

saline is important. Hypotension due to impaired myocardial contractility may respond to intravenous calcium. Experimentally, calcium improves myocardial contractility but has little effect on vasodilatation or heart rate.^{6,7} In humans who have taken an overdose of calcium channel blocker, calcium generally improves myocardial contractility and may improve sinus rate and atrioventricular conduction.² Many cases exist, however, of patients failing to respond to calcium.^{3,8} Calcium (preferably in the form of 10 ml of 10% calcium chloride) should be given intravenously over five minutes at a dose of 0.2 ml/kg up to a total dose of 10 ml. If calcium gluconate is used the dose should be increased to 20 to 30 ml. Depending on the clinical response, this dose can be repeated every 15 to 20 minutes up to four doses. If repeated doses are necessary serum calcium concentration should be monitored.

An alternative may be to use a continuous infusion of calcium chloride at a rate of 0.2 ml/kg up to a total dose of 10 ml/h. Glucagon, by stimulating adenyl cyclase to increase cAMP levels, has positive inotropic and chronotropic effects and may help in a dose of 10 mg intravenously.⁹ Hypotension may require the addition of positive inotropic or vasoconstrictor agents such as isoprenaline, dopamine, dobutamine, or noradrenaline. In severe hypotension the placement of a Swan-Ganz catheter will give useful haemodynamic information and help in the choice of the most appropriate positive inotropic or vasoconstrictor agent.⁸ Knowledge of the pulmonary capillary wedge pressure may also help prevent pulmonary oedema due to administration of excess fluid.

Pulmonary oedema, which in some cases may be non-cardiogenic, often occurs as a complication of an overdose of calcium channel blocker and may require treatment with diuretics or even mechanical ventilation.¹⁰⁻¹² Symptomatic bradycardias may respond to atropine, but they usually require the addition of intravenous isoprenaline. In patients who fail to respond to isoprenaline a temporary transvenous pacemaker may be required. Reports exist, however, of failure of the pacemaker to capture in toxicity from calcium channel blockers.^{2,5} An intra-aortic balloon pump may help in

severe unresponsive hypotension. Extracorporeal circulation, to allow sufficient time for detoxification by the liver, has been attempted in the management of overdose of calcium channel blocker.⁵ Although hyperglycaemia often occurs after such an overdose, it rarely requires treatment with insulin.

The prognosis after an overdose of calcium channel blocker obviously depends on the amount ingested, the age and size of the patient, any concomitant illness, and whether any other cardiac drugs have been ingested. Poisoning with calcium channel blockers may be lethal. The prognosis is worse with verapamil than diltiazem^{2,11}; little information exists on overdose with the newer calcium channel blockers, though their effects and treatments should be similar to those of nifedipine or diltiazem. Sustained release preparations, because of their prolonged absorption, will prolong haemodynamic compromise and thus increase deaths.^{5,13} Preventing these overdoses is important. As more patients receive calcium channel blockers particular attention should be paid to the prevention of accidental poisoning of children at home.

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Skill mix in primary care

Should be used to match services to needs rather than to cut costs

Subjects that breed euphemisms are usually contentious, and skill mix (reprofiling, grade mix, and multitasking) is no exception. In her recent review of the topic, Leone Ridsdale has provided us with a much needed synopsis of the debate.¹

The pursuit of skill mix in the new NHS has divided managers and health care professionals. With staffing accounting for 70% of NHS spending and managers under pressure to cut costs, the attractions of giving tasks to the lowest grades of staff who can perform them are obvious. In such an environment professionals fear the gradual erosion of the quality of care^{2,3} and trade unions see the spectre of redundancy.⁴ The debate over skill mix has heightened the belief among health professionals that managers do not understand the complexity of their knowledge and skill.⁵

The dangerously simplistic approach of the NHS Value for Money Unit's report *Skill Mix in District Nursing* did nothing to allay these fears.⁶ District nursing was reduced to a series of mechanistic tasks that could be counted and reallocated. In this model of skill mix highly qualified, skilled clinical

professionals are asked to delegate the core of their work to unskilled workers and find themselves undertaking a supervisory or management role or even being made redundant. Redundancy has become more likely as the economic recession reduces job opportunities, encouraging people to stay longer in the job they have, slowly moving up salary scales, and exacerbating a top heavy mix of grades.

This is the bleakest vision of a review of skill mix and is driven by the need to cut costs. At its best, however, careful consideration of skill mix offers much in terms of aligning services more effectively and more appropriately to the health needs of local populations. But this can be achieved only by a team sharing common objectives. The multidisciplinary primary health care team can provide an ideal environment for this kind of approach. In such a team each group of staff is represented by a few people, all of whom have a personal working relationship with all the others. They recognise that skill is a product of ability and experience as well as grade—a point that district wide reviews seem to have failed to grasp.

A culture of long service and low turnover of staff exists, which means that skill mix must be developed with existing staff, with room for manoeuvre only when staff leave. The painstaking Newcastle *Nursing Skill Mix Review* showed that each group of staff has a unique cluster of skills that contributes to the work of the team.² The skills and contribution of each staff group must be explicitly valued and practitioners encouraged to expand the scope of their practice. The potential for delegation within each aspect of the workload can be explored, and it must be remembered that delegation brings both benefits and responsibilities. Different styles of delegation will suit different people.

Delegation provides opportunities for clerical and reception staff to share the challenges and rewards of providing clinical care (for example, venesection and simple clinical measurements). The development of relevant national vocational qualifications should ensure suitable training.⁷ No one should be asked to take on skilled tasks without adequate training and support.

Scope exists for reallocating responsibilities between almost every group within the primary care team. The most debated examples entail reallocation from general practitioners to practice nurses, and from district nurses and health visitors to health care assistants. The Burlington randomised trial of nurse practitioners in Canada showed that they performed as well as general practitioners in dealing with a range of tracer conditions.⁸ The nurses, however, saw only half as many patients as the doctors.

Similarly, Stillwell, who pioneered the nurse practitioner role in Britain, saw patients at 20 minute intervals, which is more than twice the average consultation time of general practitioners.⁹ Nurse practitioners could therefore be the more expensive option given their level of remuneration (up to £23 750) and their average hours of work (37.5/week). On the other hand, much has been achieved by practice nurses in the systematic care of chronic disease in primary care, and considerable potential exists to develop this work further.¹⁰ The government's apparent reluctance to introduce nurse prescribing, however, makes such developments more difficult.

The introduction of generic community nurse training under project 2000 seems to threaten the traditional roles of district nurses and health visitors. This contrasts oddly with the presence of increasing numbers of nurse specialists in the community. These include community psychiatric nurses, stoma care nurses, diabetic and asthma liaison nurses, and palliative care nurses. Each new post generates new questions of effectiveness and efficiency because of overlapping roles.

As family health services authorities assume responsibility for commissioning community nursing services there is greater scope for increasing the integration of the primary care team, with more sharing of objectives and less wasteful duplication of records. Nurses need to retain adequate professional support under any new arrangements, but there is much to gain.

In the face of so much contentious debate and uncertainty all innovation and change must be properly evaluated. In her excellent review Ridsdale has emphasised the importance of systematic research into the effects of alterations in skill mix in primary care and has proposed a series of detailed studies.¹ Only by measuring the effects of what we do can we move beyond a narrow cost cutting agenda and explore the potential of skill mix to improve our patients' care.

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New public health and old rhetoric

Social explanations of illness won't go away

There is a discipline in medicine that over the past 200 years has been known by various names: sanitary medicine, public hygiene, public health, social medicine, and community medicine. Its newest incarnation proudly calls itself "the new public health."¹

Academically the discipline was buried repeatedly because it produced "mere rhetoric."^{2,3} The first time this happened was before the turn of the 19th century. The successful hygienic and sanitarian movement of the middle of that century divorced itself from bacteriology, the upcoming science of the 1880s, because bacteriology could not really explain why epidemics happened at certain places and certain times and to certain people. The members of the movement had a point, in retrospect, but their adamant opposition to the new science led to their academic downfall and even ridicule. Hygienism was seen as only "soft" rhetoric, while "hard" bacteriological science would give the real explanations. Nobody had proved hygienists wrong, it was just that nobody

was interested in their kind of argument any more.⁴ Chairs and institutes of hygiene were turned into chairs and laboratories of bacteriology.

In the first half of the 20th century infectious disease epidemiology remained as a successful daughter of the parent discipline of bacteriology. Some nostalgic "old hands" made the points of hygienism over again, but their reservations did not become reputable.^{5,6} The hygienic movement arose from its ashes in the 1950s and 1960s. "Chronic diseases" (later, "diseases of affluence") became the new challenge, and the global community approach, which was believed to have been so successful in eradicating contagious disease, was the preferred solution. Mirroring the hygienists of the previous century, the proponents of this approach believed that no good could come from curative, clinical medicine because it did not attack the problem at its roots.⁷ In this adventure there was a glorious role for epidemiology as the "intelligence service" of preventive public health.⁸