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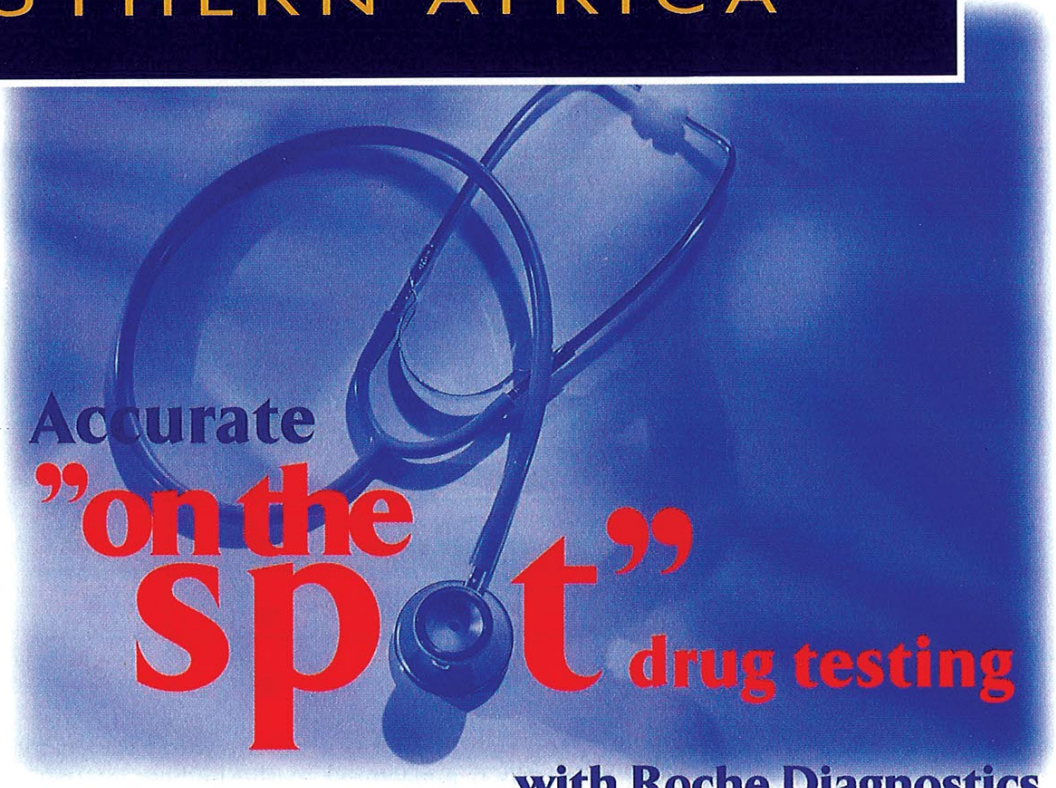
CONTINUING PROFESSIONAL DEVELOPMENT

Occupational HEALTH
SOUTHERN AFRICA



Vol 5 No 6 November/December 1999

ISSN 1024-6274

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Nov/Dec 1999
Vol 5 No 6

This journal focuses on Occupational Health, Medicine, Hygiene and Safety, Primary Health Care at the workplace, Environmental Health and other employee health benefits

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Occupational HEALTH SOUTHERN AFRICA

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The Growing Challenge of HIV/AIDS

The well-established red ribbon symbol of HIV/AIDS is rapidly becoming a popular lapel choice of politicians and newsreaders. This is a signal that HIV/AIDS is entering these high profile persons' consciousness as well as indicating their commitment to raise the awareness of HIV/AIDS among their supporters. These gestures need resonance in the workplace.

An adequate response to the HIV/AIDS epidemic, however, needs to go beyond symbols and gestures. Much has been learnt about HIV/AIDS in the workplace in terms of prevention, management and impact. Employers and employees, especially those with defined responsibility for HIV/AIDS in the workplace, need to re-examine their contributions to help stem the tide of future infections and mitigating the impact of existing infections.

HIV/AIDS Resources

Employers and employees have a wealth of resources at their fingertips. A description of the broad impacts of HIV/AIDS in South Africa and the priority responses required was recently distributed by the Department of Health; guidelines for developing workplace policies and programmes for HIV/AIDS are available; an excellent resource manual dealing with HIV/AIDS and the Law has been published; and numerous Internet sites are now available, offering excellent search facilities for education and prevention, medical aspects, social issues and statistics and epidemiology.

Priority Issues

Resources need to be employed and modified for the specific context. Even so, they remain tools for use by responsible individuals and organisations. The invited articles in this edition of Occupational Health SA attempt to remind workplace stakeholders of the critical issues that confront them in dealing with HIV/AIDS as they select those resources that can best compliment their efforts.

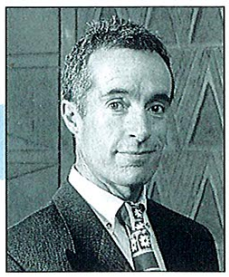
The first article extends the general understanding of HIV/AIDS impact and examines the specific impacts of HIV/AIDS on business. In suggesting a way forward, the authors emphasise the need for business leadership to speak out and mobilise action around HIV/AIDS at every opportunity. In this respect, the authors suggest that HIV/AIDS become a part of core business and that serious efforts require significant investment now to reduce future impacts.

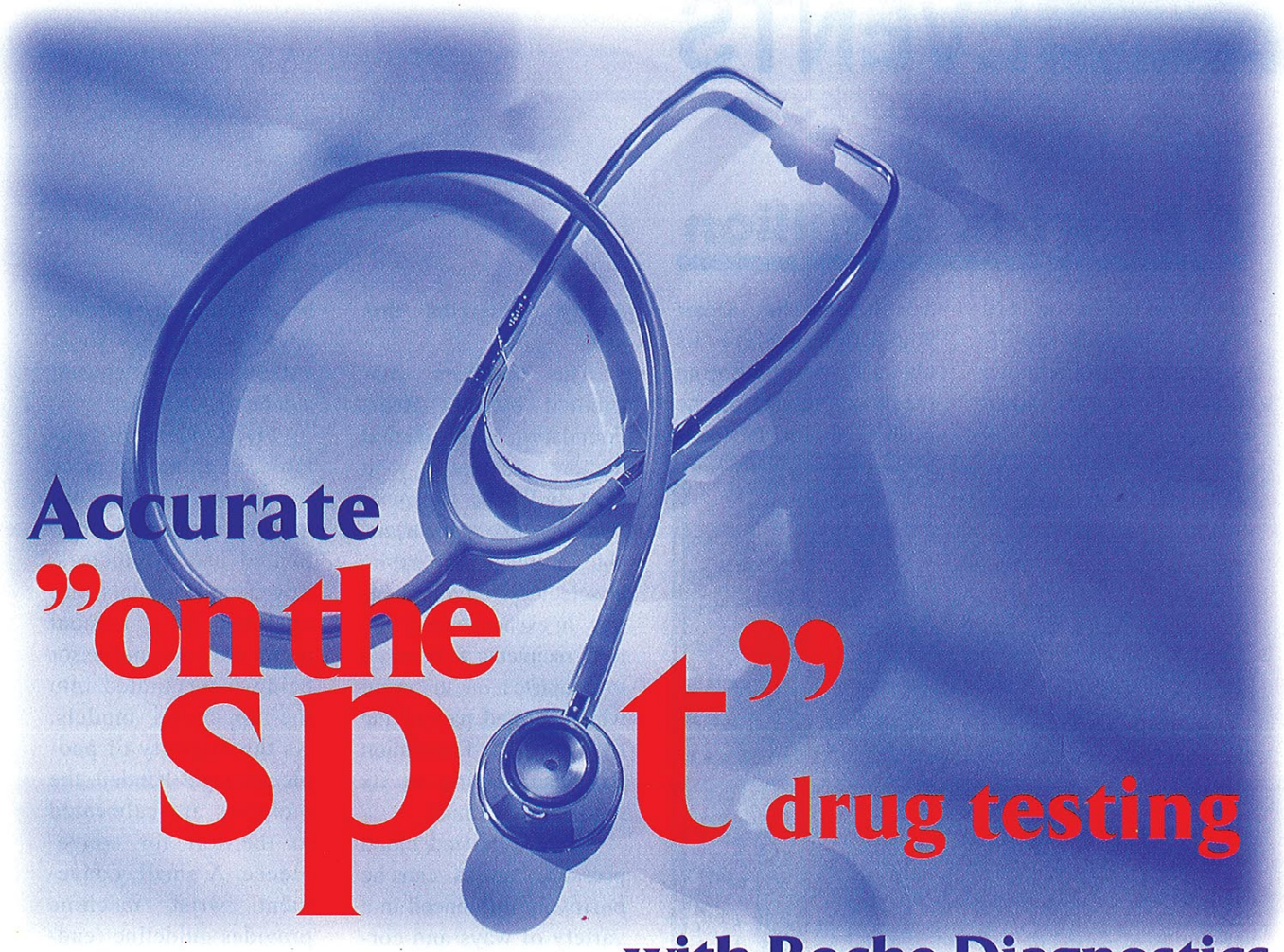
The second article discusses HIV Disease Management as an employer initiative. The authors remind us that, as with other chronic diseases, the underlying principle in managing groups of 'at-risk' individuals is to reduce the overall levels of risk and to achieve desirable (preferably measurable) clinical outcomes, whilst impacting positively on the economics of caring for affected individuals. The authors call for a Systems approach to this challenge and suggest that both individuals and organisations can be thought of as undergoing processes of change.

The third article turns to look at HIV prevention programmes in more detail. The authors remind us that prevention of new infections remains the most cost-effective response to the epidemic. They insist that HIV/AIDS should appear on several agendas within the workplace, as a standing item. The core of their recommendations is that a group of well trained HIV/AIDS peer educators, within each department, is required to ensure an adequate response to the epidemic.

The issues in these three articles highlight the nature of the programmes required for a response to this epidemic. Clearly, South Africa lacks sufficient resources to fully replicate the kind of responses we are witnessing in parts of the developed world. This is an impediment to the development challenges of this country. Notwithstanding, we need to take cognisance of the sheer size of this epidemic and be challenged by our ability to find our own solutions. These will undoubtedly call for difficult decisions to be made regarding resource allocation, but unless we confront the need to make these decisions we will not achieve cost effective use of the limited resources we have.

Dr. Malcolm Steinberg
GUEST EDITOR





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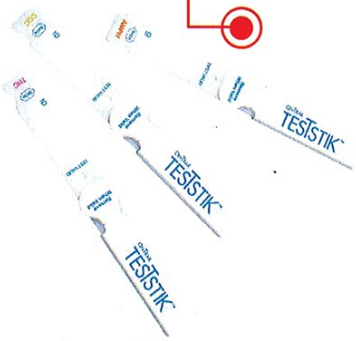

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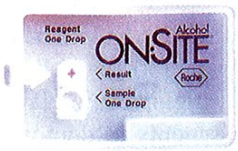

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A heart in a million

A donation of 480 Swiss-designed, top-of-the-range Microlife blood pressure monitors valued at more than R300 000 has helped the Heart Foundation achieve its objective of monitoring the blood pressure of one million South Africans during September this year.

Dr Jack van Niftrik of Life Works with Uwe Diegel, MD of Microlife and George Pappas of the Heart Foundation at the presentation of the donation.

The monitors, distributed by the Heart Foundation to designated doctors associated with the Life Works organisation, was also made available for the general public at selected shopping centres. In exchange for a free test, recipients were asked to complete a questionnaire which formed part of the Heart Foundation database, aiding in its research programme.

Once identified, blood pressure values can be positively influenced in a variety of ways and corrected in consultation with a doctor. Microlife blood pressure monitors enable ordinary people to check the state of their health simply and reliably, anywhere and any time, without having to consult a doctor each time.

Five models are available, ranging in price from R400 for home use to R700 for more sophisticated use by doctors. Lower-end models are operated by a manual pump with a compressor being incorporated into the upper-end models. As the majority of people are right-handed, the monitors are calibrated to the left for convenience. A small, convenient wrist machine provides guideline readings for travellers. All monitors carry a lifetime warranty.

For more information call (011) 787-2438.

SAMA on IOD payments

SAMA's board of directors agreed that the significant delay in payments to doctors by the Compensation Commissioner for injury on duty (IOD) cases has got totally out of hand. The Board recommended that a SAMA delegation sets up meeting with major labour and business leaders and the ministers of Labour and Health to discuss a plan of action for prompt payment. A Medigram survey done a few months ago indicated that approximately R11m was spent outstanding for 217 practitioners of which 50% was outstanding for six months.

Many practitioners have been waiting a year or longer for settlement of their accounts. The outstanding amounts on IOD cases alone threaten the viability of some of these practices. SAMA already had several meetings with the Compensation Commissioner to discuss quicker settlement of outstanding accounts, but there has been no substantial improvement. Dr Richard Tuft, chairman of the Private Practice Committee, emphasised that the fund for compensating IOD cases had enormous reserves, but that doctors just did not receive prompt payments.

Source: SAMA Newsletter: 13 Sept. 1999

Editor's comment: Many doctors and nurses in occupational health remain frustrated with the difficulty in communicating with the commissioner's office. Telephones are always engaged, with the result that many OHNs take home their queries and fax them through at night when there is a line available; use of intermediaries is increasing - they are ex-staff who seem to have access into the offices and speeding up of payments. Perhaps readers of the journal would like to write in and give their views on whether the service is getting better, or worse.

NOSA adopts market-driven approach

Meeting the millenium head-on, NOSA, the premier occupational health, safety and environmental risk management system, has actively taken a transformational role in order to be perfectly poised for the challenge of change.

In his introductory speech at the launch of the "New look NOSA", Enrico du Plessis, Executive director, marketing, said: "For those who thought there might be another chance or another time, this is not a dress rehearsal - what we see happening around us is the main event."

According to Du Plessis, change is neither new nor is our need to master it, what is new is prevalence and pace.

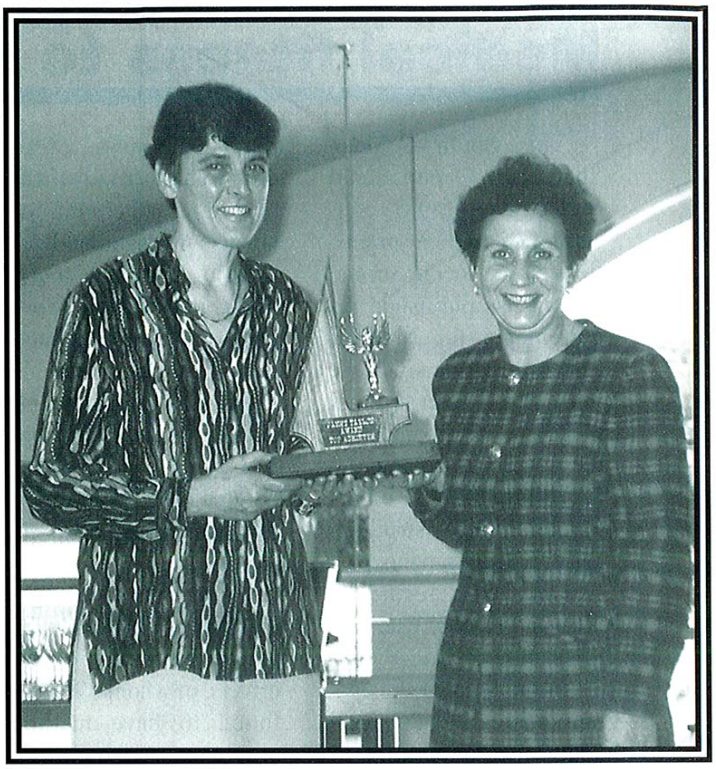
Now NOSA is looking forward to the change with regard to safety, health and environment (SHE) risk management and will be providing an integrated, internationally accredited occupational SHE risk management system along with internationally accredited auditors.

NOSA will also provide outcomes-based education and training delivered by internationally accredited trainers and facilitators.

NOSA has embarked on a journey to provide world-class consultancy services on the implementation of best practices in the SHE risk management arena and also products and services in chosen market segments. NOSA will also provide an information platform for the practicing of e-commerce.

NOSA's new website, found at www.nosa.co.za has been designed to facilitate the changes and to provide easy access to information.

All these innovations will enhance customers' requirements for total quality management (TQM) and ISO recognition.



Marina Clarke (left) received the Janet Taylor award from Louwna Pretorius, (right) SASOHN president

Janet Taylor award given

The Professional Society of Occupational Health Nurses (Western Cape) had the honour once again in July, to host the South African Society of Occupational Health Nurse Practitioners (SASOHN) President, Louwna Pretorius, at a lunch where one of their members was the proud recipient of the Janet Taylor Award.

This award had been awarded to Western Cape members twice during the past 14 years, and the Ian Webster gold medal 11 times.

Previously the Ian Webster gold medal was presented to the candidate with the highest marks for any certificate course in OHN science in SA; while the Janet Taylor award was for the best candidate in a distance learning course.

Due to the accreditation of diploma as well as degree courses in OHN Science, SASOHN Exco decided that the awards will in future be issued as follows:

The Ian Webster gold medal - to the candidate with the highest final mark for a post basic bachelors degree in OHN.

The silver medal - to the candidate with the highest final mark for a post basic diploma in OHN

The Janet Taylor award - to the candidate with the highest final mark for a certificate in Occupational Health; either done with distance learning or blocking at a tertiary institution.

The criteria for the above includes:

- a minimum mark of 75%
- The course must be listed by the South African Nursing Council (SANC)
- The awardee must be a paid-up member of the SANC
- The awardee must be a paid-up member of SASOHN

SASOM press release to the media: Medical fitness to drive

The South African Society of Occupational Medicine (SASOM) consisting of medical practitioners in occupational health, has published requirements for Medical Fitness to Drive since the mid 80s. International guidelines have compelled the Society to review the SA guidelines and incorporate more stringent medical requirements particularly with regard to drug and alcohol use, diabetes and HIV/Aids.

In the light of the current spate of bus accidents, it is imperative to remind the public of not only vehicle roadworthiness and road conditions, but also the National Road Traffic Act, Act 93 of 1996, that makes provision for drivers to be medically fit to drive on public roads. It is obligatory for every vehicle driver who is driving for gain to undergo a medical examination to comply with the Act.

A recent survey by a member of SASOM evaluated the fitness of 580 drivers, of whom 299 were found to have medical problems. Although the problems were not of sufficient severity to warrant ceasing driving, 98 drivers were found to be unfit to commence driving duties.

The certificate known as the public driving permit is issued by a qualified medical practitioner and is valid for one year. Currently the professional driver's permit has superseded the public driver's permit and makes provision for four categories of drivers. However, there is good evidence that this system is not being properly enforced or controlled. Although SASOM does not wish to compound an already emotive and complex situation, Section 15 of the National Road Traffic Act includes many precise standards but excludes the compulsory screening for drugs and alcohol during the medical examination.

SASOM and the National Pathology Group (NPG) have been lobbying for such standards and hope that the current albeit sad events will expedite the setting of such standards.

A draft set of guidelines, currently being peer reviewed by the Society members, will shortly be made available to medical practitioners, the transport industry and all road users.

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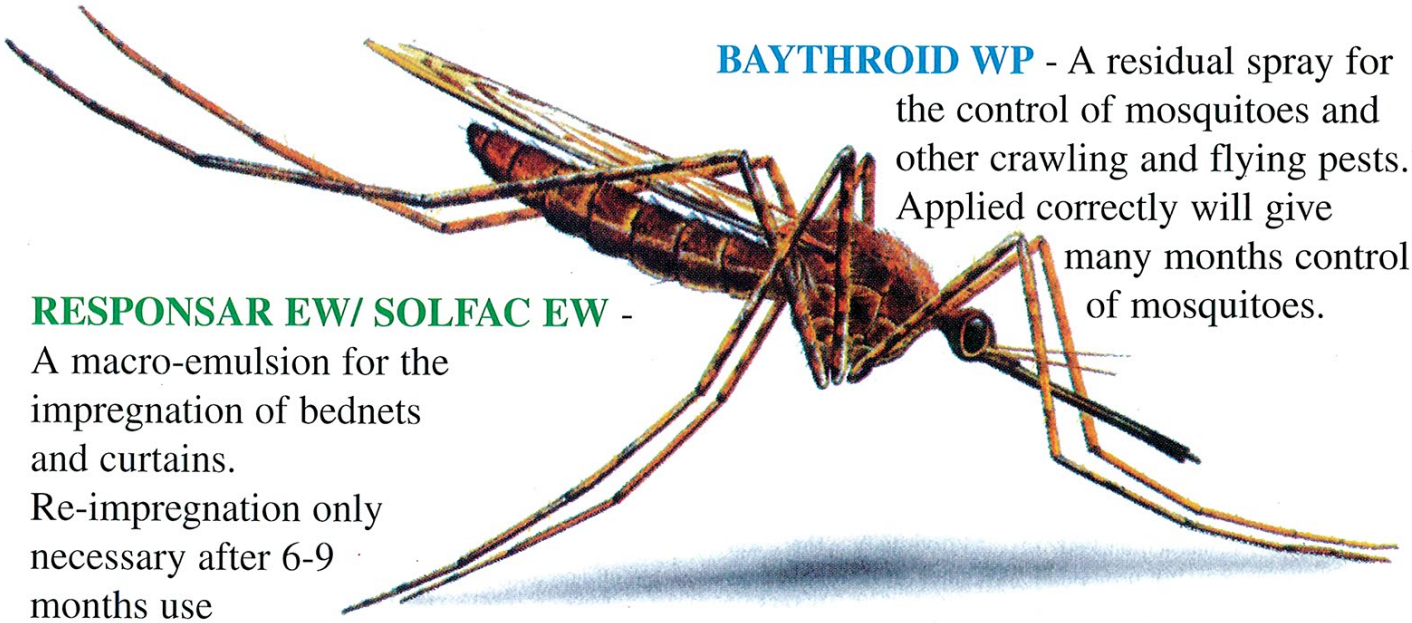

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24-25	ESSA Conference The Challenge for Public Health in Southern Africa (Poverty and Inequality)	The Regent Hotel Conference Centre - East London	Dr Costa Gazi E-mail: gazi@iafrica.com
March 30 to 3 April	South African Society of Dermatologists Congress	Sun City	Yvonne Pyne James Tel: (011) 463-4064, Fax: (011) 463-1041
April 24-28	Environmental Geochemistry	Education Building UCT	Deborah McTeer Tel: (021) 406-6348, Fax: (021) 448-6263 E-mail: deborah@medicine.uct.ac.za
May 24-26	NOSHCON 2000	Sun City	Marina Nel or Jacqui Price (012) 321-7736 E-mail: noshcon@nosa.co.za
July 9-14	International Aids Congress	Durban ICC	Dr Gustaf Wolhardt, Tel: (012) 481-2031
August 27 - 1 Sept	ICOH 2000 - 26th International Congress on Occupational Health	Singapore	ICOH 2000 Congress Secretariat, Dept Community, Occupational and Family Medicine Faculty of Medicine MD3, National University of Singapore, Lower Kent Road, Singapore 119260 Tel: (65) 874-4989or Fax: (65) 779-1489 Email: icoh2000@post1.ocm
September 15-17	SAPS CME (South African Pulmonology Society)	Elangeni Durban	Sally Elliott Tel (021) 406-6381, Fax: (021) 448-6263 E-mail: sally@medicine.uct.ac.za
24-27	Official Congress of the Infection Control Society of SA	ICC Durban	John Grande, Tel: (031) 463-2323 Fax: (031) 44-6565, Tel: (011) 787-2183
October 6-8	Emergency & Services Industry Exhibition	Kyalami	Ocean Media, Tel: (011) 796-1700
December 4-7	Physicians Refresher Course	Education Building University of Cape Town Middle Campus	Sally Elliott, Tel (021) 406-6381 Fax: (021) 448-6263,E-mail: sally@medicine.ucy.ac.za
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CPD QUESTIONNAIRE

1 Which of the following strategies are recommended for the construction industry?
A - partnering, constructability, and total quality management (TQM)
B - systems such as a quality management system (QMS)
C - multi-disciplinary contributions
D - policy and procedure development
E - A,B,C,D

2 28% of contractors keep records of training done with workers. In your opinion, which os the following is acceptable?
A - 28% is an acceptable level of training
B - 28% meets all legal and general requirements
C - 28% is the norm for the industry, but is unacceptable
D - 28% does not meet all legislative and general requirements
E - C and D

3 Allergic skin reactions are caused by the following:
A - tiling adhesives
B - wet cement
C - nickel
D - bitumen
E - all of the above

4 Clients influence health and safety both positively and negatively, either directly or indirectly.
True or false

5 Medical surveillance cannot be approached in the way it is applied in the construction industry because of the nomadic nature of the industry and a transient workforce.
True or false

6 The provision of health services by the occupational health service results in an increased high risk pool and consequential increased medical aid claims for major medical events.
True or False

7 The provision of occupational health at the workplace is a benefit fully subsidised by business, yet not acknowledged by government and the medical aid industry.
True or False

8 Which of the following statements is true? Choose one. The government's goals include:
A - increased utilisation of community health centres
B - decreased waiting time for referred patients
C - A healthier workforce
D - Reduced healthcare costs
E - B, C and D

9 Which of the following statements is true, choose one. The employer's goals include:
A - Increased healthcare costs
B - An increased annual premium escalation
C - Limited access to medical information
D - reduced healthcare costs
E - More patients to be seen by attending doctors

10 Which one of the following bloodborne infectious agents is known to be considerably more infectious than HIV?
A - hepatitis C virus
B - hepatitis B virus
C - hepatitis G virus
D - hepatitis D virus
E - Epstein-Barr virus

11 Zidovudine (AZT) alone can reduce the risk of HIV transmission in occupational needle-stick cases by:
A - 25% B - 42%
C - 66,7% D - 30%
E - 79%

12 The risk of acquiring HIV after a superficial, hollow-bore needle-stick injury is approximately:
A - 0,3% B - 5%
C - 2,8% D - 0%
E - 100%

13 To which body fluid do universal precautions not readily apply:
A - Blood
B - semen
C - vaginal secretions
D - nasal secretions
E - pleural fluid

14 Cellphones work in the following frequency band:
A - ELF B - X Ray
C - Gamma D - Microwave
E - RF

15 Which is not a reported symptom of cellphone use?
A - Fatigue
B - Headaches
C - Eye problems
D - Tumours
E - Halitosis

16 It is important to think about STDs and HIV infection together because:
A - The presence of a STD indicates that the person is sexually active and therefore at risk of acquiring an additional STD
B - STDs impact on the natural history of HIV infection
C - The genital mucosa of STD infected individuals brings CD4 lyphocytes into close proximity to HIV particles, present in vaginal and seminal fluids of the infected sexual partner, and these HIV particles can then bind to the receptor sites on these lymphocytes resulting in HIV infection in the person with the STD
D - Workplace STD treatment centres offer opportunities for employees at risk of HIV infection to access HIV education, counselling and testing
E - Both HIV infection and syphilis can transmit to the newborn and efforts to prevent these maternal - foetal transmissions should be integrated

Which of the above is INCORRECT?

17 Indirect economic impact of HIV/AIDS on businesses include the following:
A - Loss of skilled workers due to AIDS illness and deaths
B -Intermittent absenteeism from repeated episodes of HIV/AIDS complications
C - Reduced job performance
D - Costs of providing special HIV/AIDS Disease Management Programmes
E - Stress and reduced morale

Which of the above is INCORRECT?

18 Employers considering responding to HIV/AIDS can make the following assumptions:
A - Because more highly skilled workers make up a smaller proportion of the workforce and are also at lower risk of HIV infection, by virtue of their higher socio-economic status, they will contribute marginally to HIV/AIDS costs.
B - Government health care services will inevitably pick up the responsibility for HIV/AIDS clinical management once medical scheme limits have been exceeded
C - HIV prevention programmes have been shown to be ineffective and so most resources should be steered towards managing the impact of existing infections
D - Cost implications for labour intensive operations will always be far greater than capital intensive ones because HIV/AIDS can more easily disrupt production processes
E - A key stumbling block for workplace HIV/AIDS programmes is the stigma attached to the disease. Every effort needs to be made to overcome this.

Which of the above is CORRECT?

19 Effective employer responses to managing HIV in the workplace could include the following:
A - High-profile HIV-specific Occupational Health programmes
B - Integrated population health and disease management programmes provided by contracted specialists
C - In-house employee wellness and assistance programmes that focus on HIV/AIDS prevention and clinical care provision
D - Workplace health initiatives that focus on the prevention of HIV only

Which of the above is CORRECT?

20 Behaviour-change models provide useful insights into the management of HIV in the workplace as they:
A - Predict the level of HIV risk exposure in the workplace
B - Determine whether workplace strategies will be successful
C - Assist in understanding the requirements for the optimal timing and nature of specific interventions
D - Help with the organisational planning process

Which of the above is CORRECT?

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2. Make sure that your name and HPCSA details are correctly filled in.
3. Clearly indicate the edition of the journal.
4. Answer questions by ticking correct answers with an "x" in the appropriate box. Use a black pen and do not mark more than one answer.
5. Keep a copy for your records.
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7. All completed forms must be posted - not faxed.
8. Answers are recorded by SASOM and a certificate will be issued at the end of each year.

HIV/AIDS and the Workplace: Impacts and Responses

Dr Anthony Kinghorn, Dr Malcolm Steinberg
Abt Associates SA Inc

Occupational Health SA 1999; Vol 5, No. 6: 9 - 14

Introduction

The extent of HIV/AIDS has reinforced the need for each individual business to consider strategic responses to this epidemic. For most businesses, the costs of HIV/AIDS among employees are unlikely to be devastating in any one year but, over time, costs will become substantial. Companies will all have to confront HIV/AIDS at some stage and cannot insulate themselves through pre-employment testing or dismissing infected workers.

Many employers are considering strategic responses to the epidemic but are not able to integrate the experiences gained from dealing with HIV/AIDS. In addition, they are distanced from the growing understanding of the vulnerabilities of the workplace to the epidemic.

This article describes the potential effects of the epidemic for businesses and suggests a framework for an integrated response.

Effects on businesses

Over the next 10 years, the number of employees likely to be lost to AIDS is expected to be the equivalent of 40-50% of the current workforce in many South African companies. AIDS deaths will soon easily outstrip "normal' deaths among employees *(Figure 1)*.

Despite the extent of the HIV/AIDS epidemic there is little publicly available data on the impacts of HIV/AIDS at company level. Published studies of the impact on business in South Africa and elsewhere are limited and have often been conducted at relatively early stages of the epidemic. These studies, however, give useful information on many dimensions of impact.

Susceptibility to infection

HIV/AIDS mainly occurs in adults in their prime productive years. All owners, managers and employees of companies are at risk of HIV unless they abstain from sex or have one stable, faithful, uninfected partner. Several high-risk situations have been identified which are of particular relevance to business:

- Separation of people from their families due to work circumstances, e.g. due to long- distance truck driving, construction project work, business trips and conferences.
- Living in single-sex quarters such as mine hostels, and police and military barracks
- Other sexually transmitted diseases. These are a marker of high risk behaviour and also make it easier for the HIV virus to be transmitted during sex. People with other STDs are estimated to be 3-5 times more likely to be infected with HIV than other those without
- Commercial sex work. Women who depend on sex with several partners to obtain money or other benefits are very susceptible to infection, as are their partners

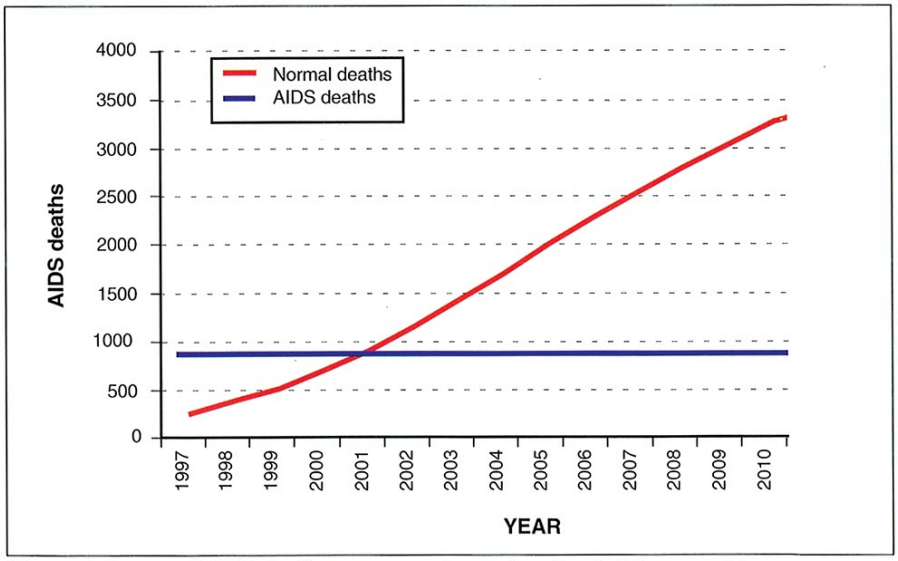

Figure 1. Projected AIDS deaths among employees in a South African workforce.

- Wealth and higher social status. Although the main burden of HIV is in poorer countries and communities, higher socio-economic status creates more opportunities for high-risk sexual behaviour. Many studies in other countries have shown that HIV prevalence is often greatest among the people with higher incomes and education levels, although these people also tend to be able to modify behaviour relatively quickly once they realise they are at risk.[1]

Types of costs to firms

HIV/AIDS in workforces will impose direct and indirect costs on companies.

Direct costs will result from increasing claims against medical, life and disability cover by employees with HIV/AIDS. HIV/AIDS is already resulting in rapidly rising costs of employee benefits in South Africa. The cost of an average set of risk benefits is expected to double over the next 5-10 years, unless they are restructured. Projected cost increases for specific benefits are illustrated in Table I.

Table I: Projected costs of risk benefits as a percentage of salary in South Africa

	1997	2002	2007
Lump sum death or disability benefit	1.5	2.9	4.5
Spouse's pension	4.0	5.9	7.5
Disability pension	1.5	2.1	2.6

(Source: Metropolitan Life Ltd)

In addition, the cost of many medical insurance schemes in South Africa could double within five years unless effective management of care is implemented. A large South African employer has estimated that the cost per case of HIV/AIDS could be as high as R 50 000 for certain un- and semi-skilled employees, rising to R 500 000 or more for professional and managerial staff, based on current cost structures.

Indirect costs will include:

- Worker absenteeism due to illness, funeral attendance or caring for sick family members
- Higher recruitment and training costs. Replacement involves time and training. Many new employees or trainees will themselves become ill with AIDS
- Loss of skilled workers due to AIDS illness and deaths. This can disrupt production in individual companies and increase market wages for people with scarce skills. An increasing proportion of workers will be inexperienced, reducing potential for experienced workers to provide formal or informal training
- Reduced job performance due to physical disability or increased stress created by knowledge of diagnosis and stigmatisation
- Stress and reduced morale caused by illness and death of fellow employees, friends and family members. This effect is widely reported in countries with advanced epidemics
- Potential labour relations breakdowns and litigation costs in companies which fail to manage human resource issues arising from HIV/AIDS.

The contribution of various types of costs to overall HIV/AIDS costs varies, and some cannot easily be quantified. However, studies consistently show that non-health care and indirect costs can contribute a very substantial proportion of costs. Table II shows the findings of studies of costs in companies in Botswana, Zambia, Kenya and Malawi. The greatest contributor to costs tends to be absenteeism, followed by training and recruitment costs. As medical benefits are low in most countries, these often do not constitute a large component of costs.

Table II: Types of HIV/AIDS costs to companies as a proportion of total HIV/AIDS costs [2]

Type of cost	Botswana 1997	Zambia 1992/3	Kenya 1994	Malawi 1995/6
Absenteeism	54%	32%	54%	25%
Training and recruitment	23%	20%	24%	-
Funerals and travel	1%	18%	10%	5%
Medical costs	14%	15%	12%	38%
Other benefits	8%	15%	-	32%
TOTAL	100%	100%	100%	100%

Source: BIDPA 1998

Factors influencing impacts on costs

The significance of various costs of HIV/AIDS among employees will vary between different businesses, depending on combinations of factors. These include the following:

Risk profile of employees. This is influenced by factors such as age, gender and geographic origin of employees. Employees at particular risk are those exposed to factors previously mentioned.

Mode of production. Labour intensive firms will often be at higher risk of large numbers of employees developing AIDS. Cost implications can however be relatively small depending on the significance of other factors listed below. Capital intensive firms can be even more vulnerable if HIV/AIDS affects key workers who are difficult to replace.

Employee benefits and salaries of affected individuals. Companies providing more generous employee benefits may be more vulnerable to direct costs. However, direct costs of certain benefits may be offset by reduced indirect costs. For example, better medical benefits may enable key employees to remain well and productive. Fear of losing medical or other benefits may delay disclosure of HIV status by employees, reducing opportunities to manage other indirect costs.

Skills of affected employees. Health and other benefit costs per skilled or professional worker affected by HIV/AIDS tend to be higher, as are costs of absenteeism, and of permanent replacement. In certain organisations, particularly smaller enterprises, loss of key personnel or entrepreneurs to AIDS can be crippling. A Kenyan study found that skilled employees represented only 13% of affected persons but contributed 47% of company HIV/AIDS costs *(Figure 2)*. Nevertheless, employers in countries with more advanced epidemics are reporting that even "unskilled" workers often have skills which cannot be easily replaced.

Vulnerability of production processes to disruption due to sickness and death of employees. Certain production processes may be particularly inflexible and vulnerable to unanticipated absence or low productivity of key employees. Examples of key occupations include rock drill operators in mines, furnace operators in some industries, and drivers in the transport industry.

Baseline performance and cost structures. Companies with low initial profitability are more likely to find that HIV/AIDS becomes a key determinant of profitability and viability. Companies where labour costs amount to relatively small proportions of costs or profits may face small impacts on viability even when extra costs per employee are quite high.

Baseline employee turnover rates. A World Bank study indicated that baseline employee turnover rates in many African companies with AIDS epidemics greatly exceeded deaths due to sickness. Delays in finding replacement workers were not enough to significantly raise costs, although in the case of skilled professionals, this could take up to 6 months. However, replacement may become significantly more difficult as the epidemic progresses.

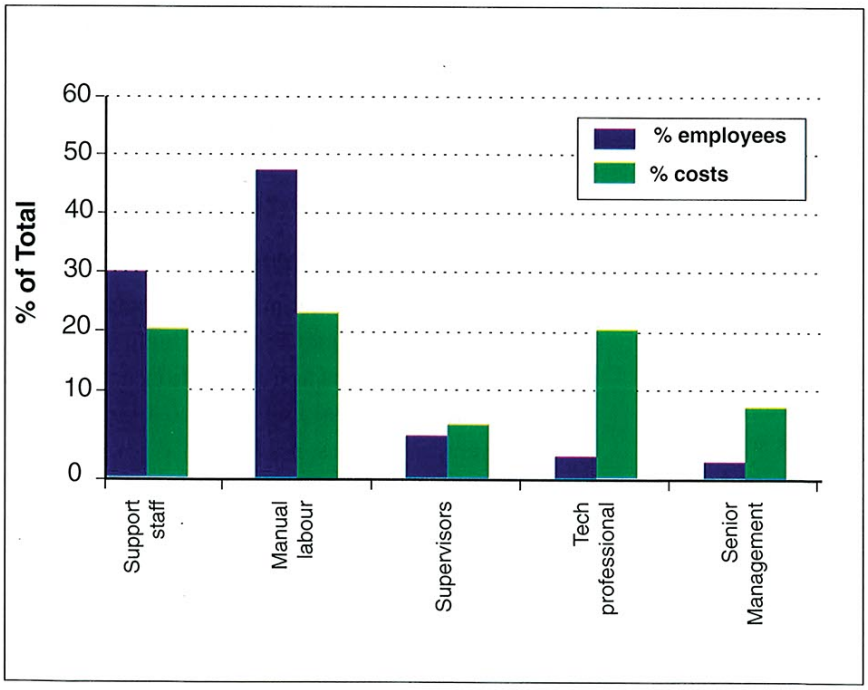

Figure 2. Company HIV/AIDS costs contributed by different employee categories (Forsythe 1996)

Vulnerability to disruption if suppliers of key inputs or services are severely affected by AIDS impacts. Disrupted supply of inputs or services essential to businesses, such as power, telecommunications and transport, could lead to significant downstream impacts.

Success of active efforts in preventing new infections and managing impacts of established infections. Apart from preventing new infections among employees, companies can reduce impact in a number of ways. These include adapting the production process, strategic use of multi-skilling, training and effective succession

planning, and restructuring employee benefits to ensure both sustainability and effectiveness in keeping workers motivated and productive. In general, firms with well developed and integrated human resource and industrial relations capacity are likely to be more able to manage potential HIV/AIDS costs.

A way forward

Reducing impacts of HIV/AIDS will clearly be to the benefit both of business and the economy in general. Businesses can actively manage many of the impacts on their own operations and competitiveness. They can also contribute to reducing effects on the broader society and business environment.

Businesses need to invest in reducing impacts, as they will have to confront HIV/AIDS at some stage. They should not ignore the issue through preoccupation with immediate challenges and targets, while the full force of the epidemic builds up and costs accumulate. Potential problems posed by lack of capacity or incentives to respond effectively as individual companies need to be overcome.

Several responses by the private sector are likely to yield good returns for business and the economy. They include:

Leadership

Commitment to HIV/AIDS issues by business leaders at all levels is critical to reduce impacts in business and society. They should speak out and mobilise action around HIV/AIDS at every opportunity. Experience in countries such as Uganda and Thailand, and many Southern African firms confirms that clear, repeated demonstrations of commitment by leadership are an essential component of successful responses.

Reducing stigma

Companies need to actively strive to reduce the perceived stigma around HIV/AIDS. This will reduce negative effects on infected individuals, and encourage them to reveal their diagnoses. This can be a major boost to prevention as it makes the threat of HIV/AIDS more real to target groups. Openness also makes active management of HIV/AIDS impacts in the workplace easier.

Workplace programmes

All workplaces will be affected by HIV/AIDS directly or indirectly. Employers can manage impacts of HIV/AIDS on the organisation and its employees through appropriate workplace programmes. Attempts to avoid AIDS impacts through pre-employment HIV testing policies are of very limited benefit and cannot substitute for effective programmes. Existing or newly hired employees can still become infected, and many people who can still be productive for many years will be excluded from work. Such policies tend to reinforce the stigma that drives the epidemic underground, which makes further prevention and impact management more difficult. Pre-employment testing is also against the SADC Code of Conduct on HIV in employment.

Prevention of new infections

Prevention of new HIV infections is a corner stone of business responses. There is widespread evidence that well-designed prevention programmes can be effective. They are also likely to be much less costly than managing infections among employees at a later date: costs averted are estimated to be around 3.5 to 7.5 times the costs of interventions, and can be much higher.[2] Cost benefit is particularly high in areas with earlier stage epidemics. However, even in areas with high prevalence, prevention remains highly relevant as projections indicate that rates of new infections will remain high over the next decade. Indirect benefits include improved attitudes to HIV/AIDS in the workplace, and building positive relationships with employees which enable companies to manage HIV/AIDS impacts in the workplace more effectively.

Impact management

Strategies to manage the impact of employees with HIV/AIDS need to consider a range of human resource, legal, industrial relations and production issues. They need to balance financial and other cost implications for employers, employees, the broader community and government. A key objective is to develop policies and strategies that remove barriers to employees' disclosing their HIV status. Many aspects of impact management represent strengthening of basic human resource management and planning, which has broader implications for improving productivity.

Key components of impact management to be considered by firms include the following.[1]

- A clear assessment of potential impacts of HIV/AIDS on the company, including vulnerability of employees and production processes[2]
- Modification of work organisation and processes. This can reduce vulnerability to absenteeism or deaths
- Development of clear policy on HIV/AIDS among employees, to balance the concerns of all stakeholders, and deal with basic principles around issues such as discrimination. Policies provide a framework to guide development of other aspects of impact management
- Development of appropriate stategies and processes for training and succession. Strategies used by firms include multi-skilling, apprenticeship, management development programmes and succession planning
- Strengthening human resource management capacity and systems. These are required to, for example, actively manage sick and compassionate leave, deal with employees whose work performance is affected, make difficult decisions on termination or redeployment, and monitor and plan around impacts such as lost time and employee turnover
- Appropriate structuring of employee benefits, including disability, death and housing benefits. Approaches need to ensure that benefits are financially sustainable while preserving the motivation and productivity of employees and reducing HIV/AIDS impacts on their dependents. Many options are likely to be available, and companies and government need to ensure that the most appropriate statutory and voluntary benefit structures are identified
- Health care and support. Management of ill health among employees becomes increasingly important. Effectiveness and affordability of workplace and other health care for employees needs to be assured. Access to adequate workplace or off-site primary medical care has helped to reduce absenteeism. Assisting workers with TB treatment has helped to ensure that they are diagnosed and cured, thereby protecting fellow employees from infection and prolonging productive life of the worker. Many employers provide on- or off-site counselling for employees infected or affected by HIV.

  Home based care systems are used increasingly to help employees recover more quickly from bouts of illness, and to support the terminally ill.

Co-ordination between businesses

Problems created by HIV/AIDS, and effective responses, require that companies see HIV/AIDS as a shared problem that will benefit from co-ordinated responses to many issues. Effective responses to HIV/AIDS often require expertise, understanding and resources which may be difficult for individual companies, particularly smaller firms, to develop. Individual companies may not have the incentive to develop some initiatives alone, even if these could benefit many businesses. Inadequate responses by any individual sector or company also has potential to create negative knock-on effects on other businesses.

In countries such as Botswana and Thailand, Business Coalitions on AIDS have been formed to strengthen private sector responses to HIV/AIDS. Other types of co-ordination also occur. As businesses are quite diverse and may have different priorities and needs, several different bodies or types of partnerships may be appropriate. Functions served by such partnerships have included: co-ordinated initiatives for training, skills development and prevention; sharing of knowledge and experience; identifying and accessing HIV/AIDS management resources for member firms; research into issues of interest to business; and development of common approaches to certain key issues.

Co-ordination with government

Initiatives to increase co-ordination with government should be explored. Government and business may both have resources and potential to support each other's responses to HIV/AIDS. In addition, government and business are likely to have to co-ordinate their strategies in many areas. Other specific areas where co-ordination with government may be relevant, include: defining appropriate systems of employee benefits, particularly in relation to health and social security; training and education; monitoring of various aspects of HIV/AIDS and impacts of relevance to the economy and development; and appropriate incentives to firms to develop HIV/AIDS interventions.

Make strategic choices

At all levels, needs created by HIV/AIDS will far exceed resources available to satisfy them. Difficult decisions will have to be made on appropriate allocation of resources to HIV/AIDS specific needs in the light of the interests of businesses, affected individuals and broader social and development goals. Within available resources for meeting AIDS-specific needs, the priority, for example, of prevention programmes, health care for people with HIV/AIDS and support of surviving dependents will have to be established. Within each of these areas, it will be important to identify the most cost-effective and sustainable use of resources. In addition, HIV/AIDS will require that many firms address issues that they may not previously have seen as "core" business. These include, for example, openness about AIDS and sexuality, policy on funeral attendance and other absenteeism, and ensuring that children currently in schools survive and continue their education so that adequate supplies of skilled employees are available in future.

Strategic decisions about how to respond to HIV/AIDS therefore need to be taken in individual businesses and at higher levels to ensure that unsustainable and inefficient responses to HIV/AIDS are avoided, as they could have serious negative consequences in future.

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1 Useful references for developing programmes include:
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2 Materials to guide institutional HIV/AIDS audits are being developed by Barnett and Whiteside and will be available shortly through UNAIDS.

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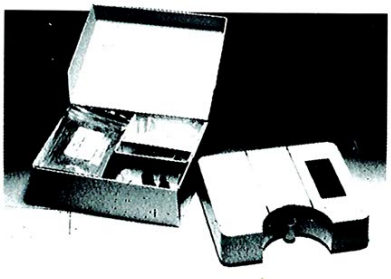

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HIV Disease Management as an employer initiative

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Introduction

Without doubt, the primary challenge facing those employers interested in responding to the HIV/AIDS epidemic is to reduce the incidence of new HIV infections. Notwithstanding, there is growing pressure to develop cost-effective approaches to manage those already infected. Fortunately, since the advent of combination antiretroviral therapy, HIV disease has virtually transformed into a manageable chronic disease for those infected individuals who are able to use these drugs. With effective antiretroviral therapies, HIV disease outcomes have improved, leading to fewer HIV-related deaths, fewer opportunistic infections, and less frequent need for hospitalisation.[1] The main barriers to managing HIV disease in this manner, and to achieving these outcomes, remain the high costs of the pharmaceuticals employed and their administration and maintenance in effective regimens.

As with other chronic diseases, the underlying principle in managing groups of 'at-risk' individuals is to reduce the overall levels of risk and to achieve desirable (preferably measurable) clinical outcomes, whilst impacting positively on the economics of caring for affected individuals.[2] This article explores an approach to the management of HIV disease within the occupational setting and suggests a Systems approach to the management of HIV disease in the workplace.

HIV risk management

Individual risk is encountered at each stage of a particular disease process. In the case of HIV, there may be risk of becoming infected with HIV (from an infected partner), risk of progressing to immune system deficiency (once infected), and of developing the complications of this (such as opportunistic infections), and ultimately an increased risk of dying.

Most chronic diseases such as Diabetes and HIV result in similar (often-predictable) risk progressions. The overall objectives of managing this risk are to prevent and manage the potential complications of the underlying disease process and to retard the individual's progression to disability so as to improve their quality of life and lessen their dependency on medical care.

The potential for achieving these objectives, in the case of HIV infection, will be dependant on the co-ordinated implementation of an integrated approach to HIV prevention, effective management of the infected individuals' health care needs and the extent to which individuals become involved and take control of their own health.[3]

The responsibility for delivering interventions, that meet these objectives, extends beyond the health care provider. Also, the motive for ensuring that the objectives are being realised lies with the individuals or organisations that stand to gain from achieving them if they are not effected. This places the locus of control directly with the individual and the responsibility for providing the system through which appropriate care can be delivered with the employer, health care fund or relevant group of providers. In many instances, the entity that is given the task of managing this care provision is a contracted managed care organisation(MCO).[2]

HIV management within the occupational system

Employers have an important role to play in integrating health and disease management strategies to deal with HIV within the occupational system for a number of reasons:[4]

- They usually have a degree of responsibility for the wellbeing of a significant number of individuals (and their dependants) within well-defined populations
- Concerns about high (and rising) costs of care, especially as HIV prevalence increases
- Their financing of a large portion of their employees' medical aid contributions (future health legislation is also likely to broaden this responsibility to include previously unfunded employees)
- Concerns about lost work time, productivity, absenteeism and fitness-for-duty, as well as the impact that this could have on fellow employees

- Increasing precedent in setting standards for, and restructuring the delivery of, health services through group purchasing arrangements and closed company medical funds.

A Systems approach to managing HIV

Disease management programmes have evolved as a managed care response to managing the prolonged care needs of individuals with chronic disease. In more sophisticated models, these can become the underlying mechanism for reinforcing a systems approach to integrated care delivery and population health.

It is imperative that the employer, funder (and fund administrator), employee and providers all identify (or negotiate, if necessary) their respective roles and work together with the same objective of delivering an integrated programme. This programme needs to be effective for the specific disease, acceptable to the affected individual, and a positive contribution to the overall wellness of the employee population.

For individual employees who are affected by the disease, the importance of having their personal care needs met, as well as becoming empowered to care for themselves, is often best achieved through individual case management by appropriately skilled case managers.

Without the corresponding policies and procedures within the workplace that can support an integrated approach to managing this disease, the workplace 'System' will be unable to effectively achieve its intentions for better managing HIV and the outcomes of its programmes will be compromised.

Individuals' changing behaviour in relation to their disease or health beliefs has been described as a predictable process with well-defined stages.[5] In a similar way, organisations can be thought of as undergoing processes of change as they move towards a decision to manage health risk and wellness within the organisation. The development of disease management programmes could be seen as one of the outcomes of such a process.

The various activities within workplace systems that contribute to the wellbeing of the organisation and its employees, occur within an hierarchy where the wellness of the organisation is built upon management systems and processes that support employee wellness, which includes regulatory, compensation and managed care components. *(Figure 1)* [4]

Figure 1. A health hierarchy within the workplace system

Adopting a systems approach

The majority of employers who embark on developing a managed approach to employee wellness or to a specific disease entity, would contract the services of external wellness or disease management expertise. Traditionally, managed care programmes have been offered from the company's supporting medical fund through its association with managed care organisations.

It is desirable that these external programmes integrate with the workplace strategy to manage the disease, but often this is not the case as both the management of this care and the delivery of the programme are fragmented. Also, initiatives that occur through the company's medical fund would exclude unfunded employees who are often the highest risk sub-group within the organisation.

It is possible to achieve integrated disease management that becomes part of the workplace system and strengthens other employee health benefits and programmes. This needs to be done through integrating or initiating employment policies, employee wellness programmes and disease management systems that all work together towards this specific outcome.

The basic steps in developing this integrated approach are outlined below.

The most important precursor to this is for the organisation to move from contemplating whether to manage the HIV risk in their employee population toward making the commitment to do this and acting on it. It is also beneficial to identify the disease management expertise and delivery system that would best meet their needs.

Development of HIV (disease) management programmes

An approach to developing a management programme for any specific disease-state (such as HIV) might include the following steps:[6]

- Agree on the necessity to implement a disease management programme for the specific disease state on the principle of integrating this with the existing system that supports the individual's wellness and health care
- Determine the impact of the disease on the specific population, together with statistical projections of the future probable impact, and profile the levels of risk within the specific population in order to estimate the health needs of the population
- Identify the specific interventions for which there is good evidence (or compelling reason) that the intervention can lead to improved outcomes
- Design the mechanisms for delivering and sustaining these interventions (this is usually the step that requires the greatest degree of innovation and consideration and can be more effectively achieved by working together with all involved stakeholders)
- Cost the programme and agree on an appropriate budget
- Put the systems in place that are required to manage, deliver and monitor the programme
- Promote the programme to the target population, preferably with incentives for affected individuals to participate
- Enrol affected individuals into the programme
- Deliver the specific interventions, or facilitate and manage their delivery, whilst enabling the individual to manage their own disease
- Monitor the delivery and measure the outcomes of the programme

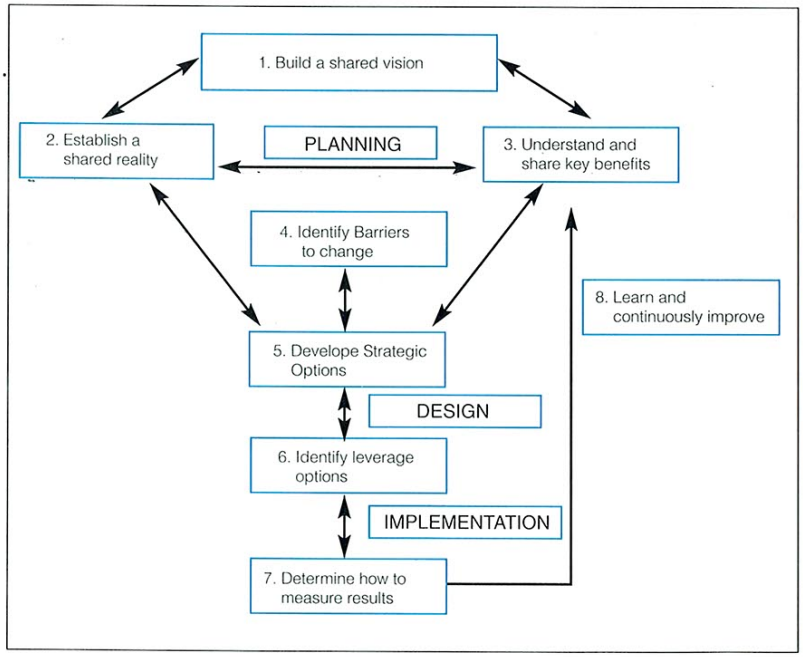

Figure 2: Systems-thinking Model: The Process for Developing Disease Management Initiatives [6]

Support through employer initiatives

The infected individual

The HIV infected individual has needs that change as the duration of the infection progresses. The aim of any disease management programme should be to facilitate these needs being met, such as:

- Through the provision of advice and reading material, to meet the need for information
- Linking the individual with experienced HIV providers or supporting current providers (see below) to facilitate their health care needs
- Encouraging safer sex and partner disclosure to reduce their risk of transmitting the virus
- Managing the provision of HIV drugs to maintain the most cost-effective and reliable supply of antiretroviral therapies
- Monitoring the results of laboratory and clinical parameters to detect changes in clinical condition and drug effectiveness
- Linking the individual with support groups and community resources to build their support network
- Monitoring adherence to best health practices
- Providing access to basic health information (such as through an advice line) to assist with healthcare decision-making and self-care.

Care providers

The task of providing competent care to patients infected with HIV is extremely challenging. A competent HIV/AIDS provider must be proficient in screening and counselling, able to recognise common clinical findings and to deal with the complications associated with HIV infection, as well as being able to manage complex drug regimens, all within the restricted budgets allocated to HIV-related care. Given this complexity, it is perhaps not surprising that the AIDS experience of clinicians has been significantly associated with the survival of their patients. [7]

HIV/AIDS Clinical guidelines for the use of antiretroviral drugs offer opportunities for continuing to capitalise on the benefits offered by antiretroviral drugs and new technologies for HIV care. At the same time, these tools provide some direction for clinicians regarding the use of these drugs or technologies.[9]

These guidelines should provide direction for managing complex HIV care without compromising provider autonomy. They also serve an educational function, help monitor and maintain quality of care, and manage the use and costs of antiretroviral drugs and technologies related to treatment. Monitoring performance from practice guidelines can be useful in designing patient care strategies and for quality assurance/improvement purposes (i.e., making changes to improve outcomes).

HIV Disease Management programmes can benefit from accessing the care provided by experienced HIV clinicians who are familiar with best practice guidelines. Some programmes even offer provider support through developing and disseminating consensus guidelines and facilitating provider access to expert advice.

The employer

Employers need information in order to manage the HIV risks in their organisation and can be assisted in conducting impact assessments and in planning strategies to manage the projected impact.

The capacity of the organisation's personnel department to assist with HIV issues as well as to develop appropriate policies and procedures relating to HIV can also be supported. Workplace initiatives to prevent the spread of HIV, such as peer counselling and health promotion activities could be integrated into the disease management strategies.[10]

Conclusion

Although the workplace is not the only setting through which HIV disease can be managed, it provides an important opportunity to integrate HIV health risk management, demand management, disease management and outcomes management, to the benefit of both the employer and the employee (as well as their dependants).

Employers have the opportunity to make a very important statement concerning the value of managing HIV prevention and care and are responsible to make this investment.

HIV disease management that is properly integrated into the employment system offers the potential to lessen the impact of HIV on the workplace and to influence its effect on related populations.

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Y2K + AIDS: the Future?

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Introduction

A huge billboard at Johannesburg International airport draws the attention of every passer-by to the existence of the Y2K bug! Every newspaper, magazine and most television programmes have dealt with this subject and the possible disruptive effect it might have on the productive capability of computer systems. Millions of rands have been poured into preventive measures - this is a focus point and agenda item of management throughout SA and the world.

The HIV/AIDS epidemic requires the same concerted preventive response. Reports of the severity of this epidemic continue to remind us of its severe threat. One such report compared the 200 000 Africans killed in armed conflict in the last year with the 2 million Africans that died from AIDS in the same period. This prompted Carol Bellamy, executive director of UNICEF (United Nations Children's Fund) to issue the following comment concerning these figures: "By any measure, the HIV/AIDS pandemic is the most terrible undeclared war in the world"[1]

Being infected with HIV/AIDS requires ongoing prevention of new infections, as well as attempts to mitigate the impact of the established epidemic. Prevention of new infections remains the most cost-effective response to the epidemic. Treatment strategies remain very expensive and adequate social support for the millions of infected South Africans is beyond the national budget.

It is therefore essential for management and labour to collaborate in finding a pro-active, holistic preventive solution to the HIV/AIDS crisis facing the workplace in South Africa. Failure to do so will have a significant economic impact and result in less global competitiveness. Many people might lose their jobs and others their lives. This article addresses the key issues that need to be addressed by management and labour in a workplace HIV/AIDS prevention programme.

General trends

During the 1980s many workplace prevention programmes were implemented, with little in the way of outcomes to show for huge budget spends. As a result, employers that were willing to minimise the impact of HIV/AIDS in their work environments became sceptical regarding HIV education. The 1990s brought new prevention approaches and programmes where peer education, impact studies and condom dispensing machines became the new buzzwords. During 1998 and 1999 the "invisible" HIV epidemic became visible as AIDS deaths started to present. With this reality a new search has developed to find "the right prevention solutions" to the challenges of the epidemic.

The reality is that there is no quick-fix solution to the HIV/AIDS crisis. HIV/AIDS is a complex issue requiring the expertise of a wide range of specialists for its prevention and management as well as attention to critical issues required for successful outcomes.

Key issues during programme implementation

Role players like management and labour must strategise in a co-ordinated way to find holistic, acceptable, client-specific, long-term solutions to their challenges. It is important to obtain expert advice on managing all aspects of HIV/AIDS; thus ensuring realistic outcomes and that resources are well spent.

The components of prevention programmes, listed below, will not be successful if implemented in isolation. Their effectiveness lies in the integration of individual strategies into one holistic prevention programme.

HIV/AIDS should appear on several *agendas* within the workplace, as a standing item e.g. the business plan, budget, training, human resource planning, etc. A useful approach is to establish a project support forum to facilitate an integrated HIV prevention programme.

Projections of those infected and sick and dying of HIV/AIDS are needed to alert role players to the seriousness of the epidemic. These projections are also required for economic *impact* studies that can enable management to do effective planning with regard to the epidemic in the long term.

A clear *overview* of the current response of the company to HIV/AIDS, and an understanding of the workplace culture helps to ensure a customised approach to the epidemic. This includes a detailed description of the demography of the workforce, a critical assessment of previous prevention strategies, including STD (sexually transmitted disease) treatment strategies, as well as a detailed understanding of

other contributing factors to the spread of HIV infection such as work situations that take employees away from home.

A company HIV/AIDS *policy* (updated annually) provides a framework for committed interventions and management of HIV/AIDS in the workplace. This should, however, be transformed into practical procedures known to all employees.

A *Project Support Forum* comprising the relevant role-players should be established to maintain ongoing planning, evaluation and support to workplace interventions. This will assist to create the necessary understanding and enthusiasm for the project amongst all role-players (management, middle management and union).

The programme should be driven by an implementation plan that is strictly monitored by all the role-players and that is tailored to suit the needs of the specific company. This is essential to ensure ownership of the project.

Projects must meet legal and confidential requirements according to South African Law and other human rights principles respected by the role players.

Effective treatment and management of *Sexually Transmitted Diseases* is an essential component of workplace programmes and needs to be accessible to all employees.

An effective communications strategy is required and needs to be culturally sensitive and consistent with growing knowledge about the epidemic

A core group of well-trained HIV/AIDS peer educators within each department is required to ensure adequate understanding of HIV/AIDS, the development of appropriate attitudes to the epidemic and those infected and living with HIV/AIDS, and the required support, referral and general management of HIV positive employees.

Training must be ongoing. Peer educators must be exposed to regular update sessions as the HIV/AIDS field is quite dynamic and information rapidly changes.

Targeted education is required, especially for those individuals who have an increased risk of contracting HIV infection. Special events also offer focused education opportunities:

- Individuals and groups with special risks of HIV infection are best targeted through peer educators and often require an outreach component that goes beyond the confines of the work place
- Existing opportunities for ongoing training like induction, health and safety, regular union meetings, management and personnel meetings, should be utilised to re-inforce the programme
- Special projects like participation in Condom Awareness Week in February, and World AIDS Day awareness on 1 December, offers a good opportunity for additional programme events

A sound understanding of the epidemic and a long-term commitment at every level of employment is essential to secure a successful ongoing prevention programme. This includes management, union and employees. Commitment needs to be translated into practice and usually requires:

- A budget to train peer educators and render ongoing support to them
- A budget to obtain limited educational materials and tools
- Available time for meetings and awareness opportunities
- Effective project management and the resources to achieve this

Community outreach projects should be considered. These initiatives are targeted at communities from which employees are drawn and attempt to compliment other HIV prevention efforts directed at these communities by government, NGOs and other private sector companies.

Supporting interventions could include:

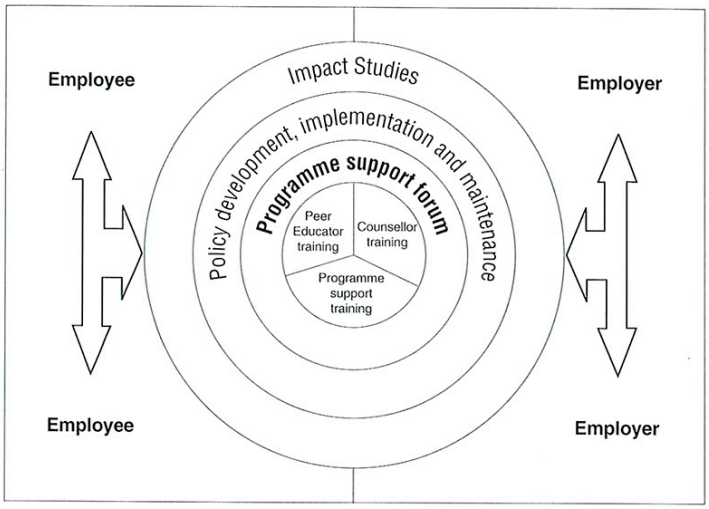
- A condom distribution system
- Wellness management programmes
- Health awareness days that will raise awareness of issues like the role of nutrition and health in the broader context
- Employee assistance programmes that deal with literacy, self-esteem, empowerment, and other issues that support the individual response to the epidemic.
- HIV/AIDS programme that are linked to the TB and STD programme within the medical centre

Non negotiable principles

By using participants' knowledge and practices, beliefs, fears and hopes as a point of departure, the programme is able to empower employees to identify and understand their problems. This enables people to explore opportunities for change and development, and to take responsibility for their lifestyle and treatment. The following principles are useful to consider:

- Use participants' existing knowledge, beliefs, fears, hopes, attitudes and practices as a point of departure
- Take participants' socio-economic and cultural context into account
- Provide correct information in a supportive way
- Help participants to express their feelings and describe their own experiences
- Help participants to identify, understand and articulate their own problems and explore opportunities for change and development by themselves
- Ensure that the responsibility of deciding what to do next is solely that of the participants (The facilitator is in the background to support and guide the group but they own the project!)

Summary of necessary interventions



Source: Mx Health Institute

Conclusion

During an AIDS in the Workplace Conference held in Gauteng, Deane Moore of the Metropolitan Group stated that "A company which implements a programme which successfully prevents new HIV infections will reap the reward 8 to 10 years later, when fewer HIV- and AIDS-related costs are incurred."

> *"Projections show that a company of 1000 employees spending R100 000 up front and a further R25 000 per annum on AIDS education, could save approximately R10 million in indirect costs over a period of 10 years: a return on investment of over 50% per annum. This is likely to be the best investment a company could make."* [2]

Uganda succeeded in lowering HIV prevalence at sites where proper interventions were implemented by applying sound business principles. Interventions are focused on the younger generation; political commitment is visible and well-defined messages are communicated.

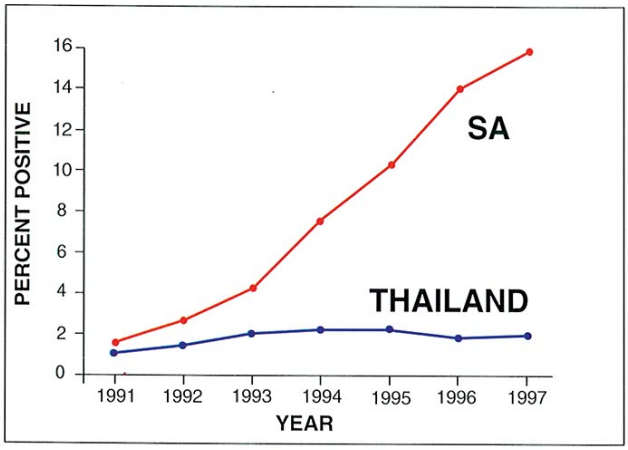


Figure 1. Source: Prof. D. Wilson, University of Zimbabwe

In 1991, Thailand and South Africa had similar AIDS epidemics. Yet, today, Thailand's epidemic has declined and South Africa's has soared. *(Figure 1)*

Why? The answer lies in an explanation given by the Thai AIDS director in 1992. He said: "In Thailand, 80% of HIV infection occurs through commercial sex. To stop AIDS, at least 75% of commercial sex acts must be protected by condoms. 550 000 commercial sex acts occur nightly in Thailand. 250,000 or 45% are protected by condoms. Within 6 months, 410 000 or 75% will be protected and within 12 months, 500 000 or 90% will be protected." Within a year, Thailand's AIDS Committee, chaired by the Prime Minister, introduced laws requiring all sex establishments to ensure that all clients always use condoms. HIV transmission fell steeply. Decisive action reduced Thailand's expected AIDS epidemic by 70%, proving that AIDS prevention works. The Thai approach is a perfect example of core business skills: focus, a simple, effective business plan, precise targets and strong performance monitoring.

> *"This is the single most important point I can make today. If South African business applies its core management skills to AIDS prevention, it will succeed. After all, if business can extract gold four, soon five, kilometres underground, in temperatures approaching 70 degrees and build Africa's largest dam to channel water from Lesotho's mountain peaks to Gauteng, business can get employees to use condoms. If we take AIDS education and condom promotion a fraction as seriously as production training or brand promotion, we will succeed."*
> *Prof. D. Wilson, University of Zimbabwe*

Effective partnerships between government, the private sector and non-governmental sector could save millions of lives over the next decade... let's make it happen. "Future generations will judge us on the adequacy of our response." *Former President Nelson Mandela.*[4]

References

1. 'AIDS killed 2 million Africans last year' 24.com, 17/9/99
2. AIDS in the Workplace Conference, 1, 2 & 3 September 1999, Indaba Hotel, Gauteng.
3. **Wilson, D.** Project support group, University of Zimbabwe, presentation at Mx Health Institute, 1997.
4. **Steinberg, M and Kinghorn, A.** HIV/AIDS in South Africa: The impacts and the priorities, DOH, 1998, p28.
5. **Moore, D.** The AIDS threat and the private sector. *AIDS Analysis Africa, Vol.9 No.6 Apr/May 1999. p2.*

ASOSH.ORG
http://www.asosh.org

ASOSH

Some initial comments on the ASOSH web site sent to the ASOSH.ORG Webmaster:

Coen Buddingh, Immediate past President, Institute of Safety Management (IoSM)
Congratulations on a fine site, I am sure it will be well patronised by our fraternity.

Rob Ferrie, AECI and the Institute of Occupational Hygienists of Southern Africa (IOHSA)
The site looks great - congrats!

Hein Hughes-Treherne, MD Poltech (Pty) Ltd.
What a show. It was long overdue!!!

Darren Joubert, Department of Environmental Health, Mangosuthu Technikon
I have just accessed the site again, and the access speeds were excellent. All I can say is WOW you really have done an excellent job, it must have taken you a real long time and a lot of effort, well done, I can see why it has been voted as one of the top 50 OHS sites in the world.

Howard Palmer, Envirocon Instrumentation
Accessed your Web Page and we are suitably impressed. It certainly looks good and has some great information and links.

Rakesh Maharaj, Industrial Health Unit, University of Natal
The site is impressive.

Ralph McIntyre, Department of Minerals and Energy
I just want to congratulate you on a "great site". This is truly a one stop Health and Safety site. Thanks for all the hard work and effort put in to establish this site. I know you must have used up some heavy midnight oil.

Dr. Clifford Panter, Occupational Medicine Consultant, Eastern Cape
The site is looking really great and already proving to be very useful - congrats Clifford. How do I go about getting listed as a consultant on your services list?

Satisfied Consultant shortly after being listed on the Services page
I did not expect such a rapid (and overwhelming) response.

Unknown (Sent via Feedback page)
I have been using your site frequently David it is a great help.

Teresa Whitford, Communication Officer, NCOH
David, I just want to thank you for the work you did preparing this site. I have used it a number of times since you showed it to me, and have extracted some really useful information relevant to what I have been preparing recently. Thanks again.

The Education & Training, Events, Jobs, Products and Services pages are now open for business.

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Occupational & Environmental Medicine Sites

David W. Stanton[†], *Frank Fox*[§], *Hans van der Merwe*[¶]
Chamber of Mines[†]***; Mondi Ltd.***[§]***; Polifin***[¶]

Occupational Health SA 1999; Vol 5, No. 6: 24

This fourth NetPage lists occupational and environmental medicine and related web sites. A more comprehensive listing is provided on the Occupational Medicine page of ASOSH.ORG (located via Societies & Related at World Links).

The next issue will focus on Occupational Health Nursing sites. Nurses please forward your favorites or bookmarks to the NetPage team.

We look forward to your comments, suggestions and links for the NetPage and ASOSH.ORG.

Government and Public Service
British Occupational Health Research Foundation (BOHRF) (http://www.bohrf.org.uk/index.htm) UK
CCOHS (http://www.ccohs.ca/) Canada
CDC Travel Information (http://www.cdc.gov/travel/index.htm) CDC, USA
Center for Occupational & Environmental Medicine (http://www.coem.com/) USA
Finnish Institute of Occupational Health (http://www.occuphealth.fi/e/) Occupational Health Services (http://www.occuphealth.fi/e/info/anl/298/index.htm) African Newsletter on Occupational Health and Safety, Volume 8 number 2, 1998
Health (http://www.gov.za/yearbook/health.htm) South Africa Year Book 1999, GCIS, South Africa
National Institute of Environmental Health Sciences (NIEHS) (http://www.niehs.nih.gov/) USA
NIOSH (http://www.cdc.gov/niosh/) CDC, USA
Occupational and Environmental Medicine Resources (http://www.occenvmed.net/welcome.html) Dr. Geoffrey Kelafant, USA
International
International Commission on Occupational Health (ICOH) (http://www.icoh.org.sg/) Singapore
Society
American College of Occupational and Environmental Medicine (ACOEM) (http://www.acoem.org/)
Association of Occupational & Environmental Clinics (A.O.E.C.) (http://occ-env-med.mc.duke.edu/oem/aoec.htm) USA
Australasian Faculty of Occupational Medicine (AFOM) (http://www.medeserv.com.au/afom/open/afom.htm) Royal Australasian College of Physicians
Irish Society of Occupational Medicine (I.S.O.M.) (http://ireland.iol.ie/~isom/)
The Australian and New Zealand Society of Occupational Medicine Inc. (ANZSOM) (http://www.anzsom.org.au/)
The Faculty of Occupational Medicine (FOM) (http://www.facoccmed.ac.uk/) Royal College of Physicians, UK
The Society of Occupational Medicine (SOM) (http://www.med.ed.ac.uk/hew/som/) UK
University
Directory of Sites in Occupational & Environmental Health (http://www.med.ed.ac.uk/hew/links/default.htm) University of Edinburgh, UK
Duke Occupational & Environmental Medicine World Wide Web (http://gilligan.mc.duke.edu/oem/) Occ-Env-Med-L Internet Mail-list (http://gilligan.mc.duke.edu/oem/occ-env-.htm) Occupational and Environmental Medicine WWW Resource Index (http://occ-env-med.mc.duke.edu/oem/index2.htm) Duke University, USA
Hardin MD - Occupational & Environmental Health (http://www.lib.uiowa.edu/hardin/md/occu.html) University of Iowa, USA
Medical, Clinical & Occupational Toxicology Resource Home Page (http://www.pitt.edu/~martint/welcome.htm) University of Pittsburgh, USA
The Southern Alberta Occupational Medicine Page (http://mir.med.ucalgary.ca/oemweb/) University of Calgary, Canada
University of Cincinnati Occupational Medicine Residency (http://oz.uc.edu/~freemaaw/Residency.html) USA

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Frank Fox - Frank_Fox@mhs21.tns.co.za; *Hans van der Merwe* - polimed.merwe@cyberserv.co.za

Health and Safety Mailing Lists

David W Stanton
Chamber of Mines

Occupational Health SA 1999; Vol 5, No. 6:25

Introduction

Mailing lists work the same way as personal e-mail, except when you send a message to a mailing list, everyone who has subscribed to the list will receive a copy of your message. This allows you to provide information to fellow practitioners on a workshop or conference or ask a question and tap into the expertise of the members of the mailing list. Likewise, if someone asks a question and you have relevant information to relay, you can respond to the question. It is not unusual for questions put to mailing lists to be fully answered the same day.

Currently there are over 200 mailing lists worldwide that have something to do with health and safety. There are probably 5-10 that cover a range of major health and safety subject areas. A list (http://www.ccohs.ca/resources/listserv.htm) of known health and safety mailing lists is maintained by Chris Moore at the Canadian Centre for Occupational Health and Safety. He considers the main health and safety lists to be:
GlobalOccHyg-List, HS-Canada, IH-List, Occ-Env-Med-L, and SAFETY.

These all use some form of mailing list management software such as Majordomo, LetterRip and Listserve.

In 1999 a very simple and easy way to establish group communication became available through eGroups (http:/www.egroups.com)

Southern African Discussion Groups

Several Southern African discussion groups have recently been established at eGroups as a valuable free resource for ASOSH and its member societies. These include: ASOSHNET, IoSMnet, OHASAnet, SASOHNnet, SASOMnet, and Safety First Association. It is envisaged that for example OHASAnet will be limited to OHASA members while all SHE practitioners in the SADC region and friends of Southern Africa can join ASOSHNET. If a question is not fully answered in one discussion group then it could be put to another group via the relevant group moderator or put to ASOSHNET. The free services provided by eGroups includes secure on-line voice chat and low-cost teleconferencing, computer searching and archiving of all the e-mail correspondence, a calendar where society events can be listed, a 20 MB vault where files can be stored and accessed by members, and a database where up to ten tables (each with up to a thousand rows and up to ten columns) can be generated and stored. The group moderator can set the policies for the group.

E-mail messages can accessed in four ways, either by receiving all the group e-mail, or have the choice of two forms of digest, or not receive any e-mails but take the option to read the messages at the group web site at eGroups.com.

The links to the Southern African discussion groups can be located via the Contacts page of ASOSH.ORG. OHASAnet is now active and it is envisaged that the various ASOSH member societies will activate their own discussion groups shortly.

- One can subscribe to OHASAnet via the OHASA page of ASOSH.ORG or by sending an e-mail to: ohasanet-subscribe@eGroups.com.

- To unsubscribe send an e-mail to: ohasanet-unsubscribe@eGroups.com.

- To post messages send to: ohasanet@eGroups.com.

With the availability of free e-mail through for example Hotmail (http://www.hotmail.com) and WebMail (http://webmail.netscape.com/) and the ease of establishing sophisticated free e-mail discussion groups through eGroups, the sharing of information and ideas between SHE practitioners via the Internet is set for rapid expansion in South and Southern Africa.

A world SHE/ EHS resource for Africa

ASOSH

The official web site (ASOSH.ORG) for the Association of Societies for Occupational Safety and Health, consists of a Southern African component, and through the World Links page, a World component. Currently on the Internet there is only a limited amount of Safety, Health and Environmental (SHE or EHS) information available from Southern Africa, but this is set to grow in the coming years. ASOSH.ORG takes you to the current links and to the new SHE links as they come online around Southern Africa. Through the World Links page of ASOSH.ORG you have access now to a vast library of SHE resources around the world plus extensive online training courses on the Internet, Internet tools, and SHE. The ASOSH website takes you to the best SHE links around the world, the links are regularly checked and updated and new important links added when published. Navigation around ASOSH.ORG in the Southern African component and the World component is very simple and new users find their way around quickly and easily. Access to this vast world library of SHE information through ASOSH.ORG is FREE.

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To help support and further develop this world class SHE resource, the Education & Training, Events, Jobs, Products and Services pages in the Southern African component will include your information at a competitive price and for as long as you choose.

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Promote your SHE education and training courses

Events page:
Publish details of your SHE conference or seminar

Jobs page:
Advertise your SHE positions or your CV as a SHE practitioner

Products page:
Promote your product line (including fire and security)

Services page:
The shop window for your Southern African SHE services

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ASOSH.ORG

Links to SHE information for Africa and the World

STD interventions for HIV/AIDS control in Africa

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[¥]*University of the Witwatersrand*

Occupational Health SA 1999; Vol 5, No. 6: 27 - 30

Introduction

Management of conventional sexually transmitted diseases (STDs) has become recognised as an important component in efforts to control the spread of HIV/AIDS. While compelling biological/scientific evidence to justify the need for improved STD control has been present for a number of years, the publication of the now-famous Mwanza (Tanzania) trial gave programme managers world-wide the direct evidence they needed; that improved STD management could make a major impact on HIV incidence. However, earlier this year, another STD intervention trial, this time undertaken in the Rakai district of Uganda, failed to demonstrate any effect of a STD intervention on HIV incidence. Against the background of these apparently conflicting results, further STD interventions are either being undertaken or being planned. It is therefore important to recognise the limitations of the two studies and also to highlight their strengths and weaknesses in order that their results can be evaluated in a balanced manner. In this paper the results of the initial phase of a targeted STD intervention undertaken in South Africa are outlined and the advantages/disadvantages of this approach compared and contrasted with both the Mwanza and Rakai studies.

The Mwanza study

The study undertaken in Mwanza, Tanzania was designed as a community-based randomized trial to assess the impact, cost and cost-effectiveness of averting HIV infection by improving the management of symptomatic STDs by primary health care workers.

The impact of these improved services was assessed by comparing six intervention communities with six matched control communities. A random cohort of approximately 1 000 adults aged 15-54 years from each community was recruited into the study and measurements of STD prevalence and HIV status measured at baseline and two years later. The intervention comprised the establishment of a STD reference clinic and laboratory, staff training in syndromic management of STDs, provision of a regular supply of drugs, regular supervisory visits to health-care facilities, and health education about STDs. Control communities continued to receive the basic STD care that they had previously received.

Baseline HIV prevalence was 3.8% and 4.4% in intervention and comparison communities respectively. Of those found to be HIV-seronegative at the initial visit, 1.2% seroconverted within two years in the intervention communities, while 1.9% seroconverted in the control communities. HIV incidence was found to be consistently lower in the intervention communities when compared to their match pairs. The authors estimated that, allowing for the community-randomized design and the effects of confounding factors, the estimated risk ratio was 0.58 (95% CI 0.42 - 0.79, $p = 0.007$). Since no apparent change in sexual behaviour was reported in either group, it was concluded that the introduction of syndromic management was responsible for an approximate 40% reduction in HIV incidence.

The Rakai study

In view of the fact that syndromic management has an effect only on symptomatic STDs, it was thought that provision of mass antibiotic treatment would result in the treatment of both symptomatic and asymptomatic disease and therefore reduce both shedding and acquisition of HIV by individuals who were at greater risk of transmission owing to their ulcerations/inflammations. Thus the Rakai study, undertaken in Uganda, was designed as a randomized, controlled community-based trial of intensive STD control via home-based mass antibiotic treatment. In the study, ten community clusters were randomly assigned to either intervention or control groups. All consenting residents aged 15 - 39 years were enrolled and measurements of STD prevalence and HIV status measured at baseline and at 10-monthly intervals prior to provision of mass treatment with either antibiotics (intervention group) or vitamin/anthelminthic preparations (control group). Overall, the baseline prevalence of HIV infection was 15.9%.

While STD treatment resulted in a significant decrease in syphilis and trichomoniasis among the intervention group, compared to controls, the incidence of HIV-infection was 1.5 per 100 person-years in both groups [rate ratio 0.97 (0.81-1.16)].

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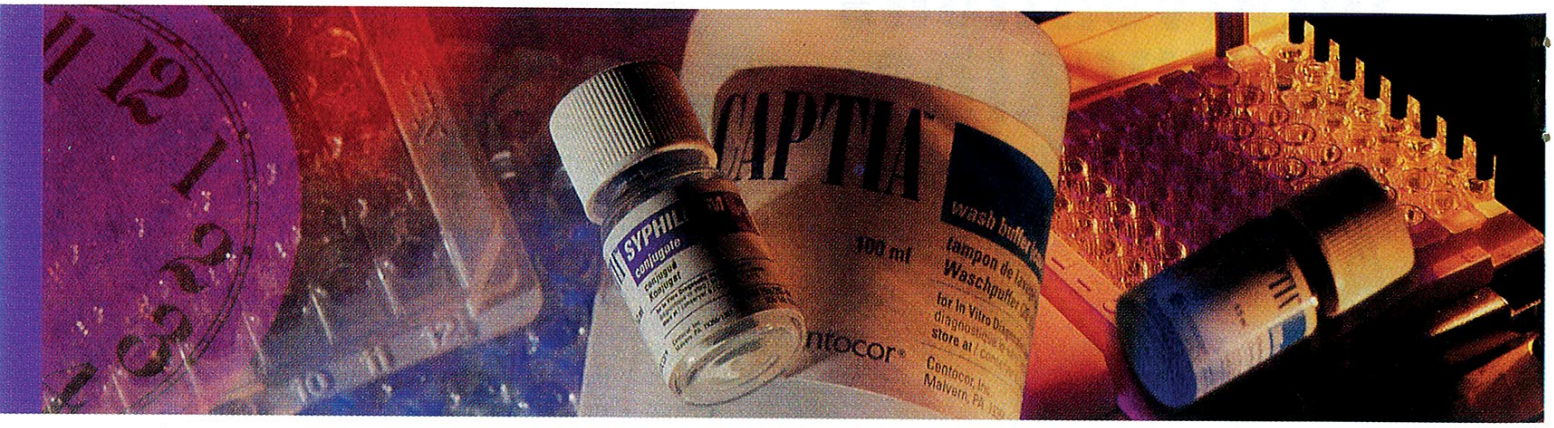

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The Great Debate

The initial reactions to the conflicting results obtained in the two studies described above were inevitably that one of the studies was wrong. However, much has been said subsequently about the role of STD interventions at various stages of the HIV epidemic, since Mwanza was early in the epidemic and Rakai later. Theoretically it is believed that the greatest effect of STD interventions will be early in the epidemic when high plasma viral loads following seroconversion are found in association with STDs which would enhance transmission by core transmitters. In a more mature epidemic, the majority of persons with high plasma viral loads (with late disease) would be less likely to be co-infected with STD organisms since the HIV epidemic has passed from core spreaders into the general population. These individuals will have more acts of intercourse per partner than those infected earlier in the epidemic and thus HIV spread will be less dependent upon the STD cofactor effect than previously. Unfortunately, these considerations do not take into account the high rates of STD which occur in those areas where the HIV epidemic has flourished. They also do not consider that the conventional STDs are usually inapparent despite the presence of signs of infection. Thus any young person becoming sexually active will usually acquire a conventional STD during their years of experimentation before they acquire HIV and that STD will render them more susceptible to acquisition of HIV. It is therefore imperative that the total burden of STDs (and, therefore, genital inflammation) be reduced on a population basis in order to reduce increased susceptibility to HIV.

Much has been said about core transmitters of disease and their role in STD and HIV spread. Above all, it is clearly important that genital inflammations be reduced in these populations to reduce both acquisition and transmission of HIV. Their status is unlikely to be changed by the stage of the HIV epidemic since they continue to change partners and place themselves at risk of both STD and HIV. In turn they place their regular sexual partners at increased risk.

With this in mind, what approach is suitable for Southern Africa? Clearly it is necessary to provide ongoing care for STDs - and syndromic management is undoubtedly the best way to provide that, bearing in mind local conditions and health-care facilities. However, mass treatment options such as those used in Rakai are not feasible in Southern Africa since immense resources would be needed to provide such cover. Indeed, in Rakai itself, rounds of treatment were initially to be undertaken every six months, but the logistics proved so difficult that treatment was only provided every ten months. This offered every opportunity for high rates of re-infection to occur between treatment rounds. If this was the case in Uganda where the infrastructure and communication are poor, how would we be able to cope in a region with superb communication and large population movements?

Southern Africa and the Targeted Intervention Option: the Lesedi Project

The highest rates of HIV infection in the world occur in Southern Africa, where some of the countries with the highest per capita incomes on the continent are most affected. Factors such as rural poverty and the migration of individuals in search of work contribute to the separation of families and resulting high-risk sexual behaviour. Moreover, high rates of curable STDs also create conditions promoting the efficient transmission and rapid spread of HIV.

South Africa has seen a major HIV/AIDS epidemic unfold with alarming speed since HIV prevalence rates were first measured in 1990. HIV prevalence rates among pregnant women have increased from less than 1% in 1990 to more than 20% in some provinces. Urban areas and regions with large mining communities or those based on other industries are strongly affected, but HIV rates are also high in the rural areas from which many migrant workers originate. By the end of 1997, 2.9 million South Africans were living with HIV, an estimated 420,000 people had developed AIDS, and 360,000 people had died of AIDS-related illness. In addition, almost 200,000 children under 15 had lost one or both parents to AIDS.

Commercial sex is a prominent feature around many South African gold mines. It is widely regarded as one of the key factors in maintaining high STD rates in the mining communities. Genital ulcer disease due to chancroid, syphilis and herpes simplex virus is common, and non-ulcerative STDs, such as gonorrhoea, chlamydial infection and trichomoniasis, are even more prevalent. Such high rates of curable STDs in South African mining communities create ideal conditions for HIV transmission.

Previous efforts to control STDs in these mining communities have yielded minimal results in reducing community levels of disease. Educational programs, condom distribution and improved STD treatment, initiated by some mines for their workers, have not decreased STD rates. Until recently, few efforts to control STDs have encompassed the sexual contacts of the miners - even the identified partners of infected miners often were not eligible for treatment in mine clinics.

Against this background, the Lesedi Project was started.

It sought to address this imbalance by providing effective STD services for women living near the mines and at high risk of STD infection. A mobile clinic staffed by a nurse was set up, and peer educators were recruited and trained to promote the services among their peers.

In this first nine months of the project, peer educators raised awareness in the community of STDs and prevention methods. More than 400 women attended the clinic at least once for examination, counselling and treatment. Clinic protocols were designed to provide effective treatment for the most common curable STDs in the community. All women attending the clinic were treated presumptively, based on their high risk of exposure. Additional treatment was added as needed for women who were symptomatic.

In evaluating this first phase of the intervention, STD rates were measured both for the women attending the clinic, as well as for miners living in the area. Among women using the services, STD prevalence was reduced by 70% to 85%. Local miners screened nine months after the start of the project were found to have 43% less gonorrhoea/chlamydial infection than before the intervention, and 78% had fewer genital ulcers. STD consultation rates at mine health services were also monitored, and miners living in hostels near the intervention had significantly lower rates of symptomatic STDs than those living farther away. In addition, self-reported condom use during commercial sex rose from negligible levels to 20% to 30% of encounters.

Based on these results, estimates of the impact of the services on HIV transmission were developed using the AVERT model, a Tool for Estimating Intervention Effects on the Reduction of HIV Transmission, developed by Family Health International's AIDSCAP and IMPACT Projects. It was estimated that HIV incidence was reduced by over 40% among the miners and by over 30% among the women. A cost-benefit analysis of the Lesedi Project was prepared and presented to mine management. Based on conservative estimates of the cost savings of providing services for the women, mine management agreed to take over costs of implementing the intervention.

Conclusion

Clearly further studies are required to validate the results obtained in this 'hybrid' intervention, including direct measurement of HIV incidence. However, there is a great need to innovatively apply what is known about STD/HIV interactions to control the spread of both threats to public health.

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Needle-stick injuries and healthcare students

Dr Lynne Webber
University of Pretoria
Occupational Health SA 1999; Vol 5, No. 6: 31 - 33

Summary

Healthcare students are at risk of exposure to human immodeficiency virus (HIV) and hepatitis B, as part of their training, clinical duties and service delivery. Annually 250-300 occupational exposure incidents are reported to the Department of Medical Virology's diagnostic laboratory and in 1998 121 of these injuries were reported by healthcare students. On the background of the number of reported incidents and the growing HIV epidemic, healthcare students decided to address the issue of occupational hazards for students. The students launched an awareness programme on the occupational risks and management of occupational exposure and are actively negotiating for an HIV-related insurance policy specific to the needs of healthcare students. Staff members at the Faculty of Medicine are intensively involved in formulating policies regarding student and patient safety aspects. The University of Pretoria model has shown that students and professionals working together as a team can bring about changes to actively control hazards in the working environment.

Introduction

Healthcare workers (HCW) have always known that the risk of acquiring infectious diseases is an integral aspect of their profession. This fear has, until recently, been allayed as a result of the availability of antibiotic treatment and vaccines and the implementation of eradication and infectious disease control programmes internationally. HCWs are at risk of acquiring a spectrum of infectious and communicable diseases in many different ways such as via respiratory droplets and the bloodborne route. However, the global human immunodeficiency virus (HIV) pandemic and the real fear of being exposed to and possibly acquiring HIV has recently and dramatically altered the perceptions and practices of most healthcare professionals. Despite hepatitis B virus (HBV) being much more infectious than HIV, reports are still received that HCWs do not receive or even have vaccinations against it.[1] A healthcare worker can be defined as any individual who, within his or her occupational capacity works with, or has contact with patients or any patient body fluids and tissues. Thus healthcare students, in most cases seen to be medical, dental and nursing students, fall into this category with all the implications and precautions that apply to their profession. Following the success of certain antiretroviral drugs in dramatically decreasing the HIV viral load in HIV-positive patients and the proof that zidovudine (AZT) alone can reduce the risk of HIV transmission by 79% in occupational exposure cases, new guidelines addressing the management of occupational exposure to HIV and the approach to assessing and treating HCWs were recently published.[2]

South African conditions

Modifications to these international public health guidelines are necessary to suit the particular and unique conditions in South Africa.[2] The following aspects need to be highlighted:

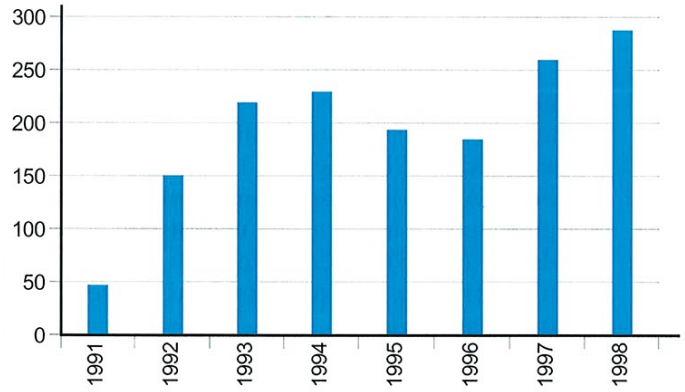
- South Africa is currently experiencing the fastest growing HIV and acquired immunodeficiency syndrome (AIDS) epidemic globally
- many HIV-positive patients at this stage are HIV treatment naïve
- in many occupational exposures the source patient HIV status is often unknown
- the number of babies born to HIV-positive mothers is rapidly increasing;
- and the HBV prevalence is still high in certain areas and populations of the country.[3,4]

In addition, it can be readily estimated that the HIV seroprevalence in certain hospital populations could easily lie between 40-60% and this may even be higher in certain healthcare disciplines.

Annually more than 250 occupational exposure incidents are reported to the Department of Medical Virology's routine diagnostic laboratory and the majority of these injuries are incurred at two academic hospitals, Pretoria Academic and the Kalafong Academic hospitals. (Dr L Webber, unpublished data - *see figure 1*) In 1998, 121 occupational incidents of which 108 (89%) were needle-stick injuries, were reported by healthcare students (over 40% of all reported exposures). Until July 1999, 66 incidents occurred among healthcare students (Dr L Webber, unpublished data). The remainder of the occupational exposure incidents included body fluid splashes into the eyes, human bites and instrumentation injuries. Of all the student-related incidents, 64% were reported by med-

ical students and 24% by dental students. Close to 30% of the injuries experienced by oral healthcare students occurred as a result of injury from instrumentation not in immediate use, but soiled with patient fluids or tissues and lying on the work surface. The risk of acquiring HIV from an occupational exposure such as a needle-stick injury is low (0.3%) and is even lower in cases of mucosal splashes (0.1%).[5] *(See Figure 2)* However, the number of reported injuries coupled with the background HIV prevalence in South Africa prompted medical and dental students at the University of Pretoria to address the issues of occupational hazards for students pro-actively.

Figure 1: Number of occupational exposure incidents reported to diagnostic laboratory of the Department of Medical Virology, Pretoria, 1991 to 1998*



** (Dr. LM Webber: Unpublished data)*

Figure 2: Occupational exposure risks of transmission of bloodborne viral pathogens[1,2]

Virus	Potential Risk
Hepatitis B eAg negative sAg positive	2%
eAg positive sAg positive	20 - 40%
Hepatitis C virus	2 - 10%
Human immunodeficiency virus (HIV)	
• needle-stick injury	0.37%
• mucosal splashes	<0.1%

eAG - HBV e antigen, sAg - HBV surface antigen

Awareness programmes

The GlaxoWellcome HIV post-exposure prophylaxis two-drug starter pack initiative, freely and readily available for all healthcare students around the country, was a tremendous achievement. This initiative by GlaxoWellcome is a novel approach and a global first; and has done much to alleviate possible fears and concerns of students, particularly those working in areas where the infrastructure may not be optimal. In spite of this, medical and dental students from the University of Pretoria still felt that more should be done to eliminate or minimise potential occupational risks. The 1998 Medical Student Committee launched an awareness programme among healthcare students regarding the risks and hazards of their profession, particularly with regard to hepatitis B virus (HBV) (risk of transmission from HBV carriers is 2-40%) and HIV.[5,6] The medical students have also played an active role in formulating a standard approach to the management of student-related occupational incidents for all hospitals and places where they undergo training and perform service delivery.

HIV insurance policy

One of the major problems identified by the students was the urgent need to obtain an insurance policy against possible HIV infection during clinical contact with patients and patient specimens. A seminar on HIV-related insurance policies was thus arranged by the Student Committee and was then followed by a student-initiated and -driven referendum early in 1999 to determine the opinion of healthcare students. The response was overwhelmingly in favour of an insurance policy specific to healthcare students' needs. Active negotiations regarding the choice of insurance package and cover as well as other aspects such as education and counselling that may be required are ongoing. The University of Pretoria has also been approached to consider including the monthly insurance premium in the student university fees.

Immunisation service

The Medical Faculty requires the hepatitis B serostatus of all prospective medical students entering the Faculty and doctors at the Faculty, after evaluating these results, offer advice regarding vaccination and provide information to students possibly at risk, infected or in the carrier state. Knowing the infectious nature of HBV and the efficacy and safety of the vaccine, the medical students also identified a need to initiate a mass HBV immunisation service for all healthcare students. The students felt it would be easier to have definite dates set for the vaccination schedule as the third injection, and in some cases the second one, was easily forgotten once the academic year was

under way. The pharmaceutical company SmithKline Beecham was approached and the vaccine was made available at a special cost. The vaccination campaign was introduced in 1998 with resounding success and enthusiasm.

Oral healthcare

The unique nature of dental procedures, the instruments used and the particular infrastructure and settings require specific strategies to minimise occupational incidents and prevent infectious disease transmission among patients and staff. No specific guidelines currently exist for the prevention of the spread of infection, particularly with regard to HIV, in the oral healthcare setting in South Africa. (Professor M Rudolph, Department of Community Dentistry at the University of the Witwatersrand: personal communication). The Dental Faculty Student Committee recognised these safety needs and organised seminars and presentations on potential oral health occupational risks and hazards. The Dental Faculty and the Department of Medical Virology provide a 24-hour advice service for all students working on the Phelophepha Community Dentistry train as regards exposure risks and the management thereof, particularly in rural areas. As this train is a private initiative and a unique setting for oral healthcare students and professionals in the country, novel and interesting strategies had to be put in place by all the university and training institutions involved. Staff members and students from the Dental Faculty have played a major and active role in ensuring that the University of Pretoria covers all costs of HIV post-exposure prophylaxis for students occupationally exposed to HIV.

Collaboration

One of the current dilemmas facing healthcare students in training is where they fit in within the state and training institutions' organisation and system. One of the important questions to be considered is, who is actually responsible for the wellbeing and safety of the student in training? This needs to be addressed urgently, as the student is not currently regarded as a permanent employee of the state nor training institution. Many aspects of work safety and occupational risk assessment as well as management have been addressed at the Faculties of Medicine and Dentistry at the University of Pretoria and the following achievements should be highlighted. A staff and student-driven incentive led to the University of Pretoria approving and agreeing to cover all costs related to student occupational exposure to HIV. This includes the cost of all laboratory tests required such as baseline tests, drug toxicity monitoring and subsequent HIV serostatus over time; the cost of prophylactic anti-retroviral drugs prescribed and the counselling, monitoring and subsequent follow-up of the wellbeing of the student. A recently appointed Health Committee for the Faculty of Medicine is addressing the ethical and legal issues relating to the health aspects of prospective and current healthcare students and is currently formulating a policy to address the protection of students and patients. A new problem-oriented medical and dental curriculum has been introduced at the University of Pretoria. The level of training for each student and the skills required for patient management is under rigorous and continuous scrutiny to ensure safe and controlled working conditions for all students. Time spent at the Skills Laboratory is an integral component of the medical student's training and necessary and basic skills are demonstrated and practised.

Conclusion

Much has been achieved in a short time in the Medical and Dental Faculties and a lot of the acclaim must go to those students and professionals actively involved. However, a long and rough road still lies ahead regarding occupational health safety policies and guidelines for all healthcare students, both pre- and post-graduate. However, the University of Pretoria has shown that together, students and staff members can bring about the required changes in the student and professional working environment.

Acknowledgements

All the Deans and Deputy-Deans of the Faculties of Medicine and Dentistry, all members of the Student Committees involved and all staff members and students of the University of Pretoria that have played an active role in addressing the issues of occupational risks for students and staff members. Thanks to the pharmaceutical companies GlaxoWellcome and SmithKline Beecham for their contributions. Kind thanks to Dr Maureen Taylor of the Department of Medical Virology and Dr Peet Rautenbach of the Chamber of Mines for reviewing this manuscript.

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Hazardous Chemical Substances (HCSs) in South African Construction

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Construction is a process which requires the use of a diverse range of materials, inter alia, chemical substances, some of which are hazardous. The hazardous nature of certain chemical substances is compounded by the nature of the construction process, inter alia: separation of design and construction; exposure to the elements; once-off product; multi-contributors; changing workplace; nomadic, and low skilled workforce. However, various processes and interventions by contractors and other construction stakeholders can minimise the risks.

This paper tables the findings of a pilot survey conducted among contractors based in two metropolitan areas. Findings include, inter alia: materials safety data sheets (MSDSs) are not readily supplied; the amount of hazardous chemical substance (HCS) training is minimal, and HCSs are stored in an arbitrary manner.

Introduction

A large number of chemical substances are used in the construction of buildings and their infrastructure. They are found in: adhesives, cleaning agents for brickwork and stonework, decorative and protective treatments for timber and metals, floor treatments, fungicides, cements and grouts, insulants, sealants, paints and solvents. Of particular importance are solvents, which are liquids commonly used in paint strippers, lacquers, varnishes, surface coatings, thinners and similar cleaning materials.

Given the aforementioned, a study was conducted in 1998 to determine, relative to HCSs, level of awareness, types encountered, types of training and other practices.

Entry into the Body

A chemical can cause injury in various ways depending upon whether it is solid or liquid, or in the form of airborne dust, vapour, fumes or gas. The routes into the body are by : inhalation or breathing in; ingestion or swallowing, and absorption through the skin.[1] Inhalation or breathing is the most important route of entry. Some toxic gases and vapours cause irritation in the nose and throat and give warning of their presence. Others do not and penetrate to the lungs or blood stream. However, it is the smallest dust particles which reach further into the lungs, and accumulate, producing changes and causing an incurable disease called pneumoconiosis.[2] Dusts such as quartz and asbestos may lead to the development of TB or cancer. Ingestion or swallowing is possible where chemicals such as lead-based paints are handled and then the handler eats or smokes without first washing his/her hands. Toxic vapours can contaminate drinking or eating utensils, or when meals are eaten on site. Some solvents can be absorbed through the skin into the bloodstream and may travel to internal organs such as the brain and liver.

The South African Regulations for HCSs[3] require a risk assessment for 'potential exposure' needs to be done. The risk assessment requires the identification of substances, toxicity and route of entry, usage, existing hygiene measures and potential for absorption by employees.

Chemicals and risks

Many chemicals are hazardous with a potential for fire and explosion, or toxic, with an inherent potential to cause poisoning. Toxic substances cause both acute effects, such as dizziness, vomiting and headaches, produced in a short time by exposure to solvents, as well as chronic effects resulting from exposure over a long period as in lung diseases such as asbestosis and silicosis. Acids and alkalis are corrosive and can damage both skin and the eyes.[2]

Common construction chemicals include: skin sensitising substances i.e. those that cause an allergic response: diphenylmethane - 4,4 diisocyanate in polyurethane; nickle in welding electrodes, and oil of turpentine.[2] Bitumen products used in sealing and waterproofing is a suspected carcinogen. However, when polycyclic aromatic hydrocarbons are added, the hazard increases. Hot bitumen irritates the eyes, skin and respiratory tract. Separating agents used to separate shuttering from partially or totally dried concrete contain, among others : mineral oils; aromatic, and halogenated hydrocarbons. The produced vapours and mists can irritate the respiratory tract, eyes and the skin.[2] Concrete causes both an irritant and allergic contact dermatitis due to its abrasive and alkaline properties.[4]

Carbon monoxide is a commonly encountered gas. Sources include internal construction plant combustion engine exhausts and carbon dioxide welding. During welding the parent metal and its coatings together with the weld metal and rod coatings release a variety of complex fumes which cause a flu-like illness called metal-fume fever.[5] Solvents not only cause dermatitis, but can cause headaches, dizziness and vomiting. Long-term exposure can be extremely toxic to the body's nervous system (neurotoxic).[5]

Silica is found in rock, sand and concrete. Quartz, a form of silica, is the most common mineral in the earth's crust. Upon entering the lungs, crystaline silica can cause silicosis, a disabling lung disease; silicosis is also suspected of causing lung cancer.[4]

Asbestos causes several diseases, including: asbestosis, a disabling disease of the lungs; lung cancer; and mesothelioma, a usually fatal cancer of the chest or abdominal cavity lining.[4]

Flammable HCSs

In addition to being toxic, many HCSs are highly flammable.[1] The following precautions are recommended : a flammable goods store [FGS]; availability of MSDSs for reference; no-smoking requirement due to flammable vapours; secure upright storage; control of empty drums due to flammable vapours; decant to small containers in the open air; use of funnels and spouts to prevent spillage, and ensure an adequate supply of fresh air if HCSs are being used in an enclosed area.

Education and Training

The Occupational Health & Safety (OH&S) Act, 1993[6] stipulates that the employee needs to be made conversant with the health and safety (H&S) hazards related to work which needs to be performed, articles which are produced, processed, handled, stored or transported, and the relevant H&S precautionary measures taken with respect to those hazards. The provision of MSDSs are the responsibility of the supplier or manufacturer. Induction training should address likely hazards which could be encountered.[5]

The Universal Studios Florida [USF] Safety Department[7] requires all contractors' workers to be trained, that the workers understand the HCSs programme, and documentary proof thereof prior to commencing work on site.

Preventative Action

Client/ Designer Influence

Clients influence H&S both positively and negatively, either directly or indirectly. An indirect intervention such as pre-qualifying contractors on health and safety procedures assures the engagement of health and safety conscious contractors. A direct intervention such as the imposition of permit systems requires contractors to follow client H&S procedures.[8] The USF Safety Department makes the MSDSs for all chemicals available for contractor review. A basic review of the chemicals located in the immediate work area are also provided to the contractor as part of the pre-project review meeting.[7]

Designers also influence construction. Directly through selection of frame type, design, detail and specification, all of which may require the use of HCSs and indirectly through preparation of contract documentation.[9]

Medical Surveillance/ Biological Monitoring

Medical surveillance refers specifically to examination of individuals for the purpose of detecting health effects of substances used in the work environment at pre-employment and periodic monitoring.[10] Biological monitoring measures the extent of absorption of an HCS by the employee and medical screening detects any adverse affects of an HCS on the employee. Design and implementation of a Medical Surveillance Programme [MSP] should follow a structured process: risk assessment; identification of the potential organs which could be damaged; scheduling tests, actions and ethics; employee fitness; evaluation of control, and record keeping. Abnormal findings should trigger further actions, such as occupational hygiene investigations and a review of control strategies.[10]

Storage and Labelling

MSDSs specify the labelling and storage required for HCSs, especially those which are flammable such as solvents, or those recognised as possibly carcinogenous.

Construction workers generally underestimate the dangers of HCSs because many of the same materials are used at home. More to the point, workers often decant products and solvents into different containers, increasing the risk of damage and inappropriate use.[11]

Although the issue of personal protective equipment [PPE] becomes a last resort should the preceding steps not eliminate or mitigate the risk, PPE is of no protective value if management does not ensure correct training, usage, storage and changing.[11]

Engendering Strategies

Partnering is a process which brings together the various stakeholders involved in a construction project : client; designers; general contractor; subcontractors, and suppliers, to develop mutually acceptable goals.[12]

Constructability management is a system which enables designers and contractors to achieve optimum integration of construction knowledge and experience. Health and safety is one of sixteen criteria addressed.[13]

Total Quality Management [TQM] has as its main thrust continuous improvement in customer satisfaction, employee satisfaction, health and safety, productivity and quality by integrating the processes of health and safety, productivity and quality.[12]

Research

Introduction

A pilot descriptive survey was conducted in May 1998. A written questionnaire was mailed to all the members of the Master Builders & Allied Trades Association [MBA] [Cape Peninsula] and the Port Elizabeth- and Uitenhage- based general contractor members of the East Cape MBA. 16 questionnaires were returned which represents a response rate of 4,7%. The low level of response is likely to be attributable to the hypothesised lack of awareness for and prioritisation of HCSs by contractors and industry-related stakeholders.

Results

62.5% of respondents were main contractors, 29.2% were subcontractors and 8.3% a combination of both.

29.2% of contractors were aware of the Regulations for HCSs.

Only 4% of contractors responded that suppliers 'always' provided MSDSs with HCSs, the level of response for the other frequencies being: 'often' (16%); 'sometimes' (32%); 'never' (24%), and 'don't know' (24%). 19.2% of contractors stated that they encountered cement on a 'daily' basis. Other HCSs encountered on a daily basis include: solvents/thinners/mineral turpentine (7.7%) and adhesive/glue, bitumen, liquid gas and white spirits (3.9%). 7.7% of contractors stated that they encountered petrol and adhesive/glue on a 'weekly' basis. Other HCSs encountered on a weekly basis by 3.9% of contractors include: power paraffin; gas; cement; bitumen; methane gas; oil, and silica.

'Activity related' (20%) and 'toolbox talks' (16%) predominated among HCS related training, and 'activity related' (20%) and 'toolbox talks' (16%) among re-training *(Table I)*. The high level of 'don't know' responses should be noted.

'General knowledge' (28%) and 'supplier representatives' (24%) predominated among material used to conduct the training. MSDSs were used by only 12% of respondents. 36% of respondents did not know.

28% of contractors responded that a record of training was kept for legal purposes. 46% of contractors used 'workplace observation' to test the effectiveness of training, 8% used 'verbal testing' and 40% 'other' methods. Gloves (60%) goggles (52%) and gum boots (48%) predominated among (PPE) used in conjunction with HCSs *(Table II)*.

The minority of contractors included the use (36.4%), inspection (9.5%) and, maintenance (14.2%) of PPE in training.

Only 16.7% of contractors conducted HCS risk assessments. 12.5% did not know the status quo.

Table I: Types of HCS related training and re-training

Type	Percentage of contractors who conduct	
	Training	Re-training
Induction	8.0	4.0
Toolbox talks*	16.0	16.0
Videos	4.0	8.0
Courses	8.0	4.0
Activity related	20.0	20.0
Other	0.0	20.0
Don't know	36.0	24.0

* *Toolbox talks = Forum to address a specific H&S related theme or topic.*

Table II: Type of PPE used in conjunction with HCSs

Type of PPE	Extent of use (%)
Gloves	60.0
Gum boots	48.0
Goggles	52.0
Respirators	36.0
Suits	16.0
Other	4.0
Don't know	16.0

With respect to the storage location of HCSs, 'general store' was identified by 44% of contractors,'flammable store' by 20%, 'other' by 8% and 32% did not know.

'General written record' predominated among the methods used by contractors to monitor the use of HCSs followed by 'other' (12%) and 'specific HCS record' (4%). 44% didn't know.

Only 8% of contractors responded that a specific person was appointed per site to monitor HCSs. A similar percentage of responses conducted medical surveillance of workers who use HCSs. Relative to HCSs, only 9.1% conducted tests in the environment.

23% of contractors had comments in general regarding HCSs in construction. Five selected comments include: "It is assumed that the HCSs used by our operation are very minor!"; "Few people actually understand the implications. We all need the information and greater awareness as to how to implement the necessary checks and balances"; "We are painting contractors"; "We give very little consideration to HCSs"; and "HCSs in construction are virtually non-existent."

Discussion

Generally, contractors: are not aware of the regulations for HCS Regulations; are not in possession of MSDSs; do not undertake the requisite training and retraining; make use of various sources for knowledge; provide PPE to a degree; store HCSs inadequately; adopt an informal approach to the management of HCSs, and do not plan relative to HCSs.

Limitations

Given that, generally speaking, the more committed contractors respond to postal surveys, the respondents to the descriptive survey constituting part of this study are likely to constitute the more committed contractors in terms of HCSs. Therefore the situation with respect to HCSs is likely to be much worse.

Conclusions

Construction requires the use of various HCSs in most trades and activities.

Beside the direct health risk HCSs pose to workers, there are also allied risks due to the flammable nature of certain HCSs.

Education and training is both a legislated requirement and essential to empower workers to handle, use and store HCSs safely.

Preventative action requires multi-disciplinary contributions by various stakeholders: client assistance to contractors; non-specification of HCSs by designers; provision of MSDSs by suppliers; implementation of procedures for storage, use and handling by contractors; and medical surveillance and monitoring by contractors.

Various strategies, systems and processes, namely partnering, constructability management and TQM engender health & safety and the circumspect use of HCSs. These strategies, systems and processes all require multi-disciplinary contributions by various stakeholders.

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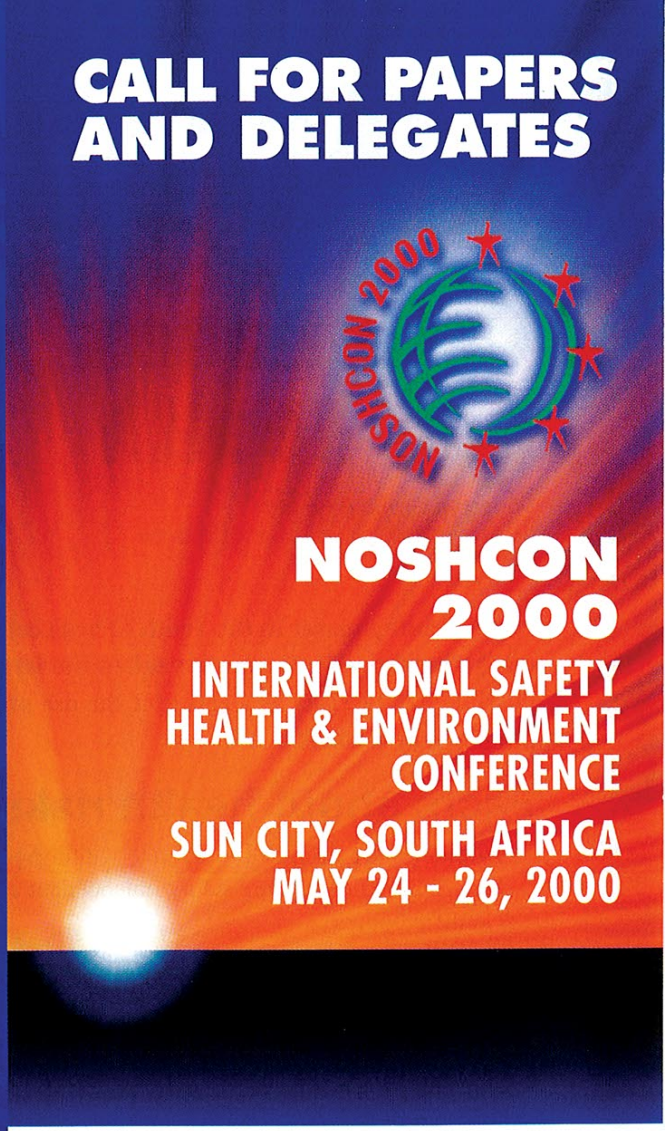

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Cellphones and health

Vodacom Group (Pty) Ltd

Occupational Health SA 1999; Vol 5, No. 6: 38 - 39

As the leading player in the South African cellular phone industry, Vodacom has taken the issue of possible health risks as a result of the use of cellphones very seriously.

Facts about health risks

- Cellphones are designed to operate within rigorous safety guidelines that are set by independent expert scientific bodies
- Electromagnetic energy has been the subject of intensive study for many years and recent advances in our scientific understanding have provided new areas for research
- Research projects are continually underway but, to date, expert scientific bodies have not considered that there should be any changes to the limits
- The cellular industry supports efforts to expand its scientific knowledge in this field, both through its own research and through co-operation with leading scientists and organisations around the world.

Vodacom supports research on this issue, both financially and in terms of human resources.

Summary of recent opinions

- "While there has been renewed media interest in this subject, there has been no new evidence recognised by the scientific community on which to base any changes to the guidelines. There are no plans to require mobile phones to have a health warning" The British Government.
- "There is no convincing evidence that exposure to radio frequency energy shortens the life span of humans, induces or promotes cancer" [1]
- "Current scientific evidence indicates that normal use of a cellular phone... is unlikely to cause any adverse health effects, including cancer. The department has indicated that the levels of radio frequency energy emitted by cellular telephones in normal use are well below internationally accepted limits." SA Minister of Telecommunications, Jay Naidoo.[2]

The issue

All electrical appliances - such as light bulbs, microwave ovens, TVs and cellphones - emit electromagnetic radiation. Cellphones using the GSM standard (the standard used by Vodacom and 323 cellular networks worldwide) are designed to operate at the lowest power necessary and scientists studying the transmission of radio signals indicate that GSM handsets easily comply with current exposure guidelines.

Who sets the guidelines?

In the United Kingdom, guidance as to accepted levels of electro-magnetic radiation is produced by the National Radiological Protection Board (NRPB), an independent statutory body which conducts research and provides information on all types of radiation. World-wide, the International Non-Ionizing Radiation Committee (INIRC) of the International Radiation Protection Association (IRPA) in co-operation with the World Health Organisation (WHO) has developed a database on non-ionising radiation.

The NRPB/INIRC conclude that there are no known harmful effects through the normal use of cellphones.

The GSM Association - a world-wide industry association representing cellular network operators using the GSM cellular standard - has agreed that no part of the human body shall have a temperature rise of more than one degree centigrade. This is converted into a Watts/kg below which this temperature rise will not occur. All member organisations then divide this figure by 10 as a safety margin, with some making a further division by 5 as an extra safety measure.

The EBRC (EMC and Bio Effects Review Committee) of the GSM Association then ensure that all the activities of the industry are on the safe side of these values.

Financial contributions and a watching brief have been maintained on studies managed by the World Health Organisation (WHO) to assess the health effects of electric and magnetic fields. One such study has been completed and has been published by the WHO. The report concludes that no GSM mobile phone exceeds the guidelines laid down by the WHO on health and safety.

Researchers from Nanyang Technological University in Singapore said a cellphone user's head was heated up to no more than 0,15 degrees centigrade and concluded that the device was generally safe.[3]

International guidelines state that electro-magnetic waves equal to 0,25 degrees centigrade or lower are negligible as a health hazard.

The following are other concerns associated with the use of cellphones:

Interference with hearing aids

A number of international bodies have produced immunity standards for hearing aids which will eliminate incidental interference caused by people using GSM cellphones in the presence of a hearing aid user.

Implanted cardiac pacemakers

There is no evidence that people using cellphones can interfere with a pacemaker implanted in another person or that signals at reasonable distances from base station antennas are capable of causing interference to implanted cardiac pacemakers.

People who have implanted cardiac pacemakers and who want to use a GSM cellphone should seek the advice of their cardiologist. Individual cardiologists should be encouraged to refer their questions to the manufacturer of the pacemaker.

Automotive systems

Vehicle manufacturers have investigated the possibility of cellphone interference into vehicle computer management systems. They have shown no interference effects on airbags, automatic braking or cruise control systems when tested with a high-powered transportable phone place anywhere inside the vehicle. In some instances a mobile phone may cause interference to the vehicle audio and remote locking systems if held close to the devices.

Aircraft

It is recommended that airline instructions about not using mobile phones while in flight be observed.

Conclusion

Based on current knowledge, any risk attached to mobile phone use is minimal compared with the everyday risk faced from, for example, driving cars and direct sunlight. A cellphone is a genuine security asset and a vital communication tool.

For more information, contact Joan Joffe, group executive (corporate affairs), Vodacom, telephone (011) 653- 5884

References

1. International Commission on Non-Ionising Radiation Protection of the World Health Organisation, April 1996.
2. Volksblad, 14 November 1998.
3. Cape Times, 13 March 1997.

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Biological effects of EMF emissions by cellphones - an overview

Pete Jensen
RadioCellutions, Johannesburg
Occupational Health SA 1999; Vol 5, No. 6: 40 - 41

"It is not acceptable to force risk upon individual human beings; neither is it in the interest of the general public to dispense with technological opportunity because of the possibility that individuals may suffer harm. What is required, therefore, is a general consensus on how much risk individuals may reasonably be expected to accept."
Swiss Re-insurance - a Phantom Risk.[1]

Overview

Recent developments such as the European parliament's unanimous decision to have health warnings affixed to cellphones and one of Lloyds' underwriters' refusal to underwrite cellphone manufacturers due the heavy losses sustained within the asbestos industry, coupled with increasing calls for more research into the biological effects of EMF (electro-magnetic frequency) radiation, have created ongoing doubt as to the absolute safety of cellphones.

Symptoms

Although standards have been set to protect the cellphone user, many users are complaining of symptoms. The world's largest epidemiological study conducted by Sweden's National Institute of Working Life in collaboration with Norwegian phone company Telenor involved 17 000 people over a period of 18 months.[2] 11 000 responded and the results showed a correlation between length and number of calls with the occurrence of symptoms. Subsequent surveys have shown concern by 43% of users in the U.K.[3] and a 300% increase in tumours in Australia.

The symptoms experienced fall into the same general categories:

- unexplained headaches and migraines
- eye problems (cataracts, internal bleeding, cornea and retinal problems)
- ear and throat problems
- tingling/burning sensations (especially on ears and skin)
- a numbness or soreness on the side of the face, head or neck
- nausea and dizziness
- a feeling of stress and confusion
- fatigue
- short-term memory loss
- pain or heat felt in teeth (particularly ones with metal fillings and bridges)
- Several users have reported tumours, either located behind the ear or neck, or on the side on which they hold their phone.

The key issue: Thermal vs non-thermal effects

Standards have been set and one would expect that all mobile phones conform with these standards, although the standards vary from 1,6mW/g to 10mW/g.[4] These standards were set based on the understanding that microwave frequencies are easily absorbed by tissue (80% by the head) and together with high power levels could result in heating which could lead to biological and physio-chemical effects.

The question then is if all phones conform to the prescribed safety recommendations or standards as set out by international governing bodies, why are people still suffering from the apparent effects of cellular phone use? What could it be that causes science to show effect at these frequencies and power levels?

If it is not the Thermal effect (high intensity) then it must be a combination of the athermal effect (low intensity), of the digital pulses (217/second for GSM) together with the 900MHz frequency and a power level of 2W that is causing the symptoms and showing effects in research.

Calls for further research have been voiced from all quarters and many programmes are in place, yet the cellphone industry dismisses the symptoms and findings as merely anecdotal and inconclusive. The simple question remains: "How does any health problem manifest itself in the first place without anecdotal evidence?" As in the past, technology appears to be way off in the distance, and research although progressing is lagging seriously behind.

Many of the studies were conducted at low-intensity levels i.e. well below the levels which would produce significant body heating - yet this is the foundation for current standards.

Industry positions

Warnings have been sounded from various non-cellular related industries, e.g. Swiss Re - "On the basis of today's present knowledge alone it must be expected that a claim would succeed" [5], Lloyds - "We are convinced that there are biological effects" [6], The American Bar Association - "More studies exist that appear to link exposure to an increased risk of cancer, than existed linking asbestos exposures at a similar embrionic stage of litigation" [7], Sterling Underwriters - "...a few years ago I began writing exclusion clauses. I'm convinced there is a problem"[8], Australian Consumer Association - A health fact sheet issued to the public.[9]

Regarding the cellular industry, in my opinion the network operators are in a state of denial, service providers have issued health fact sheets and cellphone manufacturers as far back as 1991 patented devices to reduce the effect of radiation on the human body, none of which have ever been implemented. The Tobacco industry similarly, had lodged 57 patents to make cigarettes less carcinogenic, which were never implemented due to cost and possible litigation.

Conclusions

Against the above background of physical manifestation of symptoms, increasing research programmes into the biological effects of low-intensity exposure and cautionary statements from various industries, implementation of the "Precautionary Principle" and practising "prudent avoidance" is applicable.

Under the Maastricht treaty, parties signed up to apply the "Precautionary Principle" which is generally understood as follows:

"When potential damage is both uncertain and significant it is necessary to act on the basis of the Precautionary Principle. This is to take precautionary action to limit the use of potentially dangerous pollutants, even where the scientific knowledge is not conclusive, if the balance of likely cost and benefit justifies it. Lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation or danger."

Professor Rex Keddy (Head of Medical Physics at the University of the Witwatersrand) has also expressed his concern and advised that exposure can be reduced in three ways:

- Reduce the time of exposure to the minimum
- Increase the distance between yourself and the source as much as possible
- Make use of a shielding device - available in South Africa.

References

1 Swiss Reinsurance Company paper . Published 1996.
2 Environmental Health Perspectives (1997) 106:3, 101-103
3 MORI Poll 3 June 1999
4 Specific Absorption Rates (SAR) defined as the amount of energy absorbed by body tissue over a period of 6 minutes and measured in milliwatts per gram of tissue. Relates to thermal effects only. Standards vary between 1.6mW/g (ANSI- USA) and 10mW/g (NRPB- UK)
5 Swiss Reinsurance Company paper, published 1996
6 Insurance Day 28 May 1998
7 American Bar Association
8 *Electromagnetic Hazard and Therapy* 1998, vol 9, no's 1-2, 6
9 Australian Consumer Association CAN 000261925

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The health crisis - a solution

Dr Terry Berelowitz
Chairman, SA Society of Occupational Medicine, Western Cape
Occupational Health SA 1999; Vol 5, No. 6: 42 - 43

President Mbeki in his recent address to Parliament called for the country to partner the government in building a 'winning nation'. We all echo this.

The health crisis has not gone away. It remains, like a cancer always present and mostly problematic. It needs to be managed and treated with all the energy and imagination harnessed to treat any malady.

A solution lies in our backyard, untapped, unrecognised, misunderstood. Its potential unrealised. Some may feel the employer has an unstated obligation, a responsibility to provide and to ensure that all his employees have access to health care. (I shall refer to employees only. The issue of dependents applies as well, yet would require a more imaginative approach.)

The major player in the matrix of health care, employer and employee is/could be/should be, the occupational health centre and its staff. Herein lies the untapped potential. The value of this service is grossly underestimated and untapped. Here already we have a form of social health insurance. The provision of occupational health at the workplace is a benefit fully subsidised by business, yet not acknowledged by government and the medical aid industry.

A significant amount of workplaces already provide the facility of primary health care at the workplace. This is usually coupled with the practice of occupational medicine. There is a wide discrepancy in the quality of care and the facilities. Nevertheless, basic health care is provided, and occupational medical surveillance and consultation is delivered by, in the main, specialised medical and nursing practitioners. The costs for all of this are unsanctioned, yet borne entirely by business.

Why not harness this network of subsidised health care? Build upon it and create a vehicle to deliver health care to employees. This would free the government to only focus on the unemployed and indigent. By freeing the government to concentrate and focus on one sector of the community only, our health crisis could begin to dissipate.

There are already medical aid schemes that cover patients for major crises. Coupled to this is ever diminishing cover for basic medical care and medication. This leads to major hardship, even for the so-called covered. The day-to-day requirements - and the lack of sufficient funds to cover them - causes annual financial and social hardship.

Once again, a partnership with the medical aid industry and the occupational health vehicle, could go a long way to solving this ever-present and escalating problem. We should not be fooled by the low-cost, short-on-value medical aids that many people are joining.

In 1994 I wrote to Ministers Zuma and Rasool inviting them to explore my vision. Minister Zuma did reply. Unfortunately the opportunity to enlarge upon this initial show of interest did not materialise. Minister Rasool never replied. In 1998 I approached Minister Marais, who again showed a lack of insight.

Nevertheless the South African Medical Journal did pick up on the issue and ran a leader article addressing my points.

With the change in cabinets, the ongoing change in the medical aid industry and the worsening health crisis, I feel emphatic about making one last attempt to make my vision known.

My vision is a simple, uncomplicated one. As President Mbeki so convincingly elucidates, partnerships can lead to solutions. I envisage a partnership between government, business, the medical aid industry and the occupational health team.

The employed will have their medical care delivered by way of this partnership. The template already exists. It needs to be manipulated, improved and empowered to deliver services to a greater community in a more effective manner.

Legislative, tax, social and other incentives and motivators will drive this partnership.

Increased employment-based medical insurance cover is needed. This is already being verbalised by many and demanded by more. The occupational health centre (OHC) can go a long way to deliver this. The issue of rebates and preferential premiums will inevitably have to be considered.

The OHC can deliver all of this with built-in appropriate standards of care. Primary health delivery would be satisfied as well as Occupational Health and Safety legislation which in the main is still far from being universally complied with.

The OHC has a wonderful opportunity to intimately impact on employees' health status, thereby maintaining and improving their health status. The result is a decreased high risk pool and consequently reduced claims for major medical events. If managed well, the claims for minor events could also be reduced. A postulated essential component for the success of a medical insurance programme is in essence, providers themselves actively embracing rationing - this cannot be done at arms length by funders. The staff of an OHC would automatically embrace these concepts. They are not influenced by personal financial gain, or the fear of loss of a 'client' base, as are the private practitioners.

A recent seminar put forward three scenarios for the future of health care. A fourth scenario was omitted.

My experience at the workplace validates me to warn against this scenario.

Increasing premiums will force current medical aid members to withdraw. This will further load the already floundering government health services. Further chaos will ensue, with even longer waiting lists, even more impenetrable walls to basic care and decreased quality of care.

Most medical aid members do not look at the benefits, but at the costs. Increased premiums will escalate resignations from the schemes. The government cannot afford this. A system to include more of the employed is needed. Guard against securing medical aids by withdrawal of the 'unwanted' leaving them to seek care from government.

Is the employer's provision of occupational health facilities not a form of social health insurance? Of course it is. Recognise it, use it and widen the net. All employers must be encouraged, legislated to provide this cover.

The OHC can deliver rationing and managed care. Essential primary health care is delivered, leaving the medical aid industry to provide the more critical care and the government to cater to the unemployed. The millions of employed not covered, place an unnecessary burden on the government.

A partnership to embrace this neglected population would free the government to provide more easily accessible and a greater quality of care to the millions of unemployed people. Thus a semblance of social health insurance is created.

Medical aids could subsidise the opening, running and founding of on-site OHCs, providing a free service to the employees. The OHC would act as a portal managing the care and costs to the medical aid-affiliated providers. High quality care at reasonable cost results.

Providing it at wholesale costs with no profit to a third party, has already reduced the provision of pharmaceuticals. The cost is below the retailed price and the cost from chronic health providers. Amazingly the government or the pharmacist does not encourage this system!

Problems and obstacles always abound. So - let's work to remove them. Current legislation seeks to disempower and fetter the practice and delivery of health care at the workplace. Urgent attention is needed to give insight to those seeking to demolish this vehicle of health care delivery.

What is obvious, is the wonderful satisfaction and the attainment of these ambitions by way of the partnership and system I have expounded upon.

The next step is to gather the players and create a system to rescue the health system. A champion with insight vision and motivation is needed to drive the vision.

Let`s get it right!

Government's goals

- Decreased utilisation of primary health care facilities (day hospitals)
- Delivery of primary health to a wider community, especially the employed
- An improved doctor:patient ratio at government clinics and hospitals
- Decreased waiting time for referred patients
- Reduced utilisation of government health facilities by those who can afford alternative vehicles of health care delivery
- Reduced health care costs
- OHSA, Occupational Health legislative compliance
- Appropriate occupational health surveillance
- Protection of the workforce from chemical, physical and other risks and hazards
- A healthier workforce
- Greater access for employees to occupational health expertise and facilities
- A social health insurance without much effort

Employee's goals

- Improved doctor:patient ratio
- Decreased waiting time to access medical care
- Reduced health care costs
- An acceptable cost:benefit ratio
- A reduced annual premium escalation
- Access to occupational health expertise
- Access to occupational health surveillance
- Quality health care
- Efficient and rapid delivery of health care
- Access to medical information
- Wellness/health promotion

Employers' goals

- Reliable medical aid cover
- Affordable medical aid contributions
- Reduced annual medical aid premium escalation
- Reduced health care costs
- A good cost:benefit ratio.
- Occupational health legislative compliance
- Access to occupational health expertise
- Reduced absenteeism
- A healthy workforce

Medical Aid industry goals

- Access to new markets
- A relatively healthy,and educated client base
- Partnerships
- Marketing opportunities
- Access to insightful, willing managed care suppliers, embracing the concept of rationing and managed care
- Intimate ongoing access to members
- Maintenance of health members

Sick certificates issued by pharmacists

The following is a letter received by SASOM from the SA Pharmacy Council:

The above matter was referred to the Council's Practice Committee meeting held on 26 August 1999. The Committee is recommending to Council that pharmacists who have obtained and registered the Primary Care Drug Therapy (PCDT) additional qualification, may write sick certificates for conditions which they may legally diagnose and treat.

Some of the clinical conditions that may be identified, and fall within the scope of practice of pharmacists qualified to practice PCDT, are:

Trauma/inflammation	Gout
Rheumatoid arthritis	Osteo-arthritis
Dysmenorrhoea	Analgesia
Pyrexia	Bronchitis
Sinusitis	Otitis
Urinary tract infections	Tick-bite fever
Gastro-intestinal infections	Trachoma
Respiratory tract infections	Amoebiasis
Urogenital trichomoniasis	Gastro hypomotility

Sexually transmitted diseases e.g. Gonorrhoea, Urethritis or Cervicitis

The recommendation by the committee still has to be ratified at the Council meeting in October 1999. It should be borne in mind that pharmacists are subject to 'ethical rule' 22 in terms of professional acts performed by them for which they are inadequately trained or insufficiently experienced.

Editor's comment "with tongue in cheek":

This has many implications. It seems in SA that doctors want to be pharmacists and pharmacists want to be doctors and nurses - and nurses want to be doctors and pharmacists. Maybe we will end up with a single person called a "health care worker" who does everything.

AIDS: Where are we heading?

The Editor

Dear Madam

With various events and scenarios developing I thought it timeous to put my thoughts as a Union Official on paper. In essence it addresses the delivery of health services at the workplace.

The workers' dilemma is what is occupational health care as opposed to primary health care. As far as workers are concerned their well being impacts directly on the ability to function at their particular job. Workers are generally not equipped to separate OHC from PHC.

The worker's exposure to the Occupational Health Centre would primarily be related to his/her primary healthcare needs. More often than not a worker will find himself in the OHC to deal with a PHC issue rather than a OHC one. Very often this visit comes as a result of dissatisfaction with the PHC provided by state institutions such as clinics, day hospitals and sometimes even state hospitals.

Currently the worker finds himself the victim of a mechanistic approach to health care, where it is expected through legislation that an occupational healthcare practitioner needs to separate occupational healthcare from that of primary care, even though the specific need is only for the latter. The dilemma with which an occupational health practitioner is faced is to make the distinction and then to decide whether or not to treat the 'worker' or the 'patient'.

The dilemma which Labour is faced with is that a decline in Primary Health Care in state run institutions and a lack of access to Primary Health Care in Occupational Health Centres inevitable leads to high incidents of absenteeism which has further ramifications in terms of productivity and industrial relations.

The future dilemma which all parties in industries will be faced with is the impact which AIDS will have on our workplace. While we are currently faced with a small 'crisis' when attempting to provide Primary Healthcare in whatever form at whatever institution, what will industries be faced with when the AIDS epidemic becomes more than just a statistic (already happening?). Will they be taking a mechanistic approach towards separating Occupational Health Care from Primary Health Care?

Thanking You

Richard Juul

Full time Senior Shop Steward and NUMSA W.Cape Senior Oficial

HIV: Impact on the Compensation Fund

Letter from SASOM to the Compensation Commissioner:

It has become evident at public, private and industrial health care services that the natural course of trauma and disease are significantly affected by the presence of the HIV virus with prolonged illness, more complications and increased death.

Recent experience, where minor injuries have resulted in significant disability due to underlying HIV infection, is cause for concern. Two examples are quoted to demonstrate this:

Case 1: A man in his mid twenties sustained a laceration of the lower leg which was minor enough to suture in casualty department and which one would normally have expected to heal within two weeks. Due to underlying compromised immunity from HIV infection the wound became gangrenous and eventually had to be amputated, the end effect being an individual with a 45% disability resulting from a minor laceration.

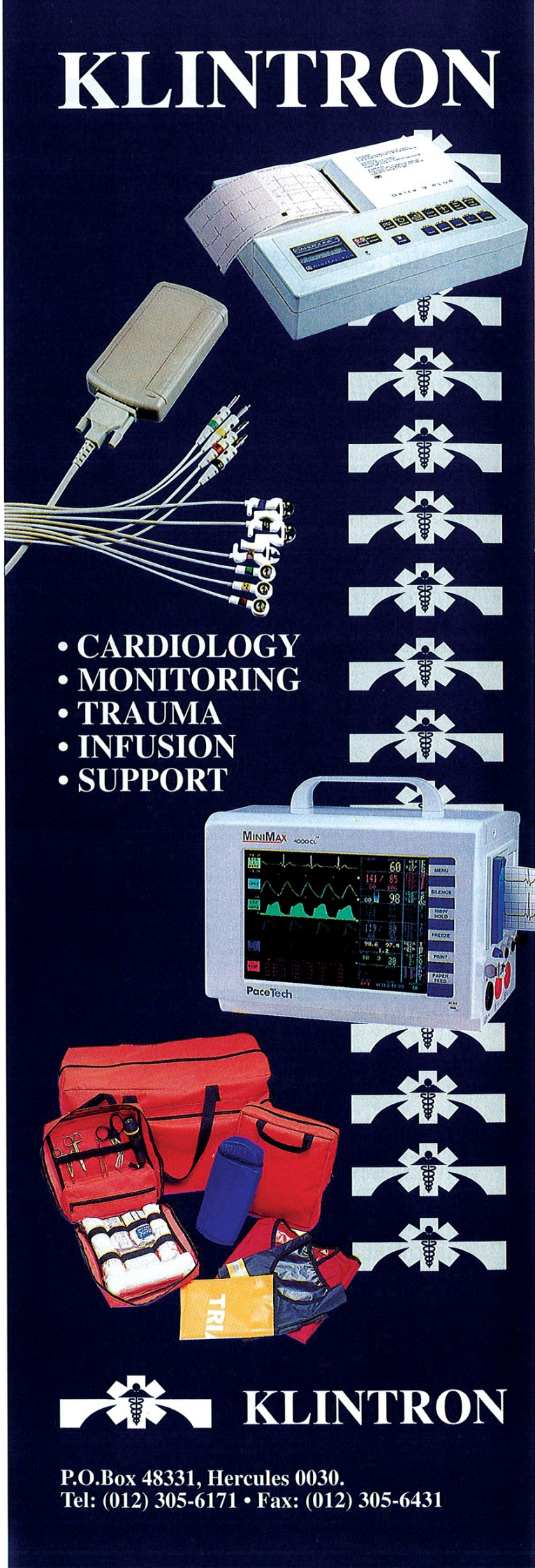
Case 2: Following blunt abdominal trauma at work, a person received a laparotomy with splenectomy for a ruptured spleen implying a 5% permanent disability. Subsequently the person developed sepsis, required extensive and prolonged intensive care, amounting to more than R400 000.

It is evident that HIV would have major compensation implications and increased medical costs which will impact on the Compensation Fund. SASOM believes that the future management of occupational injuries and diseases where HIV is a significant contributing factor is an issue that the Commissioner needs to consider.

Bearing in mind the magnitude of the HIV epidemic in South Africa, there is an urgency to address this issue. The policy of the Compensation Board on awarding benefits and payment of medical costs where HIV is an aggravating factor and the basis thereof would be appreciated. The view of the Commissioner regarding the management of HIV as an aggravating factor in terms of section 26 of the Act would also be welcomed.

SASOM (SA Society of Occupational Medicine)

Editor's comment: SASOM has raised a very important issue with the Compensation Commissioner regarding the impact of HIV/Aids on injuries. The reply will be published in the journal when received from the Compensation Commissioner.



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Examples:
Journal references

1. **Zwarenstein M, Barron P, Tollman S, et al.** Primary Health Care Depends on the District Health System. *S Afr Med J* 1993; 83:558.

Book references

1. **Thompson L.A.** History of South Africa. Newhaven and London: Yale University Press, 1990.

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CONTACT PERSON

Articles should be sent to Ilse Dreyer, Managing Editor, at P.O. Box 1307, Ferndale, 2160 or faxed to (011) 791-2618 or emailed to jeni@cmmaccess.co.za.

Early detection of hearing loss made easy

Early signs of hearing loss can now be detected using Otoacoustic Emission OAE) testing before the condition is identified through traditional audiometric hearing tests. To avoid compensation claims at a later date, prudent employers should make OAE testing mandatory for newly recruited employees required to work in a noisy environment, so that a hearing baseline can be determined prior to his or her appointment.

This opinion was expressed by Dr. Brenda Lonsbury-Martin, a Chandler professor, ENT surgeon and research director of the University of Miami Ear Institute. She was guest speaker at a series of seminars and workshops hosted by the H.A.S.S. Group as part of their ongoing commitment to the advancement of hearing protection education to South African industry.

Until recently the cochlea was the only portion of the hearing system which could not be tested accurately. OAE testing enables us to check the low-level sound energy produced by the hair cells within the cochlea and identify irregular cochlea functioning. It is becoming an indispensable aid to routine audiometric testing. The extent of hearing loss depends on the amount of damage sustained by the hair cells within the cochlea, which can be attributed to excessive loud noise, certain drugs that are toxic to the ears, the effects of viruses and bacteria, hereditary disorders, congenital disease, and the ageing process.

Currently studies are being carried out with a view to finding a way to stimulate the regeneration of damaged hair cells, which occurs naturally in pigeons and chickens where the cells supporting the hair cells take over the role of the sensory receptor. Perhaps in the future a chemical substance will be identified to trigger this response in humans. In the meantime OAE testing provides a simple, quick and non-invasive tool for the determination of the extent of hearing loss that also has applications beyond the industrial arena.

In many countries the procedure is routinely conducted on new-born infants so that remedial action can be taken early in life. The procedure requires specialised equipment that is available in South Africa through H.A.S.S. and makes hearing conservation programmes feasible in industries where excessive noise is experienced. The fact that OAE testing is quick and objective makes it ideal for the annual screening of industrial workers and eliminates the possibility of malingerers manipulating test results as is possible with conventional audiometric testing.

The GSI 70 is one of the fastest automated OAE screening units available. It is easy to use and performs a non-invasive OAE test using a soft flexible eartip which is fitted in the ear canal. Within 40 seconds per ear, it produces a printed record which is unequivocal evidence if there is damage to the worker's outer hair cells, even before conventional audiological testing can identify the problem. Apart from the provision of hearing loss screening equipment, H.A.S.S manufactures custom-made Variphone hearing protection systems from its Pretoria laboratories and is the sole representative in sub-Saharan Africa of a number of high-tech industrial audiometers and sound level meters for the assessment of noise in industry.

For further information contact Pieter van Deventer on tephone (012) 333-3130.

Antiglare filters for PCs

Polaroid has released a new range of anti-glare PC screen filters. The screens are optometrist-endorsed and will be available through Tarsus Consumables, part of the MB Technologies Group. Their retail outlets include Incredible Connections stores and Eagle Vision Spec Savers.

Nic Slack, MD of Tarsus Consumables, comments: "The Polaroid anti-glare filters are compatible with virtually all monitor brands. They have also been accepted and recognised by the American Optometric Association as effectively reducing monitor glare."

The new product delivers the performance and ergonomic advantages of a high optical quality glass filter combined with multi-layer anti-reflection coatings for 99% glare reduction and contrast enhancement. Most models include a conductive coating that eliminates static and provides up to 98% reduction of VLF/ELF e-field radiation.

The Polaroid range is available in many sizes and include an easy-fit universal mounting system or wrap around contour mounting system.

Further information from 0800 200 933.

New Nassau Rave eye gear

When it comes to safety spectacles the most common complaint expressed by wearers is that they seldom fit properly. The new range of Rave Eye Wear, distributed by MSA Campbell Gardwell, with its adjustable lens angle and temple lengths, solve this problem by allowing a custom fit.

Wearers can adjust the lens up or down to protect the eye area, ensuring protection no matter what the task requirement is. Wearers can choose from three different lens angles.

Another feature unique to Rave Eye Wear is adjustable temple lengths which can be altered to a choice of four positions, ensuring a snug and comfortable fit.

Rave safety glasses are coated with a patented DX anti-fog hard coat which protects against fogging, scratching, static and chemical attack. This coating helps keep vision consistently clear and extends the protective life of the eyewear.

The lenses are made of tough Duralite polycarbonate which absorbs 99.9% UV and is impact resistant. In addition, Rave spectacles have a built-in vertically-vented browguard to help provide better coverage and protection from flying particles.

It features contemporary styling and is available in three frame colours - new metallic slate, purple or blue.

More information from MSA Campbell Gardwell, telephone (011) 623-2222/3.

Roche launches Multiple Drug Testing device

OnTrak TesTcup is a unique integrated collection, testing and transportation device for simultaneous qualitative detection of multiple illicit drugs in urine. It is a particularly useful screening tool with the emergent pattern of polydrug abuse in the urban sector.

A urine sample can be collected directly into the TesTcup. After securing the lid, the TesTcup is tilted forward for 10 seconds allowing the urine to flow through a membrane into a sample reservoir in the cup. After the cup is righted and left undisturbed, a distinct blue line develops (controls) for each parameter tested in the "Test Valid" window indicating the results are ready. Clear positive or negative results are obtained in less than 5 minutes without timing.

The OnTrak TesTcup device eliminates the necessity for prolonged handling of urine samples, timing, pipetting, mixing, instrument calibration and maintenance. OnTrak TesTcup offers a significant benefit when urgent demands for small test series and single analyses are required. Three TesTcup series are available: TesTcup 4 (amphetamines, cocaine, THC and morphine), TesTcup 5 (amphetamines, cocaine, THC, morphine and PCP) and TesTcup-ER (amphetamines, barbiturates, benzodiazepines, cocaine and morphine). TesTcup assists healthcare professionals to quickly determine if a patient is under the influence of multiple drugs, thus allowing for quick intervention.

For more information contact Dr Alfredo Giangregorio on (011) 886-2400 or your local Roche Diagnostics representative.

Sterilab services

Sterilab is a well-known distributor of diagnostic products in SA and has recently been acquired by the Adcock Ingram group. Adcock Ingram is a JSE-listed company and one of the leading suppliers of pharmaceutical and critical care products in the country.

The Sterilab organisation was a logical choice for the group, whose aim was to diversify into the diagnostics market to complement its existing ranges.

The acquisition agreement was reached on 1 August 1999. It was announced that Sterilab would continue to operate as an independent division of the group, while enjoying the advantages of a group operation. Sterilab distributes diagnostics reagents to the blood transfusion, immunology, virology, and serology markets and will maintain this focus with products from leading principles world-wide.

The acquisition of an additional diagnostic product range, entry into the rapid diagnostics market and the inclusion of the distribution of laboratory instrumentation is envisioned for the near future.

More information from (011) 974-5641

Closing the knowledge gap

The Institute has been described as a multi-disciplinary health care organisation which closes the knowledge gap in occupational and environmental health.

The joint International Labour Organisation (ILO) World Health Organisation (WHO) committee on occupational health in 1995 declared that the focus towards health, safety and environmental matters should be on:

- The maintenance and promotion of workers health and working capacity
- The improvement of the working environment and work to become conducive to safety and health
- The development of work organisation and working cultures, in a direction which supports health and safety at work and in doing so also promotes a positive social climate and smooth operation and may enhance productivity of the undertaking

The "Substantiation document for the Third EU Ministerial Conference on Environment and health in London in June 1999 states: "There is an added value in combining the expertise of policymakers, environment management, i.e. occupational health and safety, occupational health services, workplace health promotion, environmental protection; and to utilise them all for the implementation of good practice in health and environmental health management in industrial and other enterprises.

The development of collaboration among the existing activities, both inter sectorally and among professionals, is needed rather than keeping them isolated or creating new concepts, new activities or new organisations.

The Institute hopes to bring fresh and innovative technologies and initiatives to the health care arena. We believe in closing the knowledge gap: clients and consumers are given the opportunity to make informed decisions, through centres of excellence developed geographically. Multi-disciplinary teams operate in these centres.

The Institute supplies doctor services which include: corporate medical advice, occupational and environmental health risk evaluation as well as safety programme design and implementation and medical surveillance programmes.

Nursing services, occupational hygiene services, health care benefit services which include help with death and disability and compensation claim assistance, as well as human resource and legal services are supplied to clients.

Further specialised services include: psycho-social services which include post traumatic stress debriefing, mobile health services which offer X-ray facilities, audiometry and may others, as well as education and training services which spans presentations as well as courses on subjects like biological monitoring are also included.

The Institute also provides information services through their local library and internet website as well as personal consultants. Customised research services such as health status profiles and applied research into related issues are also done on commission.

For more information, contact The Institute at (012) 667-2847.

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