

Developing A Novel Multi-System Integrated Course For Osteopathic Medical School Curriculum

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Purpose

To develop an innovative integrated HEENT (Head, Eyes, Ears, Neck, and Throat) and Immune System course that could have positive impact on first-year osteopathic medical students' knowledge and skills pertaining to the application of immunology in human health and disease, with a focus on common primary care conditions that are associated with the HEENT system.

Introduction

A large number of medical schools have adopted system-based curriculum. In this curriculum model, basic and clinical sciences are integrated and delivered to students in the form of courses that discuss one body system per course. Although this type of curriculum enhances comprehensive learning pertaining to one system compared to the traditional curriculum, it is not optimal for teaching complex clinical scenarios that involve multiple systems and organs. In our proposed course model, HEENT and immune systems will be concurrently presented, and related foundational and clinical sciences knowledge will be consolidated through structured clinical case-driven activities. We believe this learning model will aid students in connecting theory to practice and encourage them to take a more holistic approach to view and learn osteopathic medicine.

Methods

A six-credit hour HEENT and Immune System course will be offered to year-one medical students in spring semester at our college. The clinical presentations of the HEENT system are categorized and presented with their underlying immune mechanisms. Each week, concepts related to HEENT and immunology will be delivered either online (OL) or in large group discussion (LGD) through various active learning and problem-solving processes. These concepts will be reconsolidated in a weekly small group discussion (SGD) setting using a case-based learning (CBL) approach. (Figure 1 and Table 1) In these sessions, students will learn to apply foundational immunology in a primary care-focused clinical context, and to practice critical thinking through analyzing clinical presentations and diagnostic test results. Quantitative and qualitative data pertaining to student performance and perception will be collected and analyzed at the end of the course.

Figure 1. Integration of Foundational and Clinical Sciences in Proposed Course Model

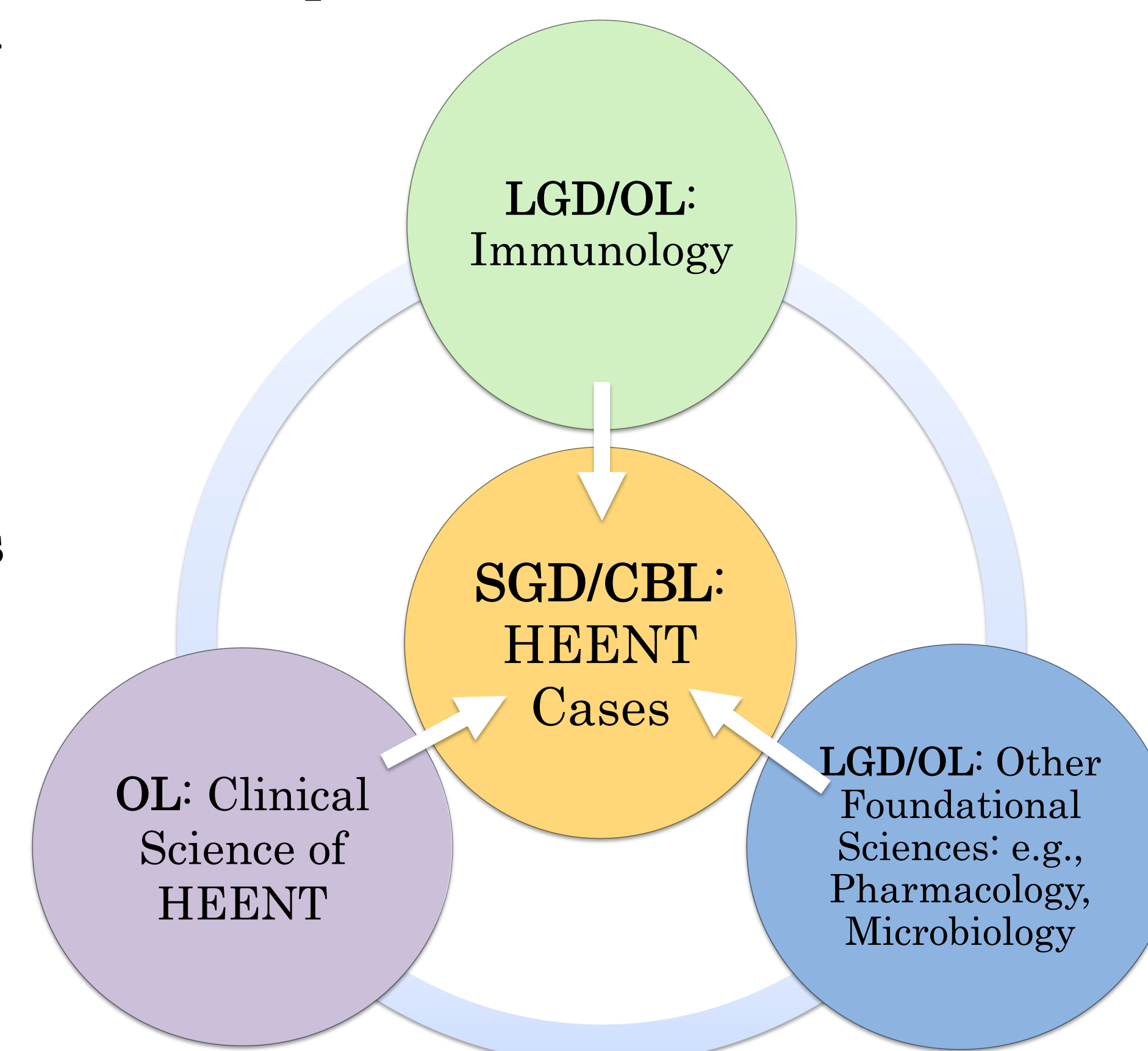


Table 1. Weekly Planning for Topics Integration

Week	Targeted Immunology Topics	Targeted HEENT Topics	Integrated Cases of SGD/CBL and Their Main Learning Objectives
1	Innate Immune Mechanism	Eye	<u>Viral Conjunctivitis</u> 1. Determine a differential diagnosis for red eyes 2. Relate concepts pertaining to innate immune barrier and immune privilege to diseases associated with HEENT
2	Adaptive Immune System Mucosal Immunity	Throat	<u>Streptococcal Pharyngitis</u> 1. Determine a differential diagnosis for sore throat 2. Relate concepts pertaining to adaptive immunity and immune memory to diseases associated with HEENT 3. Apply knowledge of immunodiagnostics to explain the principle of rapid Strep testing
3	Mucosal Immunity	Ear	<u>Otitis Externa</u> 1. Determine a differential diagnosis for ear pain 2. Relate concepts pertaining to the role of normal microflora in immunity to diseases associated with HEENT
4	Hypersensitivity	Nose	<u>Allergic Rhinitis</u> 1. Determine a differential diagnosis for nasal congestion 2. Relate concepts pertaining to hypersensitivity reactions to diseases associated with HEENT 3. Apply immunological concepts to explain the principles of allergy treatment
5	Tumor Immunology	Head and Neck	<u>Tobacco-Associated Oral Cancer</u> 1. Determine a differential diagnosis for head/neck mass 2. Relate concepts pertaining to tumor immunology to diseases associated with HEENT 3. Explore immunotherapy as treatment options for head and neck cancers

Results

This new course model will provide the opportunity for our students to enhance their abilities to critically analyze multi-organ/system diseases and better retain the knowledge and skills necessary for success in clinical rotations and medical licensure examinations.

Conclusions

This project has the potential to enhance motivation, curriculum satisfaction, and academic success of medical students. It may also provide insights into the development of similar courses in health care professional programs.

Disclaimer

The authors have no conflict of interest on this project.