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Original Research

Medication reviews led by community pharmacists in Switzerland: a qualitative survey to evaluate barriers and facilitators

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ABSTRACT*

Objective: 1) To evaluate the participation rate and identify the practical barriers to implementing a community pharmacist-led medication review service in francophone Switzerland and, 2) To assess the effectiveness of external support.

Methods: A qualitative survey was undertaken to identify barriers to patient inclusion and medication review delivery in daily practice among all contactable independent pharmacists working in francophone Switzerland (n=78) who were members of a virtual chain (pharmacieplus), regardless of their participation in a simultaneous cross-sectional study. This study analyzed the dissemination of a medication review service including a prescription and drug utilization review with access to clinical data, a patient interview and a pharmaceutical report to the physicians. In addition, we observed an exploratory and external coaching for pharmacists that we launched seven months after the beginning of the cross-sectional study.

Results: Poor motivation on the part of pharmacists and difficulties communicating with physicians and patients were the primary obstacles identified. Lack of time and lack of self-confidence in administering the medication review process were the most commonly perceived practical barriers to the implementation of the new service. The main facilitators to overcome these issues may be well-planned workflow organization techniques, strengthened by an adequate remuneration scheme and a comprehensive and practice-based training course that includes skill-building in pharmacotherapy and communication. External support may partially compensate for a weak organizational framework.

Conclusions: To facilitate the implementation of a medication review service, a strong local networking with physicians, an effective workflow management and a practice- and communications-focused training for pharmacists and their teams seem key elements required. External support can be useful to help some pharmacists improve their service management skills. Adequate remuneration seems necessary to encourage initial investments to provide such a service. Future research in this area may help improve the process and design of training programs, as well as the monitoring of implementation for each new pharmaceutical service.

Keywords: Community Pharmacy Services. Qualitative Research. Switzerland.

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REVISIONES DE MEDICACIÓN REALIZADAS POR FARMACÉUTICOS COMUNITARIOS EN SUIZA: ESTUDIO CUALITATIVO PARA EVALUAR BARRERAS Y FACILITADORES

RESUMEN

Objetivo: 1) Evaluar la tasa de participación e identificar las barreras para implantar un servicio de revisión de la medicación realizado por farmacéuticos comunitarios en la Suiza francófona y, 2) evaluar la efectividad del apoyo externo.

Métodos: Todas las farmacias independientes contactables que trabajan en la Suiza francófona (n=78) que eran miembros de la cadena virtual (pharmacieplus), independientemente de su participación en un estudio transversal simultaneo que analizaba la diseminación del servicio de revisión de la medicación, que incluye la revisión de la prescripción y de la utilización de medicamentos con acceso a datos clínicos, entrevista a paciente y un informe de los farmacéuticos a los médicos. Se realizó un estudio cualitativo para identificar las barreras para la inclusión de pacientes y la provisión de revisión de la medicación en la práctica diaria. Además, analizamos un entrenador externo para farmacéutico que lanzamos siete meses después del estudio transversal.

Resultados: La pobre motivación por parte de los farmacéuticos y las dificultades de comunicación con los médicos y los pacientes fueron los obstáculos principales identificados. La falta de tiempo y la falta de auto-confianza en la provisión del servicio de revisión de la medicación fueron las barreras prácticas más percibidas para la implantación del nuevo servicio. Los principales facilitadores para resolver estos problemas podrían ser las técnicas de organización de flujos de trabajo bien planeadas, el refuerzo por un esquema de remuneración adecuado, y cursos de entrenamiento intensivos y basados en la práctica que incluyesen

creación de habilidades en farmacoterapia y comunicación. El apoyo externo puede compensar parcialmente una estructura organizacional débil. Conclusiones: Para facilitar la implantación de un servicio de revisión de la medicación parecen ser elementos clave necesarios un contacto fuerte con los médicos locales, una gestión efectiva y práctica del flujo de trabajos y una formación centrada en práctica y comunicación para los farmacéuticos. El apoyo externo puede ser útil para ayudar a algunos farmacéuticos a mejorar las habilidades de gestión del servicio. La remuneración adecuada parece ser necesaria para animar a las inversiones iniciales para proporcionar este servicio. La investigación futura podría ayudar a mejorar el proceso y el diseño de los programas de formación, así como monitorizar la implementación de cada nuevo servicio farmacéutico.

Palabras clave: Servicios de farmacia comunitaria. Investigación cualitativa. Suiza.

INTRODUCTION

For more than fifteen years, pharmacists have been aware that their role should go beyond simply selling medications, and that they should provide services to support the modern healthcare system.[1] However, the implementation of new community pharmacy services has faced several barriers.[2-4]

A recent study carried out in the United States assessed pharmacists' actual and perceived barriers to the implementation of medication therapy management services. The results suggested a difference between pharmacists who currently deliver services and those who are interested in doing so.[5] The former were principally concerned with receiving adequate remuneration, independent of whether or not they were already receiving compensation. The second group expressed concerns about staff shortages and poor access to medical information. It is also interesting to note that pharmacists providing services found most barriers less constraining compared with those who did not provide services. In addition, an Australian survey identified facilitators of practice change in community pharmacies, and separately, the so-called Seven-Factor Solution has been proposed, which includes: a good relationship with local physicians, remuneration for each pharmaceutical service delivered or in an implementation phase, an area specifically designated for services within pharmacies, patients' expectations regarding such services, sufficiently well-trained staff, communication within the team, and finally external support/assistance with clinical aspects and/or implementation.[6-7]

A cross-sectional study regarding the impact of a community pharmacist-led medication review service was launched in French-speaking part of Switzerland in 2007.[8] One major aim of that study was to evaluate the potential contribution of this kind of pharmaceutical intervention into disease management programs. The medication review process chosen within this study is complex and known as clinical medication review.[9] It is based on an analysis of a patient' drugs regimen conducted by a community pharmacist, in order to optimize efficiency and safety.[10] For this purpose, the pharmacist ought to evaluate the patient medication records and clinical data, and carry out a face-to-face interview. After a systematic analysis of drug related problems, pharmacists sent recommendations to physicians who remain free to apply them or not. Everything is archived to monitor the patient and monitoring the delivery. The cross-sectional study ran for seven months with a poor inclusion rate, even though several facilitators were provided, including remuneration, specific training, practical handbook, pharmacotherapeutic support, and basic collaborative care experiences with the physicians-pharmacists quality circles.[11,12] This provided a good opportunity to assess the actual and perceived barriers to implement this kind of community pharmacy-led medication review service in Switzerland.

The survey evaluated the participation rate of pharmacists and physicians, the process of patients inclusion, the effectiveness of an external support and identified the practical barriers to implementing an advanced community pharmacist-led medication review service

METHODS

Setting

A cross-sectional study was conducted in French-speaking part of Switzerland in collaboration with 90 independent community pharmacists, all members of a virtual chain (pharmacieplus). Those pharmacists are similar to the other Swiss community pharmacies' owners. The aim of this study was to evaluate the potential contribution of this kind of pharmaceutical intervention into disease management programs, All of the pharmacists for whom an e-mail address easily obtain (n=78), whether participating to the cross-sectional study or not, were invited to take part in our retrospective and qualitative survey that aimed to identify barriers and facilitators.

Specific information and training for medication review service delivery

The virtual chain financed training courses and engaged themselves to remunerate participating members with 200 Swiss Francs (130 Euros / 190 US Dollar) per medication review. Each pharmacist was invited to join one of the three day-long training courses (scheduled between February and June 2007), which presented practical aspects of how to conduct an advanced medication review service and explained our study in the context of daily pharmacy practice.

Specific practice handbook

An electronic, specific practice handbook (created using Microsoft Excel 2000) was issued to all participants and provided comprehensive information (a step-by-step description of the

enrolment of patients and medication review service) and materials (flowchart, models of letters addressed to patients and physicians, data collection forms). The whole study process is summarized in Table 1.

Table 1. Advanced medication review process	
1. Inclusion	
1.1†	Pharmaceutical records analysis according to the inclusion criteria
1.2	Validation of patient participation by pharmacists
1.3	Informing relevant physicians about the service (by letter, e-mail, phone or direct contact)
1.4	Reminder contacts to physicians who failed to reply
1.5	Confirmation of patient eligibility by checking with participating physicians
1.6†	Sending information letter to eligible patients
1.7	Reminder contacts to patients who failed to reply
2. Data collection	
2.1†	Collect medical records from physicians
2.2†	Collect pharmaceutical records
2.3	Schedule and complete an interview with each patient
3. Medication review	
3.1‡	Analyze drug regimens on the basis of all collected data and consistent with evidence based medicine guidelines
3.2‡	Write up recommendations to optimize treatment regimens
3.3†	Send the reports to physicians and request feedback
†logistic support available; ‡ pharmacotherapeutic support available	

Questionnaires

We identified three groups of pharmacists: informed pharmacists who did not participate (n=60), trained pharmacists who volunteered to participate but who actually did not complete the study (n=4) and pharmacists who completed the entire study (n=14). The opinions of each of the three groups of pharmacists were evaluated using a specific questionnaire (respectively questionnaires 1, 2 and 3). Questionnaire 1 contained an introduction letter that reminded participants of the purpose of the study and fifteen items. They concern the awareness and the quality of information about the study, an evaluation of nine barriers that had been identified a priori by the investigators, with a possibility to add more, and the interest in external support. Finally, five closed-form questions were included to characterize the pharmacy (pharmacist work hours, number of customers and estimation of the proportion of regular customers, estimation of the proportion of prescription drug sales).

Questionnaire 2 contained nineteen items exploring experiences, and particular problems encountered in using the electronic quality handbook. The organizational framework inside of the pharmacy, such as the allocation of pharmacist resources, the tasks delegated to assistants or technicians, and lack of time as a major barrier to carrying out the study were also evaluated as well as a priori opinions about collaborating with physicians and patients before starting the study, the willingness to participate immediately after the training session, and the interest in external support. We also asked about remuneration and any additional barriers that they perceived. The same five questions as used in Questionnaire 1 were included to characterize the pharmacy.

Questionnaire 3, composed of eighteen items, explored problems encountered during the study, perspectives on the medication review service, planning within the pharmacy, task assignment processes, the time required to participate and whether that represented a practical difficulty, the training course and the remuneration total. Collaboration with both physicians and patients was also explored. The characterization of the pharmacy was assessed using the same five questions as included in Questionnaires 1 and 2. Three additional questions were incorporated in this questionnaire when it was issued to a pharmacist who had elected to receive external support.

External support

Because of a poor inclusion rate, the investigators recommended external support to help certain pharmacists to implement the advanced medication review service. The support was intended primarily to assist pharmacists with organizing and planning the service. We also attempted to relieve the pharmacist of all technical and administrative tasks, in order to let the pharmacist focus on the direct contact with physicians and patients.

A mentoring pharmacist visited each pharmacy at least three times to perform logistic steps 1.1, 1.6, 2.1 and 2.2 (see Table 1). If requested by participating pharmacists, the mentoring pharmacist was also able to provide pharmacotherapeutic support to entirely or partly complete step 3.

RESULTS

Participation and inclusion rate

Head pharmacists for whom an e-mail address was available were invited to complete Questionnaire 1 (n=60), four pharmacists received Questionnaire 2 and fourteen Questionnaire 3. Nine of these individuals conducted the study without help and five with external support. Pharmacists only contacted 145 (62%) of the 224 physicians who had at least one eligible patient. Ultimately, 61 of these contacted physicians agreed to participate, equivalent to a refusal rate of 58% (Figure 1). The refusal rate of contacted patients is 59% (n=134). Nevertheless, this represents only 18% of the total number of eligible patients (n=738). This difference arises from the loss of 250 patients due mostly to the lack of contacts between pharmacists and physicians, 178 additional patients due to physicians who did not participate and 84 excluding patients for medical reasons by their physicians.

Barriers to implementing the medication review service

The response rate and the general characteristics of the responders are detailed for each group of pharmacists in Table 2.

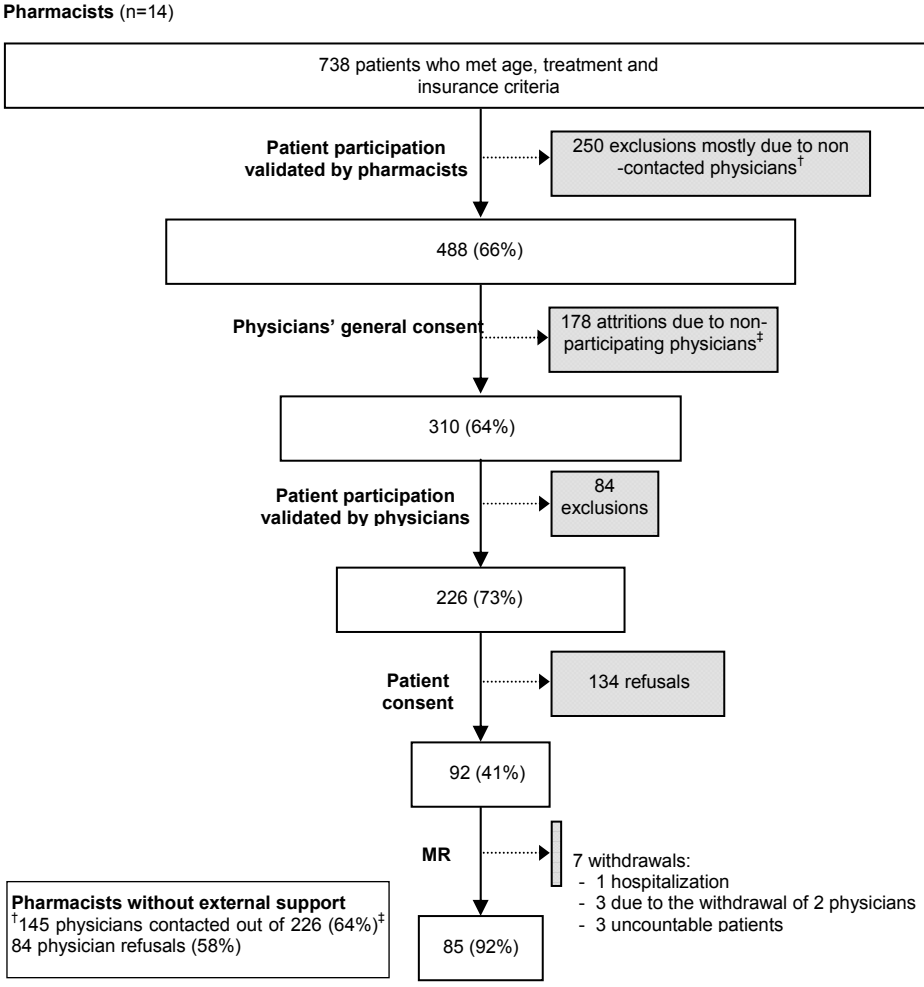

Figure 1. Patient enrolment within the cross-sectional study

Table 2. Demographics of survey respondents

Variable	Not interested in participating in the study	Volunteered to participate but finally withdrawn	Completed the entire study in their pharmacy
No. of responders	12/60 (20%)	4/4 (100%)	11/14 (79%)
Full-time equivalent pharmacists	2.0	1.8	2.0
No. of pharmacists conducting physicians-pharmacists quality circles for prescriptions†	0.9	1.7	2.6
No. of daily customers	about 250	about 200	about 200
Proportion of prescriptions vs. OTC	70%	80%	70%
Proportion of regular customers	70%	80%	70%

†Physician-pharmacist quality circles: A Swiss project based on local networking between physicians and pharmacists to improve prescription practices (10;11)

In the group of non-participants, only 12 of the 60 pharmacists (20%) responded after we had sent them Questionnaire 1. Three pharmacists of the twelve insisted that they had been unaware of the study prior to receiving the survey. Of the others, two considered that the information was insufficient. Five pharmacists had heard about our program via the e-mail newsletter of the virtual chain. Three pharmacists (25%) thought they would have participated if they had been better informed. Of the barriers listed in Table 3, time and training issues were most often cited. Of additional barriers not listed in the table, one pharmacist claimed that he had owned his pharmacy for less than a year. Eight pharmacists in this group (67%) declared that they probably would have participated if an external support had been available early.

The second group of four pharmacists, who initially volunteered to participate but then had second thoughts, discontinued the process very early, before contacting any physicians. Two pharmacists

reported that the data extraction process and use of the quality handbook seemed complicated. With regards to time management, two pharmacists operated the study during work hours, but only as a second priority when they had nothing else to do. Two pharmacists tried to conduct the study outside of their normal work hours. None of these individuals delegated study-relevant tasks to an assistant or technician. Although three of these pharmacists considered the remuneration insufficient, it represented a real barrier for only one. All estimated that they could have reasonably spent one to two hours per week to deliver medication reviews for the proposed remuneration. Concerning their a priori opinions about contacting physicians, two thought that it would be problematic because physicians would find the pharmaceutical service too time consuming for them and would be too concerned about losing their patients' trust. One thought this would not be a problem and the last did not answer. Concerning the contact of patients, only one pharmacist thought that this might be a sensitive issue. From this group, one pharmacist eventually agreed to participate in the study with an external support.

The last group included eleven of the fourteen pharmacists who had implemented the medication review service. The biggest problem was collaborating with physicians. The pharmacists reported that physicians basically have no time for this kind of service and see pharmacists only as drug retailers, they were difficult to contact and convince, and physicians also had to be repeatedly reminded to complete their tasks (i.e. validating their patients' eligibility, completing the clinical data form, assessing pharmaceutical recommendations). These pharmacists thought that an advanced medication review service might be useful for chronically-diseased patients, increasing the trust of physicians and patients, optimizing treatment regimens and helping to highlight the value of the pharmacist within the healthcare system.

External support

An external support has been proposed to fourteen pharmacists, including three who completed the training course but lacked confidence, two who had been identified by the investigators, and nine who completed Questionnaires 1 and 2. Nine of these individuals initially agreed to participate with the support but ultimately only five fully completed our study. Three pharmacists explained that they lacked confidence in contacting and collaborating with physicians, one failed to set appointments for patient interviews in time, and in another case the pharmacy had no eligible patients who met the inclusion criteria. The five pharmacists who needed external support did not want to complete medication reviews by themselves and as a result 38 medication reviews were completed with assistance from the mentoring pharmacist. In the latter case, the average time taken to complete each medication review was 2.1 hours, not including the time spent by the mentoring pharmacist. This same metric was 6.4 hours for community pharmacists who did not receive external support.

DISCUSSION

In the Swiss primary care setting, there is no organizational incentive for health professionals to work together. However, there is increasing awareness of the need to improve the safety, effectiveness and efficiency of the healthcare system. For the past 15 years, Swiss community pharmacists have been moving towards a more patient- and cognitive services-oriented approach. Medication review services may play a role in helping chronic patients to get the most out of their medications.

The results of our qualitative assessment show that the main barrier encountered in the implementation of medication review services in community pharmacies focuses on health professionals themselves. Only 14 pharmacists participated (16%), despite the support of the virtual chain's management. The majority of pharmacists seemed unable to invest time and resources in developing new services.

Physician participation clearly depended on pharmacists' self-confidence to contact them, so their pre-existing relationship was generally found to be very important. So, one-third of the eligible patients did not enroll because their pharmacists did not contact a significant proportion of the physicians in their neighborhood. Mutual trust should be strengthened to avoid the non-participation of physicians in the future.[13]

A good approach to reinforce collaborative care at the local level is to conduct a physicians-pharmacists quality circle to improve the safety and efficiency of the prescriptions.[11,12] Ten of the thirteen pharmacists who completed the cross-sectional study moderated at least one quality circle with physicians at the same time.

In addition, few patients are aware of pharmaceutical services in general, and they do not know much about medication reviews led by a pharmacist in collaboration with their physicians. Even so, 41% agreed to go to an interview with their pharmacists, and they consented to an exchange of clinical data between their physicians and pharmacists. It seems that patients understand the need for coordinated monitoring of their chronic treatments and are not a significant barrier to the implementation of an advanced medication review service. In terms of participation issues, the need to increase pharmacist communication skills is an emerging priority, especially in the context of other health care providers and patients. In addition, information about specialized pharmaceutical services for the public, physicians and public health authorities must be improved.

A lack of time was clearly a problem for the majority of pharmacists who completed the study, but even more so for those who did not participate (Table 4). Medication review services in daily practice need excellent workflow organization. To make time in their already busy schedules, pharmacists need to learn to better delegate tasks within their teams. To be efficient, delegation requires good team communication within the pharmacy and special training for staff.

Table 3. Pharmacists' perceived and actual barriers to implementing the MR service

Barriers	Non-participants; n=12		Participants who completed the study; n=11	
Difficulty finding the time	10	(83%)	6	(50%)
Lack of staff	1	(8%)	1	(8%)
Insufficient remuneration	0	(0%)	5	(42%)
Weak computer skills	2	(17%)	0	(0%)
Difficulty carrying out a MR	4	(33%)	1	(8%)
Insufficient training	6	(50%)	6	(50%)
Problems collaborating with physicians	2	(17%)	10	(83%)
Problems contacting patients	1	(8%)	5	(42%)

Table 4. Time spent conducting the advanced MR service

#	Invested time [hrs]	No. MRs	Most time consuming step(s)	Invested time problematic?	Task distribution within the team	Planning
1	50	3	Interactions with physicians; medication review	no	no	Working hours, unplanned
2	11.5	3	Patient interviews	yes	no	Work hours, unplanned
3†	20	5	Patient interviews	yes	no	Work hours, unplanned
4	40	13	Patient interviews; medication review	yes	no	Work hours, unplanned and after work hours
5	30	8	None in particular	yes	yes	Work hours, planned and after work hours
6	15	2	Training course	yes	yes	Work hours, planned.
7	47.5	11	Interactions with physicians; Patient interviews	no	yes	Work hours, planned
8	40	3	Patient interviews; medication review	no	yes	Work hours, unplanned
9†	15	8	Patient interviews	no	no	Work hours, unplanned
10†	12	6	Patient interviews	no	no	Work hours, unplanned
11†	18	12	Patient interviews	yes	no	Work hours unplanned.

†Pharmacists who had received external support

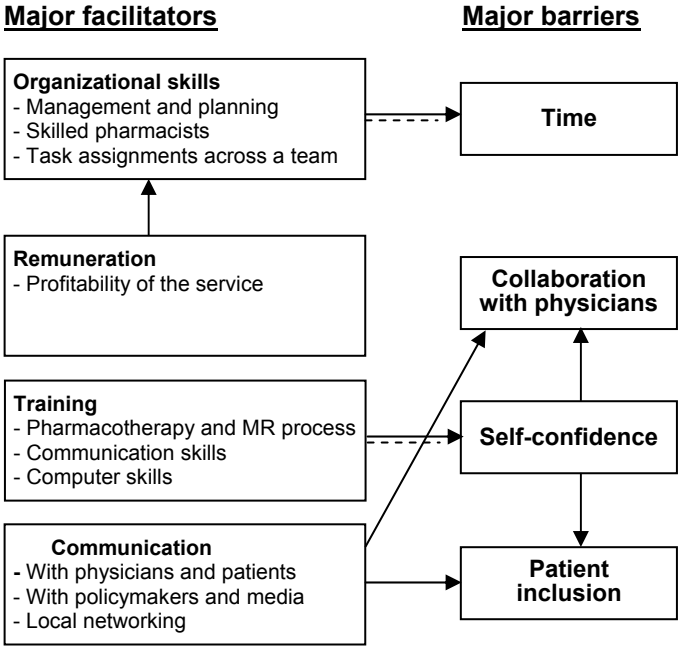

Fig. 2. How to overcome identified barriers to participation; enhancement, potential contribution of external support

It is important to invest enough time in practical training for any new service to be effective as soon as possible. Pharmacists often lack confidence and may not be comfortable carrying out a medication review on their own and submitting their recommendations to physicians. Training objectives to implement medication review programs must combine skills in general high-level pharmacotherapy (adapted to primary care practice), pharmacoeconomics and services

management as well as specific skills for medication reviews (e.g., patient selection, data analysis to identify eligible patients, conducting patient interviews, report writing). Computer skills are also critical (data management, literature reviews, outcomes monitoring). This constituted a major barrier to using some of the practical remote support provided by the investigators.

The time and resource burdens are not problematic if the remuneration is adequate. Pharmacists did not generally find that the remuneration provided was sufficient, but the majority did not consider this a major problem for the pilot phase. However, time spent by pharmacists receiving external support is significantly lower (Table 4), which tends to prove the profitability of the service will improve with the acquisition of experience in this field. The benefit of the medication review, particularly from the point of view of safety, effectiveness and cost containment, remain to be demonstrated in order to secure funding from health insurance companies and the government.

As Figure 2 shows, we would recommend a focus on training, remuneration, on-site organization and communication to resolve many of the issues that we encountered. Our results show that external support compensates for poor training or for poor on-site organization, making the remuneration and communication issues less important for the pilot phase. As found in a previous similar survey, pharmacists who actually participated in the study requested better remuneration but not the pharmacists who did not participate.[5]

In the future, a more systematic assessment of barriers to providing pharmaceutical services among a larger population of pharmacists may provide more insight into the problems we identified. We note the relevance of the practice change framework used by Roberts and al. to build the Seven-Factor Solution.[7]

CONCLUSIONS

Pharmacists who have participated to a cross-sectional study regarding the implementation of a community pharmacist-led advanced medication review service encountered several barriers, as well as solicited pharmacists who choose to not participate at all. Our qualitative survey suggests that this implementation is facilitated by a strong local networking with physicians, an effective workflow management and a practice- and communications-focused training for pharmacists and their teams. External support can help certain pharmacists improve their service-management skills. Adequate remuneration is necessary to allow initial investments but it is not the only trigger to provide this kind of new service. Future research in this area may help improve the process and design of training programs, as well as the monitoring of implementation for each new pharmaceutical service.

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CONFLICT OF INTEREST

None.

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References

1. Simpson SH, Johnson JA, Biggs C, Biggs RS, Kuntz A, Semchuk W, et al. Practice-based research: lessons from community pharmacist participants. Pharmacotherapy. 2001 Jun;21(6):731-739.
2. Odedina FT, Hepler CD, Segal R, Miller D. The Pharmacists' Implementation of Pharmaceutical Care (PIPC) model. Pharm Res. 1997;14(2):135-144.
3. van Mil J, de Boer W, Tromp TF. European barriers to the implementation of pharmaceutical care. Int J Pharm Pract. 2001;(9):163-168.
4. Gastelurrutia MA, Benrimoj SI, Castrillon CC, de Amezua MJ, Fernandez-Llimos F, Faus MJ. Facilitators for practice change in Spanish community pharmacy. Pharm World Sci. 2009;31(1):32-39.
5. Lounsbery JL, Green CG, Bennett MS, Pedersen CA. Evaluation of pharmacists' barriers to the implementation of medication therapy management services. J Am Pharm Assoc. 2009;49(1):51-58.
6. Roberts AS, Benrimoj SI, Chen TF, Williams KA, Hopp TR, Aslani P. Understanding practice change in community pharmacy: A qualitative study in Australia. Res Soc Admin Pharm. 2005;1(4):546-564.
7. Roberts AS, Benrimoj SI, Chen TF, Williams KA, Aslani P. Practice Change in Community Pharmacy: Quantification of Facilitators. Ann Pharmacother. 2008;42(6):861-868.
8. Niquille A, Bugnon O. Relationship between drug-related problems and health outcomes: a cross-sectional study among cardiovascular patients. Pharm World Sci. 2010 Aug;32(4):512-9
9. Clyne W, Blenkinsopp A, Seal R. A guide to medication review 2008. Rapport for the Medicines Partnership Programme. NHS. (document on the Internet). Available from: http://www.keele.ac.uk/schools/pharm/npcplus/documents/medicationreviewnewguide_000.pdf (Cited 2009 Nov 16).
10. Hanlon JT, Lindblad CI, Gray SL. Can clinical pharmacy services have a positive impact on drug-related problems and health outcomes in community-based older adults? Am J Geriatr Pharmacother 2004;2(1):3-13.
11. Niquille A, Ruggli M, Buchmann M, Jordan D, Bugnon O. The Nine-Year Sustained Cost-Containment Impact of Swiss Pilot Physicians-Pharmacists Quality Circles. Ann Pharmacother. 2010 Apr;44(4):650-7.
12. Essential Drugs Monitor editors. Swiss Quality Circles: improving health care, reducing costs. Essential Drugs Monitor 2001;(30):22.

13. Zillich AJ, McDonough RP, Carter BL, Doucette WR. Influential Characteristics of Physician/Pharmacist Collaborative Relationships. Ann Pharmacother. 2004;38(5):764-770.

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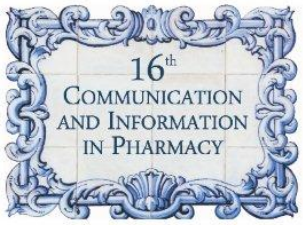

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