

# Setting Local Standards on the International Foundations of Medicine® (IFOM®) Clinical Science Examination Based on Purpose and Context

Carol Morrison  
Raja Subhiyah  
Brownie Anderson  
Beth Gallagher  
Enrique Mendoza

National Board of Medical Examiners  
Philadelphia, PA USA

Presented at the 2016 Association for Medical  
Education in Europe Conference

# Background

- NBME<sup>®</sup> International Foundations of Medicine<sup>®</sup> (IFOM<sup>®</sup>) program provides medical schools internationally with tools for measuring examinees' understanding of the medical sciences
- IFOM Clinical Science Examination (CSE) assesses the medical knowledge and understanding of clinical science considered essential for the provision of safe and effective patient care

# Background

- Many IFOM CSE items were previously used on USMLE<sup>®</sup> Step 2 Clinical Knowledge (CK) and there is substantial overlap in content coverage

# Uses of IFOM CSE

- IFOM CSE is used for a variety of purposes by various types of institutions
- Medical schools
  - Use for both formative and summative assessment, curriculum evaluation and international benchmarking – low stakes
  - Use as an exit examination for graduation – high stakes

# Uses of IFOM CSE

- Post-graduate programs
  - Use for selection of graduates for training – high stakes
- Ministries of health/education
  - Use as part of assessment for regional certification – high stakes

# Setting Standards

- Initially, an International Standard of Competence (602) was set that was comparable to the USMLE Step 2 CK standard
  - Standard was based on high-stakes administration of medical licensing examination in United States
  - Was not necessarily relevant for other uses of IFOM in other countries
  - Very few IFOM CSE examinees scored at or above this standard

# Setting Standards

- Facilitating the selection of local standards would allow IFOM CSE users to identify a minimum level of performance that is consistent with their assessment context and needs

# Panama

- Panama began using the Spanish language IFOM CSE as a certification examination for graduates of medical schools in Panama and also for graduates from other countries such as Cuba, Mexico, Venezuela, Columbia, El Salvador, and Costa Rica



# Panama

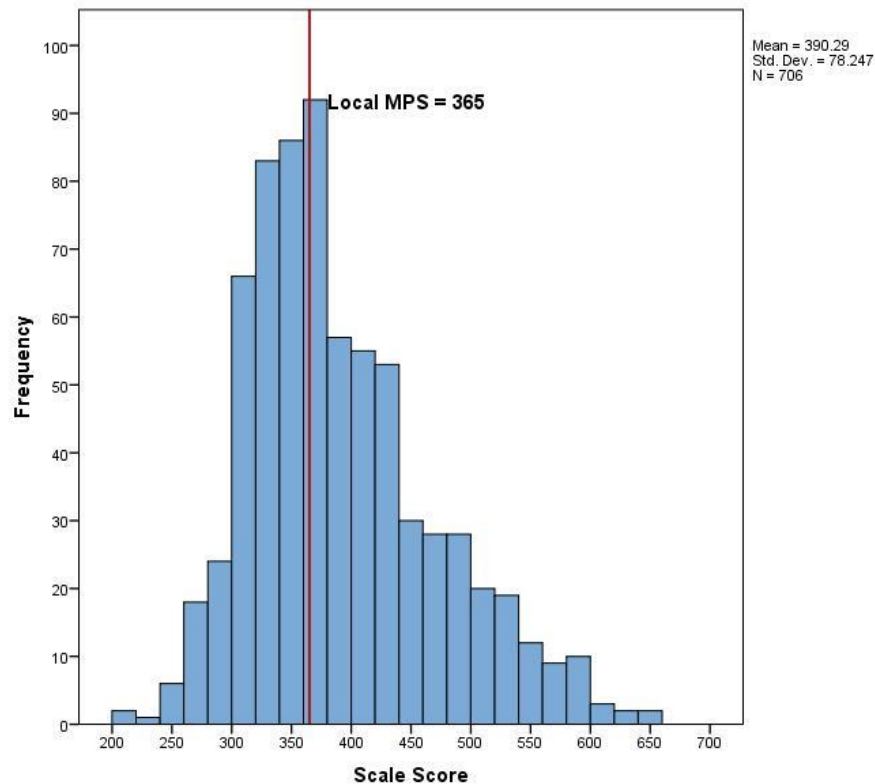
- They decided to conduct a standard setting study with local medical school faculty and physicians with the goal of setting a standard that was appropriate for their use of IFOM CSE and their population of test takers
- An NBME psychometrician conducted a standard setting study in Panama in 2014 with 11 content expert judges

# Panama - Process

- Orientation & general overview of standard setting
- Discussion of the exam purpose & target group
- Discussion of the borderline or minimally proficient candidate
- Modified Angoff procedure – estimate percentage of borderline candidates who would answer each item correctly
- Hofstee procedure – global estimates of candidate performance and acceptable fail rates

# Panama - Results & Impact

- Selected a standard of 365
- Passing Rate = 55.5% in 2015

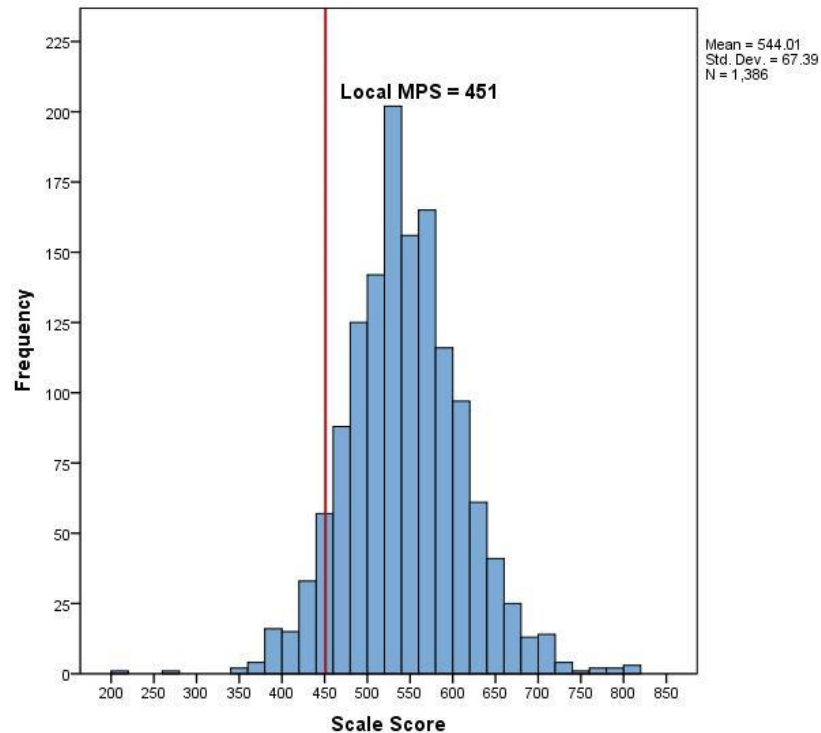


# Australia

- Several Australian medical schools use IFOM CSE as a formative or summative assessment for students in their final year of medical school
- An NBME psychometrician conducted a standard setting study in Australia in 2015 with 14 clinicians from 12 medical schools who served as content expert judges
- The same process was followed as in Panama

# Australia - Results & Impact

- Selected a standard of 451
- Passing Rate = 92.7% in 2015

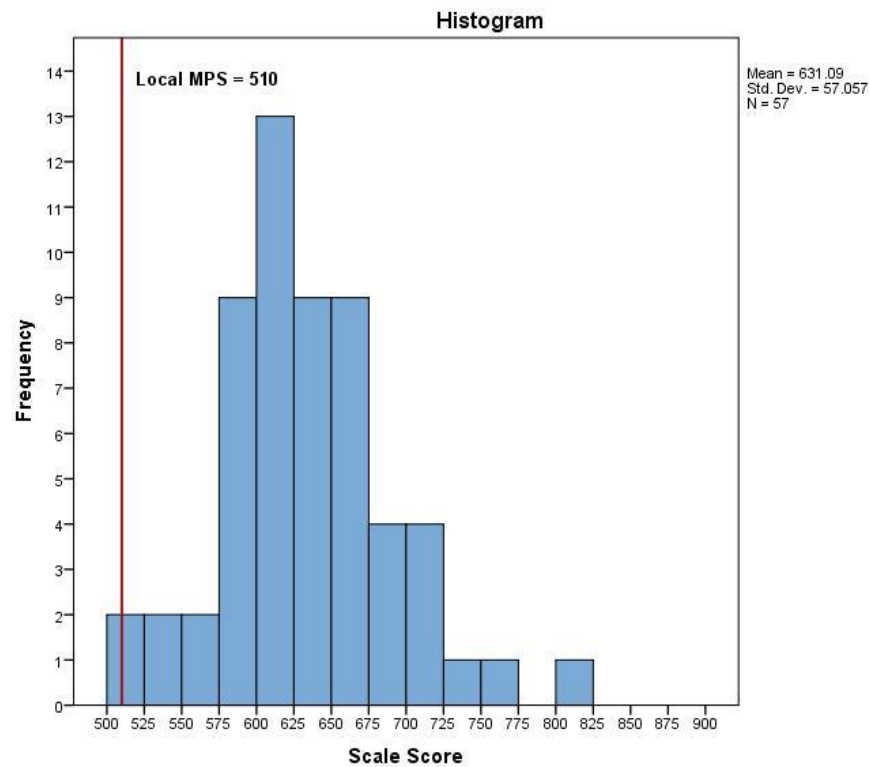


# Singapore

- Duke-NUS medical school uses IFOM CSE as an exit examination for graduation for students in their final year of medical school
- An NBME psychometrician conducted a standard setting study in Singapore in 2016 with 9 faculty members who served as content expert judges
- The same process was followed as in Panama and Australia

# Singapore - Results & Impact

- Selected a standard of 510
- Passing Rate = 96.5% in 2016



# Discussion

- Standard setting studies produced standards that were appropriate for the particular use of IFOM CSE in each location
- The local standards (365, 451, 510) were lower than the International Standard of Competence that was based on the USMLE Step 2 CK standard



# Discussion

- Passing rates based on local standards were considerably higher than passing rates based on the International Standard of Competence
  - Passing rates based on the International Standard of Competence ranged from 1%-74% for the three groups
  - Local standards produced pass rates that were in line with expectations for particular use of IFOM

# Discussion

- Facilitating the selection of appropriate local standards using content-based procedures has enabled IFOM CSE users to experience the benefits of a high quality, internationally focused exam with a performance standard that is appropriate for their purpose and context