Clinical Informatics in Medicine: Achieving Subspecialty Status

Denece Kesler, MD, MPH

ABMS Board of Directors

Discussion Today

▶ Overall objective: To inform the audience on how an area of medical practice evolves to become a recognized medical Subspecialty, with a focus on Clinical Informatics

▶ Discussion Points:

  ▶ Definitions and Clarifications

  ▶ Development and Advancement of a New Medical Subspecialty

  ▶ Clinical Informatics Development as a Medical Subspecialty

  ▶ Present and Future of Clinical Informatics Subspecialty

▶ Disclaimer: Slides are based on references and on my personal experiences

Discussion Point One: Definitions and Clarifications

Organizations and Processes related to Establishment, Evolution, and Maintenance of Medical Subspecialties

American Board of Medical Specialties (ABMS)

- American Board of Medical Specialties started in 1933 as a means to create standards for the recognition of specialties within medical practice
    - ABMS now represented by 24 Specialty Member Boards
- ABMS Mission: The mission of the American Board of Medical Specialties is to serve the public and the medical profession by improving the quality of health care through setting professional standards for lifelong certification in partnership with its Member Boards

Member Boards of the ABMS

American Board of Allergy and Immunology

American Board of Anesthesiology

American Board of Colon and Rectal Surgery

American Board of Dermatology

American Board of Emergency Medicine

American Board of Family Medicine

American Board of Internal Medicine

American Board of Medical Genetics and Genomics

American Board of Neurological Surgery

American Board of Nuclear Medicine

American Board of Obstetrics and Gynecology

American Board of Ophthalmology

American Board of Orthopaedic Surgery

American Board of Otolaryngology

American Board of Pathology

American Board of Pediatrics

American Board of Physical Medicine and Rehabilitation

American Board of Plastic Surgery

American Board of Preventive Medicine

American Board of Psychiatry and Neurology

American Board of Radiology

American Board of Surgery

American Board of Thoracic Surgery

American Board of Urology

American Board of Medical Specialties Governance

- ABMS is governed by a Board of Directors which includes representation from each of the ABMS Member Boards and members of the public

  - The current ABMS Chair is John C. Moorhead, MD, MS, FACEP

- The Board of Directors oversees the activities of the ABMS management team. The ABMS management team and staff support the work of the ABMS Board of Directors and the ABMS mission

  - The ABMS Management team is lead by ABMS CEO and President, Lois Margaret Nora, MD, JD, MBA

- ABMS works in collaboration with the 24 Specialty Member Boards to maintain the standards for physician certification in each Specialty and Subspecialty

American Board of Medical Specialties Procedures

- The Board of Directors activities are primarily conducted by its committees.
  - Findings and recommendations of a committee are presented to the Board of Directors for review, discussion, and approval
  - To include topics such as ethics and professionalism, IT, finances
  - The Committee on Certification (COCERT) is responsible for evaluating requests for new Specialties and Subspecialties and making approval recommendations to the ABMS Board of Directors
- Applicable ABMS standards for today's discussion include the requirements for a new Subspecialty and the requirements for initial certification for the individual

Why is Board Certification important?

- Primary Goal: Provide assurance to the public by establishing that a physician has chosen to achieve expertise in a medical Specialty or Subspecialty by meeting the profession-driven standards and requirements of one (or more) of the 24 ABMS certifying boards

- Secondary Goals:
  - Define and advance the specialty
  - Provide for peer recognition
  - Articulate the scope of knowledge and practice
  - Create consistency in the education and evaluation process
  - Provide for continued relevance

Specialty vs Subspecialty in Medicine

- Specialty: a defined area of medical practice which signifies special knowledge and ability resulting from specialized effort and training
  - Examples: Preventive Medicine, Dermatology, Surgery
- Subspecialty: an identifiable, narrow component of a Specialty
  - Practice in the Subspecialty follows special educational experience in addition to having achieved Specialty certification
  - Examples: Pain Medicine within Anesthesiology, Cardiology within Internal Medicine, Epilepsy within Physical Medicine and Rehabilitation

American Board of Preventive Medicine (ABPM)

- One of the 24 ABMS Member Boards

- The purpose of the American Board of Preventive Medicine is:

  - To grant and issue, to qualified physicians who are licensed to practice medicine, certificates of special knowledge in one of the in Preventive Medicine specialty areas or in one of the subspecialties

  - To encourage the study, enhance the standards of practice, and advance the cause of Preventive Medicine

What is Preventive Medicine*?

- Preventive Medicine is the specialty of medical practice that focuses on the health of individuals, communities, and defined populations. Its goal is to protect, promote, and maintain health and well-being and to prevent disease, disability, and death.

  - Preventive medicine specialists have core competencies in biostatistics, epidemiology, environmental and occupational medicine, planning and evaluation of health services, management of health care organizations, research into causes of disease and injury in population groups, and the practice of prevention in clinical medicine. They apply knowledge and skills gained from the medical, social, economic, and behavioral sciences.

  - Preventive medicine has three specialty areas with common core knowledge, skills, and competencies that emphasize different populations, environments, or practice settings: aerospace medicine, occupational medicine, and public health and general preventive medicine.

*ABPM Definition

ABPM Specialties and Subspecialties

▶ Specialties:
  ➢ Occupational Medicine
  ➢ Public Health/General Preventive Medicine
  ➢ Aerospace Medicine
▶ Subspecialties:
  ➢ Addiction Medicine
  ➢ Medical Toxicology
  ➢ Undersea & Hyperbaric Medicine
  ➢ Clinical Informatics

Accreditation Council of Graduate Medical Education (ACGME)

- The ACGME sets standards for US graduate medical education (residency and fellowship) programs and the institutions that sponsors them, and renders accreditation decisions based on compliance with these standards

- In academic year 2015-2016, there were approximately 800 ACGME-accredited institutions sponsoring approximately 10,000 residency and fellowship programs in 150 specialties and subspecialties

  - Specialties require completion of a residency

  - Subspecialties require completion of a fellowship

- The ACGME creates program requirements for new Specialty and Subspecialty training programs

What is Clinical Informatics?

▶ Clinical Informatics* is the application of informatics and information technology to deliver healthcare services. It is also referred to as applied clinical informatics and operational informatics.

  ▶ Clinical informatics includes a wide range of topics ranging from:

    ➢ clinical decision support to visual images (e.g. radiological, pathological, dermatological, ophthalmological)

    ➢ clinical documentation to provider order entry systems

    ➢ system design to system implementation and adoption issues.

*AMIA definitions

AMIA Clinical Informatics Core Competency Categories

- Core Fundamentals
  - Basic Clinical Informatics knowledge and common vocabulary

- Clinical Decision Making and Care Process Improvement
  - Implementation and participation in clinical decision making systems that support patient-centered care

- Health Information Systems
  - Common elements of health information systems and interdisciplinary teamwork within different clinical settings

- Leadership and Management of Change
  - Leading and manage change within clinical information systems and promoting adaption by health professionals

Specialty Societies

- Specialty Societies: organizations that are created for a specific area of medical practice composed of practitioners of that Specialty
  - Medical Informatics Specialty organizations include American Medical Informatics Association (AMIA), Association of Medical Directors of Information Systems, College of Healthcare Information Management Executives, and Healthcare Information and Management Systems Society
- Important potential roles:
  - Creation of curriculum
  - Early recognition of emerging Medical Subspecialties
  - Provide expert content knowledge for ABMS Member Boards new Subspecialty applications
  - Serve the ACGME educational needs of training programs and trainees

American Medical Informatics Association (AMIA)

- AMIA is a professional scientific association with core purposes to:
  - advance the science of informatics
  - promote the education of informatics
  - assure that health information technology is used most effectively to promote health and health care
  - advance the profession of informatics
  - provide services for our members such as networking and opportunities for professional development.
- Douglas B. Fridsma, MD, PhD, FACP, FACMI, President and Chief Executive Officer provides vision and leadership

Summary of Organizational Roles in Creation of New Medical Subspecialties:

- ABMS and the Member Boards establish new Subspecialties
- ABMS and the Member Boards certify individuals in the Subspecialty
  - Diplomate: Individual physician certified by an ABMS Member Board
    - Both Specialty and Subspecialty
- ACGME creates training program requirements for new Subspecialties
- ACGME accredits the training programs, not individual physicians
- Specialty Societies bring together those who practice in current and emerging practice areas and advance the field through education, position statements, and other activities

Discussion Point Two: Development and Advancement of a New Medical Subspecialty

Evolution of a New Medical Subspecialty: Growth

▶ A need arises in health care and a response occurs-usually due to advancement of technology, improved outcomes of medical injury or illness, or new research discoveries

▶ Growth of that response to a new medical domain gradually results in established core skills and knowledge with physicians practicing in that field

  ➤ physicians practicing within the domain at multiple clinical and geographical settings

  ➤ Development of organizations/specialty societies

  ➤ Core competencies defined

  ➤ Creation of training programs at interested and invested health care organizations (non-ACGME accredited training)

  ➤ Publications and national discussions within the domain expand

Evolution of a New Medical Subspecialty: Sustainability

- Demonstration of contributions to high quality and improved patient care
- Leaders within the new medical domain determine the need to pursue establishment of Subspecialty status
  - Often Specialty Society driven
  - Approach ABMS and/or specific Member Boards with a proposal

Establishing an ABMS Subspecialty: Recognition by a Member Board

- An ABMS Member Board determines
    - A new medical domain fits their individual mission and specialty
    - The domain has matured to the point of needing such designation

Examples of Recent Subspecialty Evolutions

- Adult Congenital Heart Disease
- Addiction Medicine

Establishing an ABMS Subspecialty: COCERT Application

- The Member Board submits an application to the ABMS Committee responsible for evaluating and recommending the establishment of new Specialties and Subspecialties (COCERT)

  - The Member Board who first proposes the new Subspecialty becomes the <u>Administrative Board</u> of the new Subspecialty. They create the examination and oversee all requirements for the new Subspecialty.

  - Additional Member Boards may add on as <u>Sponsoring Boards</u> of the new Subspecialty. They would provide input on the examination content and would oversee their own diplomates who apply for the new certification.

Establishing an ABMS Subspecialty: Application Content

- Application Content Requirements include demonstration of:
  - Established core body of knowledge and skills
  - Significant current practice of the new medical domain (number of practicing physicians, geographical settings, training programs, specialty societies, publications, etc.)
  - Impact on patient care
  - Eligibility requirements for board certification applicants
  - Assessment methods of the board certification applicants
- Public Comments are considered during the process

Establishing an ABMS Subspecialty: Review and Approval Processes

- ▶ COCERT provides their recommendations to the ABMS Board of Directors regarding the establishment of a new Subspecialty recognition

- ▶ ABMS Board of Directors approves as the final step

Establishing an ABMS Subspecialty: Implementation

- Once approved, the ABMS Member Board implements steps required to start the board certification process
  - Could take several years
  - Determination of the minimum knowledge level required for an individual to become board certified
    - Creation of the assessment examination
  - Development and implementation of the individual candidate application process
- ABMS Member Board requests to ACGME to establish training requirements for program accreditation within the new Subspecialty

Discussion Point Three: Clinical Informatics Development as a Medical Subspecialty

Why is there a need for Clinical Informatics in Medicine?

- The field of clinical informatics dates its origins to the early 1960s when journal articles first appeared discussing the use of computers in medicine
  - Electronic health records were introduced in the 1960s. The field has been maturing, growing in size, and becoming an integral part of the practice of medicine
- The need for health system leadership through roles such as Medical Information Officers developed in the 1980s
  - Today, Chief Informatics Officers are seen in medical, pharmacy, nursing, and dental systems
- 2009 American Recovery and Reinvestment Act (ARRA) included the Health Information Technology for Economic and Clinical Health Act (HITECH Act)
  - Requirements for electronic health record technology with provider criteria and quality measures for payment/penalties within health care systems
  - Advanced the implementation of informatics systems

Why the Need for ABMS Subspecialty Certification Recognition for Clinical Informatics ?

- In recognition that Clinical Informatics is an essential component of practice, education, and research within all areas of medicine
  - Success or failure of health information systems is dependent upon the skills and knowledge of those who design, implement, integrate, and use them
- Allows for individual physician recognition
  - Board certified physicians voluntarily meet additional standards beyond basic licensing
  - Demonstration of a physician's expertise in Clinical Informatics
- To sustain and grow the Clinical Informatics physician workforce through better defining of competency and expertise

Clinical Informatics Becomes a Medical Subspecialty…

- AMIA leadership proposed the Subspecialty to the American Board of Preventive Medicine, who agreed that it fit within their mission in 2009
  - ABPM is the Administrative Board of the Subspecialty
- The American Board of Pathology requested to be a Sponsoring Board of the new Subspecialty
- The application was taken to COCERT and ultimately approved by the ABMS Board of Directors in 2012
  - Clinical Care Discussions

Eligibility for Clinical Informatics Board Certification

▶ Medical Degree

▶ Medical License

▶ ABMS Certification (Existing certification by any ABMS Member Board)

Plus completion of one of the following pathways:

▶ Currently Available (until 2022) Practice Pathway: Equivalence of three years of practice in Clinical Informatics (of at least 25% fte) within the past 5 years. This may include non-ACGME accredited fellowship completion

▶ Fellowship Training Pathway: Completion of a 24 month ACGME accredited training program. This will be the only pathway after 2022

# Initial Board Certification in Clinical Informatics Requirements

- To become board certified, physicians must
  - Meet the eligibility requirements to sit for the Board examination
    - Pathologists apply through ABPath and all other board certified physicians apply through ABPM. Same requirements and same examination for all.
  - Pass the written board examination

Considerations in Implementing the Clinical Informatics Subspecialty

- Define knowledge required to be board certified in Clinical Informatics
  - How broad of a knowledge foundation is necessary?
  - What is the minimum knowledge level required?
- Create assessment method:
  - Identify appropriate experts to create examination content
  - Determine if and how these experts will be able to become board certified
- Determine how to implement eligibility requirements
  - What is 25% of practice in reality?
  - Who approves and how they approve applicants?
- Collaborate with American Board of Pathology
- Request to ACGME for Clinical Informatics training accreditation

Steps in Implementing the Clinical Informatics Subspecialty

- Decision making and timeline creation in providing the first examination was crucial

- Involved creation of:

  - process for applicants

  - timing of applications

  - Development and implementation of communication processes to potential applicants, applicants, and organizations involved in education

  - Outline the steps and necessary processes for once the examination is completed
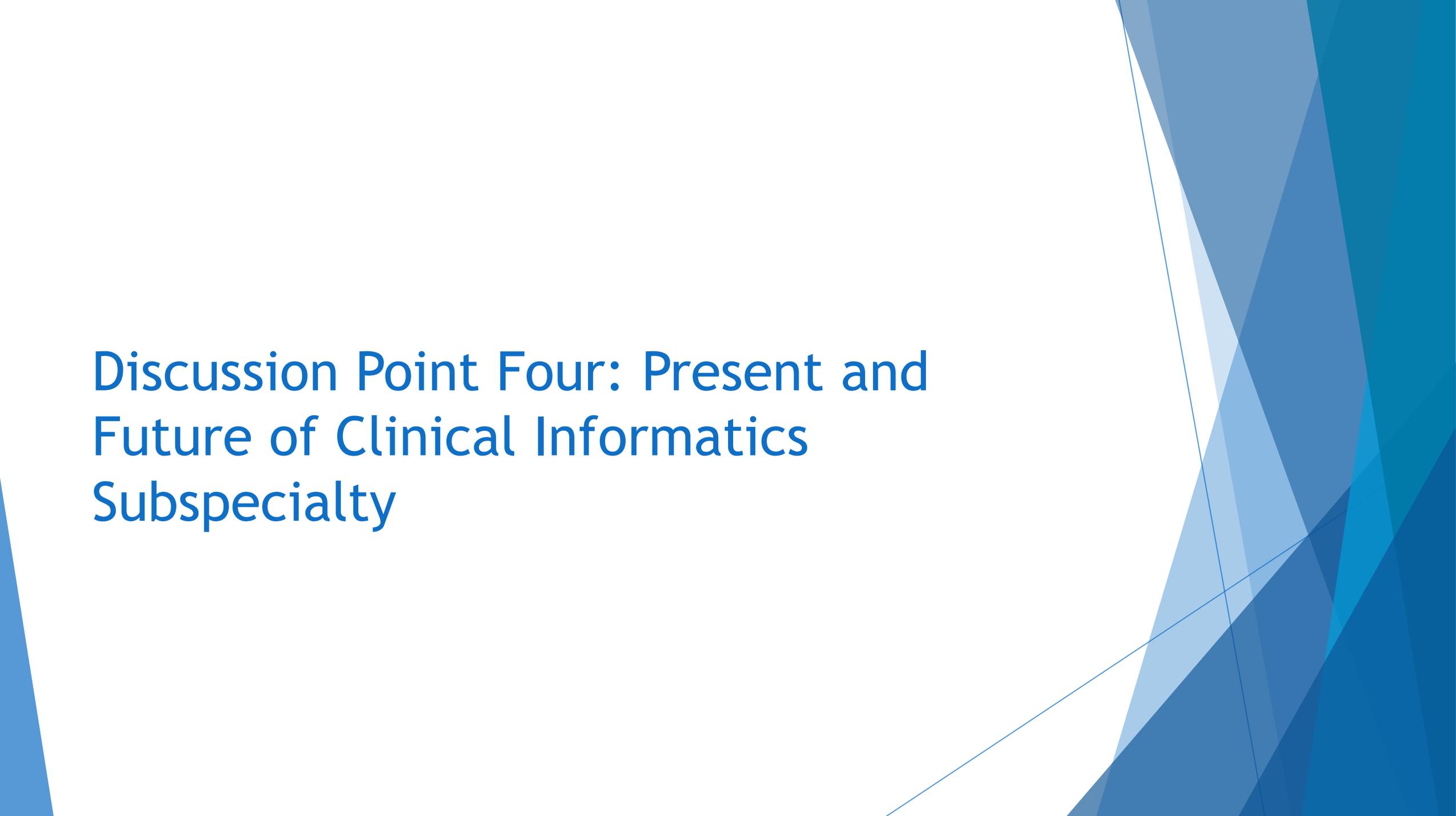
Discussion Point Four: Present and Future of Clinical Informatics Subspecialty

Clinical Informatics Board Certification Data

- Diplomates certified by year:
  - 2013(first year): 456
  - 2014: 331
  - 2015: 320
- 2015 Board Examination Pass Rate for Clinical Informatics = 80%

Continuous Certification in Clinical Informatics

- Requirements are in place for maintaining certification in Clinical Informatics through standards set by the ABMS to include the following:
  - Maintaining medical licensure
  - Completing lifelong learning activities
  - Periodic examination
  - Practice self assessment

ACGME Accreditation of Fellowship Programs

- First Clinical Informatics programs were accredited in 2014
- Currently 24 accredited fellowship programs

Current Dialogs in Clinical Informatics

- Differing levels of recognition by Health Systems of the value of Clinical Informatics workforce and training programs

- Varying definitions of the role of Clinical Informatics specialists

- Defining relationships with other Clinical informatics experts (pharmacy, nursing, dental)

  - Roles of those with different certifications

Future of Clinical Informatics

- ▶ Continued growth and establishing sustainability of training programs
- ▶ Advancing interdisciplinary approach to Clinical Informatics
- ▶ Expansion of research, education, and clinical presence of Clinical Informatics

Clinical Informatics in Prevention and Public Health

▶ Move medicine from reactive to proactive prevention

▶ Integration and collaboration with Dental Informatics

  ▶ Support Health Systems in recognizing early risk factors and preventing oral and dental diseases

  ▶ Establish research based on clinical practice data merged between medical and dental health settings

National and International Public Health Informatics

- CDC Division of Health Informatics and Surveillance
  - Vision of Public Health Informatics in Public Health Surveillance: Three Categories
    - Study and description of complex systems (e.g., models of disease transmission or public health nursing work flow)
    - Identification of opportunities to improve the efficiency and effectiveness of public health systems through innovative data collection or use of information
    - Implementation and maintenance of processes and systems to achieve such improvements
- World Health Organization
  - http://www.who.int/ehealth/en/

In conclusion….

- ▶ Objective today was to educate you on how an area of medical practice evolves to become a recognized medical Subspecialty, with a focus on Clinical Informatics

- ▶ Why this objective? So that this may inform future processes within Dental Public Health Informatics as opportunities arise in today's changing environment

Thank you!

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