Ideal Emotional Response DURING Case

Frustration: I know what I would do back home to manage this disease, but I don't have the ability to do it here.

Supplies

- Manneguin or actor
 Regular Insulin
- IV equipment
- Glucagon
- IV fluids (NS or LR) Glucometer and strips
- D50 solution
- Urine dipsticks

Keys to Reaching Desired Emotional Response

- Allow case to mimic *slow pace* often found in resource-limited medical environments. Case may take over 30 minutes to complete.
- Allow ample time for participants to overcome obstacles from lack of resources, resisting prompting in problem solving if at all possible.

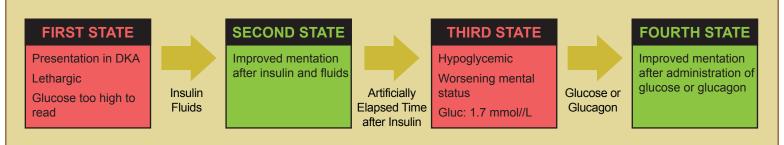
Ideal Emotional Response AFTER Debriefing

Adaptability: I was able to overcome obstacles encountered in a resource-limited environment and ultimately help this patient.

Ideal Medical Objectives

- Recognize presentation of Diabetic Ketoacidosis and initiate therapy (fluid replacement + insulin) overcoming obstacle of not having a fluid pump by using drop count method
- Overcome the inability to do insulin drip or monitor frequent labs by determining appropriate use of subcutaneous insulin and determining most important labs to follow
- Manage complications encountered while treating DKA including hypoglycemia overcoming obstacle of having to dilute D50 to D10

IDEAL CASE FLOW: Specifics less important than flow – Remember goal is to allow frustration



KEY MEDICAL MANAGEMENT REMINDERS

SIGNS OF DKA

- Hyperglycemia (>11 mmol/L) + metabolic acidosis (pH <7.3 or bicarb <15 mEq/L)
- · Polydyspia/Polyuria
- Vomiting/Dehydration
- Kussmaul Respirations (labored, deep breaths) Fruity breath
- Signs of increased ICP (confusion, altered mental status, headache)

REHYDRATION

- · Start with 10 ml/kg bolus of NS over 1 hr. May repeat.
- · Replace remainder of deficit over 48 hours. After bolus, start ~ 1.5 times maintenance of NS +KCL switching to D5 NS + KCL when RBG < 14 mmol/L or glucose decreasing rapidly
- Stop IV fluids when patient can drink or tolerate NG
- Drop Count Method: (If no pump) 20 drops = 1 ml; Can provide a rate by adjusting rate of drops (i.e. 90 ml/hr = 1,800 drops/hr = 30 drops per min = 5 drops in 10 seconds)

INSULIN DOSING

- · Ideal would be to start insulin drip at 0.05-0.1 units/kg/hr
- · Can mix insulin 1:1 in 0.45 NS to make solution of insulin that is 1 unit/ml. Then piggyback with IVF using drop count method (give as close to vein as possible)
- If drip not available, can do intermittent SQ dosing as sliding scale. Assume 1 unit/kg/day needed and determine sliding scale with Rule of 1800: 1800/insulin units per day = amount in mg/dL glucose will drop for each unit of insulin

HYPOGLYCEMIA

- Treat with dextrose bolus or glucagon.
- Rule of 50: Percent dextrose multiplied by the volume to give in ml/kg should equal fifty (i.e. 5ml/kg of D10; 2 ml/kg of D25)
- Do not give more than D12.5 through peripheral IV
- Dilute D50 to D10 by mixing 1 part D50 to 4 parts NS
- · Approximate conversion of mmol/L to mg/dL by multiplying by 18 (i.e. 1.7 mmol/L = 31 mg/dL)

CASE 1A PRESENTATION: Provide information only as it is requested

Introduction: "You are called to the Casualty Ward to see a 5 year old male with **vomiting and lethargy**. You have access to a nurse and the parent. If you want to know an exam finding, perform the exam and ask for the finding out loud."

CC: Vomiting and lethargy

HPI: 5 yo male w/ 2 wk hx of *decreased energy* and fatigue. *Abdominal pain* since yesterday w/ NB/NB *emesis* that is becoming more frequent. No diarrhea. *Lots of urine.* Now, *less awake and responsive.*

PMH: none **FH:** Brother w/ URI **SH:** Lives w/ parents and 3 sibs

Medications: none Allergies: None

Pertinent Positives on Exam (assume normal if not noted)

GEN: lethargic, no spontaneous eye opening
HEENT: eyes sunken, mouth dry, neck supple
RESP: mild tachypnea, deep respirations
CV: tachycardic, no m/r/g, weak pulses, cool ext.
ABD: minimal tenderness, no HSM
NEURO: difficult to arouse, responds to vigorous stim
EXT: cool, thin and wasted

SKIN: cool, no rashes

Initial Vitals: Wt 20 kg T 37.6 HR 182 RR 46 BP 94/52 O2 95%

Adjust vital signs according to which state above the patient is in

POTENTIAL INTERVENTIONS AND OBSTACLES



STOP CASE WHEN THE FOLLOWING ARE TRUE

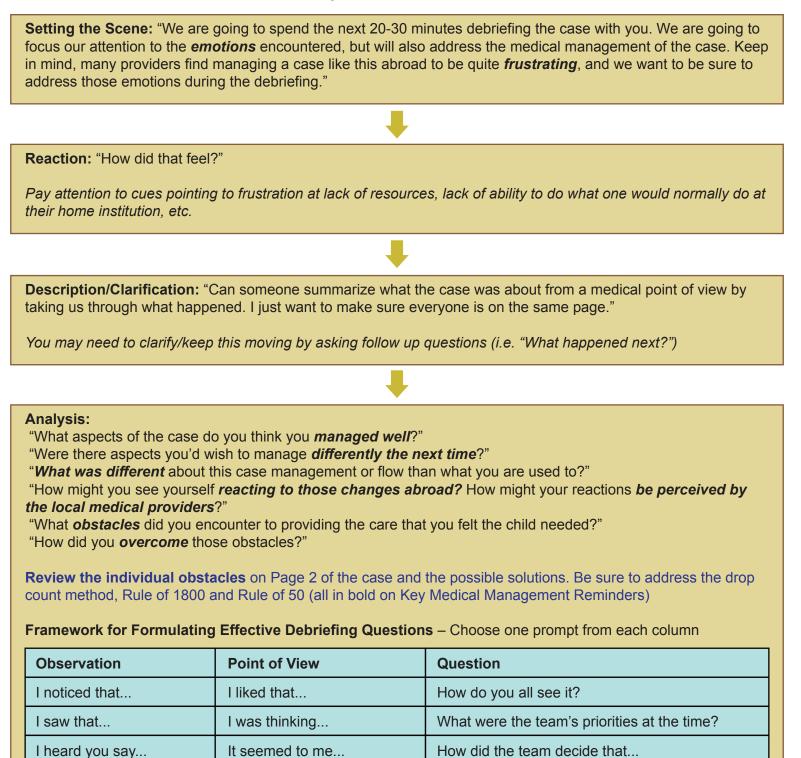


Providers have encountered obstacles and found ways to work around limited resources Enough time has passed to allow for sense that case takes longer to manage than at home

PROCEED TO CASE 1A DEBRIEFING SCRIPT

CASE 1A DEBRIEFING SCRIPT¹

Remember: Goal of debriefing is not to lecture, but to facilitate discussion



Application/Summary: "Is there anything you learned during the course of this case, that has changed your perspective about your experience abroad?"

End with each learner providing a take-home point from the case

¹Adapted with permission from Eppich, W., & Cheng, A. (in press). Promoting Excellence And Reflective Learning in Simulation (PEARLS): Development and Rationale for a Blended Approach to Healthcare Simulation Debriefing. Simul Healthc.