POINT-OF-CARE TESTING IN THE COMMUNITY PHARMACY

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Diagnostic testing could form a large part of the community pharmacist's role in the future. This article outlines the benefits of point-of-care testing and describes schemes that are already in place

Diagnostic testing fits in with both the Royal Pharmaceutical Society's Pharmacy in a New Age plans and its aspirations to have pharmacists prescribing. Similarly, it fits in with the Government's document "Pharmacy in the future — implementing the NHS plan".[1] As Lord Hunt, Parliamentary Under-Secretary of State for Health, has said: "Our vision for the future is one where pharmacists spend more time focusing on individual patient's needs and, in particular, helping them get the most out of their medicines." In this way, patients will suffer fewer adverse reactions and will not have to put up with ineffective treatment because of inappropriate management of their medicines.

The redesigning of existing NHS services and the provision of new specialised services is seen as one way forward to benefit patients. These new services will be designed with the patient's needs in mind and point-of-care testing is convenient for the patient. A one-stop site to have their condition and therapy monitored and to get their medicines is of great value to patients. Pharmacists working in primary care are ideally placed to provide diagnostic testing and associated health services to the public because they are in convenient locations and have long opening hours.

MONITORING

Repeat dispensing may often require point-of-care testing, and where better to carry that out than in the community pharmacy. The patient's condition can be monitored on the spot and the dosage of the medicine adjusted by the pharmacist as necessary. This fits in well with the Government's view that pharmacists can and should prescribe in certain situations. For example, by 2004, repeat dispensing will mean that patients will be able to get repeat prescriptions from a pharmacy without having to contact their surgery each time.

ANTICOAGULANTS

A specific example given in the Government's plan is in the area of anticoagulant therapy, where the therapy requires careful monitoring and adjustment of doses. Thus, suitably qualified pharmacists are being invited to add a prescribing function to their existing functions.

Involvement in anticoagulant therapy is an accepted part of pharmacy practice. It is based on a partnership with the patient and other health care professionals so that the patient understands the aim of the therapy and takes an active role in ensuring the safety and effectiveness of treatment. Anticoagulant clinics run by pharmacists have been established in hospitals and GPs' surgeries, and proposals for community pharmacy clinics have been made.

An illustration of how pharmacists in primary care are becoming involved in clinics is in Sunderland. There, Sunderland Royal Hospital has set up an anticoagulation outpatient clinic within a community pharmacy and has plans for two more. Patients have their blood taken and their clotting time measured. They then have their anticoagulant dosage adjusted within a limited range without having to see a doctor again. Pharmacists also have a role in identifying problems that need referral to a physician and in patient education. These roles could be used as a model framework for any pharmacist-controlled clinic.

ASTHMA

Community pharmacist asthma monitoring schemes are another good example of the integration of pharmacists into the primary health care team. Several pharmacist asthma referral projects have been started over the past few years. For example, Lambeth, Southwark and Lewisham Health Authority used monthly meetings between pharmacists and GPs to identify patients who had poor symptom control and whose therapy was inappropriate.[2] Also, Pharmacy Alliance had a scheme aimed at recruiting 1,000 patients where pharmacists made recommendations on changes to the devices used, and the addition of inhaled steroids or long-acting bronchodilators.

There has also been an example of a pharmacist setting up an asthma clinic in a GP surgery. The management in the clinic included recording the patient's height and weight to estimate the peak expiry flow rate (PEFR) and then recording the actual PEFR. The management aims were to diagnose accurately, eliminate symptoms, restore airway function to the best possible level and reduce the risk of severe attack.[3]

Another new study in Durham is looking at how the condition of patients is affected by the monitoring of PEFRs which are measured twice daily by community pharmacists.[4]

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CHRONIC OBSTRUCTIVE PULMONARY DISEASE

The screening of patients for chronic obstructive pulmonary disease (COPD) is carried out by a pharmacist from a general practice surgery in Doncaster.[5] Patients are tested by the pharmacist for PEFR using a Wright's peak flow meter, forced expiratory volume for one second (FEV_1) and forced vital capacity (FVC) using a spirometer. The diagnosis of the presence of COPD and its severity is established using FEV_1 values and the results discussed with the GP. The pharmacist is now seen as an integrated member of the primary health team at the practice.

HELICOBACTER PYLORI

A further example of leading practice is a clinical pharmacist who manages the *Helicobacter pylori* eradication programme in a general practice in Durham.[6] The aims of the programme are to screen eligible patients for *H pylori* infection and optimise eradication rates through patient education and motivation.

Patients were initially screened for *H pylori* infection by serological analysis of venous blood. Symptomatic patients and those with previous complications had their status determined by carbon-13 urea breath testing, which was provided within the surgery by the pharmacist. The availability of the on-site breath testing service was invaluable to monitor patients' status.

THERAPEUTIC DRUG MONITORING

Monitoring a patient's therapy can be just as important as monitoring their disease. Therapeutic drug monitoring (TDM) is useful where a patient is suspected of not taking their medicine properly or has potentially toxic symptoms. One study showed that optimal dosing was achieved in only 58, 33, 50 and 28 per cent of patients prescribed carbamazepine, digoxin, phenytoin and theophylline, respectively, so demonstrating the value of running such a service from a community pharmacy.[7]

SCREENING

These health check services involve diagnostic screening for the early diagnosis of a disease or for risk assessment. In both cases, the intention is to prevent illness and to advise the patient about the relationship between their life-style and potential dis-

TABLE 1: POINT-OF-CARE TESTS THAT CAN BE CARRIED OUT IN ANY PHARMACY WITH THE APPROPRIATE FACILITIES AND TRAINED STAFF

Condition	Test	Sample
Coronary heart disease	Cholesterol and lipids	Blood
Diabetes	Glucose	Blood
Diabetes	Glycated haemoglobin	Blood
Diabetes and hypertension	Microalbuminuria	Urine
Glandular fever	Glandular fever	Blood
Inflammatory disease	C-reactive protein	Blood
Pregnancy	Pregnancy	Urine
Sore throats	Streptococcus A	Throat swab
Thrombotic disease	Blood coagulation	Blood
Ulcers	*Helicobacter pylori*	Blood
Urinary tract infection	Nitrates/leukocytes	Urine
Various	Urea and electrolytes	Urine

eases. Where a disease is suspected, referral to the patient's GP would occur. Examples of such services are screening for coronary disease, hypertension and diabetes.

Anticoagulant screening could help the NHS save 5,000 lives from atrial fibrillation related stokes each year and save £24m a year according to the National Pharmaceutical Association. This is because only 20 per cent of atrial fibrillation patients in England and Wales receive anticoagulation therapy, although 50 per cent would benefit.

Some health authorities have seen the gains to be made by early screening. The Barking and Havering Health Authority is considering setting up a high quality diagnostic service from community pharmacies to reduce the incidence of coronary heart disease (one of the Government's target diseases) by providing a new, convenient patient service. Pharmacists would provide the following diagnostic tests: blood pressure, blood sugar, body mass index, cholesterol and total lipid profile. A pilot scheme has also just started in pharmacies in Dorset to detect people at high risk of developing heart disease.

Diabetes is another target disease with an estimated one million people in the UK having undiagnosed diabetes according to Diabetes UK. The Society's Practice Committee is drafting guidance for community pharmacists in such screening roles and Lloydspharmacy is already running a pilot service in Coventry.

Lloydspharmacy also has a food intolerance testing service which helps customers to change their diets in order to avoid foods to which they are allergic.

PRACTICAL ASPECTS

There are a number of diagnostic tests that can be carried out in any pharmacy with the appropriate facilities and trained staff (Table 1). Some products are so robust that they are also appropriate for home use. Although these tests contain instructions written for the layman, the trained staff of a pharmacy can still provide support to customers self-selecting these products for use in their own homes as well as providing the testing service within the pharmacy itself.

Self-testing is likely to continue to expand in the coming years and diabetes monitoring is one of the fastest growing markets. Sales of blood glucose meters and strips are worth over £62m per year and the blood glucose strip market continues to grow at a rate of 20 per cent per year and is set to continue double digit growth.[8]

The Society's new Code of Ethics and Standards contains a section on diagnostic testing and health screening. It includes requirements for competency of staff, quality assurance programmes, maintenance of equipment and keeping up to date with new developments.[9] Procedures involving patients and biological analyses require strict adherence to health and safety standards, for the safety of both the patient and staff. Considerations such as hygienic methods of obtaining specimens, provision of seating for patients who may feel faint during or after blood sampling, staff training in basic first aid techniques and safety procedures concerning "sharps" all need to be in place.

A suitable place for counselling patients is essential, and some primary care groups and trusts are providing the funding for building counselling areas in pharmacies.

It is vital that the results of appropriate diagnostic tests are recorded in patients' computerised medication records. The results of all the diagnostic tests carried out in pharmacies could, for example, be placed on a "smartcard" that is retained by the patient. Such a system would put patients in control of their own records. Alternatively (or as well) the results could be transmitted via the internet, or some other suitable means, to some secure site of central patients' records that is only accessible by authorised health care professionals who are caring for that patient.

The new type of contract envisioned by the Government in "Pharmacy in the future"[1] should provide the legal and contractual framework for the provision of the new diagnostic services whether it is from health authorities or PCTs. However, it may be that the public will wish to pay for "health screening" services themselves, or employers may regard it as a good investment on behalf of their staff.

FUTURE DEVELOPMENTS

Diagnostic services from pharmacies are set to expand rapidly in the next few years. Lloydspharmacy started diagnostic testing two and a half years ago and Moss Pharmacy will include it in its "Total health" format pharmacies.

To get the latest information into the hands of pharmacists and pharmaceutical scientists, there will be two sessions on screening and diagnostics at the British Pharmaceutical Conference in Glasgow this year, run jointly by the Academy of Pharmaceutical Sciences and the British In-Vitro Diagnostics Association (BIVDA) The sessions will cover advances in new technology, linking diagnosis and therapy, demonstrating the health economic benefits of diagnostics, preventing disease and managing the information.

The BIVDA has also set up a pharmacy working group to review the opportunities for the potential for diagnostics to be used in the discovery, development, testing and marketing of pharmaceuticals, as well as the opportunities for testing outside of the traditional laboratory environment. The group includes the Society, the NPA, members of the pharmaceutical industry, diagnostics manufacturers, the Department of Health and the Department of Trade and Industry.

All the above relates to the monitoring and diagnostic tests that are available now and does not include the genetic testing coming in the next few years. This has been briefly described in the Royal Pharmaceutical Society's information sheet on genomics[10] and further policy development work in this area is ongoing.

CONCLUSION

Pharmacy has a great opportunity to use diagnostic testing to monitor patients' diseases for the management of their long-term conditions and to help manage their prescribed medicines.

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