

# Diabetic Ketoacidosis (DKA): High-Yield Guide for Physician Assistant Students

Diabetic Ketoacidosis (DKA) is a life-threatening complication of diabetes that requires prompt recognition and intervention. As a Physician Assistant Student, mastering DKA is crucial for your future practice. This high-yield guide provides you with the essential knowledge and skills to confidently diagnose, manage, and prevent DKA in your patients.



## Diabetic Ketoacidosis (DKA) - High Yield for Physician Assistant Students by L. Maximilian Buja

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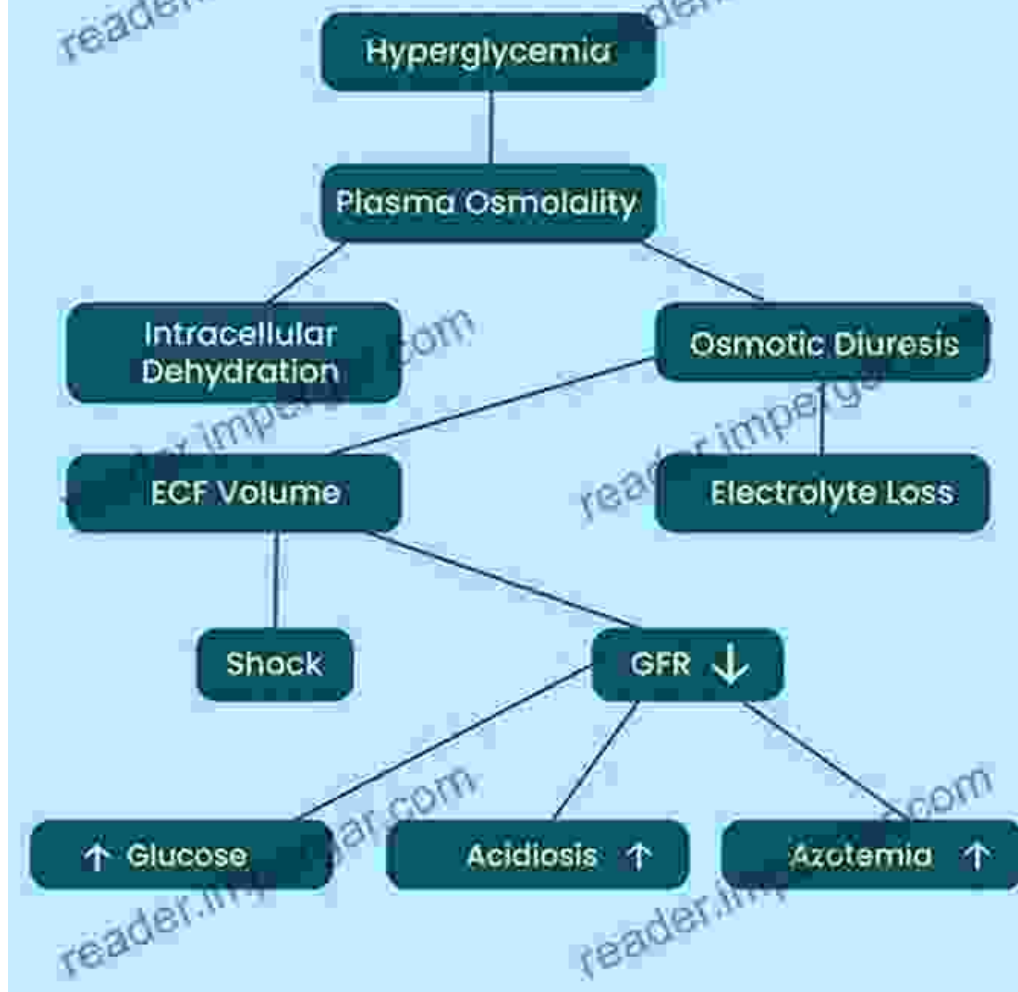


## Pathophysiology and Clinical Presentation

DKA occurs when the body produces excessive ketones due to insulin deficiency or resistance. This can be caused by missed insulin doses, infection, trauma, or stress. Clinical manifestations include polyuria, polydipsia, dehydration, nausea, vomiting, abdominal pain, and a characteristic fruity breath odor.



## Pathophysiology of DKA



Early recognition of DKA is vital to prevent severe complications such as cerebral edema, electrolyte imbalances, and sepsis.

### **Diagnosis and Laboratory Findings**

Suspicion of DKA is based on the patient's history and physical examination. Laboratory testing confirms the diagnosis with elevated blood glucose (>250 mg/dL), ketonemia, and metabolic acidosis. Arterial blood

gas analysis reveals decreased bicarbonate and pH, with an anion gap indicating ketoacidosis.

Laboratory Finding	Normal Value	DKA Value
Blood Glucose		>250 mg/dL
Serum Ketones		>3 mmol/L
Arterial Bicarbonate	22-29 mEq/L	
Arterial pH	7.35-7.45	
Anion Gap	3-11 mEq/L	>12 mEq/L

Other laboratory findings may include hypernatremia, hyperkalemia, and elevated creatinine.

### Management of DKA

Management of DKA involves aggressive fluid resuscitation, insulin therapy, electrolyte correction, and monitoring of patient response.

1. **Fluids:** Intravenous fluids (0.9% saline) are administered at a rate of 1-2 L/hour to correct dehydration.
2. **Insulin:** Intravenous regular insulin is initiated at 0.1-0.15 units/kg per hour. This helps lower blood glucose and suppress ketogenesis.
3. **Electrolytes:** Potassium and phosphate are commonly depleted in DKA and should be closely monitored and supplemented as needed.
4. **Monitoring:** Patients require frequent monitoring of blood glucose, electrolytes, and vital signs. Arterial blood gas analysis is repeated

regularly to assess the resolution of acidosis.

## **Case Studies**

To further enhance your understanding, we present two real-life case studies that illustrate the presentation and management of DKA.

**Case 1:** A 19-year-old female with type 1 diabetes presents with polyuria, polydipsia, and abdominal pain. She has missed her insulin doses for the past 2 days.

**Findings:** Blood glucose 350 mg/dL, serum ketones 4 mmol/L, bicarbonate 13 mEq/L, pH 7.25, anion gap 15 mEq/L.

**Management:** Intravenous fluids, insulin infusion, potassium supplementation, and frequent monitoring.

**Outcome:** Patient's condition improved gradually with resolution of acidosis and ketonemia within 24 hours.

**Case 2:** A 65-year-old male with type 2 diabetes presents with nausea, vomiting, and confusion. He is found to have a urinary tract infection.

**Findings:** Blood glucose 450 mg/dL, serum ketones 6 mmol/L, bicarbonate 10 mEq/L, pH 7.18, anion gap 18 mEq/L.

**Management:** Intravenous fluids, insulin infusion, antibiotics, and supportive care.

**Outcome:** Patient required mechanical ventilation due to severe acidosis. With aggressive treatment, his condition stabilized, and he was discharged after 5 days.

Mastering Diabetic Ketoacidosis (DKA) is essential for Physician Assistant Students. By understanding the pathophysiology, clinical presentation, diagnosis, and management of DKA, you can confidently provide safe and effective care to your patients. This high-yield guide provides the tools and insights you need to succeed in this critical aspect of diabetes management.

Don't miss out on this opportunity to elevate your knowledge and skills. Free Download your copy of Diabetic Ketoacidosis (DKA): High Yield for Physician Assistant Students today!

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