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BMJ

Prophylaxis after occupational exposure to HIV

Recent guidelines should promote good practice and data collection

Health care workers have a low but measurable risk of HIV infection after accidental exposure to infected blood or body fluids. Based on over 3000 incidents, the average risk of HIV infection after a single percutaneous exposure is 0.3% (95% confidence interval 0.18% to 0.46%).[1 2] Contamination of mucous membranes and non-intact skin carries an even lower risk, while conjunctival contamination with blood carries a slightly higher risk.[2] As a result HIV attributable to occupational exposure is uncommon: only 92 cases have been reported worldwide (J Heptonstall and G Ippolito, personal communication).

Although compliance with infection control recommendations in handling sharps is the mainstay of prevention,[3 4] additional prevention strategies now include post-exposure prophylaxis with antiretroviral therapy. This has become widely used since the early 1990s, despite lack of clear evidence of benefit. Importantly, there has been no randomised controlled trial of the efficacy of such treatment, and nor are such trials likely to be practicable given the low risk of transmission.

Indirect evidence for antiretroviral therapy after occupational exposure to HIV comes from four main sources: biological plausability of benefit; a retrospective case-control study[5]; its efficacy in some animal models[6]; and zidovudine's effectiveness in reducing the risk of vertical transmission.[7] The biological rationale is that initial virus uptake and antigen processing after inoculation may take several hours or even days. This presents a window for therapeutic intervention before virus propagation occurs. In theory, even if infection is not prevented, antiretroviral therapy may modify the clinical course through attenuating the initial viraemia during acute seroconversion.[8] In a case-control study of 31 health care workers infected after percutaneous exposure zidovudine (1 g/day for 3-4 weeks) given soon after exposure reduced the odds of seroconversion by 79% (adjusted odds ratio 0.21 (0.06 to 0.57).[5] Animal studies have yielded inconclusive results (showing protection in some species but not in others[6]), and their results are difficult to extrapolate to humans.

Although most of the evidence for prophylaxis is based on zidovudine monotherapy, this approach has been rendered obsolete by the superior efficacy of combination therapy in established infection and the potent antiviral efficacy of the new protease inhibitors.[9] There are increasing reports of resistance to zidovudine and at least 11 cases where postexposure zidovudine failed to prevent HIV infection.[10]

Recommendations for the use of postexposure prophylaxis were issued by the US Public Health Service,[11] the International AIDS Society,[12] and the Italian Ministry of Health[13] in 1996 and the UK Department of Health last month.[14] These guidelines differ substantially from the position held in 1990—that the data were insufficient to support or reject prophylaxis[15] —to now recommending treatment for four weeks with zidovudine in combination with lamivudine for most parenteral exposures. But while the International AIDS Society and the British guidelines suggest adding a protease inhibitor for all significant exposures, the American guidelines advocate it only for particularly high risk exposures or when drug resistance is suspected.

The choice of lamivudine and the protease inhibitor indinavir as the companion drugs to zidovudine is to some extent arbitrary, and newer drugs such as the non-nucleoside reverse transcriptase inhibitors may soon provide more choices. Lamivudine proved safe in early treatment trials and combined with zidovudine acts against zidovudine resistant virus; indinavir is similarly active and appears to be the most active protease inhibitor available.[9] Nevertheless, studies have not been performed with these drugs combined to see whether they provide incremental prophylactic benefit. Nor are there definitive data on which to base optimal dosages or route of administration. Little is also known about the long term safety of these combinations in uninfected individuals, although lifethreatening side effects have not been reported. Serious short term toxicity is rare with high dose zidovudine alone after occupational exposure, though one third of patients discontinued prophylaxis because of intolerance.[16]

Deciding when to recommend prophylaxis after occupational exposure remains problematic. Given the limited toxicity data and low risk of infection, it should be targeted at the subset of exposed workers at high risk of infection. Factors that increase the risk of seroconversion include exposures to a large inoculum of infected blood (indicated by a deep injury, visible blood on the device, and procedures entailing needles placed directly in arteries or veins) and a source patient with terminal HIV infection.[5] Therefore, initial risk assessment should include details of the exposure as well as information about the CD4 count, viral load, and antiretroviral history of the source patient. Risk assessment is inexact, however, especially in exposures outside hospital and involving patients with unknown HIV status. In general, an assessment of the source

patient's likelihood of infection can avoid unnecessary testing, especially when the probability of infection is low. In Britain the General Medical Council is preparing guidance on ethical procedures for HIV, hepatitis B, and C testing in the source patient.[17] If the source patient is unavailable or refuses to be tested, then follow up care should generally be based on the best estimate of risk.

Implementing these guidelines presents other challenges. Occupational exposures are notoriously under-reported. Institutions therefore need to publicise the importance of reporting all exposures and provide a user friendly and confidential mechanism for doing so. Since most studies show a time limited response with prophylaxis, if a decision is made to use it, it should be started promptly. Hospitals should ensure they can provide timely prophylaxis, with three or five day starter treatment packs available in accident and emergency departments. Exposed health workers need to be fully informed of the risks, the rationale for treatment, and the lack of data, so that when possible the decision about prophylaxis rests in their hands. Referral to centres experienced in the use of antiretroviral drugs is advisable, especially when the exposed worker is pregnant or breast feeding, has concurrent medical conditions or drug therapy, or has developed adverse events or when drug resistance is suspected. Finally, since many health workers prematurely discontinue prophylaxis,[18] optimal compliance requires counselling about the importance of drug dosing in relation to meals, the dietary restrictions with indinavir, and contraindicated medications. Exposed staff should be followed for at least six months.

The lack of clinical follow up data on the effectiveness, tolerability, and safety of different forms of prophylaxis requires a systematic approach to data collection. In America the Centers for Disease Control have recently established a national registry for cases of occupational exposure. A similar UK or European network would be useful.

These recommendations will require updating as new drugs are licensed and further data emerge on the prevalence of drug resistant strains and on the efficacy and toxicity of prophylaxis from three studies in the US and Italy. The use of prophylaxis for high risk sexual exposures is another area of concern, and such cases should be managed on a case by case basis.[18] Recommendations from the Centers for Disease Control should soon be available.

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Why the *BMJ* needs your data

Better data on readers and members means better services

The most useful information for doctors is valid, relevant, and easy to access.[1] Unfortunately none of the information that is drowning them at the moment scores highly on these criteria.[2] One way to increase the relevance of material to readers is to know much more about them and their needs. Medical publishers may then—through electronic means or modern printing methods—be able to send them information that is more relevant. That is one reason why modern organisations need good information on their members, subscribers, or customers, and that is the main reason why the *BMJ* has been gathering information on doctors. Unfortunately an ill informed piece of journalism in *GP* magazine, a British

tabloid for doctors, has caused misplaced disquiet about the activities of BMJ Data Services. This claimed, wrongly, that the BMA held data on all manner of private information on doctors, from the number of their children to their investments.[3]

The *BMJ* has been gathering information on doctors—from them and with their full consent—since 1995. We formed BMJ Data Services because of an opportunity to provide a directory for the coming NHS network and because we could see the electronic revolution arriving. We saw opportunities—for example, developing information for doctors on jobs and helping the BMA gather the information it needs to comply with trade union legislation; modern organisations need much more information on their members than their name and home address. Everybody is anxious to avoid indiscriminate use of personal information, but the information that we collected about doctors was mainly in the public domain; and the setting up of BMJ Data Services went through all the usual BMA approval mechanisms. Letters were sent several times to doctors to gather the information. This has been a most public exercise.

We also set up the business with the intention of making money by renting the lists under strictly controlled circumstances. We have no need to apologise for planning to run a profitable enterprise. (The *Lancet*'s recent disdain of "commercialisation"[4] sits oddly in a publication owned by a company, Reed-Elsevier, famous for its ruthless profit making.) Many private companies—including Haymarket, whose newspaper *GP* "exposed" BMJ Data Services (two years after it began)—live around the edge of medicine and make profits from it. Why shouldn't doctors' organisations—run by doctors for doctors—make that money? We can then use it to underwrite educational, professional, scientific, and charitable purposes rather than pay for a second yacht for the owner of a private company. Any surplus from BMJ Data Services also helps to keep down the price of members' subscriptions. We rent only information already in the public domain. Furthermore, we can, and do, refuse inappropriate mailings and ensure that doctors who say they don't want to receive any mailings—about 30%—do not. Our research shows that doctors have great difficulty stopping mailings, including the free newspapers. "They just keep on coming," respondents have told us. The law requires us to give doctors an opportunity to opt out, and our high opt out rate is more credible than the low rates claimed by competitors.

Some doctors have argued that we should get out of the business of renting data on doctors. But we should ask who would benefit from this. Our competitors would be delighted if BMJ Data Services were to quit the market. If BMJ Data Services disappears the number of mailings doctors receive will not diminish one jot, but doctors' abilities to control and limit what they receive will diminish. More importantly, BMA members will deny themselves better services if they react against BMJ Data Services. The profession should not allow itself to be led by a "free" newspaper paid for by advertising but rather look after its own interests.

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Drug misusers: whose business is it?

Shared care can work well, but drug misusers still need specialist services

See pp 583, 601, 613

All indicators of illicit drug dependence have continued to climb over the past two decades, showing no sign of reversal. The one success has been the containment of HIV: through the provision of community services and the promotion of needle exchanges Britain has maintained one of the lowest HIV seroprevalence rates among injecting drug users globally.[1] The increasing tide of drug misuse has, however, continued to place additional burdens on public services, from the criminal justice system to health and social services.[2] How medical services should respond to drug dependence and its associated harms, and in particular which doctors should be responsible, is currently the subject of debate.

In his personal view in this issue Scott argues that psychiatrists have neither the skills or the attitudes appropriate to looking after drug misusers and that general practitioners are far better at it (p 613).[3] Primary care services are often the first port of call for users and their families and neighbours and, after a slow start, are now responding to the challenge of treating this disenfranchised group, as evidenced by this week's correspondence columns (p 601).[4] General practitioners are concerned about the increased workload and in some areas have obtained specific funding. Nevertheless, even in the best developed practices the multiplicity of problems presented by drug using patients means that a similar multiplicity of skills must be deployed, including skills held by those outside primary care.

The new challenge is to develop closer integration between all providers of services, identify effective interventions, and then ensure that these interventions are delivered.[2] Such interventions may include methadone maintenance, behaviourally based therapies including motivational interviewing and relapse prevention, detoxification, targeted health promotion, and, when appropriate, residential rehabilitation. The new BMA report on drug misuse is a significant contribution to this broad based approach to services for drug misusers.[5]

Encouraging primary care to take responsibility for drug misusers has been policy since the early 1980s.[6]

Models of shared care developed in alcohol treatment have been applied to drug misuse services. Shared care involves joint participation of specialists and generalists (generally psychiatrists and general practitioners but also community pharmacists[3]) in planned delivery of care, supported by information exchange beyond routine discharge and referral letters. In many settings better communication and greater mutual awareness are at the heart of improved services. Such arrangements make explicit which clinician is responsible for different aspects of management. In most cases the general practitioner maintains the central coordinating role for the patient's long term health care. As the correspondents point out, good shared care requires training and support for general practitioners,[4] but it can work only in the context of a well developed specialist service.

Specialist services are needed for patients with chaotic patterns of drug use, multiple dependencies, and serious physical or mental health problems, or other complex problems. The task force to review services for drug misusers reported that community drug services had expanded in response to the growth of drug problems and dependence but that many had problems with overall management, with poor delivery of hepatitis B vaccination and other aspects of health care.[2] The growing number of very young drug users presenting to services and the need for services tailored for amphetamine and cocaine users means that the staff of community agencies will require a combination of behavioural science training and basic health skills training. Specialist services have a critical role to play in providing such training and applying different models of consultancy and liaison as new patterns of drug use emerge. The future involves figuring out how to integrate the intake of new users into services, to match them to appropriate interventions, to plan long term management, and to integrate health and social care for rehabilitation.

The national treatment outcome study showed that a quarter of those entering drug services had suicidal thoughts, a quarter had been admitted to general medical wards, and a tenth to psychiatric wards.[7] Other studies suggest that over half of drug dependent individuals in the community have mental health problems, and rates of mental health problems are significantly higher among those entering treatment services.[8] Separate reports indicate that 60-70% of injectors are hepatitis C positive. With these levels of serious ill health associated with drug dependence it makes as much sense to argue against psychiatric involvement with drug users as to argue that hepatologists, gastroenterologists, genitourinary physicians, and prison medical officers have no role because they deal with only a particular dimension of the problem. Clearly, general practitioners retain their traditional role as providers of primary care to drug misusers, but simplification of the problems of, or responses to, drug misusers does no justice to their needs.

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Academia: the view from below

A national career structure is needed for medical academics

See p 593, 612, and letters

The problems of training and recruitment of academic medical staff have been the subject of a recent independent working party report[1] and several editorials.[2 3] All suggest long term changes in the academic career structure, but they fail to address the real life problems of "partially trained" junior doctors currently employed in academic posts. This editorial reflects the views of just such a group of academic trainees engaged in research at the Institute of Child Health and Great Ormond Street Hospital, London, UK. The current uncertainties in academic training have led many of us to question our future in academic medicine, and we suggest that a more structured and consistent approach to the academic career ladder would improve academic recruitment.

Our decisions to embark on academic training were made for a variety of reasons: some aimed to improve career prospects, others relished the intellectual challenge of being at the forefront of research, but only a few felt the compelling "inner force" described by Sir Rex Richards.[1] All of us, however, are faced with an academic career structure in disarray; this compares unfavourably with conventional clinical training, which is now both clearly defined and relatively short following the implementation of the Calman report. A further disincentive is the lack of matching of junior and senior academic posts in some specialities, where the number of trainees bears no relation to the number of senior positions available. Our uncertainties have been exacerbated by difficulties in obtaining

appropriate and consistent advice from our colleges and deaneries.

Currently there is no uniformity, either within specialities or within regions, in the training and research components of, or entry qualifications for, research fellow and lecturer posts. The lecturer is often regarded as an extra ward registrar, with or without a research project: as someone to teach the medical students; organise exams and courses; and undertake any other additional clinical duties required. Lecturers often have little time for research and no formal training, supervision, or assessment. Many research fellows are in a similar position, particularly those with short term funding. Although their projects are for a higher degree, these may be poorly thought out and ill supervised.

Minimum standards should be established for research fellow and lecturer posts, and these posts should be accredited and monitored. Those with a serious interest in an academic career need a higher degree, either an MD or PhD. This can be undertaken at any stage of specialist training, but it is vital that the time spent as a research fellow is dedicated to research and that any clinical work is purely supernumerary and done at the discretion of the trainee and his or her research supervisor. Furthermore, as academic posts are not evenly distributed between specialities, those considering an academic training need to be given realistic career advice. Otherwise, they may be left with no alternative but to take up positions which have little relevance to their chosen speciality when they complete specialist training. Research fellow posts leading to an MD or PhD are clearly inappropriate for those who merely want a taste of research. A well structured and supervised one year degree, such as an MSc, should be available for this group.

The aim of a lecturer post should be to train the senior lecturers of the future—individuals with the skills to oversee research and training programmes. To develop these skills in parallel with a clinical training, lecturers must have a higher degree at the time of appointment and have protected research time which is not compromised by covering for clinical colleagues. Fundamental to this is an explicit job plan defined by the supervising consultant, the postgraduate dean, and the NHS trust, with a clear delineation of protected research and clinical time. Accrediting lecturers only for their clinical commitments and not their research time greatly lengthens their training and may deter those who take a career break. Measures of competence, as well as simply time spent in post, should be incorporated in the assessment for the certificate of completion of specialist training. One further limitation of the Calman scheme of specialist training for the academic trainee is that it reduces national mobility, which may be critical in smaller specialities. We therefore support a national career structure for academics.

The diverse specialities in clinical medicine have created a relatively uniform and clearly defined career structure under the Calman scheme. If academic medicine in Britain is to continue to attract enough high calibre trainees it needs to offer comparable training programmes with a clearly defined academic career structure.

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Treating medically unexplained physical symptoms

Effective interventions are available

Chest pain, back pain, headache, muscular pains, bowel symptoms, breathlessness, dizziness, and fatigue often remain unexplained after medical assessment. [1] Such cases may be referred to as functional syndromes of chronic fatigue, chronic pain, fibromyalgia, and irritable bowel or as somatoform (somatisation) disorders. In many cases the symptoms are severe, persistent, and disabling and cause considerable personal, social, and healthcare costs.[1-3] Furthermore, the problem is large, accounting for a quarter of general practice consultations, as many as a half of outpatient clinic attendances, and a substantial number of hospital admissions.[2]

When symptoms are found not to result from "genuine physical illness" they are often believed to be insignificant or attributed to mental illness. Consequently when investigations prove negative, management is commonly limited to reassurance about the absence of disease and occasionally referral to a general psychiatrist. In our experience such referrals are unpopular with patients and rarely result in effective treatment. In fact there is scant provision in either medical or psychiatric services for the patient with somatic complaints who has neither physical disease nor severe mental illness.[4]

We now know that we could do better. Evidence for the superiority of new ways of thinking about and managing such patients is growing. Several recently published randomised trials show that new treatments are both acceptable to patients and more effective than conventional medical care.[5,6] These new treatments, often referred to as cognitive behavioural therapies, take an explicitly integrative approach to patients' complaints—an approach in keeping with the evidence

that the perpetuation of unexplained somatic symptoms is best understood in terms of an interaction between physiological processes, psychological factors, and social context.[7]

This integrative approach also provides a logical basis for management. The first step is acknowledging the reality of the patient's problem. The second is systematically identifying and listing the principal factors that perpetuate illness, including disordered physiology, misinterpretation of associated bodily sensations, abnormalities of mood, unhelpful coping behaviour, and social stressors. The third step is making a management plan that targets the most important of these factors for each patient. For example, a patient with chronic fatigue may benefit from information to combat unfounded fears about the illness, guidance and encouragement in returning to normal activity, and help with employment and other problems.[7] For selected patients antidepressant treatment may also help.[2 5]

Implementation of this new approach will require changes in both medical practice and the organisation of services. Most patients will continue to be managed in primary care, where the doctor's positive explanation of the symptoms and practical advice may be augmented by printed information, reinforced if necessary during a longer session with a suitably trained nurse. The general practitioner should be supported by a readily available medical consultant, whose confident assessment and statement of findings will reinforce the general practitioner's approach. Innovative service developments such as joint medical-psychiatric clinics and dedicated liaison psychiatry and psychology services will provide for patients who require more intensive treatment. Finally, the small but conspicuous group of patients who present with recurrent and multiple physical symptoms will be given proactive and coordinated care aimed at limiting unnecessary medical intervention and preventing iatrogenic harm.[8]

If these simple and inexpensive changes in practice and service provision could improve patient care, why have they not been implemented? One reason is the widespread lack of awareness that effective evidence based treatments are available. Another is a misconception that such patients are only "worried well," undeserving of health service resources. But perhaps the main obstacle to change is the remarkable persistence of mind-body dualism,[9] which appears to be as prevalent among the medical profession as among the general public. Overcoming this intellectual obstacle to a more constructive attitude to medically unexplained physical symptoms will require changes in doctors' professional training and a greater dialogue with colleagues in psychiatry and clinical psychology. There are welcome signs of change, as evidenced by recent joint royal college reports.[2 10] But to meet the challenge of "medically unexplained" symptoms we must do more to lead public opinion in a positive and non-judgmental acceptance of the role of physical, psychological, and social factors in most, if not all, illness. Such an acceptance would encourage the implementation of what we already know, as well as opening the door to the development of innovative treatments for these hitherto problematic illnesses.

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Death of Diana, Princess of Wales

A special life forged from adversity

The *BMJ* joins the British nation and people from all around the world in mourning the death of Diana, Princess of Wales. Not often does it seem right to acknowledge grief over the death of such a public figure from beyond the profession, but this time it does. The Prince of Wales was president of the BMA in its 150th anniversary year (1982), and we remember vividly the day when the princess visited BMA House. Even then she struck a different note by asking to meet the families of those who worked here. We brought in our children, and the day was much more memorable than just another royal visit.

The princess associated herself with causes that matter to those concerned about health. She campaigned on AIDS, leprosy, and drug addiction; worked with sick children (particularly as president of the Great Ormond Street Hospital for Children in London); spoke of her own experiences of bulimia; and—most recently—raised the issue of landmines high up the international agenda. She seemed to speak so well to and for the vulnerable because of the difficulties in her own life. Her life was full of glamour and opportunity, but her gift was to create a very special life—and an inspiration to many—from adversity.

Richard Smith *Editor, BMJ*