Patient oriented activities in Dutch community pharmacy: diffusion of innovations

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Survey

Abstract
Objectives: To explore the implementation of patient oriented activities, the perception of an innovation aimed at implementation of patient education and the preconditions for implementation of this innovation among Dutch pharmacists.
Method: A survey, based on Rogers' theory of diffusion of innovations, was carried out among a random sample (n = 300) of Dutch managing pharmacists.
Main outcome measures: Reported activities regarding patient education, medication surveillance and drug therapy meetings, as well as perception of the innovation and its perceived compatibility with pharmacy practice.
Results: The response rate was 49.3%. Hundred (84.7%) respondents reported to provide extra written and verbal information with first prescription medication. Medication surveillance (100% check by computer, and check of the lists by the pharmacist) was reported by 43 (36.4%), and complete participation in drug therapy meetings was reported by 57 (48.3%) respondents. Observability (of results to others) of the new strategy was perceived as important by 90 (77.6%), compatibility (perceived consistency with existing values, past experiences and needs of potential adopters) by 87 (76.4%) and trialability (degree to which an innovation may be experimented with) by 81 (69.8%) respondents. Relative advantages (perception of the innovation as being better) and complexity (relatively difficult to understand and use) of the innovation were perceived as important by less respondents. The preconditions that were met by most pharmacists were 'financial resources' (n = 70; 59.8%), 'enough workspace' (n = 61; 53.1%) and 'enough time' (n = 58; 50%). Fifty-eight (49.2%) respondents intend to adopt the innovation, but this intention would be higher when more time and money and technicians are available, as well as less situations that are experienced as barriers (rush hours, lack of support, illness of employees).
Conclusion: Based on the definitions used, we conclude that the implementation of medication surveillance and drug therapy meetings is relatively low compared to patient education. The development of an implementation tool is justified, but should deal with the experienced preconditions, barriers and needs of pharmacists. Combined, comprehensive pharmacy interventions promise to be a good way to change pharmacy practice.

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Innovations in community pharmacy in the Netherlands

In the past 30 years, activities of community pharmacies in the Netherlands have changed from product-centred to patient-centred. The emphasis used to be on preparing drugs, whereas nowadays only about 5% of the medication are prepared in community pharmacy [1]. Communication with patients has become much more important [2,3]. In contrast other new tasks have emerged: medication surveillance and drug therapy meetings with prescribing physicians. In other countries similar changes in community pharmacy practice have occurred [4,5]. Pharmacies in the UK are used as primary health care resources, although their role could be improved [6,7]. In addition, structured contacts between pharmacists and physicians also exist outside the Netherlands, for instance in Canada and Australia [8,9]. However, the need for increased patient oriented activities is demonstrated in several studies [10–18]

The new tasks

Medication surveillance can avoid drug-related morbidity and provides continuous monitoring of patients' drug use with electronic pharmacy records [3]. Drug therapy meetings support rational, effective and efficient prescribing of medication, thereby contributing to optimal pharmacotherapy for the individual patient, by providing structural contacts between pharmacists and physicians [19,20]. Patient education is the planned communication of pharmacists and pharmacy technicians with patients and clients to help them understand and manage the aspects of their medication use and showing them how to use their medication [21].

Implementation of the new tasks

Many assumptions exist regarding the level of implementation of these activities in Dutch community pharmacy. Virtually every pharmacy keeps electronic patient records, which is seen as an indicator for implementation of medication surveillance [3]. Whether keeping electronic patient records really means that medication surveillance is fully implemented, is under discussion. Similarly, the existence of drug therapy meetings does not mean that they are highly structured and thus produce good results [19,20,22–24]. Implementation of patient education faces even more problems. Studies report an average percentage of patient education client–staff contacts at ≤ 50% [25–27]. In addition, patient surveys show that patients are not satisfied [28,29]. Results of mystery guest studies demonstrate a non-sufficient quality of self-care advice in Dutch pharmacy [30]. These results lead to the conclusion that the patient education activities of community pharmacies are not satisfactory.

A new strategy to implement patient education

In a study among pharmacists and technicians the barriers and facilitators towards implementation of patient education in Dutch community pharmacies were explored. The study revealed that the idea of

implementing patient education activities is wide spread (adopted), but implementation into daily work has not occurred. The barriers and facilitators were mainly related to the organisation of patient education [31].

This is why an intervention was developed, addressed to the process of developing patient education and the organisation of patient education activities in community pharmacies. Stepwise procedures were developed in combination with a patient education manager (a technician acting as a patient education manager and advocate). This will be referred to as 'the new strategy' from this point forward. The new strategy was tested in a small sample of Dutch community pharmacies (n = 26), and the results of this study will be submitted for publication in the near future. This article describes the results of a study that was done among a random sample of 300 Dutch pharmacists to explore the implementation of patient oriented tasks and the attitude of pharmacists towards innovations aimed at improving the implementation of patient education.

Research goals and questions

The purpose of this study was to explore to what extent patient oriented activities are implemented and whether these activities are interrelated. In addition it was explored how an innovation aimed at implementation of patient education is perceived and under which preconditions this innovation can be implemented on a large scale among Dutch pharmacists. The study was done to be able to stimulate the rate of adoption and implementation of patient education activities in the future by meeting the preconditions for adoption and implementation of these activities. The research questions that followed from this goal were:

- to what extent have Dutch pharmacists implemented patient oriented activities in daily pharmacy practice and to what extent is the implementation of the different patient oriented activities interrelated?
- what innovation characteristics of the new strategy are important?
- under which preconditions can this innovation be implemented on a large scale?

Theory

To answer the second research question in a structural way, Rogers' diffusion of innovations theory was used, more specific the attributes of innovations as they are experienced by the potential adopters, which may explain the rate of adoption of innovations [32]. These characteristics of innovations are:

- relative advantage: perceived as being better than existing practice;
- compatibility: perceived consistency with existing values, past experiences and needs;
- complexity: perception of how difficult the innovation is to understand and use;
- trialability: degree to which the innovation my be experimented with;
- observability: degree to which others are expected to see the results.

Studying the importance of these attributes makes it possible to adjust the naming and positioning of the innovation to the potential adopters, which promotes the rate of adoption.

In addition, Rogers' division of populations into adopter categories was used [32]. This division is based on the relative speed with which sub-populations within a population adopt an innovation. The adopter categories were used because the way the characteristics of innovations are perceived is also influenced by the adopter category a respondent is categorised in. An innovator will be much more willing to change, and see more advantages in using an innovation, than a member of the late majority will for instance. It is important to adjust messages about an innovation to the adopter category that is addressed, to increase the chances of adoption. The rough division into adopter categories that was used in this diffusion study, from relatively quick to relatively slow adopters, was: innovators (5%), early adopters (15%), early majority (35%), late majority (35%) and laggards (10%).

Methods

Operationalisation of theoretical concepts into questionnaire items

The study was carried out by a cross-sectional survey. The concepts in Rogers' theoretical framework were operationalised into questionnaire items. The validity of the questionnaire indicates to what extent the measurement is in concordance with the underlying theoretical variable. This was taken into account by consulting experts on innovation research and pharmacy practice. In addition, items were used that were derived from earlier research [27,31,33]. The questionnaire was pre-tested with eight randomly selected pharmacists to check for understanding and variation between the answers of different subjects.

Sample and questionnaire distribution

A random sample of *managing* pharmacists was taken, because they are considered to be the most important decision-makers with regard to innovations in their pharmacy. Three hundred questionnaires were sent by mail to a random sample of managing pharmacists, together with a recommendation letter from the professional organisation and a reward. The reward was a credit note for a liquor store, it was added to increase the response. After two weeks a reminder letter was sent to the whole sample. Questionnaires that were completed and returned within seven weeks were analysed.

Implementation of patient oriented activities

To determine whether a patient oriented task was implemented, norms for minimum requirements were formulated for patient education, medication surveillance and drug therapy meetings. The norms are shown in Table 1.

These norms were based on:

- the Dutch pharmacy norms, which are the norms for responsible care in the pharmacy and are accepted by pharmacists, patients and health insurance companies [34],
- a study about pharmacists' opinions concerning quality indicators for pharmaceutical care [33].

The Dutch pharmacy norms are an idealised image of

Table 1 *Norms for implementation*

Activity	*Norm*
Implementation of patient education	Written and verbal information with first prescription medication (additional to patient package inserts and drug label instructions generated by computer).
Implementation of medication surveillance and guidance	100% of prescriptions is controlled by either a technician or a pharmacist, daily review of medication surveillance lists (extra check for mistakes at the end of the day) is carried out always by the pharmacist.
Implementation of drug therapy meetings	Drug therapy meetings are organised at least four times a year; the pharmacy participates always, an agenda is always made beforehand and minutes are always made afterwards.

reality, and for most of the pharmacies not feasible on short term. Therefore the study on pharmacists' opinions about the minimum levels of pharmaceutical care was used in addition to the norms, making the norms more concrete and feasible for pharmacies.

Division into categories

The respondents were divided into five adopter categories based on their answers on the innovativeness scale that was composed of two items: "If you would have to characterise your pharmacy with regard to dealing with innovations, which one of the following descriptions fits best?" and "When the introduction of new ideas and new activities is concerned, pharmacists, like other professionals, could be divided into innovators (5%), early adopters (15%), early majority (35%), late majority (35%) and laggards (10%). Among which group would you reckon yourself to be?". The correlation between the answers on these two items was 0.71.

The respondents in the last two categories (late majority n = 4 and laggards n = 1) were excluded from the analyses because of the small number of respondents in these categories. Another four cases were excluded because of too many missing values. Incidentally, some cases were left out of an analysis because of missing values on one or more of the variables in the analysis. Most of the analyses were based upon 118 cases.

Innovation characteristics

To determine which characteristics were important with regard to the adoption of the new strategy, the respondents were asked what their opinion was on the innovation characteristics of the new strategy. They were asked whether they agreed with the relative advantage of the new strategy, and about their opinions concerning the influence of observability, compatibility and trialability and complexity on the adoption rate of the new strategy. The more positive the influences of these characteristics are perceived, the more they are expected to influence the rate of adoption in the pharmacy.

In addition, questions about the preconditions within the pharmacy were asked to determine the compatibility of the new strategy with pharmacies' daily practice. These preconditions were derived from a previous study in which barriers and preconditions for this new strategy were studied [31].

A linear regression analysis was carried out to determine the relative influence of the different factors on the intention to adopt the new strategy. The dependent variable was composed of three items that express the intention to adopt the strategy ("plan to stay informed about innovation", "plan to start working with innovation", "when would you start working with innovation"). Independent variables included in the analysis were background variables and sum scores of groups of items that could predict the intention. These groups concerned: perceived characteristics of innovations, available time and money, perceived barriers, self-efficacy, social influence and physical preconditions for the new strategy.

Analyses

Data entry and analysis were done using SPSS 9.0. Crosstabs, chi-square and Kruskall–Wallis tests were used. Differences between adopter groups were tested and reliability analyses were done to check the homogeneity of groups of questions (scales), based on the theoretical framework. In addition, regression analysis was done to determine the predictors of the adoption of innovations by pharmacists.

Results

Respondents

After seven weeks, the response rate was 49.3%. Hundred and fifty questionnaires were returned, of which 147 were completed. One was refused and two were undeliverable. Twenty were not completed by the pharmacist who was defined as the decision-maker and therefore not included in the analyses. Table 2 shows the background characteristics of the respondents that were included and a comparison with the whole population of managing pharmacists.

The respondents in this study did not differ from the whole population with regard to mean age, male/female distribution and the mean number of technicians. A significant difference was found in the number of pharmacists per pharmacy, which was higher in the general population, than it was in this study. This is not considered to be a problem because the difference is actually very small and could be due to chance.

Implementation of tasks

Based on the norms that were defined (Table 1), the level of implementation of patient oriented tasks was assessed. Table 3 shows the different levels of implementation for three adopter groups.

Hundred (84.7%) respondents reported to provide *extra* written *and* verbal information with first prescription medication, in addition to patient package inserts and drug label instructions. These percentages are less high for other activities, second prescriptions for example: extra written information by 6 (5.1%), verbal by 18 (15.3%) and written *and* verbal by 7 (5.9%) respondents. Sixty (50.8%) respondents reported to check 100% of the prescriptions by computer (check of medication history and patient characteristics). The mean percentage of checked prescriptions was 83.8%, whereas 73 (62.4%) respondents reported a daily check of the medication control lists by the pharmacist. Forty-three (36.4%) reported both a 100% check of prescriptions and a daily check of the lists. Regarding drug therapy meetings, 57 (48.3%) pharmacists reported to comply with the norm (Table 1). Compared to early adopters and early majority, a larger proportion of the innovators (the fastest adopters) complied with the norms.

Table 2 *Characteristics of the respondents and their pharmacies*

Variable	*Sample* *n*	*%*	*Population*[a] *N*	*%*
Male	77/118	65.3	1121/1602	70%
Managing pharmacist	116/118	98.3	1602	100%
Owners	93/118	78.3		
Policy plan patient education	43/114	37.2		
Staff meetings	117/118	99.2		
Patient education room	103/117	87.2		
Variable	*Sample* *n*	*Mean (SD)*	*Population*[a] *N*	*Mean*
Age Male	77	43.1 (7.1)	1121	46
Female	41	38.7 (8.7)	481	40
Years of experience				
Male	77	14.5 (7)	1121	17
Female	40	12 (8.5)	481	10
Number of pharmacists (fte)	118	1.41 (0.60)	2472[b]	1.63
Number of technicians (fte)	117	5.90 (2.36)	12,189[b]	5.9
Number of prescriptions per day	110	293.82 (119.62)	13,712[b]	

[a] *Source:* Foundation for Pharmaceutical Statistics (2001).
[b] *Source:* Van der Heide H, Tinke JL. Facts and figures 2000; Cost development of pharmaceutical aid. 's Gravenhage: Foundation for Pharmaceutical statistics.

Table 3 *Implementation of (parts of) patient oriented activities by different adopter categories*

Implementation[a]	*Innovators (n = 20)*	*Early adopters (n = 55)*	*Early majority (n = 43)*	*Total (n = 118)*
Patient education				
Extra written info with first prescription	19 (95%)	50 (90.9%)	36 (83.7%)	105 (89%)
Extra verbal info with first prescription	20 (100%)	50 (90.9%)	42 (97.7%)	112 (94.9%)
Extra written & verbal info with first prescription	**19 (95%)**	**46 (83.6%)**	**35 (81.4%)**	**100 (84.7%)**
Medication surveillance				
100% medication control (by computer)	15 (75%)	25 (45.5%)	20 (46.5%)	60 (50.8%)
Medication control lists always checked by pharmacist	13 (65%)	38 (69.1%)	22 (52.4%)	73 (62.4%)
100% medication control & medication control lists always checked by pharmacist	**12 (60%)**	**19 (34.5%)**	**12 (27.9%)**	**43 (36.4%)**
Drug therapy meetings				
>4 times/year	19 (95%)	47 (85.5%)	37 (86%)	103 (87.3%)
Participate always	17 (85%)	44 (80%)	34 (79.1%)	95 (80.5%)
Always agenda	14 (70%)	36 (65.5%)	30 (69.8%)	80 (67.8%)
Always minutes	12 (60%)	31 (56.4%)	32 (74.4%)	75 (69.6%)
>4 times/year & participate always & always agenda & always minutes	**12 (60%)**	**24 (23.7%)**	**21 (48.8%)**	**57 (48.3%)**

[a] Implementation was determined by the norms in Table 1. Only the respondents that complied with (parts of) the norms were listed here.

Pharmacists' reported patient education and medication surveillance activities showed a significant correlation ($p = 0.031$), implying that the implementation of these two activities is interrelated. However, no relationship was found between the implementation of drug therapy meetings and these two tasks.

Chi-square tests that were carried out to determine whether adopters of the three tasks were different from non-adopters with regard to background variables, only showed a significant difference between the age of adopters (39.5 years) and non-adopters (42.7 years) of medication surveillance ($p = 0.009$).

Adoption of innovations

Table 4 shows that the characteristics of the new strategy were perceived positively by the respondents. The characteristics with which the highest percentages of respondents "agreed" were considered to be the most important.

With regard to expected advantages, 68 (59.2%) respondents agreed that the new strategy would improve the image of their pharmacy. Fifty-four (46.6%) thought the new strategy would promote the ties of their pharmacy with their clients. Observability (n = 90, 77.6%) and compatibility (n = 87, 76.4%) appeared to be the most important characteristics. The third important characteristic was trialability, reported by 81 respondents (69.8%). The only characteristic in which significant differences between adopter categories were observed was complexity ($p = 0.003$; Kruskall–Wallis test). On average 54 (46.5%) respondents agreed with this characteristic (Table 4), but when divided into adopter categories, a much higher percentage of the early majority (65.1%) and innovators (52.6%) agreed than the early adopters did (29.6%). This finding may be due to chance.

Table 5 shows that the preconditions most pharmacists (n = 70, 59.8%) met with respect to the implementation of the innovation, were "enough financial resources", because this question returned the highest "agree" score. Another precondition that

Table 4 *The influence of the innovation characteristics of the new strategy: pharmacists' opinions*

Innovation characteristics[a]	*Agree*	*No opinion*	*Disagree*	*Total*
Observability: My clients must give me the impression that the new strategy has added value	90 (77.6%)	20 (17.2%)	6 (5.2%)	116 (100%)
Compatibility: The new strategy must directly fit in the daily activities in my pharmacy	87 (76.4%)	18 (15.8%)	9 (7.9%)	114 (100%)
Trialability: I will only try the new strategy if I can try it out without any commitments	81 (69.8%)	20 (17.2%)	15 (12.9%)	116 (100%)
Relative advantage: The new strategy improves the image of my pharmacy	68 (59.2%)	38 (33%)	9 (7.8%)	115 (100%)
Relative advantage: The new strategy promotes ties of my clients with my pharmacy	54 (46.6%)	44 (37.9%)	18 (15.5%)	116 (100%)
Complexity: The new strategy only succeeds in my pharmacy when the tasks are not too complex	54 (46.6%)	29 (25%)	33 (28.4%)	116 (100%)

[a] Statements based on previous research and theory [31, 32].

Table 5 *Compatibility of the new strategy with pharmacies, experienced by pharmacists (n = 117)*

Preconditions related to pharmacy[a]	*Agree*	*Disagree*
My pharmacy has enough financial resources to work with the new strategy	70 (59.8%)	15 (12.7%)
It is not possible to make a separate workspace available for 4 hours a week	41 (34.8%)	61 (53.1%)
Enough time (about 4 hours a week) is available in my pharmacy for one technician to work on the new strategy	58 (50%)	31 (26.2%)
My pharmacy has not enough physical space to work with the new strategy	47 (39.9%)	52 (45.4%)
In my pharmacy team enough time is available to work with the new strategy	48 (41.4%)	51 (43.3%)
My pharmacy has not enough employees to be able to work with the new strategy	42 (35.6%)	47 (41.1%)

[a] Statements based on previous research and theory [31, 32].

Table 6 *Linear regression equation of intention to adopt the new strategy*

Step	*Determinant*	β^a	*R*	R^2	*p-value*
1	Time and money	0.26	0.38	0.15	0.000
2	Number of technicians	–0.24	0.46	0.21	0.008
3	Handling barriers (rush hours, lack of support illness of technicians)	0.18	0.50	0.25	0.049

[a] Relative influence of determinants on the intention to adopt the new strategy. Number of technicians has a negative value because the other variables (including the dependent) were coded inverse (lower value = better).

was met by more than 50% of the respondents was "enough time", by 58 (50%) respondents. The disagree score on "not enough workspace" was considered to indicate that, for these 60 (53.1%) respondents, it is possible to make a separate workspace.

Significant differences between adopter categories were found in three variables, of which two concerned the physical- or workspace in the pharmacy, and the third concerned the availability of time. A greater part of the early majority disagreed with the existence of these limitations in their pharmacy compared to the innovators and early adopters.

Fifty-eight (49.2%) of the respondents reported to have the intention to adopt the new strategy. The linear regression analysis that was done to determine the relative influence of the different factors on the intention to adopt the new strategy showed that intention was higher when more time and money and more technicians are available, and when difficult situations are perceived less as barriers (composed of 3 items: "I can work with the new strategy during rush hours in the pharmacy", "I can work with the new strategy when my employees do not support it" and "I can work with the new strategy when one or more of my employees is absent for illness"). These three factors explained only 25% of the variance in the pharmacists' intention to adopt the new strategy, which means that 75% is caused by other factors that were not included in the analysis. The other variables that were included in the analysis did not predict the intention to adopt the new strategy.

Discussion

The respondents in this survey were comparable to the population of Dutch managing pharmacists with regard to age, male/female distribution, and number of pharmacy technicians. However, taking into account the high non-response rate (despite the follow-up) and the division into adopter categories which showed a tendency towards the more innovative groups, it is likely that this sample was on average more innovative than the whole population. This seems to be consistent with Rogers' findings about behaviour of earlier adopters: Earlier adopters have a more favourable attitude towards change, a more favourable attitude towards science, higher aspirations and seek information about innovations more active [32].

Taking this into account, the amount of respondents that reported to carry out medication surveillance and to participate in drug therapy meetings is relatively low. In contrast, patient education with first prescriptions is relatively high, and higher than found in previous studies, which indicates an improvement [25, 26]. These results however, are strongly influenced by the norms that were formulated. If extra information with second prescriptions had been the norm, the number of implementers of patient education for example would have been much lower. It could be discussed whether these norms were practical and feasible enough for pharmacists to comply to. In addition, this study was carried out with questionnaires, which means that the results concern the experienced situation. Moreover, it is possible that to some degree socially desirable answers were given. This could mean that the actual innovativeness of the studied group of pharmacists is a bit lower than found in this study.

Conclusion

The purpose of this study was to explore the implementation of patient oriented tasks and the perceptions of pharmacists towards an innovation aimed at improving the implementation of patient education.

In agreement with Rogers' theory, earlier adopters reported more frequently to have implemented patient oriented tasks, compared to later adopters [32]. The implementation of patient education and medication surveillance were correlated. The implementation of drug therapy meetings was not correlated with the other two patient oriented activities. The distinguished patient oriented activities show different implementation patterns. Their implementation is influenced by different factors. Medication surveillance for instance was strongly enhanced by the introduction of medication surveillance computer systems [35]. Physicians are reimbursed for visiting the drug therapy meetings with pharmacists [20]. Patient education does, more than the other two activities, ask for communication skills, active behaviour and team support within the pharmacy. It is less strongly supported from outside the pharmacy [26].

Adopters and non-adopters of the patient oriented activities did not differ from each other with regard to background variables, with the exception that adopters of medication surveillance were, on average, a few years younger. This corresponds with Rogers' generalisation about earlier adopters [32].

Observability, compatibility and trialability were the most important perceived characteristics of the new strategy. Complexity and relative advantages appeared to be experienced as important by less respondents. In the general population, relative advantage and complexity might be experienced as more important, because according to Rogers, earlier adopters tend to see advantages more quickly and are better able to deal with uncertainties and complexity. Another explanation is that these respondents do not observe the relative advantages and complexity because they do not know the innovation well enough.

The preconditions that most of the respondents agreed to were having enough financial resources, enough workspace and enough time. Fifty to 59.8% of the respondents indicated to meet these preconditions in their pharmacy. Among the later adopters a higher percentage did not meet the preconditions of time and (work) space.

Overall, the intention to adopt the new strategy in community pharmacies (by 49.2% of the respondents), should be higher when time and money are available, the pharmacy has a larger number of technicians and when difficult situations (rush hours, motivation, illness of employees) are perceived less as barriers. The perceived innovation characteristics (relative advantage, observability, compatibility, trialability and complexity) were not a predictor of the intention to adopt the new strategy, and neither were the adopter categories. But this is how it was perceived by this sample of managing pharmacists and influenced by how the dependent variable was composed. The greater part of the explanation of pharmacists' intention (75%) is unknown and could be

explained by factors that were not studied here. Examples are the variety of factors supporting pharmacy change found by Doucette [36]. These factors concerned improving resources, such as upgraded staff skills and regular interaction with advocates for pharmacy practice change. Odedina et al. [37] found that pharmacists' pharmaceutical care behaviour is directly determined by past behaviour recency, behavioural intention and perceived behavioural control and that behavioural intention is determined by attitude, social norm and perceived behavioural control. These should be included in future research.

Recommendations

The findings of this study justify the development of a tool for Dutch pharmacies with respect to the implementation of patient oriented activities. This tool should deal with the experienced preconditions, barriers and needs of pharmacies.

In the general population, different approaches should be applied to different influencing factors and different adopter categories of managing pharmacists. For instance, change agents (organisations supporting changes in pharmacies) should focus on what visible effects can be expected of an innovation, to make sure that the innovation is compatible with the current processes, norms and values in the pharmacy, and to develop it in such a way that the pharmacy has the possibility to try it before implementing it.

The later adopters should be supported especially in their efforts to reach the preconditions like having enough financial resources, workspace and time. This is a recommendation related to the management of the pharmacy (the owner) and possibly to the government as well. On the level of the individual pharmacy, illness of personnel should be a calculated risk of pharmacy practice and not a barrier, and the problems with rush hours can be dealt with by changes in the worktables for technicians for example. Others also advocate the focus on organisational factors and/or a more comprehensive approach. Farris concluded that implementation programs for pharmaceutical care addressing only individual factors would not be successful. Instead of addressing individual factors, pharmaceutical care implementation programs should help pharmacists to assess their work environment and determine strategies to adjust this environment to providing pharmaceutical care [38]. In addition, Holland and Nimmo [39, 40] have proposed a systems views of pharmacy practice, the total pharmacy care model, which should lead to the delivery of a comprehensive range of services. In order to achieve a change towards this model, a pharmacist needs to acquire new knowledge and skills, but sometimes also a change in his professional thinking. Finally, one could also look at other fields in health care. Garside [41] looked at the implementation of innovations from a management and quality perspective. She stated that to manage an innovation process effectively, one should pay attention to several important organisational aspects, mainly related to project management. A few recommendations she did were: appoint a project team, show early and midterm successes to maintain motivation and provide enough time.

Combining the findings of this study and studies done by others, it is recommended to link the research with regard to comprehensive pharmacy interventions with research into determinants of change and different approaches for different adopter categories.

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