

Action Research

<http://arj.sagepub.com/>

Using action research to develop a research aware community pharmacy team

Karebor Tuhaise Ngwerume and Markus Themessl-Huber
Action Research 2010 8: 387 originally published online 30 June 2010
DOI: 10.1177/1476750310366042

The online version of this article can be found at:
<http://arj.sagepub.com/content/8/4/387>

Published by:



<http://www.sagepublications.com>

Additional services and information for *Action Research* can be found at:

Email Alerts: <http://arj.sagepub.com/cgi/alerts>

Subscriptions: <http://arj.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations: <http://arj.sagepub.com/content/8/4/387.refs.html>

>> [Version of Record](#) - Dec 15, 2010

[OnlineFirst Version of Record](#) - Jun 30, 2010

[What is This?](#)

Using action research to develop a research aware community pharmacy team

Karebor Tuhaise Ngwerume

Brocklehurst Chemist, Hull, UK

Markus Themessl-Huber

Central Queensland University, Australia

Action Research

8(4) 387–406

© The Author(s) 2010

Reprints and permissions:

sagepub.co.uk/journalsPermissions.nav

DOI: 10.1177/1476750310366042

arj.sagepub.com



Abstract

An action research approach was applied to develop a community pharmacy team into a research aware practice. A pharmacy team consisting of a pharmacist and medicine counter assistants carried out this project. They started by reflecting on their own practice and in doing so examined the reliability of the evidence base they used to give advice to customers regarding the sale of medicines. The team used this opportunity to discuss and critically analyse their core activities. This process resulted in the development of portfolios of evidence-based counter recommendations and a more knowledgeable, self-aware, confident as well as research-aware pharmacy team.

Keywords

action research, evidence-based practice, medicine counter assistants, over-the-counter medicine, pharmacy, research-aware team

The public make substantial use of community pharmacies. Pharmacies are often the first, and sometimes only, contact people have with the health services. Community pharmacies, therefore, play a pivotal role in the provision of health care and the promotion of well-being (Li Wan Po, 1997). They provide advice on a broad range of matters related to health and well-being, manage prescriptions items, and sell 'over the counter' (OTC) medicines. The sale of OTC medicines is a major health care activity undertaken within community pharmacies (Hassell, Rogers, Noyce, & Nicolaas, 1998).

Corresponding author:

Karebor Tuhaise Ngwerume, Brocklehurst Chemist, 801 Hotham Road South, Hull HU5 5JX, UK

Email: karebor@yahoo.co.uk

Whilst there has been an upsurge in research exploring the work of community pharmacies, much of this has been focused on the activities of pharmacists and has tended to neglect the role and attitudes of medicine counter assistants (MCAs). MCAs play a key role in community pharmacy activities as the interface between the pharmacist and the customer and in the sale of non-prescription medicine (Hassell, Noyce, & Rogers, 1999). Between 52 and 83 percent of sales are dealt with by MCAs alone without a direct intervention by the supervising pharmacist (Ward, Bissell, & Noyce, 1998).

This article details how an action research project set up by the Hull and East Riding Pharmacy Research Network (HERPRN) supported MCAs in a community pharmacy to engage with research findings and provide up-to-date and evidence-based advice to their customers. It outlines the project's origin and development, which was driven by the HERPRN's aspiration to enhance the research capability and capacity of pharmacy teams (Edmondson, 2002), the National Health Service (NHS) push for evidence-based service provision (The Society, 1999) and the pharmacy staff's own desire for professional development. The project's focus on changing practice whilst at the same time enhancing staff members' research capacity and capability, fits well with the action research approach, which had previously been conducted successfully in pharmacies (Haugbolle, Sorensen, Gundersen, Petersen, & Lorentzen, 2002; Tanna, 2005) and in health care service development settings (Waterman, Tillen, Dickson, & de Koning, 2001). In the case of the project discussed, action research was also a fitting vehicle to demonstrate that evidence-based practice and participative research can complement each other in the pursuit of effective service development (Hughes, 2008). This is a point of note as the implementation of evidence-based interventions in practice is still a difficulty often encountered by practitioners (Grol, Bosch, Hulscher, Eccles, & Wensing, 2007; Kemm, 2006; Ogilvie, Egan, Hamilton, & Petticrew, 2005). A growing body of literature on the transformation of knowledge into action emphasizes a number of aspects that positively influence research use, including the nature of the research, personal characteristics of researchers and potential research users, links between research and its users, and the context for the use of research (Nutley, Walter, & Davies, 2007).

The action research process reported here provides an in-depth account of HERPRN's and the pharmacy's actions and outcomes in fostering research awareness of MCAs, building research capacity and capability, enhancing MCAs confidence in their work when responding to minor ailment symptoms, and helping MCAs to provide customer-focused information using an evidence-based framework.

Establishing medicine counter assistants as co-researchers

Health care provision, technologies, and products are constantly changing and pharmacists and their teams of MCAs are required to keep up with these developments. In order to maintain and improve health within a knowledge-based health

service much emphasis is being placed on building and supporting a skilled workforce capable of advancing high quality research (National Coordinating Centre for Research Capacity Development, 2004). A key feature of this capability focus is to develop research aware pharmacy staff and provide an infrastructure for research skills training in the form of pharmacy research networks (NHS Executive, 2000).

MCAAs deal with sales of medicinal and non-medicinal products. They provide advice to customers on a varying range of items from make-up to nappies and photographic supplies. In compliance with guidance from the regulatory body for community pharmacies (Royal Pharmaceutical Society of Great Britain, 2006), they are required to ask a range of questions about the customer's condition and use of other medicines, in order to follow the protocols that the pharmacy must employ for the sale of OTC medicines (Banks, Shaw, & Weiss, 2007). They must show competence in knowing when to make a recommendation, when to supply or not supply a medication and when to refer a customer to the pharmacist or direct them to another source of information. Pharmacists have a relationship with MCAAs based on trust that they will operate within an operating protocol. This trust implies accountability by the pharmacist for any errors on the part of the MCA. Accordingly, MCAAs see themselves as frontline health care workers playing a central role in responding to symptoms and enjoying day-to-day contact with consumers; they argued that they were trained and knowledgeable health care workers with a distinct and important role to play in the sale of medicines and the provision of advice (Ward et al., 1998). MCAAs were also reported to be highly motivated when taking part in research (Anderson & Rajyaguru, 2002). Ward et al. (1998) further report, however, that MCAAs contrasted this role with what they felt is an often negative perception held by consumers.

The idea of taking a closer look at the MCAAs' recommendations of OTC medicines grew from informal discussions between the pharmacist and MCAAs whilst executing regular work duties. OTC medicines are licensed to be sold for a specific condition and can be obtained without a doctor's prescription (Medicines and Healthcare Products Regulations Agency, 2007). These medicines are 'of proven safety, of low toxicity in overdose, and for the treatment of minor "self limiting" conditions' (Bond, 2000, p. 45). For historic reasons, however, there is a scarcity of evidence on the efficacy of older OTC medicines, such as aspirin and paracetamol, for the treatment of minor ailments (Watson & Bond, 2004). The recommendation of such medicines is often based on anecdotal evidence and there are few examples of evidence traditionally considered as strong, that is, randomized, and controlled trials.

At the time of the discussions between pharmacists and MCAAs, ample media attention was given to the topic of effectiveness of OTC medication (see for example, BBC, 2002). One study, for example, had generated much response in concluding that there was little evidence to support the effectiveness of cough medicines for adults and they may be an unnecessary expense (Shroeder & Fahey, 2002).

The informal discussions, the apparent lack of evidence, and the media coverage thus led to the idea of reviewing the evidence base for medicines that MCAs regularly sold to customers. At that time, the pharmacy did not have a clear and defined plan about how they were going to achieve HERPRN's aims of creating research awareness in pharmacy practice, developing mechanisms of spreading evidence and providing pharmacists and their staff with research skills (Edmondson, 2002). Following a discussion of the literature review idea, an academic member of the HERPRN steering committee introduced action research as a potentially helpful approach to engaging MCAs in developing their own literature review process and in implementing their findings in practice.

Action research was introduced as a:

participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes . . . it seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities. (Reason & Bradbury, 2006, p. 1)

Oberg and McCutcheon (1987, p. 20) expressed the same ethos in words even better suited for the action research process the pharmacy was about to experience. These authors described action research as 'any systematic inquiry, large or small, conducted by professionals and focusing on some aspects of their practice in order to find out more about it, and eventually to act in ways they see as better or more effective'. Action research was described to be based on three conditions and two goals, which were individually necessary and jointly sufficient for a project to be considered action research (Grundy, 1988). The three fundamental conditions were to focus on improving social practice, to proceed in a cyclical fashion, and to involve practitioners and other stakeholders throughout the project. The two outcomes were improvement of practice and staff involvement.

It was further emphasized that action research builds on the commitment of practitioners to improve an aspect of their work practice in a systematic and rigorous manner (Winter, 1998). The need for MCAs to become partners in the research process was highlighted, as those who are involved in determining the changes to be implemented will be most likely to make those changes (Williams, St Quintin, & Hoadley, 2006). Moreover, in the course of developing and therefore also learning about their own practice, the action research approach provides participating staff members with opportunities to be both reflexive and reflective. Reflexive, in terms of what they are able to learn about themselves personally as well as professionally and reflective, in terms of what they are able to learn about their work, their organizations, and their customers (Schon, 1987). Reflexive practice is valuable as it raises the practitioners' awareness of their actions and the consequences of their actions (Reason & Bradbury, 2006), which Lewin (1948) considers a key part of the reconnaissance or fact-finding stage of action research. Reflexivity in particular, and especially if espoused within an action research

approach, would help MCAs (and by proxy the pharmacy) to develop ‘a deep level understanding of the business context, its dynamics, its evolution and performance’ (Roth, Shani, & Leary, 2007, p. 44). Reflective practice of MCAs, similarly, would contribute to the overall pharmacy’s capabilities (Argyris, 1982), for example in fostering more critical reviews of existing practices and driving the development of new organizational processes (Coghlan & Brannick, 2005). Within this approach, not only are MCAs part of the research team, they are regarded as the experts on the matter to be researched and key players in the problem-solving and practice development processes that formed part of the action research process (Hart & Bond, 1995; McTaggart, 1997). This again corresponded with the project’s purpose of building and supporting a skilled and research aware workforce. Indeed, changing practice and creating new knowledge, the fundamental aims of HERPRN, are also explicit aims of action research (McNiff, 1988). Additionally, this approach would not only facilitate the development of their local practice but also provide insights that could be transferred to pharmacies within and beyond HERPRN (Lilford, Warren, & Braunholtz, 2003). From an ethical perspective, the stakeholders agreed to conduct the action research project in keeping with company policies and human resource rules and regulations.

Consequently, all pharmacy staff were given a personal invitation to attend the first HERPRN meeting. As it turned out, the levels of commitment to the project varied amongst the pharmacy staff, which appears not to be unusual (Powell & Peile, 2000). Ten MCAs were employed in the pharmacy and all of them worked part-time. Six out of the ten MCAs said they were happy to attend any meetings that may be necessary to build the portfolio. This was a noteworthy achievement since the meeting was in the evening, outside working hours, and unpaid. It was at this meeting that the research idea was formally formulated. These six staff members along with the pharmacist who introduced the project (KN) will be referred to as co-researchers in this action research process (Meyer, 2000).

KN’s main working role was to manage the sale and supply of medicines from that outlet. KN, as a pharmacist, was placed at a higher level in the formal structure of the workplace and was a member of the management team, whose duties involved coaching, teaching, supporting and disciplining the staff. The two roles were not mutually exclusive; it is possible that the co-researchers’ willingness to take part in the study would be related to the relationship they had with KN.

A cyclical approach to building research awareness in a community pharmacy

Action research embraces a cyclical approach to building knowledge about a social system, that is, the pharmacy, and using this knowledge to effect change (Hart & Bond, 1995). These tenets of action research were laid down by Lewin (1948) and today are a core feature of every approach to action research (Waterman et al., 2001). Tanna (2005) operationalized the cyclical approach by developing a stepwise process. At the outset, a general idea is examined in relation to the means available

for conducting the intended research. This step includes further fact finding. An overall plan is then developed about how to reach the objective and a decision taken about the first action step or intervention. Next, steps towards achieving the objectives are taken. These activities and their consequences are then observed and evaluated. Reflections on these developments and modifications that arise from these activities and reflections may lead to an adaptation or change of the research process or objective. Further modification and re-planning takes place, and a decision is made on the next step.

The project discussed here featured four different cycles of observing, planning, acting, and reflecting (Dick, 2000). In each cycle KN and the MCAs collaboratively considered actions or findings, identified challenges, addressed these challenges and took forward any actions that had been agreed. This cyclical approach meant that MCAs did not design the research project in detail at the outset (Drummond & Themessl-Huber, 2007). The collaborative development of the project and its components within the local context was part of the action research process.

This project was carried out in a community pharmacy situated in a shopping centre in a large urban housing estate. It was decided by the research team that KN would take on a facilitating role. The facilitator is recognized as a key role when implementing evidence based practice (Kitson, Harvey, & McCormack, 1998). However, from the beginning of the project, the facilitator emphasized the difference between facilitating, managing and supervising and encouraged the co-researchers to share their thoughts, ideas and feelings.

Four activity cycles evolved during the project. In each cycle the co-researchers observed existing practice, planned the next steps, acted on their plans, and reflected on their actions and the respective outcomes. The cycles are listed below and will be discussed in detail:

- Development of a research aware pharmacy team.
- Compilation of evidence for consideration when recommending treatment for minor ailments.
- Sharing and interpreting the evidence base.
- Building an evidence-based portfolio.

Development of a research aware pharmacy team

The fact-finding in this part of the project involved talking with co-researchers and other staff members about their roles in selling OTC medicines and responding to symptoms of minor ailments. Data were collected in the form of interviews with staff members using open-ended questions to enable them to describe and interpret their experiences in their own terms. These interviews were recorded and conducted either one-to-one or as small group interviews. They lasted between three and ten minutes and were conducted by KN at the work place. KN encouraged the MCAs to reflect on how they responded to minor ailment symptoms described by their

customers. A scenario of a customer requiring advice for a headache was used since some members of staff struggled to talk in terms of their practice, without an example. Additional data were collected in the form of facilitator field notes that were taken during the interviews (Bowling, 2002). The interview data were transcribed and analysed thematically in an ongoing and iterative manner in order to identify key issues and to feed these into subsequent discussions with the co-researchers (Ritchie & Spencer, 1994). An independent reader cross-checked a random sample of the data. Such interviews were held throughout the rest of the action research project.

The following transcript shows a typical conversation with a member of the team (CD), whose role mostly involves stocking the shelves with products, ensuring goods are replenished and up keeping the look of the store. Part of her role is selling medicines to customers and she was therefore completing a Medicine Counter Assistant Course. KN began by asking her how she found the team's customer service.

CD commented that she believed the team do 'really well' but could always improve. She felt that:

as long as we are asking the relevant questions and we are getting the right information from them [customers] and if needs be we can refer to the pharmacist, which we do; then, yes, I think we do a really good job. We are identifying the customer's need, that's what our aim is, isn't it? At the end of the day on the chemist counter is to identify customer needs and we need the correct information from them to give them the correct information or product back. (CD1)

As the discussion with CD progressed an attempt was made to tease out the thought process that led to her making specific recommendations. It became clear that she was focused on recommending an appropriate product and selling it safely. The product's effectiveness did not appear to be a conscious consideration in this process.

The focus on safety was shared consistently by the majority of the MCAs. The main aim of the MCAs was to ascertain correct information from customers, which enabled them to sell a product safely. This risk assessment role adopted by pharmacy teams was discussed in detail by Banks et al. (2007). This focus of MCAs on product safety and the lack of consideration of effectiveness when responding to minor ailment symptoms confirmed the initial plans to look at OTC products and their effectiveness.

Reflecting on the thought processes and practice when responding to symptoms described by customers provided a starting point from which HERPRN's objective of building a research-aware workforce could be met; and the planning stage of this action research cycle initiated. A co-researcher suggested the idea of using the evidence they would gather in this process to create a pamphlet that could be shared with other pharmacies. Over the course of this project, this pamphlet evolved into an evidence-based portfolio.

In discussions among the co-researchers they formulated a shared aim for their activities:

To develop a portfolio of evidence to support pharmacy teams' decision-making when responding to symptoms and selling medicines to the general public.

Discussions among the co-researchers ensued about how to achieve this aim. A need for more information was identified. The co-researchers thought that they needed to clarify the definition of evidence and provide examples of what constitutes good quality evidence.

The pursuit of evidence-based practice has become a continuing theme of government policy documents, for example, *Our NHS, Our Future* (Department of Health, 2007), and initiatives by the RPSGB (Ward & Tully, 1998). The concept of evidence-based medicine grew from a need to apply best research evidence with clinical expertise to everyday practice (Sackett, Richardson, Rosenberg, & Haynes, 2000). RPSGB identified the effectiveness, safety and choice of non-prescription medicines available OTC as one of their priority areas (Ward & Tully, 1998).

Evidence-based guidelines are available to community pharmacists (Primary Care Dermatology Society, 2005; Scadding et al., 2008; Scottish Intercollegiate Guidelines Network, 1999b) but it appears that MCAs have limited understanding of the term 'evidence-based practice' (Watson & Bond, 2004) and where evidence is readily available it does not always influence practice (McCormack et al., 2003; Watson, Bond, Grimshaw, & Johnston, 2006; Watson et al., 2002). The evidence used by MCAs is mainly in the form of information leaflets (Watson & Bond, 2004).

A meeting of the pharmacy staff was proposed with the purposes of introducing the concept of evidence-based practice and deciding the next steps of the action research process. This meeting constituted the action part of this cycle and was held after work in the workplace; in attendance were the facilitator, the store manager, a representative of HEPRN and five MCAs. At this meeting the concept of hierarchy of evidence (Jones, 2002) and its potential influence on recommendations to customers for the management of treatment was discussed.

Over the course of the meeting the co-researchers determined that they were not willing to undergo 'research for research's sake'. They wanted to collect literature that was relevant to their everyday work with customers. Consequently, the facilitator suggested at the meeting that all pharmacy staff members would use a period of one week to systematically note customer requests for OTC recommendations. It was hoped that this would provide a list of conditions for which the co-researchers could find evidence of efficacy. Each member of the pharmacy staff was provided with a pocket-sized pad on which they were encouraged to note customer requests for advice.

Following these discussions the co-researchers reflected on the process so far and agreed on the next set of actions. These included conducting the week-long fact finding on OTC requests, receiving literature search training, starting to consider

the efficacy of medicines in their recommendations for customers, and building a portfolio of evidence on the efficacy of the OTC medicines they frequently sell.

The co-researchers formulated the agreed next steps into the following objectives:

- Provide MCAs with the skills to access research findings through library services.
- Start the process of improving the quality of decision-making by including the consideration of evidence instead of relying on customary practice and structured protocols alone (McCracken & Marsh, 2008).
- Build an evidence-based portfolio.

Compilation of evidence for consideration when recommending treatment for minor ailments

Searching academic databases and looking for published evidence was a novel challenge for the MCAs in the pharmacy team. In order to capture expectations, worries or anxieties about the searches KN decided to interview the other co-researchers and to gather information about how they were feeling about the prospect of conducting a literature review (fact-finding or observation step).

The responses of the co-researchers ranged from worries about finding the terms ‘mind boggling’ (SH1) to having fears of personal inadequacies. For example, one participant commented, ‘I fear we will be out of our depth, and the amount of information may be so overwhelming that we do not find it’ (CS1). Another said she wondered whether ‘we may be overwhelmed with the sort of things we find and that the information may be too technical, words we don’t understand and can’t make head nor tail of’ (SH1).

However, co-researchers also hoped the process would increase their knowledge and thus confidence when responding to symptoms. One member of the research team commented, ‘From an interest point of view, I want proof for myself to be able to sell a product, and it gives an extra bit for the customer. There is a need to know that a drug works. Empowers us to be better at handling recommendations’ (SH1). Another added, ‘I expect the work to give us more confidence in recommending things, and more confidence to look at other things in more detail’ (AC1).

In the meantime it was necessary to arrange an opportunity that would enable the co-researchers to have access to computer facilities enabling them to carry out their literature reviews. Fortunately, HERPRN and KN were able to liaise with the East Riding Medical Education Centre. A representative of this Centre provided the co-researchers with an initial training session on computer skills and search techniques. This took place outside of normal working hours. Six co-researchers attended the workshop. The training session consisted of an introduction to computer skills, and search engines including Google[®], EMBASE and MEDLINE. The co-researchers said that they enjoyed this training session and there was an air of optimism afterwards. As a result of this training session all co-researchers were

given individual access to the East Riding Medical Library. This was unique as MCAs had never been given access to the library and its facilities before as traditionally access was only granted to health professionals and medical students.

A discussion was held immediately after the training session and the general themes revolved around there being an increased thirst for knowledge and a sense of achievement. Problems identified by the MCAs included having encountered unfamiliar terms; yet they had found ways of dealing with these issues themselves. CS, a member of the dispensary team, commented that she 'really enjoyed it, it made me feel more than a shop assistant. I feel like I'm really getting to know the drugs and although there were lots of terms and words I did not understand, it did not matter because I was able to find links and papers and read through abstracts first' (CS1).

Reflecting on their literature searches the co-researchers realized that there was little evidence for specific OTC medicines in the treatment of minor ailments. For example, the drug Pholcodine is used in linctus form to stop dry coughs. The MCAs sell it frequently and doctors prescribe it for the same condition. The co-researchers found no evidence to support its efficacy.

This lack of identifiable evidence led to a departure from the initial strategy of looking for information about specific *medicines*. This search strategy proved too narrow and was not providing useable results. Instead, the co-researchers decided to look for evidence-based guidelines regarding certain clinical *conditions*, for example, cough, thus moving on to the 'planning' step of the second research cycle.

A substantial time period passed before the next literature searching exercise as it was difficult to access the services needed out of normal working hours, which was the time most members could attend. The researchers required access to a number of computers linked to the internet that were available outside normal working hours, held in an area where discussion could take place. Eventually, suitable facilities were secured, and further searches were conducted (action step).

This delay in finding suitable arrangements had affected how the staff felt about and reflected on research process. They were keen to proceed with their project. One member of the team commented that she felt:

as if I have learnt a little bit more about computer use not just the pharmacy side. I am now able to use the computer and so I feel quite good about that. It's just that when we got all the information together I was itching to get going, I feel now as if it's at a standstill and we have got to get all of that enthusiasm back up again. But as long as we get on with it will be fine. (CC1)

As a consequence of the decision to search for evidence on clinical conditions rather than individual drugs the co-researchers decided not only to search for systematic reviews and published papers, they also looked at established clinical guidelines, such as SIGN (Scottish Intercollegiate Guidelines Network, 1999b), which offer advice to health care practitioners and patients, and World Health

Organization guidelines for allergic rhinitis and its impact on asthma (ARIA, 2003).

Four subsequent literature search exercises took place, these were attended by three to six co-researchers, which represented between 20 and 50 percent of the workforce.

Sharing and interpreting the evidence base

Further observation and fact-finding took place in the form of conversations held between the co-researchers as well as individually between KN and every member of the pharmacy team. It became apparent that those who had been unable or unwilling to attend the literature searching sessions felt that they would like to know more about the project and what their work colleagues were achieving. When asked whether they felt the project influenced their practice in any way one member said 'not really, besides you [KN] nobody is telling me what they are doing. I do not know what you are researching' (HR1).

It was consequently decided to explore the idea of setting aside protected work time for all members of the pharmacy team to read through the systematic review papers identified by the co-researchers at the literature searching sessions. This plan would provide an opportunity for everyone to draw their own conclusions that could be used in the workplace.

A list of relevant papers was compiled and distributed to all members of the pharmacy team (action step). Each staff member was given the opportunity to read a paper of their choice and all members of the pharmacy team read at least one paper. The staff members appeared to like this approach. Those who had difficulty interpreting papers were teamed up with a more confident member of staff. The MCAs pointed out interesting findings, compared active study ingredients with products available for sale in their place of work, and in some cases made recommendations for use in practice. For example, two participants read a Cochrane systematic review entitled 'Vitamin C for preventing and treating the common cold' (Douglas, Chalker, & Treacy, 2003). They concluded that there was little evidence for the use of Vitamin C for the prevention of cold symptoms but that there was some evidence for its use alongside conventional cold products to reduce the length of time of a cold.

As a result of the overall process some participants' confidence in their knowledge of active medicinal ingredients increased. One participant commented that she felt 'she was really getting to know the drugs' (CS1). Interestingly, some co-researchers felt that the knowledge of research findings affected their practice only slightly, it was mentioned by one member of the research team that the reading of the papers had 'not affected me that much, customers always ask you, which is the best product, and I don't think that I can say from my papers, the information did not help' (SW1). Nevertheless, they still appreciated that they were able to discuss the findings of their papers with each other (reflection step).

Building an evidence-based portfolio

The final fact-finding and observation step involved coordinating a meeting that as many pharmacy staff members as possible would attend to gain a consensus towards building an evidence-based portfolio. The timing of this meeting coincided with a company Christmas product launch event. This launch took place every November and staff were introduced to new non-medicinal products for sale specifically for Christmas. KN suggested that the two meetings would be held on the same evening. All pharmacy staff members were given a written letter inviting them to the meetings. This approach was taken in an attempt to engage as many people as possible and to formalize the event (planning step). Eight out of 12 members of staff attended the meeting.

In preparation, literature evidence found by the co-researchers on the active ingredients in different conditions was summarized by KN. These summaries were made available to the now expanded team of co-researchers alongside original papers and other relevant materials. Various issues arose from discussing the findings at this meeting. In one case, co-researchers predicted great difficulty about changing their traditional recommendation even though there was stronger evidence for the use of a different product. This challenge was based on cost. The evidence pointed towards use of Dextromethorphan Hydrobromide as first choice for dry cough but the co-researchers initially preferred the use of Pholcodine for which no efficacy studies had been found.

Below is an excerpt from the discussion that took place. It aims to show how the conversation developed and the issues that arose around advice provision and selling to customers.

GC: We are only going for Pholcodine because of the price. So why do we feel it's the price?

SW: If whoever comes in for a recommendation and you show them the products, I think they would still go for the cheaper product. I mean one [Dextromethorphan] is £3.15 and one's [Pholcodine] £1.69. A lot of our customers always go for the cheaper products.

CS: But if we could recommend the one with Dextromethorphan, we probably would be able to sell it, we would.

SP: I don't know, I've had a customer when I have recommended Ibuprofen they look at the price and ask if Paracetamol would do the same. Even though you tell them no they go for Paracetamol because it is cheaper.

GC: If we recommend a product with Dextromethorphan in and they think it is too expensive they won't say well I haven't got the money. They will say 'what else have you got?' or 'what's that one down there?' You can recommend the cheaper product you can say, 'we have also got'.

JT: Sometimes people know what they want, they come in and they want your advice but really they do know what they want.

GC: They are just clarifying themselves.

CS: In a lot of ways it's about whether we are convinced from what we've read. Are we convinced that something works more than anything else because if we are, we can sell it. I've always gone for Pholcodine. It's like changing our habits as well that's the difficulty.

This excerpt (T2) shows that after the discussion the team were able to solve issues that arose (reflection step). It also goes some way to illustrate the internal and external barriers to the practical implementation of clinical guidelines (Scottish Intercollegiate Guidelines Network, 1999a). The co-researcher, CS, recognized a crucial factor necessary to put evidence into practice. They had to change their own habits if they wanted to recommend products they knew were effective (NHS Centre for Reviews and Dissemination, 1999). Similar patterns of identifying challenges, that is, cost versus evidence, and solving them through discussions ensured in the majority of the clinical conditions explored. Cost was indeed an issue in this example but not in all cases. When developing the protocol for smoking cessation, for example, the discussion revolved around advice versus product provision. The co-researchers emphasized that for an intervention that required a behavioural change, such as smoking cessation, the type of advice or product recommended had to depend on what stage the client was at with regards to quitting (Prochaska & DiClemente, 1994).

As a result of the action research process and following this event, portfolios were built for the following conditions: sore throat, traveller's thrombosis, dry cough, chesty cough, head lice, common cold, athlete's foot, cold sore and period pain. The co-researchers decided that they would like to hold similar style portfolio building meetings twice or three times a year in order to discuss the latest research, to include any relevant findings in their portfolio, and also to focus on more conditions. They commented that they found it a useful training tool, reaffirming their knowledge of over-the-counter ingredients. The portfolio collation and the plans to continue the co-researching process constituted a continuation of the action research process and demonstration that the pharmacy team had embraced this approach to research-based practice development.

Discussion

The action research project was initiated with the overall aim of creating a research-aware pharmacy team. The pursuit of this aim led to the creation of tangible products, a series of evidence-based portfolios. These portfolios contain the collation of research evidence on effective interventions for selected clinical conditions in order to support pharmacy teams when responding to customers' minor ailment symptoms.

Besides the production of objectively evaluable portfolios, the action research approach achieved a number of additional formative and summative outcomes. These include more knowledgeable members of staff, staff members who are more aware and critical of their own practice when responding to minor ailment

symptoms, staff members who are more confident in their recommendations, having developed a research aware workforce, and having started to influence practice in other pharmacies and other health care settings.

The project proved to be a learning exercise for all involved. The participation of pharmacy staff members led to them critically reviewing their practices. Staff members who were actively involved in the action research process, the co-researchers, demonstrated a high level of commitment and shaped the development of the project. The co-researchers also gave periods of their free time to attend literature searching exercises and formal discussion sessions. The study was undertaken within an organization that valued continuous quality improvement and employed change management. Commitment to quality was part of the culture of the workplace and thus influenced participation. Kitson et al. (1998) suggest that a strategy for change would be different in an organization with poor leadership and measurement practices than one that embraced lifelong learning for its staff.

This action research process provided them with a platform to discuss and critically analyse one of their core activities. Through this process the co-researchers were able to learn new, and build on existing skills, collate a wealth of information on the products they were using on a daily basis, and gain a different perspective on their work routines. Following the literature-searching workshop, for example, they were able search electronic databases for information relevant to their everyday work. They also learned to review papers, to interpret research outcomes, and to make the findings relative to their workplace. They were introduced to medical guidelines, systematic reviews and the hierarchy of evidence. This level of engagement with the literature on clinical conditions resulted in increased knowledge about OTC drugs. Discussions about challenges in utilizing this knowledge also made them aware of the difficulties in applying this new knowledge in practice and at the same time provided them with options about how to implement changes. This change in practice for MCAs raises a dilemma in suggesting treatments to their customers that lack sound evidence for their efficacy. However, models of EBP include consideration of customer preferences and values before making a recommendation (Sackett et al., 2000). Customer expectations influence the direction in which MCA consultations follow, and at times customers simply wish to purchase a product, without offering the MCA a linguistic invitation to adopt their health advisor role (Banks et al., 2007).

Through developing a picture of their current practice the co-researchers became inquisitive about how they responded to customers' presentation of symptoms and the thought processes that took place when they made a recommendation. Prior to this project, the MCAs had not critically reflected on what had formed the basis for their counter recommendations. Their recommendations had been based on pharmacist preferences, personal experience, habit, training and manufacturer recommendations (Watson & Bond, 2004). Following the project, they now included a consideration of the evidence base on the effectiveness of products. This was a change in practice and most likely resulted in the provision of better quality customer advice.

The learning opportunities provided throughout this project and the resulting increased self-awareness affected the staff members' levels of confidence. The co-researchers, especially, overcame their initial fears about accessing and interpreting research findings. They commented that they felt empowered by having gained the skills to acquire in-depth knowledge of OTC drugs. On learning these skills they also gained a sense of achievement, which was validated by the pharmacy management in providing protected work time for their staff to engage with the literature and also by being given access to medical library facilities. In some cases their confidence in a certain product's ability to provide effective treatment was questioned as it became clear that empirical evidence was limited or weak for many of the drugs they sold. This shows how the action research process enabled them to change their practice in a way that was consistent with the current trend towards evidence-based health care (Sackett et al., 2000). For KN as the facilitator and a pharmacist, it was wonderful to listen to her co-researchers effortlessly discussing their findings and how they impacted on their practice.

A further advantage of the action research approach was that it accommodated the close working relationship the facilitator had with the co-researchers. This way the numerous opportunities to reflect informally on the development of the project could be used to systematically inform the project's progress.

In contrast to other forms of research, the aim of participatory research to initiate action in a local setting (Haugbolle et al., 2002) fits well with the research being undertaken in a small pharmacy with access to limited research resources. The action research approach allowed for the overcoming of obstacles, such as lack of research evidence for OTC medication (Watson & Bond, 2004) through the development of mutual solutions. This collaborative approach to problem solving has been used in a community pharmacy to effectively develop standards for handling OTC requests (Benrimoj, Gilbert, Quintrell, & de Almeida Neto, 2007).

The action research process and the processes and consequences already discussed resulted in the development of a research aware workforce. This development had of course been the primary aim of the action research project and the HERPRN. The co-researchers also showed promising signs that this development and their interests in research would continue in the future. They were keen to continue the work and to build on and create new evidence-based portfolios.

The active participation of MCAs as co-researchers in the action research process deviated from the other HERPRN research practices models, where the role MCAs had was in data collection only, rather than being viewed as co-researchers. Elements of the action research approach have subsequently been used with all pharmacy practices that form part of the HERPRN. The funding body of HERPRN, National Coordinating Centre for Research Capacity Development (NCCRCDD), commented in their review report that involvement of all pharmacy team was a unique and commendable feature of HERPRN work (National Co-ordinating Centre for Research Capacity Development, 2005). The local Primary Care Trust (PCT), when reviewing their minor ailment scheme, requested use of the papers found by the team to support the evidence base of their drug

formulary. Moreover, the team were invited to attend a 'Sharing Good Practice' seminar in their own as well as a neighbouring PCT. This shows that Marshak and Heracleous's (2005) comments on the low reproducibility of findings from action research reports are misguided. Whilst a precise replication of projects in other settings is indeed not possible, providing comprehensive documentation about the various activity cycles provides rich data and insights into the processes and outcomes, which in turn can be generalized or transferred to inform changes in other settings, that is, pharmacies (Hellström, 2008).

Moreover, the action research approach to developing an evidence-based portfolio involving whole pharmacy teams is an element of the study that can be repeated by other teams in other pharmacies. Indeed, it shows that evidence-based practice can be facilitated by an action research-based approach to its implementation (Newman, Papadopoulos, & Sigsworth, 1998). This project showed that all members of pharmacy teams are capable of accessing and interpreting information traditionally only accessed by pharmacists and other health professionals. Further work is required to show how such portfolios can be used consistently in practice when responding to symptoms.

Conclusion

As co-researchers in an action research project, MCAs developed evidence-based portfolios on the efficacy of OTC medicines for clinical conditions they encounter in their everyday work. The use of an action research approach that actively encouraged MCAs to participate in and shape the research process also resulted in less tangible but probably even more important outcomes. MCAs' participation in the research process resulted in more knowledgeable and confident pharmacy staff. They had developed into a research aware workforce who reflects critically on their own practice and the medicines they recommend to customers. In addition to changes within their own pharmacy their project also influenced practice in other pharmacies and other health care settings.

Acknowledgements

The authors wish to acknowledge the invaluable contribution made by the MCAs, at Boots the Chemist, who contributed throughout the study, their enthusiasm and commitment; also Professor Peter Campion, Hilary Edmondson, Val Featherstone, and those who reviewed the article. Thanks to Susan Dixon for her help editing the final draft. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

We thank Dr Lai Fong Chiu for leading the review process for the authors of this paper. Should you have comments/reactions you wish to share, please bring them to the interactive portion of our website: <http://arj.sagepub.com>.

References

- Anderson, C., & Rajyaguru, R. (2002). The role of community pharmacists and medicine counter assistants in health promotion: Reflections from folic acid campaign. *International Journal of Pharmacy Practice*, 10, 17–22.

- Argyris, C. (1982). *Reasoning, learning and action: Individual and organizational*. San Francisco, CA: Jossey-Bass.
- Banks, J., Shaw, A., & Weiss, M. (2007). The community pharmacy and discursive complexity: A qualitative study of interaction between counter assistants and customers. *Health and Social Care in the Community*, 15(4), 313–321.
- BBC. (2002). *Cough medicines don't work*. Retrieved 17 February 2003 from <http://www.news.bbc.co.uk/1/hi/health>.
- Benrimoj, S., Gilbert, A., Quintrell, N., & de Almeida Neto, A. (2007). Non-prescription medicines: a process for standards development and testing in community pharmacy. *Pharmacy World & Science*, 29(4), 386–394.
- Bond, C. (2000). The reclassification of medicines (I): clinical aspects. In C. Bond (Ed.), *Evidence-based pharmacy* (p. 48). London: Pharmaceutical Press.
- Bowling, A. (2002). *Research methods in health*. Buckingham: Open University Press.
- Coghlan, D., & Brannick, T. (2005). *Doing action research in your own organization*. London: SAGE.
- Department of Health. (2007) *Our NHS, Our Future*. London: Crown.
- Dick, B. (2000). A beginner's guide to action research. *Action Research Online*. Retrieved 20 April 2004, from www.uq.net.au/action_research/arp/guide.html.
- Douglas, R. M., Chalker, E. B., & Treacy, B. (2003). Vitamin C for preventing and treating the common cold. *The Cochrane Library*, 2.
- Drummond, J., & Themessl-Huber, M. (2007). The cyclical process of action research: The contribution of Gilles Deleuze. *Action Research*, 5(4), 430–448.
- Edmondson, H. (2002). *Research governance strategy for Hull and East Riding Pharmacy Research Network 2002*. Hull: Hull and East Riding Pharmacy Research Network.
- Grol, R., Bosch, M. C., Hulscher, M., Eccles, M. P., & Wensing, M. (2007). Planning and studying improvement in patient care: The use of theoretical perspectives. *The Milbank Quarterly*, 85(1), 93–138.
- Grundy, S. (1988). Three modes of action research. In S. Kemmis, & R. McTaggart (Eds.), *The action research reader*. Victoria: Deakin University Press.
- Hart, E., & Bond, M. (1995). *Action research for health and social care: A guide to practice*. Buckingham: Open University Press.
- Hassell, K., Noyce, P., & Rogers, A. (1999). A review of factors that influence the use of community pharmacies as a primary health resource. *International Journal of Pharmacy Practice*, 7, 51–59.
- Hassell, K., Rogers, A., Noyce, P., & Nicolaas, G. (1998). *The public's use of community pharmacies as a primary health care resource*. London: The Royal Pharmaceutical Society of Great Britain.
- Haugbolle, L. S., Sorensen, E. W., Gundersen, B., Petersen, K. H., & Lorentzen, L. (2002). Basing pharmacy counselling on the perspective of the angina pectoris patient. *Pharmacy World and Science*, 24(2), 71–78.
- Hellström, T. (2008). Transferability and naturalistic generalization: New generalizability concepts for social science or old wine in new bottles? *Quality and Quantity*, 42(3), 321–337.
- Hughes, I. (2008). Action research in healthcare. In P. Reason, & H. Bradbury (Eds.), *Handbook for action research: Participative inquiry and practice* (pp. 381–393). London: SAGE.

- Jones, C. (2002). Evidence based medicine research methods. *The Pharmaceutical Journal*, 268, 839–841.
- Kemm, J. (2006). The limitations of 'evidence-based' public health. *Journal of Evaluation in Clinical Practice*, 12(3), 319–324.
- Kitson, A., Harvey, G., & McCormack, B. (1998). Enabling the implementation of evidence based practice: A conceptual framework. *Quality in Health Care*, 7, 149–158.
- Lewin, K. (1948). *Resolving social conflicts: Selected papers on group dynamics*. New York: Harper & Row.
- Li Wan Po, A. (1997). A practical guide to undertaking a systematic overview. *The Pharmaceutical Journal*, 258, 518–520.
- Lilford, R., Warren, R., & Braunholtz, D. (2003). Action research: A way of researching or a way of managing? *Journal of Health Services Research and Policy*, 8(2), 100–104.
- Marshak, R., & Heracleous, L. (2005). A discursive approach to organisation development. *Action Research*, 3(1), 69–88.
- McCormack, J. P., Dolovich, L., Levine, M. D., Burns, S., Kalpana, N., Cassels, A., et al (2003). Providing evidence-based information to patients in general practice and pharmacies: What is the acceptability, usefulness and impact on drug use? *Health Expectations*, 6, 281–282.
- McCracken, S. G., & Marsh, J. C. (2008). Practitioner expertise in evidence-based practice decision making. *Research on Social Work Practice*, 18(4), 301–310.
- McNiff, J. (1988). *Action research: Principles and practice*. Basingstoke: Macmillan.
- McTaggart, R. (1997). *Everyday evaluation on the run*. Sydney: Allen and Unwen, Yoland Wadsworth.
- Medicines and Healthcare Products Regulations Agency. (2007). Licensing of medicines: Legal status and reclassification. Retrieved 4 November 2007, from http://www.mhra.gov.uk/home/idcplg?IdcService=SS_GET_PAGE&nodeId=107.
- Meyer, J. (2000). Qualitative research in healthcare: Using qualitative methods in health related action research. *British Medical Journal*, 320, 178–181.
- National Coordinating Centre for Research Capacity Development. (2004) *The Research Capacity Development (RCD) programme*. Leeds: NCCRCDC.
- National Coordinating Centre for Research Capacity Development. (2005) *External review of the East Yorkshire Pharmacy Network*. Leeds: NCCRCDC.
- Newman, M., Papadopoulos, I., & Sigsworth, J. (1998). Barriers to evidence-based practice. *Clinical Effectiveness in Nursing*, 2(1), 11–18.
- NHS Centre for Reviews and Dissemination. (1999). Getting evidence into practice. *Effective Health Care*, 5(1), 1–16.
- NHS Executive – Northern and Yorkshire Research and Development Directorate. (2000). Call for proposals in primary care pharmacy. Durham.
- Nutley, S. M., Walter, I., & Davies, H. T. O. (2007). *Using evidence*. Bristol: The Policy Press.
- Oberg, A., & McCutcheon, G. (1987). Teachers' experience doing action research. *Peabody Journal of Education*, 64(2), 20–22.
- Ogilvie, D., Egan, M., Hamilton, V., & Petticrew, M. (2005). Systematic reviews of health effects of social interventions: 2. Best available evidence: How low should you go? *Journal of Epidemiology and Community Health*, 59, 886–892.
- Powell, D., & Peile, E. (2000). Joint working. It's a stitch-up. *Health Service Journal*, 110(5702), 24–25.

- Primary Care Dermatology Society. (2005). Guidelines on the management of atopic eczema. Retrieved 1 March 2008, from <http://www.bad.org.uk>.
- Prochaska, J. O., & DiClemente, C. C. (1994). *Changing for good*. New York: William Morrow.
- Reason, P., & Bradbury, H. (2006). *Handbook of action research: Participative inquiry and practice*. London: SAGE.
- Ritchie, J., & Spencer, L. (1994). Qualitative data analysis for applied policy research. In A. Bryman, & R. Burgess (Eds.), *Analysing qualitative data* (pp. 173–194). London: Routledge.
- Roth, J., Shani, A. B., & Leary, M. M. (2007). Insider action research: Facing the challenges of new capability development within a biopharma company. *Action Research*, 5(1), 41–60.
- Royal Pharmaceutical Society of Great Britain. (2006) *Medicines, ethics and practice – a guide for pharmacists*. London: Royal Pharmaceutical Society of Great Britain.
- Sackett, D. L., Richardson, W. S., Rosenberg, W., & Haynes, R. B. (2000). *Evidence-based medicine: How to practise and teach EBM*. London: Churchill Livingstone.
- Scadding, G. K., Durham, S. R., Mirakian, R., Jones, N. S., Leech, S. C., Farooque, S., et al. (2008). BSACI guidelines for the management of allergic and non-allergic rhinitis. *Journal of Clinical and Experimental Allergy*, 38(1), 19–42.
- Schon, D. (1987). *Educating the reflective practitioner: Towards a new design for teaching and learning in the professions*. San Francisco, CA: Jossey-Bass.
- Scottish Intercollegiate Guidelines Network. (1999a). *An introduction to SIGN methodology for the development of evidence-based clinical guidelines*. Retrieved 15 April 2002, from www.sign.ac.uk/guidelines/published/index.html <<http://www.sign.ac.uk/guidelines/published/index.html>>
- Scottish Intercollegiate Guidelines Network. (1999b). *Management of sore throat*. Retrieved 5 February 2002, from www.sign.ac.uk/pdf/sign34/pdf.
- Shroeder, K., & Fahey, T. (2002). Systematic review of randomised controlled trials of over the counter cough medicines for acute cough in adults. *British Medical Journal*, 324, 1–6.
- Tanna, N. (2005). Action research: A valuable research technique for service delivery development. *Pharmacy World and Science*, 27(1), 4–6.
- The Society. (1999). Working group on getting research into pharmacy practice. *The Pharmaceutical Journal*, 263(7061), 342.
- Ward, P., & Tully, M. (1998). *Self-care and pharmacy*. London: The Royal Pharmaceutical Society of Great Britain.
- Ward, P., Bissell, P., & Noyce, P. (1998). Medicines counter assistants: Roles and responsibilities in the sale of deregulated medicines. *International Journal of Pharmacy Practice*, 6, 207–215.
- Waterman, H., Tillen, D., Dickson, R., & de Koning, K. (2001). *Action research: A systematic review and guidance for assessment* (Vol. 5(23)). Southampton: Health Technology Assessment.
- Watson, M. C., & Bond, C. M. (2004). The evidence-based supply of non-prescription medicines: Barriers and beliefs. *International Journal of Pharmacy Practice*, 12, 65–80.
- Watson, M. C., Bond, C. M., Grimshaw, J. M., & Johnston, M. (2006). Factors predicting the guideline compliant supply (or non supply) of

non-prescription medicines in community pharmacy setting. *Quality and Safety in Health Care*, 15, 53–57.

Watson, M. C., Bond, C. M., Grimshaw, J. M., Mollison, J., Ludbrook, A., & Walker, A. E. (2002). Educational strategies to promote evidence-based community pharmacy practice: A cluster randomised controlled trial. *Family Practice*, 19, 529–536.

Williams, V., St Quintin, P., & Hoadley, S. (2006). Take your partners' reflections on a partnership project in learning disability research. *Action Research*, 4(3), 295–314.

Winter, R. (1998). Managers, spectators and citizens: Where does 'theory' come from in action research? *Educational Action Research*, 6(3), 361–376.

Markus Themessl-Huber is a Senior Lecturer in Clinical Psychology at the School of Health and Human Services, CQUniversity, Australia. His research interests lie within public (mental) health and health services research.

Karebor Tuhaise Ngwerume is a practising community pharmacist. She has conducted practice research on the evidence-based supply of non-prescription medicines.