Management of children and adolescents with diabetes requiring surgery in resource limited countries

- Whenever possible follow the guidelines described in the full chapter for recommended care
- Children with type 1 diabetes requiring major surgery should be referred to a center with sufficient resources to provide safe care
- In many centers the following facilities may not be available including infusion pumps, insulin analogues, blood gases, urea and electrolytes and even glucometers
- Insulin can be infused using burettes connected to iv fluid bags and putting 50 to 100 units of regular insulin to 50 to 100 ml of saline (1 ml =1 unit) and given on a separate line or a Y-connection. This should be changed every 6 hours. Or else insulin can be given sc hourly in the same dose as the infusion. NPH insulin given once or twice can give a good basal dose. In absence of blood gases use urine ketone in a freshly voided urine and in case of general anesthesia a temporary urinary catheter can be used. Where there are no facilities for urea and electrolytes, go clinical based on hydration status and urine output and avoid adding potassium if patient is oliguric. In absence of glucometer use urine glucose to monitor the patient. If no facilities for iv fluids use ORS.
- For patients needing major elective surgery
  - Attempt to control diabetes ahead of the operation day
  - Admit all cases one to two days before surgery for control
  - Procedures should be first on the list preferably in the morning
  - If no facilities for a pump give insulin as mentioned above
  - Monitor blood glucose hourly intraoperatively and adjust insulin dose as per iv
  - If patient is to be NPO for few days give 50% of his NPH dose sc 12 hourly. Monitor blood glucose 6 hourly and give regular insulin 0.05 to 0.1 unit/kg body weight sc if blood glucose is high
- For patients needing minor elective surgery
  - Schedule first on the list
  - If on premixed insulin give 50% of morning dose just before procedure
  - If on NPH plus regular omit the regular and give 50% of the NPH dose
  - Always check the blood glucose (or urine glucose) just before procedure if over 240 mg/dl or 2 crosses of glucose in urine give 0.05 to 0.1 unit/kg body weight of regular insulin. If patient is hypoglycemic (or urine is free of glucose) give oral glucose or iv infusion of dextrose saline
- For Emergency surgery
  - Treat DKA as per protocol for resource limited countries before surgery
  - If no DKA start iv fluid and insulin as for elective
  - Treat hypoglycemia if present