

AIDS & HEPATITIS Digest

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Putting patients first

In the UK, doctors and the National Health Service have recently come under strong attack. The Bristol heart patients, Dr Harold Shipman, a series of cases before the General Medical Council, the Alder Hay 'organs' controversy and a record number of patient complaints have illuminated the pages of the national press for months. Health-care staff are not drawn to clinical careers for an easy ride or the money. Modern medicine depends upon the skills of a range of caring health professionals, who receive excellent training but require support and many resources to enable them to treat patients effectively and safely. We consider several examples in this issue of the *Digest*.

There is a view that the general public has become rather complacent about HIV/AIDS nowadays. In reality, we face considerable uncertainty about the UK epidemic, increasing problems of drug resistance in patients and record numbers of new infections reported each year. Ruth Lowbury, of the BMA Foundation for AIDS, and Oonagh O'Brien report a study aimed at improving support for AIDS patients nationally. Dr Salkin's 'Letter from America' raises the concern, however, that the increasing numbers of people living longer with HIV may be creating an ever-expanding reservoir of infection in the community; health education remains paramount.

Hepatitis C virus (HCV) infection presents many challenges, especially in treating the increasing number of patients who fail to clear HCV from their bodies and who may suffer chronic hepatitis for the remainder of their lives. Dr Rosenberg describes the development of effective antiviral therapy but notes that patients are still being denied access to appropriate treatment.

Guy Nash FRCS takes us into the operating theatre and emphasizes that today all theatre staff need to make risk assessments about possible exposure to blood-borne hazards and the risk of infection. In his book *The Life of Louis Pasteur* Rene Valleyen-Radot wrote:

A pinprick is a door open to death.... That open door widened before the smallest operation ... it was much worse when a great surgical intervention was necessary ... pyaemia, gangrene, erysipelas, septicaemia, purulent infection, were bywords in those days.

Surgeons can easily be exposed to their patients' blood. Health Services Circular 2000/020 issued in June last year placed new restrictions on surgeons and other staff found to be infected with hepatitis B virus. The lives of some have been seriously affected and career plans dashed. The Department of Health has just announced that it is developing a strategic approach to HCV to examine prevention, control and treatment and to 'produce a document within the year' – both Dr Rosenberg's and Mr Nash's views about HCV deserve careful consideration.

David Morgan
Editor

Working together for quality in HIV treatment and care

Ruth Lowbury¹ and Oonagh O'Brien²

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In the mid-1990s, new combination highly active anti-retroviral therapy (HAART) began to enable people with HIV to live longer and stay healthier. A radical realignment of services for their treatment and care was inevitable. The new therapies can mostly be provided on an outpatient basis but necessitate access to specialized laboratory tests and staff with expert clinical knowledge of this fast-changing field. Demand for inpatient and terminal care has decreased dramatically, but the inpatient needs that remain are increasingly complex. New support needs have arisen to help people taking the new drugs to adhere to a difficult treatment regimen.

A series of projects was initiated from 1996 by the National Health Service (NHS) in London to review the configuration of HIV services and identify how consistency, quality, access and efficiency could be improved. They culminated in recommendations for developing the 'network' model, already advocated for other acute services in the NHS, such as cancer and paediatric intensive care^{1,2}.

Although local variations are possible, a typical network of NHS HIV service providers may cover several health authorities and consist of:

- a number of outpatient HIV units, often located in district general hospitals;
- a smaller number of inpatient HIV units, likely to be located at hospitals with their own investigative and treatment facilities;
- one or more comprehensive HIV units providing the full range of HIV treatment services and with the potential to provide overall clinical leadership for the network, including research, education and audit.

The principles behind the development of service networks are very much in line with the broader NHS quality agenda (e.g. clinical governance) and the NHS Plan, with its vision of a health service designed around the patient.

In 1998, the British Medical Association's Foundation for AIDS responded to the work in London by facilitating the development of *Standards for NHS Hospital HIV Services*³, designed to drive service networks. In 1999, it moved on to initiate a project aiming to map and facilitate the development of NHS HIV service networks in areas outside London. (This complements a separate project on the implementation of service networks in London.)

The Foundation's project coordinator and a freelance researcher undertook in-depth interviews with

commissioners, clinicians, HIV voluntary organizations and service users in four areas of England: Kent, Surrey and Sussex in the south-east; west and north Yorkshire; the south-west; and the West Midlands. Through these interviews, they were able to map local service provision, including any existing networks, and identify local views on standards and networking. A one-day meeting in each area then enabled a larger number of local players to hear the project's findings and take part in facilitated discussions to aid the further development of their local networks. It was intended that those attending would take forward the work initiated at these meetings, without needing further support from the project.

What did we learn? How can our findings help service providers and commissioners in other areas? And what support is needed from policy-makers to encourage the further development and effective functioning of service networks?

Findings

We discovered that there was widespread misinformation about the meaning of 'service networks' and the implications of working within them. Some participants even believed that network development would mean the closure of all HIV services outside large urban centres. In fact, the model proposed for HIV services is for networks to be flexible and for patients' access to local services to be maintained, with pathways to specialized care and support when required. Centres treating small numbers of people with HIV are more likely to be able to meet quality standards for their care through liaison with neighbouring centres than alone, and we found some excellent examples of this. We believe a priority for the future must be to ensure that professionals are well informed about the implications of networking and have the opportunity to discuss fears and anxieties and learn from existing practice.

Even where there is local enthusiasm and commitment to developing a service network, it is not always clear who should take the lead in making it happen. Because of the nature of networking, mutual respect and joint ownership are crucial. However, network development does need to be coordinated. We met both commissioners and clinicians who were happy to cooperate with a lead taken by the other, but who were nervous of appearing to be 'taking over' themselves. We believe that if the government's forthcoming sexual health and HIV strategy recommends putting managed

service networks in place, it should provide the extra encouragement needed to enable busy commissioners and service providers to take action. However, this must be backed up by support for implementation, with offers of practical help and guidance.

Some networks have developed organically, around a comprehensive centre that provides a natural focus. A network may not have the same boundaries as a health authority or region, but may owe more to local transport links or even to where doctors did their HIV training. We believe networks are more likely to work effectively if these ties are built upon, rather than forcing centres to make links that may not make sense to them. As a result, sub-regional commissioning of service networks is probably the most useful approach in most areas.

Our interviews with service users and voluntary organisations enabled us to identify positive and negative aspects of service provision that were not always apparent from our interviews with service providers. We also heard how they had come up with creative ideas for service improvement, acceptable to both users and providers. Not surprisingly, the service users we spoke to were extremely supportive of initiatives to improve service quality. We believe the involvement of service users, and voluntary organisations providing HIV care and support, should be an integral part of network development and management.

We found a variety of networking models and practices already in place. Difficulties in some areas were contrasted with successes and innovation in others. Here are some examples.

- A busy genitourinary medicine (GUM) clinic in Dewsbury, Yorkshire, with a small number of HIV patients, works in collaboration with the other specialties in the district general hospital in which it is based. It has also formed a close link with a large neighbouring teaching GUM clinic in Leeds. A flexible and regularly updated protocol clarifies the roles of different professionals in the smaller centre and specifies when the larger centre should be contacted for advice, support or access to specialist services. Clinical development is based on evidence emerging from regular monitoring, and the consultant at the smaller centre can access professional networking meetings to maintain clinical knowledge. The result is a genuine partnership and an excellent standard of care.
- The health authority in Bristol decided to require two existing services, based in GUM and infectious diseases (ID) departments, to undergo a competitive tender. This resulted in the concentration of all HIV services at the ID unit. Some service users we spoke to were disappointed but others supported the consolidation and felt the service was of a high standard. Since centralization, some formal networking arrangements have been initiated, such as the establishment of protocols for patient referral between neighbouring GUM clinics and the Bristol centre.
- A collaboration with service users has developed in the south-west. The Treatment Support Project (run by the Terrence Higgins Trust and staffed by volunteers with HIV) collects and gives treatment information through a 'road show' in the Bristol and Bath HIV clinics and through support to individuals facing decisions about medication. The positive working relationship created between this project and clinicians seems to have been facilitated by the consolidation of hospital services mentioned above.
- Unlike Bristol, Birmingham has retained two centres carrying out all levels of HIV work. We heard concerns from some providers that this hindered collaboration over city-wide service planning, but the majority felt the existence of two centres was beneficial because it offered a choice to service users.
- Many consultants around the West Midlands are working in more than one centre or have organized mini-rotas within their health authority. This shows a degree of successful networking between smaller centres.
- An unexpected example of network development involves a medium-sized centre in Gloucester, which is asking larger centres to tender for the tertiary role in treating its patients. This means that the smaller centre in a networking relationship, far from being disempowered, can actually set the terms for partnership. This model should be of interest to other smaller centres around the country that fear that the development of service networks will mean a loss of control for local clinicians.

Feedback from the areas where we have worked indicates that our project has helped people overcome some of the barriers to networking. For example, a joint strategic plan for HIV commissioning has recently been developed for Kent, Surrey and Sussex. But there is much more to be done – disseminating information about networking, for example, and getting a consistent approach from policy makers with support for implementation.

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Contributions

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Hepatitis C infection: the patient, the health care worker, the drug treatments and the National Institute for Clinical Excellence

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The hepatitis C virus (HCV) was first isolated in 1989 and has been identified as one of the major causes of chronic liver disease throughout the world. Hepatitis C is a blood-borne virus. It can be transmitted (with blood) through transfusion and the use of blood products, through injecting drug use and through any other direct exposure to infected blood, including tattooing, piercing, sharing of toothbrushes and razors and, to a lesser degree, sex. The recognition that hepatitis C can contaminate blood products has led to screening procedures which have all but eliminated hepatitis C from therapeutic blood products. As a result, the major route of transmission is now through injecting drugs.

It is estimated that 170 million people are infected worldwide, and 0.4% of the UK population has been infected with the virus. Because of the short time that has elapsed since the identification of the virus and the undoubted long course of the disease in the majority of people, much of our knowledge of the natural history of hepatitis C is based on cross-sectional observational studies which have looked at the severity of disease in people who have been infected for differing periods of time. While such studies do not provide as clear a picture of the natural history as prospective studies that follow patients from the time of infection onwards, a consistent picture has begun to emerge.

The natural history of the disease

It appears that 15% of people infected are capable of clearing HCV within the first few months of infection. While these people do not have lasting immunity that will protect them from further infection, they do not appear to develop a progressive chronic hepatitis. However, the remaining 85% fail to clear HCV from their bodies and suffer from chronic hepatitis for the rest of their lives. The severity of this hepatitis varies enormously between individuals. It appears that three patterns of disease develop:

- A third of patients will suffer little in the way of liver damage over many decades of infection. This is defined as mild hepatitis C.
- A third of patients will develop some significant liver damage without progressing to cirrhosis of the liver. This is defined as moderate hepatitis C.
- The remaining third of patients will develop severe hepatitis C characterized by progressive liver fibrosis that will result in cirrhosis of the liver within 20 years of infection.

Once cirrhosis has developed, patients are at risk of both liver failure at a rate of 1–5% per year and hepatocellular cancer (liver cancer) at a rate of 3–5% per year.

Clinical course of the disease

In as much as 35% of those infected, hepatitis C is asymptomatic. In those who do develop symptoms, these are often so nondescript that they are not attributed to liver disease and the diagnosis may be hard to make. Tiredness, abdominal pain, joint pains, fevers and poor concentration are common symptoms of hepatitis C, but are also common in a wide variety of other conditions and not uncommon in healthy people. As a result, hepatitis C is often diagnosed late in the course of disease or almost accidentally in the course of investigation of other abnormalities, such as derangements of liver function tests identified during 'health checks'.

As indicated above, in approximately two-thirds of people with chronic hepatitis, the disease will progress to cause significant liver damage. These patients may or may not be symptomatic and are thus hard to identify. However, if the disease is allowed to progress unhalted, at least half of these individuals will die early from liver disease and the vast majority are likely to suffer significant ill-health due to liver disease before their death. This pattern of progressive decline can be altered dramatically by treatment.

Risks of transmission in health care

Recently, a number of episodes of nosocomial transmission from infected surgeons to their patients have been reported, some of which have been thoroughly investigated with 'look-back' exercises that have traced exposed and potentially infected individuals. The results of the look-backs have been surprisingly consistent in finding a transmission rate of 0.3% to 0.03% per 'exposure-prone procedure'. In contrast, the risk to health care workers of infection with HCV from an infected patient following a needlestick injury with a hypodermic needle is in the region of 3% (compared with 30% for hepatitis B virus and 0.3% for HIV).

Undoubtedly there are health care workers in full-time practice who are HCV-positive. If identified, treated and cleared of infection, current recommendations suggest that they should be allowed to return to full-time work. However, workers who are infected but not treated, and those who have been treated and

failed to clear infection, are advised to avoid exposure-prone procedures. Unlike the situation for hepatitis B virus, there is currently no strategy for screening for HCV and so the identification of health care workers who carry it relies entirely on opportunistic testing. It is unclear for how long this situation will continue.

Increasing recognition of the risks from blood-borne viruses associated with injecting drug use has complemented the steps taken to eliminate hepatitis C from blood products and has resulted in a reduction in the incidence of new infections since the early 1990s. However, the vast majority of patients with hepatitis C were infected before this period and are only now beginning to present.

Treatment options

Soon after the identification of HCV, standard treatment was with interferon alpha, a naturally occurring chemical produced by the body's immune defences to fight off viruses. Trials demonstrated three benefits. In approximately 16% of people, treatment led to the eradication of the virus and a lasting cure of hepatitis C. Interestingly, even if the virus was not eradicated it was apparent that the majority of treated individuals derived benefit from interferon alpha through a reduction in liver fibrosis and a reduction in the risk of liver cancer.

In 1998 further trials demonstrated a major advance in the treatment of hepatitis C through the addition of ribavirin to interferon alpha. These two drugs used in combination boosted viral clearance rates to 40%, making 'combination therapy' one of the most effective antiviral strategies in the pharmacological armamentarium, especially as the 40% response rate varied between 31% and 64%, depending on a number of prognostic variables. Further analysis of the trials showed that selected individuals (especially those with infections due to non-genotype 1 infections) derive as much benefit from six months of treatment with combination therapy as others derive from a year's treatment; this enables the duration of therapy to be tailored to patients' individual needs.

Advances in treatment are expected in the near future. The coming months will see the introduction of PEGylated interferon, a modified form of interferon alpha that is both longer acting (requiring only once-weekly dosing) and more effective in the treatment of hepatitis C, raising the sustained viral response rate to 54%. More specific antiviral drugs should follow in the coming years and even better viral response rates are expected. In addition, the development of antifibrotic drugs, directed at reversing or arresting the complications of long-term infection, should provide an important adjunct to current treatments.

Costing the treatment

Treatment with the effective drugs now available does not come without costs both to the patient and to the

exchequer. The side-effects of interferon include flu-like symptoms, depression, breathlessness, loss of appetite and a number of abnormalities on blood tests, which need to be monitored closely. Similarly, ribavirin carries a number of serious side-effects, the most significant of which is anaemia. Another major consideration is that ribavirin is teratogenic and so cannot be taken by people who are at risk of conceiving during treatment or for six months after the cessation of treatment.

The financial costs of treatment include the costs of the drugs, the diagnostic procedures that are used to determine suitability for treatment and the duration of treatment, and the additional nursing and medical care necessitated by treatment. The drug costs were initially perceived as expensive, being in the region of £11,000 for a year, although half the patients in the UK now receive drugs for six months only. However, health economic analyses that have taken account of the avoidance of the costs of chronic disease through curing HCV have shown that combination therapy is extremely cost-effective and compares favourably with many widely practised interventions, such as the treatment of hypertension or coronary artery bypass. Failure to fund treatment now will undoubtedly result in greater future costs due to untreated disease.

Health authority policies and NICE

Due to the misperception that the treatment of hepatitis C is costly, most health authorities in the UK have refused to fund combination therapy. A few health authorities agreed to fund limited numbers of patients, but this resulted in the creation of a 'post-code lottery', with patients in one area receiving treatment that was denied to their neighbours. The National Institute for Clinical Excellence (NICE) was established in part to eradicate inequalities in the provision of health care. The NICE committee addressed the issue of treatment for hepatitis C at the end of 2000 (see www.nice.org.uk). The guidance issued by NICE recognizes that combination therapy is both clinically effective and cost-effective. The committee recommends that all eligible patients with moderate or severe hepatitis C should be treated with combination therapy.

With £600 million identified by the government to fund NICE guidance (at least in part), it was assumed that health authorities would review their policies and allow patients to receive optimal treatment. However, this has not been the case and rationing continues. Most health authorities have agreed to provide funding for some eligible patients but few have agreed to fund all and some still refuse to fund any. For the health authorities that will fund a limited number of patients, clinicians are being expected to develop guidelines that will enable the health authorities to select who receives treatment and who is denied it. In addition, many regions lack the additional diagnostic services and nursing and medical support staff required to provide safe and effective treatment. Clearly, this inequity is exactly what NICE was designed to prevent.

Surgeons' sharps injuries and the risks of viral infection

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Surgeons are exposed to blood and sharp objects almost every day of their working lives. Fears of viral transmission from sharps injuries have existed for many years, perhaps peaking in the early 1980s in the UK; however, the feared HIV epidemics seen in other countries have not become evident for British surgeons. Every surgeon and, indeed, health care worker at risk of sharps injury should be vaccinated against hepatitis B, but hepatitis C has recently become a more significant threat to surgeons.

Since 1995, the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations have required documentation of possible transmissions from known virally infected patients. However, we do not know the denominator, which is the total number of needlestick injuries suffered by health care workers. This denominator represents an iceberg, of which the tip has been quantified by the reported surveillance data¹. From the up-to-date surveillance figures, which extend to 2001, it is apparent that, in the UK, reported incidents more commonly involve patients infected with hepatitis C virus (HCV) than HIV and hepatitis B virus (HBV) together.

Surgeons at risk

Among health care workers, surgeons have the highest occupational risk from sharps injuries, but tend not to declare these injuries as commonly as other health care workers, often citing reasons such as time constraints or excess paperwork. Surgeons' needlestick injuries are therefore difficult to quantify because of such under-reporting and also because injuries may even go unnoticed.

One study has shown that actual glove perforation rates during a surgical procedure can be as high as 54% and for every surgeon it has been estimated that there is a 1.6% rate of a sharps injury per operation². After the adoption of the so-called 'universal precautions', one paper revealed that 29% of surgeons admit to having at least one potentially serious exposure to body fluid per month; however, they rarely report these incidents³. Junior surgeons acting as the principal operator seem to be at greatest risk. In general, the risk for any surgeon depends upon the prevalence of viral infection among their patients, the likelihood of sharps injury (which seems to depend on the surgical subspecialty), the volume of blood transferred and the conversion rate for the specific virus.

We have previously shown that surgeons may report as few as one in 20 sharps injuries and base their reporting upon the perceived patient lifestyle risks⁴. Assessing the infective risks of patients by their reported lifestyles may be unreliable. A UK study showed that 25% of

patients found to be infected with HCV were identified as such only after the blood exposure incident⁵. A large UK obstetric study also demonstrated that the majority of patients found to be infected with HCV have not been previously identified by epidemiological risk factors⁶.

In industrialized countries, HCV accounts for 40% of end-stage cirrhosis and 30% of liver transplants, and about 2% of the US population as well as 2% of New York dentists now have antibodies to HCV. There is said to be an increased risk of HCV to health care workers; however, other studies suggest that they have no increased risk compared with their native population. In fact, calls to screen surgeons for HCV in the USA have not gained momentum, as it has been pointed out that, in the USA, surgeons and the public have a similar prevalence of HCV.

Risks of HCV infection

One Italian paper has estimated a surgeon's lifetime risk of acquiring HCV and HIV infection in some regions to be as high as 34.8% and 0.54%, respectively⁷. However, as chronic HCV infection is often asymptomatic, an additional risk is that of surgeons infecting their patients. A British study⁸ found evidence that a surgeon infected with HCV, acting as first assistant, had transmitted the virus to a patient per-operatively and a consultant gynaecologist was also found to be infected with HCV, which led to the tracing of over 1500 women whom he had operated upon. Since these cases, several more have appeared in the world literature. The above surgeons were usually identified only after investigation into the source of HCV infection in one of their patients found to have become infected.

Although at present there is no effective post-exposure prophylaxis, HCV treatment for 12 months with combined interferon and ribavirin has given a sustained response in 38–43% of patients. However, the course of treatment costs approximately £10,000 per patient and approximately one in five stops the treatment because of side-effects.

Reducing risks

General methods to attempt to reduce sharps injury in theatre include announcing the passing of sharps, avoiding handling suture needles and recapping needles, and the introduction of blunt needles. We do not know the uptake of such safety measures and whether they actually reduce the transmission of viral infections. Safer instruments, modified needles and cut-resistant gloves may reduce the risks of injury to theatre staff in the future. Double gloves may offer

some additional protection for the surgeon against needle perforations, but at the risk of impairing sensitivity or dexterity. Suture needles used in wound closure are the most likely cause of sharps injuries to the surgeon; however, by modifying technique, such as 'no-touch' closure, glove perforations may be reduced.

Given new treatments for HCV infection, some may advocate that surgeons and other health care workers carrying out exposure-prone procedures be screened, in order to treat anyone found to carry the virus. This would reduce the risk of an infected surgeon passing HCV to perhaps thousands of patients in a working lifetime. As for HIV, antibody positivity may take months to appear after inoculation; therefore testing may have to be undertaken regularly, as is currently the case for those not immune to HBV.

Viral seroconversion may be considered the result of an occupational injury and therefore a doctor may expect compensation if found to be infected. As most surgeons either never or rarely report needlestick injuries, their claim for occupational compensation may prove difficult.

Until HCV is accepted as a potentially fatal occupational risk, and until those at highest risk of spreading the virus are screened and offered treatment, there is a

risk that its prevalence will continue to increase and the risks to patients will remain a real concern.

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New books

The Immune System Cure: Optimize Your Immune System in 30 Days –The Natural Way

By Lorna A. VanderHaeghe and Patrick Bouic
£9.99, 262 pp., ISBN 1-9031-1636-8
Cico Books, 2001

Professor Patrick Bouic and health writer Lorna VanderHaeghe present a completely natural 'tried and tested' programme of diet, stress management and nutritional supplements designed to restore immune system function and maximize the body's ability to combat disease. Human trials are currently under way to assess the effectiveness of plant sterols in treating such conditions as rheumatoid arthritis, HIV and hepatitis C.

Nurses and Nursing: Influencing Policy

Edited by Pippa Gough and Nicola Walsh
£17.95, 128 pp., ISBN 1-8577-5353-4
Radcliffe Medical Press, 2000

'This book explores the ways in which nurses can be more involved in shaping the development of health policy. The contributors identify what knowledge and skills are needed by nurses ... it will be useful not only to nurses but also to other professionals working in the NHS.' (Chris Ham in the Foreword.)

Letter from America

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In January of this year, the Centers for Disease Control and Prevention (CDC) released a report entitled *HIV Prevention Strategic Plan Through 2005* (<http://www.cdc.gov/nchstp/od/news/prevention.pdf>). The document describes the current status of HIV infections and AIDS in the USA and the CDC's plans for assisting those living with AIDS, as well as for curtailing/reducing new infections in the future.

The CDC estimates that there are 40,000 new HIV infections per year in the USA. While this figure has remained relatively constant over the last five years, the composition of the patient population has been changing. In addition to those groups which have been at the highest risk of acquiring the disease in the past, that is, men who have sex with men and injecting drug abusers, reports received by the CDC indicate that the rate of HIV infections is increasing in racial and ethnic minorities, that is blacks, Hispanics and Native Americans, especially adolescents and women.

Seventy per cent of all new infections occur in men; 60% are either homosexuals or bisexuals, 25% are injecting drug abusers and 15% are heterosexuals. Members of each of these populations may be involved in more than one high-risk behaviour. Women account for some 30% of new infections; more than 75% acquire infections through sexual encounters.

The prevalence of HIV is higher among African Americans than any other racial or ethnic group investigated by the CDC. African American males account for more than half of all new infections in males, and the majority of these (60%) acquire HIV through homosexual or bisexual activities. African American women are also disproportionately represented among new female cases of HIV infections, as they account for almost two-thirds of these. While Hispanics represent 13% of the population, they represent approximately 18% of new HIV infections in women and 20% of the cases in men.

The advent of new drug modalities that delay the onset of AIDS and reduce the viral load in infected people to below detectable limits is a double-edged sword. Research has demonstrated that the optimistic attitudes concerning these drugs may be contributing to increased risk behaviour among young homosexual and bisexual males, as well as among members of other HIV risk groups. Moreover, the increasing numbers of people living longer with HIV may be creating an ever-expanding reservoir of HIV.

However, there have been successes in the management of HIV infections in the USA. For example, the mother-to-child transmission has been dramatically reduced from a high of 2,500 perinatal HIV infections in 1992 to a recent estimated 400 such infections per

year. This decrease is due to widespread HIV counselling and voluntary testing of pregnant women, along with the availability of new drugs to interrupt transmission from the mother to her child. In addition, HIV seroprevalence among injecting drug abusers in New York City dropped more than 40% during the 1990s. In order to reduce the number of HIV infections further and to decrease the transmission of HIV, the CDC has proposed as a national goal to reduce, by the year 2005, the number of new infections from the current estimate of 40,000 to 20,000 per year by implementing the following four objectives:

- decreasing by at least 50% the number of persons at high risk for acquiring or transmitting HIV infections, through the delivery of targeted, sustained and evidence-based HIV prevention interventions;
- increasing from the current estimated 70% to 95% the proportion of HIV-infected people who know through voluntary counselling and testing that they are infected;
- increasing from 50% to 80% the proportion of HIV-infected people who are linked to appropriate prevention, care and treatment services;
- strengthening the nationwide capacity to monitor the epidemic, and to develop, implement and evaluate effective HIV prevention programmes.

All these objectives must be met to achieve the national goal. Obviously, reducing the number of persons who continue high-risk behaviour is a critical first step. According to current estimates, between 4 and 5 million people continue some form of behaviour that places them at risk of acquiring HIV infection. It is likely that this is an underestimate, due to both inaccurate reporting by the participants in the national survey and the exclusion of individuals in institutional settings such as schools, prisons and the military.

Ensuring that those infected with HIV are aware of their status will increase the numbers receiving the benefits of drug therapy. In addition, these individuals could obtain, through counselling and other forms of support, the information that they need to prevent them from transmitting the infection. Those at risk for, or living with, HIV infection are often also at risk for other health problems. Therefore, integrating HIV prevention with other health services – such as screening and treatment for sexually transmitted diseases and tuberculosis, and mental health services – will make it easier for individuals to obtain appropriate care. Finally, developing and sustaining the necessary infrastructure to evaluate these HIV prevention objectives will provide the mechanisms needed to adjust the programmes continually in order to achieve the national goal.