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Royal College of Nursing

RCN Mentorship Project 2015

From Today's Support in Practice to Tomorrow's Vision for Excellence

Nurse mentoring

Rapid evidence review

A report for the Royal College of Nursing

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Nursing and similar public service professions bear the responsibility of assuring the competence of a large workforce to protect public safety. To meet this need, different countries and professions show organised (yet diverse) approaches to student mentoring, particularly at the time of professional registration. To draw on this evidence base, the Royal College of Nursing commissioned a rapid review of mentoring models for pre-registration student nurses outside the UK, and models used at similar career stages in other professions. Our rapid review approach found models and interventions in mentoring from organisations' websites and published research across nursing, other health professions, teaching, social work, law, engineering, police and other professions. Our pragmatic approach extracted key themes and evidence of impact from the nursing and non-nursing literature. Results are presented in separate sections for 1) the identification and descriptions of models of mentoring, and 2) the evaluation of outcomes and impact of models, as requested by the College.

Results

Across all professions, we found few studies explicitly on named mentoring models, with most being brief descriptions of what was being done in practice rather than formal models or frameworks. The best described system-level named models of nurse mentoring identified in the literature that are used internationally are:

- *Real Life Learning Wards* (Amsterdam model).[1] This is already being piloted in the UK (with some modification) as Collaborative Learning in Practice.[2] Both models use team based mentoring and learning, early student responsibility for patient care, and strategic support between education and practice organisations.
- *Dedicated Education Units* in USA[3, 4] and Australia[5]. This model is similar to the previous model in its involvement of the team and strong ties with higher education organisations, it also has a focus on creating a positive learning environment for students, with staff nurses acting as mentors.
- *Clinical Facilitation* models in Australia[5, 6], where the facilitator carries out assessments and possibly group supervision but the students are usually 'buddied' or supervised by a registered nurse.

All these models differ from UK 1:1 mentoring practice in having increased ratios of students to mentor, offering tiers of mentorship (e.g. through associate mentors or peer mentoring) and by different intensities of mentoring input.

Several studies reported that the organisational context and quality of individual relationships had more impact on positive outcomes than the type of mentorship model used.[7] In relation to organisations, stronger coordination between education and practice agencies, strategic sponsorship of mentoring programmes and secure funding for mentorship are common recommendations identified in health, social care and education research in developed countries around the world. A conducive organisational context could therefore be effective in supporting individual mentoring relationships.[8]

Apart from named models, a range of approaches and tools are also being used in different ways in nursing. We included these in case they could inform components of mentoring models. Examples include various peer learning approaches, different arrangements of student to mentor ratios, and tiered systems (involving students from different levels). In the medical profession, a range of peer or

near-peer approaches are being used including shadowing and formal mentoring from experienced specialists. In teacher education, a small pilot study in Scotland showed success with using paired placements. There were some potentially useful approaches in business; for example a study in the luxury hotel business involved online selection of mentors using weighted preference criteria.[9]

Most literature identified came from USA, UK, Australia, Canada, pan-European studies, and individual countries in Europe. Among developed country national regulators and professional bodies, the UK appears to have the most detailed, prescriptive policy and guidance documents on student nurse mentoring. In research-based descriptions of practice, theoretical bases for mentoring approaches were rarely explained and there was little assessment of impact, apart from experiences of and self-evaluation by participants in mentoring. There were several well designed systematic reviews, but the findings were limited by the low standard and heterogeneity of the research they identified. These research limitations have been noted by other reviewers. This rapid review was inevitably selective in drawing on literature on such a broad topic.

Conclusions and implications

- Overall, the most promising system-level options are more peer / team based mentoring, supported by one-to-many Clinical Facilitators, within a supportive organisation, as illustrated by the following models:
  - Real Life Learning Wards (Amsterdam model)
  - Dedicated Education Unit
  - Clinical Facilitation
- Peer mentoring (including 'tiered' mentoring, where senior students mentor junior students) has shown positive learning outcomes and can improve service outcomes such as staff retention. Peer mentoring alone, however, is not sufficient, and qualified, experienced mentors remain crucial.
- In all three named student nurse mentoring models covered here, qualified mentors were used in a one-to-many supportive role. University lecturers were not seen as suitable qualified mentors, because of cost and risk of a lack of up-to-date clinical experience. Rather, Clinical Facilitators with relevant clinical experience and protected time were favoured by students.
- Finally, a conducive organisation context was found to be just as important as individual mentoring relationships. Organisations should support mentoring by developing strong partnerships between education and the service provider, and embedding support for mentoring policy.
- As the success of mentoring approaches is likely to be context-specific it will be important to evaluate potential novel components within the existing mentoring model to ensure they are successful.

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Introduction

Context

In the UK, nurse mentorship refers specifically to supporting learning and assessment of students undertaking a Nursing and Midwifery Council (NMC) approved programme leading to registration or a qualification. The NMC currently lays out prescriptive standards for nursing, health visitor and midwifery mentorship.[10] The approach to mentoring is currently being reviewed by the NMC. Several literature reviews have already examined nursing mentorship, for example reviews to inform the Willis Commission,[11-14] and the National Nursing Research Unit review of resources and skills required for the delivery of mentorship to happen.[7] However, literature and initiatives in other professions have not been examined before in order to inform student nurse mentoring.

This review's purpose is to inform and contribute to an RCN review on the future of nurse mentorship, in the light of extensive change in NHS organisation, leadership, and funding, and in higher education. Other strands of work within the project include a series of workshops around the UK (contributors include a range of nursing stakeholders such as nurse mentors, students, higher education institutions, care home staff and other non-NHS nurses such as Macmillan nurses) and interviews with leaders from the nursing profession. These strands will be synthesised by the RCN into a report to propose a paradigm for nurse mentoring for consideration by the governance body.

Review questions and scope

The rapid review questions are:

What mentoring models exist for nurses in countries other than the UK and for non-nursing professions (focusing on the UK), and what has been the impact of these models?

The review's objectives were to:

- Identify mentoring models used in nursing outside of the UK and in non-nursing professions, and any assessments of their impact
- Summarise the models' characteristics and outcomes
- Create a framework within which the models' key features, similarities and differences can be conceptualised
- Summarise the overall findings, focusing on the models of greatest applicability to nursing, and also key differences in the models from the existing UK nurse mentoring model, to provide insight into possible alternative approaches

There are various definitions of mentoring, depending on the context. The NMC defines a mentor as 'a registered nurse or midwife who, following successful completion of an approved preparation programme, is eligible to supervise and assess students in a practice setting'.[10]
For this review, we considered mentoring to mean a less experienced person being supported in practice education towards occupational registration. We aimed to identify models which met this definition, regardless of whether 'mentoring' is the terminology used to describe them (e.g. pupillage in law).

Inclusion and exclusion criteria

We included descriptions and evaluations of mentoring at (or applicable to) the systems level. Our target fields were nursing outside of the UK and other professions in the UK. We were also interested

in approaches and tools which could form part of a model. Examples include using a weighted measure to help choose a mentor online, working with legacy mentors, or using a community of practice.

We excluded nurse preceptorship, where this referred to *post-registration* support, as in the UK. We also excluded small scale studies, opinion pieces and evaluations using qualitative findings only. We applied limits of English language only, published since 2004, and relating to OECD countries only.

Methods

We used a rapid review methodology,[15] including extensive grey literature searching as is appropriate for a cross-disciplinary topic in the social sciences.[16] We also used iterative searching, within the constraint of time available for the rapid review. In accordance with rapid review methodology, we prioritised attention on the most productive aspects of the literature, i.e. studies published most recently from 2004 to February 2015, available in English, drawing mainly on abstracts and freely available full text (50% of review citations). Rapid reviews cannot be as comprehensive as full systematic reviews, but have the advantage of being informative within in a much shorter timescale.

Search approach

The overall search drew on a broad range of complementary approaches and sources. Techniques included: searching key websites such as for professional bodies, journal publishers' websites, bibliographic databases such as Medline, web sources such as Google scholar; and selective reference harvesting from key publications. Sources included websites of government agencies, professional bodies, and academic institutions and researchers. This approach is appropriate for scoping a cross-disciplinary topic in health and social sciences where grey literature makes up a high proportion of relevant material.[16] See Appendix A for more details of the scope, and Appendix B for more details of the search strategy.

The included pieces of evidence consisted of 41 literature reviews (about half of which were systematic reviews), 83 descriptions of mentoring approaches, mentoring theory background papers, and 22 items of policy background. In professions outside of nursing, the majority of literature reviews found were in the field of healthcare, with very small numbers on social work, teaching, business, engineering, and mentoring in general. There was a review of law pupillage, but this was a consensus/working group policy review rather than a literature review.

Sifting

The records were sifted for relevance as follows:
- A first sift to exclude records which were not relevant at all, published before 2004 or not in English
- A second sift for records within scope, based on abstract and full text (if freely available)

We excluded the following topics and types of references, as being less relevant to mentoring in the context of student nursing:
- Academic / research mentoring, and mentoring to increase published research outputs
- Business mentoring studies which do not relate to large companies / corporations

- Career mentoring, including school student mentoring or mentoring of senior staff
- 'Faculty mentorship' (e.g. mentoring for nursing tutors)
- Studies which are primarily qualitative research (e.g. on experiences of mentoring)
- Small scale (less than 50 participants) / localised studies of mentoring (e.g. one small hospital)
- Studies where no abstract could be found

Sifting criteria refinements

We sifted records for potential inclusion based on the review scope shown in Appendix A. The review was not intended to cover student nurse mentoring interventions already in use in the UK. However, we assessed relevance of records of UK nursing mentor interventions on an individual basis, because we found evidence reviews with UK-based authors (having potential to cover other countries), studies where other countries as well as the UK were the focus of the study, or where a UK policy paper provided important context. In addition, several studies concerning mentoring in professions outside the UK were included based on relevance.

Analysis

The search generated a large volume of literature, including many descriptions of relatively small scale mentoring interventions at single centres and at the pilot stage. The main focus of the review was system-level models applicable to mentoring at the pre-registration stage in the nursing field and career-stage equivalents for other professions. However three types of other material were found as well, which had potential for informing components of future mentoring models or adaptation of models:

- Descriptions and evaluations of activities or approaches in student nurse mentoring, such as peer mentoring
- Descriptions and evaluations of activities or approaches in other professions, such as e-mentoring
- Research on activities closely related to mentoring, such as clinical supervision, exam remediation and student retention via support for students

Most of the information identified from professions outside of nursing was not clearly applicable to the nursing profession in the UK, and therefore is not described in detail.

We summarised the key information identified by:
- Describing named system-level models identified in the nursing profession outside of the UK
- Describing mentoring approaches in the literature which could inform model components (e.g. ratio of mentors to students).
  For studies which could inform individual components, we grouped our findings and recommendations by emergent themes:
  1. Types of mentor, their skills and qualifications
  2. Mentor / student allocation
  3. Relationship between mentoring partners
  4. How the mentoring is delivered
  5. Organisational context and resourcing of mentorship

- Grouping the literature identified by profession covered, and approaches or components of the mentoring described into a 'landscape map' (see Appendix C, Table 6).

For the assessment of outcomes of mentoring, we identified studies describing the outcomes and impact of three named mentoring models in student nursing. We compared these to UK practice and drew implications from the findings. To present the characteristics of models, we devised a framework based on model components as identified in the literature, e.g. ratio of students to mentor, (see Table 1), while model outcomes are presented in Table 2.

From other professions, we selected and tabulated several case studies on the basis of their potential value for UK nursing (see Appendix C, Table 7 and Table 8). These approaches are not systems level mentoring models, rather approaches to individual components. They are not described further except to draw on the most relevant outcomes in the Results section Themes in the literature.

Mentoring models

In this section we describe:
- Characteristics of named mentoring models identified in nursing and non-nursing professions
- Evidence on the outcomes of the named mentoring models
- Comparison between UK and non-UK nurse mentoring models, and implications of this

Characteristics of named mentoring models

We identified descriptions of three named student nurse mentoring models in use at the system level outside of the UK where some information about their essential components was provided:
- Real Life Learning Wards ('Amsterdam model') in the Netherlands[1, 2]
- Dedicated Education Units in Australia[17, 18] and the USA[3, 4]
- Clinical Facilitation model in Australia[5, 6]

The models' key components are summarised in Table 1. The models are also described in more detail below and contrasted with the existing UK model. The source articles were largely secondary descriptions of examples of the models in practice rather than primary descriptions of the development of the original model or the national mentoring scheme. Therefore not all aspects of the models were clearly described and these models may not be applied in a standard fashion within countries. In addition, the same model was often adapted when applied across different countries. The outcomes of these models are presented in the following section.

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Table 1. Framework summarising components of key models identified (Key: NR Not reported, RN Registered nurse)

Model	Real Life Learning Ward	Dedicated Education Unit	Clinical Facilitation	UK practice
Person being mentored	Students in all years	Students in all years	First and second year students	Students in all years
Match to mentor specialty	Yes (implicit)	NR	Not required	Yes
Primary mentor	RN	RN (staff nurses)	Clinical facilitator (RN or HEI nursing lecturer)	RNs
Formal sign-off mentor?	NR	NR	NR	Yes (RN in same specialty)
Secondary/informal mentors	Senior nursing students	Senior nursing students	RN (ward nurse) 'buddies'	None specified
Mentor's qualifications and skills	No specific qualifications needed	Workshop training, mentors linked to HEI	Clinical Facilitators: brief 'Buddies' not specially trained	Mentors are qualified, undergo CPD and triennial assessment
Mentor supported by	Clinical Nurse Educator	Academic Facilitator (from HEI)	NR	Practice Educators (graduates with teaching qualifications)
Mentor function	Training and assessment	Training and assessment	Training and assessment	Training and assessment
Mentor's dedicated time for mentoring	100%	Mentor workload 'adjusted'	Clinical Facilitator: 100% 'Buddies': NR	Mentor: 0% Practice Educator: NR
Mentor : student ratio	Mentor: 1:4 Clinical nurse educator: 1 per 2 to 4 wards	1:1 or 1:2	Clinical Facilitator: 1:6 or 1:8 'Buddies': NR (possibly 1:1)	Mentor: 1:1 or 1:2 Practice Educator: 1:30 to 1:50
Mode of delivery of mentoring (group or individual sessions)	Group / team	'Supportive village' model – student centred unit	Group	1:1 (some variation in interpretation, up to 1:3)[19]
Clinical placement duration	NR	6 week rotation	10 days – 7 weeks	Longer term clinical placement
Duration and frequency of mentoring	Every shift (different mentors)	NR (likely to be every shift, can be same or different mentors)	NR (implied intensive during rotation, single facilitator)	40% of student time (depends on mentor availability) 1 h/week with sign-off mentor
Quality assurance of the mentoring process	NR (team feedback to mentor)	NR	Placement is not audited	Mentor formally trained and assessed, but not outcomes
Source of information	Secondary[1, 2]	Primary[17, 18] and secondary[3]	Secondary[5]	Primary (NMC standards)[10, 19-21]

Model 1: Real Life Learning Wards (Amsterdam model)

This model was developed in 2011 at the VU Medical Centre in Amsterdam.[1]

Key features:

- Student early involvement in patient care on wards
- Collaborative learning - the whole team facilitates learning on the job as part of nursing and medical training
- 18-20 nursing students placed per ward
- Every registered nurse acts as a coach (called a 'day coach') for up to 4 students each per shift
- Coaches are supported by a Clinical Nurse Educator, each covering 2-4 wards
- Each shift involves planning learning, assessment during and at the end of the shift
- The wider team (exact members not specified in the literature) meet each day to discuss process improvements
- Emphasis on team learning, including between students in different years (tiered learning)

The model is being adapted and piloted in East Anglia as Collaborative Learning in Practice.[2]
Compared with VU Medical Centre, there are some differences in how the model is being applied:

- **Support / coordinating staff:**
  - A Clinical Educator with links with higher education institutions (HEIs) supports day coaches, sign off mentors and students, as well as supporting assessment
  - A Link Lecturer works with clinical educators in supporting day coaches by: organising on-site training in coaching skills, attending student case study presentations, and leading by example in coaching skills
  - The Sign-off mentor acts as an adjunct and draws information from day coaches in order to assess students
- **Student tiers:** Students are from one year (tier) only

Model 2: Dedicated Education Unit

This model originated in Australia in 1999,[17, 18] and its use has more recently been described in hospitals in the USA[3,22].

Key features:

- Organisational partnership between health service managers, qualified nursing staff and HEIs[4, 23, 24]
- A positive learning environment for students during their clinical rotations (described as a 'supportive village' model of instruction) aims to transfer class learning to practice and to assess students' achievement
- Staff nurses receive preparation through workshops to act as clinical instructors for students on their shifts
- Clinical instructors are supported by HEI educators, including an Academic Facilitator who also has direct contact with the students but less frequently
- There is tiered peer teaching between students in different years

Compared to the original Australian implementation,[17, 18] differences in the model's components reported in one USA study[3], include:

- **Support / coordinating staff**: Greater university staff presence and partnership in the unit, including a Clinical Faculty Coordinator, who supports the clinical instructors with more frequent input than the Australian Academic Facilitator, but does not have direct contact with the students.
- **Student / mentor allocation**: Students are allocated to the same clinical instructor for the block rotation, rather than having different instructors on each shift
- **Student tiers**: Students are all at the same year/level

Model 3: Clinical Facilitation

This model is described as being in use in Australia[5, 6] although it is not clear to what extent this and the Dedicated Education Unit approach are used across the country.

Key features:
- Short clinical placements (10 days to 7 weeks) for first and second year students
- Third year students are more likely to use a 1:1 model of mentoring, similar to UK practice
- Placements supplemented by extensive use of skills laboratories (e.g. practice on patient mannequins and in using clinical equipment, and learning through computer simulation)
- A Clinical Facilitator provides structured, dedicated support at the placement to a group of students
- 6 or more students supervised and assessed by the facilitator, a nurse at the placement.
- The facilitator's preparation is brief (a 2 day workshop) and the placement discipline may be outside their own field of practice
- Two tier system of mentoring, where each student may also be also 'buddied' or 'preceptored' by a registered ward nurse (associate mentor)

There is commonly variation in one component:
- **Nature of the mentor**: Clinical Facilitators are either nurses employed by the HEI as sessional facilitators, receiving only short preparation, or Academic Facilitators i.e. HEI lecturers

Other named mentoring models in nursing and non-nursing professions

A number of other named mentoring models were mentioned in the literature, but with little or no description of their components, therefore these were not focused on in this report.

For example, within nursing, several USA studies mentioned the following named models:
- KATTS and ARMS used to support students to pass National Council Licensure Examinations (NCLEX)[25, 26]
- Caring mentorship[27]
- Synergy model[28]

Three named models were identified from non-nursing professions (see Table 9):
- Proctor's model of clinical supervision (allied health professionals, Australia)[29]
- Tiered models (medical students, USA[30] and public service management, USA[31]) – not described in depth here as there were more applicable tiered approaches used in nursing[32-40]
- ADDIE (analysis, design, development, implementation, evaluation) instructional systems design model, in 17 large USA businesses[41]

Formal / informal mentoring was covered in the literature (literature review in business[42], guidance documents for US public sector management,[43] and for trainee surgeons in UK[44]) but this is not a specific named model.

Again there was little description or explanation of the theoretical base of these models, and therefore these were not focused on in this report.

We noted at the scoping stage that named mentoring models common in business, vocational, and organisational psychology research tended not to be used as a basis for nursing or other health profession mentoring research. Occasionally models such as Kolb's experiential model,[45] GROW (Goal, current Reality, Options or Obstacles, Will or Way Forward; no single agreed author or source) and Egan's skilled helper[46] were mentioned in nursing research as background to their approaches. The Kahn role episode model[47] was used a framework for one nursing study[48]. The terms formalised / informal mentoring do show some cross-over into the health field from the business literature, but this tended to relate to post-qualification, optional, later career-orientated mentoring.[49-51]

Evidence on the outcomes of named mentoring models

For the three named student nurse mentoring models, only one systematic review was identified assessing their outcomes. This systematic review drew on evaluation descriptions to compare student nurse clinical supervision model effectiveness in the Australian health system, and concluded that Dedicated Education Units and Clinical Facilitation offered more capacity and learning outcome benefits than preceptorship (which is similar to the UK mentoring model).[5] However, it is important to note that the Australian preceptors were untrained for the role (unlike the UK), and that the source and availability of mentors influenced outcomes.

Results of individual studies on these named models identified in the search are shown below in Table 2. In general, most outcome assessment was qualitative, focussing on aspects such as perceived quality of learning experiences by the students, employer views of student 'job readiness', and mentors' views on model sustainability. There was no assessment of comparative impact on patient care outcomes, and there was limited analysis in the literature of comparative costs.

Evidence on the outcomes and impact of alternative mentoring models at the systems level across other professions was generally weak. Selected key outcome and impact findings from studies of mentoring from outside the nursing professions were:
- For Proctor's model of clinical supervision among allied health professionals, a systematic review found conflicting views on which components to use[29]
- In a single centre study, the tiered model (i.e. mixing students and qualified professionals at different career stages) increased the number of medical students who were able to find a mentor[30]

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Table 2: Outcomes and impact of nurse mentoring models

Model	Real Life Learning Wards (Amsterdam model)	Dedicated Education Unit	Clinical Facilitation	UK practice
Outcomes	• Increased capacity to support students on placement • Enhanced teamwork • Employers reported students are more 'job ready'[1, 2] UK evaluation showed positive: • Student experience of work role and of patient care • Student leadership • Student practical skill enhancement • Student support for weaker peers • Assessment accountability[2]	• Increased student support capacity and enrolment • Assessment accountability • Positive learning experience • Increased student enrolment[3, 5]	• Increased student support capacity relative to UK • Potential resource savings • Impact of resource constraints on the model's viability • Novice students appreciated the 1:1 support[5, 6] • More experienced students preferred the preceptor model[52]	• Formal mentor training, qualification, assessment and revalidation • Concerns about sustainability of the model[7]
Costs	Not stated	Relatively costly in set up and administration Greater cost benefits from increased student numbers[5] (in a competitive market for students)	Clinical Facilitators receive remuneration and protected time Academic Clinical Facilitators are not seen as time or cost efficient[5]	Mentors do not receive remuneration or protected time, but model is not sustainable due to lack of mentor and placement availability[7]
Source	Secondary descriptions [1, 2]	Secondary description [3]	Secondary description[5]	NMC standards[10, 19-21]

Comparison between UK and non-UK nurse mentoring models

This section compares the three named nursing models identified with the UK model, and considers the potential applicability and opportunities for these models within the UK.

All of the models sit within specific national and regional contexts of how healthcare and education are funded and organised, and in wider demographic and cultural environments which differ between countries. However, some authors did assess UK applicability within their descriptions of models.

Real Life Learning Wards vs. UK practice

Assessment of UK applicability of the Real Life Learning Wards model started with a study visit to VU Medical Centre in 2013 by East Anglian health service managers and professionals, two years after the model was first developed at the Centre. The clinical environment was perceived as having more spare capacity and less acute cases than the visitors' UK hospitals. Student supply was controlled by market demand, not workforce need (unlike the UK). Only student nurses on 'labour contracts' with VUMC took part in the Real Life Learning Wards; another cohort of students had more traditional placements administered by the university.

Key opportunities this model offers the UK could be:
- to increase student and mentor capacity through a high student to coach ratio and tiered mentoring between students in different years
- to increase quality of learning through team collaboration and effective communication such as team discussion about learning in progress and process improvement

Other potential benefits which seemed to be borne out in UK pilots were positive student experience of work role and of patient care, student leadership, practical skill enhancement, student support for weaker peers and better assessment accountability.[2] The full results of the UK pilots have yet to be published.

Dedicated Education Unit vs. UK practice

No direct comparison in published literature was identified between the Dedicated Education Unit and usual UK practice. However, it is possible to link the organisation partnership component of DEU and enhanced partnership between the health service and HEI shown in individual UK initiatives such as the Bournemouth Collaborative Model.[6] One important limitation is that the paper describing the Bournemouth model was published over ten years ago, since when UK health service and education structure and management have changed. The authors anticipated uncertainty about the security of such partnership roles, although central funding, central workforce planning, and student bursary support already in place in the UK may protect partnership to some degree.

In the Bournemouth model, according to the authors senior nurse management posts were created to foster partnership, develop and audit practice placements and manage new teams of Practice Educators. The Practice Educators then teach large groups of students and support mentors. The parallels with the organisational partnership component of the Dedicated Education Unit are the use of university-based Clinical Faculty Coordinators, who train and support nurse clinical instructors.

In terms of costs, the increased expense of setting up and administering the DEU in the USA was more than compensated for by increased student numbers.[3] Moscato's DEU paper states that further economic evaluation is in progress[3], although this would be in the context of the USA health system.

It is not clear how cost savings in an open market for student nurse places could translate to the UK system of workforce planning and centrally controlled student nurse capacity.

Key opportunities this model offers the UK could be:
- To reinforce and improve existing HEI – health service partnerships, for example, through creation of new shared coordination roles
- To make learning more student-centred through measures such as including student training within job profiles when recruiting ward staff, and protecting that training time accordingly

There may be overall cost benefits to increasing student numbers at placements, but this needs to be evaluated in the UK context.

Clinical Facilitation vs. UK practice

The principal comparison with UK practice also began as a study visit, this time from the Dorset-based health service team to Australia.[6] The authors specifically noted positive aspects of UK practice such as centralised workforce commissioning and funding. However the short term nature of budgets, inadequacy of funding, and lack of feasibility of long term evaluation of outcomes to secure funding undermine these advantages. In comparison, Australian funding arrangements between different agencies and lack of central control of workforce or training acted as a barrier to clinical placement education. Instead, the clinical facilitation model relied strongly on short placements supplemented by skills laboratories. The relatively high number of students per mentor (up to 8) was perceived by the UK authors as having potential for cost savings in the UK, particularly when combined with the Australian model of 'buddy' mentors, who are ward nurses without specific mentor training. Brevity of training for Clinical Facilitators, sessional contracts and potential lack of mentor clinical expertise in the area being mentored were identified as negative factors, relative to the highly formal and specific training and registration of UK mentors.

Regarding costs, the authors made several mentions of chronic funding problems in the Australian health system.[6] This could be a positive sign of model affordability for the UK.

Key opportunities this model offers the UK could be:
- Potentially to increase the number of students per mentor by having a larger ratio of students per dedicated mentor, in tandem with using associate ('buddy') mentors
- The qualified mentor could be remunerated and have protected time for mentoring

Themes in the literature

A large proportion of the literature identified concerned approaches or tools used in mentoring rather than system-level models for mentoring. These covered topics such as: peer and near-peer mentoring, e-mentoring, interprofessional mentoring and legacy mentors (mentors who have very long service and experience). We examined several case studies on the basis of potential value of their approaches or tools for the UK.

In nursing (Appendix C, Table 7), these comprised:
- Peer tutoring (student mentors) (USA)[53]
- Interprofessional mentoring (Canada)[54]
- Legacy mentors (Canada)[55]

From non-nursing professions (Appendix C, Table 8), we drew on:
- Near-peer mentoring (medical students, UK)[56]
- Communities of practice (systematic review in health and business)[57, 58]
- Tandem placement (teaching, Scotland)[59]
- Bar pupillage (law, UK)[60]
- Comprehensive integrated case exercises (police, Finland)[61]
- Legacy mentors (rail industry, Australia)[55, 62]

Available information on their characteristics and impact were tabulated in Appendix C, Table 7 and Table 8.

41 literature reviews were found, of which approx. half were systematic reviews. The most informative of these are described in Appendix C, Table 10 (on nursing), Table 11 (on health) and Table 12 (on business).

This literature and the literature on the named models was used to identify five emergent themes in areas where approach varied across differing mentoring programmes and models. These themes are:
1. Type of mentor, their skills and qualifications
2. Mentor/student allocation
3. Relationship between mentoring partners
4. How the mentoring is delivered
5. Organisational context and resourcing of mentorship

In this section, each theme is described, followed by a description of the evidence identified on outcomes relating to the themes. Overall, there was little evaluative research into the outcomes of different approaches.

Theme 1: Type of mentor, their skills and qualifications

The nursing research raised two main topics relating to the mentor's skills and qualifications:
- Several studies described various approaches to **specific mentor training**.[24, 63-73] The named nurse mentoring models identified varied in the extent to which the mentor had specific training for their mentoring role, with no specific training specified in some (Real Life Learning Wards[1,]

[2]), brief workshop based training for others (Dedicated Education Unit[3] and Clinical Facilitation[5, 6]), and a more comprehensive programme of training, CPD and assessment in the UK[10, 19, 21].

- Literature on alternative approaches to the **type of person acting as a mentor**, for example:
  - **University lecturers**, as found in the Australian Clinical Facilitation model[5, 6]
  - **Peer mentors**, typically senior students or newly qualified staff mentoring new / junior students.[33, 35-37, 40, 74-83] This 'tiered' approach formed part of two of the named nurse models identified (Real Life Learning Wards and Dedicated Education Unit), with a registered nurse being the main mentor
  - **Legacy mentors**, where individuals with a lot of experience and nearing the end of their careers mentor students. A small amount of literature covered this type of mentor, including a small intervention study in nursing[55] and a larger study in the rail industry about passing on the knowledge of retiring baby boomers[62, 84]
  - **Interprofessional mentors**,[54, 85] in this context, meaning other health professionals[54, 85]

Theme 1: Outcomes associated with type of mentor, their skills and qualifications

The evidence on nursing mentor skills and qualifications is complex, illustrated best for the UK context by the Robinson review and focus group study on roles, resources, standards and debates.[7] This study made detailed findings on nurses' views on mentor training. Its starting point was that "capacity to deliver high quality mentorship also depends on the educational preparation of mentors" and main conclusion was that engaged debate should continue with mentors. Several constituent studies mentioned the fact that personal qualities of the mentor such as their ability to communicate, and relevance of mentor clinical experience also played a significant role in positive outcomes.

The spectrum of mentor skill and qualification ranged from university lecturers, to clinical staff with qualifications and ongoing mentoring training and assessment, to clinical staff with minimal or no training ('buddy' or associate mentors) to student peers with minimal or no mentor training. There was a lack of research on the risks of using student peer mentors, and we found no study that used solely student peers to the exclusion of qualified mentors.

Findings from systematic reviews on nursing include:
- In a systematic review comparing clinical supervision models in Australia, university lecturers were not seen as ideal mentors because of their expense, limited availability and lack of up-to-date clinical experience.[5] The same review found that dedicated Clinical Facilitators with relevant clinical experience, protected time and remuneration were favoured by students, but their relative lack of preparation was of concern in a UK-Australia comparative study.[6]
- Two systematic reviews had secondary findings that adequate training and preparation of mentors is considered important, including for student/peer mentors[8, 40]. At the peer mentoring end of the spectrum, peer learning can have positive learning outcomes, but potential negative impacts include loss of skilled supervision time and increase in student anxiety.[40]
- Another review found generally positive outcomes for peer teaching, but notes that strategies are required to deal with "incompatible students or poor student learning"[83]

Selected findings from the primary nursing research include:
- Preceptor training should be properly managed and resourced (Ireland)[66]
- EmpNURS trans-European mentor training project empowered nurses to carry out clinical teaching, rather than ward managers or clinical staff[65]
- In peer mentoring, senior students gained leadership skills and showed increased interest in the nurse educator role (USA)[53]

- Peer mentoring could have several benefits, including strengthening leadership skills (in near peer mentoring)[53] and decreasing anxiety where there was a supportive role[75]. However it was important to provide sufficient academic supervision[40]
- Interprofessional mentorship enhanced nursing students' understanding of the clinical context (Canada)[54]
- Using legacy mentors enhanced their retention and helped disseminate good practice (Canada)[55]

Outside of nursing, selected findings were:
- Pharmacy preceptor training led to more positive evaluation of the preceptors by students (US)[63]
- In a systematic review on medical students, peer learning brought perceived benefits for the peer tutors, mixed results on accuracy of peer assessment and feedback, and no evidence that peer tutors improved their own exam results[80]
- When first year medical students were mentored by second year medical students (USA), both groups significantly increased confidence in their skills[74]
- Peer mentoring: 1st and 2nd year medical students in USA, cross-cultural business student mentoring (USA), peer-to-peer mentor training for a professional body concerned with trainee surgeons (UK) and 1st and 3rd year radiography students in UK[44, 74, 77, 82]
- Legacy mentoring in the Australian rail industry helped meet challenges of intergenerational working and baby boomer retirement[62, 84]

Implications for policy and practice:
- In very general terms, mentor preparation and ongoing training is seen as a good thing, but other factors modify the impact of mentor training on students, such as mentor availability, personal ability to communicate with students and relevance of mentors' clinical experience.
- The UK has the most formal, transparent and prescriptive mentor preparation and assessment standards. Mentors require sufficient resources such as protected time to engage in these processes.
- As well as a qualified mentor, other options for consideration include the extent to which more senior students could help in mentoring younger students, or legacy mentors could be used.
- Policy makers and regulators should continue to engage mentor practitioners in debate and feedback about training, qualification and assessment.

Theme 2: Mentor / student allocation

The NMC standards prescribe specific matching of mentor competencies and experience to the area being assessed.[10, 20] While matching of area of practice between the mentor and student was implicit in some models (e.g. Real Life Learning Wards), one model (Clinical Facilitators) did not require such matching.

In general, the wider literature lacked transparency about how the mentor and student were matched. There was no description of more granular matching (e.g. in terms of personal characteristics) in the nursing field. Several studies acknowledged the shortage or lack of suitable nursing mentors, particularly in specialist fields or rural areas.[7, 86] A study on trainee doctors used a tiered mentorship programme to increase mentor capacity (i.e. combining students and qualified staff from different levels).[30]

Outside of health, one study focussed explicitly on mentor matching, which was focussed on the UK luxury hotels business.[9] The intervention gave mentees the opportunity to **choose the mentor online** by weighting mentor criteria important to them, such as professional skills, personal values and socioeconomic background. They could then interview mentors online before making a final choice. Each pair could evaluate the experience at the end of the contract. In the business literature, there was inconclusive debate about the merits of choosing a mentor with similar characteristics, or whether diverse dyads could be more productive.[87]

Descriptions of potentially transferable approaches for finding or allocating students and mentors outside of nursing included:
- A **professional network** run by volunteers/alumni (global health, Canada)[88]
- **Organised by students** (medical students, Hong Kong) [79]
- **Local Education Agency** (special education professionals, USA) [89]
- Organised in **partnership** between HEI and practice setting (teachers, Scotland)[59]
- Mentor supplied by **government agency** (teachers - GTC Scotland and Scottish Government Education Department scheme)[90]
- **Professional body** finds mentors (law, UK)[60]
- **Business and mentoring networks** using online maps (http://new.coachingnetwork.org.uk/)
- **Business 'Meet a mentor' events** (http://ioee.uk/meetamentor/)
- Meeting mentors through a **conference** (oceanography, USA) [91]
- **Organised online** by the university (engineers, Canada) [92]

Theme 2: Outcomes associated with mentor / student allocation

No evidence reviews were found which focussed on mentor / student allocation.

From primary research and descriptions, the following outcomes were identified:
- The trainee doctors' tiered mentorship programme improved the trainees' ability to find a mentor (USA)[30]
- The luxury hotels e-mentor matching study[9] reported both positive and negative outcomes. Study feedback was that mentees appreciated the flexibility and informality of the system, but there were some negative comments about IT problems and mentee confusion about the informal arrangements.
- USA business literature was inconclusive about whether mentor-mentee pairs with similar characteristics or diverse dyads could be more productive.[87]

Implications for policy and practice
- There is insufficient evidence in the nursing or wider professional literature about the optimal approach to mentor / student allocation. Further research is needed into the effectiveness of mentor / student allocation interventions.
- Lack of sufficient suitable nursing mentors may limit the ability to carry out detailed matching of mentor and student, particularly in certain contexts (e.g. small specialist areas). Broadening the pool of mentors could allow greater use of matching.
- The more informal approaches to identifying a mentor through events used in other professions may not be appropriate for formal sign-off mentoring in nursing but could be of use for more informal mentoring.
- For formal mentoring, matching via computerised systems could be an option, but IT systems need to be robust.

Theme 3: Relationship between mentoring partners

This theme covers examples of how the mentoring was organised with respect to the numbers of mentoring partners, the degree of collaboration and the setting in terms of exposure to early career employment.

For nursing, it includes:

- **One-to-one mentoring** between the student and a qualified member of staff is the most common interpretation of NMC requirements,[10, 21] and is defined as the expected norm in an NMC circular concerning health visiting[19] and in Canadian guidance.[93] However, the limited resource of suitable placements and staff was acknowledged in many studies.[7, 23, 72, 94]
- **Ratio variation** as one mentor to three students, group mentoring, and team mentoring.[95]
- **Collaborative mentoring**[1, 2]
- Mentoring by **student leaders**[34, 53]
- **Early career employment**[96]

Examples for this topic from other professions include:

- Group mentoring in teaching and social work (UK) but probably not involving students,[97] and a Swiss based evidence review which included group interventions for medical students[81]
- Team-based learning in medical students (systematic review)[76]
- Collaborative CPD in teaching (UK) – for qualified teachers[98]
- **Partner mentoring**: a teacher induction scheme in Scotland that involves the use of a supporter, and the HEI-school tandem placement model, also in Scotland[59, 99]
- **Inter-organisational mentoring** in business(USA)[100]

Theme 3: Outcomes associated with relationship between mentoring partners

Systematic review findings relating to this theme included:

- A systematic review on peer mentoring in nursing found that it was at least as effective as classroom teaching for improving student communication, critical thinking, and self-confidence[40]
- Different international models of clinical supervision for physiotherapy students were examined in a systematic review of quantitative and qualitative research. Based on outcomes of student capacity, clinical productivity and participant experiences, all the models were equally effective (e.g. 1:1, 1:2, 2:1, peer mentoring) although the authors emphasised lack of robust research and lack of transferrable findings on the topic[101]
- There were mixed findings in a systematic review on team learning for medical teams[76]
- There was lack of consensus on definitions for or uses of communities of practice, in business or health[58]
- Early experience of GP practice improved orientation of students and courses (UK)[101]
- Early clinical experience has a strong positive, formative impact on medical students[101]

Nursing primary research findings include:

- Collaborative approaches like the Amsterdam model showed many benefits including increased capacity for students, collaborative learning between students, coaches and the rest of the team, improved students confidence and job readiness, and greater accountability of assessments[1, 2]
- The UK evaluation of the Real Life Learning Wards model (where there is early exposure to practice) suggested that there was positive experience of work role and of patient care, and practical skill enhancement[2]

- A 3-year demonstration project on undergraduate nurse employment in Canada showed increased student confidence and job readiness[96]
- Group or team supervision was noted as being used in three out of eight European nursing schools[102]
- Through interprofessional mentoring, students learned more about the roles of other professionals, which increased their breadth of understanding about their patients (Canada)[54]
- Providers found that the interprofessional informal arrangement worked well where there was already a good team culture (Canada)[54]

Selected findings from other professions were:
- A business student study found that some students lacked commitment in peer mentoring and that the mentoring trial was too short (Australia)[77]
- A teacher induction supporter scheme in Scotland attracted a lot of interest from USA and Australia[99]
- Tandem placements worked well in teaching, but this was a very small study (Scotland)[59]
- Standardisation of mentoring practices across the organisation reduced the risk of favouritism in mentor-mentee relationships (rail industry, Australia)[62, 84]

Implications for policy and practice
- Early clinical experience can have a positive impact under appropriate mentor supervision
- Approaches to mentoring partnership arrangements need to be evaluated as model components, as well as drawing on evidence from individual initiatives. Having a planned research programme and dissemination of findings could improve the evidence base and enable selection of appropriate activities.

Theme 4: How the mentoring is delivered

A wide range of different approaches and tools were reported, varying by characteristics such as:
- **Route of delivery** (including variations of virtual mentoring, versus face to face)
- **Duration** (one day Skills-a-thon[103] versus longer term relations with mentor)
- Tools such as **educational games or workshops**
- Purpose, e.g. for **exam remediation**

Theme 4: Outcomes associated with how the mentoring is delivered

Evaluation of approaches to delivery of mentoring potentially offers most in terms of evidence for components of models. However, there was little comparative research. Evaluation of combinations of components would still be required at the system level. There was a lack of evidence about the impact of length of mentoring sessions or overall duration of arrangement.

From systematic reviews relating to mentoring delivery:
- There were mixed findings for **portfolio use** by medical students[104] but another review found that the role of the mentor is important for success in medical student portfolio assessment[105]
- There was no evidence that **educational games** was an effective teaching strategy for medical students[106]
- The concept of **communities of practice** is used in diverse ways[58] and there is a lack of effectiveness research concerning their use in health

Selected findings from primary research in nursing were:

- **Web / videoconferencing** were used to connect between two colleges in USA and one in UK for a leadership course. Outcomes were peer support and gaining global perspectives[107]
- Mentorship for USA **distance learning students** was reported as challenging to implement and underused, but there were no further details in the brief abstract[108]
- Conversely, in a USA **e-mentoring career support initiative for young people**, scheduling problems were reduced and it was possible for the nurse to communicate with a large number of students[109]
- A **board game** was used for peer mentoring between senior and junior students on a USA associate nursing programme[39]
- A **'Skills-a-Thon' workshop** led by senior students for 1st year students benefitted both groups (USA)[103]

Selected findings from other professions were:

- Generally positive for e-mentoring, including reduced cost vs. face to face mentoring (in health, UK) [110] (and business, USA),[111] improved engagement (in business)[111] and positive outcomes for peer support of medical students in Hong Kong[79]
- In police training (Finland), cadets and mentors gave positive feedback on the value of using Comprehensive Integrated Case Exercises in terms of their relevance to real life work problems[61]

Implications for policy and practice

- Use of virtual mentoring techniques could provide a less resource intensive approach to some aspects of mentoring. It could also allow more long distance and international collaboration.
- As for the previous theme, approaches to delivery of mentoring need to be evaluated as model components, as well as drawing on evidence from individual initiatives. Having a planned research programme and dissemination of findings could improve the evidence base and enable selection of appropriate activities.

Theme 5: Organisational context and resourcing of mentorship

This theme includes support at different organisational levels: international support (e.g. European initiatives), between organisations (such as HEI's and health or other service providers, often called strategic support), support within organisations for mentoring (e.g. by having a mentoring policy, paying mentors for their duties, or protecting time for mentoring). A significant general finding when translating mentoring activities between different contexts is that the context (e.g. countries, professions, organisations) limits the transferability of findings.

- Three **trans-European** nursing projects were found: EmpNURS, which set up a European consortium of HEI's and hospitals to roll out a nurse-led student supervision model,[65] a study describing nurse education experiences in eight European nursing schools[102], and a study to standardise qualified nurse preparation to be mentors.[112] There was also an initiative to standardise education for nursing assistants.[64]
- Several primary studies in Australia and USA focussed on **strategic partnerships**.[4, 23, 113] From the USA, the strategic alliance framework / partnership model between HEI and practice[4] shared partnership components with the Bournemouth collaborative model[6] in the UK. The Dedicated Education Unit model[3, 17, 18] also included a strong component of strategic alliance and partnership model between HEI and practice.[4]

There was little explicit description on **resourcing for mentorship** in the literature we identified. This echoed a reported lack of research on costs in Canadian guidance in 2004.[93] In terms of human resource, the nursing models identified also appeared to vary in terms of how much of the mentor's time was specifically dedicated to mentoring. For example, in the Clinical Facilitation model the mentor (facilitator) is hired specially on a short term basis to perform this function, so their time is dedicated to this. In the Dedicated Education Unit model the mentor's workload is adjusted to take into account their mentoring, but the exact level of adjustment is unclear.

The lack of person-resource was identified in the literature as an issue, through references to the impact of mentor shortage,[23, 113] and of not giving the mentor enough time away from their usual duties and to sustainability of mentoring initiatives.[73] It was apparent that there was a widespread problem with coordination between organisations and resourcing in mentorship for student nurses.

In allied health and social care professions, a literature review addressed the organisation and funding of placements.[114] A few papers expressed concern at the (unstated) cost of mentoring.[72, 115] Funding of training placements was also discussed in the law profession (UK).[60]

Theme 5: Outcomes associated with organisational context and resourcing of mentorship
- A systematic review in nursing found that creating a conducive organisational context is as important as encouraging individual relationships[8]
- From a literature review on academic, business and military organisations,[116] transferring findings between industries should be treated with caution as the industry context influences what constitutes ideal mentor characteristics
- A health technology assessment found that there is difficulty in transferring human resource management principles in mentoring between non-health and health settings[117]

Considering resourcing, this is the aspect where the three non-UK nurse mentoring models potentially have most to contribute, as they all offer increased student to mentor ratios, dedicated mentorship and possible cost savings (see Mentoring models section). However it is not clear how the cost savings of a context where student education places are market-driven could translate to the UK education and nursing workforce context.
No evidence reviews focussed entirely on the impact of resourcing interventions, although the Robinson review covered sustainability of UK nurse mentoring.[7]

From primary research,
- The focus group part of the Robinson paper showed that mentoring must be properly resourced (with respect to planned and protected time and budgets, with good communication and management)[7]
- Strategic partnerships between HEI's and the service provider facilitated positive mentoring outcomes in nursing education in USA[3, 4, 59] and in teacher training in Scotland [47]
- Partnership projects between educational and clinical facilities showed many resourcing, learning outcome and qualitative benefits, e.g. in rural Australia, a partnership project between nursing colleges and a hospital increased placement capacity for students[23]
- In nursing, the implication of increased student / mentor or supervisor ratios was reduced cost (Australia and USA)[3, 6]

- Protection of mentor time in dedicated posts and remuneration for mentors was implied to be beneficial[3, 5, 6], conversely lack of dedicated time and resource was perceived to hinder UK mentoring practice[7]
- Financial incentives for mentoring helped reduced nursing assistant turnover in USA nursing homes[118]

In primary research from other professions,
- Organisational support improved mentors' perceptions of benefits in a USA financial institution[69]
- Having a mentoring policy across the organisation aided standardisation and reduced favouritism in the Australian rail industry context[62, 84, 119, 120]

Implications for policy and practice
- Models that offset the cost of dedicated mentor posts against increased student numbers per mentor, such as the Real Life Learning Wards, Dedicated Education Unit and Clinical Facilitation models, may hold promise for changing UK nurse mentoring practice to increase student and mentor capacity, cost effectiveness and outcomes.
- Organisational support should focus on maximising partnership (specifically between HEIs, health service managers and clinical staff) and embedding support for mentoring in policy.
- Creating a supportive organisational context for mentoring is likely to be as important as individual mentoring relationships.

Conclusions and implications

The evidence from across a range of countries and professions consistently points out that mentoring is a valuable process but that it is not adequately supported, both in terms of funding and resource allocation, including the blocking out of protected time for the mentors themselves.
In order to maximise the outcomes of mentorship, increase student and mentor capacity, and achieve cost effectiveness, a number of mentoring models have been set up that incorporate team or peer mentoring, breaking the traditional 1:1 mentoring ratio. We described these models in detail and the evidence on their effectiveness. Evidence of impact on the whole is weak.

However, evidence suggests that:

- Peer mentoring (including 'tiered' mentoring, where senior students mentor junior students) is beneficial to both the mentor and mentee, and is at least as effective as classroom learning for improving communication, critical thinking and self-confidence. It has also been shown to strengthen leadership skills, improve staff retention and decrease anxiety.
- While valuable, peer mentoring alone, however, is not sufficient, and qualified, experienced mentors remain crucial. In all three named student nurse mentoring models covered here, qualified mentors were used in a one-to-many supportive role. University lecturers were not seen as suitable qualified mentors, because of cost and risk of a lack of up-to-date clinical experience. Rather, Clinical Facilitators with relevant clinical experience and protected time were favoured by students.
- A conducive organisation context was found to be just as important as individual mentoring relationships. Organisations should support mentoring by developing strong partnerships between education and the service provider, and embedding support for mentoring policy.

Overall, the most promising system-level options are more peer / team based mentoring, supported by one-to-many Clinical Facilitators, within a supportive organisation, as illustrated by the following models:

- Real Life Learning Wards (Amsterdam model)
- Dedicated Education Unit
- Clinical Facilitation

The international and interprofessional literature provides several useful approaches which could be developed in nursing as components of models, such as various peer learning approaches, different arrangements of student to mentor ratios, and tiered systems. Evaluation of potential components should take place within mentoring models.

Implications for further work and research

- Official agencies and professional bodies could facilitate exchange of good practice between professions and countries by making their mentoring policy, practice and research transparent and publicly available. UK standards and guidance for nurse mentoring appear to be the most detailed and publicly accessible in the developed world.
- Knowledge transfer and implementation could be improved via the dissemination of detailed descriptions of practice initiatives, comparative studies, and impact evaluation, particularly of the approaches that seem to be working at the pilot stage. Clearer links between theory, frameworks and practice would improve the evidence base for nurse mentoring.

- Evaluations of the named models should be tracked, and contact made with centres of innovative practice to draw on unpublished evaluation and set up study exchange. This could improve translation of models between countries and maximise outcomes.

Limitations of the research and the rapid review

While this rapid review was based on a detailed search, it is not exhaustive. Also it is not practical to synthesise the large volume of mainly low level evidence. A lack of detail in descriptions of interventions, evaluation, study design and context often hampered the ability to draw transferable messages from across the literature. The majority of available studies involved single centres, lacked comparators and were small scale. However, they did provide a wide range of approaches that could have potential in nurse mentoring, such as various peer learning approaches, different arrangements of student to mentor ratios, and tiered systems. While there is no one clear superior mentoring model for nursing, we believe that this report can act both as a resource and as a catalyst for discussion and development within the College.

Appendix A: Scope

Table 3. Scope (Population, Intervention, Comparator, Outcomes, Study design)

Review questions		
1. What mentoring models exist for nurses in countries other than the UK, and non-nursing professions (focusing on the UK)? 2. What has been the impact of these models?		
Scope for:	**Inclusions**	**Exclusions**

Population	• Nurses in countries outside of the UK e.g. Canada, US, Australia, New Zealand, the Netherlands, Scandinavia (especially Norway and Sweden)
	 • Non-nursing professions within the UK e.g.
	   − Social workers
	   − Policing
	   − Lawyers
	   − Teachers
	   − Allied Health Professionals
	   − Doctors
	   − Financial professions where there is practice based education precedes qualification e.g. accountancy, actuarial
		• Nurses in the UK
		 • Non-nursing professions in countries outside of the UK (Findings from non-nursing professions from outside the UK may become of interest if we find that information is lacking from nursing professions outside the UK or non-nursing professions in the UK)

Intervention	• Mentoring in the context of practice-based education leading to qualification. (NB May not be referred to as mentoring in some professions, will consider equivalents for the given profession, e.g. pupillage for law)	• Nurse preceptorship (Messages from the nurse preceptorship literature captured during the search may be of interest, however this specific context is not the focus of search or review)
Comparator	• Alternative mentoring models • No comparator (NB Only relevant for studies assessing impact)	• None
Outcome	• Learning and development-related outcomes • (NB Only for studies assessing impact)	• Qualitative views • None
Study designs	• Descriptions of mentoring models/frameworks at the systems level • Any study design evaluating or assessing impact of these models / frameworks	• Small scale mentoring interventions • Qualitative studies without evaluation of impact • For impact question: opinion pieces
Other parameters	• Studies published between 2004 and 2014 • English language • OECD countries	• Studies published before 2004 • Non-English language studies • Non-OECD countries

Appendix B: Search strategy and evidence selection

Search sources

Key websites

We mapped, browsed and searched key websites from government departments, professional bodies, research centres and other relevant types of source which emerged during the search, e.g. individual academics' webpages.

Web searching

We used Google scholar and Google advanced search to search for key phrases relating to mentoring or known models of mentoring, such as mentor* program* OR framework* OR model* OR system*, where * represents truncation (searching on mentor* will also find words that stem from this such as mentors, mentoring, mentorship).

Bibliographic database searching

We tested and ran search strategies for the following databases, translating the search developed in Medline to suit the coverage and search / indexing tools available in the other databases. The Medline search strategy was developed iteratively and informed by terms and concepts from the grey literature search. Study design filters were applied for reviews and evaluation studies. The Medline search strategy is shown in Table 4.

- Medline (Ovid)
- EMBASE (Ovid)
- NICE Evidence Search (which includes the database Social Care Online)
- Business Source Corporate Plus (EBSCO)

Search of publishers' journal aggregator websites

We searched three publishers' journal aggregator websites, which we chose for their complementary coverage of different topic areas:

- Wiley Online (selected for its coverage of nursing journals)
- Emerald Insight (selected for its coverage of business and management journals)
- Science Direct (selected for its coverage of behavioural science journals)

Supplementary search approach

We carried out selective reference harvesting from key reports.

Collating relevant records

Relevant records from grey literature sources were entered in EndNote reference management software. The search output from bibliographic databases was imported to and managed in EndNote. A summary of the search output numbers is shown in Table 5.

Table 4. Medline search strategy

Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) <1946 to Present>
06 February 2015
1   Mentors/ (7740)
2   mentor*.ti,ab. (8573)
3   Preceptorship/ (4030)
4   preceptor*.ti,ab. (2882)
5   exp Students/ (83645)
6   student*.ti,ab. (182155)
7   (pre registration or pre-registration or preregistration).ti,ab. (1444)
8   (pre qualif* or pre-qualif* or prequalif*).ti,ab. (180)
9   (practice adj (train* or learn* or teach* or educ* or supervis* or placement*)).ti,ab. (2229)
10   (clinical adj (train* or learn* or teach* or educator* or supervis* or placement*)).ti,ab. (7769)
11   In-service Training/ (17511)
12   1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 (242051)
13   (program* or system* or model* or framework*).ti,ab. (4375013)
14   12 and 13 (78772)
15   (evaluat* or impact* or effectiveness or outcome*).ti,ab. (3543388)
16   Meta-Analysis as Topic/ (13933)
17   meta analy$.tw. (70426)
18   metaanaly$.tw. (1394)
19   Meta-Analysis/ (52849)
20   (systematic adj (review$1 or overview$1)).tw. (60999)
21   exp "Review Literature as Topic"/ (7810)
22   16 or 17 or 18 or 19 or 20 or 21 (135101)
23   cochrane.ab. (33842)
24   embase.ab. (33298)
25   (psychlit or psyclit).ab. (879)
26   (psychinfo or psycinfo).ab. (8533)
27   (cinahl or cinhal).ab. (11399)
28   science citation index.ab. (2091)
29   bids.ab. (366)
30   cancerlit.ab. (586)
31   23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 (53671)
32   reference list$.ab. (10492)
33   bibliograph$.ab. (12186)
34   hand-search$.ab. (4216)
35   relevant journals.ab. (754)
36   manual search$.ab. (2566)
37   32 or 33 or 34 or 35 or 36 (27071)
38   selection criteria.ab. (20725)
39   data extraction.ab. (10538)
40   38 or 39 (29614)

41	Review/ (1933374)
42	40 and 41 (19596)
43	Comment/ (609598)
44	Letter/ (860998)
45	Editorial/ (368131)
46	animal/ (5376223)
47	human/ (13676021)
48	46 not (46 and 47) (3889478)
49	43 or 44 or 45 or 48 (5210776)
50	22 or 31 or 37 or 42 (164309)
51	50 not 49 (154203)
52	Evaluation studies.pt. (199589)
53	14 and 15 (32428)
54	53 and (51 or 52) (2856)
55	14 and 52 (2795)
56	54 or 55 (3594)
57	limit 56 to (english language and yr="2004 -Current") (2821)

Table 5. Search output volume

Databases and sites searched	Dates searched	Number of hits
MEDLINE (Ovid)	2004-060215	2821
EMBASE (Ovid)	2004-060215	136
Business Source Corporate Plus (EBSCO)	2004-110215	136
Grey literature (websites and databases)	2004-100215	129
Journal databases and TOCs	2004-100215	644
Outside of original search		10
Total number of hits		3876
Total number after de-duplication		3652 (224 duplicates)
Total number after first appraisal		435
Total number selected and cited		158

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Appendix C: Tables of selected findings

Table 6. Selected literature landscape map of models, approaches and tools found, mapped across different professions

Types of models, approaches, tools	Nursing	Other health	Teaching	Social work	Law / police / military	Business	Other
At level of organisation							
Mentoring is part of **organisational strategy / strategic**	Systematic review[7] Case study[1, 2]	Other research[115]	Other research [121]	Systematic review[122]		Other research [123]	Systematic review[120] Case study[62, 84, 119, 120] Other research[124]
Strategic collaboration between education and practice	Case study[1, 2]	Systematic review[125]	Case study[59]		Case study[61]		
Dedicated Education Unit (learner centred)	Case study[3, 4]						
Clinical coach/educator/ supervision	Systematic review[5] Case study[1, 2, 5, 6]	Systematic review[29] Policy[126] and other research[127]					Policy[128, 129]
International standardisation of mentoring	Other research in Europe[64, 65] Policy in WHO[130, 131]					Potentially via models such as GROW[45-47, 57, 132-134]	

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Approaches or components of models							
Collaborative learning (tiers, in teams)	**Case study**[1, 2]	Systematic review[76]	Systematic review[98] Other research [59, 98, 135]				
Formal and informal mentoring	Other research and policy: Formal, e.g. sign-off[10, 102]; Informal, e.g. buddying[7]	3 x Systematic review[50, 67, 68]	Systematic review[68]			Systematic review[42] Other research[41, 69, 100, 116, 136, 137] Policy[43]	
Peer mentoring /learning	Systematic review[40] **Case study**[35, 36, 38, 53]	Systematic review[80, 83] Other research [44, 56, 78, 79, 82]		Policy[138]			
Mentor training	Other research [24, 65, 73, 112]	Other research [63, 139]		Systematic review[97] **Policy**[140]	Policy [60, 141]		
Increased ratio of learners per mentor	**Case study**[5, 6, 19]	Systematic review[76] Other research [142]	**Case study**[59] Other research [143]				
Virtual mentoring	Other research [107, 109]	2 x Systematic review[139, 144] Other research [145]	Other research [146]	Systematic review[122]		Other research [111, 147, 148]	Other research [92]
Meeting through conference							Other research [91]
Finding mentor online						Other research [9]	
Using legacy mentors	Other research [55]						Systematic review[120] **Case study**[62, 84, 119, 120]

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Activities overlapping with mentoring						
Inter professional learning	Other research [54]	Other research [85]			Other research [100]	
Succession planning	Systematic review[94]					
Communities of practice		Systematic review[58]			Systematic review[58]	
Portfolios for learning and assessment		Systematic review[105] Other research [79, 110, 139, 149, 150]				
Early practical experience / employment	Other research [96]	Systematic review[101]				
Diverse / minority student support	Other research [26, 151]		Policy[152]		Other research [153-155]	Other research [92]
Remediation support	Systematic review[156] Other research [25, 26]					

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Table 7. Case studies from nursing

Approach	Peer tutoring (student mentors)	Inter professional mentoring	Legacy mentors
Reference	[53]	[54]	[55]
Source of the model (profession, type of body, location)	Several examples available in different locations and settings, this study was based in a USA nursing school	Two nursing schools in Canada, at 5 placement sites	Two health authorities in British Columbia, Canada
Type of person being mentored (e.g. profession, stage their career, whether aiming for a specific qualification or not)	Second year nursing students on first clinical placement (34 mentor respondents)	4th year students	Students, novices and experienced nurses in their workplaces
Type of person providing the mentoring (e.g. competencies, skills and training)	Senior nursing students on a leadership and management course within their Baccalaureate course	Interprofessional, but primary mentoring relationship is with the student's preceptor. Few details about characteristics of IP mentors	Legacy nurses (over 55 years old, up to 40 years' nursing experience) (29 legacy nurses)
Aim of the mentoring	For mentee: receive clinical instruction from a near-peer For mentor: learn leadership skills	For students to learn about roles in other professions, and how to work with them	Capturing knowledge and expertise of legacy nurses, and improving their retention
Theory or model behind the approach	For mentees: Peer tutoring For mentors: Kolb's experiential learning model[45]	Informal mentoring	Not stated
Principles of the mentoring	On 2 clinical days, the senior students acted as assistant clinical instructors and then as clinical mentors and leaders	Supplementary mentoring to expand student experience	Not stated
Mode of delivery of mentoring (e.g. face to face, telephone, email, group	Not stated	Informal, arrangements left to mentor-mentee pairs	Included an orientation workshop, a midway workshop and a closing event,

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Approach	Peer tutoring (student mentors)	Inter professional mentoring	Legacy mentors
or individual sessions)			and other projects
Duration and frequency of mentoring	Appears to be a 2 day experience	Informal, varied, relatively small time input	Not stated
Mentoring incentives (for mentor or mentee)	Mentors: learning leadership skills Incentives for 2nd year students not investigated.	Implicit was improvement of future team working arrangements	Not stated
Quality assurance of the mentoring	Not stated	Not stated	Not stated
Evaluation of the mentoring outcomes	Unclear, although student mentors were supervised	Not stated	Not stated
Impact identified	For mentors: outcomes were primarily qualitative. Most students reported increased competency, decision making ability and interest in the nurse educator role	Qualitative findings: positive feedback from students about their enhanced knowledge of other professions' roles	Enhanced satisfaction and retention for mentors
Recommendations	Benefits of leadership development role for senior students	A low resource approach for additional inter professional experience	No specific recommendations

Table 8. Case studies from other professions

Approach	Near-peer mentoring	Communities of practice	Tandem Placement	Bar pupillage	Comprehensive Integrated Case Exercises	Legacy mentors
Reference	56	58	59	60	61	62, 84, 119, 120
Source of the model (profession and type of body)	Medical training, West Yorkshire, UK	Business and healthcare, systematic review	Teaching (UK)	Law, professional body (UK)	Police, recruit training centre (Finland)	Rail industry (Australia)
Type of person being mentored (e.g. profession, stage their career, whether aiming for a specific qualification or not)	Final year medical students	18 business and 13 health studies included. "The structure of CoP groups varied greatly, ranging from voluntary informal networks to work-supported formal education sessions, and from apprentice training to multidisciplinary, multi-site project teams."	Pairs of student teachers on school placements (12 students in total)	Trainee barristers, post legal exam qualification but pre-call to Bar (being allowed to practise as an unsupervised barrister)	Police cadets, leading to Diploma in Police Studies (165 mentor pairs)	3 generations of employees: Baby boomers, Generation X, Generation Y
Type of person providing the mentoring (e.g. competencies, skills	Foundation year doctors	See above	5 mentor teachers and 1 deputy head	Experienced barrister, but no training competencies or	Experienced senior constable (165 mentor pairs)	Not stated how this was organised, although there was freedom to choose

Approach	Near-peer mentoring	Communities of practice	Tandem Placement	Bar pupillage	Comprehensive Integrated Case Exercises	Legacy mentors
and training)				extra qualification in place at present		mentors with different characteristics
Aim of the mentoring	Clinical supervision, teaching and support	Used for social interaction, knowledge creation, knowledge sharing, and identity building	As assessed component of qualification	Practice training for 12 months leading up to qualification to practise	To complement class-based learning	Enhance leadership capacity, Knowledge transfer, role modelling, improve communications and retention/ engagement
Theory or model behind the approach	Near-peer mentoring	Lave and Wenger situated learning theory	Not stated	Based on historical traditions	Not focus of paper	Not stated
Principles of the mentoring	Voluntary scheme offering mentors in same hospital	No consensus in group operation	Collaboration between university and school	Effectively apprenticeship	To complement classroom learning	Standardisation and formalisation across the organisation
Mode of delivery of mentoring (e.g. face to face, telephone, email, group or individual sessions)	Teaching, supervision and shadowing	"The structure of CoP groups varied greatly, ranging from voluntary informal networks to work-supported formal education sessions, and from apprentice training to	2:1 students to mentor, and 'cluster support' meetings which seem to have involved multiple mentoring groups and university staff	Shadowing then supervised practice	Unclear: complements classroom teaching	Flexible

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Approach	Near-peer mentoring	Communities of practice	Tandem Placement	Bar pupillage	Comprehensive Integrated Case Exercises	Legacy mentors
		multidisciplinary, multi-site project teams."				
Duration and frequency of mentoring	1 year programme, not stated as probably left to individuals	Not stated	Not stated	12 months in two periods of 6 months (can be with same or different chamber or supervisor)	To support 14 months of practical experience	Flexible
Mentoring incentives (for mentor or mentee)	Skills development for both partners	Social interaction, knowledge creation, knowledge sharing, and identity building	To support qualification	Mentee requires qualification to practise, mentor gains assistant	Not stated	Not stated
Quality assurance of the mentoring	Not stated	Not stated	Not stated	Regulated by the Bar Council	Not stated	Meets agreed code of practice within organisation
Evaluation of the mentoring outcomes	Questionnaire completion at end of each year programme	Not stated	Not stated	Professional standards being updated by expert consensus	Not stated	Not stated
Impact identified	Both partners identified enhanced skills, majority of students said it helped prepare them for work	Qualitative only for health	Students gained confidence. Large number of positive qualitative collaborative outcomes, students	Unclear	Report focusses on benefits of CICE (which complements practical experience)	Benefits of knowledge transfer between employees of different generations

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Approach	Near-peer mentoring	Communities of practice	Tandem Placement	Bar pupillage	Comprehensive Integrated Case Exercises	Legacy mentors
			requested more communication and more frequent contacts			

Table 9. Selected examples using named models in other professions

Reference	Interventions / Outcomes	Profession / Study design	Location	Key messages
[29]	Proctor's model of clinical supervision	Allied health professionals were the focus of this systematic review, but literature was also drawn from the medical and nursing fields	Australia	Contradictory suggestions were reported for which components of this model to use (Abstract only available)
[30]	Tiered model	Medical students /evaluation using students at all levels and qualified staff	USA	The tiered model increased the number of students who were able to find a mentor. Mentors were selected from different professional levels
[41]	ADDIE instructional systems design	Business / 29 interviews in 17 companies	USA	ADDIE was a helpful framework for mentoring (few details in abstract)

Table 10. Selected systematic reviews on mentoring in the nursing literature

Reference	Topic	Number of included studies	Findings
5	Evaluation of 5 clinical supervision models in Australia	27 evaluations of models for student nurse clinical supervision	The recommended models were facilitator-preceptor and dedicated education unit
8	Mentoring nursing students in clinical placements	23 empirical studies, mostly qualitative studies with small sample sizes (<50 participants)	The organisational context is as important as the individual relationships. Student mentoring needs to be properly resourced. Mentors need to be sufficiently educated and competent.
7	Multi-method study covering many aspects of resourcing student nurse mentorship.	36 studies from a supporting literature review: 9 on student experiences of mentorship, 7 on mentor perspectives, 4 on the mentor as an assessor of competence, 4 on support from other personnel, 8 on roles supporting students, 5 on capacity for supporting provision of mentorship.	Numerous, detailed findings. Overall, they relate to tensions in organising and resourcing student nurse mentoring
40	Peer learning in undergraduate nursing education	18 studies, mostly qualitative, quasi-experimental / observational / case studies	16/18 studies reported a variety of positive outcomes, but anxiety of students was a negative finding, as was the requirement for skilled supervision

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Table 11. Selected systematic reviews in health (presented by theme)

Reference	Topic	Number of included studies	Findings
General review			
[81]	Medical students	14, mixture of qualitative and quantitative studies	Useful data extraction table with outcomes. Strongest finding was that mentoring aided career progression
[157]	Qualitative research in academic medicine	9, from USA	Organisational context is important
[117]	Broad review on human resource management with respect to change management in health service reorganisation	Health Technology Assessment review of reviews	Mentions mentoring as one intervention among many, but notes the difficulty of transferring messages between non-health and health settings
[158]	Physiotherapy students	Not stated in abstract	Focus on physiotherapy students[158] with useful finding that no model is superior (e.g. 1:1, 1:2, 2:1, peer mentoring etc.) The review found few experimental studies, and a large amount of descriptive research and opinion pieces, but a lack of comparative research.
Types of mentor, their skills and qualifications			
[139]	Competences for medical educators	44 studies	Found 7 competence domains

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Reference	Topic	Number of included studies	Findings
Relationship between mentoring partners			
101	Early practical experience in health professions (mentoring implicit)	38 empirical studies	Early experience has a strong positive formative influence on students
29	Clinical supervision for allied health professionals, using Proctor's model	33 papers, most of which were exploratory	There was a lack of comparative research
50	Mentors as role models for surgical trainees	Not stated in abstract	Benefits shown of early, formal mentorship and of role models
80	Peer tutoring in medical students	19 studies	There were perceived benefits for the peer tutors, mixed results on accuracy of peer assessment and feedback, and no evidence that peer tutors improved their own exam results
83	Peer teaching and learning in 'health science' students	12 empirical papers	Generally positive outcomes, but notes that strategies are required to deal with "incompatible students or poor student learning"
58	Communities of practice for mentoring in business and health	18 from business and 13 from health	The concept is used in diverse ways and there is a lack of effectiveness research on communities of practice in health
76	Team based learning (can overlap with mentoring)	14 studies included	There were conflicting findings on learner impact

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Reference	Topic	Number of included studies	Findings
How the mentoring is delivered			
139	E-mentoring for medical students, article focusses on core competences of medical educators in e-mentoring	44 studies	Found 7 competence domains
144	Social networking for medical education (implicit proxy for peer mentoring)	9 studies included in this PRISMA review	There appeared to be no loss of professionalism but no evidence of benefits over other media.
125	Community teaching for medical students	29 papers included	Mostly positive findings, but there were concerns about some GPs' lack of specialist knowledge, potential impact on health service delivery, and cost
105	Portfolios for medical student assessment	30 papers included	Integration of portfolios into the curriculum and tutor support are required
114	Fitness to practice in different professions and countries, and organising funding and placements	100 reports – did not use any hierarchy of evidence	How fitness to practice is organised with respect to funding and placements in different professions and countries

Table 12. Selected systematic reviews in business

Reference	Topic	Number of included studies	Findings
[42]	Mentoring programmes' effectiveness	Not stated in abstract	Mentoring is effective for individuals' career development, especially informal mentoring. There is a lack of comparative research.
[58]	Communities of practice	18 from business and 13 from health	The concept is used in diverse ways and there is a lack of effectiveness research on communities of practice in health

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