Vulnerable Situations

1) New onset type 1 diabetes
2) Intercurrent illness
3) Insulin pump failure
4) Insulin omission
New Onset Diabetes

- Early recognition and referral is key
- DKA in 19% of new onset diabetes*
  - 40% if age < 3 years; 16% in older children
  - ~ 40% had physician visits in 2 weeks prior to diagnosis (similar with and without DKA)
  - Common diagnostic codes – GI, GU and URTI codes
- Be alert for polyuria, polydipsia, weight loss
  - ASK about these when children present with GI, GU and even URTI symptoms

*Bui et al. J Peds, March 2010
If diabetes is suspected

- Simple test
  - URINE DIP!!!
  - OR
  - GLUCOSE METER CHECK
- If positive – refer immediately
- No need for fasting glucose testing
The diagnosis of type 1 diabetes is an URGENT problem
Call local diabetes team/physician and refer immediately

This is a 24 hour, 365 Day a year service at IWK. Please call us!
What *usually* happens to insulin requirements during intercurrent illness?
Sick Days Management

The 10% rule

- Do Not omit insulin
- High blood sugars with or without ketones indicate need for more insulin
- Basic rule is to give usual insulin dose 
  PLUS
  an extra 10% of total daily dose as rapid acting insulin
- Repeat every 2-4 hours as needed
Sick Days Example

- 13 year old girl with fever and sore throat, eating poorly
- Glucose 19.3, Ketones moderate
- Usual insulin 80 units/day
  - N 30 H 10 am; H 8 supper N32 hs
- How much insulin should she give
  - If it is lunch time? 8 units Humalog
  - If it is supper time? 16 units Humalog
Hyperglycemia & Insulin Pumps

Failure of insulin delivery must always be considered

1) Insertion site problem!
2) Insertion site problem!
3) Insertion site problem!
4) Usual reasons – illness, forgotten boluses
5) Pump failure
Response to Hyperglycemia with Pump

- If Glucose >15 mmol/L, check ketones
- No Ketones
  - Give one correction bolus via pump and recheck in 2 hours
- If not improving or ketones present

GIVE INSULIN BY INJECTION AND CHANGE PUMP SITE!!
Adherence to insulin treatment, glycemic control and ketoacidosis

- Compared insulin prescribed to insulin dispensed for all type 1 patients under 30
- 28% of patients obtained less insulin than prescribed
- Mean deficit 115 insulin days/yr (Range 9-246)
- Lack of adherence was significantly related to HbA1c and hospital admissions

*Morris, Boyle, McMahon, Greene et al, Lancet 350, Nov 22/97
Suspected Insulin Omission

- Arrange for a comprehensive team evaluation
  - Including Social work assessment and problem solving
- Encourage Parental observation/ close supervision
- Frequent phone and clinic follow-up helps
  (to review log book, adjust insulin, offer encouragement)
- Address medical or psychosocial issues as able
Key Messages in DKA Management

- Have a **Protocol** on hand and use it
- Bolus conservatively (10cc/kg)
  - Follow-up with rate based on weight
- Add insulin after first hour; usually hold insulin for transport
- Bicarbonate is not recommended
- Add K as soon as it K is normal and insulin started
- Slow correction is the goal