

AIDS & HEPATITIS Digest

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The fate of abstracts presented at the International AIDS Conference

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Scientific conferences allow for important networking opportunities and are one of the most effective ways in which researchers can establish themselves as part of the broader research community. Abstract-driven sessions at national and international conferences are an extremely valuable way of sharing information and form an integral part of research, by providing a critical forum for the dissemination of new research findings.¹ Conference delegates may even decide to change their clinical practice based on the findings presented in an abstract.² However, past investigations have also found that researchers and clinicians should be wary of basing any decision on information obtained from an abstract, as the data they present are often incomplete and inconsistent with the final findings of the study.^{3,4} Therefore, while conference presentations may facilitate the rapid dissemination of new findings, the natural and final outcome of any research project should be the publication of its findings in the shape of a full-length, peer-reviewed journal article.⁵

Dissemination of research findings through the medium of journal publication brings with it the added assurance that those findings, together with the methods used, have been subjected to thorough preparation, stringent peer review and extensive analysis before acceptance of the paper reporting them.⁵⁻⁷ Published peer-reviewed journal articles have a number of potential benefits over published conference abstracts:

- journal readership increases awareness of the existence of a piece of research and reduces the likelihood that it will be needlessly replicated;
- a more robust peer-review process provides the reader with a greater level of quality assurance and can even improve the quality of a manuscript by requiring more data and further analysis;
- the greater depth and detail of reporting allow readers to critically assess the validity, reliability and generalizability of a study's findings;
- a larger potential audience facilitates the wider dissemination of new findings than can be achieved at conferences alone;
- there is a greater potential reward for both authors and their employers in terms of enhanced reputation and standing, for example through an improved curriculum vitae or research assessment exercise;
- there is an increased probability of the research being referenced by others;
- there is an increased probability of a study's inclusion in a systematic review.^{1,3,5,7}



However, while it is often assumed that all abstracts presented at conferences will eventually be expanded into published, full-length journal articles, a systematic review by Scherer *et al.* combining data from 79 studies (29,729 abstracts) reported that, on average, less than half (45%) were subsequently published as full-length journal articles.⁸ Failure to expand research abstracts presented at conference into full-length journal articles can deprive the scientific community of important results, seriously limiting their clinical utility and use in supporting or refuting other research findings.^{7,9-11} This can have a major impact on the treatment of patients. A failure to publish also presents a particular problem to systematic reviews, as there is a good chance they may miss research that could potentially influence their results.¹⁰ For these reasons, studies that evaluate rates of publication have been encouraged by the research community and are generally being conducted in a growing number of areas.⁸ However, while studies have been conducted on the subject of abstract publication rates in a wide variety of medical specialties,⁸ no past study has evaluated the fate of conference abstracts within the field of HIV/AIDS.

Scope and purpose of the study

The aim of this study was to examine the fate of all research-based abstracts presented by UK-based researchers at the 13th International AIDS Conference (IAC) in July 2000 by determining their rate of publication in peer-reviewed, indexed journals. The reasons why researchers do not expand their abstracts into full-length journal articles were also explored.

Methods

Published listings of all abstracts accepted for presentation at the 13th IAC were obtained from the AIDS Educational Global Information System. The details of each abstract were jointly reviewed by two experienced researchers using pre-determined inclusion/exclusion criteria to identify those abstracts that:

- were submitted by authors who had supplied a UK contact address;
- reported evidence from primary research which had used established scientific methods to systematically collect and analyse data.

Those abstracts that did not meet these inclusion criteria were excluded from the study.

Corresponding full-length journal articles were searched for by scanning the Medline electronic database on the OVID interface for the 65-month period following the 13th IAC (July 2000) and the 271 months before the Conference – that is, January 1978 to December 2005, inclusive. This timeframe was chosen as it allowed adequate time for abstracts to be expanded into full-length journal publications and it also allowed for the capture of any articles that may have been published before the 13th IAC.

Only full-length articles that corresponded to the information supplied in the abstract were accepted as evidence of publication. Letters, reviews and editorials were all excluded. A published journal article was considered to be reporting the same study as the one presented by the conference abstract by examining for concordance the title, author name(s), subjects, research question, study methodology, sample size and results/conclusions. If a match was found for a particular abstract, then that abstract was considered to have been published as a full-length article. If it was unclear from the information provided by Medline searches whether or not a particular publication corresponded to the abstract in question, then the full-text article was retrieved for further review using the same criteria as previously described. If the information that appeared in the conference abstract represented only a very small part of a published article, and the primary aims and conclusions were different, then that abstract and that article were considered to be discordant and the article was excluded. No attempt was made to check for multiple articles arising from a single abstract; once a match was found, the search process was concluded. The publication rate was calculated by dividing the number of research-based abstracts presented by UK-based researchers by the number of resulting published articles.

Abstract authors were also emailed questionnaires asking whether they had published the research they had presented as an abstract at the 13th IAC. Two months after this initial email, hard copies of the questionnaire, abstract and a cover letter were mailed to all those authors who had not responded to the initial email. Authors were given four months (until December 2005) to respond before they were considered to be a 'non-responder'.

Results

Of the 5155 abstracts accepted for presentation at the 13th IAC, 139 were found to have been both research based and presented by UK-based researchers. Of these 139 abstracts, 47 were found to have yielded articles that were published in peer-reviewed journals within the search period – a publication rate of 34%. Twenty-seven (29%) of the 92 unpublished abstracts described studies related to treatment, adherence or resistance issues.

Of the 47 abstracts that were published, 19% were published in the year 2000, 38% in 2001, 23% in 2002, 13% in 2003, 4% in 2004 and 2% in 2005; 85% of articles were published within the first three years after the Conference and 98% were published within four years (Figure 1). The mean time to publication was 19 months and the median time was 16 months, with a minimum time to publication of -2 months (i.e. two months before the IAC) and a maximum of 59 months.

Eighteen non-publishing authors returned a questionnaire. Of these, eight said they had not submitted manuscripts because 'they lacked sufficient time to

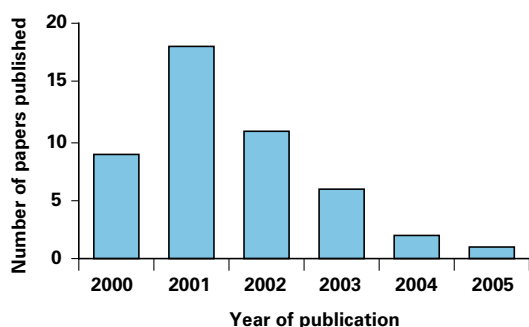


Figure 1. Number of articles published each year (n = 47).

write-up their findings'; four reported that they thought 'the study was too small to warrant journal publication'; two believed that 'their findings were not interesting enough to merit publication'; one reported that the study had been terminated before completion; one blamed the loss of a project leader; one reported that they 'lacked the resources'; and another failed to give a reason.

Discussion

A publication rate of 34% is relatively low when compared with the results from Scherer *et al.*,⁸ whose Cochrane review of 79 studies (looking at a total of 29,729 abstracts) reported a weighted mean publication rate of 45%. Of the 47 published articles in the present study, 85% were published within three years of the 13th IAC and 98% were published within four years, with a mean time to publication of 19 months (median 16 months).

It is possible that the broad range of practice and research interests of presenters at the IAC compared with other, more focused conferences meant that many published articles were not found, as they were published in journals that are not indexed by Medline. Many of the research abstracts that were presented at the IAC by non-governmental organizations and consumer groups might also have been expanded into articles that were designed to reach a wider, more popular audience and so never appeared in scientific journals. And, of course, for many researchers conference presentation is the only intended final outcome of their research; that is, they submit an abstract without ever having the intention of publishing the results in a full paper.

Another reason behind the low publication rate could be that the IAC's goal of increasing participation and encouraging the free exchange of ideas among investigators resulted in the perception of a more liberal peer-review process than abstracts submitted to conferences in other fields. Some scientists have even tried to portray the IAC as an inappropriate venue for the presentation of first-class results, arguing that the quality and quantity of scientific presentations are below what are commonly found at more specialized conferences.¹² Consequently, many scientists may

choose to stay away, which might help to explain why the number of abstracts submitted by scientists has fallen to about half the numbers received by other (i.e. non-scientific) researchers since the Conference was created.¹² Therefore, it might be unrealistic to expect a conference such as the IAC to have a publication rate as high as more specialized conferences.

Non-publishing authors who returned a questionnaire indicated that the two main reasons why they had not submitted manuscripts for publication were: lack of sufficient time to write-up their findings; and the study was too small to warrant journal publication. Several other investigations have also highlighted 'lack of time' as being the main reason for researchers not publishing their findings presented at conferences.^{1,13,14} However, whatever the reasons for the relatively low publication rate, the failure to publish has a number of serious consequences for researchers and practitioners working in the field of HIV/AIDS. Of the 92 abstracts in the present study that were not expanded into full-length articles, 27 described studies related to areas of research that are of particular importance to patients, namely treatment, adherence and resistance issues. This research has effectively become lost.

Conclusion

Conferences provide a critical forum for the dissemination of new research findings. However, much of the research presented by UK-based researchers in the abstract-driven sessions at the 13th IAC was not expanded into full-length publications in indexed journals. That only around a third of the findings presented by UK-based researchers at such a prestigious scientific conference are subsequently published as full-length journal articles should be of major concern to practitioners, researchers, patients, conference organizers and the general public alike. The underreporting of results can have serious implications for clinical practice,¹⁵ potentially depriving the scientific community of important results,^{7,9-11} and biasing the findings of systematic reviews towards a false treatment effect.⁶ A failure to publish can even cost lives.¹⁶

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Report from the 43rd annual meeting of the European Association for the Study of the Liver

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New combinations of antiviral agents for hepatitis C infection are entering phase III clinical trials, after consistently promising phase II results, as reported at this year's meeting of the European Association for the Study of the Liver (EASL), held in Milan, 23–27 April. Today's patients infected with the hepatitis C virus (HCV) are, though, being warned not to wait for the next generation of treatments to reach the clinic, but instead are being urged to take advantage of the growing range of *à la carte* treatment options based on conventional dual therapy with pegylated interferon alfa and ribavirin.

Over 7400 liver disease specialists, attending the largest ever EASL meeting, packed congress halls for presentations on the novel protease inhibitors telaprevir and boceprevir, and the polymerase inhibitors R1626 and R7128, and queued to read posters on these and other agents in development.

Professor Stefan Zeuzem, from Saarland University Hospital, Homburg/Saar, Germany, predicted that the success of the new treatments will depend on finding the best way to combine them with each other and with pegylated interferon alfa and ribavirin to avoid resistance, and by optimizing patient adherence to therapy. In a comprehensive summary of key data presented at the meeting, he predicted two possible future scenarios. In the first, immunostimulatory agents will be combined with antiviral agents to eradicate HCV, with novel protease and polymerase inhibitors ultimately being substituted for interferon and ribavirin. Or, in the alternative scenario, the new generation of anti-HCV agents will prove so effective, without significant cross-resistance, that a combination of pegylated interferon alfa and two or three protease/polymerase inhibitors will prove the solution, without the need for immunostimulatory agents. But, like many other speakers, he predicted that it could be 5–10 years before the optimal solution becomes clear. So HCV patients who want

to delay treatment in the hope of shorter courses of drugs with fewer side-effects may risk developing more serious liver disease while they wait.

Progress with protease inhibitors

Triple therapy with the HCV protease inhibitor telaprevir and standard peginterferon alfa and ribavirin could cut treatment time for genotype 1 patients to 24 weeks, or even 12 weeks, according to data from the phase II PROVE studies reported extensively at the conference. Over 60% of genotype 1 patients achieved a sustained virological response (SVR) with triple therapy for 12 weeks, followed by pegylated interferon alfa-2a and ribavirin for 12 weeks, compared with less than 50% of those who had standard pegylated interferon alfa-2a and ribavirin for 48 weeks (Table 1). Results with triple therapy for 12 weeks with no further treatment have proved less consistent, but SVR rates may compare to those achieved with longer courses. Leaving ribavirin out of treatment schedules does not seem to be an option as the SVR rate fell below 40% with telaprevir and pegylated interferon alfa-2a alone.

Telaprevir-related rash continues to be the most noteworthy adverse event of treatment. In PROVE 1, 7% of patients taking triple therapy had severe rash requiring discontinuation of treatment, 13% had modest rash and 35% mild rash. Presenting the data, Professor John McHutchison, from Duke University, Durham, USA, explained that the rash was maculopapular and more severe than that seen with interferon, appearing 60–80 days after the start of treatment.

Dr Christophe Sarrazin from the JW Goethe University Hospital, Frankfurt, Germany, reported a resistance rate of 5% among patients treated with triple therapy in the PROVE studies, compared with 24% in those who had telaprevir and pegylated interferon alfa-2a.

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AIDS & Hepatitis Digest design and production by R. J. Footring Ltd, Derby, UK.

Printed by Typos Hellas, Athens, Greece.

Which treatment first?

Establishing HCV patients on pegylated interferon alfa and ribavirin before they start protease inhibitor therapy may be the best way to administer triple therapy, according to initial results from the ongoing SPRINT-1 phase II study of the protease inhibitor boceprevir. Dr Paul Kwo, from Indiana University School of Medicine, Indianapolis, USA, reported an SVR rate 12 weeks after the end of treatment (SVR12) of 57% in patients treated with peginterferon alfa-2b and ribavirin for 4 weeks before boceprevir was added for a further 24 weeks. This was similar to the SVR12 of 55% achieved when patients were treated with boceprevir, peginterferon alfa-2b and ribavirin triple therapy for the full 28 weeks. Relapse rates were 18% and 19% respectively, but were lower for patients with undetectable virus at week 4 of boceprevir treatment (8% and 12%, respectively). Other arms of the trial – with extended treatment for 48 weeks, with or without boceprevir – have not yet been completed. Boceprevir treatment was well tolerated, with the incidence of skin rash or pruritus similar to that seen with pegylated interferon and ribavirin alone.

A sub-analysis of data from African-American patients suggested that this normally difficult-to-treat group may benefit from the triple-therapy approach

used in SPRINT-1. Of such patients, 45% achieved SVR12, compared with the less than 25% seen in earlier studies of pegylated alfa interferon and ribavirin. In line with a growing body of evidence of the predictive value of rapid virological response (RVR), 85% of patients with undetectable virus achieved an SVR, and RVR rates were highest in patients who received peginterferon alfa-2b and ribavirin before boceprevir treatment (60% versus 39%).

Early promise of new polymerase inhibitors

Following the disappointment of poor SVR data with valopicitabine at last year's EASL annual meeting (as reported in the July 2007 issue of the *Digest*), delegates at this year's EASL welcomed promising early results with the polymerase inhibitor R1626. Dr David Nelson,

Table 1. Key phase II trial data with telaprevir triple therapy (24 weeks after end of treatment)

	PROVE 1		PROVE 2	
	SVR	Relapse	SVR	Relapse
Pegylated interferon/ribavirin for 48 weeks	41%	23%	48%*	20%
Telaprevir/pegylated interferon/ribavirin for 12 weeks followed by pegylated interferon/ribavirin for 36 weeks	67%	6%	–	–
Telaprevir/pegylated interferon/ribavirin for 12 weeks followed by pegylated interferon/ribavirin for 12 weeks	61%	2%	68%	14%
Telaprevir/pegylated interferon/ribavirin for 12 weeks	35%	33%	62%	29%
Telaprevir/pegylated interferon for 12 weeks	–	–	36%	48%

*12 weeks after end of treatment.

Both PROVE 1 and PROVE 2 recruited treatment-naive, genotype 1 HCV patients.

from the University of Florida, Gainesville, USA, reported an end-of-treatment (EOT) response of 84% in genotype 1 patients treated for 4 weeks with R1626 1500 mg combined with peginterferon alfa-2a and ribavirin, followed by 44 weeks of peginterferon alfa-2a and ribavirin alone. This compared with EOT responses of 66% and 52% respectively in patients treated with dual therapy with R1626 (3000 mg or 1500 mg) and peginterferon alfa-2a for the first 4 weeks, followed by 44 weeks of pegylated interferon alfa 2a and ribavirin, and 65% in patients who received standard peginterferon alfa-2a and ribavirin for the full 48 weeks.

Development of another polymerase inhibitor, R7128, is at an earlier stage. But the 85% RVR reported in 20 HCV genotype 1 patients treated with R7128 (1500 mg) together with peginterferon alfa-2a and ribavirin was considered promising – given the predictive value of RVR (see below). The response was associated with a 5.1 log₁₀ reduction in viral load.

RVR may predict better than genotype

Patients infected with HCV who get an RVR after treatment are 7.5 times more likely to achieve an SVR than those who do not get an RVR ($P < 0.0001$). Those with low-risk, genotype 2 disease are only around 1.3 times more likely to get an SVR than those with higher-risk, genotype 1 disease ($P = 0.16$). These findings, presented by Dr Michael Fried, from the University of North Carolina, Chapel Hill, USA, suggest that RVR may be a better predictor of SVR than genotype. The analysis, based on the results of four pivotal clinical trials with 1333 patients, treated with the combination of pegylated interferon and ribavirin, showed that patients of all genotypes who achieved an RVR had at least an 85% likelihood of achieving an SVR. He recommended that HCV treatment should now be tailored to RVR rather than genotype.

Twelve-week courses for genotype 2/3?

Most genotype 2 and 3 patients who achieve an RVR can be cured with only 12 weeks of treatment with peginterferon alfa-2b and weight-based ribavirin regimens, and only overweight patients (defined as a body mass index > 27 kg/m²) or those with advanced liver damage need a standard 24-week course of treatment. These were the conclusions of Dr Alessandra Mangia, from the IRCSS, San Giovanni Rotondo, Italy, when she presented the results of a study of 718 genotype 2/3 HCV patients treated in 11 Italian centres. Of these, 496 achieved an RVR (69%). This group received 12 weeks of treatment with peginterferon alfa-2b and weight-based ribavirin, and 409 (82%) achieved an SVR. Sixty-seven patients (14%) relapsed. A multi-factorial analysis showed that patients with advanced liver damage (platelet count $< 140,000$ /mm³) were 3.7 times more likely to relapse and those with a body mass index > 30 kg/m² were three times more likely to relapse. A significant proportion of relapsers were

still able to achieve an SVR as a result of retreatment with a standard 24-week regimen. Forty-three of the 67 patients who relapsed in the study agreed to 24 weeks of retreatment with peginterferon alfa-2b and weight-based ribavirin, and 77% achieved an SVR, with two patients having a second relapse.

Retreatment success rates edge upwards

Just as RVR is highly predictive of SVR in HCV patients undergoing treatment for the first time, week-12 response is a valuable indicator of good outcome in patients undergoing retreatment. Results from the EPIC³ retreatment trial reported at EASL showed that 56% of patients with undetectable virus after 12 weeks of peginterferon alfa-2b and ribavirin therapy achieved an SVR with a 48-week course of treatment. This compared with just 12% of those who had achieved only a ≥ 2 log₁₀ decrease in viral load at week 12, and none of those who had achieved ≤ 2 log₁₀ decrease at week 12.

Lead investigator for EPIC³, Professor Thierry Poinard, explained that, in those with undetectable virus at week 12, HCV genotype and baseline fibrosis score were the key further predictors of SVR. He recommended *à la carte* treatment for today's hepatitis C patients, with the dose and duration of therapy tailored to pre-treatment risk factors and on-treatment response.

Better patient education improves adherence and outcome

Educating HCV patients about their disease and the importance of their treatment can significantly improve their adherence to treatment, and so their likelihood of achieving an SVR. The first prospective study of adherence to 'real life' treatment of genotype 2/3 HCV has shown that patients who undergo educational sessions with a health-care professional other than their prescribing physician and who receive educational literature are more likely to take their pegylated interferon and ribavirin than those who have standard treatment support. In the CheObs study, Dr Patrice Cacoub, from the Hôpital Pitié-Salpêtrière, Paris, France, and colleagues, reported that, after six months of treatment, 61% of educated patients were adhering to pegylated interferon and ribavirin, compared with 47% of non-educated patients ($P < 0.01$). The value of education appears to have been most pronounced for ribavirin treatment, with 70% of educated versus 56% non-educated patients adhering to treatment ($P < 0.006$). The SVR rate was higher in the educated than in the non-educated group (77% versus 70%, $P = 0.05$). After adjustment, the statistical significance of the effect of education on adherence remained (odds ratio 1.58, $P = 0.04$) but was borderline for SVR (odds ratio 1.54, $P = 0.06$).

Jenny Bryan's attendance at the EASL meeting and reporting of it were supported by Schering-Plough.

Forty per cent of gay men with HIV do not know they are infected

A survey of gay men questioned at gay venues in cities across the UK has found that most of those with undiagnosed HIV infection assumed they were HIV negative. Most of them had previously tested negative and thought they were in the clear. It is feared that these men could unknowingly be putting others at risk. These are the findings of a study led by Dr Lisa Williamson at the UK Medical Research Council's Social and Public Health Sciences Unit in Glasgow and published in the journal *AIDS*. The surveys were carried out in Glasgow and Edinburgh by the Medical Research Council, and in London, Brighton and Manchester by the University College London Centre for Sexual Health and HIV Research.

In total, 3500 gay men were questioned. They provided oral fluid samples to be tested anonymously for HIV antibodies. Nine per cent were HIV positive but just under half of them did not realize.

The study also found that risky sexual behaviour was more common among men who were aware of their HIV-positive status than among men who were undiagnosed or HIV negative.

Dr Williamson said:

Our study shows a clear need for a reinvigorated and targeted approach to HIV prevention among gay men in the UK. We need to promote condom use and risk-reduction strategies even in men who are regularly tested.... Clinics should offer HIV testing and risk reduction advice to all gay men presenting as well as offering repeat testing to men who are found to be HIV negative but report high-risk behaviours.... Maintaining safe sex practices long term may be what men are finding difficult. Although some men could be taking steps to reduce the risk of HIV transmission, one in three men with diagnosed HIV reported having unprotected anal sex with a partner whose HIV status was unknown or different to their own.

Source: Medical Research Council press release, 16 June 2008

Survey of gay men clarifies targets for HIV prevention work

A UK report published in July clarifies the key groups of gay men who are at highest risk of HIV transmission. The report, *Multiple Chances*, presents the findings from the Gay Men's Sex Survey 2006, which was undertaken by Sigma Research and commissioned by the Terrence Higgins Trust. It shows that certain groups of gay men are more likely to be involved in risky behaviour, and calls for commissioners and providers of HIV prevention services to target their work at these groups to reduce the number of new HIV infections across the UK.

Multiple Chances suggests that the groups of gay men who should be particularly targeted by HIV prevention programmes are:

- men with diagnosed HIV
- men with over 30 sexual partners per year
- black African and black Caribbean men
- men with lower levels of formal education
- younger men, especially those under 20
- men who use recreational drugs.

Peter Weatherburn, Director of Sigma Research, said:

Multiple Chances confirms what we have known for some time – that HIV does not affect all groups of gay men and bisexual men equally. The challenge now is to reconfigure our HIV prevention efforts so those men in most need get the most benefit from them.

Multiple Chances is available for download at www.sigmaresearch.org.uk/go.php/reports/report2008c.

Source: Terrence Higgins Trust press release, 1 July 2008

HIV in disasters and crises

To address what this year's *World Disasters Report* calls a long-term and complex disaster, HIV should be given much higher priority in

disaster management programmes, whether in preparedness and risk reduction, or during emergency response and recovery. The report, launched in June by the International Federation of Red Cross and Red Crescent Societies, highlights the need for humanitarian organizations, working in partnership with governments and local communities, to increase the scale and scope of programmes for HIV prevention, treatment and care, and for tackling the associated stigma and discrimination.

According to UNAIDS, almost 7000 people contract HIV every day – and without a major change in the epidemic's trajectory, AIDS will claim millions more lives. Since 1981, more than 25 million people have died of AIDS, and some 33 million are currently living with HIV.

HIV is a disaster on many levels. In the most affected countries in sub-Saharan Africa, where prevalence rates reach 20%, development gains are reversed and life expectancy halved. For marginalized groups across the world – injecting drug users, sex workers and men who have sex with men – rates are on the increase. Yet they often face stigma, criminalization and little, if any, access to prevention and treatment services.

Disasters, man-made and 'natural', disrupt basic services, exacerbate other drivers of the epidemic, and can increase people's vulnerability to HIV infection. People living with HIV are among the groups most vulnerable in disaster and crisis situations. But, at the same time, they have much to offer and their fuller participation is crucial to tackling the epidemic.

The International Federation's Secretary General, Markku Niskala, said:

This year's *World Disasters Report* is the first to focus on one condition and with good reason. For sub-Saharan African societies that are torn apart by HIV and for numerous marginalized groups worldwide, who are left to cope with death, disease and destitution, HIV is undoubtedly a disaster. The humanitarian community must rise to the challenge of HIV, especially in the context of the further challenges thrown up by

climate change, migration, and the culture of violence that is prevalent in many societies.

The report not only analyses the economic, social and intellectual toll of HIV and AIDS but also details the challenges the epidemic presents to governments, humanitarian organizations and local communities. HIV must be integrated into all forms of humanitarian assistance, including health care, nutrition, social programmes and security, whether in emergency operations or in long-term development programmes. HIV, the report contends, should not be set aside because other priorities seem to be more important.

Lindsay Knight, editor of the *World Disasters Report*, explained:

The HIV and AIDS epidemic is a disaster whose scale and extent could have been prevented. Ignorance, stigma, political inaction, indifference and denial all contributed to millions of deaths. The report dispels myths about those 'other' people who spread HIV – refugees, migrants, people escaping from conflict and poverty. We must all do much more to eradicate stigma.

Fighting bureaucracy, simplifying procedures, improving coordination, confronting gender inequalities and involving local communities, including people living with HIV, are among the solutions suggested. Better preparedness for emergencies, reducing risk and further research into HIV's impact on people living in disaster zones are also needed.

A final chapter deals with the funding of HIV programmes and details possible corrective measures by donor governments and partners.

Source: International Federation of Red Cross and Red Crescent Societies press release, 26 June 2008

Childhood protection against hepatitis

Children should be vaccinated against hepatitis to prevent the spread of medicine-resistant strains of the disease, according to a report published in July by the Association

of the British Pharmaceutical Industry (ABPI). Strains of hepatitis B are becoming increasingly resistant to treatment, according to the report, *Target Hepatitis*, which states that the disease can be prevented through the widespread use of vaccines.

The ABPI's Medical Director, Dr Richard Tiner, said:

A programme needs to be put into place to ensure that all British children are inoculated against hepatitis B. It is a matter of public health. Much of the rest of Europe operates mass childhood vaccination programmes; it is time that the UK followed suit. Hepatitis B is becoming increasingly resistant to antiviral medicines. Once a patient is infected, the disease is difficult to control. We need to focus on the importance of prevention.

According to *Target Hepatitis*, hepatitis B will rapidly become resistant to treatment as mutant forms emerge. In 20% of cases, patients with the condition will find that the disease has mutated within the first year of treatment to the extent that it no longer responds to medicines. Within the first five years of treatment, the number of people who become immune to antiviral medicines rises to 70%.

The UK pharmaceutical industry is developing many innovative new medicines aimed at controlling resistant strains of the disease.

Target Hepatitis examines all variants of the disease, including hepatitis B, hepatitis C and hepatitis D and has been produced in association with the British Liver Trust, Hepatitis C Trust and Hepatitis B Foundation UK. The full report can be found online at www.abpi.org.uk.

Source: ABPI press release, 2 July 2008

Hepatitis C virus may need enzyme to cause liver disease

A key enzyme may explain how hepatitis C infection causes fatty liver – a build-up of excess fat in the liver, which can lead to life-threatening diseases such

as cirrhosis and liver cancer – researchers at the University of Pittsburgh Graduate School of Public Health and School of Medicine have reported. The study, published in the 9 July online issue of *Hepatology*, shows that an enzyme known to play a major role in lipid production, fatty acid synthase (FAS), was highly elevated in human liver cells exposed to the hepatitis C virus. While preliminary, the research suggests that testing for elevated levels of FAS could help determine which patients with hepatitis C may go on to develop more serious, long-lasting health consequences brought on by fatty liver.

Nearly 200 million people worldwide are infected by hepatitis C, and some 70% of people with hepatitis C develop chronic liver disease. Unlike hepatitis A and B, there is no vaccine to prevent hepatitis C infection. Since hepatitis C typically has no symptoms, many people do not know they have the infection until they develop signs of liver failure or fatty liver, sometimes decades after infection. The virus replicates and mutates quickly, helping it to evade discovery and attack by the immune system and allowing it to slowly wreak damage on the liver.

The study's lead author, Tianyi Wang, of the Department of Infectious Diseases and Microbiology, University of Pittsburgh Graduate School of Public Health, said:

Viruses are very complex, so it is challenging to determine what proteins may be at play in their survival and growth. The proteomic approach we used revealed many proteins linked to hepatitis C that may be worthy of further study, but FAS appears to be the protein most strongly associated with the production of fatty acids that can cause liver disease. Our next step in this research is to see how high the level of FAS is in tissue samples from hepatitis C patients and determine whether elevated FAS levels directly result in overproduction of fat in livers. If we learn that FAS is highly present in tissue, testing for it may be a way to predict those at risk for liver disease.

Source: University of Pittsburgh press release, 9 July 2008