

**Our Experience of Using Diluted Insulin
With Hybrid Closed Loop Pump Therapy
Children's Diabetes Team
East Kent Hospitals**

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Case Study 1

- Male infant age 10 months
- Diagnosed 15.09.2024
- Weight 5.8 kgs
- Trisomy 21
- Started weaning
- Insulin on diagnosis Trurapi 0.5 units TDS, Levemir 1 unit nocte
- TIR 19%, nocturnal hypos, parental anxiety and poor sleep
- Insulin pump start 16.10.2024
 - Ypsomed (open loop)
 - TDD 6.8 units insulin



Case Study 1 cont:

- Insulin requirement reduced to 2units (TDD)
- At 1year commenced HCL with diluted insulin
- Fewer hypos, parents less anxious, improved sleep/wellbeing
- TIR 58% (increased from 19%)
- 27.05.2026
 - Insulin requirements 7.6units (TDD)
 - Diluted insulin discontinued
- Switched to undiluted NovoRapid insulin
- Total of 19months using diluted insulin



Team experience/Process

- Team discussion
- Consultants requested diluted insulin
- No previous experience in diluting insulin
- Cambridge contacted for expert guidance
- Cambridge protocols and guidelines shared
- Equipment and diluent ordered
- Staff experienced in diabetes involved with case 1
- Family to practice
- Specialist trainer joined training session to support parents/staff on Ypsomed/CamAPS
- Diabetes team staff awareness
- Pump labelled (in case of admission/attendance to ED)



Consultant responsibilities for initiating U10 diluted insulin

- Request insulin diluting medium
- Calculate Initial pump settings
- Document insulin delivery
- Develop pump failure plan and provide sick day rules guidance
- Consultants led data reviews and pump setting changes

Practical considerations

- Additional time/Planning
- Staff experience/anxiety
- Safety
 - Diabetes team staff awareness
 - Pump labelled (in case of admission/attendance to ED)
 - Pen correction advice not to be taken from pump
- Specialist guidance (Cambridge)
- Time to support and train parents/carers



Next steps

- Team aware of process
- Consider experience for use with other BCYP
- Timeline/Supplies easier to obtain (familiar with process)
- Second BCYP started 19.05.2026



Any Questions?

