L (8 L+2 L) would be 136 grams of total glucose exposed to (108.8 g for the night exchanges and 27.2 g for the LF). Per PET data D2/D0 and D4/D0 are 0.46 and 0.14 respectively.

Using nonlinear regression model, we estimate Dt1/D0 to be 0.47438, so the proportion of glucose absorbed would be 1-Dt1/D0 which would be 0.52562. Hence, of the 108.8 grams of glucose exposed, 57.1874 grams (108.8 x 0.52562) would be absorbed via cycler.

For the LF exchange of 2 L, Dt2/D0 calculated using nonlinear regression graph is 0.2776, so the proportion of glucose absorbed is 1-Dt2/D0 which would be 0.7224. Therefore, of the 27.2 grams of total glucose exposed to, 19.64 grams (27.2 x 0.7224) is absorbed.

Total glucose absorbed in 24 hours: 57.187+ 19.649 = 76.83 grams.

Appendix 3:

Patient ID 16:

Patient on CCPD, 5 exchanges of 2.2 L each, with a LF of 2.2 L, using a combination of 1.5% and 2.5 % bags. All bags are 6 L in volume. The patient keeps 1.5% bag in front followed by two 2.5% bags in the second and third place. Total of 13.2 liters are used in this prescription, 11 L for the cycler and 2.2 L for the LF. As the patient uses 11 L for the cycler, 6 L are drawn from 1.5% bag and 5 L from 2.5% bags. Therefore, total amount of glucose exposure on 11 L of cycler exchanges is: 6 x 13.6 = 81.6 g, plus 5 x 22.75 = 113.75g. For the LF of 2.2 L are drawn from 2.5% bags, 2.2 x 22.75= 49.94g.

So, in total patient is exposed is 81.6 + 113.75 + 49.94 = 245.29 g of glucose.

Using nonlinear regression model, we estimate Dt1/D0 to be 0.64, so the proportion of glucose absorbed would be 1-Dt1/D0 which would be 0.3571 and the glucose exposure on the cycler is 195.35 g. Hence, of the 195.35 grams of glucose exposed, 69.75 grams (195.35 x 0.3571) would be absorbed via cycler.

For the LF exchange of 2.2 lit, Dt2/D0 calculated using nonlinear regression graph is 0.41, so the proportion of glucose absorbed is 1-Dt2/D0 which would be 0.5851. Therefore, of the 49.94 grams of total glucose exposed to, 29.21 grams (49.94 x 0.59) is absorbed.

In total 69.75 + 29.21 = 98.96 g is absorbed