Medical students: Start here to learn about health systems science

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Today’s physicians are dramatically different from their predecessors. Besides needing to know how to diagnose and treat biomedical illness, they must also be systems thinkers, able to discern how social, economic, environmental and technological forces factor into clinical decision-making. The way in which the COVID-19 pandemic has upended so many aspects of American life and medicine brings that reality into stark relief. Yet too many medical students graduate with little or no formal training in this new pillar of medical education.

An education module offered via the AMA Ed Hub™ helps medical students understand why the domain of health systems science is an essential component of their training and central to their long-term success as physicians. It also describes how health systems science complements the basic and clinical sciences and explains how integrating it into curricula can further medicine’s goal of improving public health. Learn how health systems science is proving vital during the COVID-19 pandemic response.

The free online education module “What Is Health Systems Science?” is one of 13 modules released as part of the Health Systems Science Learning Series.

Find out more about how these modules offer medical students insight on health systems science.

Definitions and domains

The educational module defines health systems science as “the principles, methods and practice of improving quality, outcomes and costs of health care delivery for patients and populations within systems of medical care.”
Health systems science also is the emerging third pillar of medical education. Applied in conjunction with the basic and clinical sciences, it provides a framework for understanding how system elements influence the care of individuals, giving physicians the tools they need to improve outcomes, identify and address the challenges patients face in navigating the health care system and take an active role in reshaping the system to achieve the Triple Aim.

It is organized into 11 core domains:

- **Health care structure and process**, focusing on how individuals, institutions, resources and processes are organized to deliver health care.
- **Health care policy and economics**, encompassing the decisions, plans and actions related to community-level health and issues central to the production and consumption of health care.
- **Clinical informatics and health technology**, such as clinical decision support, documentation, EHRs and data utilization.
- **Population, public and social determinants of health**, including macro-level strategies for addressing gaps in care.
- **Value in health care**, which is defined as quality of care divided by its cost over time.
- **Health system improvement**, concentrating on the processes of identifying, measuring, analyzing and implementing changes to health care delivery to improve performance.
- **Leadership**, which involves motivating others to pursue a common goal.
- **Teaming**, focusing on how individuals work together on specified tasks to achieve shared goals.
- **Change agency, management and advocacy**, exploring how physicians advocate for individual patients to receive the best quality care and create changes in the health care system.
- **Ethics and legal**, including the ways in which the transition from a one-on-one patient-physician dynamic to a systems approach presents challenges for health law and ethics.
- **Systems thinking**, which is the linking domain, consisting of ways to understand, visualize and analyze how the core curricular domains interact with and reinforce each other.

The module also includes numerous helpful clinical scenarios, as well as a side-by-side comparison showing how health systems science topics can uncover blind spots in the traditional medical approach.

Find out how COVID-19 shows why health systems science matters so much.

**More study help**


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The AMA also has released the second edition of the *Health Systems Science* textbook, published by Elsevier, which is a framework for this third pillar of medical education.

Health systems science is defined as the understanding of how health care is delivered, how health care professionals work together to deliver that care and how the health system can improve patient care and health care delivery. *Health Systems Science Review* was published last year. Both books are available for purchase from the AMA Store.