

# **Study Guide for Diabetes Exam Preparation**

## **Diabetes Management**

- Types of Insulin:
  - Onset, peak, and duration
- Insulin Administration:
  - Recognize differences in administration for each type of insulin.
  - Correct procedures for injection.
  - Site rotation-why?
  - Mixing insulin: Which insulins can be mixed and the correct procedure
  - Sliding scale insulin protocols
- Insulin Pump Management:
  - Initial actions when assessing insulin pump site issues.
  - Troubleshooting common problems (e.g., unexplained hyperglycemia).
- Continuous Glucose Monitoring (CGM):
  - Advantages of CGM vs. frequent finger sticks.

## **Diabetes Complications & prevention of complications**

- Microvascular and Macrovascular Complications:
  - Assessment of, lab testing for..
  - Managing Acute Situations:
    - Recognize and respond to diabetic ketoacidosis (DKA)
- Foot Care

## **Patient Education**

- Teaching strategies for diet management and carbohydrate counting.
- Sick Day Rules: Managing insulin and monitoring blood glucose during illness
- Physical Activity: frequency & impact on blood glucose.

## **Diagnostic Criteria and Lab Values**

- Fasting Blood Glucose (FBG), Hemoglobin A1C, and Oral Glucose Tolerance Test (OGTT)
- Diagnostic criteria for prediabetes and diabetes.
- Interpreting lab results for diabetes management.

## **Nursing Interventions**

- Prioritizing patient care
- Assessing for diabetes complications
- Identifying and managing symptoms of hypoglycemia and hyperglycemia.

## **Emergency Management in Diabetes**

- Recognizing and treating severe hypoglycemia: 15 in 15 rule
- Glucagon administration.
- Management of DKA: Expected lab findings, Essential interventions

## **Patient-Centered Care**

- Addressing cultural considerations in dietary planning.
- Strategies for effective communication with patients who have varying health literacy levels.
- Emphasizing patient autonomy and informed decision-making in managing diabetes.

## **Additional Study Tips**

- Practice Medication Calculations: Focus on reconstitution, IV flow rates, and sliding scale insulin protocols.
- Review Lecture Notes and Case Scenarios: Go over notes on diabetes, prioritization in patient care, and acute management.
- Use NCLEX-Style Questions: Practice scenario-based questions that cover patient safety, clinical judgment, and medication administration.
- Focus on Clinical Application: Pay attention to real-life clinical situations, such as insulin pump troubleshooting or managing DKA.

## **Additional Resources**

- Practice Questions: Utilize NCLEX-style practice questions provided in class or study resources.
- Lab Values Reference: Familiarize yourself with normal and abnormal lab values for blood glucose, HbA1C, and plasma bicarbonate.
- CSON Textbooks
  - Chapter 48 in Lewis (11<sup>th</sup> ed)
  - Chapter 57 in Lehne's Pharmacology (10<sup>th</sup> ed) Insulin and pathophysiology only. No oral diabetic meds
  - Chapter 33 in Saunderson's NCLEX review (9<sup>th</sup> ed.)

## **Books I like:**

Davis Drug Guide for Nurses – also available in an app

Mosby's Diagnostic & Lab Test Reference by Pagana & Pagana

*Illustrated Study Guide for the NCLEX-RN® Exam* (11<sup>th</sup> ed.) by Zerwekh

## **You Tube Resources**

- [https://youtu.be/Y53V7IBn\\_zM](https://youtu.be/Y53V7IBn_zM)
- <https://youtu.be/-B-RVybvfU>
- <https://youtu.be/jhJ3g94Spus>
- **Pharmacology & Insulins**
- <https://youtu.be/cm839JGmSFc>
- <https://youtu.be/MeYFEvMIWSg>

## **Somogyi Effect vs. Dawn Phenomenon**

- [https://youtu.be/27oWSI5sO7A?list=PLRBubkY\\_lmka0njnj\\_46enY4U2OzagdAQ](https://youtu.be/27oWSI5sO7A?list=PLRBubkY_lmka0njnj_46enY4U2OzagdAQ)

## **Mixing Medications from Vials** by Mia Kielian

[https://youtu.be/P25t335ax\\_o](https://youtu.be/P25t335ax_o)

## **Mixing Insulins** by RegisteredNurseRN

[https://youtu.be/O\\_kXOnrYYRA?t=220](https://youtu.be/O_kXOnrYYRA?t=220)

## Type 1 and Type 2 Diabetes

FEATURE	TYPE 1	TYPE 2
<b>Incidence in DM pts</b>	5– 10%	>90%
<b>Pathology</b>	Severe insulin deficiency D/T autoimmune <i>destruction</i> of beta cells in pancreas, eventually Beta cells will all be destroyed	<i>Inadequate</i> insulin secretion by Beta cells (poor function, aging) and other body cells become <i>resistant</i> to insulin
<b>Risk Factors</b>	Family history of T1DM; other autoimmune disorders	Family history T2DM, High BMI, low physical activity, ethnicity (African, Asian, or Hispanic American)
<b>Environmental Risk Factors</b>	Virus, toxins that are trigger events	Obesity, low activity
<b>Age at Onset</b>	< age 35, more common in children Rapid onset weeks or months	>age 35 but becoming more common in younger adults and in children <i>Slow</i> onset, can be years
<b>Symptoms</b>	Polyuria, polydipsia, polyphagia, fatigue, unplanned weight loss, blurry vision	Fatigue, blurry vision, wounds, or infections that will not heal Polyuria, polydipsia, polyphagia but onset so gradual pt may not notice
<b>Treatment</b>	Insulin <i>required</i> ; diet; exercise	Oral antidiabetic agents and/or insulin; diet; exercise
<b>Ketoacidosis</b>	Common complication	Rare complication
<b>Prevention</b>	Cannot be prevented	Possible by lifestyle choices (diet, exercise, weight control)
<b>Reversibility</b>	Cannot be reversed	Reversal <i>MAY</i> be possible if caught early and pt makes health lifestyle choices
<b>Vascular and neurologic complications</b>	Frequent	Frequent

## What is ....

Item	What is it?	What does it do?	Where does it come from?
<b>Glucose</b> Blood glucose is commonly called Blood Sugar	6-carbon structure with the chemical formula $C_6H_{12}O_6$ ;	a simple carbohydrate that all body cells need for fuel to function	Glucose comes from the food we eat. Our bodies break down carbohydrates
<b>Insulin</b>	Endogenous Hormone (made in the body)  Exogenous hormone (made outside the body)	<u>Lowers blood glucose</u> levels by promoting glucose movement from bloodstream across a cell wall and into the cell.	Beta cells in Islets of Langerhans's in the pancreas  Can be manufactured as a drug & injected into the body if needed
<b>Glucagon</b>	Hormone  Can be endogenous or from an exogenous source	<u>Raises blood glucose</u> by stimulating liver to break down glycogen & release into bloodstream	Alpha cells in Islets of Langerhans's in the pancreas  Can be manufactured as a drug & injected into the body if needed
<b>Glycogen</b>	A large complex sugar molecule made from many glucose molecules stuck together so that the body can store it easily. Mainly found in liver and muscles.	Provides energy source for the body when food intake is decreased or if there is increased in activity like exercise	Glucose that the body does not use.