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**Mobilising evidence to improve nursing practice: a qualitative study of leadership roles and processes in four countries**

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1 **Mobilising evidence to improve nursing practice: a qualitative study of leadership roles**  
2 **and processes in four countries**

4 **Abstract**

5 *Background:* The approach and style of leaders is known to be an important factor  
6 influencing the translation of research evidence into nursing practice. However, questions  
7 remain as to what types of roles are most effective and the specific mechanisms through  
8 which influence is achieved.

9 *Objectives:* The aim of the study was to enhance understanding of the mechanisms by which  
10 key nursing roles lead the implementation of evidence-based practice across different care  
11 settings and countries and the contextual factors that influence them.

12 *Design:* The study employed a qualitative descriptive approach.

13 *Settings:* Data collection was undertaken in acute care and primary/community health care  
14 settings in Australia, Canada, England and Sweden.

15 *Participants:* 55 individuals representing different levels of the nursing leadership structure  
16 (executive to frontline), roles (managers and facilitators), sectors (acute and  
17 primary/community) and countries.

18 *Methods:* Individual semi-structured interviews were conducted with all participants  
19 exploring their roles and experiences of leading evidence-based practice. Data were  
20 analysed through a process of qualitative content analysis.

21 *Results:* Different countries had varying structural arrangements and roles to support  
22 evidence-based nursing practice. At a cross-country level, three main themes were identified  
23 relating to different mechanisms for enacting evidence-based practice, contextual influences  
24 at a policy, organisational and service delivery level and **challenges of** leading evidence-  
25 based practice.

26 *Conclusions:* National policies around quality and performance shape priorities for evidence-  
27 based practice, which in turn influences the roles and mechanisms for implementation that  
28 are given prominence. There is a need to maintain a balance between the mechanisms of  
29 managing and monitoring performance and facilitating critical questioning and reflection in  
30 and on practice. This requires a careful blending of managerial and facilitative leadership.  
31 The findings have implications for theory, practice, education and research relating to  
32 implementation and evidence-based practice.

34 **Keywords:** Evidence-based practice; Facilitation; Knowledge translation; Implementation;  
35 Leadership; Managers; Facilitators

36

1  
2 37 **What is already known about this topic?**  
3

- 4  
5 38       • Nursing leadership is an important factor influencing the implementation of  
6 39       evidence-based practice (EBP).  
7  
8 40       • Previous research has demonstrated that both formal and informal leaders – those  
9 41       with and without managerial responsibility- have a role to play in leading and  
10 42       enabling the delivery of EBP.  
11  
12 43       • Less is known about the specific types or combination of roles that are most effective  
13 44       or the mechanisms though which influence is achieved.  
14

15 45

16  
17 46 **What this paper adds**  
18

- 19 47       • The national policy and regulatory environment influences the interpretation and  
20 48       operationalisation of EBP.  
21  
22 49       • Leadership for EBP is not role-specific; it requires a dynamic network which  
23 50       encompasses the range of skills required to optimise EBP.  
24  
25 51       • Insight into the mechanisms needed to enact EBP, ranging from managing and  
26 52       monitoring to facilitative, relationship-focused approaches, and the importance of  
27 53       achieving the right balance.  
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57 **Mobilising evidence to improve nursing practice: a qualitative study of leadership roles**  
58 **and processes in four countries**

60 **1. Introduction**

61 Despite significant investments in health research within high-income countries,  
62 international evidence demonstrates that the implementation of research findings into  
63 improved practice, patient care and population health is often slow, incomplete and  
64 inconsistent (1-3). Reasons for this are multi-faceted and there is growing recognition that  
65 the traditional 'pipeline' model from knowledge production to implementation over-  
66 simplifies the complexities involved (4, 5). As such, there is increased attention focused on  
67 *how* best to achieve implementation of research evidence in the most effective, efficient and  
68 timely ways possible. This links to broader debates about the concept of evidence-based  
69 practice (EBP) and how it has been interpreted since its initial iteration in the mid-1990s (6,).  
70 Critics have argued a need for a paradigm shift to prevent over-simplistic and overtly rational  
71 approaches to generating and applying evidence to inform clinical practice and patient care  
72 (7). In the context of this paper, we are particularly focusing on the implementation of EBP,  
73 which we define as the structures, roles and processes used to support the translation of  
74 evidence derived from multiple sources (research; clinical and patient experience; national,  
75 regional and local information) into nursing practice.

77 The challenges of implementing evidence into practice are of particular significance in  
78 nursing, given that it represents the largest professional workforce in healthcare. However,  
79 nursing and healthcare systems more generally are experiencing a time of significant change  
80 due to a combination of economic pressures, demographic shifts, technological  
81 advancement, problems with recruitment and retention, and changing public and political  
82 expectations. This is apparent across national and international health systems and presents  
83 an additional challenge in terms of delivering high quality, evidence-based care (8-11).  
84 Furthermore, considerable variations exist within and across different countries in terms of  
85 how nursing is led, organised and managed at a strategic, organisational and operational  
86 level (12).

88 Research into implementation highlights different factors that can influence whether and  
89 how research evidence is used in practice. These include factors relating to the evidence  
90 itself (for example, the extent to which research results are accepted or contested), the  
91 intended users of the evidence (for example, how motivated and capable nurses are to take  
92 on a practice change) and the context in which implementation is taking place (13, 14). The  
93 approach and style of leaders, both individually and collectively, can influence, and  
94 potentially modify these factors. Leadership is known to be an important determinant of  
95 culture, which itself is a key characteristic of the context that shapes implementation and  
96 translation (15, 16).

98 Several studies have examined the relationship between leadership and evidence  
1 99 implementation (17). Aarons and colleagues developed a measure of unit level leadership  
2 100 for implementation that identifies four types of required leadership activity, termed  
3 101 proactive, knowledgeable, supportive and perseverant leadership (18). The Ottawa Model of  
4 102 Implementation Leadership (O-MILe) presents a theoretical model for developing  
5 103 implementation leadership, focused around three categories of leadership behaviours,  
6 104 defined as relations, change and task oriented (19). However, questions remain as to who is  
7 105 best placed to provide the type of leadership required to enhance implementation of  
8 106 evidence-based practice (EBP). For example, should leadership for EBP be provided by  
9 107 individuals with formal management authority or by people in roles with a specific remit for  
10 108 supporting implementation, education or practice development? Or is it a shared, collective  
11 109 responsibility within organisations? And how does the practice environment directly or  
12 110 indirectly impact what the assumed leaders do?

19 111  
20 112 Some literature suggests that middle managers – those who supervise front-line employees,  
21 113 but are themselves supervised by senior managers – have an important, but as yet  
22 114 overlooked, role in implementing EBP (20). However, empirical studies testing interventions  
23 115 to build management capacity for implementing EBP have produced mixed results (21, 22),  
24 116 linked to a view that the nurse manager’s role in EBP is under-articulated, largely passive and  
25 117 limited by competing demands (23) or that nurse managers lack the knowledge and skills  
26 118 needed to effectively support EBP (24, 25).

31 119  
32 120 Other studies have focused on individuals in designated roles for implementation-related  
33 121 activity (26). A variety of different terms are used to describe these roles, which typically do  
34 122 not encompass formal management responsibility and can be broadly grouped together as  
35 123 ‘facilitation’. Cranley and colleagues recently undertook a scoping review of facilitation roles  
36 124 and characteristics and identified nine types of roles, including opinion leaders, coaches,  
37 125 champions, knowledge brokers and clinical/practice facilitators. The different roles were  
38 126 seen to vary in terms of level of formality, position (internal or external to the organisation),  
39 127 main activities undertaken and key attributes and skills required (27). Berta and colleagues  
40 128 (28) suggest that the mechanism through which facilitation influences implementation is one  
41 129 of building learning capacity, through stimulating higher-order (double and triple-loop)  
42 130 adaptive learning about how to apply research evidence to improve care processes. This is  
43 131 achieved through establishing internal and external meta-routines (selective processes) that  
44 132 empower front-line staff to change practice by identifying problems and seeking and  
45 133 applying appropriate solutions; by contrast, single-loop learning is more standardised and  
46 134 focuses on technical approaches to fix problems (29).

55 135  
56 136 Evidence on the effectiveness of facilitation as an implementation strategy is mixed. Studies  
57 137 in primary care and community settings that were not specifically focused on nursing  
58 138 practice, suggest evidence of impact, for example, in terms of improving the uptake of

139 clinical guidelines in general practice (30) and significantly reducing neonatal mortality (31).  
140 By contrast, a cross-European study employing facilitation as an intervention to improve  
141 uptake of continence guideline recommendations in nursing home care showed no  
142 significant differences between intervention and control wards (32). This same study  
143 highlighted the importance of the relationship between facilitators and managers, the latter  
144 acting as key gatekeepers in terms of influencing whether and how effectively the facilitator  
145 could perform their intended role (33).

146  
147 In summary, existing evidence provides a compelling case for the contribution of human  
148 agency – in the form of various leadership roles and processes – to enhance the  
149 implementation of evidence into practice. Managers and facilitators clearly have a  
150 potentially important contribution in terms of providing leadership for EBP. However,  
151 evidence of effectiveness is mixed and inconclusive. Questions remain as to what types of  
152 roles or combinations of roles are the most effective and through which mechanisms  
153 influence on practice is achieved. Context is recognized to be an important mediating factor  
154 in implementing EBP (34), a fact that needs to be taken account of when considering roles,  
155 strategies and processes to enhance EBP. To date, studies of context have focused on the  
156 micro and meso levels of care whereas contextual factors at a macro level remain largely  
157 under-researched (35). Exploring these issues is key to developing capacity for delivering and  
158 supporting EBP. Moreover, knowledge about how to effectively leverage new and existing  
159 roles to implement EBP is transferable to support innovation and change more generally, an  
160 important requirement in the fast-changing environment of modern day healthcare. These  
161 questions form the backdrop of the study reported here.

### 162 163 *1.1. Objectives*

164 The primary objective of the study was to enhance understanding of the mechanisms by  
165 which key nursing roles lead the implementation of EBP across different care settings and  
166 countries and the contextual factors that influence them. In order to achieve this objective,  
167 the following research questions guided this study:

- 168 i. What roles do executive and clinical/frontline level leaders (managers and  
169 facilitators) play in supporting the implementation of EBP?
- 170 ii. How are different roles enacted to promote and support implementation?
- 171 iii. What contextual factors influence implementation roles and processes?

172  
173 [Note: throughout the paper, we use the term ‘leadership’ to encompass managerial and  
174 facilitative roles]

## 175 176 **2. Methods**

177 The study used a qualitative descriptive approach (36) based on individual interviews with  
178 identified nursing leaders, in managerial and facilitative roles, across healthcare settings in  
179 four countries. We opted for this as the most appropriate methodology as the aim was to

180 develop a rich description of the phenomenon under study, namely leadership of EBP across  
 181 four different countries.

182 *2.1. Setting*

183 Data collection was undertaken in acute care and primary/community health care settings in  
 184 Australia, Canada, England and Sweden. These countries are comparable in broad terms of  
 185 level of development (high-income countries), tax-based universal health care systems and  
 186 national structures or systems for monitoring and/or regulating performance. Within each  
 187 country, one or two organisations were selected using a combination of convenience and  
 188 purposive sampling. From a convenience perspective, organisations were selected that were  
 189 geographically close to the research team members responsible for data collection.  
 190 Subsequently, the main criterion then used to select organisations was a self-declared  
 191 commitment of the organisation’s nursing leadership to EBP, including granting access to the  
 192 research team to interview a range of staff involved in implementation (Table 1). Research  
 193 team members in each country approached identified organisations directly with an  
 194 invitation to participate in the research.

196 *2.2. Sample selection*

197 The total study sample comprised 55 individuals who were purposefully recruited to  
 198 represent different levels of the nursing structure (from executive to frontline), roles  
 199 (managers and facilitators), sectors (acute and primary/community care) and countries.  
 200 Most, but not all of the interviewees had a nursing qualification. Inclusion was based on the  
 201 following criteria: those in managerial roles had a clearly defined responsibility for managing  
 202 nurses and nursing care; facilitators were involved in providing and supporting education  
 203 and practice development for nursing staff. Initial contact was made with nursing executive  
 204 leaders in each of the participating sites and these individuals were asked to make  
 205 suggestions of other key people to contact within their organisation. These individuals were  
 206 subsequently sent an email invitation with supporting information about the study. The  
 207 majority of individuals approached agreed to participate; one person only (English sample)  
 208 declined.

209  
 210 The breakdown of the sample by level, role and sector is detailed in Table 2. Participants  
 211 were evenly spread across acute and primary/community care settings, in order to cover  
 212 various healthcare contexts.

	Australia	Canada	England	Sweden
Organisations involved in the study	1 organisation providing acute care (2 hospitals) and primary and community care	2 organisations: - Western Canada; Province-wide provider of acute care	1 integrated organisation providing acute care (1 hospital) and primary and community	2 organisations: - County-wide provider of acute care (4 hospitals) and primary care



		(total of 106* hospitals) and community care - Eastern Canada; A publicly funded home care service provider * 2 of the 106 hospitals were included in the study sample	care	- Municipality-wide provider of community care
National standards and/or accreditation of evidence-based practice	Australian Commission on Safety and Quality in Health Care	Accreditation Canada	The Care Quality Commission and National Institute for Care Excellence (NICE)	National Board of Health and Welfare

**Table 1. Characteristics of the study sites by country**

*2.3. Procedure and data collection*

Data collection took place between September 2015 and April 2016. After informed consent from the participants, semi-structured interviews were conducted. Interviews were carried out by a member of the research team (or a research assistant working with the research team member) in their own country (Australia: GH and JK; Canada: WG and a research assistant working with GC; England: RK and PW; Sweden: LP). All interviewers were working in academic positions (for example, Professors or senior researchers), were experienced in qualitative interviewing methods and employed a standard interview guide specific to the role of the participant, i.e. executive/senior manager, clinical/front-line manager or facilitator. Three separate study specific interview guides were developed for data collection, informed by a literature review and input from local stakeholder groups. The questions were related to these overall areas: Clarification of role and position in the organisation; Knowledge and decision-making; Experiences of EBP; Own role in EBP. Back translation was undertaken to verify congruence between the English and Swedish versions of the interview guide (37).

Interviews were conducted on an individual basis, and mostly face-to-face at the workplace, although some took place by telephone (at the request of the interviewee). The interviews were conducted in English or Swedish and were typically 30-60 minutes duration. All

interviews were digitally audio-recorded and transcribed verbatim; additional field notes were not routinely collected. Interviewees were offered the opportunity to have their transcription returned for verification purposes, although the majority did not accept this offer.

	Australia	Canada	England	Sweden	Total
Executive/senior manager	1	6	2	2	11
Clinical/frontline manager	3	2	3	7	15
Executive/senior facilitator	2	1	3	4	10
Clinical/frontline facilitator	8	5	1	2	16
Hybrid (e.g. manager-facilitator)	-	-	3	-	3
Total	14	14	12	15	55

**Table 2. The research sample by country, level and role**

#### 2.4. Data analysis

Interview data were analysed by qualitative content analysis (38) using QSR NVivo 10/11© software. This was initially undertaken at an individual country level by relevant members of the research team (3 each in Australia and Sweden; 2 in Canada and England). The analysis was guided by the research questions and participant responses to each question were grouped to form the unit of analysis. An iterative process was used to descriptively summarise the data involving: deductive coding of relevant passages using the words of participants; organising and grouping recurring ideas into response categories; inductively re-coding and condensing response categories to identify patterns, regularities and descriptive themes (38). Throughout the analysis, preliminary codes and themes were discussed within the research team and reviewed for internal homogeneity (i.e. themes were consistent and fit together) and external heterogeneity (i.e. clear distinctions between each theme) and revised based on group discussion and further analysis. Cross-checking of transcripts occurred to enhance the trustworthiness of analysis, for example, by members of one country team analysing interview data from another country.

The majority of the research team were academics working in the field of knowledge translation and implementation science, with both theoretical and practical knowledge of the research topic. Regular project team meetings were organised to share insights and reflections on the data, in an open and critically constructive way. Analytical discussions took place via monthly Skype meetings. Additionally, three face-to-face meetings, each held over two days, took place at key points during study design, data analysis and interpretation of

263 findings. Categories and themes were compared, initially at a country level and then at a  
264 cross-country level in order to find similarities and differences across different groups (i.e.  
265 managers and facilitators) and different settings (i.e. acute and primary/community care). In  
266 two countries (Australia and Sweden), feedback to local stakeholder groups was undertaken  
267 to sense-check and verify the emerging findings.

### 3. Findings

270 At an organisational level, the different sites where data collection took place had varying  
271 structural arrangements and roles to support EBP, as evidenced by feedback from the senior  
272 managers interviewed and publicly available policy documents. These are summarised in  
273 Table 3.

274  
275 Comparing findings at a cross-country level, three main themes emerged:

- 276 - Different mechanisms for EBP: Managing and monitoring versus connecting and enabling;
- 277 - Roles shaped by context: policy, organisational and service delivery level;
- 278 - **Challenges of** leading EBP.

279 In the presentation of the findings, direct quotes from interviewees are denoted according  
280 to country, role and setting: Country codes: A-Australia; CE-Canada East; CW-Canada West;  
281 E-England; S-Sweden; Roles: E-Executive/senior level manager; EF-Executive/senior level  
282 facilitator; M-Frontline manager; F-Frontline facilitator (numbers are used to differentiate  
283 interviewees in the same role); Setting: A-Acute; C-Community; A/C-Acute and Community

#### 3.1. Different mechanisms for EBP: Managing and monitoring versus connecting and enabling

284  
285  
286 The data demonstrate two contrasting mechanisms by which nursing leaders sought to  
287 embed EBP, one more formalised and concerned with meeting expected performance  
288 standards, the other more enabling and relationship focused. Managers tended to  
289 emphasise the performance and monitoring aspects of their role, whilst facilitators  
290 highlighted a relationship-based approach, although overlaps between the two were  
291 apparent. Managers typically described their role in terms of providing direction, acting as  
292 role models, monitoring compliance against standards or guidelines, and maintaining overall  
293 oversight of evidence-based practice. At an executive level, this encompassed the provision  
294 of strategic leadership and high-level visionary direction, establishing an infrastructure and  
295 processes to enable and support EBP and collaborating with other relevant organisations  
296 and institutions at a local, regional and national level.

297  
298 *I think from a nursing and midwifery point of view .... the concept of research and*  
299 *evidence based practice, ....is vitally important, one for the patients but also for the*  
300 *promotion and the organisation or stature within the broader health community. For*  
301 *me, I would think it was quite strategic .... I knew I wanted an increased research*  
302 *profile .... So I think that in trying to raise the profile of research what you then do is*  
303 *you get people thinking about evidence based practice. [A-E-A/C]*

	<b>Australia</b>	<b>Canada</b>	<b>England</b>	<b>Sweden</b>
<b>Main structure/s leading and supporting evidence-based nursing practice</b>	Centralized education function, underpinned by a commitment to Practice Development  Participation in the Best Practice Spotlight Organisation (BPSO) Program (a Canadian initiative led by the Registered Nurses' Association of Ontario and involving partnership with international sites)	<u>Acute care organisation</u> Provincial level Knowledge Management Department, responsible for making evidence accessible and providing education to staff <u>Community care organisation</u> Virtual Resource Centre for online resources & advice Participation in BPSO Program	Centralized Quality Improvement Department coordinating multiple Quality Improvement Collaboratives  Locally developed Nursing Assessment and Accreditation system, aiming to create sustainability of QI initiatives	<u>Acute care organisation</u> Central service units for EBP, providing QI support to department and unit managers  <u>Community care organisation</u> Central resources for EBP
<b>Roles</b>	2 types of ward/unit (frontline) roles: - Nurse unit manager, operational focus; 'gatekeeper' role - Clinical practice consultant, clinical/educational focus  Some evidence of role hybridity  Nurse educators working from a central department with a (clinical) specialist focus	<u>Acute care organisation</u> Service level roles; Nurse Practitioners, Clinical Nurse Specialists, Clinical Nurse Educators, Clinical Implementation Managers, working with front-line staff to facilitate EBP <u>Community care organisation</u> Direct and indirect roles to support implementation; Advanced Practice Consultants, Clinical Improvement Coaches and Clinical Practice Resources Nurses	Acute and community focused roles with responsibility for coordinating the nursing accreditation system  Front-line nurse managers with a strong patient safety and quality focus  Hybrid roles – clinical specialist with some operational management responsibility – acting as a clinical expert for front-line staff	<u>Acute care organisation</u> Managers responsible for providing data to national quality registers Local facilitators working with front-line staff to implement EBP  <u>Community care organisation</u> Relatively few facilitator roles to support local staff

**Table 3: Structures and roles to support EBP at an organisational level, by country**

At a clinical/unit level, the manager's role had a more operational focus and involved collecting and collating evidence to create policies, procedures and protocols, disseminating

310 information to staff, undertaking audit and feedback to make sure that standards were  
1 311 followed and maintaining and supporting the professional development of staff. A manager  
2  
3 312 working in the community described their role in governing quality and standards:  
4

5 313 *We would go out with certain members of staff, we would go visiting patients, we do*  
6 314 *our documentation audit, we can check our home care assessment tools, our risk*  
7  
8 315 *assessment tools .... And so there's a really robust structure in place regarding us*  
9  
10 316 *monitoring who's working within the policies and procedures. [E-M5-C]*  
11

12 317 The nurse manager role was seen as a pivotal 'gatekeeper' in EBP that could act as either an  
13  
14 318 enabler or an obstructer, as illustrated by the reflections of an executive nursing leader:

15  
16 319 *I think a lot of it has to do with the .... person who runs the ward, unit or service. To me,*  
17 320 *I think they're actually the most important people in the organisation, so to me they're*  
18  
19 321 *the gatekeepers of the clinical care, the culture and how people conduct themselves ....*  
20 322 *Often I think the block's with the [nurse unit manager], not necessarily with the staff*  
21  
22 323 *underneath [A-EF1-A/C]*  
23

24 324  
25 325 In contrast to the more direct strategic and operational influence of managers, facilitators  
26 326 tended to describe their role as supporting implementation through providing education and  
27  
28 327 coaching, increasing staff awareness of evidence and EBP, enabling skills and capacity  
29 328 development amongst the nursing staff, addressing barriers to implementation and acting as  
30  
31 329 a coordinator. This relied on 'softer' mechanisms, such as working alongside staff, having  
32 330 conversations and building communication networks.  
33

34 331 *..... Lots of conversation. I think that's the basis of [my] role .... And so, a lot of it is*  
35 332 *knowledge translation in my mind ... having a discussion about whether that's best*  
36  
37 333 *practice or not. [CW-F2-C]*  
38

39 334  
40 335 *It is about getting staff into this way of thinking. It should not go too fast. You need to*  
41 336 *be out there. I work a lot from here, in my office. What feels meaningful and valuable is*  
42  
43 337 *to get out in practice and be there. And really translate evidence directly into everyday*  
44  
45 338 *practice, so it becomes natural, and they understand what you are talking about.*  
46 339 [S-F2-C]  
47

48 340  
49 341 The need for complementarity between roles was noted, particularly in the Canadian sites,  
50 342 which had a long history of creating structures and systems to support EBP. Here, managers  
51  
52 343 recognised the importance of their role in terms of setting the tone, identifying priorities and  
53  
54 344 advocating for resources, yet at the same time trusting and supporting others in terms of  
55 345 how to achieve the desired outcomes:  
56  
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58  
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64  
65

346 *I think all of us have our own, our roles ... they should be complementary at the very*  
1 347 *least. ...Dedicated facilitators, I just step aside and let them carry on 'cause that's what*  
2  
3 348 *we hired them to do. And I appreciate the support. [CW-E1-C]*

4 349  
5  
6  
7 350 In a few instances, individuals exhibited roles that could be described as hybrid as they  
8 351 combined elements of both managerial and facilitative responsibility. This was particularly  
9  
10 352 the case in the English sample where some nurse consultants also had formal management  
11 353 responsibility for more junior staff, which is not typically the case for nurse consultant roles.  
12  
13 354 There were also examples where participants described enacting their role in a way that  
14 355 melded aspects of facilitative and managerial leadership, as illustrated in this quote from a  
15  
16 356 community-based nurse consultant in Australia:

17  
18 357 *... the [middle] level role is that perfect balance between the management side and still*  
19 358 *really being on a practical level and being able to be engaged with my staff and*  
20  
21 359 *encouraging them to do it as well. [A-F2-C]*

### 22 360 23 24 361 *3.2. Roles shaped by context: policy, organisational and service delivery levels*

25  
26 362 Contextual influences on roles and processes supporting EBP were apparent at a policy,  
27  
28 363 organisational and service level. Depending on the country, policy influences functioned  
29  
30 364 mostly at a country (Australia and England) or a regional/provincial level (Sweden and  
31  
32 365 Canada). In Australia and England, where there was a strong regulatory environment, an  
33  
34 366 emphasis on national standards was apparent, accompanied by mandatory monitoring and  
35  
36 367 accreditation systems. The influence of such formal regulatory arrangements on the  
37  
38 368 interpretation and implementation of EBP was evident in the accounts of interviewees:

39 369 *.... I think there is a strong adherence to procedures and policies and following the*  
40 370 *national standards .... that sort of evidence is embedded into practice but the nurse or*  
41 371 *the midwife may not necessarily recognize that that's what they're doing ... [A-EF2-A/C]*

42  
43 372 By contrast, in the less regulated systems in Sweden and Canada, external performance  
44 373 management appeared to be less of a concern or have a direct influence on EBP. For  
45  
46 374 example, in Sweden, respondents talked about providing data to national quality registers  
47  
48 375 but this was not the dominant narrative in their accounts of leading or supporting EBP in  
49 376 nursing.

50  
51 377 *...we do quality assessments and audits according to the quality criteria the Board has*  
52 378 *set up. We also work on behalf of the MAS [medically responsible nurse] to follow up,*  
53  
54 379 *for example, deviations and investigate more serious deviations. Through such work we*  
55  
56 380 *can get feedback through data in the quality registers to be able to ensure that we are*  
57 381 *actually doing what we have decided to do. [S-F2-C]*

382 At an organisational level, the strategic orientation of executive leaders appeared  
1 383 particularly important. In several of the organisations studied, there was an explicit  
2 384 philosophy and culture of continuous quality improvement, which clearly influenced the  
3 385 approach taken to implementing EBP. This was especially noticeable in the English site,  
4 386 which had a central Quality Improvement Department, responsible for coordinating  
5 387 initiatives such as quality improvement collaboratives, based on the Institute for Healthcare  
6 388 Improvement model (39). In terms of connecting with EBP, the approach used within nursing  
7 389 was to synthesise data generated by the improvement collaboratives into a set of nursing  
8 390 standards that were routinely monitored through an organisation-wide nursing accreditation  
9 391 system. In this way, local improvement data formed a key component of the evidence base  
10 392 that underpinned nursing practice and ongoing accreditation was seen to fulfil the purpose  
11 393 of sustaining improvement. Two mid-level nursing roles existed within acute and community  
12 394 services to lead and coordinate the accreditation process.

19  
20 395 *And then once we've got all the tests of change that do make a difference ... then we*  
21 396 *formulate that into a change package with all the bundles in it and we publicize that*  
22 397 *[organisation] wide so that every ward should be doing that. And that's where I come*  
23 398 *in with the sustainability arm ... because it's end up in the [nursing accreditation]*  
24 399 *document. So I will go onto the ward and I will ask staff, 'So, how do you detect a*  
25 400 *deteriorating patient? What are the seven elements of the bundle of care that we use*  
26 401 *in the acutely unwell change package?'* [E-F1-A ]

30  
31 402 The two Canadian sites had a similar emphasis on quality improvement. However, there was  
32 403 not the same formalization of locally generated improvement data into an overarching  
33 404 accreditation or monitoring system. Both Canadian sites had a long history of implementing  
34 405 EBP. As a result, a substantial infrastructure for supporting EBP was evident at the provincial  
35 406 level:

36  
37  
38  
39 407 *I think you have to have leadership at the top, and buy-in right at the top, and then you*  
40 408 *have to have an infrastructure .... to support staff access to the information, to, you*  
41 409 *know, have access to staff who may have the knowledge if we don't have it in writing*  
42 410 *somewhere, to, you know, the documentation tools, the education, the orientation, all*  
43 411 *those things. You have to have champions. You've got to have people that are lined up*  
44 412 *with this that are carrying it on. You've got to have lots of cheerleaders ... And then you*  
45 413 *have to have a system to measure it.* [CE-E-C]

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50  
51 414 In Sweden, there was a unique feature that was not driven or organised around an external  
52 415 accreditation system, but involved combining local quality improvement work and  
53 416 benchmarking based on the national quality registers:

54  
55  
56 417 *...we have a business plan in which we have set up our own indicators to be able*  
57 418 *to follow our local results. From those indicators we set up targets that are*

different to those of the normal quality registers. They tell us how to measure, when, where and by whom. This gives us data from several sources. [S-F4-C]

Table 4 summarises the key findings in relation to policy/organisational influences on EBP.

	<b>Australia</b>	<b>Canada</b>	<b>England</b>	<b>Sweden</b>
<b>Policy context</b>	National healthcare accreditation scheme, based around 10 National Safety and Quality Health standards, developed by the Australian Commission on Safety and Quality in Healthcare	Primary responsibility for health system governance decentralized to provinces and territories Accreditation Canada – voluntary participation, but majority of organisations opt in	National performance management framework and systems (e.g. NICE standards and Care Quality Commission) Public healthcare system highly regulated	National practice guidelines and quality registers (> 100). Clinical settings report data to registers; these provide online feedback to local authorities and the public. Voluntary participation, not an accreditation system
<b>Organisational context</b>	Strong commitment to EBP at a strategic level Influence of external regulatory framework on policy and procedures guidance (PPG) and related auditing Complementary frontline roles, encompassing managerial and facilitative leadership Some evidence of hybrid manager/facilitator roles Difficult balance between embedding formalised PPG and encouraging and supporting critical thinking amongst clinical staff	Long history of supporting EBP Well-developed provincial and organisational infrastructure, including access to evidence-based resources and specialist roles to facilitate implementation Strong leadership support and strategic oversight from senior and middle-level managers Delegated responsibility and authority for implementation to facilitators Use of quality improvement (QI) methods and processes to guide implementation	Strong organisational emphasis on quality improvement; well-developed supporting infrastructure and culture QI the main vehicle for implementing EBP Improvement data feeding into a locally developed Nursing Assessment and Accreditation System to embed best practice Central QI Department, but few roles with a designated responsibility for facilitating implementation All leaders/managers involved in QI Hybrid clinical specialist/manager roles	Commitment to EBP at a national level with monitoring, reporting and benchmarking based on national quality registers, with a strong focus on medical data. Local quality improvement work based on quality improvement (QI) methods. Nurse managers have responsibility to support EBP, but limited capacity. Facilitator roles both at central and local level with responsibility to support QI and EBP.

Table 4: Summary of key findings by country



424 At a service level, differences were noted between acute and community/primary care  
425 services. This particularly related to contextual limitations experienced when delivering care  
426 in a person's home rather than in a clinical facility, both in terms of delivering EBP and  
427 undertaking audits. One example given related to difficulties of undertaking evidence-based  
428 wound care:

429 *... we're dealing with patients' own environments, which is challenging. For example,*  
430 *doing a simple dressing change, there might be a cat, there might be a dog, there*  
431 *might be a parrot. I'm trying to do a sterile procedure .... and we've got to try and be*  
432 *evidence-based practitioners, but also we need to be respectful of our patients and*  
433 *their wishes and how they live. [E-M4-C]*

434 The community setting also presented challenges in terms of monitoring and evaluating the  
435 implementation of EBP as practitioners were typically working alone:

436 *... well I think that barriers [are] oversight and being able to monitor in the*  
437 *community - we don't have an electronic health record for nursing yet, and*  
438 *that's a draw back because there's so much that's happening that we're not*  
439 *able to capture yet. We would do chart audits and that kind of thing but it's*  
440 *paper based and because the charts go into the home - you know we're not*  
441 *always getting those charts back in fairly large numbers [CE-M4-A]*

442  
443 Strategies to address the potential isolation of lone practitioners included managers  
444 undertaking 'walkabouts' and accompanying staff on visits to patients, providing clinical staff  
445 with electronic tablets with standardized protocols and software for data capture and  
446 feedback, and holding regular safety huddles.

### 448 3.3. Challenges of leading EBP

449 This third theme encompasses the challenges interviewees described in leading EBP, relating  
450 to the preparation they had received for this role and the perceived barriers they  
451 encountered. Whilst interviewees could clearly articulate their role in EBP, very few had  
452 received any educational preparation specifically targeted to implementing EBP. Some had  
453 undertaken modules in EBP as part of post-graduate study or a leadership development  
454 program, but for many the development of knowledge and skills in EBP had been an  
455 experiential process.

456 *I suppose I've learnt as I've gone along. I mean I've done some further education but*  
457 *that's not learning and research, .... No-one's shown me how to do it. [A-M1-A]*

458 Also, in the Swedish interviews a need for more knowledge was expressed:

459 ....the main challenge is knowledge and how to adopt that which actually works. I  
1 believe there is knowledge available that science has found/produced that could work  
2 460  
3 461 well when tried in practice and be followed up. However, it feels like care and welfare  
4  
5 462 should be able to find much evidence that could be introduced/adopted but time,  
6  
7 463 knowledge and education is needed to be able to adopt new working practices.

8 464 [S-M7-A]  
9

10 465  
11  
12 466 Similarly, interviewees reported minimal use of implementation theories and frameworks,  
13 467 even in Canada where the Canadian Institutes for Health Research (CIHR) actively promoted  
14  
15 468 the Knowledge-To-Action framework (40) as a planned change approach to implementing  
16 469 EBP. Where reference was made to frameworks, these tended to be more generic practice  
17  
18 470 development, change management or quality improvement methodologies.

19  
20 471 *I guess the main thing is [you] need a method for doing it. ... You need to commit to a*  
21  
22 472 *method, so we've committed to the model for improvement and testing change via*  
23 473 *PDSA. You need to commit to a method and try and teach that method as deeply and*  
24  
25 474 *as widely as you possibly can within your organisation otherwise people, in my*  
26 475 *experience, can flounder. [E-F4-A ]*

27  
28 476 Connecting EBP to audit and quality improvement processes such as PDSA was one of the  
29  
30 477 main enabling factors identified, alongside a supportive infrastructure (including evidence  
31  
32 478 resources, technology and facilitator roles) and communication mechanisms such as safety  
33 479 huddles.

34 480  
35  
36 481 Barriers to EBP appeared less of a concern in the Canadian sites, which had the longest  
37  
38 482 history and arguably the most extensive infrastructure (with human and non-human  
39 483 elements) to support EBP. In other countries, the key barriers identified from the  
40  
41 484 perspective of middle level leaders related to time and workload pressures. A particular  
42 485 issue highlighted in the Swedish data was the dominant role of the medical profession in  
43  
44 486 leading EBP, which resulted in the marginalization of nursing.

45  
46 487 *I think if staff were given more time people would gain more knowledge and gain more*  
47 488 *evidence and be more innovative with that evidence, in putting it into practice .... At the*  
48  
49 489 *moment everyone's just too busy and you try and talk to people about putting stuff in*  
50 490 *place and they're like 'we're just too busy. Please don't give us anything else to do' [A-*  
51  
52 491 *F2-C]*

53 492  
54  
55 493 *It is very difficult to break through all this physician-centredness... but I believe that we*  
56 494 *are getting better and better at that too, but we have a long way to go, we need a*  
57  
58 495 *paradigm shift to do that; and I almost feel that we are managing to move towards it,*  
59 496 *but it will probably take another 10-15 years. [S-F4-C]*

497

1 498 In countries such as Australia where there was a strong emphasis on following policies and  
2  
3 499 procedures guidance, concerns were raised that this could lead to a lack of critical thinking  
4 500 and reflection amongst front-line staff. This was most apparent in the acute care setting,  
5  
6 501 compared to the community where the existence and influence of policies and procedures  
7 502 was less prominent.  
8

9  
10 503 *I think they know that there's an expectation that they use evidence based practice but*  
11 504 *I think a lot of the time if you practically look at people it tends to be based on rote*  
12 505 *learning or based on procedures that dictate the way things are done. I don't know*  
13 506 *whether they necessarily understand the evidence process that's gone into informing*  
14 507 *those procedures [A-EF2-A/C]*  
15  
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#### 18 509 **4. Discussion**

20  
21 510 The findings demonstrate that a number and combination of different roles, strategies and  
22 511 processes are used to enact EBP. Moreover, there is an apparent relationship between  
23  
24 512 different leadership roles, the context in which implementation is taking place and  
25 513 approaches used to embed EBP.  
26

27  
28 514 As previous studies have highlighted, context proved to be an important mediating factor  
29 515 between roles, mechanisms and the use of evidence in practice. At the macro level,  
30 516 differences were observed across countries, which appear to be linked to a mix of historical,  
31 517 policy and regulatory influences. For example, in countries such as Canada with a long  
32 518 history in EBP, a well-developed supporting infrastructure was apparent at both a strategic  
33 519 and clinical level, including individuals in dedicated facilitator roles with delegated authority  
34 520 to support implementation. In Australia and England, where the policy focus was on  
35 521 regulation and accreditation, there was a greater tendency to emphasise 'hard' systems and  
36 522 structures such as standards, policies and procedures to embed and monitor the  
37 523 implementation of evidence into clinical practice. In Sweden, national quality registers  
38 524 provide a substantial basis for EBP, but did not seem to have a strong impact on local quality  
39 525 improvement work within nursing. This highlights the need to take account of wider policy  
40 526 influences, beyond the immediate clinical and organisational setting, when considering  
41 527 barriers and enablers of EBP (15,41). Equally, it is apparent that regardless of the policy  
42 528 environment, in most countries similar barriers relating to workload and time were  
43 529 observed, reflecting international pressures on nursing and health systems more generally.  
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52 530 At the front-line level of nursing leadership – for example, nurse unit managers or practice  
53 531 development facilitators – our findings show that contrasting mechanisms were used, which  
54 532 reflected contrasting leadership behaviours. Managerial leaders emphasised the  
55 533 management and monitoring aspects of their role, aligned to meeting the strategic  
56 534 objectives of the organisation, particularly around expected performance standards. In turn,  
57 535 this linked to an approach of 'hard-wiring' evidence into practice through policies and  
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536 procedures, standards, audit and routine monitoring. By contrast, facilitative leaders  
1 537 emphasised processes concerned with relationships, communication and making  
2 538 connections, for example, by working alongside, engaging and talking with nursing staff.  
3  
4  
5 539 Looking at the findings through a lens of organisational learning, aspects of both single and  
6 540 double loop learning are apparent (29). The more formal, managerial mechanisms, with a  
7 541 focus on meeting external standards and using audit as a monitoring tool, tended to  
8 542 reinforce single loop learning. By comparison, facilitative approaches were more concerned  
9 543 with enabling and supporting others to implement, typically through local quality  
10 544 improvement approaches whereby front-line staff were engaged in identifying and seeking  
11 545 solutions to clinical problems. This aligns closely with the concept of meta-routines proposed  
12 546 by Berta and colleagues (28), creating a link between facilitation and higher-order (double  
13 547 and triple-loop) learning and *“overcoming normal human tendencies to take reductionist  
14 548 approaches to problem-solving that afford only lower-order learning”* (p.11).  
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21 549 Both types of activity played a part in achieving EBP. The key appeared to be achieving a  
22 550 balance; for example, too great a focus on managing performance against standards could  
23 551 promote unquestioning practice. Or, from an organisational learning perspective, too much  
24 552 single loop learning could be at the expense of double and triple-loop learning. This is where  
25 553 executive and senior nursing leaders needed to take an important strategic role, balancing  
26 554 external regulatory requirements with internal processes and infrastructure for creating an  
27 555 evidence-based culture and encouraging and supporting critical thinking at the clinical level.  
28 556 This reinforces findings from previous research, which highlight the need for different  
29 557 approaches, encompassing transactional and transformational strategies that focus on task,  
30 558 relational and change-oriented goals (10, 19, 21, 42). However, our study highlights that it is  
31 559 not about identifying particular individuals or nursing roles that have prime responsibility for  
32 560 leading and developing EBP. Rather, the focus should be on how best to achieve  
33 561 complementarity between the mechanisms required to optimise EBP and the network of  
34 562 roles needed to enact these mechanisms.  
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43 563 The study findings also highlight the potential for hybrid roles to blend managerial and  
44 564 facilitation mechanisms. The concept of hybridity is a subject that has previously attracted  
45 565 some interest in relation to implementing evidence into nursing practice. For example, an  
46 566 English study examined nurse consultants as a form of hybrid role, proposing that it could  
47 567 combine a strategic translational focus with the ability to influence both professional and  
48 568 managerial hierarchies (43). It may also be useful to consider hybridity at the organisational  
49 569 level. Rather than focusing on the formal merging of clinical/professional and managerial  
50 570 roles in one person, there could be benefit in looking strategically at the blending of skills  
51 571 required for implementing EBP and how this needs to be configured in relation to the  
52 572 prevailing context in which implementation is occurring. For example a strong external  
53 573 emphasis on national standards and accreditation, may create a tendency towards more  
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574 formal, managerial approaches to EBP. To counter-balance this, more attention to facilitator-  
575 led, relationship-focused strategies at a local and organisational level may be warranted.

576 Overall, the study highlights that effective leadership for EBP is not role-specific. Rather  
577 certain mechanisms need to be enacted, mechanisms that are influenced by and need to be  
578 responsive to contextual influences at the micro, meso and macro level. This requires a  
579 strategic, yet dynamic network of roles, activities and relationships. In turn, this has  
580 implications for building capacity and capability for EBP within nursing. Previous work has  
581 highlighted the need to develop skills at different levels of complexity (for example, from  
582 learning basic skills such as audit and feedback through to more adaptive capabilities),  
583 through a combination of acquisitive and experience-based learning (44). Yet in the sample  
584 of nursing leaders we studied, most interviewees reported that they drew on generalist  
585 knowledge relating to leadership and change management to inform their role in EBP. The  
586 majority had not received any specific education or training on EBP; nor was the use of  
587 frameworks or theories to guide the process of implementation commonplace. As EBP has  
588 been listed as one of the key core competencies for all health professionals for the provision  
589 of safe, quality care it is notable that the nursing leaders had limited preparation in this field  
590 (45). This indicates an important area for future educational development.

#### 591 592 *4.1. Study strengths and limitations*

593 Our study was designed to provide more detailed insights into the nursing leadership roles  
594 and processes required to optimise the implementation of EBP. The international and cross-  
595 sectoral nature of the research enabled us to look across a breadth of different settings and  
596 roles and specifically examine the influence of macro-level contextual factors. It is important  
597 to acknowledge the limitation of having only one or two sites per country and we cannot  
598 claim that data saturation was achieved, nor that the study sites fully represented the  
599 national picture within the respective host countries. The purposive nature of sampling  
600 added a level of variability, as the study sites were not directly comparable at a cross-  
601 country level. However, the emergent pattern of a relationship between the policy context,  
602 organisational drivers for EBP, and related roles and implementation processes suggests  
603 trustworthiness of the study findings. The logistics of conducting a qualitative study across  
604 five different settings with multiple interviewers also posed challenges in terms of data  
605 collection, analysis and interpretation, issues that we addressed through our project  
606 management structure and face to face meetings at key points in the research process.  
607 Furthermore, we took steps to enhance the trustworthiness, confirmability and  
608 dependability of our findings by encouraging reflexivity during research team meetings. For  
609 example, organising two-day, face-to-face meetings at key stages of data analysis and  
610 interpretation meetings, enabled research team members to engage in critically constructive  
611 discussion about their own and each other's data. Additionally, the study findings were

612 presented to local stakeholder group meetings in two of the four countries (Sweden and  
613 Australia) to sense-check interpretation of the data at a local level.

#### 614 4.2. Conclusion

615 National policies around quality and performance shape priorities relating to EBP at an  
616 organisational level. This, in turn, influences the roles and mechanisms for implementation  
617 that are given prominence. There is a need to maintain a balance between the mechanisms  
618 of managing and monitoring performance versus facilitating critical questioning and  
619 reflection in and on practice. This requires a careful blending of managerial and facilitative  
620 leadership. The findings have implications for theory, practice, education and research  
621 relating to the implementation of EBP, both within nursing and at a wider inter-professional  
622 level. From a theoretical perspective, commonly applied EBP implementation frameworks  
623 such as the Consolidated Framework for Implementation Research (CFIR) [14], the  
624 Promoting Action on Research Implementation in Health Services framework (PARIHS) [13,  
625 41] and the Knowledge to Action framework (K2A) [40] emphasise the mediating effect of  
626 context and the need for attention to the processes of implementation. Findings from this  
627 research provide a more detailed insight into the specific mechanisms that leaders need to  
628 enact and could add further detail to these type of implementation frameworks, particularly  
629 in terms of providing a more detailed explication of macro and meso-level context-  
630 mechanism relationships. In relation to practice, executive leaders need to be alert to the  
631 prevailing policy and regulatory environment in which they are operating and focus on  
632 achieving an appropriate balance between hard-wiring evidence into practice versus  
633 facilitating implementation. Future research could involve designing and testing an  
634 implementation intervention that explicitly blends managerial and facilitative leadership  
635 strategies at an organisational and operational level. This could include further exploration  
636 of the concept of hybridity, at both an individual and collective level. Finally, more attention  
637 to educational preparation of staff to engage in and lead EBP is warranted. As a core  
638 competence for future healthcare leaders, EBP and implementation skills need to be  
639 addressed within undergraduate, postgraduate and continuing professional development  
640 educational programmes for all healthcare professionals.

#### 643 Ethical approval

- 644 • Australia: Human Research Ethics Committee (HREC/15/TQEH/114)
- 645 • Canada: University of Ottawa Ethics Committee (No. H05-15-04)
- 646 • Canada: University of Alberta Health Research Ethics Board (Pro00058227)
- 647 • England: University of Manchester Ethics Committee 5 (Ref. 15429)
- 648 • Sweden: Uppsala Regional Ethical Review Board (No. 2015/273).

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651

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**References**

- 1 670 1. Schuster M, McGlynn E, Brook R. How good is the quality of health care in the United States?  
2 671 *Milbank Quarterly*. 1998;76:517 - 63.
- 3 672 2. Grol R. Successes and failures in the implementation of evidence-based guidelines for clinical  
4 673 practice. *Medical Care*. 2001;39:1146 - 54.
- 5 674 3. Runciman WB, Coiera EW, Day RO, Hannaford NA, Hibbert PD, Hunt TD, et al. Towards the  
6 675 delivery of appropriate health care in Australia. *The Medical Journal of Australia*.  
7 676 2012;197(2):78-81.
- 8 677 4. Kitson A, Brook A, Harvey G, Jordan Z, Marshall R, O'Shea R, et al. Using Complexity and  
9 678 Network Concepts to Inform Healthcare Knowledge Translation. *International Journal of*  
10 679 *Health Policy and Management*. 2017;7(3):231-243.
- 11 680 5. Braithwaite J, Churrua K, Long JC, Ellis LA, Herkes J. When complexity science meets  
12 681 implementation science: a theoretical and empirical analysis of systems change. *BMC*  
13 682 *Medicine*. 2018;16(1):63.
- 14 683 6. Sackett DL, Rosenberg WM, Gray JA, Haynes RB, Richardson WS. Evidence based medicine:  
15 684 what it is and what it isn't. *British Medical Journal*. 1996;312(7023):71-2.
- 16 685 7. Greenhalgh T, Howick J, Maskrey N. Evidence based medicine: a movement in crisis? *British*  
17 686 *Medical Journal*. 2014;348:g3725.
- 18 687 8. Bodenheimer T, Fernandez A. High and rising health care costs. Part 4: can costs be controlled  
19 688 while preserving quality? *Annals of Internal Medicine*. 2005;143(1):26-31.
- 20 689 9. Cosgrove DM, Fisher M, Gabow P, Gottlieb G, Halvorson GC, James BC, et al. Ten strategies to  
21 690 lower costs, improve quality, and engage patients: the view from leading health system CEOs.  
22 691 *Health Affairs*. 2013;32(2):321-7.
- 23 692 10. Cummings G, Lee H, Macgregor T, Davey M, Wong C, Paul L, et al. Factors contributing to  
24 693 nursing leadership: a systematic review. *Journal of Health Services Research & Policy*.  
25 694 2008;13(4):240-8.
- 26 695 11. Rudman A, Gustavsson P, Ehrenberg A, Boström A-M, Wallin L. Registered nurses' evidence-  
27 696 based practice: A longitudinal study of the first five years after graduation. *International*  
28 697 *Journal of Nursing Studies*. 2012;49(12):1494-504.
- 29 698 12. Aiken LH, Sloane D, Griffiths P, Rafferty AM, Bruyneel L, McHugh M, et al. Nursing skill mix in  
30 699 European hospitals: cross-sectional study of the association with mortality, patient ratings, and  
31 700 quality of care. *BMJ Quality & Safety*. 2017;26(7):559-568.
- 32 701 13. Kitson A, Harvey G, McCormack B. Enabling the implementation of evidence based practice: a  
33 702 conceptual framework. *Quality in Health Care*. 1998;7:149-59.
- 34 703 14. Damschroder L, Aron D, Keith R, Kirsh S, Alexander J, Lowery J. Fostering implementation of  
35 704 health services research findings into practice: a consolidated framework for advancing  
36 705 implementation science. *Implementation Science*. 2009;4:50.
- 37 706 15. McCormack B, Kitson A, Harvey G, Rycroft-Malone J, Titchen A, Seers K. Getting evidence into  
38 707 practice: the meaning of 'context'. *Journal of Advanced Nursing*. 2002;38(1):94-104.
- 39 708 16. Gifford WA, Holyoke P, Squires JE, Angus D, Brosseau L, Egan M, et al. Managerial leadership  
40 709 for research use in nursing and allied health care professions: a narrative synthesis protocol.  
41 710 *Systematic Reviews*. 2014;3:57.
- 42 711 17. Cummings GG, Tate K, Lee S, Wong CA, Paananen T, Micaroni SPM, et al. Leadership styles and  
43 712 outcome patterns for the nursing workforce and work environment: A systematic review.  
44 713 *International Journal of Nursing Studies*. 2018;85:19-60.
- 45 714 18. Aarons G, Ehrhart M, Farahnak L. The implementation leadership scale (ILS): development of a  
46 715 brief measure of unit level implementation leadership. *Implementation Science*. 2014;9:45.
- 47 716 19. Gifford W, Graham ID, Ehrhart MG, Davies BL, GA A. Ottawa Model of Implementation  
48 717 Leadership and Implementation Leadership Scale: mapping concepts for developing and  
49 718 evaluating theory-based leadership interventions. *Journal of Healthcare Leadership*.  
50 719 2017;9:15-23.



- 720 20. Birken SA, Lee S-YD, Weiner BJ. Uncovering middle managers' role in healthcare innovation  
 1 721 implementation. *Implementation Science*. 2012;7:28.
- 2 722 21. Gifford WA, Davies BL, Graham ID, Tourangeau A, Woodend AK, Lefebvre N. Developing  
 3 723 Leadership Capacity for Guideline Use: A Pilot Cluster Randomized Control Trial. *Worldviews*  
 4 724 *on Evidence-Based Nursing*. 2013;10(1):51-65.
- 5 725 22. Tistad M, Palmcrantz S, Wallin L, Ehrenberg A, Olsson CB, Tomson G, et al. Developing  
 6 726 Leadership in Managers to Facilitate the Implementation of National Guideline  
 7 727 Recommendations: A Process Evaluation of Feasibility and Usefulness. *International Journal of*  
 8 728 *Health Policy and Management*. 2016;5(8):477-86.
- 9 729 23. Wilkinson JE, Nutley SM, Davies HTO. An Exploration of the Roles of Nurse Managers in  
 10 730 Evidence-Based Practice Implementation. *Worldviews on Evidence-Based Nursing*.  
 11 731 2011;8(4):236-46.
- 12 732 24. Gunningberg L, Brudin L, Idvall E. Nurse Managers' prerequisite for nursing development: a  
 13 733 survey on pressure ulcers and contextual factors in hospital organisations. *Journal of Nursing*  
 14 734 *Management*. 2010;18(6):757-66.
- 15 735 25. Ehrenberg A, Gustavsson P, Wallin L, Bostrom AM, Rudman A. New Graduate Nurses'  
 16 736 Developmental Trajectories for Capability Beliefs Concerning Core Competencies for  
 17 737 Healthcare Professionals: A National Cohort Study on Patient-Centered Care, Teamwork, and  
 18 738 Evidence-based Practice. *Worldviews on Evidence Based Nursing*. 2016;13(6):454-62.
- 19 739 26. Harvey G, Loftus-Hills A, Rycroft-Malone J, Titchen A, Kitson A, McCormack B, et al. Getting  
 20 740 evidence into practice: the role and function of facilitation. *Journal of Advanced Nursing*.  
 21 741 2002;37(6):577-88.
- 22 742 27. Cranley LA, Cummings GG, Profetto-McGrath J, Toth F, Estabrooks CA. Facilitation roles and  
 23 743 characteristics associated with research use by healthcare professionals: a scoping review. *BMJ*  
 24 744 *Open*. 2017;7(8).
- 25 745 28. Berta W, Cranley L, Dearing JW, Dogherty EJ, Squires JE, Estabrooks CA. Why (we think)  
 26 746 facilitation works: insights from organisational learning theory. *Implementation Science*.  
 27 747 2015;10:141.
- 28 748 29. Argyris C, Schon DA. *Organisational learning II: theory, method and practice*. Reading, Mass:  
 29 749 Addison-Wesley; 1996.
- 30 750 30. Baskerville NB, Liddy C, Hogg W. Systematic review and meta-analysis of practice facilitation  
 31 751 within primary care settings. *The Annals of Family Medicine*. 2012;10(1):63-74.
- 32 752 31. Persson LA, Nga NT, Malqvist M, Thi Phuong Hoa D, Eriksson L, Wallin L, et al. Effect of  
 33 753 Facilitation of Local Maternal-and-Newborn Stakeholder Groups on Neonatal Mortality:  
 34 754 Cluster-Randomized Controlled Trial. *PLoS medicine*. 2013;10(5):e1001445.
- 35 755 32. Seers K, Rycroft-Malone J, Cox K, Crichton N, Edwards R, Eldh A, et al. Facilitating  
 36 756 Implementation of Research Evidence (FIRE): a randomised controlled trial evaluating two  
 37 757 models of facilitation informed by the Promoting Action on Research Implementation in Health  
 38 758 Services (PARIHS) Framework. *Implementation science*. In review
- 39 759 33. van der Zijpp TJ, Niessen T, Eldh AC, Hawkes C, McMullan C, Mockford C, et al. A Bridge Over  
 40 760 Turbulent Waters: Illustrating the Interaction Between Managerial Leaders and Facilitators  
 41 761 When Implementing Research Evidence. *Worldviews on Evidence-Based Nursing*.  
 42 762 2016;13(1):25-31.
- 43 763 34. Cummings GG, Estabrooks CA, Midodzi WK, Wallin L, Hayduk L. Influence of organisational  
 44 764 characteristics and context on research utilization. *Nursing Research*. 2007;56(4 Suppl):S24-39.
- 45 765 35. Fitzgerald L, Ferlie E, Wood M, Hawkins C. Interlocking Interactions, the Diffusion of  
 46 766 Innovations in Health Care. *Human Relations*. 2002;55(12):1429-49.
- 47 767 36. Colorafi KJ, Evans B. *Qualitative Descriptive Methods in Health Science Research*. *HERD*.  
 48 768 2016;9(4):16-25.
- 49 769 37. Peterson MF. *Cross-Cultural Comparative Studies and Issues in International Research*  
 50 770 *Collaboration*. In: Buchanan DA, Bryman A, editors. *The Sage Handbook of Organisational*  
 51 771 *Research Methods*. London: Sage Publications; 2009. p. 328-45.

772 38. Sandelowski M. Whatever happened to qualitative description? *Research in Nursing & Health*.  
1 773 2000;23(4):334-40.

2 774 39. Institute for Healthcare Improvement. The breakthrough series: IHI's collaborative model for  
3 775 achieving breakthrough improvement. (IHI Innovation Series white paper). Boston: Institute for  
4 776 Healthcare Improvement, 2003.

5 777 40. Straus S, Tetroe J, Graham ID. *Knowledge Translation in Health Care: Moving From Evidence To  
6 778 Practice*. West Sussex, UK: Blackwell Publishing Ltd.; 2009.

7 779 41. Harvey G, Kitson A. PARIHS revisited: from heuristic to integrated framework for the successful  
8 780 implementation of knowledge into practice. *Implementation Science*. 2016;11:33.

9 781 42. Aarons GA. Transformational and transactional leadership: association with attitudes toward  
10 782 evidence-based practice. *Psychiatric Services*. 2006;57(8):1162-69.

11 783 43. Spyridonidis D, Currie G. The Translational Role of Hybrid Nurse Middle Managers in  
12 784 Implementing Clinical Guidelines: Effect of, and upon, Professional and Managerial Hierarchies.  
13 785 *British Journal of Management*. 2016;27(4):760-77.

14 786 44. Kislov R, Waterman H, Harvey G, Boaden R. Rethinking capacity building for knowledge  
15 787 mobilisation: developing multilevel capabilities in healthcare organisations. *Implementation  
16 788 Science*. 2014;9:166.

17 789 45. Cronenwett L, Sherwood G, Barnsteiner J, Disch J, Johnson J, Mitchell P, et al. Quality and  
18 790 safety education for nurses. *Nursing Outlook*. 2007;55:122-31.

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