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### The implementation of new clinical evidence in clinical practice

*Exploring the role of education*

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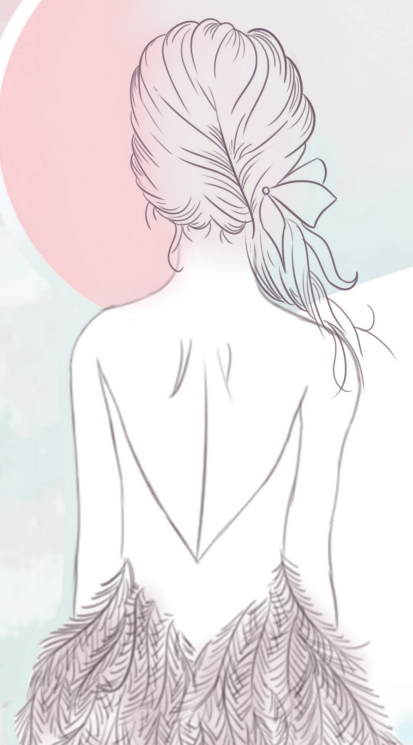
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# Chapter 4

Perspectives of coordinators and teachers on new evidence and the implementation of new evidence into educational programs

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## ABSTRACT

*Introduction:* Health care professionals have to be trained in agreement with the most recent guidelines and evidence. To reach this goal, educational programs should be up-to-date by translating relevant new evidence into educational practice. In this study we explore how University of Applied Sciences deal with new evidence; which beliefs and perceptions are present among coordinators and teachers regarding the implementation of new evidence in education programs and what are their considerations for implementation?

*Methods:* Data was collected through interviews and took place from late April 2015 to early March 2016. We analysed the responses in the light of the first three implementation stages from the theoretical framework by Grol and Wensing. These stages are: orientation, insight, and acceptance.

*Results:* In all three implementation stages, we note that the orientation, insight, and acceptance of the coordinators and teachers heavily depend on the subjects covered by the guidelines. In addition, the coordinators consider it the teachers' job to orientate and be aware of the newest evidence. Besides the guidelines, the teachers mainly orientate and accept subjects of personal interests or subjects that meet the needs of their target audience. In the acceptance phase, coordinators mainly consider the practical aspects of implementation into the educational program, i.e. costs, time, and availability of resources.

*Conclusion:* Overall, we found that guidelines and protocols for health care play a key role in the implementation process and additional examination of new evidence is limited. The dependency on the guidelines implies that implementation of new evidence often occurs relatively late (i.e. after guideline development), however, this also assures that rigorous evidence is incorporated.

## INTRODUCTION

High quality health care is based on the results of solid research and clinical experience.<sup>1</sup> Health care professionals therefore have to be trained in agreement with the most recent clinical guidelines and evidence.<sup>2</sup> To reach this goal, educational programs should be up-to-date by translating all relevant new evidence to educational practice (*i.e. research utilization*).<sup>3</sup> The amount of medical evidence published is immense and the number of publications indexed per year in the medical database MEDLINE is continuously increasing. The selection of relevant scientific findings and incorporation of this evidence into educational practice thus poses a significant challenge for educational institutes training health care professionals.<sup>4,5</sup>

Primary care nurse practitioners (PCNPs) autonomously provide protocolized care to specified groups of elderly patients or patients with chronic or psychiatric diseases in primary care practices. In the Netherlands, almost 80% of the general practices employ one or more PCNPs.<sup>4,5</sup> PCNPs only redirect patients to GPs when complex conditions arise and national studies show that they reduce the workload of General Practitioners (GPs).<sup>4,6,7</sup> An important task of PCNPs is to treat, advise and educate patients with chronic cardiovascular disease on medication and lifestyle changes, in order to improve the quality of care.<sup>5</sup> To become a PCNP in the Netherlands, an experienced health care professional (nurse or practice assistant) participates in a post-graduate educational program at a University of Applied Sciences (UoAS).

The role of coordinators and teachers is critical for the implementation of new evidence into education programs since they are responsible for setting educational objectives and translating these objectives to study programs. Few studies exist that cover the coordinators' and teachers' perceptions of their role in implementing new evidence into education programs.<sup>8-11</sup> Available studies focus on the barriers and enablers to stay up-to-date with current knowledge in clinical practice,<sup>9-11</sup> but not on the translation of knowledge to educational practice. Knowledge on the translation of evidence to educational practice is important as new evidence is slowly adapted in clinical practice,<sup>1,11,12</sup> which could be caused by late adoption into educational practice. Knowledge on this subject could therefore enhance dissemination of evidence to clinical practice through education.

In this study we explore how UoAS deal with new evidence; which beliefs and perceptions are present among coordinators and teachers regarding research utilization and the implementation of new evidence in education programs? What are the considerations for implementation? And what resources are used to obtain input for courses? We analysed the responses in the light of the first three implementation stages from the theoretical framework by Grol and Wensing.<sup>13,14</sup> These stages are: orientation, insight,

and acceptance. Most implementations pass through these stages when new scientific insights are integrated into practice routines.<sup>13-15</sup>

## MATERIALS AND METHODS

### Context

For this study we selected training programs preparing health care professionals for a rapidly changing but focused medical domain (cardiovascular risk management (CVRM)), as we expected implementation of new evidence within these programs to be both feasible (focused domain) and to have specific attention (due to rapid changes). Coordinators and teachers of thirteen Dutch Universities of Applied Sciences (UoAS) that train PCNPs were asked to participate in this study. The UoAS had been approached in a previous study that described the development and evaluation of a 2-day training on culturally adapted hypertension care.<sup>16</sup> Each of the thirteen schools recognize the competency profile for PCNPs developed by the National GP association<sup>5</sup>, however, they are free to compose their own curriculum leading to these outcomes. The postgraduate education program to become a PCNP exists since 2001 and spans, depending on previous training, 1 to 2 years. Currently, PCNPs can be trained as specialists in mental or somatic healthcare. The training program of somatic healthcare is considered in this study.

### Participants, data collection and ethical aspects

Data was collected through interviews by the first author (JGM) and took place from late April 2015 to early March 2016. The interviewees were informed about the study and its aim by email while the actual interviews were held face-to-face or by (video-)calls. Verbal (recorded) and written informed consent was obtained from the participants and they were informed of their right to withdraw from the study at any time. The transcribed interviews were anonymized before the analysis. At first, only program coordinators were included in the study. However, after the initial data analysis, some of the research questions required additional sampling and an additional round of interviews with teachers was held. The interviews simulated natural conversations while ensuring the main stages of the theoretical framework were explored sufficiently. All interviews were recorded digitally. During the second round of interviews (i.e. with the teachers) data saturation was reached (see result section) and no additional interviews were scheduled.

The average duration of the interviews was 47 minutes (ranging from 26 to 77 minutes). A semi-structured interview guide was used for this study. After some introductory questions on personal perceptions on evidence-based practice and the implementation

of new evidence in general, questions on the implementation stages from the theoretical framework by Grol and Wensing were addressed.<sup>13,14</sup> This framework is divided into five phases: orientation, insight, acceptance, change, and maintenance. Most individuals, groups or institutions pass through these phases when new scientific insights are integrated into practice routines.<sup>13-15</sup> In the orientation phase we focused on the awareness of and interest in new evidence. In the insight phase we aimed to address how teachers and coordinators assess the credibility of new evidence and how the new evidence relates to the current (educational) practice. In the acceptance phase, we investigated the reasons for implementation and the decision to implement new evidence into educational practice. The last two stages of Grol focus on the actual implementation in practice and are not discussed in this study.

### Data analysis

Interviews were transcribed verbatim. Transcripts were coded and independently analysed by two researchers (JGM & research assistant) using MAXqda version 12. Since interviews were structured on the first 3 stages (orientation, insight, and acceptance) of the framework of Grol et al.,<sup>13,14</sup> the codebook was structured accordingly.

## RESULTS

We interviewed eleven coordinators and seven teachers of thirteen UoAS. Four of the coordinators indicated that they are also involved in teaching and eight coordinators are actively involved in program development. All of them consider themselves to make the final decisions on implementation of new evidence/subjects into the educational program. All teachers indicated that they are involved in program development and teaching. In general, teachers can independently implement minor changes. When the intended changes are significant, the implementation is discussed in a team, including the coordinator and various teachers.

### Orientation phase: awareness, interest, and involvement

When asked whether coordinators and teachers are aware of the latest evidence, multiple coordinators acknowledge they consider themselves not up-to-date on all relevant novel findings. Among all research published, they find it hard to determine which new findings are necessary to include in education. In general, coordinators consider it the teachers' job to be aware of new evidence.

*Coordinator: “..I am aware of the expertise of the respective teachers ... so I trust them to provide up-to-date information to the students.”*

Personal interest in certain subjects affects the awareness of some coordinators and nearly all teachers on new evidence.

*Teacher: “.. you’ve got your favorite subjects that draw your attention, which definitely impacts (the search).”*

Those participants that say their personal interests do not affect their obtained new subjects report that they primarily consider the needs of their target audience.

*Coordinator: “.. to create a relevant training program, one should disregard their own interests. You have to consider what is important in the training for PCNPs.”*

### Insight phase: Understanding and insight

The coordinators state that the “guidelines, standards, or protocols for health care” (which are based on evidence from medical research) are their main source for new evidence. Frequently mentioned additional sources of new evidence are field-specific literature (in Dutch), other educational programs of the same UoAS, the competency-profile, general practitioners, research groups, students, and attended congresses or symposia. An advisory board, media, courses, and colleagues are mentioned as information source.

Like coordinators, the teachers state that the “guidelines, standards, or protocols for health care” are their main source for new evidence. Other mentioned sources of new evidence are field-specific literature (in Dutch), the competency-profile and students. In contrast to the coordinators, the teachers obtain information from, and discuss new evidence with, their colleagues. Other sources often mentioned by the teachers are PubMed, the media, courses, and conferences.

Much credibility is given to new evidence when it is published in the “guidelines, standards, or protocols for health care”, by coordinators as well as teachers.

*Coordinator: “.. when it is protocolized health care, hence, when there is agreement among health care professionals in the Netherlands, we implement the subject in the course program. However, one can’t consider individual study results.”*

Few teachers indicated that s/he reviews the quality of the evidence before s/he decides on implementation in the curriculum. This review is comprised of an evaluation of the source of the new evidence, i.e. who authored the evidence and where it is published. One of these teachers indicates that s/he does not analyse the obtained evidence thoroughly.

*Teacher: “.. we’re not analysing it (the studies) in such detail. We try to think in the main line and can’t take up details.”*

### Acceptance phase: intentions and decision-making.

When new evidence is not included in the “guidelines, standards, or protocols for health care”, the decision on inclusion into the educational program by the teachers is mainly subject dependent. Teachers consider the content of the study, i.e. the novelty of the subject and whether it fits the target audience. Coordinators mainly consider the practical aspects of implementation into the educational program, i.e. costs, time, and availability of resources.

The coordinators that are actively involved in program development always make their decisions on implementation after consultation with the teachers. In general, the teachers have difficulty describing their decision-making process. They use vague wordings like ‘just implementing useful research’ and ‘using recent literature’ to describe this process. A single teacher described his decision-making process more detailed.

*Teacher: “.. I remain informed on certain subjects. When enough evidence has emerged, I discuss with my colleagues whether the subject is suited for the program and if so, at which stage.”*

### Culture of critical thinking

The previously described results focus on explicit implementation of new evidence, which was also the aim of this study. During the interviews an indirect way of implementing new evidence was also discussed. This indirect way implicates teaching the students how to deal with new evidence themselves and is part of constructing a culture of critical thinking among the students and training/ preparing them for evidence based practice. Most of the coordinators state that training for this skill should be part of the educational program since it will aid the students in interpreting and dealing with new evidence themselves, also after finishing the program.

*Coordinator: “..what I do regard important is that our students can find, evaluate and apply new evidence by themselves.”*

Coordinators recognize the importance of the teachers in creating a culture of critical thinking. The coordinators consider the teachers as role models for the students by showing them how to critically assess new evidence. The students must learn from the teachers how to find, interpret, and use new evidence.



*Coordinator: “.. and I want them (the teachers) to be a role model, I want the program to include as many trends and recent subjects.”*

Three of the teachers consider themselves responsible for transmitting the quality of critical thinking to their students. However, reflecting on their own teachings, they notice that they leave out many details while discussing new scientific evidence.

*Teacher: “..However, this doesn’t imply that I report in depth the study details or how I checked for credibility, since that is not in scope of the lecture.”*

A single teacher emphasizes that in her opinion UoAS -students are not expected to be experts in (performing) scientific research.

*Teacher: “..I don’t think that our students should know the research studies at such a detailed level to be able to perform the research, however they should be able to understand the research study.”*

## DISCUSSION

In this study we explored whether and how coordinators and teachers within Universities of Applied Sciences implement new evidence into educational practice. Overall, we found that guidelines, and protocols for health care<sup>5,17</sup> play a key role in the implementation process. The search for other evidence seems to be highly dependent on personal interests, and the implementation to curriculum related aspects, such as available educational time and resources.

The strong dependency on the clinical guidelines in combination with limited review of alternative sources, seem to contrast with their view that the construction of a culture of critical thinking among students is important. Teachers and coordinators consider this skill essential since it will aid the students in interpreting and dealing with new evidence by themselves, but do not seem to act as positive role models regarding this attitude when considering the contents of their educational programs.

Starting in the nineties, guidelines and protocols for health care were transformed from consensus-based guidelines into evidence-based guidelines. More and more, these guidelines are seen as the standard treatment methods that are also covered by health insurance.<sup>18,19</sup> Given this development, the standard methods are given priority in the educational programs.<sup>19</sup> The importance of the guidelines in educational development is underscored by the results of our study; we observed that coordinators as well as teachers rely heavily on the guidelines when searching for, acquiring knowledge on, and accepting evidence to be incorporated in the training program for PCNPs.

From studies on teaching research competence, it is known that teachers have only limited time to conduct tasks other than the primary teaching responsibilities.<sup>8,20</sup> In addition, Griffioen et al.,<sup>20</sup> showed that teachers at UoAS have only limited research experience, which complicates interpreting and implementing new evidence. The lack of time and research experiences might explain the observed dependency on the guidelines and limited quality review of additional evidence by teachers and coordinators in this study. Our results show that, when evidence is rather new and not included in the guidelines, the selection of new evidence for incorporation in the educational programs is mainly based on information obtained due to personal interests or external advice. New evidence on subjects of personal interest will generally cost less time and effort to analyze and value. This selective introduction of new evidence based on personal interest of the teachers, might lead to selective implementation or even inclusion of results of low quality evidence, a situation that is undesirable when looking at curriculum development.

A disadvantage of primarily including evidence covered by the guidelines in educational programs is timing. Medical specialists and medical associations compose these guidelines, after reviewing the most recent, quantitative and qualitative evidence, which usually takes place only years after publication.<sup>21,22</sup> Hence, the implementation in educational programs occurs after guideline development, which is rather late.<sup>23</sup> On the other hand, these guidelines provides the teachers and coordinators assurance on the quality of the evidence, since the guidelines are composed after agreement amongst topic specialist. Overall, the guidelines provide a clear, systematic, and standardized way to determine what evidence is suitable for uptake in educational practice. Although there should always remain possibilities for implementation for subjects outside the guidelines specific, for example when immediate improvements are required or when subject are relevant only in specific settings.

## Strengths and limitations

During the current study we interviewed coordinators and teachers at almost all (11 of 13) UoAS that provide the trainings program for PCNPs. Therefore, this study provides a comprehensive view on the beliefs and perceptions on research utilization among coordinators and teachers of PCNP programs in the Netherlands.

At the time of the interviews for this study, an expert group discussed a new competence profile for future PCNP’s.<sup>24</sup> The final competence profile was not defined at that time, however, the integration of research skills had already been discussed and communicated among coordinators. This might have directed the focus of the coordinators (and teachers) on the construction of a culture of critical thinking among the students.

In this study, we used the first three stages of the theoretical implementation framework of Grol to structure the interviews and results. Most implementations pass through these phases during the integration of innovations into practice. The results of our study on the implementation of new scientific evidence in educational practice of UoAS, show that there is a strong dependency on clinical guidelines for implementation. New subjects of interest covered by the guidelines appear to be implemented into the educational program without further considerations. The routine implementation of these subjects makes the first three stages of Grol et al., practically redundant. In hindsight, knowing the prominent role of the guidelines and the different status of guideline evidence (i.e. based on meta-analysis), we would have distinguished guideline and non-guideline evidence in our study setup.

## CONCLUSION

In this study we explored whether and how Universities of Applied Sciences implement new evidence into educational practice. Overall, we found that guidelines and protocols for health care play a key role in the implementation process and additional examination of new evidence is limited. This seems in contrast with the view of teachers and coordinators that the construction of a culture of critical thinking among students is important. Teachers and coordinators consider this competence essential since it will aid the students in interpreting and dealing with new evidence by themselves. The dependency on the guidelines implies that implementation of new evidence often occurs relatively late (i.e. after guideline development), however, this also assures that sound evidence is incorporated.

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