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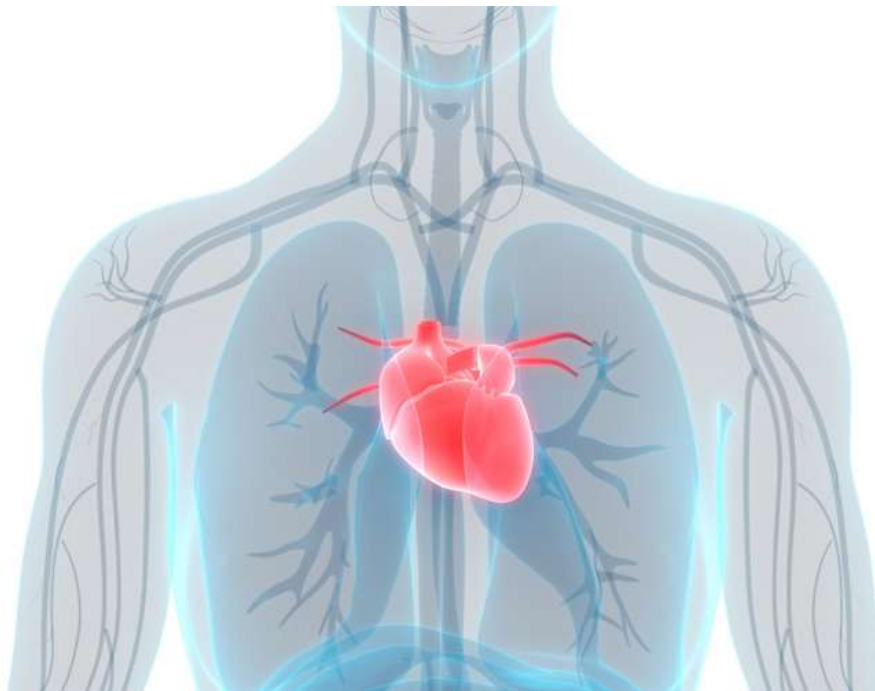


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[Home](#) > [News](#) > [Editor's pick](#) > [Disease management in community pharmacy](#)



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## Disease management in community pharmacy

teaser

**A pilot project in Malta suggests that interventions by community pharmacists concerned with the management of hypertension, diabetes and hyperlipidaemia can be effective**

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Disease management entails focusing on the patient throughout the entire disease process. Feedback should be provided at each stage of intervention and desired outcomes related to the patient's condition and the intervention should be measured.[1] Pharmacists' expertise contributes to good chronic disease management. Pharmacists have an important role in improving disease management independently of the healthcare setting in which they practise. One of the aims of chronic disease management is to prevent morbidity and the community pharmacist is in a good position to contribute to this by monitoring and managing patients.[2]

An essential component of disease management involves a self-care plan for the patient, including an education and a compliance programme. Clinical treatment guidelines developed by pharmacists to provide care to patients over the course of a disease may be incorporated in such plans. A disease management programme also includes monitoring of indicators of control of the disease, such as patient compliance, and clinical parameters measured at regular intervals.[1]

The pharmacist must attend to the patient's needs with respect to both drug therapy and health-related issues. "Pharmaceutical care" is a term used to describe the developing role of pharmacists as patient-focused rather than product-focused healthcare providers.[3]

The pharmacist must provide drug therapy responsibly and must make sure that these needs are being met by identifying, resolving and preventing drug-related problems.[4]

Point-of-care testing can provide a rapid and convenient way to monitor some patients.[5] Blood pressure and lipid profiles can be monitored regularly in this way to check the progression of a disease and how patients are responding to cardiovascular drug therapy.[6]

Pharmacists working in the primary healthcare setting are ideally placed to provide diagnostic testing and related health services because this makes such services easily accessible to the general public.[5,6] This is particularly relevant to long-term conditions in which compliance with therapy is essential if satisfactory outcomes are to be achieved.

In a randomised controlled study in Canada, it was concluded that the community pharmacist has a beneficial role in the process of cholesterol risk management in patients at high risk for cardiovascular events. Patients assigned to the intervention group received education, point-of-care testing and regular follow-up while patients assigned to the control group received general advice only, with minimal follow-up.[7]

A pilot study was carried out in Malta in order to evaluate the impact of community pharmacists' interventions in hypertension, diabetes and hyperlipidaemia through a prospective intervention study. The objectives were: to document the types of interventions made by pharmacists with patients, including documentation of patients' drug-related problems, activities by the pharmacist, time spent on interventions and clinical parameters which were monitored and to assess the impact of pharmaceutical interventions through monitoring of physiological parameters and patient compliance.

## Methods

The study was carried out in two community pharmacies which already monitored the parameters required for the study.

Patients aged 20 years or older were invited to participate in the study if they voluntarily agreed to have their blood pressure, blood glucose and blood cholesterol monitored and were willing to pay for such tests. It should be noted that patients were selected irrespective of whether they suffered from a chronic condition or not. Patients had to be able to return to the pharmacy for follow-up visits. The reason for charging the patients was that both pharmacies already offered these diagnostic tests against payment. Patients were given a study description and they had to confirm willingness to participate in the study through a patient consent form.

A data collection sheet (DCS) was designed to record patient data and care provided by the pharmacist to patients. Patients were interviewed by the researcher in order to document patient details including age, gender, relevant medical and family history, medications taken, drug-related problems (DRPs) and possible solutions offered and lifestyle habits related to smoking, diet and exercise. The pharmacist's interventions, such as patient medication counselling, health advice given and referral to the general practitioner (GP), were also recorded. Monitoring of the clinical parameters was carried out by the researcher using a digital blood pressure monitor and blood glucose/cholesterol analysers available at both pharmacies. Appropriate non-pharmacological advice was given according to the results obtained. Patients returned to the pharmacy for two follow-up visits at which the same procedure was followed. The time-plan for follow-up visits depended on the results of the parameters. Patients who had one or more clinical parameters higher than normal returned to the pharmacy within one month while those with normal parameters were reassessed after three months. This was in order to make it more convenient for the patients, avoiding the need to come to the pharmacy for measurement of one parameter only. The time taken during each patient's session was also recorded.

SPSS Version 13.0 was used to analyse coded data. The statistical tests used were the chi-square test for significant associations between patients' lifestyle habits across the different visits, the paired-samples T-test to compare the mean levels of the clinical parameters monitored at the three visits and one-way ANOVA to compare the average time spent across the different visits.

Disease management guidelines were developed in order to assist community pharmacists in the management of patients with hypertension, diabetes and hyperlipidaemia. A protocol was designed for each disease including a procedure to be followed by the community pharmacist during monitoring. The time plan for patients to return to the pharmacy and criteria for patient referral to the GP were included. Nonpharmacological advice relating to the conditions being monitored was also included. The guidelines were distributed to five GPs and five pharmacists to

give their feedback. Some modifications were made in the guidelines after being reviewed.

## Results

Thirty-two patients, chosen by convenience sampling, were monitored for blood pressure, blood glucose, blood cholesterol and body mass index (BMI) at three visits over nine months.

The most common pharmacist intervention was nonpharmacological health advice, such as advice on lifestyle modifications, including a decrease in saturated fat intake and regular exercise, which was given to each patient (see Figure 1). Lifestyle changes were emphasised more among patients suffering from high blood pressure, high blood glucose and high blood cholesterol levels.

[[HPE38\_fig1\_60]]

A statistically significant reduction was achieved in mean blood glucose levels for each visit ( $p < 0.05$ ) and in mean BMI readings between the initial and first follow-up visits ( $p < 0.05$ ) and between the initial and second follow-up visits ( $p < 0.05$ ). There were statistically significant changes in the mean diastolic blood pressure levels between the first and second follow-up visits ( $p = 0.054$ ). Table 1 shows the mean values for the clinical parameters obtained at each visit. No statistically significant changes in patients' lifestyle habits (diet and exercise) were obtained across the different visits since the majority of patients already followed an overall healthy lifestyle.

[[HPE38\_tbl1\_61]]

Missed dose(s) was the most common DRP at the initial and first follow-up visits (eight and six patients respectively), while experiencing a side-effect was the most common DRP at the last visit (five patients).

A significant reduction in the average time spent with patients during the interventions was achieved throughout the three visits ( $p < 0.05$ ; see Figure 2).

[[HPE38\_fig2a\_61]]

## Discussion

If the pharmacist's intervention is to prove effective, then the pharmacist must keep a record of the care provided each time the patient comes to the pharmacy,[8] as was done in this study through the DCS. The decrease in frequency of DRPs among patients taking medications across the visits shows that medication counselling contributed to an increase in compliance with the medication regimen in patients who were on medication.

This study demonstrates the impact of community pharmacist intervention in the management of chronic diseases. It has shown that statistically significant improvements in clinical parameters could be achieved. It also confirms that the community pharmacists in the local setting are in a suitable position to identify and manage patients at risk of cardiovascular disease through diagnostic testing.

Pharmacist intervention in disease management was standardised through the guidelines developed for the study. The guidelines assisted the pharmacist in interpretation of the results of the clinical parameters obtained for each patient, including where referral to the GP was necessary.

One limitation of the study is the short period of time over which the patients were monitored. Obviously, no statistically significant improvements could be observed among patients who did not suffer from any condition or were already following a healthy diet. However, it would have been difficult to select only patients who suffered from hypertension, diabetes and hyperlipidaemia in such a short time since most sufferers either utilise the

government health services or see their GP about their chronic condition. The number of patients was small (n=32) and thus certain statistically significant changes could not be achieved between the study visits. It is recommended that a similar study relating to monitoring patients for blood pressure, blood glucose and blood cholesterol be undertaken on a larger scale, that is, in a larger number of pharmacies and involving a greater number of patients.

In this study patients were chosen by convenience sampling and thus individuals who were most accessible and willing to participate were selected. Convenience samples are not generally representative of the study population.[9]

This study demonstrated that community pharmacists should be part of the healthcare team, collaborating with GPs in chronic disease management, both in identifying patients with undiagnosed conditions and monitoring patients with established diseases.

Such a monitoring service, as carried out in this project, should be performed in the presence of extra personnel. Adequate training should be provided to the staff carrying out the diagnostic tests and then the pharmacist would assist the patients in the interpretation of the results obtained. â-

### Resources

Palliative Care Pharmacists Network

W: [www.helptheospices.org.uk/NPA/pharmacists/index.asp](http://www.helptheospices.org.uk/NPA/pharmacists/index.asp)

Association for Palliative Medicine of Great Britain and Ireland

W: [www.palliative-medicine.org](http://www.palliative-medicine.org)

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**Your comments:** ([Terms and conditions apply](#))

"As with 90% of 'community pharmacy' research, the actual process was instigated and carried out by researchers who are normally postgraduate educated and possess higher skill levels than that found in community pharmacies. The extrapolation of abilities to a 'normal' community pharmacist doesn't necessarily apply. The international lack of uptake by community pharmacy of pharmaceutical care models serves to illustrate my point."

**- John Dunlop, New Zealand**

"In my opinion, the major obstacle to community pharmacists becoming fully integrated members of the healthcare team is the lack of access to patients' medical records, including laboratory results. In fact, it is a lack of medical practitioner status for pharmacists, therefore political and legal aspects need to be established first."

**Sanja Mirkov, New Zealand**

*Do you agree with these comments? Tell us what you think.*

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