



## Facilitators and barriers to implementing task shifting: Expanding the scope of practice of clinical technologists in the Netherlands

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### ABSTRACT

Despite recent studies confirming task shifting is both safe and effective, its implementation has proven difficult in practice. So too in the Netherlands, where legal barriers enforcing strict professional boundaries have historically limited task shifting. In recent years, Dutch policymakers have experimented with temporary expanded scopes of practice (ESP) for several professional groups, with the aim to facilitate task shifting in order to increase the overall effectiveness and efficiency of health care. The Clinical Technologist (CT), is an emerging new professional group that has received such a temporary ESP pending an evaluation. This paper reports the qualitative findings of the implementation process of providing CTs with an temporary ESP. Data collection consisted of 69 semi-structured interviews, 3 focus group interviews and 9 participant observations, conducted between September 2015 and October 2017. Analysis was conducted through an 'editing analysis style' whereby data were categorized using the conceptual framework of Grol & Wensing's implementation model. The study suggests that social features are of great importance when implementing task shifting. In situations with few social barriers, organizational and administrative barriers seem to be less dominant, thereby expediting the overall implementation process. Consequently, we recommend that policymakers should prioritize social features over organizational features when implementing task shifting.

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## 1. Introduction

Task shifting, the transfer of work and/or responsibilities from one professional group to another [1], has been hailed as an effective remedy against workforce shortages and increasing healthcare costs [2]. Consequently, task shifting is pursued by policymakers in many countries [3], including OECD countries [4] and in various disciplines [5–7], in order to increase the accessibility, affordability and safety of care [8–10]. Despite recent studies confirming it is both safe and effective [11,12], the implementation of task shifting has proven difficult in practice [13,14]. A study on the barriers and

facilitators of implementing task-shifting in midwifery services for example, found that while task shifting serves as a powerful means to address the growing pressures facing policymakers, successful implementation remains difficult and depends on careful planning [15]. Other studies identified coordination between stakeholders [16] and overcoming boundaries between professional groups and organizational factors [17] as features that may facilitate or hinder task shifting.

The implementation of task shifting has also proven difficult in the Netherlands [18–20], where legal barriers enforcing strict professional boundaries have historically limited task shifting [21–25]. The Netherlands has a mixed system for regulating healthcare professionals, whereby liberal elements are combined with monopolistic elements [26]. This system, known as the Individual Healthcare professions Act (IHCP-Act), classifies professionals in four groups that refer to the articles 3, 14, 34, and 36a of the Act.

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**Table 1**  
Regulation of Healthcare Professions in the Netherlands under the 'IChP-Act'.

	Article 3 (e.g. Medical Doctor, Dentist & Nurse)	Article 14* (e.g. Cardiologist & Nurse Practitioners)	Article 34 (e.g. Dietician & Pharmacy assistant)	Article 36a** (e.g. Clinical Technologist & Allied Medical Healthcare Professional)	Other professionals groups (e.g. Doctor's Assistant)
Legally protected title	✓	✓	X	✓	X
Mandatory registration in a public registry	✓	✓	X	✓	X
Subject to (medical) disciplinary tribunals	✓	✓	X	✓	X
Legally protected curriculum-title	✓	✓	✓	✓	X
(Possibility for) Independent Authority for 'reserved procedures'***	✓	✓	X	✓	X
(Possibility for) Functional Independent Authority for 'reserved procedures'	✓	✓	✓	✓	X

\*Only article 3 groups can register a specialization as defined by article 14.

\*\*Article 36a professional groups receive a temporary independent authority to indicate, perform and delegate 'reserved procedures', for a period of five years. During this time a nation-wide evaluation takes place to determine whether to convert the temporary independent authority into a permanent one, under article 3.

\*\*\*Not all article 3 professional groups have an independent authority and not all article 34 professional groups have a functional independent authority. For more information on the specific authorities of various professional groups (in Dutch) see: <https://www.bigregister.nl/registratie/nederlands-diploma-registreren/wet-en-regelgeving>.

**Table 2**  
Reserved Procedures Regulation in the Netherlands (adapted from de Bie 2004 [26]).

Reserved procedures:	Conditions:
<ul style="list-style-type: none"> <li>• Anesthetics</li> <li>• Cardioversion*</li> <li>• Catherisations*</li> <li>• Defibrillation*</li> <li>• Electroconvulsive therapy</li> <li>• Endoscopy*</li> <li>• Injections*</li> <li>• IVF-procedures</li> <li>• Lithotripsy*</li> <li>• Obstetric procedures</li> <li>• Prescribing medicine</li> <li>• Procedures involving the use of radiation and/or ionising radiation*</li> <li>• Punctures*</li> <li>• Surgical procedures*</li> </ul>	<p>For professionals with independent authority:</p> <ol style="list-style-type: none"> <li>1 The professional performing the procedure is certified</li> <li>2 The professional performing the procedure is proficient in the procedure</li> </ol> <p>For professionals with functional independent authority:</p> <ol style="list-style-type: none"> <li>1 The professional performing the procedure is certified</li> <li>2 The professional performing the procedure is proficient in the procedure</li> <li>3 After delegation from professional with independent authority</li> <li>4 The professional performs the procedure him/herself (no delegation allowed)</li> </ol> <p>For other professionals:</p> <ol style="list-style-type: none"> <li>1 Only after delegation and under supervision of professional with independent authority</li> <li>2 The authorized professional giving the order needs to deem the other professional 'proficient' to perform the procedure</li> </ol>

\*The Clinical Technologist (CT) received a temporary independent authority for these procedures.

Each group has different rights, obligations and scopes of practice (for an overview see Table 1).

The IChP-Act also restricts the performance of certain procedures, known as 'reserved procedures', that are deemed too dangerous to be performed independently by unqualified or uncertified groups. These procedures may only be indicated, performed and delegated by professionals with an independent authority or performed by professionals with a functional independent authority. The latter group is only allowed to perform such procedures after an order from a professional that has an independent authority (for additional legal requirements see Table 2).

In recent years, Dutch policymakers have used article 36a to expand the scopes of practice for several professional groups, with the aim to facilitate task shifting in order to increase the effectiveness and efficiency of care. Consequently, Nurse Practitioners (NPs), Physician Assistants (PAs), Allied Medical Healthcare Professionals (AMHPs) and Clinical Technologists (CTs) have all received a temporary independent authority to perform reserved procedures, essentially providing them with an expanded scope of practice (ESP). Dental-hygienists (DHs) will probably receive a temporary independent authority in 2020 [27]. By law, this temporary author-

ity (maximum of 5 years) is evaluated to support the Ministry of Health (MoH) decision-making process on whether to make this authority permanent or to abandon it. NPs and PAs have received a permanent authority after a positive evaluation [47]. This paper will refer to the temporary independent authority as an ESP and focus on the temporary ESP of CTs.

CTs (sometimes also called 'Technical Physicians') are an emerging new professional group in Dutch health care. They have completed a six-year university program, which combines traditional medical courses with engineering, physics and math. CTs are trained to use, improve and create complex medical technology by combining knowledge of medicine and engineering [28]. The first CTs graduated in 2009 and as of 2018 more than 350 CTs have graduated [29]. Their temporary ESP, which became effective in January 2014, includes an independent authority to perform nine categories of reserved procedures (see Table 2). It was hypothesized that without such an ESP, CTs would remain (too) dependent on other professional groups (e.g. MDs, NPs or PAs) since this would force them to consult with an authorized professional every time they wished to indicate, perform or delegate a reserved procedure. CTs tend to work more in the domain of 'technological complex' medical disciplines and as such can take over a wide range of tasks (e.g. small surgical procedures, diagnostic tests, informing patients on technologically complex procedures) from multiple medical specialists (e.g. cardiologists, surgeons, radiologists, neurologists) and other staff (e.g. NPs or PAs). Providing an ESP would enable these other professional groups to focus on their respective domains, while CTs could independently focus on the domain of medical technology. Removing mandatory supervision and consultation was therefore assumed to save time for patients, CTs and other authorized professional groups as well as increase the overall effectiveness and efficiency of care [30].

This paper reports the qualitative findings regarding the implementation process of providing CTs with an temporary ESP. To guide data collection and analyses, the theoretical implementation model of Grol & Wensing [31] was applied. This case study was part of a larger nation-wide Mixed Methods Research (MMR) study evaluating the effectiveness and efficiency of said ESP and aimed to support the MoH decision-making process.

## 2. Research methods

### 2.1. Study setting and intervention

A qualitative research approach was used to investigate the implementation process of providing an ESP to CTs. Data collection took place between September 2015 and October 2017.

## 2.2. Methodological framework

The implementation model of Grol & Wensing [31] shares many features with other implementation theories [32,33] and has been used in previous evaluations into task shifting in the Netherlands [48]. The model differentiates six features that influence the implementation process, namely:

- Features of the innovation:
  - *In the case study, the innovation is the temporary independent authority, effectively providing CTs with an ESP;*
- Features of the professionals who should use the innovation:
  - *While perceptions of other groups (e.g. MDs and stakeholders) can be used to describe the target group, this feature focuses exclusively on the group that the innovation is geared towards, namely the CT;*
- Features and experiences of the patients:
  - *Describes the features and experiences of the patients treated by CTs with their ESP;*
- Features of social and practice setting:
  - *This feature highlights the social and practice setting in which CTs use (or are hindered to use) their ESP, and focuses predominantly on the attitudes and experiences of other professional groups and stakeholders in relation to the CT and their ESP;*
- Features of the economic, administrative and organizational context:
  - *This feature focuses on the economic, administrative and organizational barriers and/or facilitators, which hinder and/or facilitate the innovation on micro, meso and/or macro level. In the case-study these are the departmental, institutional and governmental level;*
- Features of the methods and strategies for dissemination and implementation:
  - *This feature describes the methods and strategies used to implement the innovation and how they were interpreted (and adapted) throughout the implementation process by the different stakeholders. Differentiations are made between different levels (e.g. departmental, institutional and governmental levels).*

While presented as six distinctive features, in practice there is considerable overlap between these features. This is particularly true when examining the implementation process of task shifting, which is a process in which professional boundaries, as well as social, organizational and economic settings intersect.

## 2.3. Methods of data collection

Qualitative data were collected to catalogue factors that either positively or negatively influenced the implementation of the ESP. Data collection consisted of 69 semi-structured interviews with key figures (27 CTs, 19 MDs, 17 stakeholders and 6 patients), 3 focus group interviews (in total 23 CTs) and participant observations (9 CTs). Multiple forms of qualitative data collection were used to limit potential bias and overreliance of one source [34,35]. MdH, MBB, HJMV and YvEH were involved in the data collection. All had prior training and experience in conducting qualitative research. The study meets the COREQ criteria [36] for conducting qualitative research.

Qualitative data collection started with semi-structured interviews which took place between September 2015 and October 2017. Focus group interviews took place in December 2016, January 2017 and June 2017. Participant observations took place between December 2016 and October 2017. Such a setup was chosen to increase the efficiency of data collection and to limit the burden on participants and patients. All data collection was structured by the theoretical framework used. The different data collection

**Table 3**

Response per data collection type (CTs).

Data collection type	N (N <sub>total</sub> = 46)
<i>Interview only</i>	20
<i>Focus group only</i>	12
<i>Observation only</i>	3
<i>Interview + Focus group</i>	5
<i>Focus group + Observation</i>	4
<i>Interview + Focus group + Observation</i>	2

techniques were complementary which provided flexibility in case certain aspects of the framework could not be investigated by a particular data collection technique.

In total 46 individual CTs participated in the qualitative data collection, of which 11 CTs participated in more than one data collection technique (for an overview see Table 3). Since the study focused on the implementation of the ESP, a majority of the included CTs performed reserved procedures. In total 7 CTs were included to incorporate the view of non-ESP CTs. Participants were promised anonymity to ensure open and frank discussions. Consequently, only a list of the *approached* profiles, rather than *participating* profiles, is provided (see supplementary file 1). It is important to note that certain participants fit multiple profiles (e.g. 'CT cardiology' and 'CT in academic hospital').

Participants were selected by means of purposive sampling [37]. The following criteria were used: use of ESP, institution type, (official) job description and medical discipline. Protocols, based on the implementation model [31], were made to guide the data collection.

## 2.4. Data analysis

Focus group and individual interviews were transcribed verbatim prior to being summarized. Summaries were presented to participants through a member-check procedure [38]. Observation notes were used for making extended summaries and also presented through a member check procedure. Following positive confirmation, transcripts and summaries were subsequently anonymized prior to being analyzed using an 'editing analysis style' [39], whereby qualitative data are categorized using a codebook, based on the conceptual framework of the implementation model [31]. Throughout the analysis phase, codes were added and/or specified if deemed necessary. Following every 6–7 transcripts, it was evaluated whether data saturation, as defined by Guest et al. [40], had been reached. To limit potential bias, sampling was as diverse as possible and participants were encouraged to only take part in one type of data collection technique. However, due to a small population size, lack of response and/or practical and ethical considerations this was not always possible. Within the analysis, an anonymized participant identification code made it possible to check whether one (or several) participant(s) might dominate the results.

All team-members participated in creating protocols and establishing the codebook. MBB and MdH collected and analyzed the data. MdH, MBB, HJMV and YvEH were involved in the interpretation of the results. Any disagreements were discussed until consensus was reached. NVivo version 11 was used to analyze the data.

In the presentation of results, references are made to quotes to indicate the origin of findings. For this, a capital Q and a number referring to a specific quote is placed between brackets. All quotations are presented in supplementary file 2.

### 3. Results

#### 3.1. Features of the innovation

Three issues arose in relation to the features of the innovation. First, the findings indicated that the innovation was, frequently, misunderstood by the professionals and stakeholders involved [Q1]. Parts of the innovation were multi-interpretable, and confusion existed around the 'temporary' nature of the measure. While some MDs saw this as a reason to continue supervising CTs, others mistook the ESP to already be permanent [Q2]. Misunderstandings were exacerbated by confusion surrounding legal definitions and especially definitions in relation to 'certified' and 'proficient' were unclear [Q3]. Also, there was confusion surrounding what it means to indicate, perform and/or delegate a reserved procedure [Q4]. Such issues were intensified due to the temporary nature of the ESP. For example, some MDs and managers were unaware of the ESP [Q31, 32].

A second issue that arose was the scope of the innovation. While some believed the scope to be too broad, others promulgated that the scope was too narrow. Some stated that the ESP included too many reserved procedures and could not be safe [Q5], while others argued that additional procedures (e.g. prescribing low complex medicine) were needed for the CT to be truly independent of MDs [Q6].

A third issue was the relation between the innovation and the original intention of the IHCP-Act [Q7]. In this respect, the ESP of CTs was seen in the broader context of task shifting. Often the temporary ESP of other professional groups (e.g. DHs) were viewed with skepticism and caused feelings of competition between professional groups. Providing an independent authority to multiple professional groups was thought to be a potential risk for the quality of care and infringe on the original goal of the Act, namely: to protect patients against unqualified and incompetent healthcare professionals.

#### 3.2. Features of the professionals who should use the innovation

There were also three issues related to the professionals whom the innovation targeted: CTs. Firstly, the findings indicated that the relative youngness of the professionals (mean age in October 2017: 28.9,  $\pm 2.2$ ) hindered the implementation of the ESP. Consequently, CTs found it difficult to position themselves in medical teams [Q8]. This was particularly a problem because CTs did not have role-models with similar job-descriptions to guide them, although CTs expressed that this would be less of an issue in the future [Q9].

A second issue was the youngness of the profession itself (first graduates in 2009) [Q10]. This caused many CTs to conduct non-clinical work and limited the performance of reserved procedures [Q11]. Upon further investigation, the lack of clinical job-opportunities for CT graduates was exacerbated by an unclear legal position and barriers related to the social setting and organizational factors. Both CTs and MDs assumed that the number of CT graduates working in healthcare and performing reserved procedures would rise as a result of the ESP [Q9, Q10, Q11].

A third, but related, issue was the lack of a professional profile for CTs. The variety of settings and disciplines in which CTs worked hindered the creations of a singular professional profile [Q12]. Consequently, the existence of CTs working in healthcare remained relatively unknown for outsiders [Q13] and resulted in CTs having to explain their profession, and defend their ESP, which some found frustrating [Q8].

#### 3.3. Features and experiences of the patients

A recurring issue in terms of features of the patients was the fragility of patients and the (medical) necessity for CTs to inde-

pendent treat patients. While MDs interviewees indicated to be more careful when shifting tasks when a medically complex or fragile patient is involved [Q15], upon further investigation, this was not limited to CTs and even applied to starting MDs [Q16]. However, in general, MDs indicated that 'patient type' is not an issue. When a (technological) necessity arose, the inclusion of the CT was generally not an issue [Q17]. Also, interviewed patients were very satisfied with their treatment by CTs and less concerned with the nature of the ESP [Q14, Q18].

#### 3.4. Features of the social and practice setting

Despite the ESP, some MDs continued to check every procedure [Q19, Q20]. Three issues seemed most important in relation to this. First, it was clear that the level of independence was reliant on the attitude of supervising MDs and that there was a large variance in attitudes between MDs [Q21]. This was closely linked to how the medical discipline had historically viewed technological change. Disciplines which embraced technological change, or that have large technological elements within them (e.g. intensive care), were more susceptible to an ESP for CTs. Participants stated that certain disciplines were more welcoming to CTs (e.g. cardiology and surgical units) whilst others (e.g. rheumatologic units) were more reserved in their acceptance [Q22].

Another issue was (the feeling of) competition between professional groups. Skepticism towards CTs, and their ESP, were associated to worries of competition (e.g. from Clinical Physicists and Radiologists) [Q23]. In some cases, CT tasks were similar to those of other professional groups causing potential conflict on payment of services. The fear of competition was worsened in those cases where CTs, as a means of conquering a position within a team, presented themselves as 'better' or 'more advanced' than other professional groups [Q24].

Lastly, CTs expressed that they were very reliant on higher management and supervising MDs for performing tasks independently [Q25]. This was not only the case for performing medical procedures but also for access to ICT and patient files. Usually the support of a supervising MD or manager was needed to overcome such organization barriers.

#### 3.5. Features of the economic, administrative and organizational context

In terms of the economic, administrative and organizational context, two major issues arose. First, the ESP was hindered by financial barriers since CTs did not have the authority from insurers to independently create an invoice for their patient-related activities [Q26]. As a result, CTs remained reliant on other professionals (e.g. MDs) to declare such activities, thereby limiting their independence and re-enforcing the lack of visibility as a professional group resulting in other challenges.

Another issue closely related to this was the lack of an official job-title in many institutions where CTs worked. Institutions labeled CTs as 'researchers' or 'non-clinical staff' [Q27] resulting in a negative feedback loop in which CTs were already not that visible. However, a small percentage of CTs actually noted that this was an advantage because it allowed them to define their own role [Q28]. Nevertheless, the majority of CTs experienced this as a critical hindrance [Q29]. The lack of official job-titles resulted in a connected issue, namely the inaccessibility to patient files and other administrative systems [Q30]. This did not only hinder independently performing procedures, it also resulted in an inability to work independently in general. As time progressed, this barrier seemed to become less of an issue.

### 3.6. Features of the methods and strategies for dissemination and implementation

Several issues arose in relation to the methods and strategies used. First, as noted earlier, there was extensive variety in the knowledge (and acceptance) regarding CTs and their ESP. Participants pointed out that little attention was paid within institutions regarding the ESP [Q31]. Most MDs and managers stated that they first learnt about the ESP from a CT, and some remained unaware until they were asked to participate in this study [Q32].

Additionally, even when MDs and other stakeholders knew about the ESP, misconceptions around the innovation remained [Q33]. For example, there was confusion surrounding which reserved procedures were included and whether the ESP was temporary [Q34].

Lastly, there was a general lack of knowledge surrounding the reserved procedures clause, which hindered the implementation of the ESP of CTs [Q35]. The absence of a concrete list of which reserved procedures are included in each category, created confusion. For example, many interviewees thought 'diagnosing a patient' was a reserved procedure, even though it is not [Q33]. Explaining such terms was not part of the implementation strategy.

## 4. Discussion

This case study offers some tentative answers regarding the implementation barriers and facilitators of providing CTs with an ESP. The results indicate that the innovation was frequently misunderstood by those involved. Also, the youngness of the profession, and CTs themselves, turned out to be a barrier, and created hostility from more established professional groups and fostered (feelings of) competition. Furthermore, lacking coordination at multiple levels (governmental, institutional and departmental), caused additional hurdles for CTs and compromised the very effects that the innovation aimed to accomplish. Moreover, the results underscore previous research into the implementation of task shifting, that acknowledge multiple factors influence this process [17] and highlight the need for careful planning and clear communication [15]. In particular, the case study results show this linkage and overlap between the features. However, dealing with such a linkage has proven difficult for policymakers whom have to prioritize finite resources. Previous implementation researchers have therefore aimed to differentiate between 'soft contextual factors' (e.g. actor behavior, organizational climate and assimilative capacity) and 'hard contextual factors' (e.g. structure and resources), while other scholars have tended to focus between 'internal' (e.g. work processes and organizational culture) and 'external' factors (e.g. financing and regulation) [33,41]. Others still, have noted the importance of the inter-activeness [42] and multi-level influences [43] of factors. While such differentiations are important, they do not substantially differ from the features listed by Grol & Wensing [31] and, perhaps most importantly, do not assist policymakers in making clear cut policy decisions. The results suggest that in situations with few social barriers, barriers of other features were solved more quickly and with less controversy (e.g. allowing CTs to use MD credentials for access to patient files). Such organizational solutions would be unthinkable if social barriers were also present, thereby hindering the overall implementation process further. This could imply that overcoming social barriers should be a policy priority for policymakers. Furthermore, it seems that focusing on the organizational, economic or administrative barriers without properly acknowledging the social features increased, rather than decreased, the overall barriers for implementation.

Moreover, in contrast to other implementation processes, where the evidence is known prior to implementation, this case study

evaluated a temporary version of the innovation (the ESP), prior to advising whether the innovation was to be made permanent based on data about its effectiveness. Consequently, within this case study, the ESP was both the 'innovation' as well as the 'strategy'. The results indicate that the evaluation of the innovation had an effect on the implementation process (e.g. some MDs first heard of the ESP through this study), thereby becoming part of (or influencing) the implementation strategy. It is undeniable that as such, Dutch policymakers caused a situation in which experimentation, evaluation and implementation occurred simultaneously. Nevertheless, the 'external evaluation design' [44] prohibited policymakers from intervening throughout the implementation process. In retrospect, this could be improved upon, and is in line with previous findings regarding the importance of implementation monitoring [41]. The field of Learning Evaluation has combined such elements by blending Quality Improvement Research and Implementation Research and focusing their designs around 'feedback loops' [45]. Incorporating feedback loops within an experimentation, evaluation and implementation approach could be beneficial and provide policymakers opportunities to fine-tune their policies and, if necessary, reshuffle resources. The design as used, only had one feedback loop at the end of the evaluation period. This limited possible alterations to the policy during the evaluation period and hindered the investigation into whether CTs could (and should) perform other reserved procedures independently. For example, while it was established that some CTs prescribed medication, a concrete policy recommendation could not be made because data was lacking because the study only focused on the original nine reserved procedures. More feedback loops, and additional research questions, could have solved such issues and provided policymakers with more comprehensive recommendations.

Generalizations from these study findings need to be made with caution since they are context-specific and might only be applicable to the Netherlands and more specifically to CTs. However, the findings seem robust as the study was carried out continuously over a period of 3,5 years and utilized multiple forms of qualitative data collection to minimize the reliance on one data source or stakeholder group. Consequently, traditional limitations associated with self-reported outcomes and purposeful sampling techniques were contained.

From the findings, it is possible to deduce several policy recommendations. Firstly, when implementing a new innovation (e.g. policy), in addition to organizational factors, policymakers should pay special attention to aspects related to the features of the social setting. Barriers related to the social setting seem to also negatively influence other features, whereas facilitators of the social setting seem to expedite the implementation process. Secondly, policymakers should aim to understand which misconceptions can arise surrounding an innovation, and modify their implementation strategy accordingly. Misinformation and unawareness of the innovation can result in additional barriers which are difficult to overcome later. Finally, the case study highlighted the potential benefit of using more than one 'feedback loop' and the usefulness of pursuing policies which employ a simultaneous 'experimentation, evaluation and implementation' approach. In preparation of the forthcoming ESP of DHs, the Dutch MoH has announced it aims to do just that [46] and it will be interesting to see how this will work in practice.

While the recommendations above focus predominately on the role of policymakers, it is important to note they are not the only actors involved. Individual healthcare professionals, managers, hospitals, educational institutions, scientific societies and patient groups all have an important role to play when implementing innovations in healthcare. Without their support, it is nearly impossible to implement innovations. Consequently, policymakers should actively involve such stakeholders and seek a dialogue

in order to create an environment in which innovations have a high chance for successful implementation.

## 5. Conclusion

The barriers of implementing an ESP for an emerging new professional group such as the CT, underscore the necessity for government intervention when pursuing task shifting and is in line with previous findings. In fact, the results suggest that this might be even more important when an emerging professional group is involved since acceptance of such a group is not straightforward and additional barriers can influence the implementation process. Policymakers should be aware of these additional barriers and allocate appropriate resources and strategies to address them and the current case study presents several recommendations to do so. A failure to overcome these challenges will not only result in unsuccessful task shifting and impairing emerging new professional groups but would likely also result in a failure to achieve the aim policymakers have, namely to provide accessible, affordable and safe healthcare.

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## CRediT authorship contribution statement

**Maarten de Haan:** Conceptualization, Methodology, Software, Formal analysis, Investigation, Writing - original draft. **Yvonne van Eijk-Hustings:** Writing - review & editing, Investigation, Supervision, Project administration, Funding acquisition. **Monique Bessems-Beks:** Software, Formal analysis, Investigation, Writing - review & editing. **Carmen Dirksen:** Writing - review & editing, Supervision. **Hubertus J.M. Vrijhoef:** Writing - review & editing, Supervision, Funding acquisition.

## Declaration of Competing Interest

None.

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## Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.healthpol.2019.07.003>.

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