

Original Research

# Exploring long term implementation of cognitive services in community pharmacies - a qualitative study

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## ABSTRACT\*

Implementing cognitive services in community pharmacies faces certain obstacles. One approach aimed at improving long-term implementation is to consider the implementation process as consisting of different stages, all of which require tailored initiatives. Taking this approach into account, there is a marked need for increased knowledge regarding the initiatives necessary to support especially the later phases of the implementation process.

**Objective:** The aim of this project was to develop insight into factors pertaining to the later phases of implementing cognitive services in community pharmacies.

**Methods:** A qualitative study was conducted, consisting of semi-structured interviews with 12 Danish pharmacy staff members, who were all in charge of improving the implementation of the Inhaler Technique Assessment Service (ITAS) in the 5 years following its introduction. The interviews were used to explore which implementation barriers had been identified by the staff and how they had sought to overcome them. The interviews were analyzed by combining content and critical common sense analysis with theoretical interpretations based on Rogers "Diffusion of innovation" theory.

**Results:** The most predominant long-term barrier was the staff members' adoption of the ITAS at very different rates. The problem of laggards was not lack of competencies, but a lack of self-efficacy in believing that their actual competencies were sufficient to provide the service. Lack of time and attention to the service and obtaining support from the more senior members of the pharmacy were also problematic. Both individual and group activities were launched to overcome the identified challenges belonging to different phases of the implementation process.

**Conclusion:** Those in charge of ensuring long term implementation of cognitive services in community pharmacies should consider the necessity to handle several simultaneous actions of both an individual and collective kind at the same time. Hence, the implementation process should be perceived as a

series of interrelated stages rather than a linear process where one stage succeeds the other.

**Keywords:** Community Pharmacy Services. Professional Practice. Pharmacists. Qualitative Research. Denmark.

## EXPLORANDO LA IMPLANTACIÓN A LARGO PLAZO DE SERVICIOS COGNITIVOS EN FARMACIAS COMUNITARIAS – UN ESTUDIO CUALITATIVO

### RESUMEN

Implantar servicios cognitivos en farmacias comunitarias se enfrenta a ciertos obstáculos. Un abordaje para mejorar la implantación a largo plazo se basa en considerar el proceso de implantación compuesto de diferentes etapas, todas las cuales requieren estrategias personalizadas. Siguiendo esta idea, es altamente necesario aumentar el conocimiento sobre las iniciativas necesarias para apoyar especialmente las últimas fases del proceso de implantación.

**Objetivo:** El objetivo de este proyecto fue explorar los factores pertenecientes a las últimas fases de la implantación de servicios cognitivos en farmacias comunitarias.

**Métodos:** Se realizó un estudio cualitativo consistente en entrevistas semi-estructuradas a 12 personas trabajando en farmacias comunitarias danesas que estaban a cargo de mejorar la implantación del Servicio de Evaluación de la Técnica Inhalatoria (ITAS) a los 5 años de su introducción. Se usó las entrevistas que barreras a la implantación habían sido identificadas por el personal y como habían pensado sobrepasarlas. Las entrevistas fueron analizadas combinando análisis de contenido y de sentido común crítico con interpretaciones teóricas basadas en la teoría de Rogers "Difusión de la Innovación".

**Resultados:** La barrera a largo plazo más predominante fue la adopción del ITAS por el personal a velocidades muy diferentes. El problema de los rezagados no fue la falta de competencias, sino la falta de auto-eficacia en creer que sus competencias reales eran suficientes para proporcionar el servicio. La falta de tiempo y atención al servicio y obtener apoyo de los miembros mayores de la farmacia también fue problemática. Se lanzaron actividades tanto individuales como grupales para superar los retos identificados pertenecientes a las diferentes fases del proceso de implantación.

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**Conclusión:** Los encargados de garantizar la implantación a largo plazo de servicios cognitivos en farmacias comunitarias deberían considerar la necesidad de gestionar simultáneamente varias acciones de tipo individual y colectivo al mismo tiempo. En adelante, debería percibirse el proceso de implantación como una serie de pasos inter-relacionados, más que como un proceso lineal donde un paso sucede a otro.

**Palabras clave:** Servicios de farmacias comunitarias. Ejercicio profesional. Farmacéuticos. Investigación cualitativa. Dinamarca.

## INTRODUCTION

Challenges to the implementation of cognitive services in community pharmacies have been widely investigated and discussed in the last decades.<sup>1,2</sup> Identified barriers and facilitators to successful implementation include: cooperation with GPs<sup>3-5</sup>, lack of time<sup>6-8</sup>, the location of the service within the pharmacy premises<sup>9,10</sup>, documentation<sup>11,12</sup>, reimbursement<sup>13,14</sup>, attitudes of customers and pharmacists<sup>5,8</sup>, networking<sup>11,15,16</sup>, involvement of the pharmacy owner, daily organization of the services<sup>7</sup> and recruitment of customers for the services.<sup>17,18</sup>

The "Diffusions of innovation" theory by Rogers deals with the process of the implementation of innovations. According to the theory the process of implementation consists of several stages whereby an innovation in question develops over time and i.e. becomes integrated in daily practice.<sup>19</sup> Accordingly, the process of implementation requires a certain order of implementation initiatives to be followed, which should be taken into account when planning optimal implementation. More specifically, the innovation process that an entire organization undertakes can be divided into five stages: agenda-setting, matching, restructuring, clarifying and routinizing.<sup>19</sup> The first two stages concern the gathering of information regarding the innovation and deciding whether to implement it, and the latter three stages are concerned with the actual implementation process.

The different innovation stages pose different challenges to those in charge of the innovation process. The stage of restructuring requires preparation of the organization for the innovation by, for example, providing information and equipping colleagues with the skills necessary to perform an innovative/new cognitive service. Further to make various changes for example within the physical pharmacy premises to accommodate the new service. The clarifying phase, will request those in charge of the process to provide more detailed information to their colleagues on how to optimize performance of the innovation based on gained experience. The routinizing phase refers to the stage where the service has lost its separate identity and is handled like any other type of routine task in the pharmacy.

The adoption rate of an entire organization depends of the sum of the adoption rates of the individual members.<sup>19</sup> Those members who adopt the innovation quickly are considered innovators or early adopters, and those who are slow to adopt the innovation are considered laggards. The theoretical thinking's of Rogers is found applicable in relation to the implementation of cognitive services in community pharmacies,<sup>11,20-22</sup>

However, only a few studies concerning the implementation of cognitive services in community pharmacies specifically consider if the identified barriers or facilitators appear early or late in the phases of the innovation process, and likewise how to optimize implementation based on these results. Pronk *et al.* classified the barriers and facilitators of a service of patient education, as experienced by pharmacy staff, according to the different phases of the innovation process as proposed by Rogers.<sup>22</sup> Important factors of the earlier implementation phases included aspects of how to organize the pharmacy to provide the service, including the training and motivation of staff, in addition to delegating tasks. Important factors in the later phases included repetition of performing the service and the sharing of knowledge and experiences among staff members. Albrecht *et al.* have described the different economic expenditures pharmacies could expect when implementing a cognitive service, as compared to maintaining it<sup>23</sup>, and Roberts *et al.* stressed the point of preparing the implementation process before executing it.<sup>24</sup>

Thus, specifying how the adoption of cognitive services applies to an entire process of implementation could be valuable in improving the status and sustainability of existing or future services. Additionally, working with the implementation according to the concept of different stages appears, thus far, to demonstrate relatively untapped potential. As many implementation studies have been performed in project settings or have measured influential factors shortly after the introduction of the implementation<sup>1,11,13,25</sup>, specific knowledge on how to maintain services on a long-term basis appears to be lacking in particular.

Community pharmacy practitioners may personally attempt to consult the existing theories of optimal planning of implementation processes in their respective organizations; however, researchers may contribute to this process also by exploring the characteristics of the phases of different types of implementation processes, such as cognitive services in community pharmacies.

In order to support pharmacies plan and execute the implementation process of cognitive services on a long-term basis, this study aims to describe the specific challenges pharmacy staff experienced when dealing with the implementation of a specific publicly reimbursed cognitive service in Denmark, 5 years after its introduction, and how those in charge attempted to overcome the identified obstacles.

## Project description

In the autumn of 2009, 24 community pharmacies in the North-Zeland region of Denmark launched a

project to optimize the recruitment of experienced asthma or chronic obstructive pulmonary disease patients (COPD) for the Inhaler Technique Assessment Service (ITAS), in cooperation with a researcher from the University of Copenhagen (first author of this paper) and a consultant from the Danish Pharmaceutical Association.

The ITAS consists of a demonstration of the various inhalation steps using any of the existing dryhaler-devices for asthma or COPD on the market. Customer recruitment occurs at the counter when the customers hand in prescriptions for an inhaler device. The service usually takes 5-10 minutes and takes place, according to the facilities and wishes of the pharmacy, at the counter or in a private consultation room. The staff demonstrates the inhalation technique by letting the customer imitating an inhalation in a placebo device in order to detect any error. Both pharmacists and pharmacy technicians can provide the service. The service is quality assured in the sense that pharmacies have to provide the service according to a specific manual in order to obtain public reimbursement.

Typical initial arrangements in Danish pharmacies to accommodate the ITAS have been to gather placebo-devices from manufacturers, training all staff in pharmacology and different inhaler devices techniques and how to fill in the requested form to get reimbursement. After initial implementation activities, some pharmacies have been shown to follow the development of the service by evaluating performance.<sup>26</sup>

The project in North-Zealand was based on an action-research model, in which the pharmacies themselves defined the steps necessary for optimizing especially the recruitment of experienced users for the ITAS. This action-research method has proven to be an appropriate approach for assisting Danish pharmacies in developing their professional practices.<sup>27,28</sup>

The project was undertaken in the period from January to April 2010. Suggestions regarding important factors to consider in achieving sustainable delivery of the ITAS were initially mailed to the pharmacies. The pharmacies then tried to optimize their current performance and were asked to exchange the experiences on how they managed to improve their performance by answering a small questionnaire and to document how many ITASs were administered to both new and experienced users. Besides, a representative from each of the participating pharmacies met twice during this period.

The discussions from the second meeting showed that several of the participating pharmacies had found ways to optimize the recruitment of experienced inhaler users. However, the discussions and questionnaires similarly revealed that the recruitment of customers for the service also depended on factors linked to the overall implementation of the ITAS. For example, several participants described that successful recruitment of customers depended on staff paying constant attention to the service and providing extra support

for those of their colleagues who were still hesitant about performing the service.

Twelve pharmacies who expressed improvement in their recruitment strategies of experienced asthma or COPD patients for ITAS at the counter were approached for participation in this study focusing on barriers and solutions to long-term implementation of cognitive services. All of them agreed to participate. The sampling of the participants can thus be defined as an purposive sampling aimed at identifying pharmacies that are both capable of experimenting successfully and reflecting on their practices.<sup>29</sup>

## METHODS

Conducting semi-structured qualitative interviews with representatives from the selected pharmacies was found to be ideal, both for exploring their improved recruitment strategies and for exploring the challenges of implementation in general as well as solutions to these, as perceived by those in charge of the implementation process several years after the introduction of the service.

The interview guide covered the following topics: the interviewees' perceptions of the attending customers, the developed recruitment techniques, the barriers they noticed in implementing the service and descriptions of the activities undertaken by the pharmacy to overcome these barriers. Their past experiences in providing the service were also evaluated. Active listening as well as probes were used by the interviewer to follow the principles of the semi-structured interview to ensure high quality of data. The probing included following leads on for instance the importance of the involvement of the pharmacy owner and if applied activities were both of an individual and collective kind, as such issues had earlier been found to play a role in the implementation of the ITAS.<sup>26</sup>

Twelve staff members were interviewed between May and August 2010. These consisted of three pharmacy technicians and nine pharmacists. The interviews took place at the interviewees' pharmacies and lasted an average of 55 minutes.

The interviews were all recorded and transcribed verbatim and coded using NVivo2 according to the described themes of the interview guide.

## Analysis

The analysis of the interviews consisted of an ad hoc analysis based on a combination of a content analysis, a critical common sense analysis and theoretical interpretations.<sup>30</sup> Coded statements were transferred to a matrix to compare and contrast the perceptions of all of the participating pharmacies regarding the barriers to implementation and their possible solutions. The similarities and differences among the coded statements were identified. Based on these patterns, thoughts and themes emerged concerning which connections were important and how they should be characterized, whereby the process of content analysis was amended to a certain degree by a critical common sense perspective. Finally, the emerging results were

interpreted according to the part of the theory of Rogers regarding development of stages. A cross-checking of the original transcriptions was performed throughout the entire process to ensure that the interpretations were still true to their original context.

Validation was obtained by having a second researcher check the developed codes and interpretations, thereby allowing for a nuanced discussion of the identified patterns. Some patterns were then slightly modified to maintain the consensus.

## RESULTS

This study on barriers and solutions of long term implementation of cognitive services in community pharmacies showed, as described by Rogers, that employees are indeed the facilitators of an innovation and yet go through the implementation process at varying paces.

### Getting laggards on board

The most predominant challenge to implementation of the ITAS for those in charge of the service was to involve more or all staff members. Thus, early adopters in the pharmacy fought to get laggards to also adopt the service.

"...so there is a big difference regarding who provides the ITAS at the moment" (pharmacist, pharmacy 12)

"There are some who do not feel like doing it and it is very hard doing something about them" (pharmacist, pharmacy 6)

The interviewees explained how the service still represented a new counseling approach for some staff members due to staff members having to ask different types of questions than usual, staff members not being able to master the inhaler devices that were only seldom sold or the embarrassment of some staff members about performing the service at the pharmacy counter. This left some staff members with a lack of confidence that prevented them from offering the service to attending customers.

"...it is much easier to go out and ask a customer if you feel confident" (pharmacist, pharmacy 3)

Furthermore, the interviewees firmly believed that the service was not difficult to provide, but that it was the lack of belief of the laggards over whether they were capable of performing the service that hampered service provision rather than a reflection of their actual technical competencies.

"...many thought they were not competent...but I think they definitely are" (pharmacist, pharmacy 6)

"...there can be many reasons for feeling unsure about this, it does not have to do at all with the task, it could be your personality" (pharmacist, pharmacy 10)

### Individual and collective activities

To overcome the identified barrier of involving more or all staff members in providing the service, the interviewees discussed both collective and individual actions.

Collective initiatives included surveying the numbers of provided ITAS and reporting the latest development back to all the staff members to engage them in the service. Another undertaken initiative was arranging meetings for staff members where they shared their positive experiences on how to recruit experienced asthma patients at the counter, as this issue was found to be particularly challenging.

"We talked a lot about how to phrase your questions..." (pharmacist, pharmacy 6)

"We agreed that everybody should start asking all customers questions and then we evaluated what we get out of it, how it works...Then we found one question which was in particular good which everybody should comply with" (pharmacy technician, pharmacy 9)

The individual initiatives on the other hand were used to explore the reasons why the laggards in the pharmacy were not providing the service and to offer them individual training and support both regarding the inhaler devices and training in adequate recruitment techniques at the counter.

"...at the staff meeting I asked why they did not perform any but they said there was no reason. It was no good....now I go around and ask every single person...to use 5 minutes extra on each to explain it and for them to show me how" (pharmacist, pharmacy 11)

Hence, launched individual initiatives included encouraging the laggards to perform the ITAS or testing them by performing a role-play of both recruiting for and performing the service, which allowed the laggards to realize that they are perfectly capable of providing the service. Individual activities were also undertaken when it became apparent that certain staff members needed different kinds of motivation.

"You have to stimulate those who are not motivated by competition in another way" (pharmacist, pharmacy 1)

However, several interviewees mentioned that pressuring staff members too strongly would be counterproductive.

"We all have different barriers but no one should be forced out there where they think, now it is not fun any longer... then it gives a bad impression to the customer" (pharmacist, pharmacy 2)

### Lack of time and attention

Lack of time and attention was also mentioned as a barrier in the sense that the staff members were often too busy to be able to provide the ITAS

because they were also asked to provide other types of counseling to other customers.

"I do not think it is due to lack of will rather that you are being bombarded with other things which you also have to provide" (pharmacy technician, pharmacy 8)

One solution to this barrier was to force the attention of staff towards the ITAS by keep referring to the ITAS at repeated staff sessions discussing different aspects of provision.

"It is quite clear when we kept focus on it and discussed it at our morning meetings and we also discussed it at the morning briefings...then we had a good period" (pharmacist, pharmacy 4)

### **Power-relations**

Three interviewees mentioned aspects of power and influence as important for service implementation. Those in charge of the implementation did not believe they exercised sufficient power within the pharmacy to convince their colleagues of the relevance of adopting and providing the service.

"There has to be support from there (the sous-chef) – no doubts about that" (pharmacy technician, pharmacy 5)

"...was the owner interested in using time on it?, because if you want to do it, it is not enough that I think it is fun" (pharmacy technician, pharmacy 8)

Two of those staff members who experienced this barrier did as a consequence seek assistance from the official or unofficial leader in the pharmacy in order to overcome it.

## **DISCUSSION**

The study showed that the main barrier to implementing the ITAS five years after its introduction was getting laggards within the pharmacy to adopt the ITAS. This was due to a lack of belief among individual staff members in their own competencies rather than their actual competencies. Additionally, a lack of time, which was described as a lack of attention, due to competition with other counseling initiatives was identified as a factor. Additionally, the importance of acquiring the support from the more senior members of the pharmacy was cited. The initiatives launched by those in charge of the ITAS to overcome these barriers included undertaking activities on both an individual staff level and group level, drawing the attention of staff towards the service by different arrangements and trying to incorporate powerful persons in the pharmacy in the implementation process.

### **Limits of the study**

As with all qualitative studies, the quality of this study corresponds to the degree of data saturation achieved. The data showed considerable levels of consistency, with the exception of the topic of

power-relations. However, this outcome does not mean that this factor is not important when implementing cognitive services; rather, it suggests that this factor may not be experienced by all the engaged pharmacy staff. The true nature of this phenomenon could be studied further by applying more qualitative studies focusing in particular on this aspect of the implementation. The consistency of the data also reveals that community pharmacies are quite similar when it comes to implementing a specific type of cognitive service, which underlines the importance of research that attempts to clarify which specific factors should be taken into account and at which point to develop appropriate implementation tools for pharmacies.

Barriers and solutions to implementation identified in this study, such as lack of time<sup>6-8</sup>, need of support of the management and the need to raise the confidence of those supposed to provide a certain cognitive service have also been shown for implementation of other types of services in other countries.<sup>31</sup> These similarities indicate that our findings may apply also to other pharmacy services and settings outside Denmark. However one difference between the ITAS and several other cognitive services may be that many pharmacies in Denmark have decided that the ITAS should not be confined alone to those staff members having special interests or competencies in the area but be provided by the entire staff group. This particular aspect brought about particular challenges and solutions and should be bared in mind when discussing transferability.

### **Getting laggards on board – the importance of self-efficacy**

Getting laggards to provide the ITAS was a major long-term challenge for those in charge of the process. The lack of provision, however, was not caused by lack of competency, as often indicated by other studies<sup>1,32,33</sup>, but rather because the laggards within the pharmacy did not believe that they were capable of performing all of the sub-tasks involved in the service. Thus, there seems to be a difference between an individual's competencies and the perception of these competencies. The discrepancy between actual and perceived competencies is a highly investigated phenomenon in the literature of for example sports and exam performances and is referred to as self-efficacy i.e. the "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments".<sup>34</sup> If one wants to raise ones self-efficacy for example being able to provide an ITAS despite feeling lack of confidence in doing so, the theory suggests the following techniques: direct mastery experiences, vicarious experiences, social evaluations by significant others and changes in physiological states.<sup>34</sup>

Thus, those in charge of implementing cognitive service may benefit from helping their colleagues to obtain successful/direct mastery experiences of performing the service by for example providing them with constructive feedback of their performance as suggested by the theory, rather than continuing to attempt to improve their skills by

teaching them pharmacology, correct inhaler techniques, etc. This new type of training was described by some of the participants of this study as a way to support sustainability of the service. The importance of self-efficacy for the provision of other cognitive services, such as tobacco-cessation programs and medication therapy management services, have similarly been highlighted and thus appear to be a highly relevant factor to consider when implementing cognitive services in community pharmacies.<sup>35,36</sup>

### **The importance of applying activities of both a collective and individual nature**

The fact that employees adopted the ITAS at different paces prompted activities of both collective and individual natures. Individual activities were particularly needed because staff members exhibited different barriers in providing the service, why they should be addressed on an individual basis. Fedder *et al.* also recommended, based on the theories of Rogers, the application of different strategies when reaching out to innovators and early adopters compared to laggards.<sup>11</sup> A few studies have emphasized either the importance of involving the whole staff<sup>7,24</sup> or the necessity of personalized strategies.<sup>18</sup> Similarly, a review conducted by Roberts *et al.* (2006) distinguished between facilitators of an individual or organizational kind. The individual facilitators regarded professional and personal assets such as competence, attitudes and motivation but did not consider if these facilitators pertained to processes of the individual or of a group.<sup>31</sup> Hence, our results pointing to the importance of addressing both types of processes and often at the same time may prove to be one fruitful way to ensure sustainability of some cognitive services.

### **Competition with other activities**

A lack of time was described by most participants, as described as a lack of attention on the ITAS due to the competing priorities of devoting time to other counseling activities within the pharmacies. Lack of time is one of the most frequently documented barriers to service implementation in the relevant literature, although it has often been reported as being caused by spending time on processing prescriptions and not by competing counseling activities.<sup>25,32</sup> Participants in this study tried to overcome this challenge by arranging meetings of different kinds whereby staff was forced to concentrate on the service. This might be an effective solution as the ITAS then for some time dominated over other counseling activities. On a more general level, Hopp *et al.* found that pharmacies who were successful in providing cognitive services were characterized by their ability to prioritize tasks.<sup>14</sup> Thus, pharmacy management may have to be more conscious regarding the communication of their true goals to allow their staff to decide how to best prioritize their time with customers thereby trying to overcome identified obstacles of lack of time.

### **Power-relations**

Power-relations within the pharmacy were also important factors for implementation, although it was not reported by all the interviewees. As much as implementers depend on the support of their colleagues, similarly, no activity performed in the pharmacy can be expected to be successful if not supported by appropriate power-structures. It appears that it has not been addressed thoroughly within the existing literature except from describing the absolute importance of pharmacy leaders for sustainable implementation of cognitive services in terms of leadership style.<sup>16</sup> Hence, this area of implementation would probably benefit from being studied more intensively in the future.

### **Optimizing the implementation process**

Despite having made initial arrangements to accommodate the service, it became obvious by the outcome of the analysis of this study, that the pharmacies still experienced barriers pertaining to both the restructuring and clarifying phase. This outcome could be explained by the fact that the staff members exhibited varying levels of adoption, where some still needed a specific type of training, while others could be directly incorporated in exchanging experiences. Thus, those in charge of the implementation of cognitive services should not perceive the implementation process as an activity where one has to complete one stage before entering the next, but in fact acknowledge that at least the phase of the restructuring and clarifying stages described by Rogers often occur simultaneously.

The results of this study indicate that after the very first initiatives of redefining and restructuring a pharmacy on a collective basis to adopt a service, have been performed, those in charge of the implementation process should prepare themselves to evaluate the performance of all the staff members expected to provide the service. Hence, activities of an individual nature aimed at addressing lack of self-efficacy should be launched at the same time as launching collective feedback activities aimed at sharing and transferring knowledge between experienced staff members.

Likewise, the factor of power-relations most likely relates to all of the phases in an implementation process and will thus have to be considered from the beginning. Those in charge of implementing a service in a community pharmacy may not automatically have the full support of the management despite the owners decision to implement the service and will therefore have to actively seek it as early as possible in the process of implementation.

### **CONCLUSIONS**

This qualitative study identified barriers and solutions to the implementation of cognitive services in community pharmacies as experienced by pharmacy staff several years after implementation was initiated. It appeared that special implementation activities of both an individual and

collective kind will have to be applied simultaneously because staff members adopt the services at different rates. Similarly, implementers may have to fight for the attention of both managers and peer colleagues to support sustainable delivery of the service.

#### CONFLICT OF INTEREST

The authors declare no interest of conflict and have received no special funding for the project.

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