SIMulatED

Royal Darwin Hospital Emergency Department

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# Scenario Run Sheet: Paediatric DKA

## Scenario Overview

**Estimated Scenario Run Time:**  12-15 mins

**Estimated Guided Reflection Time:** 25-30 mins

**Target Group:** ED Registrars and Nurses, Paediatric registrars

**Brief Summary:** 6yo girl, first presentation DKA with severe dehydration, shock and metabolic acidosis; requires initial fluid resuscitation then slow correction of fluid and electrolyte abnormalities; parental education and reassurance

## Learning Objectives

**General**

Resuscitation team work, managing distressed parents with new diagnosis of chronic disease

**Scenario Specific**

Structured approach to assessing the unwell child including supportive approach to caregivers

Recognition of shock and assessment of degree of dehydration / calculation of fluid deficit (%xwtx10)

Understand importance of rate of administration and composition of fluid/electrolyte therapy in DKA

Awareness of risk of cerebral oedema with overzealous therapy

Ability to deliver appropriate insulin regime

## Equipment Checklist

**Equipment**

Paediatric Resus trolley and defibrillator / pads, glucometer, syringe driver + infusion pump, NG tube

**Medications and Fluids**

Giving set,0.9% saline, 0.9% + 5% dex, 0.45% saline, 50% dextrose, 10% dex

Actrapid, KCL, KH2HPO4,

**Documents and Forms**

ED nursing chart, fluid balance

**Diagnostics Available**

CXR – gastroparesis

VBG – Severe DKA

## Scenario Preparation/Later Parameters

**Initial Later**

GCS **13** RR 60 P 170 BP 70/50 GCS **14** RR 40 HR 120 CR 2secs

Sats 92% RA T 37.2 BSL gas CR 4 secs SaO2 98% O2 BP 100/60 T 36.2

**Mannequin Features**

Paediatric mannequin

## Participants

**Staff Actors**

ED Registrars x3 Mother Radiographer

Nurses x3ED, ED Consultant available by phone

Paeds registrar Paeds / ICU consultant referral by phone

**Instructor Roles**

- Provide the team with clinical signs, VBG, CXR

## Candidate Instructions/Triage Information

You are informed by the nurse TL that a cat2 paediatric case has been brought to resus with abdominal pain, vomiting and confusion.

## Patient Instructions

Mannequin voice – Breathless, confused, agitated, “thirsty”, “ want to vomit”, “stomache hurts”

**Medical History**: Fit, no meds, NKDA, UTDWI, no FHx

**Social** Just returned from family road trip, year 1

## Proposed Scenario Progression

* Resuscitation team performs primary survey including focussed clinical exam and BSL / VBG
* Recognises hypovolaemic shock, establishes IV access and gives normal saline bolus for appropriate endpoint.
* Identifies first presentation of diabetes DKA, recognises hypernatraemic state; institutes appropriate fluid, electrolyte and insulin therapy (aim for slow glucose and Na reduction 4-5mmol/L/h, aims to replace deficit over minimum 48 hours. Considers low chloride fluids given hyperchloraemic acidosis. If NGT inserted, replaces losses 1:1 with appropriate choice of fluid
* Performs hourly VBG and 4h formal electrolytes, Fluid balance chart
* Gives antiemetics and considers analgesia / NGT for gastroparesis
* Delivers appropriate reassurance and explanation to child and caregiver
* Early referral to paediatrics and considers ICU referral

## Debriefing/Guided Reflection Overview

**General Opening Questions**

* How was the scenario? (each team member reflects)
* What happened in the scenario – i.e. relay the story to a workmate who wasn’t there

**Scenario Specific Questions**

* What was wrong with the patient?
* What medications/investigations may be required? What complications were you worried might occur?
* What is Na(cor) was > 160mmol/L? What happens when the glucose falls below 15mmol/L?
* Where does the patient need to go?
* Special investigations for inpatient team? (insulin levels, C-Peptide, anti- GAD, insulin Ab’s, TFT’s, coeliac screen)

**General Wrap-Up Questions**

* What did you find most beneficial about this scenario
* What was the most challenging point in this scenario?
* What would you do differently next time?