#75 Short Communications: BME

**Location:** Room 203a

**#75i (1359)**
**What are the features of targeted or system-wide initiatives that affect diversity in health professions trainees? A Best Evidence Medical Education (BEME) systematic review**

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**Background:** There is a growing movement to increase diversity among health professions trainees given evidence that students from under-represented minority (URM) groups serve these populations in greater proportion than those from well-represented populations. Interventions designed to increase diversity within health professions schools have not been subjected to formal review or synthesis.

**Summary of work:** We aimed to determine features of interventions designed to promote URM students recruitment/admission to health professions education (HPEP). We prospectively registered a BEME systematic review protocol. Health databases/grey literature searches were completed and systematic methods applied. Included studies reported outcomes for recruitment/admissions interventions designed to increase diversity within HPEP.

**Summary of results:** Of 6,498 studies identified, 75 (1.1%) studies met inclusion criteria. Interventions included: admissions (29%), enrichment (21%), outreach (15%), curricular components (4%) and mixed interventions (31%). Most were single center studies (76%), conducted in the USA (83%), in medicine (43%)/dentistry (25%) programs. Ethnicity/race (39%) was the diversity dimension most commonly considered.

**Discussion:** The majority of studies (80%) found positive effects on intended diversity outcomes (15% neutral, 5% negative). Heterogeneity of interventions, study design and outcomes precluded meta-analysis. Qualitative analysis identified key features of interventions: points systems and altered weightings for admissions; academic, application and exam preparation and workplace exposure for enrichment studies.

**Conclusion:** Most studies reported positive results suggesting any intervention type may increase diversity over status quo. Authors identified limited applicant pools as rate-limiting, suggesting efforts prior to admission processes are needed. There is a need to examine underlying cultural/external pressures that limit HPEPs’ acceptance of initiatives to increase diversity.

**Take-home message:** The following should be considered when designing/implementing/evaluating future interventions: expansion of the URM applicant pool prior to admissions processes; expansion of scope beyond race/ethnicity, medicine/dentistry programs, and studies conducted within the USA; wider stakeholder consideration of the culture of academic institutions around perceived risks of increasing diversity.

**#75j (955)**
**Defining clinical reasoning: findings from a BEME scoping study**

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**Background:** Clinical reasoning (CR) is foundational across the health professions (HP). Given its central importance, one would assume that consensus exists regarding its definition. Teaching and assessment of CR necessitates explicit consideration regarding what CR ‘is’. A BEME review set out to document definitions of clinical reasoning in HP.

**Summary of work:** A scoping study was conducted to identify conceptualizations and definitions of CR and associated terms across HP literature. Experts reviewed titles and abstracts of articles culled from seven databases searched using MeSH terms and keywords. Calibration and usability testing refined inclusion criteria and design of the extraction form.

**Summary of results:** Among 635 studies (77% coded) spanning 1968-2014, in 155 journals, across 12 HPs, 64% reported original research. Of the 169 (35%) articles that used the term CR, 4 included an explicit definition of CR. Terms used for CR reflected focus on: skills, outcomes, purposes, explanatory processes, and contextualized reasoning.

**Discussion:** A variety of terms were used – often interchangeably – to refer to or describe the phenomenon of CR. These terms appeared to cluster into different understandings and conceptualizations of clinical reasoning (e.g. as a skill, as a means to an outcome, etc.). Explicit definitions of CR were rarely provided.

**Conclusion:** Lack of clarity and precision in defining and describing CR likely leads to unclear communication amongst authors within the CR community, and difficulty operationalizing CR for teaching and assessment. Varying definitions and terminologies are common problems in the literature on CR, likely reflecting different conceptualizations of CR.

**Take-home message:** CR is a complex, multi-dimensional concept, informed by several conceptual frameworks,
Conclusion: communication may validity, in theories involved

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Assessing skills important management. 

Discussion: 

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Background: The ability to self-reflect and respond with insight is considered a core skill within the training programmes of many disciplines, including medicine, nursing, education, dentistry, the ministry, business and management. Identifying suitable assessment tools is important in order to quantify baseline levels of these skills and the impact of training.

Summary of work: A BEME Review was undertaken and involved searching nineteen electronic databases (1975-2015) to identify tools used across a range of disciplines to measure self-reflection. Two reviewers appraised the quality of evidence and the reported utility (reliability, validity, feasibility, cost effectiveness, acceptability and educational impact) of tools used.

Summary of results: 106 studies from 16 disciplines met the inclusion criteria. Five types of tool measured the ability to self-reflect: assessment of student reflections using rubrics, observation, thematic coding, global rating scores and self-report surveys. Two types of tool additionally measured insight.

Discussion: The literature suggests that different tools may be appropriate to assess different stages of the reflective cycle. Whilst the information required to fully evaluate the utility of the tools was not available in every study, it is clear that there is wide variation between tools.

Conclusion: The review did not identify an individual tool that effectively measures the whole reflective process. More work is needed to determine whether a combination of tools to measure the reflective ability of individuals, such as healthcare professionals, may therefore be an optimal approach.

Take-home message: Five types of tool used to measure self-reflection were identified, with considerable variation in the reported utility of the tools; only two tools specifically measured the ability to respond with insight. This review will support educators in selecting a tool appropriate to their assessment needs and resource constraints.

#7S4
Workplace Learning through Collaboration in Primary Healthcare: A BEME Realist Review of What Works, for Whom, and in What Circumstances

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Background: Changes in healthcare practice toward more proactive clinical, organisational and interprofessional work require primary healthcare professionals to learn continuously from each other through collaboration. This systematic review uses realist methodology to consolidate knowledge on the characteristics of workplace learning (WPL) through collaboration by primary healthcare professionals.

Summary of work: Following scoping searches, five electronic databases were searched from 1990 to 2015. Reviewers worked in pairs for article selection. A set of statements was used as a coding tree for analysis. Interpretation of the results was done in alternating pairs, discussed within the author group, and triangulated with stakeholders’ views.

Summary of results: 42/6930 publications, qualitative and quantitative focusing largely on WPL of general practitioners and nurses. No striking differences between different professionals, often unaware of the occurring learning. WPL happened prominently through informal patient case discussions and other professionals’ modelling. Professionals could both learn and facilitate others. Diverse outcomes endorsed contextualised knowledge.

Discussion: Primary care professionals’ WPL is multifaceted. Existing social constructivist and social cognitivist learning theories form a framework from which to interpret these findings.

Conclusions: Professionals should have access to protected time, to engage in reflection, learn new ways of interaction and develop new habits within clinical practice. Professionals can both learn and facilitate others’ learning. Acknowledgement of others’ expertise and awareness of others’ specific contexts, especially when hierarchy is involved, reduces barriers to learning.

Take-home message: Unplanned learning activities provide more opportunities for ‘just-in-time’ learning than planned sessions. Curricula should emphasize the importance of informally asking questions and requesting feedback. Knowing and valuing others’ expertise is essential, yet more difficult in interprofessional settings. Interprofessional modules, focusing on collaboration, should be included in undergraduate education.
Assessing the behavioural and social science curricula components for undergraduate medical students: A BEME Systematic Review

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**Background:** Behavioural and social science (BSS) topics are crucial for modern medical practice. Assessment of BSS topics should be valid, reliable, generalisable, feasible and fair, with demonstrable educational impact, but evidence is that such assessments are used is lacking. There are no reviews of assessment that relate to BSS subjects.

**Summary of work:** We conducted a BEME systematic review of assessment of BSS topics in undergraduate medical education. Initial search terms were broad, to include papers which did not use assessment as their primary focus but did describe it. Assessment content was defined by the General Medical Council’s Outcomes for Graduates and CanMEDS.

**Summary of results:** 3337 potential papers were identified, reduced to 62 after initial triage. 7 met all inclusion criteria. The majority of excluded papers did not focus on assessment, or described assessment for course evaluation. Each paper described a different format of assessment so no generalisations can be made. Study quality varied widely.

**Discussion:** Spanning 50 years of medical education, and all main forms of assessment, the only consistent themes from the papers are the importance of BSS topics, and the need for assessment. Comparing assessments is difficult as performance data is not consistently provided, and content is not necessarily similar.

**Conclusion:** The published work on assessment of BSS is scant, and there is no definitive evidence that any format for assessment is validated or applicable in wider settings. There is an urgent need to create an assessment for BSS topics which meet both content and psychometric requirements of modern medical education.

**Take home message:** With increasing standardisation of assessment, including the introduction of national exit exams, assessment of topics like BSS pose a dilemma: use an unvalidated method of assessment, or be squeezed from summative assessment. The inevitable consequence is decreased curriculum time for these topics, despite the negative impact on the final graduate.

Utility of selection methods for specialist medical training: A BEME (Best Evidence Medical Education) Systematic Review

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**Background:** While there is substantive literature focussing on selection into medical schools, there is a gap around selection into specialty training which is a high-stakes and resource-intensive process. This reviews synthesised the evidence concerning selection system design as well as the utility of individual selection tools in postgraduate training environments.

**Summary of work:** Using a systematic protocol (relevant databases, study criteria, coding sheet), five coding pairs extracted, analysed, and synthesised findings from 89 high quality articles in three key areas: underlying frameworks, principles and methods of selection; effectiveness of existing methods in terms of the utility index; predictors of success in subsequent performance.

**Summary of results:** Frameworks defined by locally-derived selection criteria, often prior academic performance, are giving way to competency-based selection in some areas. Multiple mini-interviews, situational judgement tests, and clinical problem solving tests have favourable psychometrics. Evidence on predictors of future performance was largely limited to academic criteria, with a shortage of long-term evaluations.

**Discussion:** Selection is a rapidly developing research area. Whilst much has been gained in understanding the utility of individual selection methods, some of which is equivocal, the underlying theoretical and conceptual frameworks require further investigation. There is also a need for consensus on methodology to allow comparison across multiple contexts.

**Conclusion:** Current selection frameworks, appear largely reductionist, privileging predictive validity of certain criteria, and misaligned with competency-based developments in the curriculum, including assessment. Given the complex nature of specialist training, this review highlights the need for consensus from a broad range of stakeholders around holistic, integrated, and equitable selection systems.

**Take-home message:** Locally-defined systems are heavily weighted on academic parameters, many with limited psychometric evidence. Competency-based approaches to selection are evolving though the evidence is contextualised. Multiple selection tools in such systems were found to have favourable evidence. Predictive validity mostly limited to academic criteria with methodological issues, and few long-term evaluations.