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The one-minute preceptor model: A systematic review

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ABSTRACT

Background and purpose: Teaching models provide a systemic framework for didactic and clinical teaching. The One-Minute Preceptor (OMP) is one teaching model, providing five microskills to organize a learning experience for students in the clinical environment. This review aims to integrate the literature on the OMP model by highlighting potential use for nurse practitioners while identifying directions for future research.

Methods: Electronic databases were searched from December 2017 to January 2018 for articles published in English. The databases included PubMed, CINAHL, and MEDLINE using terms including "preceptor," "clinical teaching," "time-efficient teaching," and "precepting." Of 32 articles in the final search, only 12 experimental quantitative studies were included in the synthesis and 20 descriptive studies in the discussion.

Conclusions: The OMP model is supported by literature for its effectiveness as a teaching model and preference by students and preceptors. It has been shown to increase teaching techniques including feedback and assessment of students' clinical reasoning.

Implications for practice: The OMP model has the potential to overcome clinicians' barriers to precepting nurse practitioner students. Future research may evaluate the use of this model specific to nurse practitioner preceptors and students, perceived time benefits in clinical teaching, overall improvement in clinical teaching, and use in interprofessional precepting.

Keywords: Clinical teaching; nurse practitioner education; precepting; teaching model; time-efficient teaching.

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Introduction

There are more than 234,000 nurse practitioners (NPs) in the United States (American Association of Nurse Practitioners [AANPs], 2018), and their numbers are on the rise. Research is finding that NPs are assuming care protocols once the domain of physicians and results demonstrate positive outcomes for their patients in both the ambulatory and acute settings (Chattopadhyay, Zangar & White, 2015; Swan, Ferguson, Chang, Larson, & Smaldone, 2015). Despite growth in the numbers of NPs, there is currently a shortage of preceptors and clinical placements for advanced practice nursing students, which decreases colleges' capacity to train NPs. A recent survey showed that 60% of responding NP programs were very concerned over the limited number of clinical sites (American Association of Colleges of Nursing, 2015).

Effective training of future health care providers, such as NPs, includes both didactic training and clinical training. Didactic training is provided through classroom experience and does not include hands-on-care of patients. Clinical training complements the didactic content, allowing students to apply what they learn in the classroom and from the literature to patient care. Preceptors provide support and feedback to students, allowing them to improve their clinical skills and provide safe, competent patient care. Clinical training is a key component of producing quality health care professionals (Fitzgerald, Kantrowitz-Gordon, Katz, & Hirsch, 2012).

There are many incentives and barriers to becoming a preceptor of NP students. Incentives include a positive relationship with an NP program, support of their profession, support from their clinical environment, an opportunity to teach, and receipt of preceptor training (Germano, Schorn, Phillippi, & Schuiling, 2014; Webb, Lopez, & Guarino, 2015). Barriers to mentoring these students include lack of training or preparation, productivity demands, time burden, and lack of support from school programs (Germano et al., 2014; Webb et al., 2015).

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The one-minute preceptor model

Currently, there are no standardized preceptor education requirements or federal support for NP preceptor training (Forsberg, Swartwout, Murphy, Danko, & Delaney, 2015). There are teaching models that structure the way that learning experiences are designed and delivered, and these can be adapted for NP preceptor training (Wilson, 2018). These models shape curriculums, design instructional materials and guide teaching (Joyce, Weil, & Calhoun, 2015), and can be used in in the classroom or clinical setting. One such teaching model is the One-Minute Preceptor (OMP), developed in 1992. It is a clinical teaching model aimed at improving teaching efficacy and efficiency (Neher, Gordon, Meyer, & Stevens, 1992). It provides a five-step structure for clinical education: (a) get a commitment; (b) probe for evidence; (c) teach a general rule; (d) reinforce what was done well; and (e) correct mistakes (Neher & Stevens, 2003).

The first step, getting a commitment, is a prompt for the clinical educator to ask the learner what he or she thinks is happening during a patient encounter. For example, the instructor might ask, "What do you think is the most likely diagnosis for this patient?" The prompt depends on the situation, but it requires the learner to assess the clinical situation. The learner gathers and synthesizes information. If the student struggles with this step, it is a clue to the teacher that the learner lacks didactic or content knowledge or experience in processing clinical information. This step allows the teacher to evaluate the learner and identify strengths and gaps in his or her learning.

The second step, probing for evidence, allows the clinical educator to get a better idea of how the learner came up with his or her assessment. Examples of this step may include, "Why do you think that is the most likely diagnosis?" "How did you decide that barrier is keeping the patient from getting better?" Or, "Did you consider any other diagnoses based on the patient's presentation and exam?" Responses to these prompts allows the educator to evaluate learners' clinical reasoning. Based on this assessment of a learner's process, the teacher is able to tailor his or her instruction to the student's current level of understanding.

The third step in the OMP is to teach a general rule. This is an opportunity for the educator to share his or her expertise. This can include information on a diagnosis such as, "In patients ages of 21–50, the diagnosis you mentioned is more (or less) likely." Another example might be, "Recently in X journal, there was an article that suggested we should carefully evaluate for suicidality prior to prescribing this medication." This should be succinct information so that the teacher does not overwhelm the learner.

The last two steps in the OMP model incorporate feedback. To be effective, feedback should be timely, selective, behavior related, specific, and provide the rationale for the corrective reasoning (Ende, 1983; Hewson & Little, 1998). The fourth step in the OMP model is to reinforce what the learner did well. In this step, the teacher provides positive feedback. For example, "You collected a thorough history of the patient's chief complaint." Or, "Your questions about the patient's family medical history were especially relevant and added to our ability to fully assess the patient's health." The last step in the OMP is to correct mistakes. This step provides corrective feedback such as, "For this patient's chief complaint a full neurological exam is indicated. The reason for this is that we need to evaluate..." Or, "Patients who are overweight or obese have a higher rate of diabetes, thus ordering a lab to check for diabetes would be indicated." These five steps in the clinical teaching model provide succinct guidelines for clinical educators and allow for the development of clinical reasoning.

The OMP was originally developed for training medical residents in ambulatory care (Salerno et al., 2002). Since then, it has been used across health professions in a variety of settings. Although there have been a number of articles on the OMP model, none of them has integrated the literature. Thus, this review aims to integrate the current literature on the OMP, identify relevance and utility for NPs, and highlight potential areas for future research.

Methods

We reviewed the current literature related to the OMP model. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework was used to guide the literature review and inclusion criteria (Moher, Liberati, Tetzlaff, & Altman, 2009). **Figure 1** illustrates the PRISMA process for this systemic review. The literature review, conducted from December 2017 to January 2018, searched for peer-reviewed articles published in English from January 2008 to January 2018. We searched databases including PubMed, CINAHL, and MEDLINE with the following terms: OMP, clinical teaching model, time-efficient clinical teaching, and precepting. MeSH terms included time, teaching, and preceptorship (**Figure 1**).

A total of 599 articles were initially identified. Twelve quantitative articles were included in the final analysis. Twenty nonexperimental articles were excluded from the synthesis, but included in the discussion. After the initial search, when duplicates were excluded, 539 articles remained. An additional six articles from 2001-2008 were included because of their contributions to the synthesis of the literature. We excluded articles describing undergraduate nursing education or alternate clinical teaching models without a discussion of the OMP.

Evidence of quality using GRADE

To assess the quality of the articles reviewed, we analyzed them using the standardized approach of Grading of Recommendations Assessment, Development, and Evaluation system (GRADE) (Balshem et al., 2011). To appropriately assign a grade level, all five aspects, (a) methodology (risk of bias), (b) inconsistency, (c) indirectness, (d) imprecision, and (e) publication bias were evaluated for all 12 articles. GRADE

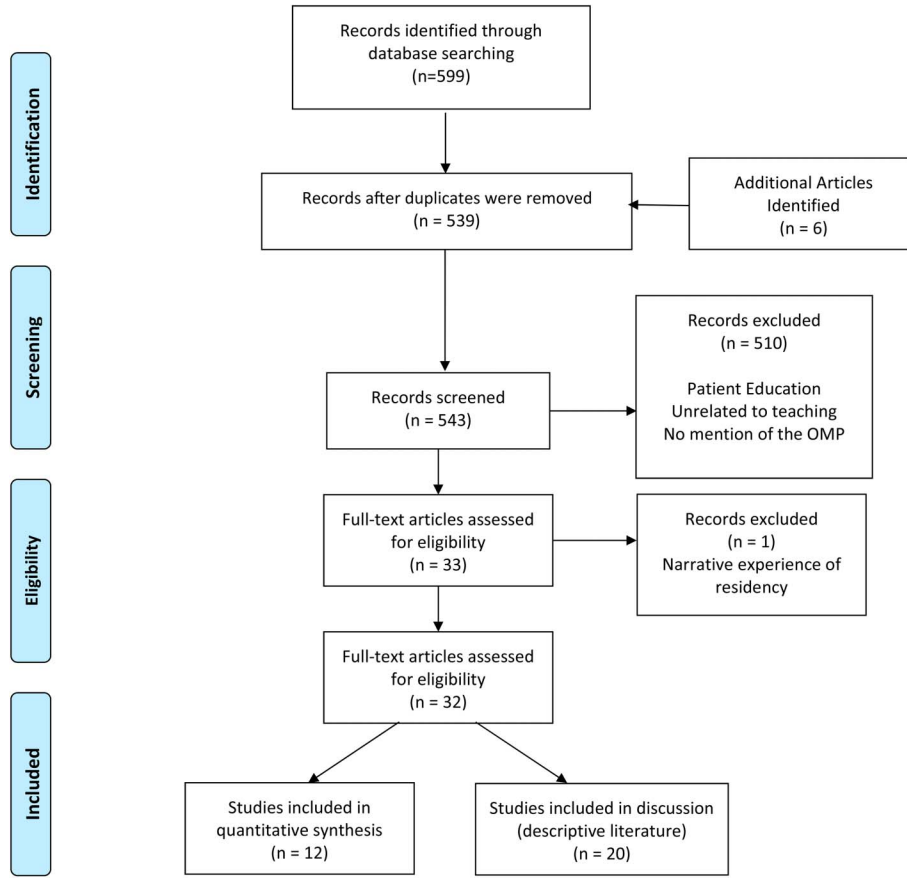

Figure 1. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow diagram.

rates the quality of the body of evidence on a scale from very low to high (Balshem et al., 2011). The overall GRADE level for the studies was moderate. The recommendation for the body of evidence is strong. The benefits of using the OMP model outweigh the risks. Most articles are not randomized controlled trials (RCTs). They are observational, thus grading started at a low level. The rating was upgraded because of the consistency in the body of literature.

Some of the articles we reviewed had methodological concerns. The most consistent concern within the studies was a lack of inclusion and exclusion criteria. Many of these studies used a convenience sample. For example, the study by Arya et al. (2018) included 25 pediatric residents and did not specify how these residents were included or excluded. Similarly, Irby, Aagaard, and Teherani (2004) did not specify any inclusion and exclusion criteria for the faculty who participated in the research. In addition, there is risk of bias or methodological flaw because of the lack of validity of the measurement tool in some of the studies. This occurred with many of the studies including the one conducted by Aagard and Irby (2004), Arya et al. (2018), and Seki et al. (2016). Some studies had missing data because participants did not complete the study. Two studies had unknown interrater reliability and unknown intertrainer reliability, which is concerning for inconsistency in implementation and evaluation. This included the study by Eckstrom, Homer, and Bowen (2006), which could have had intertrainer variation. The second was the study by Chan et al. (2015), which also had unknown interrater reliability. Publication bias was not apparent in any of the articles. Despite these concerns, the overall evidence supports the efficacy, feasibility, and acceptability of the OMP model for preceptors (Irby & Wilkerson, 2008; Kertis, 2007). Because of the consistency of the literature and the minimal risk from introducing the educational model, we make a recommendation to incorporate training clinicians in this model of clinical teaching.

Findings

Table 1 summarizes the 12 studies in the final analysis, providing information on (a) authors, years published, and study designs; (b) characteristics of the setting and sample; (c) results and their implications; and (d) quality of the evidence. The analysis revealed three themes: (a) the OMP model is preferred by students and preceptors; (b) the OMP model increases the use of teaching techniques including feedback and assessment of clinical reasoning; and (c) the

OMP is an effective model for quality clinical teaching for learners (Table 1).

Preferred by students and preceptors

Overall, the OMP model has demonstrated significant improvement in preceptors' teaching skills, as perceived by students and teachers, particularly in teacher feedback on students' performances and assessment of students' clinical reasoning. In four of the articles in this review, students and preceptors expressed a preference for the OMP model over traditional clinical teaching models, calling it an efficient and effective teaching model. In a study by Furney et al. (2001), 87% of residents trained by preceptors using the OMP model said that they found it "useful or very useful." Similarly, Aagard and Irby (2004) surveyed 116 preceptors across multiple universities and found that the OMP model was rated more efficient and effective than traditional teaching methods (p = .00). In a study by Salerno et al. (2002), preceptors believed that the OMP model made learning encounters more successful than traditional teaching methods (p = .03). Aagaard, Teherani, and Irby (2004) supported this finding (p = −0.00). In 2018, Arya and colleagues found that pediatric residents perceived the model to improve the efficiency and effectiveness of the teaching encounter (n = 23, 100%) and requested incorporation of the model into future trainings. In a Delphi Process study by Ignoffo et al. (2017), experienced resident preceptors determined that the OMP model teaches students in a more effective manner (n = 15, 100%) and enables preceptors to spend time more efficiently than traditional clinical teaching (n = 14, 93%).

Although the literature is inconclusive, students preferred the OMP model to traditional teaching models. In 3 of our 12 studies, students preferred the OMP. Two studies found no change in students' perception of the quality of teaching with or without the OMP model. Teherani, O'Sullivan, Aagaard, Morrison, and Irby (2007) found that the OMP model was preferred by third- and fourth-year medical students over a traditional teaching model (p = .001). Students requested the same information from the teachers in the OMP and control teaching models. In a study by Furney et al. (2001), students believed that there was improvement in overall teaching with the OMP model (p < .05). Salerno et al. (2002) found an increase in the amount of time that teachers spent listening to their students after training in the OMP (p < .01). However, Chan et al. (2015) revealed that there was no difference in learning experiences when the OMP model was used in the gross anatomy laboratory. Similarly, Ong et al. (2017) detected no significant change in perception of quality or quantity of clinical teaching in a dental residency in China (p > .05). The rest of the studies did not evaluate the students' perception of the OMP.

Feedback skills

Feedback in clinical education is important because it demonstrates an opportunity and a commitment to improving students' clinical performances (Van de Ridder, Stokking, McGaghie, & ten Cate, 2008). Students also perceive feedback as a key characteristic of a good clinical experience and educator (Kaphagawani & Useh, 2013). Five of the 12 studies in this review found significant improvement in feedback after educators trained in the OMP model. Arya et al. (2018) noticed that pediatric residents believed teachers who followed the OMP model and provided constructive feedback with suggestions for improvement (n = 22, 95.6%). Eckstrom et al. (2006) also showed improvement in feedback. Faculty in psychiatry trained in the OMP model showed statistically significant improvement in giving positive reinforcement (p = .59). Residents also reported improvement, which was not statistically significant, in receipt of positive (p = .12) and corrective feedback (p = .82). Furney et al. (2001) found that residents rated the performance of all five microskills as improved with use of the OMP model. Of the five microskills, feedback improved the most and was statistically significant, including corrective feedback and learner perception of the frequency of feedback (p < .05). Ignoffo et al. (2017) found that the OMP model provides feedback in a timelier manner (n = 15, 100%). Salerno et al. (2002) discovered that feedback for medical students doubled after training in the use of the OMP model, including negative feedback (p = .03). Only the study by Ong et al. (2017) found no change in dental residents' perceptions of receiving positive or corrective feedback (p = 1.0).

Assessing students' clinical reasoning

Traditional teaching models focus on students' history-taking and presentation skills, whereas the OMP model emphasizes teaching and assessing cognitive skills, such as differential diagnosis, management plans, and the presentation of diseases (Irby et al., 2004). Increased focus on cognitive skills supports the key elements of successful precepting, including the development of students' clinical reasoning (McSharry & Lathlean, 2017). Four of the 12 studies found that the OMP model facilitated preceptors' assessment of students' clinical reasoning skills. The study by Irby et al. (2004) demonstrated that the use of the OMP model increased teaching points related to a differential diagnosis, diagnostic tests/evaluations, and presentation of the disease by medical faculty (p < .05) versus use of traditional teaching models. Salerno et al. (2002) demonstrated that teachers were better at evaluating the learners (p = .03) and allowing them to come to a clinical decision (p = .001) after being taught the OMP model. Preceptors in the study by Aagard et al. (2004) had greater confidence in assessing the students' history/physical examination skills, presentations, clinical reasoning and fund of knowledge, and were more confident in rating students' presentations, clinical reasoning, and fund of knowledge (p = .00). In the study by Ignaffo et al. (2017), preceptors believed that the OMP model improved students' critical thinking (n = 12, 80%) and promoted student involvement in decision

Table 1. Summary of the studies included (*n* = 12)

Author(s) (Year)/Design	Setting/Sample	Results/Implications	Quality of Evidence
Aagaard, Teherani, & Irby (2004)/ Wilson-groups experimental design	116 preceptors from University of California, San Francisco, Harvard medical school, University of North Carolina at Chapel Hill, Keck school of medicine, University of Texas medical school at San Antonio, and University of Wisconsin medical school.	• More likely to correctly diagnose the patient if the OMP model was used (92 vs. 76%, p = .02)	Methodological flaws: No inclusion/ exclusion criteria
		• No difference in confidence of rating students' presentation skills	Inconsistency: None
		• OMP was rated more efficient and effective than traditional teaching (p = .00)	Indirectness: None
		• No significant difference between preceptors exposed and not exposed before OMP (F = 8.62, p = .01), except for preceptors exposed to OMP prior rated students' clinical reasoning abilities higher than those with no previous exposure and preceptors with no previous exposure to OMP rated all teaching encounters more highly	Imprecision: Unclear validity of measurement tool
		• Implications: Use of the OMP model is effective in managing patient care and may be more efficient than the traditional clinical teaching model	Publication bias: None
Arya et al. (2018)/Cross-sectional survey	25 pediatric residents (23/25 respondents)	• OMP assess students' background knowledge (n = 18; 78.3%)	Methodological flaws: No inclusion/ exclusion criteria
		• Teaches students key points for future patient care (n = 20; 87.0%)	Inconsistency: None
		• Provides constructive feedback with areas to improve on (n = 22; 95.6%)	Indirectness: None
		• Believed that it involves students in the decision–making process (n = 20; 87%)	Imprecision: Unclear validity of measurement tool
		• All agreed that the OMP improves efficiency and effectiveness of the teaching encounter (n = 23; 100%)	Publication bias: None
		• Wanted OMP training incorporated into the pediatric postgraduate training program (n = 23; 100%)	
		• Implications: Residents believed that the model is efficient and effective in incorporating students's decisions, providing feedback, and teaching key points. All respondents would like training incorporated into their postgraduate program	
Brand et al. (2013)/Cross-sectional survey design	23 family medicine residents and 12 psychiatry residents	• The time residents spent teaching patients significantly differed between family medicine residents (55%) and psychiatry residents (35%) (p < .01)	Methodological flaws: No randomization
		• Half of the family medicine residents (55%) and one-quarter psychiatry residents (35%) correctly identified the five steps of the OMP	Inconsistency: None
		• Family medicine residents reported overall greater confidence in their knowledge, skills, attitudes, and values related to teaching	Indirectness: None
		• Statistical significant difference between knowledge of teaching between psychiatry and family medicine residents, medical students (p = .03), and patients (p = .02)	Imprecision: None

(*continued*)

Table 1. Summary of the studies included (*n* = 12), *continued*

Author(s) (Year)/Design	Setting/Sample	Results/Implications	Quality of Evidence
		• Family medicine residents self-assessed their teaching skills as higher (82.4%) than psychiatry residents (54.2%)	Publication bias: None
		• Family medicine residents state that they could apply two different teaching methods in inpatient and outpatient settings as compared to psychiatry residents (p = .01)	
		• Implications: Residents' knowledge, skills, attitudes, and values regarding teaching varies across disciplines; lack of knowledge of OMP of residents with greater deficiency among psychiatry residents	
Chan et al. (2015)/Serial cross-sectional study	Novice gross anatomy teachers and second-year medical students	• No difference in the learning experience pre- versus post-OMP	Methodological flaws: No blinding
		• 80% equal or better post-OMP: "The teaching interaction stimulated me to think more," "the teachers were able to understand my level of anatomy knowledge and teach me accordingly," "the teachers evaluated my knowledge of anatomical facts and my analytical skills" and "the teachers gave me positive feedback on things I did correctly."	Inconsistency: Unknown interrater reliability among observers
		• Teachers had observed increased use of the OMP posttraining	Indirectness: None
		• Implication: Teachers used OMP in gross anatomy laboratory and students did not feel the experience was worse	Imprecision: None
			Publication bias: None
Eckstrom et al. (2006)/Quasi-experimental: Controlled pre–post study design	All ambulatory preceptors in internal medicine resident continuity clinics at 2 training programs (included university hospital, veteran's affairs hospital, and 2 community clinic training sites; and residents from all continuity clinics also completed evaluations of their preceptors (study faculty)	• Faculty receiving training showed improvement in all 5 microskills, but 3 were statistically significant: Get a commitment (p = .0004); probe for supporting evidence (p = .0017); and give positive reinforcement (p = 0.0343)	Methodological flaws: No inclusion/exclusion criteria; lack of blinding
		• Residents reported improvement of 4/5 microskills, but none reached statistical significance. Residents rating of the control faculty declined over the study period	Inconsistency: Unknown if within-group variation dependent on trainer (not all workshops offered at the same time)
		• Implications: Faculty incorporated 5 microskills of the OMP into their teaching practice. Residents perceived increase in behaviors as well, although results were not significant	Indirectness: None
			Imprecision: None
			Publication bias: None noted
Furney et al. (2001)/RCT	Internal medicine residents at University of Michigan and Ann Arbor Veterans Administration Medical Center	• Resident self-report: All domains (commit, probe, feedback, overall) were statistically significant (p < .01), except teaching general rules	Methodological flaws: Lack of blinding
		• Student ratings: Significant improvement in the following: commitment (involve in decision making; 0.37, p < .05); probe (evaluated my knowledge; 0.33, p < .05); feedback (offers suggestions for improvement 0.66, p < .05; gave feedback frequently 0.80, p < .05); overall (motivate you to do reading, 0.35, p < .05)	Inconsistency: None

(*continued*)

Table 1. Summary of the studies included (*n* = 12), *continued*

Author(s) (Year)/Design	Setting/Sample	Results/Implications	Quality of Evidence
		• Resident satisfaction: 87% of intervention group rated it as "useful or very useful"	Indirectness: None
		• Implications: 1 hr. Intervention using OMP improved teaching skills of residents	Imprecision: None
			Publication bias: None
Ignoffo et al. (2017)/Delphi process (serial cross-sectional design)	36 advanced pharmacy practice experience and resident preceptors (10 or more years of experience) throughout California	• Agreement that orientation to students should provide information of expectations, grading, and conduct (15/15); learning objectives for all students (15/15); residents should have protected time for teaching (14/15); formal training program for residents precepting (13/15); more preclinical training of students in writing SOAP notes (13/15); and students should view technical skill videos as needed (13/15)	Methodological flaws: Unclear recruitment methods, possible bias
		• Activities residents can perform: Participating in case presentations, rounding with students, didactic discussions, teaching critical thinking (15/15); assisting with orientation, helping students with projects, helping the preceptor with assessments, and providing feedback (14/15)	Inconsistency: None
		• Barriers to precepting: conflicts between school and site (14/15); no compensation (13/15); other health care professionals' lack of exposure to clinical pharmacy (13/15); low students' skill levels (12/15); productivity expectations (7/14); lack of time to teach (6/15)	Indirectness: None
		• Strategies for teaching critical thinking: Assign reading material and have students report back a synopsis (15/15); allow the student to think "offline" and resume conversation later (15/15); ask students to speak up when they do not understand so they are not left behind (13/15); cite examples of cases that include critical thinking questions (13/15)	Imprecision: 15/36 (42% response rate), no comment on power
		• Time spent (min) with students (acute care 9/15; ambulatory care 6/15): new case—acute 10, ambulatory 10; evaluating clinical performance—acute 22, ambulatory 25; discussing professional/personal goals—acute 30, ambulatory 17.5	Publication bias: None
		• OMP model characteristic (strongly agree or agree): provides feedback in a timelier manner (15/15); teaches student in a more effective manner (15/15); promotes student involvement in decision making (15/15); allows preceptor to spend time more efficiently (14/15); improves students' critical thinking (12/15)	
		• Implications: Consensus that students should receive orientation, residents can participate in training pharmacy students, all preceptors should receive training with CME, and OMP model should be taught at the preceptor training	

(*continued*)

Table 1. Summary of the studies included (*n* = 12), *continued*

Author(s) (Year)/Design	Setting/Sample	Results/Implications	Quality of Evidence
Irby et al. (2004)/Within-groups experimental design	116 medical doctors from a faculty development fellowship program from University of California, San Francisco, Harvard Medical School, University of North Carolina, Chapel Hill school of Medicine, Keck School of medicine at the University of Southern California, and University of Texas Medical School at Sa Antonio. Specialties included: Family medicine, internal medicine, pediatrics, and a few fellows and preceptors	• 843 teaching points identified, 63 discrete teaching points, which were then aggregated into 15 categories	Methodological flaws: lack of inclusion/exclusion criteria; no controlling for possible previous exposure of the OMP model
		• Variation in how often a teaching point was noted (10,233 times)	Inconsistency: None
		• Most teaching points were in the top 7 categories (*n*-766; 91%)	Indirectness: None
		• There was statistically significant variation in some teaching points based on the method used ($p < .05$). These included the following: Traditional model had an increase in teaching points r/t, history-taking skills, presentation skills, and risk factors.	Imprecision: None
		• OMP model had an increase in teaching points r/t differential diagnosis, diagnostic tests/evaluations, and presentation of the disease	Publication bias: None
		• Implications: Teachers vary their learning points based on what model of clinical teaching they use (OMP vs. traditional). Use of OMP results in higher level skills on the cognition scale versus the traditional precepting model	
Ong et al. (2017)/Within-group pre–post design	First- and second-year dental residents in a specialty program. Clinical faculty from oral and maxillofacial surgery; orthodontics; and endodontics, periodontics, and prosthodontics	• Residents' perceptions: quantity of clinical teaching did not differ ($p = 0.480$); no change in getting a commitment ($p = 0.739$); no change in probing for evidence ($p = 1.0$); significant increase in teaching general rules ($p = .035$); reinforcing what was right increased but was not statistically significant ($p = .100$); no change in correcting mistakes ($p = 1.0$) quality of teaching did not differ significantly ($p = .134$)	Methodological flaws: failure to control for prior use and training in OMP
		• Implications: One-time training on the OMP did not increase perception of quality or quantity of clinical teaching	Inconsistency: None
			Indirectness: Intervention was on faculty, but no measurement of their use of intervention
			Imprecision: None
			Publication bias: None
Salerno et al. (2002)/mixed-methods study	9 board-certified internal medicine faculty and 44 third-year medical students in an outpatient internal medicine clinic	• Teachers: Increase in perception of teachers listening after faculty workshop ($p < .01$); there was an increase in summative statements, although not significant ($p = .08$).	Methodological flaws: Possible exposure bias; no inclusion/exclusion criteria
		• There was an increase in medical facts ($p = .01$) and a minor increase in open-ended questions ($p < .01$).	Inconsistency: None
		• Use of microskills from the one-minute preceptor increased ($p = .03$).	Indirectness: None
		• Significant increase in reinforcing correct behavior ($p = .02$).	Imprecision: None

(*continued*)

Table 1. Summary of the studies included (*n* = 12), *continued*

Author(s) (Year)/Design	Setting/Sample	Results/Implications	Quality of Evidence
		• Feedback doubled after the intervention (p = .03), including negative feedback. • Students: Decrease in citing patient data (p = .03) and increase in citing medical facts (p = .02). Summative statements did not change. High baseline agreement that learning climate, time management, opportunity for evaluation, bedside teaching, feedback, and postencounter learning plans were appropriate. These did not change. • Patients: There was baseline high levels of satisfaction, and there was no change after the intervention. • Implications: The faculty workshop successfully increased the use of the OMP and feedback. There was no change in patient satisfaction.	Publication bias: None
Seki et al. (2016)/Randomized comparative study	71 junior clinical residents employed in 2 hospitals. Randomly allocated to two groups, one using SNAPPS and the other the OMP	• Measured the contents of residents' case presentations and discussions and their evaluations of the method of instruction • Residents believed that SNAPPS was significantly easier to express questions and uncertainties (p = .046), present the case (p = .002), and present the case in a sequence (p = .005) • Implications: The SNAPPS model aids residents in case presentations. The OMP and SNAPPS model have separate uses in resident education.	Methodological flaw: No randomization of sample; all residents were selected to participate Inconsistency: None Indirectness: None Imprecision: Evaluation tool modified from previous study, but not clearly validated Publication bias: None
Teherani et al. (2007)/Within-group experimental design	164 third- and fourth-year medical students at 2 medical schools, University of California, Irvine (55%) and University of California, San Francisco (45%)	• Repeated analysis of covariance: Significant effect of the precepting model (F = 20.77, df = 153, p = .001) • Students preferred OMP • Teaching points requested were similar (no significant difference)—diagnostic tests; therapy; and presentation of the disease • Implications: Students are seeking the same information across clinical experiences but prefer the OMP model over the traditional teaching model	Methodological flaws: Lack of eligibility criteria Inconsistency: None Indirectness: Did not provide statistical analysis of each measurement Imprecision: None Publication bias: None

Note: CME, continuing medical education; OMP = one-minute preceptor; RCT = randomized controlled trial; SNAPPS = Summarize, Narrow the differential, Analyze the differential, Probe the preceptor, Plan management, and Select a case-related self-directed learning topic; SOAP = Subjective, Objective, Assessment, Plan.

making (n = 15, 100%). Arya et al. (2018) also found that the OMP model involves the student in clinical reasoning and the decision-making process (n = 20, 87%).

Overall effectiveness of the OMP model

The OMP model has been evaluated for effectiveness and quality of clinical teaching, as well as incorporation of the five microskills into practice, and sustainability of these skills over time. Seven of the 12 studies noted the utilization and effectiveness of the OMP model. One study by Ong et al. (2017) found no change in the use of the five microskills among dental residents' perceptions. Salerno et al. (2002) demonstrated that training faculty in the OMP model leads to incorporation of the microskills in practice (p = .03). The study by Eckstrom et al. (2006) also demonstrated use of the microskills as perceived by faculty and residents. Faculty improved in all five microskills, with three statistically significant improvements: get a commitment (p = .0004), probe for supporting evidence (p = .0017), and give positive reinforcement (p = .0343). The study by Aagaard, Teherani, & Irby (2004) showed that using the OMP model improved a preceptor's ability to diagnose a patient (through a student's presentation) (p = .02). Arya et al. (2018) agreed that the OMP model improves efficiency and effectiveness of the teaching encounter (n = 23, 100%). Furney et al. (2001) found that 87% of the intervention group rated it as "useful or very useful." Ignoffo et al. (2017) found that all respondents believed that the OMP model should be taught at preceptor trainings (n = 15, 100%). Teherani et al. (2007) found a significant effect for use of the OMP model (p = .001). In the study by Ong et al. (2017), there was no change in clinical teaching (p = .480), and they concluded that the one-time training did not affect the use of the five microskills.

Discussion

Although originally designed for the ambulatory care setting, the OMP model has been used in various settings across health professions. In this review, nine of the 12 quantitative studies were in medicine. The study by Chan et al. (2015) took place in a gross anatomy laboratory with medical students. Despite the wide uptake of the OMP model in medicine, Brand et al. (2013) found that there is variation within specialties. They evaluated current knowledge and use of the OMP model and teaching and found that family medicine residents were more familiar with the five microskills than psychiatry residents (55% vs. 25%), although the difference was not statistically significant. However, confidence in applying the model to teaching methods was significant, with family residents more confident than psychiatry residents (p < .01). Ignaffo et al. (2017) conducted their study with pharmacy preceptors and found that experienced preceptors believed that the OMP model should be taught in pharmacy preceptor trainings (n = 15, 100%).

In addition to the studies included in this integrative review, it is worth discussing the other 20 descriptive articles found in the literature, which were non-experimental in nature.

Most studies describe the use of the OMP model in various health profession specialties. They did not measure or evaluate implementation of the OMP model within their specialties. Articles reviewing and applying the OMP model were found in the literature in ambulatory care, adolescent gynecology, midwifery, psychiatry, the anatomy laboratory, and the emergency department (Farrell, Hopson, Wolff, Hemphill, & Santen, 2016; Lockspeiser & Kaul, 2015; Raisler, O'Grady, & Lori, 2003; Tsao, 2010). These articles were largely descriptive in nature, suggesting the use of the OMP model as a tool for precepting or ways to adapt the model for various settings (Cayley, 2001; Chan & Wiseman, 2011; Pascoe et al., 2015; Rashid et al., 2017; Sokol, 2017; Zeidman et al., 2015). Despite this large amount of literature, there are few quantitative studies evaluating the use of the model across health professions. The recent study by Ong et al. (2017) in dental surgery, which showed little impact, suggests that this research can add to our understanding of the OMP model across professions. Similarly, there is a lack of research on use of the OMP model in nursing and advanced practice nursing.

Despite this lack of research, the OMP is recommended as a tool for undergraduate nurse preceptors (Bott, Mohide, & Lawlor, 2011; Kowalski, 2017). One recent article by Kowalski (2017) describes the possible use of the OMP model for nurse preceptors. In particular, the article suggests that new graduates, newly hired nurses, and nurses transitioning to new specialties benefit from well-prepared preceptors and that the OMP model is a tool that all of these professions can use. Bott et al. (2011) also suggested use of the OMP model in undergraduate nursing preceptorship. These studies are limited in their generalizability to nurse practitioners because of the different models of precepting and scope of practice between nurses and nurse practitioners. Although nurses hold different roles in hospital and clinic settings, a nurse practitioner's role is similar to that of a medical doctor in many settings. NPs now practice in many of the areas in which the OMP model is used, including ambulatory and in patient settings (Chattopadhyay, Zangaro, & White, 2015; Swan et al., 2015). The OMP model was designed for use in primary care where more than 87% of NPs practice (AANP, 2018). Thus, the OMP model is a relevant teaching model for the NP preceptor. Yet, the gap in research specific to the field of nursing highlights the need for future research.

Future research can evaluate the use of the OMP model specific to NP preceptors and NP students. Although there are many documented barriers to precepting (Roberts, Wheeler, Tyler, & Padden, 2017; Webb et al., 2015), no research has analyzed whether the OMP model actually overcomes any of these barriers. Future research might examine whether the OMP model decreases preceptors' perceived time burden of clinical teaching or meets the

perceived need for training. In addition, much of the research is limited to clinicians or faculty who have jobs that include expectations of clinical teaching. Many nursing schools rely on volunteer faculty for their preceptors. Evaluation of the perception of community clinicians who volunteer to teach will further support or identify areas for change in the OMP model. Use of the model in interprofessional clinical precepting environments also warrants a closer look. As we face a shortage of health professionals, clinicians frequently find themselves teaching in other professions (i.e., MDs teaching NP students or NPs teaching medical students). Is the OMP model effective for preceptors teaching across professions? Using RCT research designs will optimize the impact of future research studies further supporting use of the OMP across settings and health professions, including nurse practitioners.

Conclusions

Current evidence supports the value of the OMP as an effective model of clinical teaching that students appreciate. It improves training through assessments of clinical reasoning, feedback, and corrective support. Although research is limited mostly to other health professions, it is practical to suggest adoption of this teaching model as a tool for NP preceptors. Further research to evaluate the effectiveness of the OMP model in NP education is warranted.

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