

**Adult Type I Diabetic Ketoacidosis**

**Pre-simulation Preparation**

**Student Learner Package**



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## SECTION I: INSTRUCTIONS

The following document is meant to help you prepare for your upcoming simulation learning activity.

It is important that you follow the following instructions to have the best possible learning outcomes from your simulation activity.

Please read and follows these instructions as they are mandatory for this simulation.

### Instructions:

- 1) Please read through this document as it will help you prepare for your upcoming simulation on DKA.
- 2) Complete the assigned suggested readings
- 3) Complete the presimulation preparation virtual simulation game (Instructor will provide link)
- 4) Once you have completed reading this document and prepared for your simulation, please:
  - a. Please print TWO copies of the rubric and bring them to your lab:
    - i. Write your name on each copy.
    - ii. Copy #1: Please complete copy #1 at home after you have finished your pre-simulation preparation (example, readings). Bring your completed rubric with you to the simulation laboratory. Please identify that it is COPY #1.
    - iii. Copy#2: Please complete copy #2 on site right after finishing your debriefing activity. Please identify that it is COPY #2.
  - b. Hand in all of your completed rubrics to your simulation facilitator.

**Most importantly, enjoy your learning experience!!**

## SECTION 2: SCENARIO OVERVIEW

Scenario Title: **Type 1 Diabetes (Adult)**

**Estimated Scenario Time:** 25min

**Debriefing time:** 30

**min Target group:** 3 year BScN students

**Core case:** Type 1 diabetic patient (Adult)

**CNO:**

**Professional responsibility and accountability:**

- (2) Recognizes individual competence within Legislated scope of practice and seeks support and assistance as necessary.
- (11) Promotes current evidence-informed practices.

**Knowledge based practice:**

- (26) Demonstrates a body of knowledge in the health sciences, including anatomy, physiology, pathophysiology, psychopathology, pharmacology, microbiology, epidemiology, genetics, immunology and nutrition.

**Providing Registered Nursing care:**

- (55) Provides nursing care that is based on critical inquiry and evidence-informed decision- making.
- (56) Coordinates and provides timely nursing care for clients with various co-morbidities, complexity and rapidly changing health statuses
- (58) Applies nursing knowledge when providing care to clients with acute, chronic, and/or persistent health challenges (e.g., stroke, cardiovascular conditions, mental health and addiction, dementia, arthritis, diabetes).
- (62) Implements safe and evidence-informed medication practices.

**Ongoing Evaluation of client care:**

- (70) Utilizes a critical inquiry process to continuously monitor the effectiveness of client care.

**CPSI:**

**Domain 1: Contribute to a Culture of Patient Safety**

- A commitment to applying core patient safety knowledge, skills, and attitudes to everyday work.

**Domain 4: Manage Safety Risks**

- Anticipating, recognizing, and managing situations that place patients at risk.

**Domain 6: Recognize, Respond to, and Disclose Adverse Events**

- Recognizing the occurrence of an adverse event or close call and responding effectively to mitigate harm to the patient, ensure disclosure, and prevent recurrence.

**CIHC:****Domain: Team Functioning**

- develop a set of principles for working together that respects the ethical values of members respect team ethics, including confidentiality,
- resource allocation, and professionalism

**Domain: Collaborative Leadership**

- work with others to enable effective patient/ client outcomes.

**Best Practice Guidelines**

- Canadian Diabetes Association - Best and promising practices in diabetes education
- Canadian Diabetes Association – CPG : Managing diabetes in hospital\_

**Brief Summary of Case:** 49 year old male admitted to a medical unit from the ER with a glucose of 28.

**EVIDENCE BASE / REFERENCES (APA Format)**

Lewis, et al., (2014). Chapter 50. Nursing Assessment: Endocrine System

Lewis et al., (2014). Chapter 52. Nursing Management: Diabetes Mellitus

Thomas, C.M., Bertram, E., & Johnson, D. (2009). The SBAR communication technique: Teaching nursing students professional communication skills. *Nurse Educator*, 34(4), 176-180.

## SECTION 3: CURRICULUM INTEGRATION

A. SCENARIO LEARNING OBJECTIVES		
Do What	With What	For What
Demonstrate	An accurate assessment on the client suffering from complications of type I diabetes	To determine etiology of presenting symptoms and decide on approach for care.
Prioritize	Interventions using assessment data	To prevent a further decline in the health status of the client suffering from complications of type I diabetes.
Identify	Threats to patient safety	To prevent undesirable effects
Demonstrate	Principles of medication administration	To help promote patient stabilization and recovery.
Communicate	With the patient and family in an emergency situation	To reduce the anxiety of the patient and his family.
Communicate	Data essential to the physician or NP in a deteriorating situation using the SBAR.	To assist in the diagnosis and treatment of the patient

**B. Learning Outcome Assessment**  
 (circle the response that applies & comment when necessary)

Competency (based on “What For”)	Demonstrated attributes align with required competency	Demonstrated attributes need some improvement to align with required competency	Demonstrated attributes need major improvement to align with required competency
<p>Demonstrate an accurate assessment on the client suffering from complications of type I diabetes to determine etiology of presenting symptoms and decide on approach for care.</p>	<ul style="list-style-type: none"> <li>• Assessment yields an accurate picture of the client’s current condition</li> <li>• Assessment is conducted in a way that appropriately aligns with the patient’s physiological condition</li> <li>• Effectively incorporates a thorough understanding of lab values when determining patient status</li> <li>• Assessment results in an accurate diagnosis</li> <li>• Assessment involves use of appropriate tools for data collection</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment yields a somewhat accurate picture of the client’s current condition</li> <li>• Assessment is conducted in a way that somewhat appropriately aligns with the patient’s physiological condition</li> <li>• Incorporates some understanding of lab values when determining patient status</li> <li>• Assessment results in a somewhat accurate diagnosis</li> <li>• Assessment involves use of some appropriate tools for data collection</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment does not yield an accurate picture of the client’s current condition</li> <li>• Assessment is conducted in a way that does not appropriately align with the patient’s physiological condition</li> <li>• Fails to incorporate an understanding of lab values when determining patient status</li> <li>• Assessment does not result in an accurate diagnosis</li> <li>• Assessment does not involve use of appropriate tools for data collection</li> </ul>

**Comments:**

**B. Learning Outcome Assessment**  
 (circle the response that applies & comment when necessary)

Competency (based on “What For”)	Demonstrated attributes align with required competency	Demonstrated attributes need some improvement to align with required competency	Demonstrated attributes need major improvement to align with required competency
<p>Prioritize interventions using assessment data to prevent a further decline in the health status of the client suffering from complications of type I diabetes.</p>	<ul style="list-style-type: none"> <li>• Interventions are organized in a way that promotes the patient’s recovery</li> <li>• All interventions meet the patient’s needs</li> <li>• Appropriate interventions are implemented in relation to abnormal findings</li> <li>• Interventions are carried out in a timely manner</li> <li>• Independently recognizes and seeks help when required patient care is beyond scope of practice</li> <li>• Effectively defers information to appropriate care provider</li> <li>• Demonstrates regard for patient safety</li> </ul>	<ul style="list-style-type: none"> <li>• Interventions are organized in a way that somewhat promotes the patient’s recovery</li> <li>• Some interventions meet the patient’s needs</li> <li>• Some appropriate interventions are implemented in relation to abnormal findings</li> <li>• Interventions are carried out in a somewhat timely manner</li> <li>• Requires some prompting to recognize and seek help when required patient care is beyond scope of practice</li> <li>• Somewhat effectively defers information to appropriate care provider</li> <li>• Demonstrates regard for patient safety</li> </ul>	<ul style="list-style-type: none"> <li>• Interventions are organized in a way that does not promote the patient’s recovery</li> <li>• Interventions do not meet any of the patient’s needs</li> <li>• Fails to implement interventions that directly relate to abnormal findings</li> <li>• Interventions are not carried out in a timely manner</li> <li>• Despite prompting fails to recognize and seek help when required patient care is beyond scope of practice</li> <li>• Fails to defer information to appropriate care provider</li> <li>• Demonstrates a lack of regard for patient safety</li> </ul>
<p><b>Comments</b></p>			



**B. Learning Outcome Assessment**  
 (circle the response that applies & comment when necessary)

Competency (based on “What For”)	Demonstrated attributes align with required competency	Demonstrated attributes need some improvement to align with required competency	Demonstrated attributes need major improvement to align with required competency
Identify threats to patient safety to prevent undesirable effects	<ul style="list-style-type: none"> <li>• Effectively carries out safety checks</li> <li>• Care demonstrates a regard for infection control practices</li> <li>• Demonstrates accountability for minimizing harm</li> </ul>	<ul style="list-style-type: none"> <li>• Carries out some safety checks</li> <li>• Care demonstrates some regard for infection control practices</li> <li>• Demonstrates some accountability for minimizing harm</li> </ul>	<ul style="list-style-type: none"> <li>• Fails to carry out safety checks</li> <li>• Care demonstrates little to no regard for infection control practices</li> <li>• Demonstrates little to no accountability for minimizing harm</li> </ul>
<b>Comments</b>			

**B. Learning Outcome Assessment**  
 (circle the response that applies & comment when necessary)

Competency (based on “What For”)	Demonstrated attributes align with required competency	Demonstrated attributes need some improvement to align with required competency	Demonstrated attributes need major improvement to align with required competency
Demonstrate principles of medication administration to help promote patient stabilization and recovery.	<ul style="list-style-type: none"> <li>• Delivers medication in accordance with all the “rights” of administration</li> <li>• Prepares medications in a safe manner</li> <li>• Prepares and delivers medication in a way that supports the patient’s recovery</li> <li>• Able to accurately identify potential complications associated with medications</li> </ul>	<ul style="list-style-type: none"> <li>• Delivers medication in accordance with some “rights” of administration</li> <li>• Prepares medications in a somewhat safe manner</li> <li>• Prepares and delivers medication in a way that somewhat supports the patient’s recovery</li> <li>• Somewhat able to accurately identify potential complications associated with medications</li> </ul>	<ul style="list-style-type: none"> <li>• The “rights” of administration are not followed when delivering medication</li> <li>• Fails to prepare medications in a safe manner</li> <li>• Prepares and delivers medication in a way that does not support the patient’s recovery</li> <li>• Unable to accurately identify potential complications associated with medications</li> </ul>
<b>Comments</b>			

**B. Learning Outcome Assessment**  
 (circle the response that applies & comment when necessary)

Competency (based on “What For”)	Demonstrated attributes align with required competency	Demonstrated attributes need some improvement to align with required competency	Demonstrated attributes need major improvement to align with required competency
Communicate using therapeutic principles to decrease anxiety in the patient during an emergency situation.	<ul style="list-style-type: none"> <li>• Uses a caring demeanour, resulting in compliance with care</li> <li>• Interacts with the patient in a way that facilitates open communication</li> <li>• Demonstrates a regard for respecting the patient and their family’s right to be informed</li> <li>• Conveys information to patient and family in a way that promotes understanding</li> </ul>	<ul style="list-style-type: none"> <li>• Uses a somewhat caring demeanour, resulting in some compliance with care</li> <li>• Interacts with the patient in a way that facilitates some open communication</li> <li>• Demonstrates some regard for respecting the patient and their family’s right to be informed</li> <li>• Conveys information to patient and family in a way that promotes some understanding</li> </ul>	<ul style="list-style-type: none"> <li>• Does not use a caring demeanour, resulting in little to no compliance with care</li> <li>• Interacts with the patient in a way that does not facilitate open communication</li> <li>• Demonstrates little to no regard for respecting the patient and their family’s right to be informed</li> <li>• Conveys information to patient and family in a way that does not promote understanding</li> </ul>
<b>Comments</b>			

**B. Learning Outcome Assessment**  
 (circle the response that applies & comment when necessary)

Competency (based on “What For”)	Demonstrated attributes align with required competency	Demonstrated attributes need some improvement to align with required competency	Demonstrated attributes need major improvement to align with required competency
Communicate data essential to the physician or NP in a deteriorating situation using the SBAR to assist in the diagnosis and treatment of the patient	<ul style="list-style-type: none"> <li>• Delivered data accurately portrays the critical nature of the patient’s condition</li> <li>• Report is effective and results in immediate buy-in</li> <li>• Secured collaboration is appropriate for the needs of the patient</li> </ul>	<ul style="list-style-type: none"> <li>• Delivered data somewhat accurately portrays the critical nature of the patient’s condition</li> <li>• Report is somewhat effective and results in some buy-in</li> <li>• Secured collaboration is somewhat appropriate for the needs of the patient</li> </ul>	<ul style="list-style-type: none"> <li>• Delivered data does not accurately portray the critical nature of the patient’s condition</li> <li>• Report is not effective and results in little-to-no buy-in</li> <li>• Secured collaboration is inappropriate for the needs of the patient</li> </ul>
<b>Comments</b>			

C. PRE-SCENARIO LEARNER ACTIVITIES	
Prerequisite Competencies	
Knowledge	Skills/ Attitudes
<ul style="list-style-type: none"> <li>❑ Pathophysiology and Etiology, risk factors, clinical manifestations of diabetic ketoacidosis</li> </ul>	<ul style="list-style-type: none"> <li>❑ Lab values related to diabetic ketoacidosis/infection control/hand hygiene</li> </ul>
<ul style="list-style-type: none"> <li>❑ Diagnostic sampling</li> </ul>	<ul style="list-style-type: none"> <li>❑ Obtain accurate glucose reading/ understand indications for random sample versus fasting sample/ urine analysis (specific gravity, ketones, glucose, pH)</li> </ul>
<ul style="list-style-type: none"> <li>❑ Therapeutic communication</li> </ul>	<ul style="list-style-type: none"> <li>❑ Strategies for decreasing anxiety</li> </ul>
<ul style="list-style-type: none"> <li>❑ Principles of teamwork and collaboration</li> </ul>	<ul style="list-style-type: none"> <li>❑ SBAR communication tool with interprofessional team</li> </ul>
<ul style="list-style-type: none"> <li>❑ Dimensions for patient centered care</li> </ul>	<ul style="list-style-type: none"> <li>❑ Ensuring patient and family are active participants/ ensuring patient's wishes are considered in plan of care/ maintain open communication with patient and family</li> </ul>
<ul style="list-style-type: none"> <li>❑ IV Therapy</li> </ul>	<ul style="list-style-type: none"> <li>❑ Medical directives/ protocols</li> </ul>
<ul style="list-style-type: none"> <li>❑ Medication Administration</li> </ul>	<ul style="list-style-type: none"> <li>❑ Indications for medications pertinent to this simulation</li> <li>❑ Understanding the difference and implications of long acting and short acting insulin</li> </ul>

## SECTION 4: PATIENT PROFILE

### A. Case summary

Trent Fleming is a 47 year old male admitted to the ICU from the Emergency Department. Trent recently relocated to Peterborough to complete a Master's in Environmental Sciences. He was diagnosed with type 1 diabetes mellitus 8 years ago. Trent has a very good understanding of his disease and has been managing well. He has complained of diffused abdominal pain, nausea and vomiting for the past 72 hours. Additionally, he has had significantly decreased appetite for the past 4 days. He stopped taking his insulin 72 hours ago due to his symptoms of anorexia and vomiting. Trent was admitted to the ICU from the ER and once stabilized he was transferred to a medical unit.

### B. Patient/Client Profile

Last name:	Fleming		First name:	Trent
Gender: M	Age: 47	Ht: 177.4cm	Wt: 81kg	Code Status: Full
Spiritual Practice: None stated		Ethnicity: Caucasian		Primary Language spoken: English and French
1. Past history (History of Present Illness)				
Past History: Diagnosis of type 1 diabetes mellitus 20 years ago.				
History of Present Illness: Patient is admitted to the ER and ICU, and later sent to medical unit with nausea, vomiting, diffuse abdominal pain, diaphoresis, and lethargy. Symptoms have been increasing in severity since the am. Patient complaining of vomiting, diaphoresis, lethargy, and mild decrease in level of consciousness. Patient is unable to tolerate oral fluids.				
Primary Medical Diagnosis:		Diabetic Ketoacidosis		
2. Current medications				
Drug	Dose	Route	Frequency	
Novo Rapid	As per orders	SC pump	Continuous	
Dimenhydrinate	25-50mg	po	Q4h prn	
Tylenol	1000mg	PO	Q4 hours PRN	

### 3. Laboratory, Diagnostic Study Results

Na: 134mEq/L	K: 3.3 mEq/L	Cl: 99 mmol/L	HCO <sub>3</sub> : 10mEq/L	BUN: 64      Cr: 160
Ca: 2.65 mmol/L	Mg: 0.60mmol/L	Phos: 1.55 mmol/L	Glucose: 28mmol/L	HgA1C: 5.1%
Hgb: 147	Hct: 0.60	Plt:	WBC: 14x10 <sup>9</sup> /L	ABO Blood Type:
Urine Ketone: pos	Urine gluc: 4+	Urine SG: 1.030	HCO <sub>3</sub> /BE:	SaO <sub>2</sub> : 96%

