# Dr. Nadia Haleem: The Translational Catalyst

Bridging Clinical Anesthesiology, Molecular Biochemistry, and Advanced Medical Pedagogy.

Associate Professor | Department of Biochemistry
Ayub Medical College, Abbottabad

# The Intersection of Practice, Science, and Education

## Clinical Roots

- 4 Years: Anesthesiology
- Focus: High-Stakes Physiology

## Academic Dominance

- Provincial Gold Medalist
- 1st Position: M.Phil Biochemistry

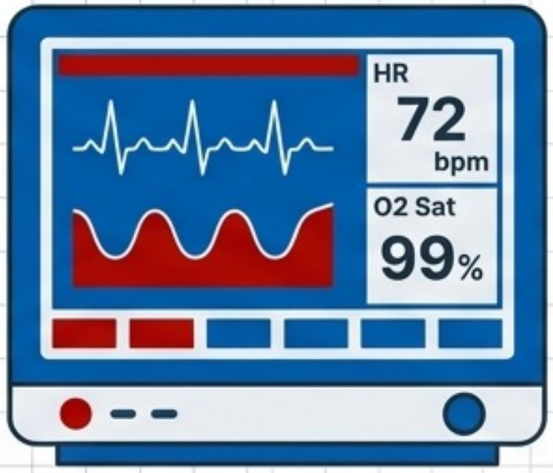
**Unique Value: Contextualizing abstract pathways through clinical survival.**

## Pedagogical Elite

- Certified Medical Educator
- CHPE, ICMT, SEDA-UK

# From the O.R. to the Lab: A Unique Pivot

## The Clinical Reality




Managing the airway & acute fluid resuscitation.
Real-time application of acid-base balance.

## The Biochemical Root


Mastering the Henderson-Hasselbalch equation.
Theoretical understanding of pH buffering.

**The Anesthesiologist's Lens:** Transforming theoretical equations into life-saving realities.
Dr. Haleem teaches biochemistry not as abstract science, but as the underlying code of patient survival.

# Undisputed Subject Matter Expertise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PROVINCIAL GOLD MEDAL

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**Academic Rigor:** Transitioned from **macro-physiology** to **micro-biochemistry** with absolute distinction.

## 2001

**MBBS Graduate**

Ayub Medical College

## 2011

**1st Position in M.Phil Cohort**

Spring Semester

## 2013

**Provincial Gold Medal**

Top in Province (Khyber Pakhtunkhwa)

# The Science of Medical Education

## CHPE

**Certificate in Health Professions Education**

Assessment & Curriculum Design

## ICMT

**International Certificate in Medical Teaching**

Active Learning Methodologies


## SEDA-UK

**Staff & Educational Development Association**

Global Benchmarking

Moving beyond rote learning to Constructivism and Bloom's Taxonomy.
Validated by Prof. Janet Strivens, University of Liverpool.

# Modular Architecture & System Integration

## Neurosciences Module

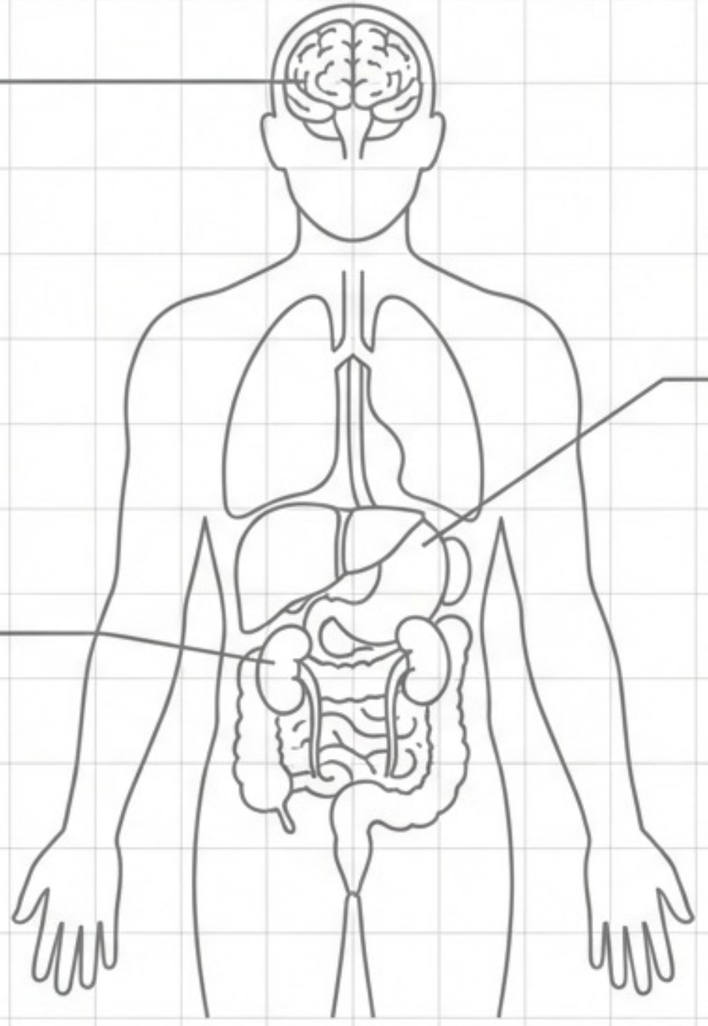
**Biochemistry of Glycolipids & Myelin integrity.**

Context
Multiple Sclerosis & Tay-Sachs Disease.

## Renal Module

**Acid-Base buffering & Clearance mechanisms.**

Context
Fluid compartments & Renal Failure.



## GI & Metabolism Module

**Ammonia handling & Urea Cycle.**

Context
Hepatic Encephalopathy.

Integrated Learning: Biochemistry delivered within the context of clinical pathology.

# High-Fidelity Simulation & Crisis Management

Facilitator: IMECON 2026

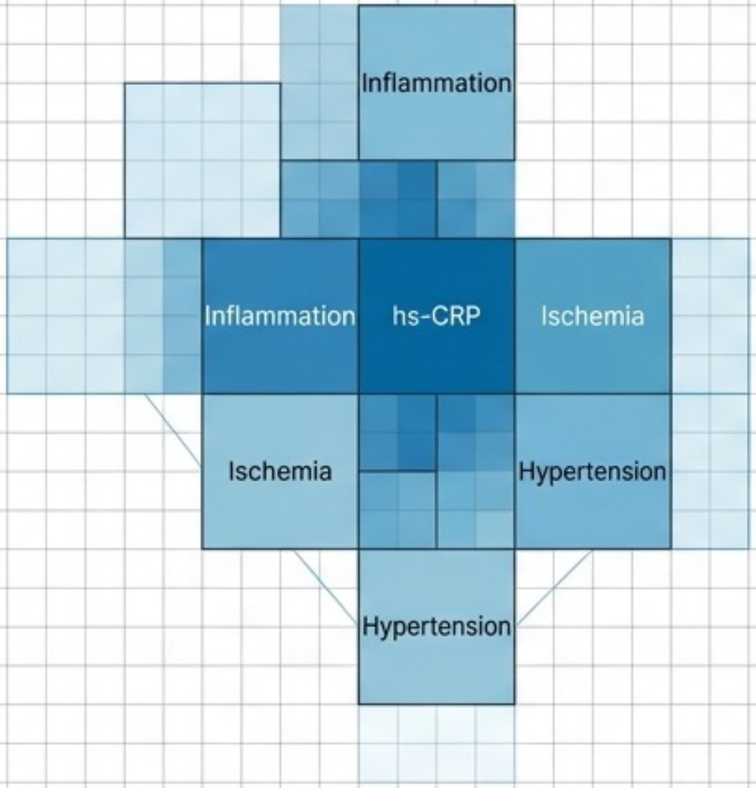
College of Physicians and Surgeons Pakistan (CPSP)

## Workshop: Strengthening Team Dynamics and Leadership Skills through Simulation

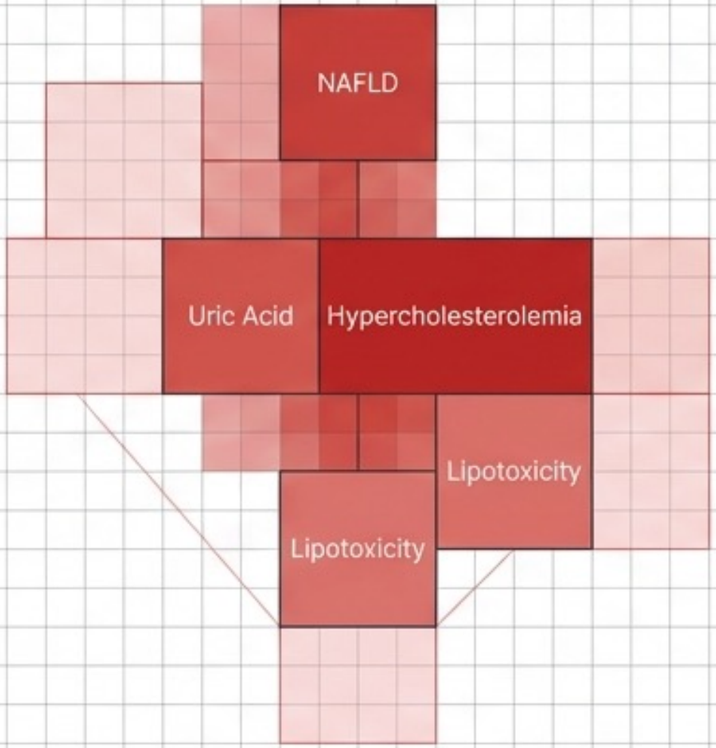

Applying anesthesia-based simulation protocols to teach leadership in high-stakes medical scenarios.

# The Research Matrix: 18 Publications (2016–2024)

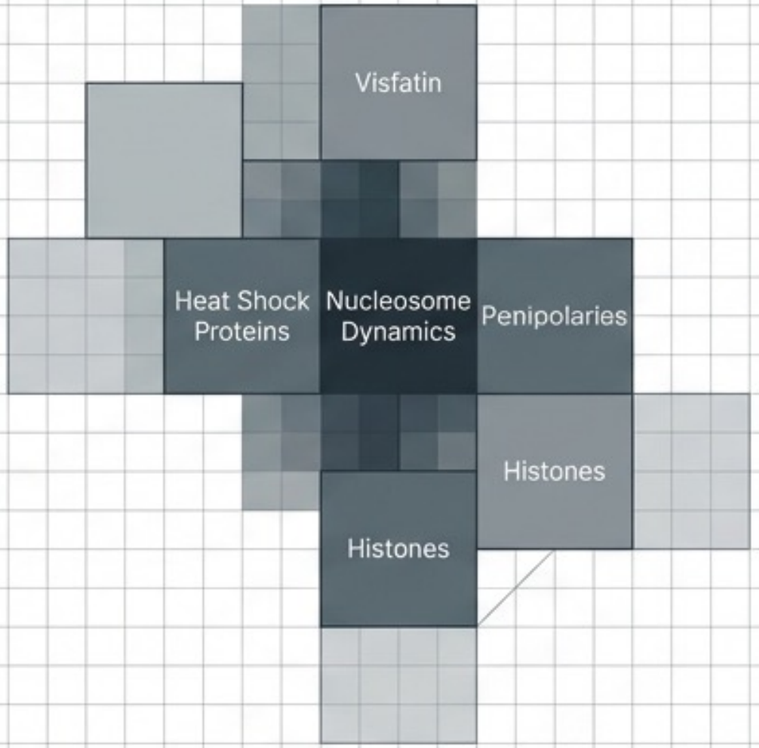
## Cluster A: Cardiometabolic Health




## Cluster B: Hepatology



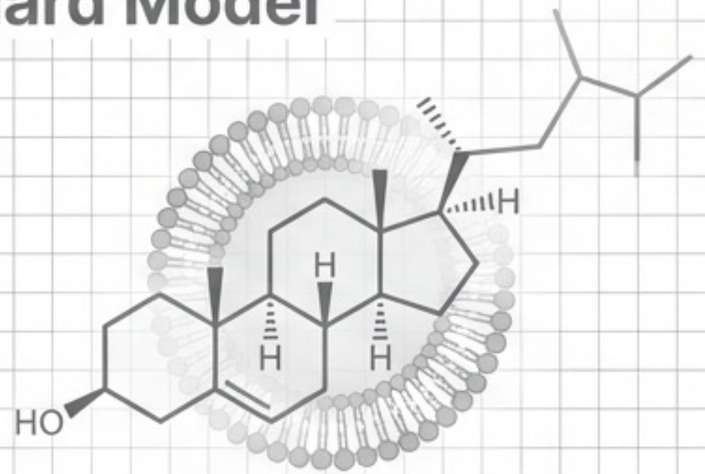

## Cluster C: Molecular & Genetic Pathways




Consistently publishing in high-impact journals including JAMC, PJP, and Health Affairs.

# Redefining Risk: The Inflammatory Axis

## Standard Model




LDL Cholesterol focus.

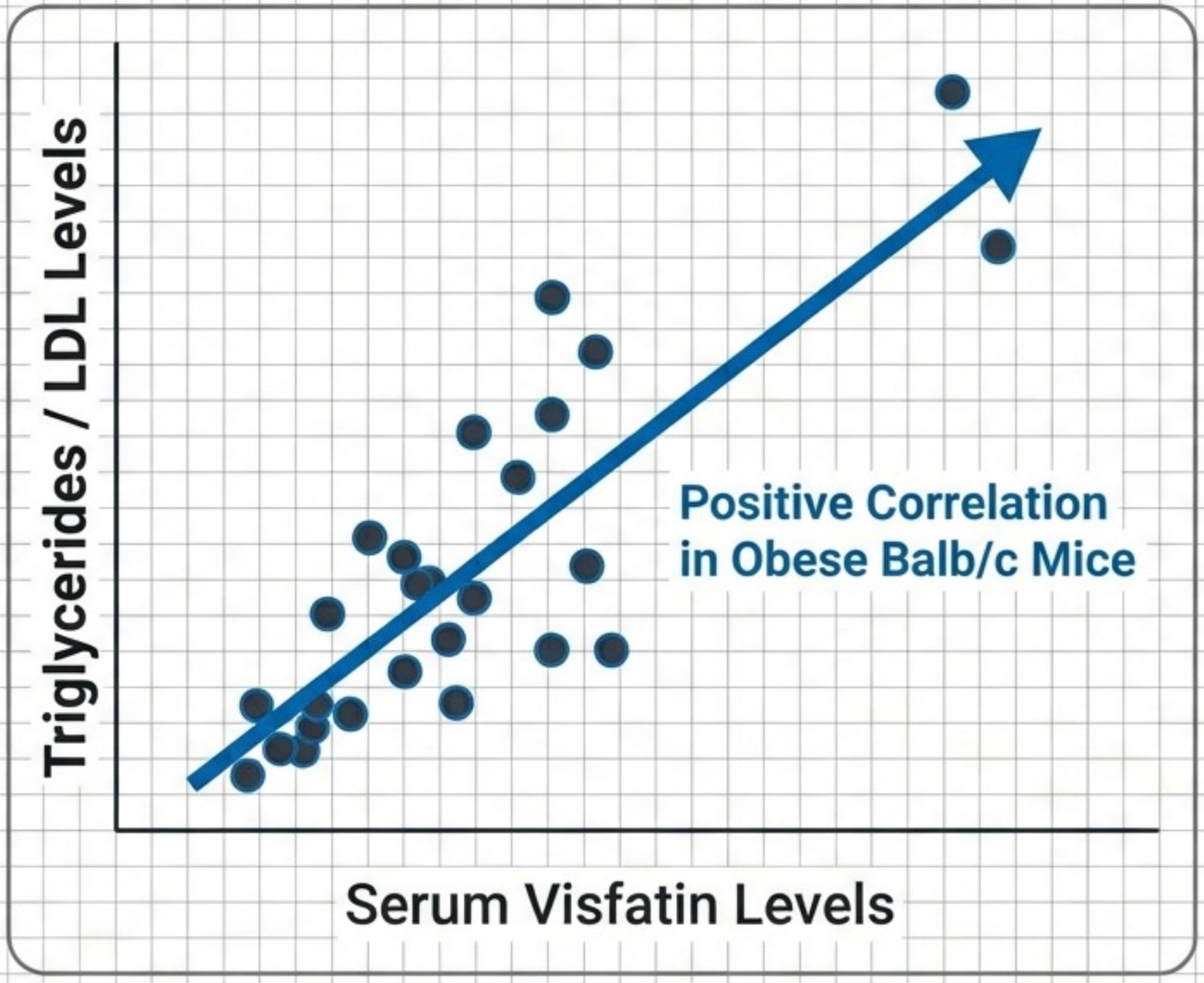
## Advanced Model


High-Sensitivity CRP (hs-CRP) + Hypertension.

**Elevated hs-CRP indicates active vascular inflammation, validating aggressive risk stratification for South Asian demographics.**

Sources: Publications #1 (2016), #5 (2018), #15 (2024).

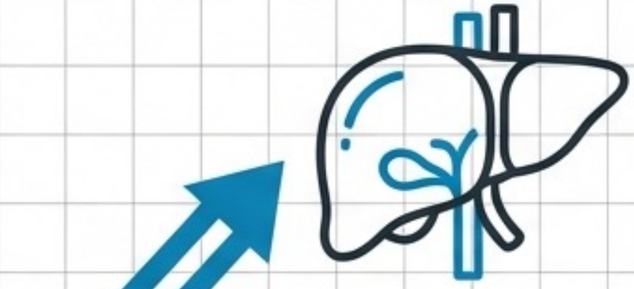
# The Endocrine Function of Adipose Tissue




## Key Insight:

Fat is not inert storage; it is an active endocrine organ. **Visfatin acts as a biochemical driver of systemic dyslipidemia.**

# Systemic Metabolic Intersections



## NAFLD & Steatosis

Biomarkers: Hyperuricemia & Hypercholesterolemia.

(Source citation: Pub #6, #17)

## Renal Failure

Uremia-induced atherosclerosis.

(Source citation: Pub #2)

## COPD

Non-Anaemic Iron Deficiency & Mitochondrial Dysfunction.

(Source citation: Pub #13)

# Administrative Tenure & Governance

**2019-2022:**
**Prof. Dr. Ruhila Hanif Orakzai**
Departmental Leadership Plaque

↓

**June 2022 - Jan 2023:**
**Dr. Nadia Haleem**
(Acting Chairperson)

↓

**Current:**
**Prof. Dr. Ayesha Naureen Awan**

## Key Responsibilities

- Oversight of PMDC Curriculum Alignment
- Resource Management (300-student capacity halls & labs)
- Member of the Academic Council

# Cultivating the Next Generation

## Patron-in-Chief: NYMF & IMWS

MEGA RESEARCH WORKSHOP

CERTIFICATE

Presented to

[Student Name]

For successful completion of the workshop on

INTEGRATING AI IN RESEARCH

July 2024

Dr. Ayesha Naleen
Organizers

Dr. Nadia Awami
Organizers

**Key Initiative: Mega Research Workshop** (July 2024)

Strategic Focus: Integrating Artificial Intelligence into undergraduate research methodologies to prepare students for a data-driven future.

# Strategic Synthesis

**Breaking Silos:** Diseases are metabolic and systemic, requiring a shift from organ-specific to biochemical treatment models.

**Evidence-Based Future:** Preparing graduates for an AI-driven **landscape** through rigorous, extracurricular research training.

**Clinical Context:** Biochemistry is not a hurdle to clear, but the foundational language of patient survival.

# Dr. Nadia Haleem

## An Architect of Modern Medical Education

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**Clinical** Anesthesiologist • Gold Medalist Biochemist •
Certified Educator • Research Mentor

Associate Professor | Ayub Medical College, Abbottabad