



development, productivity and personal well-being for both the mentor and mentee [13]. However, whilst mentoring has enjoyed significant successes in medicine, surgery, nursing and social work, there is a dearth of data on mentoring in the context of IPE and Palliative Care. This is in part as mentoring as a whole remains poorly defined and largely context-dependent [13-25].

This review seeks to circumnavigate the lack of a clear definition of mentoring and the absence of a universally-accepted description of mentoring practice in medicine, surgery, nursing and social work by focusing on systematic reviews, literature reviews and meta-analyses of mentoring involving undergraduates and postgraduates in clinical and academic mentoring settings.

This approach circumvents the context-dependent and goal-sensitive nature of mentoring and allows for the identification of common core concepts and approaches within these specialties that will make lessons learnt translatable to mentoring in Palliative Care and form the basis for an IPE-based mentoring program. To further focus these efforts this review will be limited to mentoring relationships between mentors and mentees and focus upon discerning the characteristics, benefits and the drawbacks of mentoring within undergraduate and postgraduate medicine, surgery, nursing and social work. We have included surgical practice to provide a holistic perspective of mentoring within medical practice as a whole.

We believe that the overview of practice trends and causal ties between mentoring approaches and their influence upon mentoring will be transferable to Palliative Care practice given the similarities of their practices. We believe that study of mentoring in nursing, medicine, social work and surgery is warranted given the central roles these specialties play in Palliative Care practice especially within the Asian setting where we aim to apply the results of this analysis to guide efforts to introduce and expand mentoring programs in Palliative Care. Single study analyses on mentoring in these specialties were deemed to be of limited use given the inherent differences in the clinical, contextual, practice and health care systems [26]. Leech et al. and Onwuegbuzie et al. [27,28] argue that use of multiple sources serves two key functions. Firstly, the authors argue that combination of data from many studies provide a better understanding of a phenomena or 'representation' [27-30]. Secondly, the use of data from multiple sources allows corroboration and convergence of aspects being studied improving 'between source legitimization' [27,28].

The absence of an a priori framework for mentoring [31] and a lack of understanding in the processes and the relationships behind the mentoring process within Palliative Care underpinned the adoption of a constructivist approach [32,33]. The Grounded Theory was employed to thematically analyze the review articles [28,34]. The process included open coding of the reviews where data was coded for and axial coding wherein similar codes were grouped together to create a theme. The individual reviewers independently determined the themes within their individual analyses and the themes were discussed in a reviewer's meeting. Reviewers agreed upon the themes and the verified themes formed sections and subsections within the review [35]. Thematic saturation was determined by the 7th review.

This review focuses on evaluating aspects of the traditional hierarchical mentoring between a senior experienced clinician and a

junior clinician and/or student [20], a dyadic approach (one-to-one, senior-to-junior, face-to-face) [36] and group mentoring approaches. Excluded were peer, near-peer, leadership, family, patient, e-mentoring and youth mentoring. We also limited our attention to literature reviews, systematic reviews and meta-analyses of mentoring involving undergraduates and postgraduates in clinical, research and academic settings.

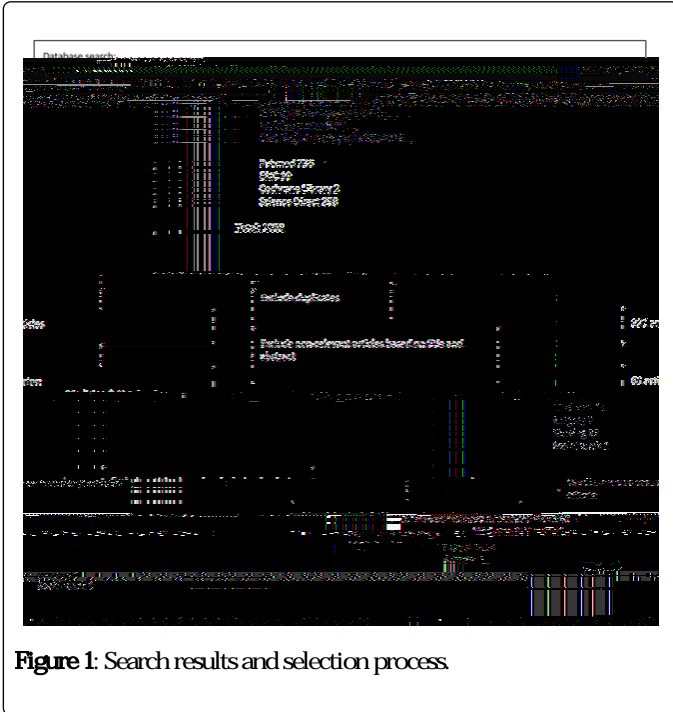
Focus was limited to mentoring in medicine, nursing and social work given that these are the most common participants of the Palliative Care multidisciplinary team in most developing nations and certainly in multicultural societies in Asia where pastoral services often play ad hoc roles in multidisciplinary teams given diverse religious beliefs and cultural sensitivity. Inclusion of surgical specialties within this review was aimed at making this process more inclusive and served to acknowledge the significant contribution that surgical mentoring has made to our understanding of mentoring as a whole.

Perspective, opinion and reflective pieces, commentaries, editorials and recommendations were excluded due to the diversity of practices described. The search was restricted to reviews in English or had English translations only. We included all study designs aimed at the personal and/or professional development of the mentee. We excluded literature reviews, systematic reviews or meta-analyses that were not exclusively focused upon adult medicine, surgery, nursing or medical social work. Other health specialties not regularly associated with adult Palliative Care such as dietitians, psychologists, chiropractitioners, midwifery, Pediatrics, Clinical and Translational Science and Dentistry were excluded. We also excluded mentoring in Obstetrics and Gynecology given it regularly encapsulates mentoring in Obstetrics and midwifery.

We also excluded literature reviews, systematic reviews or meta-analyses on supervision, coaching, role modeling, preceptorship, sponsorship and advisor roles, given that these practices are seen as distinct from a mentoring approach.

Our literature search involved PubMed, ERIC, Cochrane Database of Systematic Reviews and Science Direct databases with the search terms: "mentor", "mentoring", "mentorship" "mentoring relationships" AND one of the following "medicine", "surgery", "nursing" and "social work" or their combinations, to identify literature reviews, systematic reviews or meta-analyses on the mentoring of undergraduates or postgraduates in the abovementioned fields between 1st January 2000 and 31st December 2015.

Four of the authors (MTW, WJT, MFMI, LK) carried out independent searches, scrutiny of shortlisted abstracts and reviews of all full text reviews fulfilling the inclusion criteria. Each author compiled a shortlist of papers (Figure 1). Following review of 10 full text articles the four authors unanimously agreed upon a common template to be used for the thematic analysis of the papers. Further face-to-face meeting between all 6 authors was carried out once all the authors had completed their reviews of all the full text reviews fulfilling the inclusion criteria. At this meeting the themes were discussed and agreed upon by the authors. In cases of disagreement or omissions, the authors reviewed the full text review and a unanimous decision was sought.



**Figure 1:** Search results and selection process

A total of 1059 abstracts were retrieved and evaluated, 61 full-text articles were analyzed and 20 reviews were included in this review

Of the 20 reviews included in this review, 1 review included a review of mentoring in medicine and nursing, 10 in medicine, 4 in surgery and 5 in nursing. There were no relevant reviews on mentorship in medical social work identified.

Thematic analysis revealed 6 themes including (1) characteristics of prevailing definitions of mentoring, (2) characteristics of mentoring relationships, (3) characteristics of mentors and (4) mentees, (5) benefits of mentoring, (6) drawbacks of mentoring and finally how they all tie into painting a preferred mentoring partnership.

**definitions**

An analysis of the core elements within the 18

Characteristics	Medicine	Surgery	Nursing
Personal characteristics	*Honest *Friendly and Collegial *Approachable *Patient Supportive Altruistic Understanding Responsive Nonjudgmental Reliable Calm Respectful/Courteous Committed/Dedicated	*Honest *Friendly *Approachable Supportive Compassionate Kind, warm and non-threatening Willing to learn from themselves, mentees and others	*Honest *Friendly and Collegial *Approachable *Patient Enthusiastic Good sense of humor Motivated Positive attitude Knowledgeable Concerned Sense of humanity
Professional characteristics	Respected Senior Experienced	-	Objective Analytical Supervisory Assessor Facilitator Academic tutor Role model
Undesired characteristics	Authoritative	Biased/Show favouritism	Stifling Critical Defensive
*Indicates characteristics listed in more than one discipline			

**Table 1:** Characteristics of mentors

Three similar categories were found in the 6 medical reviews that considered the characteristics of mentees, they are collated in Table 2 [14,24,40-42,52], 2 surgical [38,43] in surgery and 2 nursing [45,51]

Characteristics	Medicine	Surgery	Nursing
Personal Characteristics	*Committed *Open *Proactive *Motivated/Ambitious Honest Reliable Intelligent Passion to succeed Willing to learn and reveal flaws Face their own weakness and perform self-reflection and self-critique Receptive to constructive feedback and make changes accordingly Conduct themselves in a mature and ethical manner	*Committed *Open to learning from colleagues *Proactive responsibility Appreciate experienced senior colleagues Respect mentor's input Voluntarily offer relevant feedback	Conative characteristics: *motivation volition Affective characteristics: temperament emotion Independence



			Enjoying a challenge Learn by turning negative experiences into learning opportunities
*Indicates benefits listed in more than one discipline			

**Table 3** Personal benefits of mentoring to mentees

Benefits to mentees	Faculty		
	Medicine	Surgery	Nursing
Professional benefits	*Career choice *Career promotion *Professional development *Professional knowledge *Staff/faculty retention *Rise in ethnic minority faculty Career-enhancing factor Career preparation Faculty productivity Financially-rewarding practice Increased compensation Develop high-quality practice Institution support Navigate academic h-veÄ		



apprenticeship model, which focuses upon “learning about practice” [72,73] does embrace many of the core aspects of these theories and does appear to reflect Palliative Care practice that does see junior clinicians building upon their training and enhancing it with a multidimensional perspective drawn from instruction and holistic support from various members of the multiprofessional team. Furthermore the cognitive apprenticeship model does lend itself to the Palliative Care instructional approach that sees mentors model the desired behavior and practice for their mentees and “trains the next generation of experts” [74] and independent Palliativists. Similarly multiprofessional ‘apprenticeship’ advocated by the adapted cognitive apprenticeship model will allow for multiple mentoring relationships [75] that facilitate learning, skills training and personal advice from multiple mentors from different clinical backgrounds [5,74]. Simulation and community projects can be done under the purview of mentors from a variety of backgrounds, who can then provide feedback and track progress, facilitating multiprofessional and multidimensional learning [76,77]. Similarly amalgamation of structural and administrative changes such as scheduling [72] and the incorporation of an appropriate mentoring framework will allow for the effective and holistic support of Palliative Care mentees.

If Palliative Care is to continue to expand and take its place within medical practice, it is evident that IPE-based mentoring is required. As with mentoring in other clinical fields such as geriatrics, rehabilitation medicine, pediatrics and oncology any effort to create an IPE-based mentoring program must pay close attention to nurturing the mentoring ties within mentoring relationships. However, it is clear that prevailing data only hints at the appropriate process to be adopted and further studies are required. This review serves then to point to the areas that require urgent attention. These include understanding of mentoring relationships and the dynamics within mentoring processes. It is evident that further studies are required not only to evaluate



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40. Sambunjak D, Straus SE, Marusic A (2010) A systematic review of qualitative research on the meaning and characteristics of mentoring in academic medicine. *J Gen Intern Med* 25: 72-78.
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