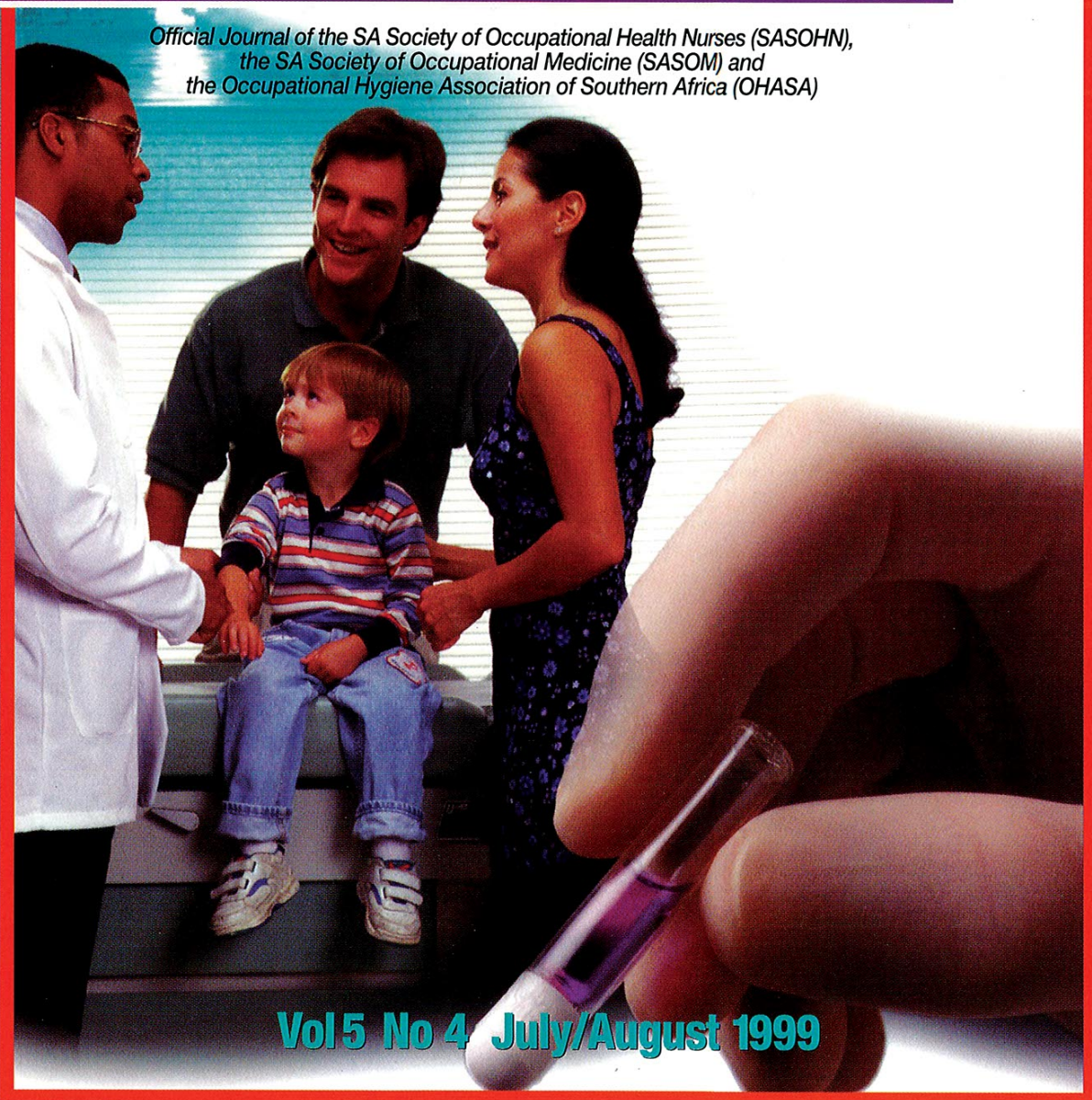
Occupational HEALTH

SOUTHERN AFRICA

Official Journal of the SA Society of Occupational Health Nurses (SASOHN), the SA Society of Occupational Medicine (SASOM) and the Occupational Hygiene Association of Southern Africa (OHASA)



Vol 5 No 4 July/August 1999

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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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Regional co-operation in OHS

A major feature in this issue is on regional co-operation in Occupational Health and Safety (OHS) in the Southern African Development Community (SADC). Most readers of this journal are probably unaware of the initial work in OHS that has started in this region. Some readers will question how these developments, which seem remote, will impact on their own jobs and working environments in the future.

The articles show that OHS is poorly developed and even rudimentary in much of the subcontinent. Some of the countries have been wracked by civil war and OHS issues must be of very low priority - but importantly, a start has been made to look at the OHS capacity in this region, with perhaps the most important focus on training and education. The world is moving towards economic, labour and trading blocks and it seems sensible to share expertise and knowledge between member countries.

There is however one unique opportunity for South Africa: the training and educational expertise which we can offer to other SADC member countries - for instance, why should a nurse in Namibia or Zambia, wishing to qualify in Occupational Health, have to go to the United Kingdom for further studies? The cost is prohibitive with the unfavourable exchange rates and a regional course is more likely to cover appropriate aspects. Perhaps there is an opportunity for distance learning courses to be developed to cater for the needs of SADC members. Could not our own occupational hygienists be setting up business north of our own borders and so on?

But like so many well-intentioned initiatives, one hopes it does not disappear under a deluge of paperwork, conferences, ministerial meetings and so on. What is needed is a bias towards action rather than policy- making and perhaps those involved must focus initially on one or two key issues only. Also, an incremental type of approach is none likely to pay better dividends in the long run. Finally, the various agencies will have to ensure that the many barriers between the SADC countries are removed, otherwise the vision will never turn into reality.

The Professional Driver

The carnage on our roads is well-documented and is revisited regularly in the general press and especially over the easter weekend every year. Apart from the psychological and physical trauma suffered by victims, families and friends, the economic impact is enormous and any new initiatives to reduce road traffic accidents are welcomed. The reasons for accidents are multiple and diverse, but drugs and alcohol have been implicated as a major factor in a significant proportion of cases. The Department of Transport has embarked upon a legislative programme which is ultimately expected to result in testing professional drivers for the use of drugs. Van Niekerk has written a well-reasoned article which has looked at all the aspects that need to be considered before such a programme can be implemented.

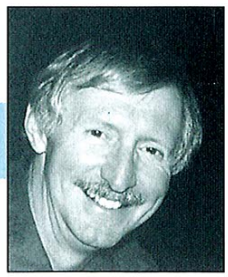
Another interesting article by Swanepoel shows the high incidence of disease in a group of professional drivers in which the rejection rate is alarmingly high due to very severe pathology, such as epilepsy, mental retardation and poor uncorrectable vision. There is no doubt that ill-health must be the cause of some accidents, but this is not yet as well-documented as the part played by alcohol and drugs.

Finally Mead has asked the important question why nurses have been left out of the driver examining process. They are already the backbone of medical surveillance in industry under different legislation and certainly have the competence and training to do this type of screening. It is gratifying to note that the Department of Transport has accepted the nurses' submissions and will amend the legislation accordingly.

SASOM and COID Act Training

The SASOM subcommittee and all other members involved in the COID training project are to be congratulated on a job well done and it is hoped that the Compensation Commissioner will be able to give more funds to extend the training to other personnel. It is also a tribute to several of the busy doctors who were involved, that they donated their fees back to the society and this gesture must bode well for both the society and occupational health generally, in future.

Mike Baker
HONORARY EDITOR



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Occupational Health and Safety (OHS) in the Southern African Development Community (SADC) Region

Origins of SADC

In July 1979, government and international agency representatives met in Arusha, Tanzania, to discuss regional cooperation in Southern Africa. The Arusha Conference led to the Lusaka Summit in April 1980. The Summit adopted the Lusaka Declaration entitled "Southern Africa: Towards Economic Liberation" as well as a Programme of Action covering areas of food and agriculture, industry, manpower development and energy. The areas of port and communication were identified as the main priority for regional cooperation.

The Lusaka Declaration also gave rise to the establishment of the Southern African Development Coordination Conference (SADCC). In 1989, the Summit of Heads of State and Government meeting in Harare, Zimbabwe, decided that SADCC should be formalised to give it an appropriate legal status taking into account the need to replace the Memorandum of understanding with an Agreement, Charter or Treaty.

In August 1992, Heads of State and Government met in Windhoek, Namibia, and signed a Declaration and Treaty establishing the Southern African Development Community (SADC). SADC currently has fourteen Member States.

The SADC Employment and Labour Sector

The Employment and Labour Sector (ELS) was created in August 1995 to fulfill the SADC objectives and strategies in the field of Human Resources Management and in particular the promotion of Employment and Labour issues. Effectively, the Sector replaced the Southern African Labour Commission (SALC) which in the past was created to look into Labour matters in the region.

As Sector Co-ordinator, Zambia established the Employment and Labour Sector Co-ordinating Unit (EL SCU) under the Ministry of Labour and Social Security to carry out the day to day co-ordination functions. The objectives and responsibilities of the EL SCU include the harmonisation of regulations relating to safety and health standards at work places across the region and the promotion of institutional capacities as well as vocational and technical skills in the region.

SALC/ELS OHS Activities

Ministers and Social Partners at the 1993 SALC meeting in Arusha resolved that a progress report on activities on OHS be submitted at every SALC meeting. At the ELS meeting in Pretoria in May 1997, Ministers and Social Partners expressed the desire for regional cooperation in developing OHS activities and capacities. Further it was reported that Member States needed to develop a standardized approach to reporting on and evaluating the impact of their activities on OHS.

At the ELS meeting in Grand Baie, Mauritius, April 1998, Ministers and Social Partners noted that none of the ILO core OHS conventions, notably C155, C161, C170 and C174 had been ratified by any of the SADC Member States (see Table 1). Ministers and Social Partners urged Member States to ratify these ILO Conventions with a view to harmonising regional standards in OHS.

Other OHS agenda items at the 1998 ELS meeting in Mauritius included the formal establishment of two tripartite Sub-Committees under the Technical Committee of Senior Officials and Social Partners to deal with:

- Employment and Productivity; and
- Social Security and Occupational Safety and Health (SS&OSH).

Experts to serve on the sub-committees can be drawn from all stakeholders in the region. Initial

agenda items assigned to the Sub-committee on SS&OSH included the proposed format for reporting of OHS in SADC Member States and the Draft Code on the Safe Use of Chemicals in the SADC Region.

The ELS Sub-Committee on SS&OSH will be taking forward the resolutions of the 1997 Johannesburg Southern African meeting on OHS professional education and training.

Table 1: Ratification of ILO OHS Conventions by SADC Member States

Country	ILO Conventions on OHS					
	C155	C161	C167	C170	C174	C176
Angola	No	No	No	No	No	No
Botswana	No	No	No	No	No	5/06/97
DR Congo	No	No	No	No	No	No
Lesotho	No	No	27/01/98	No	No	No
Malawi	No	No	No	No	No	No
Mauritius	No	No	No	No	No	No
Mozambique	No	No	No	No	No	No
Namibia	No	No	No	No	No	No
Seychelles	No	No	No	No	No	No
South Africa	No	No	No	No	No	No
Swaziland	No	No	No	No	No	No
Tanzania	No	No	No	15/03/99	No	No
Zambia	No	No	No	No	No	4/01/99
Zimbabwe	No	No	No	27/08/98	No	No

Notes: There are some thirty ILO Conventions concerning OHS, Table 1 includes the four core conventions (C155, C161, C170 and C174) plus two sector specfic conventions (C167 and C176). Information obtained from the ILOLEX online database (http://ilolex.ilo.ch:1567/public/english/50normes/).

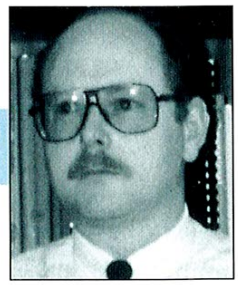
Conventions:
C155 Occupational Safety and Health, 1981
C161 Occupational Health Services, 1985
C167 Safety and Health in Construction, 1988
C170 Chemicals Convention, 1990
C174 Prevention of Major Industrial Accidents, 1993
C176 Safety and Health in Mines, 1995

Guest Papers

A situation analysis of OHS in the SADC region was prepared by Dr. Rene Loewenson for the 1998 ELS meeting. The executive summary of her paper is reproduced with this guest editorial together with the resolutions of the 1997 Johannesburg meeting on OHS education and training.

Note: Mr. Matthew Ncube, Chairman of the ELS Sub-Committee on SS&OSH was to have provided information on progress to date with the work of this committee, but his paper was not received in time for this edition of Occupational Health Southern Africa.

Dr. David W. Stanton
GUEST EDITOR



SASOHN AGM and Seminar - 1998 - Mpumalanga

The picturesque White River was the setting for the 1998 Mpumalanga Health Group AGM at the end of last year.

"What we as a group will remember most about the seminar is the teamwork, fun and comradeship that there was between the ladies as well as the new friendships that were formed," says Elenore Melrose, Mpumalanga chairperson.

During the opening evening Gilly Thomson from SIMS donated a trophy for the group with the most spirit and it went among cheers and congratulations to the young (in spirit and experience, if not in years) Mpumalanga group.

Well-known speakers like Charles Harbottle, Dave Evans, Liz Thebe, Gilly Thomson and Denise Malloch-Brown made the day an event to remember. The formal dinner dance had an "Out of Africa" theme and even here the ladies showed their mettle and youthfulness.

A record profit was made and all left the AGM rejuvenated and uplifted in spirit, full of enthusiasm and team spirit. The 1999 AGM will take place in the Cape.

Internet Course

Chris Moore from the Canadian Centre for Occupational Health and Safety (CCOHS) will be back in South Africa for the RAI SHE '99 Exhibition, Gallagher Estate, 14-16 September 1999.

While he is in the country he has agreed to present his two well known one day courses on the Internet at Technikon Pretoria 16-17 September 1999.

The first course on the 16th is titled *"Using the Internet to Access Health and Safety Resources - A One-Day Basic Course"*

The second course on the 17th is titled *"Using the Internet for H&S Research and Networking - A One-Day Advanced Course"*. The courses presented by Chris are excellent.

For more information and details, contact David Stanton at the NCOH on Telephone: (011) 725-1116, Fax: (011) 720-6608 or (Email: davidw@ncoh.pwv.gov.za.

Information on Professional Driving Permit Regulations

The National Road Traffic Act, No 93 of 1996, makes provision for drivers to be medically fit to drive on public roads.

SASOM published guidelines entitled "Vehicle Drivers: Health Management Guidelines for Industry" in 1991. These were revised in 1993. An update of these guidelines has recently been completed. The subject matter includes:

- Aspects of legislation
- Health Management Guideline Policy
- Categories of Drivers
- Medical Surveillance Programs
- Health Evaluation Forms
- Medical Certification
- Exclusion criteria due to:
  - Neurological disorders
  - Cardiovascular disorders
  - Diabetes
  - Psychiatric disorders
  - Drug / alcohol dependency
  - Visual disorders
  - HIV/AIDS

A training programme for accreditation purposes will be undertaken by SASOM to enable healthcare professionals to understand current practices on driver fitness.

The present position of the Department of Transport in drawing up regulations to support the National RTA is not confirmed. It seems likely that screening for drug and alcohol dependency will be required for the drivers in Category D (i.e. dangerous goods drivers). At present therefore, Section 15 of the national RTA is not supported by precise standards and practitioners would be well advised not to sign a medical certificate unless they can be sure that the driver is healthy.

It is hoped that an Adjudication Board, similar to that which operates in the Civil Aviation Industry, will be introduced to deal with "appeals' regarding fitness to drive.

The new SASOM Guidelines are available from Dehlia Müller at SASOM Head Office, telephone (012) 667-5160

Dr. Beau Dees, Chairman, SASOM Subcommittee on Transport and Transport Related Industries

Medical arts exhibition

A Medical arts exhibition will be held at the Pharmaceutical Society of South Africa, 52 Glenhove Street, Houghton, from 24 August to 5 September 1999. The exhibition will be open from 8am to 5pm on weekdays and 9am to 12h00 during weekends.

Interested parties can contact Roche Products on Telephone (011) 928-8735 for information.

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- Chief Inspectors in the industry will be there to provide first-hand information on critical industry topics.
- An exciting dimension to this year's exhibition is a showcase of the latest fire-fighting services, products and technologies.

For further information about the exhibition, please contact: Joan de Beurges tel: (011) 794 5511 fax: (011)794 5811, e-mail: safety@global.co.za

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RAI 151/06/99

Safety, Health and Environment '99

Date : 14 - 16 September
Venue: Gallagher Estate, Midrand

Within weeks of the official launch of Safety, Health and Environment '99 (SHE) exhibition, many of the industry's most influential industry players have signed up and a number of fabulous new attractions - designed to create a world-class, eventful show - have been announced by the show organisers.

"In line with our promise to make SHE a premier show, we are introducing a number of new elements which add interest and value for our exhibitors and visitors," says Joan de Beurges, exhibition manager. One innovation is The Speaker's Lounge, an area where authorities in various SHE disciplines will informally offer first-hand information and updates on legislative standards, regulations and other topics of interest to safety decision-makers. Each session will be short, to-the-point and interactive, encouraging listeners to participate in debate. "We recognise that visitors to SHE are there to glean as much information as possible about their subject," says de Beurges. "The Speaker's Lounge aims to cut through jargon and provide clarification on the safety and occupational acts governing the industry.

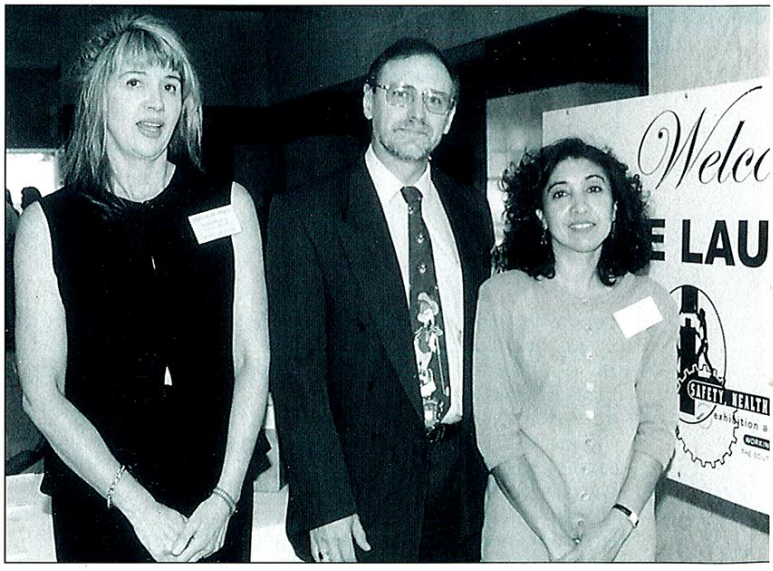
This year, emergency services will also form part of SHE. As a natural extension to workplace health and safety, a number of exciting exhibits will address fire-fighting trends, products and services. SHE will host a number of interactive demonstrations as part of its Fire Week festivities. An added attraction is a historical display reflecting on 100 years of fire-fighting. As the millennium approaches, visitors are invited to discover how fire-fighting and fire-fighting technology has advanced over the century.

Running in conjunction with SHE '99 is the Association of Societies for Occupational Safety and Health (ASOSH) conference where high-calibre speakers will present papers on topical issues and safety trends. The conference aims to stimulate debate and encourage interaction with delegates as a means to actively address issues.

The show has the full endorsement and support of all the relevant industry authorities, unions and government departments in the mining, safety, occupational health, labour, environmental and allied sectors. These include Sapema, ASOSH and the Departments of Labour and Compensation, Environmental Affairs and Tourism, Health, Minerals and Energy and the National Union of Mineworkers.

"The quick sign-up response of many exhibitors to the new-look show has been extremely encouraging and we invite all companies involved in the full spectrum of health, safety and environmental products and services to include Safety, Health and Environment '99 in their marketing budgets," says de Beurges. Research over the past two years has shown that companies are making a point of sending representatives at management and other decision-making levels to attend the show. "Safety, Health and Environment traditionally attracts quality trade visitors and we expect this trend to continue and grow thanks to the added attractions and features on this year's show. For exhibitors this will translate into a even higher return on investment," says de Beurges.

For further information, call Joan de Beurges at RAI (South Africa) on Telephone (011) 794-5511 or Fax (011) 794-5811.



Seen at the launch of Safety, Health & Environment '99: L-R: Joan de Beurges, exhibition organiser; Leighton Bennett, Chairman of ASOSH; Faiza Salie, Chief Director of Occupational Safety of Department of Labour

ASOSH '99 Conference

Date: 14-16 September
Venue: Gallagher Estate, Midrand

ASOSH (the Association of Societies for Occupational Safety and Health) has formed a partnership with RAI Sandton to organise a conference in conjunction with the Safety, Health and Environmental Exhibition. The idea behind the partnership is provide OSHE practitioners with a dynamic and professional event.

The theme of the conference is: "Taking action to protect the South African workforce."

Member societies are offered an opportunity to participate in the conference. While there is no financial outlay for the societies, participating societies will receive a minimum of R30.00 for each delegate attending the conference. Societies are required to tackle relevant and even contentious key issues affecting the workplace - and particular professional groups.

The format of the conference has been designed along the lines of a workshop. Both local and international experts will be approached to give background perspectives on each issue selected. Delegates will be required to participate in discussion and debate.

It is intended that solutions and practical guidelines should arise from the discussions. After the conference, these solutions will be printed and distributed for implementation by relevant parties.

The following members of ASOSH have indicated that they will participate in the conference:

- **OHASA** (Occupational Hygiene Association of SA), including IOHSA (Institute of Occupational Hygienists of SA)
  This group will 'workshop' the following issues:
  - What should be the role of IOHA in Southern Africa?
  - Are Approved Inspection Authorities working?
  - What occupational hygiene goals should Southern Africa be setting?

  These issues will generate a lot of discussion. OHASA will hold its AGM at the same time and there will be an opportunity for networking at a banquet on 14 September in the evening.
  The IOHA (International Occupation Hygiene Association will be holding a Board Meeting in South Africa two days before the conference. Board members will also participate in the conference.
- The **IoSM** (Institute of Safety Management) and the Safety First Association
  This group will 'workshop' the following issues:
  - Have the authorities given up on Preventative Enforcement of OH&S Legislation?

  If not:
  - How many persons/companies have been successfully prosecuted (expressed in % of incidents reported to the Department of Labour and the Department of Minerals and Energy?)
  - Why do people act unsafely and get injured at work and at home?
  - Is the new approach into accident prevention based on human behaviour conditioning an answer?
  - OH&S practitioners: are they striving for the good of employees or for financial gain and status? The National Council of IoSM will be meeting on 13 September 1999 followed by a banquet for all participating members.
- **SASOM** (SA Society of Occupational Medicine) and the MVSSA (Mine Ventilation Society of SA) have also indicated that they will support the conference.

For further information, contact Brenda Webster on Telephone or Fax: (012) 46-7424 or email brendaw@icon.co.za

CPD Accreditation

Occupational Health SA is currently being accredited.

It is hoped to initiate this in the September/October edition and the method used will be the same as for *CME* and the *SAMJ*. At this stage, it will only apply to medical practitioners but once the nurses and occupational hygienists have CPD arrangements in place in their respective professions, it will be extended to them.

The procedure will be as follows:

- A loose questionnaire will be inserted into the journal and will be sent to all medical practioners on the mailing list. The questions will be published in the journal and will relate to the articles in the particular edition.
- Once the questionnaire has been completed, it should be sent directly to the SASOM national offices where they will be batched and sent to Stellenbosch University for electronic marking.
- It should be noted that there is a cost to SASOM for the processing and thus only questionnaires from paid-up members of SASOM will be processed, i.e. it will form part of the membership fees.
- At the end of each year SASOM will send members a certificate indicating how many CPD points were earned which they can then submit to the Health Professionals Council of South Africa.

Obviously this is something new for both journal staff and SASOM and we will evaluate the whole proces after a year to determine how it can be improved upon.

Dr Mike Baker,
Honorary Editor

Situation Analysis and Issues in Occupational Health and Safety in the SADC Region

(Executive Summary of Paper prepared for the SADC ELS Meeting, Mauritius, April 1998)

Dr Rene Loewenson
OATUU Health Safety and Environment Programme
Occupational Health SA 1999; Vol 5, No. 4: 10 - 11

This paper outlines the major features of the current situation on occupational health and safety in the Southern African Development Community (SADC) Region and the issues that it raises for future OHS action. The paper notes major production changes in the SADC region, with new production processes, new hazards and a pressure to demonstrate economic returns to investments made in the social protection and human development aspects of production.

The impact of these changes on the occupational health of people in the region is poorly explored. Reported data indicate annual injury rates for wage workers in the SADC region ranging from 0.35 to 49.42 injuries per 1000 workers, with a median of 6.26 injuries / 1000 workers. The data further indicate that the reported occupational fatality rate in the SADC region ranges from 0.85 to 21.6 fatalities / 100 000 workers, with a median fatality rate of 14.02 fatalities / 100 000 workers.

Even the most comprehensive notification systems in the region do not cover small scale or informal sector production. Surveys of informal sector workers note occupational injury and mortality rates similar to those found in the formal sector, and higher rates of occupational illness. Informal sector risks include poor work organisation, poor access to clean water and sanitation, ergonomic hazards, hazardous hand tools and exposure to dusts and chemicals. Given the growth in informal sector employment, it is proposed that SADC countries address the prevention, monitoring and management of occupational risks and injury in the informal sector, and develop a comprehensive system for incorporating the sector into national programmes.

In the formal sector, reported data indicates that high risk sectors are transport, forestry, electricity production, mining and construction, while workers exposed to mechanical, ergonomic and chemical hazards are most likely to experience injury or fatality. Injury rates vary however between countries, and for different jobs within sectors. Road traffic accidents are likely to be a rising cause for concern. While this reflects the reported patterns, there is a tendency for acute traumatic injury to be reported, and chronic health damage to be under-reported. Hence hazards like chemicals that cause chronic diseases may be underestimated.

Risk management has in the main been practised in the region by the provision of personal protective equipment, which is in fact a last line of defence. More effective risk control is obtained by giving a greater emphasis on work environment (engineering) and work organisation (administrative) controls. SADC member states are urged to identify priority areas for risk management and promote safe technologies and improved work procedures. At the same time, the shortages of inspection services calls for discussion of options for improving the overall support of inspection services, such as increased budget commitments, more efficient use of inspectorates and increased use of cost recovery methods to finance inspection services.

While the norms of ILO Convention 155 on Occupational Safety and Health are generally complied with in the region, with some exceptions, ratification of the core OHS conventions (155, 161, 170, 174) was non existent in the region as of December 1997. In relation to Convention 155 the major gaps to be addressed in law relate to coverage of all workplaces, setting clear rights and duties for tripartite cooperation, explicitly enabling and setting procedures for the right to refuse dangerous work, overcoming the administrative fragmentation of enforcement systems, strengthening penalties and ensuring greater regional harmonisation of standards.

The underestimation of occupational disease is one of the most serious sources of bias in the currently reported data. Reported occupational disease rates of about 14.49 diseases / 100 000 workers are estimated to underestimate actual occupational disease rates using WHO estimates 50-fold[1]. Ad hoc surveys indicate a significant risk of occupational disease,

indicating a need for more comprehensive and accurate surveillance and a greater level of professional training and deployment to this end. The paper endorses the resolutions of the recent meeting of occupational health professionals in the SADC Region noting that recognition, training and development was needed across the major categories of personnel, ie occupational safety professionals, inspectorates, occupational nurses, occupational medical practitioners and occupational hygienists[2], and that this would best be achieved through regional co-operation.

The paper notes the spillover of occupational risks to non employed populations, and the substantial problem of undetected chronic occupational disease in workers who have left employment. The most significant group in this last category that need to be addressed in terms of systems for detection and management of occupational illness are the former mineworkers. Many of these workers were migrant workers and are now spread across the SADC region, often in poor rural communities with weak health infrastructures.

The paper notes the weakness of existing penalty systems and the need to give greater profile to the productivity, trade and investment consequences of improved occupational health standards and infrastructure. This calls for the systematic collection of information on how occupational health improvements have enhanced productivity or market access.

The paper estimates the direct costs of lost work time due to reported occupational injury and fatality at 3% GDP annually. The cost analysis signifies huge potential losses due to illness and injury and a clear economic gain from risk prevention. The paper proposes that better monitoring of occupational morbidity and mortality and its costs is needed for raising the profile of the costs of occupational injury and death and enhancing investment in prevention.

It is suggested further that Southern African countries, linked to the national household survey programme, implement a survey module on occupational injury and illness to provide a national estimate of the distribution and burden of occupational injury and as a basis for occupational health planning. SADC countries could develop a harmonised survey tool for this module.

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Southern African meeting on education and training of Occupational Health and Safety Professionals

Report and resolutions prepared by Dr. Rene Loewenson [†] and Dr. David W. Stanton[ǁ] arising from Johannesburg meeting 22 - 24 October 1997. Final report issued at NCOH, December 1997.
TARSC[†], NCOH[ǁ]

Occupational Health SA 1999; Vol 5, No. 4: 12 - 15

A meeting of occupational health and safety (OHS) professionals[1] from Southern Africa was held in Johannesburg, South Africa on the 22-24 October 1997. It involved 37 OHS professionals from thirteen countries together with representatives of the Southern African Development Community (SADC) Employment and Labour Sector, World Health Organisation (WHO) and International Labour Organisation (ILO). The current situation, needs, problems, capacities and priorities for professional occupational health and safety education and training in the SADC Region were discussed.

Current levels of professional OHS skills in the SADC region: Status and Issues

The major feature of current professional OHS education and training is its absence in many countries of the region. Some countries have limited or *ad-hoc* training programmes, existing with a shortfall of OHS professionals and weak OHS competencies among the primary care practitioners who in practice provide the bulk of OHS services. This situation exists despite the significant challenges posed by legal and administrative changes in OHS, by the complex and significant OHS problems to be addressed and by the increase in new processes and products brought about by liberalisation and globalisation. Tripartite structures in the SADC region, that is government, employers and labour, have expressed a commitment to OHS, but this needs to be backed by professional OHS competencies if it is to be realised.

The current situation in the region with respect to the core OHS professional skills compiled by the meeting participants is shown in Table 1 overleaf.

It was further noted that regional OHS training has also been carried out by ARLAC in Zimbabwe and by the Commonwealth Secretariat in Kenya. These courses have however not been clearly linked to accredited professional qualifications recognised in the sending countries. OHS training also takes place within industry with variable quality and recognition of the qualifications obtained.

Personnel who have OHS roles exist at the workplace at general practitioner and OHS practitioner levels. In many countries professional OHS level skills are absent, general practitioners have variable levels of OHS education and training and workplace level personnel are often untrained. Professional OHS qualifications are generally not recognised in the professional registers in the region. Professional OHS training needs are often addressed by sending people at relatively high cost on training courses in countries outside the region (eg: Australia, Europe, New Zealand, Singapore and the USA).

Many countries have inadequate human and capital resources to design and carry out professional OHS training, but some do have the institutional resources (infrastructure, administrative capacity, general skills) and adequate personnel in need of training to run professional OHS training if adequate support is mobilised from international institutions. It was noted that there are significant international technical, institutional and financial resources that can be mobilised for support of professional OHS training. While professional OHS skills are scarce, and may be less likely to be developed in the short term, they are needed to establish curricula and materials for training at all levels.

Participants in the meeting identified the need for the development of professional OHS education and training and for improving OHS skills in general practitioners and in workplace personnel. It was noted

Table 1: Existing professional OHS education and training in the SADC region

COUNTRY	Occ.Medicine	Occ.Nursing	Occ.Hygiene	Occ.Safety	Other
Angola	Nil	Nil	Nil	Nil	Nil
Botswana	Nil	Nil	Nil	Nil	Nil
D.R. Congo	No information	-	-	-	-
Lesotho	Nil	Nil	Nil	Nil	Nil
Malawi	Nil	Nil	Nil	Nil	Nil
Mauritius	Nil	Nil	Nil	Nil	Nil
Mozambique	Nil	Nil	Nil	Nil	Nil
Namibia	Nil	Nil	Nil	Nil	Nil
Seychelles	Nil	Nil	Dip: EH Sciences	Nil	Nil
South Africa	• AFOM/ MFOM (ad hoc) • DOH/Cert (x6) • Speciality OH - Sub speciality of Community Health	• Cert OHN (x8) • Diploma OHN • BTech OHN (x5) • OHN Module in Community Health Nursing Degree	• BSc (Hons) & MSc IndustrialPhysiology • BEBOH Certificate and Diploma • ND EH (x10) • BTech EH (x9) • BSc (Hons) EH • Chamber of Mines courses	• N Cert (x4) • N Dip (x4) • BTech (1999) • Managerial & Prof Safety Skills (MAPSS) • H&S Inspectors (in house) • NOSA courses	• Cert. Industrial Ergonomics • BSc (Hons) planned in Ergonomics • BSc (Hons) & MSc Epidemiology • Dip. Radiation Protection (1999) • DPH, MPH MPhil PH, DCH
Swaziland	Nil	Nil	Nil	Nil	Nil
Tanzania	Nil	Nil	Nil	Nil	Nil
Zambia	MPH	OH in Basic Nursing	Cert & Dip EH & Hygiene	Cert & Dip EH and Hygiene	Rad. Protection Officer Dip & Degree
Zimbabwe	DOH (1999)	Cert OHN	Cert EH	Safety Advisors Training	MPH

AFOM/ MFOM = Associate/ Member of the Faculty of Occupational Medicine, Royal College of Physicians, London
BEBOH = British Examining Board in Occupational Hygiene
Cert = Certificate
Dip = Diploma
DOH = Diploma in Occupational Health
DCH = Diploma in Community Health
EH = Environmental Health
MPH = Masters in Public Health
NOSA = National Occupational Safety Association
OHN = Occupation Health Nursing
(x2) = Two courses in the country

that the coverage of OHS in general practitioner training (medical, nursing, inspection etc) is inadequate for these personnel to adequately manage their basic OHS roles. Participants identified core OHS practitioner skills and the general practitioners who have OHS roles. The most significant of these in terms of OHS systems in the region are shown in Table 2 overleaf.

Objectives

The meeting was convened to:

- Identify key principles for addressing professional OHS education and training needs;
- Propose follow-up activities to enhance professional OHS education and training and competencies in the SADC region in line with these principles; and
- Identify mechanisms for taking these forward in a regional framework under the auspices of SADC.

Resolutions

Principles for the development of professional OHS skills

Participants identified the principles required for the future development of professional OHS skills training in the region. These are:

- Political commitment needs to be mobilised to build OHS skills. Important contributors toward building political commitment that will be followed up are:
  - research, surveillance and analysis of existing information to show the extent and costs of the burden caused by occupational risks;
  - active presentation of specific OHS issues at national and regional policy platforms backed by adequate information;
  - greater participation of OHS professionals in SADC policy deliberations through participation in national delegations, through participation in the SADC Employment and Labour Sector (ELS) tripartite committee on Social Security and OSH (SS&OSH), and through a Southern African Association of OHS practitioners;
  - improved links between OHS professionals and tripartite constituent organisations (government, trade unions, employers) in policy review of OHS issues.
- OHS skills should be built from the shopfloor level through general practitioner to specialist levels, with the possibility of people moving through these levels by obtaining credits for prior education and

Table 2: Core OHS Practitioners and General Practitioners with OHS roles

CORE OHS PRACTITIONERS	GENERAL PRACTITIONERS WITH OHS ROLES
Occupational Safety Practitioner	Medical Practitioner
Occupational Health Nurse	Nurse
Occupational Hygienist	Inspector (Labour/ Environmental Health)
Occupational Medicine Specialist	Health and Safety Representative
Inspector (Factory/Mines)	Health Educator
Ergonomist	Occupational Social Worker
Occupational Epidemiologist	Health Administrator
Toxicologist	Clinical Officer
Occupational Psychologist	
Radiation Protection Officer	

training, experience and for competencies built. A continuum of education and training should be built through short course, vocational and formal education and training.

- OHS training should be standardised through a national standards system and professional body that will use OHS expertise to set and audit curriculum requirements, qualifications and competencies. Such standards shall, where relevant, be in line with international standards and draw input from international professional expertise. Professional training should achieve the accredited and certified standards set and be audited through a national qualifications authority and harmonised at regional level through a SADC linked regional qualifications authority. National and regional OHS professional registers should be established.
- Training capacity could best be developed by:
  - Strengthening the capacity of existing institutions providing OHS education and training in the region;
  - Defining roles and competencies needed by general personnel with OHS functions and ensuring adequate quality curricula and teaching for such personnel, including short course certificate training and common OHS modular training for different personnel with common OHS functions;
  - Technical co-operation with countries in the region that have training programmes and capacities, and dissemination of information on OHS courses available in Southern Africa. Implementation of the 1997 SADC protocol on Education and Training and specifically Article 7(A)1 which requires a quota of at least 5 percent enrolment in such existing national OHS training programmes from SADC member states;
  - Building regional education and training programmes, including distance learning programmes, for those skills areas where it would not be cost effective or where there is inadequate manpower to have such training at national level. It was proposed that such areas include initial training for inspectorates, occupational safety practitioners, occupational hygienists, occupational medicine specialists, and occupational health nurses. It was noted that such training would be built on the existing institutional capacities in higher education institutes, but would need inputs of human resources and expertise, curriculum design and financial resources including scholarships. Existing capacities for areas of OHS professional training were noted, and are shown in Table 3.
  - Building strong links with institutions of higher education to establish, register, and accredit OHS professional skills training programmes.
- Regional education and training programmes could be co-ordinated through the networking of education and training institutions in the SADC Region, this being termed a Regional Institute of Occupational Health and Safety.
- Such national and regional education and training could usefully link with and be supported by international skills and experience to ensure that it incorporates international OHS standards and new areas of knowledge and skill. SADC OHS training institutions should build collaborative links with leading OHS / academic institutions in other parts of the world.
- The existing frequent provision of short courses that do not have formal status should be linked through a qualifications system to build towards recognised qualifications or towards accredited post-graduate training. The institutions providing such training should provide courses that meet national / regional / international standards.
- The content and quality of existing OHS education and training in general practitioner courses should be reviewed and upgraded. Such reviews should be done by OHS professionals, taking account of the roles of general practitioners within the OHS system.
- In order to achieve these principles, a regional listing should be maintained consisting of:
  - current courses and curricula and the institutions offering them;
  - current OHS practitioners within their professional disciplines and countries;
  - current capacities and constraints within training institutions in the region and their potential and needs for development to play a role as regional training centres.

  This should be used for information dissemination on the current situation, assessment by regional and

Table 3: Capacities for Regional OHS education and Training

COUNTRY	OCCUPATIONAL MEDICINE	OCCUPATIONAL NURSING	OCCUPATIONAL HYGIENE	OCCUPATIONAL SAFETY	INSPECTION
Angola	R	R	R	R	R
Botswana	R	R*	R	R*	R
D.R Congo	No information	-	-	-	-
Lesotho	R	R	R	R	R
Malawi	R*	R*	R	R	R
Mauritius	R*	R*	R	R	R
Mozambique	R	R	R	R	R
Namibia	R	R	R	R	N
Seychelles	R	R	R	R	R
South Africa	N**	N**	N**	N**	N**
Swaziland	R	R	R*	R	R
Tanzania	R*	R	R	R*	R
Zambia	R*	R*	R	R	R
Zimbabwe	R	N**	R	N	N*

R = Training best done at regional level — *N = Training best done at national level*
** = Has capacity to host regional training* — *** = Existing programmes that can include regional participants*

international OHS experts of training standards and curricula, and as input to a review by SADC member state OHS professionals and education institutions for the development of future regional training programmes.

Progress Since the Johannesburg Meeting

A Working Group was established to implement the resolutions of the meeting. Focal persons were established in each SADC Member State to provide the Working Group with a list of OHS practitioners and OHS education and training centres in their countries.

The resolutions of the Johannesburg meeting were tabled at the 1998 ELS meeting in Mauritius and Ministers and Social Partners were invited to note that most Member States lack human and capital resources as well as institutional capacities to design and carry out professional OHS training. This has contributed to a shortfall of OHS professionals and weak OHS competencies. Ministers and Social Partners were invited to recommend to Council approval of the resolutions of the Johannesburg meeting. These included principles for the development of professional OHS skills, strategies for building capacities and areas of follow-up for the implementation of regional co-operation in professional OHS education and training. Ministers and Social Partners were also invited to direct the EL SCU to monitor the implementation of the resolutions.

Resolutions Adopted by SADC

The resolutions of the Johannesburg meeting were adopted at the 1998 SADC ELS meeting, and approved at the Council of Ministers meeting in Mauritius in September 1998.

At the first meeting of the ELS Sub-Committee on SS&OSH held in July 1998 in Kadoma, Zimbabwe, it was resolved that the Working Group set up under the Johannesburg meeting should be brought under the auspices of the Sub-Committee to formalise the initiative.

The ELS Sub-Committee on SS&OSH is to take forward the resolutions of the Johannesburg meeting. A joint meeting will be held with OHS practioners and representatives of institutions of higher education to review and identify concrete proposals for regional training and education in OHS.

SADC Page at ASOSH.ORG

The full report of the 1997 Johannesburg meeting is available via the SADC page of the web site ASOSH.ORG (http://www.asosh.org) and includes the list of participants plus the areas of follow up participants proposed to promote the development of professional OHS skills in the region.

The web site also includes the full paper by Dr. Rene Loewenson of which an executive summary was published in this special feature on SADC OHS activities.

1 Planning committee: Dr. David W. Stanton, National Centre for Occupational Health (NCOH), Department of Health, South Africa; Dr. Rene Loewenson, Training and Research Support Centre (TARSC) and Mr. Matthew Ncube, National Social Security Authority (NSSA), Zimbabwe; Dr. Kin M. Gyi and Ms Nungwa Mabongo, Occupational Health Unit, Ministry of Health, Botswana; and Mr. Y. James Kaminyoge, Occupational Safety and Health, Ministry of Labour and Manpower Development, Malawi.

The inadequacy of the professional driver's medical examination

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Occupational Health SA 1999; Vol 5, No. 4: 16 - 19

It is common knowledge that motor vehicle accidents in South Africa are frequently attributable to driver error. This survey highlights data on the physical fitness of professional drivers, indicating a high incidence of pathology in the study group. The survey gives cause for concern, as there are many currently employed drivers who are unfit to cope with the demands of their jobs, and who represent a threat to road safety. The current system requiring professional drivers to undergo medical screening appears to be inadequate at detecting pathology and therefore at protecting the public. The suggestion is made that a more comprehensive and better regulated medical examination should be introduced for professional drivers along the lines of that required for pilots. This should provide economic benefit both for society and fleet owning companies employing professional drivers.

The normal professional driver spends an average of ten to twelve hours a day on the road. This is longer than the maximum hours of continuous duty permitted for pilots, who have the additional assistance of a co-pilot and autopilot to relieve work loads. The health requirements for a professional driver should thus be at least of the same standard as that demanded of pilots, if not greater.

In terms of Government Gazette No. 6103 volume 392 February 23, 1998, professional drivers are required to undergo a medical examination once every two years. This is verbalised as follows, "A professional driving permit shall not be issued by a drivers' license testing centre unless a registered medical practitioner has examined the applicant to determine whether or not he or she is disqualified from driving a motor vehicle as contemplated in section 18(1)(f), and has certified the applicant to be medically fit on form "MC" as shown in schedule 2 not more than 2 months prior to the date of the application." The regulations further state: "A professional driving permit shall be valid for a period of 24 months from the date of authorisation thereof."

Medical conditions of importance when assessing applicants for fitness to drive are the following:

1. Uncontrolled non-insulin dependent diabetes mellitus (NIDDM).
2. The presence of insulin dependent diabetes mellitus (IDDM).
3. Uncontrolled hypertension. In this regard hypertensive cardiomegaly, as well as hypertensive nephropathy and retinopathy should be included.
4. The presence of epilepsy or any other neurological disorder capable of impairing a driver's ability to perform his duties.
5. The presence of psychiatric conditions that in themselves may impair a driver's ability to perform his duties, or for which medication may be prescribed that would interfere with a driver's ability to concentrate or maintain full control of his vehicle.
6. The use of any pharmaceutical agent that may affect a driver's ability to adequately perform his duties.
7. The presence of any cardiac condition liable to cause sudden death or dysrhythmia. Ischaemic heart disease and known dysrhythmia fall into this category.
8. The presence of severe pulmonary disease, including COPD (Chronic Obstructive Pulmonary Disorder), neoplasia and atelectasis.
9. Visual acuity as measured with a Snellen rating must be at least 6/12. This reading may be with refraction. Should the visual acuity of one eye be less than 6/12, the minimum acuity required of the other eye is 6/4.

Methodology:

The survey consisted of a standard physical examination, performed on a group of 580 professional drivers, all of whom were in possession of valid professional driver's permits and medical certificates at the time of examination, as stipulated in the relevant legislation.

The physical examination followed the format applied to the standard aviation medical examination for pilots, and was conducted by a senior aviation medical examiner receiving assistance from a registered nursing sister and an audiometrist.

Essential elements of the physical examination included

- The taking of a comprehensive personal and family medical history.
- Visual assessment using an orthorator.
- Formal audiometry.
- Stress electrocardiogram using a treadmill (ECG)
- Lung function testing
- Chest x-ray
- Urine dipstick Combur (10)
- Haemo gluco test for random blood glucose level
- Random total serum cholesterol measurement
- Comprehensive physical examination by a medical practitioner with senior aviation medical examiner status
- Analysis and evaluation of all findings by the same practitioner.

In the event of an adverse finding with the potential implication of rendering a driver unfit to perform his duties, specialist opinion was obtained. Referral was with a view to confirming diagnosis and initiating therapy.

In all cases where adverse findings were noted, a certificate detailing the abnormality and recommended remedial action were issued to the examinee.

Results

Of the 580 professional drivers examined, 299 were found to be suffering from significant disease. Of these, 98 were found to be suffering from pathology severe enough to warrant declaring them permanently unfit to drive.

The pathology was represented in all race and age groups, and is summarised below.

Hypertension

Drivers with Hypertension 87
Drivers with hypertension and unaware thereof 62
Drivers declared permanently unfit on account of uncontrollable Hypertension 29
Drivers declared temporarily unfit on account of hypertension 12

Age group

30-39	6
40-50	15
50-60	4

Principal reasons for being declared unfit on account of Hypertension

Uncontrolled hypertension and obesity 8
Malignant hypertension and obesity 7
Cardiomegaly 6
Ischaemic electrocardiographic changes in the presence of hypertension. 3
Previously undiagnosed hypertension in a first time applicant for a PDP 5

Diabetes mellitus

Drivers with IDDM 0
Drivers with NIDDM 20
Drivers suffering from diabetes mellitus and unaware thereof 13
Drivers declared permanently unfit on account of either uncontrollable diabetes or IDDM 7
Drivers declared temporarily unfit on account of diabetes mellitus 4
Drivers suffering complications of diabetes rendering them:
Temporarily unfit 4
Permanently unfit 7

Age group:

30-40	3
40-50	9
50-60	8

Principal reason for being declared permanently unfit on account of diabetes mellitus:

Uncontrolled diabetes 3
Visual deterioration 2
Cardiovascular complications 2

Visual acuity

Drivers suffering and aware of decreased visual acuity,but unrefracted 10
Drivers suffering decreased visual acuity but unaware thereof 47
Drivers declared temporarily unfit on account of reduced and uncorrected acuity. 4
Drivers declared permanently unfit on account of inadequately correctable reduced acuity. 16

Age group:

30-40	13
40-50	33
50-60	11

Main reason for being declared permanently unfit on account of reduced visual acuity:

Very poor vision 16

Neurological disorders

Drivers suffering from a neurological disorder and unaware thereof 12
Drivers declared permanently unfit on neurological grounds 8
Drivers declared temporarily unfit on account of a neurological disorder 2

Neurological disorders detected included

Epilepsy 2
Vertigo of various aetiologies 6

Age groups

30-40	3
40-50	6
50-60	4

Main reason for being declared permanently unfit due to Neurological Disorders:

Dizziness 5
Epilepsy 2
Mental retardation 1

Cardiovascular conditions

Drivers aware of cardiovascular abnormalities 7
Drivers unaware of cardiovascular abnormalities. .. 58
Drivers declared permanently unfit on account of cardiovascular disorders 22
Drivers declared temporarily unfit on account of cardiovascular disorders. 5

Age group

30-40	17
40-50	35
50-60	13

Main reason for being declared permanently unfit on account of cardiovascular conditions:

Severe Hypercholesterolaemia with obesity 6
Ischaemic heart disease 6
Inverted "t" waves seen on ECG 1
Previous cardiac surgery 1
Cardiomegaly 3
Cardiomyopathy 1
Right or left axis-deviation 1
Right bundle branch block with symptoms 3

Respiratory disorders

Drivers suffering from and aware of lung disease ... 28
Drivers suffering from and unaware of lung disease . 19
Drivers who was declared temporary unfit on account of lung disease 3
Drivers declared permanently unfit on account of lung disease 11

Age group

30-39	14
40-50	30
50-60	3

Main reason for being declared permanently unfit on account of respiratory disorders:

TB & atelectasis 3
Pulmonary TB 3
COPD Hyperinflation and Bronchitis 5

Psychiatric conditions

Drivers declared temporarily unfit 1
Drivers declared permanently unfit 2

Age group

30-39	4
40-50	3
50-60	0

Main reason for being declared unfit on account of psychiatric conditions:

Suicidal 1
Patient with long-standing psychiatric history. 1

Table 1: Summary

Total patients evaluated	**580**
Pathology Detected:	
Hypertension	87
Diabetes Mellitus	20
Neurological disorders	13
Unacceptable visual acuity	57
Cardiovascular abnormalities	65
Respiratory disorder	47
Psychiatric illness	7
Other	3
Total patients with medical problems	**299**
Drivers declared permanently unfit	
Pathology detected:	
Hypertension	29
Diabetes Mellitus	7
Neurological disorders	8
Unacceptable visual acuity	16
Cardiovascular abnormalities	22
Respiratory disorders	11
Psychiatric illness	2
Other	3
Total number of patients declared unfit	**98**

Conclusion

The study demonstrated that of the 580 drivers examined 98 were permanently unfit to drive a motor vehicle. There is no reason to believe that the position would be any different in other groups of professional drivers. Socio-economic deprivation may account for some of this undetected burden of pathology. It is likely that many employees neither have the resources nor the time to attend to regular examination and medical care. Lack of ready access to medical facilities may be at least responsible for some of the inadequate care evidenced above. Of alarm must be the detection of suicidal drivers and those with mental retardation, allowed to be in charge of heavy vehicles conveying large numbers of passengers. The implications for public safety are truly frightening. The economic impact must also give cause for concern, both for vehicle owners and operating companies, and for society as a whole. The cost implications of a single public transport vehicle accident are enormous, taking into account the loss of income, cost of care for the injured and disabled, and damage to property. The inade-

quate control of drivers' health when compared to the strict regulation of pilots' health points the way forward to the avoidance of an impending occupational and public health catastrophe. The following should be noted:

- Inadequate pre-employment screening of employees results in the hiring of personnel with problematic or unacceptable pathology. There is little monitoring by employers of the prospective employee's fitness to drive.
- A lack of interest or expertise on the part of examining medical practitioners may be responsible for allowing numerous drivers with unacceptable pathology onto South African roads.
- The above data clearly shows an unacceptable level of pathology in South African professional drivers. This is likely to be costing the employer dearly in terms of reduced productivity and absenteeism. It is also likely that insurers of commercial vehicles would possibly be in a position to reduce premiums if the medical risk is reduced. Employers should pay attention to adequate medical screening to reduce costs and save lives. Licensing authorities might well consider the adoption of a system of medical examination and review with a limited panel of examiners, as is currently operative with aviation medical examinations.

Recommended procedures for drug testing of professional drivers

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Occupational Health SA 1999; Vol 5, No. 4: 20 - 23

The debate continues: A review of the current situation emphasises the need for drug testing in the transportation industry. The procedures currently in place and those still required to achieve the goal of universal drug testing are discussed.

Introduction

In South Africa the use of illicit drugs is increasing dramatically. There is overwhelming scientific proof that alcohol or drug use - either licit or illicit - affects a person's cognitive abilities and enhances the likelihood of such a person causing or being involved in an accident, particularly on our roads.[29, 8, 20]

Motor vehicle accident statistics for South Africa for the first six months of 1997 paint a grave picture, as they indicate that 4 805 buses and 35 000 minibuses were involved in road accidents over this period. Studies conducted worldwide also confirm the role of drugs of abuse (DOA) in traffic accidents.[21, 22, 20, 4, 5, 18] One local example is a study conducted in the Western Cape which shows that DOA played a role in more than 15% and alcohol in more than 50% of traffic injuries.[1]

According to epidemiological evidence, cannabis (marijuana, dagga) is the most common illicit drug detected in injured drivers (those randomly subjected to a blood alcohol test and, by means of urinalysis, to DOA tests) and in drivers who are arrested for impaired driving ability.[2, 20]

The prevalence of cannabis is second only to that of alcohol among drivers involved in road accidents.[20] The general trend in the relevant studies reflects an increase in the seriousness of accidents and injuries in cases where drugs have been used in combination with alcohol. Various studies conducted in the USA, for example, show that the incidence of alcohol use in motor vehicle accidents varies between 14% and 50% and that of marijuana in 13% to more than 34% of cases.[3, 4, 5] In the light of these statistics, it is not surprising that screening for DOA has been firmly established as a prerequisite for obtaining a Professional Driver's Permit in many countries, inter alia in the USA and the UK. [14]

Following the Department of Transport's publication of the National Road Traffic Act (No. 93 of 1996) to implement the Professional Driving Permit (PrDP Goods - March 1998; PrDP Passenger - March 1999; PrDP Dangerous Goods - March 2000, Regulation 108[4]), the medical requirements remain as specified in the public driving permit legislation of the Road Traffic Act (No. 29 of 1989, Regulation 251 [2]).

As it was recognised that medical requirements referred to in the legislation needed to be internationalised and uniformly set, a medical subgroup was formed. One of the recommendations made by this medical subgroup included urinalysis for DOA screening.

The overall goal of a drug-testing programme is to serve the public by ensuring a drug-free transportation environment and thereby reducing the number of road traffic accidents. For any such programme to succeed, it is essential that the general public's awareness be raised and their specific educational needs be addressed.[14, 6]

The Department of Transport and other role players should first of all conceptualise the need for such a programme. The candidates for the Professional Driving Permit (PrDP) must subsequently be made aware of the programme and of the ultimate benefits thereof.

Key issues to be addressed prior to the implementation of a drug-screening programme[7, 14]

Variety of drugs to be considered for testing

Different countries have different drug testing profiles according to their local needs. In South Africa marijuana (cannabis, dagga) is the most commonly used illicit drug besides alcohol.

Specifications of the population group to be tested

It is predicted that more than 400 000 applications will be received for the PrDP, in other words 400 000 potential professional drivers will in terms of the screening programme be screened for the use of marijuana.

Financial impact

- Cost of urinalysis

The financial outlay should be kept as low as possible.

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Although it is generally known that cannabis is not the only drug being abused, it makes financial sense to start with cannabis only in the initial screening programme and to develop the programme as the specific need arises. A positive screening result for cannabis will preclude the certification of a PrDP.

- Counselling programme
  Counselling is required to inform the screened individual of the reason(s) why the licence has been refused, what the alternatives are, as well as advice or information on how to deal with the problem.
- Legal and emotional costs [9, 17]
  In the case of cannabis a urine-screening test will merely indicate that cannabis has been used some time prior to the collection of the sample. Cannabis is detectable in urine 1 to 2 days after a single "reefer", but up to 40 days or, in a chronic user, even as long as 11 weeks after cessation.

Screening for cannabis as part of the PrDP application may have medico-legal implications. A positive result may be scientifically and legally defensible. However, for the preclusion of PrDP certification, the chain of custody documentation, preservation of sample integrity, etc, will have to be totally unquestionable.

Planning the implementation of a drug-screening programme[6, 11, 16, 17]

Chain of custody [6, 11, 17]

This refers to documented proof that the urine specimen is from the same individual who gave the specimen, as well as the audit trail accounting for the specimen from collection to handling, testing, storing and the final disposition thereof.

To conform to the strict chain of custody requirements, the laboratory needs to handle DOA specimens differently from their routine clinical work. The facility for analysis and storage must therefore ideally be in a separate location. Positive specimens should be kept for a year or even longer to cover the eventuality of appeals.

The test result is not supported by a patient-doctor relationship, which may benefit the interpretation: it is interpreted in isolation and therefore a positive result may be confirmed by an alternative method in order to obtain a definitive unassailable result.

Laboratories that are affiliated to the National Pathology Group (NPG) - a subgroup of the South African Medical Association- uphold professionalism, ensure good laboratory practice and participate in proficiency testing - internally and externally.

NPG-affiliated laboratories were accredited by LOA Insurance (Life Offices Association) to perform the pathology tests requested by their members. LOA requirements specify that specimen tracking be of a sufficiently high standard to reasonably ensure positive identification throughout transportation and processing of specimens. All NPG-affiliated laboratories follow good laboratory practice, which in itself ensures integrity of results.

The measures already in place can serve as the basis to develope a chain of custody procedures for forensic investigation as well.

Drug of abuse specimen type [7, 12, 17]

Urine is preferred for the following reasons:

- It is readily available in sufficiently large volumes.
- It is non-invasive.
- The concentration of the drug is higher in urine than in blood.
- Provided that chain of custody protocols are followed, staff with minimum training can collect the urine specimen.
- It can be adequately analysed by means of existing techniques.

Requirements for specimen collection procedure[6,14, 16, 17]

Collection of the urine specimen is the first link in the chain of custody procedure. The following requirements must therefore be strictly adhered to during this procedure:

- Staff at the collection site must receive sufficient training to understand the collection process and the significance of the laboratory results. These include counselling before and after drug of abuse testing.
- The candidate should be allowed to produce the urine specimen in private.
- Measures must be put in place to prevent tampering with the specimen.
- The staff at the collection site are responsible for collecting, labelling, and packaging of the samples as well as the documenting of these procedures to ensure that the chain of custody procedure has been adhered to.

In South Africa, the chosen pathology laboratory(ies) will be able to provide training to all relevant staff. Different options are available for collection sites, inter alia:

- Existing collection depots of an NPG-affiliated laboratory
- A physician's consulting room
- A professional nursing sister's consulting room

Testing/screening procedure[9, 12, 13, 14]

The possibility of false negative results in the screening procedures for DOA testing is negligible. However, in a small percentage (less than 1%) false positive results may occur. For this reason, a positive result from a screening procedure must be confirmed by a second and distinctly different analytical technique.[19]

The screening procedure that is most often employed is an immunoassay, especially enzyme immunoassay or fluorescence polarisation

immunoassay. The principle on which both tests are based is competition between labelled and unlabelled antigen (drug) for binding sites on a specific antibody.

Cut-off point can be defined as the lowest concentration of the drug in the urine that will serve to label the test as positive. The current cut-off point for marijuana used in the USA and in the UK is 50 ng/ml (159 nmol/L).[11, 19]

Sensitivity of an assay refers to the lowest concentration of the drug in the urine sample that can be accurately measured. The cut-off point of 50 ng/mL (159 nmol/L) for urine-cannabis levels is well above the sensitivity of the test, which is 20 ng/mL (64 nmol/L) or even lower. This measure further diminishes the possibility of a false positive test.

Centralised screening tests [14]

The main advantages of centralising the screening tests to one of the laboratories appointed by the Department of Transport are the following:

- Tests are automated, eliminating human error.
- Tests are cost effective.
- Precision of the test with regard to the cut-off point is guaranteed. Quality control is an integral part of the procedures followed in a professional pathology laboratory.[11]
- The expertise of the laboratory personnel can be applied to assist with questions that may arise from the DOA testing programme.[10]
- A cut-off point of 50 ng/mL (159 nmol/L) is well within reach of the laboratory.
- A turn-around time of 48 to 72 hours from time of collection of the urine specimen to the delivery of a test result can be guaranteed.

The main disadvantages of centralising the screening tests are the following:[15]

- The test result is not immediately available.
- The specimen must be transported to the laboratory (the chosen laboratory should provide the service).

Near-patient testing, on-site testing or screening without instrumentation [14, 15]

This type of test is available as a rapid test, in kit form (eg. dipstix) and is performed at sites away from the laboratory. The advantages of such testing/screening are as follows:

- The result of the test is immediately available.
- The number of people handling the specimen is reduced, which again reduces the potential for error.

The disadvantages are the following:

- Most of the available point-of-care tests can only use a cut-off point of 100 ng/mL (318 nmol/L).
- Qualitative assays are subjective by nature, and often present problems with the interpretation of results at or near the cut-off concentration.
- Quality control is not always adequate.
- High cost of material (eg. dipstix) used in test procedure.
- Testing of this kind is very labour intensive.

The timing of the procedures is critical, thus negating the performance of several screens in parallel. Since a positive and negative control should be run with the specimens to demonstrate that the test is valid, the timing and cost of analysis is markedly increased.

Although it is claimed that untrained staff can perform these tests, there are rigid criteria that need to be adhered to. For example, to obtain reliable results only clear urine specimens should be used, air bubbles should be avoided, and the test should not be allowed to stand longer than specified before reading, etc, as this may influence the test result.

Confirmation test of a positive screening result

The screening test must be confirmed by a second, distinctly different analytical technique. Chromatography is the most frequently used procedure, with liquid-gas chromatography/mass spectrometry as the preferred method.

Currently this methodology is available in only a few research centres and sophisticated private pathology laboratories in South Africa. Others will be unable to confirm positive cannabis test results.

Reporting of test results

The results are confidential and reporting of results should follow a strict protocol. A protocol must be designed to the satisfaction of all concerned parties and always take the individual's right to privacy into consideration.

The procedure to implement a drug-testing programme as prerequisite for obtaining a PrDP is a formidable task.

Conclusion

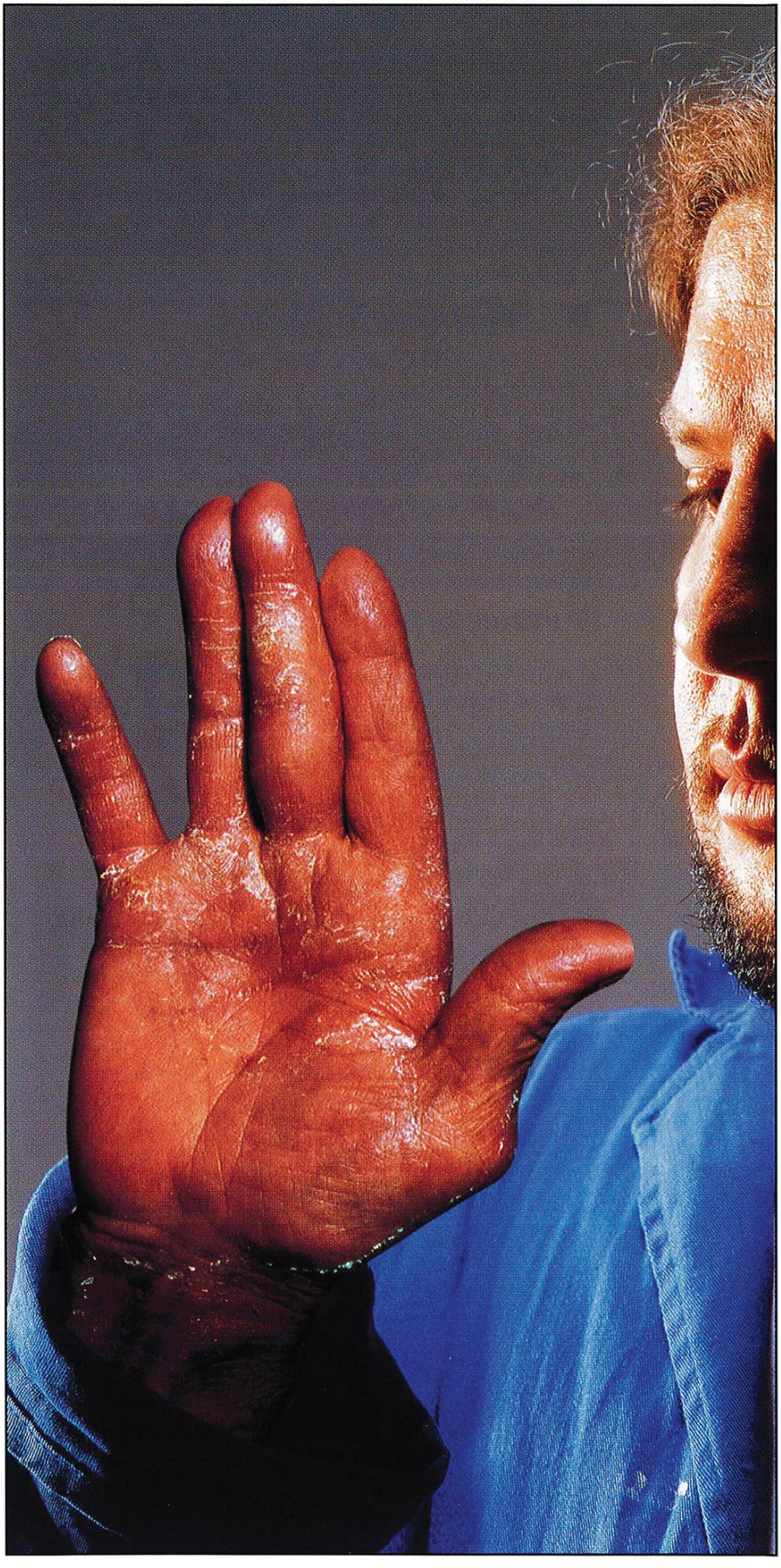
There are many issues to be addressed, to name but a few:

- Should we screen only for cannabis?
- In developing this screening programme, should a positive screening test be accepted as adequate / conclusive proof of an individual using cannabis?
- Who should be authorised to perform the screening tests?
- What cut-off point should be used?
- Who should collect the specimen?
- To whom should the final test result be submitted?

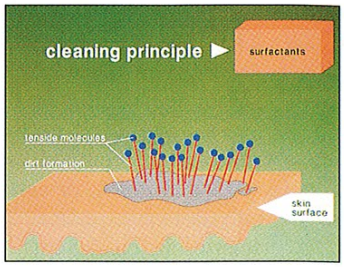
The Department of Transport has therefore decided to delay the screening for drugs of abuse as part of the application for a PrDP. However, it is almost certain that, with the ever-increasing body of evidence available, it is only a matter of time before this procedure will have to be implemented. DOA testing will undoubtedly reduce the number of road accidents involving drivers who have taken illicit drugs.

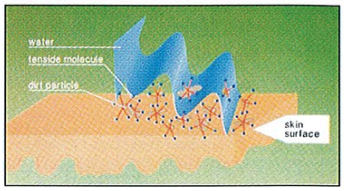
For references, see page 25

PUT UP YOUR HAND IF YOU HAVEN'T HEARD OF STOCKHAUSEN SKIN PROTECTION



FOR PERFECT SKIN PROTECTION





In industry and in many workplaces the human skin particularly the hands are subject to contact with various kinds of harmful substances and hazards.

This has led to a continual increase in occupational skin disease – in fact industrial dermatitis constitutes over 50% of all reported occupational accidents in South Africa.

At a time when there is a shortage of skilled people, every employer should be automatically involved in safeguarding workers from skin disease.

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The type of medical screening an OHN performs in terms of the OHS Act is far more varied and complex than the one required by the Department of Transport. OHNs have been deemed competent to perform these medicals.

The SA Society of Occupational Medicine (SASOM)

SASOM has given support to the principle of OHNs performing the PrDP medicals - provided certain competency criteria are met. An official letter to this effect has been sent to the Department of Transport.

The next statement may appear to be controversial. However, in light of the lack of progress, it needs to be stated. There is a strong perception amongst OHNs that there are certain SASOM members that do not support the proposal submitted to the Department of Transport and that this is impacting on the Department's decision making.

The Democratic Nursing Organisation

DENOSA has also backed the role of the OHN in performing the PrDP medicals and has provided a letter of support to the Department of Transport.

Conclusion

While the process of trying to convince the Department of Transport has been on going for approximately 18 months, the end result has been that we were unable obtain the changes required. The opportunity has been lost. It will be another two years before we are able to bring about any change in the Act.

As occupational health nurse practitioners we believe that, in terms of the SAQA Act and the NQF, this exclusion is a breach of our constitutional rights. If we as OHNs can prove competency in relation to the Unit Standards to be developed for the PrDP medicals then there is no legal or ethical reason why OHNs cannot perform the function.

Update:
Please note: Since the writing of this article the Department of Transport has agreed to allow nurses to perform PrDP medicals. There will be certain requirements that will have to be met to be accredited to do PrDP medicals, but the good news is the recognition of the nurse's role. The next step is to get the legislation changed in parliament.

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Developing a policy and programme to combat substance abuse in industry

Dave Evans
General Manager, ALCO-Safe cc.
Occupational Health SA 1999; Vol 5, No. 4: 26 - 31

Introduction

There can be few factors in the area of health and safety about which there is as much ignorance as the major negative contribution of alcohol. During the past few years several organisations have developed and implemented carefully designed programmmes to reduce the detrimental effect arising from abuse of alcohol and other drugs in the workplace.

These programs incorporate the testing of all employees for alcohol in particular, by means of random and other regularly conducted testing scenarios utilising accurate, high speed and easily calibrated Breath Alcohol Detectors.

The data from such tests reveals the remarkably high levels of employees arriving at site entrance/exit points in an intoxicated state.

At one South African industrial site, tests showed that 30 % of employees were arriving at site entrance points intoxicated but below the 0.08 % Blood Alcohol Concentration level. A further 10 % had alcohol concentrations exceeding 0.08 %, thus 40 % of employees were intoxicated to some extent.[1]

The commencement of random and other alcohol testing procedures reduced the numbers of intoxicated employees arriving at the workplace from 40 % to 4 %. *(Figure 1)* Within 6 months, disabling injuries were reduced by 52.3 % whilst non-disabling injuries were reduced by 44.6 %.

This highly significant reduction in injuries can be understood when considering that 20 % to 40 % of industrial accidents may be alcohol related.

Such information reveals a situation which should provoke urgent and immediate corrective action countrywide.

In the past and unfortunately at present, testing for intoxication is generally only undertaken after an incident has occurred. This in no way reveals the true picture and can be likened to shutting the barn door after the horse has bolted - too little, too late. Industry must learn to be pro-active and prevent intoxicated persons from entering or remaining in the workplace rather than responding only after problems have occurred.

A few years ago one would have had to look far and wide in South Africa to find an organization operating a properly constructed substance abuse programme. As the knowledge necessary to develop such programmes has developed and become available, more and more organisations are implementing programmes. Increasing awareness of the extent of the substance abuse problem and its negative consequences, coupled with evidence of the success of prevention programmes, is providing a driving force for development and implementation. It is important that a substance abuse programme should be promoted and developed with the primary focus on the enhancement of safety, health and productivity and the reduction of losses. Obviously, disciplinary proceedings and sanctions will need to form part of the process in order to ensure that it works, but these should not be seen as the main object.

The word programmes is being used in this article because a substance abuse policy should ideally be

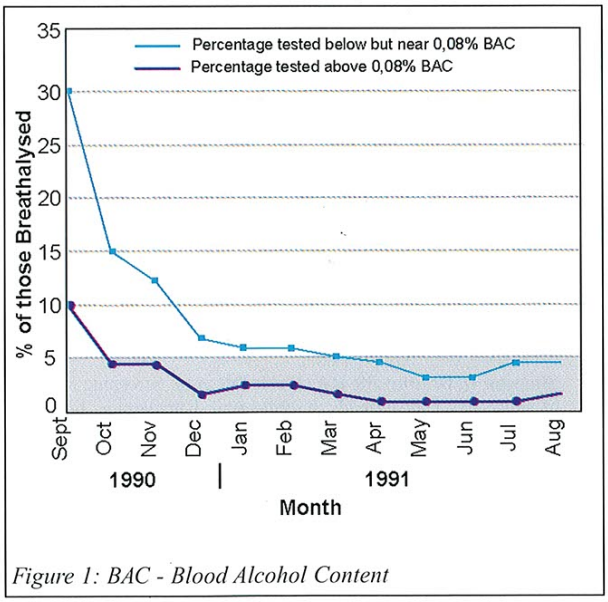
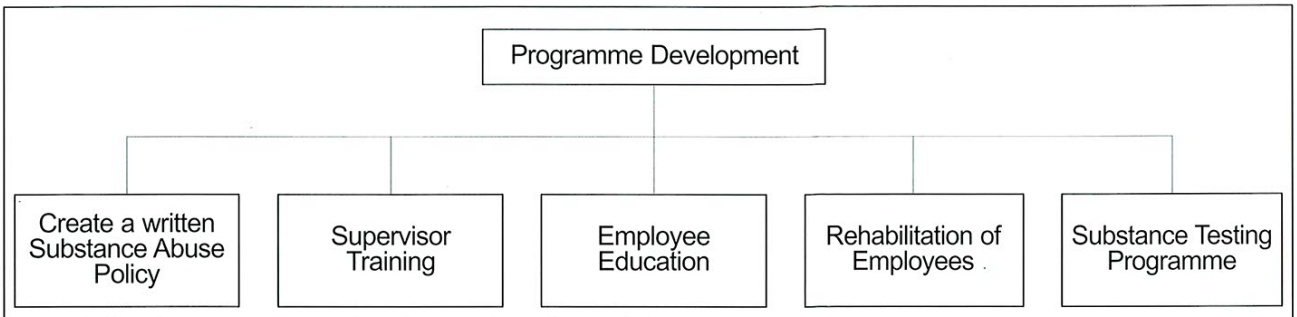


Figure 1: BAC - Blood Alcohol Content



Figue 2: Five basic components of a substance abuse-free workplace programme

just one part of a comprehensive programme which incorporates the policy and its procedures as just one element.

Five basic components of a substance abuse free workplace programme

No two workplaces are the same and no two employers will take exactly the same approach to addressing the substance abuse problem.

A frequently used model uses a five pronged approach. *(Figure 2)*

The five elements are:

- creation of a written substance abuse policy with procedures
- supervisor training
- employee education
- rehabilitation of employees
- substance abuse testing programme

Before looking individually at the five steps of the above approach it is important to give serious consideration as to which parties would best be involved in the design and development of the programme.

The many negative effects of intoxication can affect every aspect of your organisation. It is for this reason that those who develop the program should be as broadly representative of the total complement of staff as possible.

Some of the substance abuse related negative factors as they affect your organisations different activity areas follow:

- **The Chairman, the directors, the shareholders, the CEO and Senior Management**
  Poor productivity, expensive equipment down time and replacement costs, theft, increased healthcare costs, inferior workmanship plus the negative influences of all the other loss factors.
- **The employees and their trade union and other representatives**
  Health problems, 3 to 4 times more injuries, lower promotion and salary increase prospects, more violence, conflicts in employee/employer relationships.
- **Industrial relations, human resources, personnel**
  Employer/employee conflict, typically only 2/3 work potential achieved, 3 times average sickness level, significant increase in work absence and lateness, high employee turnover, low morale and motivation.
- **Health and safety**
  Increased injuries and deaths; abusers experience on average 3 to 4 times more accidents, increased health problems (both physical and psychological) bad driving and careless equipment operation.
- **Security**
  Increased violence and confrontation, bad driving behaviour, increased theft.

Involve employees

Work with your most valuable resource - your employees. Union and/or workforce representatives can help get the message out, clarify goals and ensure that the programme fits into the daily working routine of your workplace. Showing employees that you value their input involves them in the programme and helps to make it work.

Step one - Creating a written substance abuse policy / procedures

Writing a clear and comprehensive substance abuse policy should be the first step in the development of a substance abuse program.

The policy must ensure that preventative and disciplinary actions are consistent.

This consistency is often absent where a written, and agreed substance abuse policy does not exist.

A written policy:

- Is easier to explain to employees, supervisors and contractors.

- May protect the employer from certain kinds of claims by employees.
- Provides a reference if the policy is challenged.
- Facilitates opinion and review.

It also allows employees and job applicants to know that the company's commitment to an substance abuse free workplace is strong and serious.

One thing that has become very clear is that no single policy can be written for all companies. The situations and the appropriate responses vary considerably. The policy should reflect the needs of each workplace.

All existing policies, agreements and relevant regulations concerning the workforce should be reviewed to identify changes that need to be made so that they are consistent with the substance abuse policy. For example, it may be necessary to change a company's existing rules of conduct which apply to the use of substance abuse at company-sponsored activities.

If policies for similar organizations or work settings are available, it may not be necessary to develop one from "scratch". Various policy models are now available and they can be adapted for specific circumstances.

The format of substance abuse policies/ procedures

Different formats have been used by different organisations for substance abuse policies/procedures.

Often the term 'policy' is used to describe a short statement of policy which is incorporated into a larger document. An example of such a statement follows:

Policy on Intoxication

It is the policy of the company that intoxicated personnel may not enter or remain in the workplace.

The policy applies to all persons involved in the company's activities and all persons found to be intoxicated or in possession of or trafficking in intoxicating substances except where possession or consumption is linked to their prescribed workplace activities, will be subject to disciplinary action.

Nothing further in the policy or its procedures will any way detract from this principle.

(This example policy statement concludes here).

Policies and procedures have different emphases but they are most frequently contained in one document under separate sections.

Sometimes however, the procedures are not set down separately but are incorporated into one document, simply described as a substance abuse policy.

General speaking the *policy* outlines the company's attitude to intoxication, the background to and the reasons for the policy's existence and states the rules to be adhered to and the objectives to be attained.

The emphasis of the *procedures* is to set down the manner in which the rules are to be carried out, who will be involved in their implementation and the way in which the objectives are to be achieved on a day-to-day basis.

There is no standard format for a substance abuse policy. For example, some items contained in the background statement of one policy may be paraphrased separately or supplemented by further comment elsewhere in another. Nonetheless certain essential elements should be contained in the document.

Contents of a policy

The information to follow lists items which may be considered for inclusion in a substance abuse policy. Items for the procedures are listed separately.

Background - This outlines the reasons why the organization has a policy and programme.

Policy - The policy statement of the organisation.

Objectives - What is hoped to be achieved by the programme.

Definitions - Descriptions of the key terms used.

Disciplinary action - The procedures to follow any transgressions of the policy.

Possession, consumption and **trafficking in substance abuse** - The rules that apply.

Obligations of employers, obligations of employees, identification of intoxicated persons - Describes the methods to be employed.

The removal of offenders —A statement outlining the organisation's legal obligations under the Occupational Health and Safety Act to remove offenders and deny entry.

Refusal to take a test - A statement that this is unacceptable and that appropriate action will be taken.

Responsibility for the policy - A statement defining the job category/ies of those responsible for the policy.

Education - A description of education and awareness programmes that will be conducted before and after implementation of the substance abuse programme.

Pre-employment medical - Describes the substances to be tested for, who will be tested and how.

Periodic medical tests - Describes the substances to

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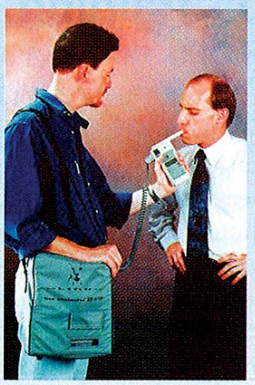

Consists of a portable re-chargeable printer connected via a flexible cable to a LION SD-400PA Alcol meter. Both are contained in a waterproof nylon carry bag which also contains a battery charger and accessories. The printer is activated and fully controlled by the breath instrument and automatically delivers a test record which includes the test result with date and time of test along with the serial , user reference and test record numbers. Also printed are the dates of the last calibration and calibration checks. Space is provided on the printout slip for the insertion of the names and signatures of the operator, the subject, and a witness such as a shop steward or supervisor.

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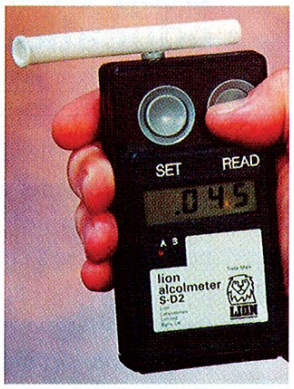

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A fast, simple to use instrument, ideal for the rapid testing of large numbers of people at site entrance/exit points or at police roadblocks.
The operator can obtain a breath sample from an unco-operative person, simply by pressing a button to draw in a sample of the subjects breath as he is talking or breathing

Features:

★Resets for the next test in seconds even after high alcohol readings, enabling up to 6 tests per minute to be performed.

★ No-contact with the subject. NO MOUTHPIECE OR SAMPLE CUP USED

★high specificity to alcohol, unaffected by other likely breath contaminants

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be tested for, the frequency of testing, who will be tested, and how.

Confidentiality - A statement that when an employee seeks treatment or is referred for assessment, that the employee's personal details will remain confidential.

Rehabilitation - Acknowledgement that rehabilitation is available for persons having addiction/dependence problems and the rules that apply e.g. actions which apply when the treatment is not correctly followed or where the disciplinary code is breached.

Contents of procedures for a policy / programme

The procedures set down the actions required to ensure that the objectives of the policy/programme can be achieved. The job categories responsible for specific tasks are stipulated, as are the interactions of personnel in the different departments for example, if a Security Officer finds that an employee tests positive for substance abuse, to which person or department must the matter be reported.

Some items which may be considered for inclusion are: **Purpose; responsibility - which job categories for which tasks; methods for the identification of intoxicated persons; actions required for the different identification methods; identification when an inadequate or when no adequate sample can be obtained; identification by observation; refusal to provide; voluntary test; procedures for call-out, stand-by and prior-arrangement employees; possession of intoxicating substances while on duty and/or on company premises; calibration check and calibration; training of breathalyser operators; Discipline** - Stipulates that a person found to be intoxicated will be subject to a disciplinary hearing and sets down the arrangements. **Sanctions** - A statement of the sanctions which will prevail for transgressors of the policy. **Rehabilitation** - It will be established whether the employees transgression was a result of a behavioural problem or whether an addiction-dependence problem exists. Procedures must then be taken in accordance with the policy guidelines; **Orientation** - Indicates when the procedures will come into effect and what activities will take place in the interim for e.g: education; **Evaluation and review** - A procedure for auditing the effectiveness of the policy; **Annexures** - Items such as descriptions of subject test procedures, calibration records, subject test registers and standard forms for various purposes.

Consideration should be given to employing an external consultant to assist in the preparation of substance abuse programmes, not just in the area of the writing of the policy/procedures but especially in the area of implementation. A great deal of time and money may be saved bearing in mind that accidents, injuries and losses are occurring on an ongoing basis.

Step two - training of supervisors

Supervisors can play a key - if not essential - role in the operation of the programme. They must understand the practical working of the policy, explain the policy to employees and know what action to take and when. Proper attention to supervisor training is essential. They must take appropriate action when an employee transgresses the policy and learn to observe behavioural patterns which may indicate substance abuse or a return to abuse for employees being rehabilitated.

Operators of Breath Alcohol Detectors (often supervisors) should be trained and certificated in the operation of the equipment and in the correct approach to those being tested. This should include the imparting of information about consumption and intoxication levels aimed at reducing the number of intoxicated persons in the workplace. Such training should preferably be undertaken by an external agency.

Step three - employee education

Ongoing education should be provided for all employees in all job categories and the company should ensure that existing employees are informed of the requirements of the substance abuse policy and procedures prior to implementation and/or prior to a new employee's commencement of duties.

It should be explained why the company has a policy and programme and be made very clear that the purpose is to enhance safety and health, to reduce losses and to abide by national laws. Disciplinary codes and sanctions are only there to ensure that the programme can be enforced and rehabilitation is available for substance-dependant employees.

Education should at least include: the time - related affect of alcohol on the bodily alcohol concentration, the contribution of intoxicating substances to accidents, injuries and deaths, to serious health problems and to extensive losses to the organisation.

Step four - rehabilitation of employees

Once having assessed that an employee has an addiction-dependence problem, rehabilitation should be offered either via an existing in-house programme or an external agency.

Affected persons should be regarded in the same way as employees who are ill with regard to assistance for treatment and sick leave, providing the employee assiduously follows the prescribed treatment. They should be assured that they will not be dismissed until medical treatment has been fully explored provided that they are not found guilty of any breach of the disciplinary code during the treatment period, although leniency with respect to sanctions following transgressions is often considered with employees being given two to three chances before dismissal.

Employees refusing to accept treatment are subject to disciplinary policy in the normal way leading to sanctions up to and including dismissal.

Step five - substance testing programme

Once steps one to four are in place a substance testing programme should be put into place. This should provide for the testing at one time or another of all employees with no exceptions. Consideration should be given to pre-employment testing in addition to various other testing scenarios such as random testing at both entrance/exit points and inside the workplace, post- accident testing, voluntary testing and follow-up testing for previous transgressors and those undergoing rehabilitation.

Overall responsibility for the programme should be assigned to the head of one department and other responsibilities should be assigned to different departments and persons for specific aspects, for example: who will be tested; where and when and who will be responsible for instrument calibration and for the keeping of breath test registers.

Written standard testing formats should be created for each type of test, examples being urine tests for drugs and breath tests for alcohol. The documents can then be annexed to the substance abuse policy/procedures.

Great care should be taken when choosing Breath Alcohol Detectors which must be accurate, reliable, specific to alcohol and easily calibrated. The many cheap testers available of which several are in use, normally provide incorrect readings which could lead to unwarranted disciplinary action, mistrust and even dismissals.

A variety of testers are now available, such as high-speed testers for use at site entrance/exit points which are very economical, using no mouthpieces. Also available are testers providing immediate printed evidence of the test result and other data. A carefully considered choice of testers can impact heavily on the effectiveness of any testing programme.

Conclusion

The considerable extent to which alcohol and other drugs contribute to accidents, injuries, deaths and losses in the workplace demands an immediate response.

The knowledge required to develop and implement written substance abuse policies and programmes is now at hand. Such development and implementation will quickly bring about a considerable reduction in accidents, injuries and deaths. Many other loss factors will be quickly curtailed, especially if the programme incorporates the regular use of accurate, reliable and easily calibrated Breath Alcohol Detectors utilising random and other testing methods.

References

1. **McCann,** Alcohol, Employment and fair labour practice, JUTA 1993, page 85.

Common Skin Infections in the Workplace

Dr Hilary Carman
Dermatologist in private practice
Occupational Health SA 1999; Vol 5, No. 4: 23 - 38

Skin infections are an everyday occurrence and some infections may be caused or aggravated by the work environment. Health workers in an occupational setting may well be confronted with having to diagnose and treat workers with such conditions, whether the infection was contracted in the workplace or not.

Infections may be divided into several groups depending on its causative organisms. The following common conditions may present themselves to the health worker:

Fungal Infections:
- Candida albicans
- Dermatophytic infections
- Tinea Versicolour
- Sporotrichosis

Bacterial Infections:
- Folliculitis
- Furunculosis
- Carbuncle
- Impetigo and Ecthyma
- Erysipelas and Cellulitis

Viral Infections:
- Warts (Human papilloma virus/HPV)
- Herpes Zoster/Varicella
- Herpes Simplex
- Molluscum contagiosum

Parasitic Infections:
- Scabies
- Lice
- Cutaneous larva migrans

Although HIV and AIDS will not be discussed in this article it has to be stressed that infection with the Human immunodeficiency virus predisposes sufferers to develop other infections and they tend to be much more severe than in normal people.

Fungal Infections:

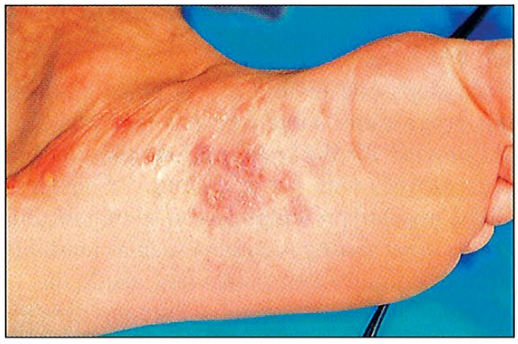
Candida albicans (Thrush)

This is the causative organism of Thrush in babies which affects the oral mucosa or the perianal area. In adults it tends to occur in the flexures, especially in overweight individuals. It may cause vaginal thrush in women and balanitis in men. Predisposing factors include oral or topical corticosteroids, broad-spectrum antibiotics, and the contraceptive pill. Diabetes and possible HIV infection should be considered. Prolonged contact with water and heat acts as a predisposing factor and in an occupational setting paronychia - which results in tenderness and swelling around the nails - and digital intertrigo may occur in domestic or kitchen workers and housewives, of course.

Treatment includes mycostatin cream and the broad spectrum antifungal Imidazoles. Griseofulvin and terbenafine are not effective. For severe candidiasis oral agents such as ketoconazole, fluconazole or itraconazole may be used.

Dermatophytic infections (Ringworm infections)

These affect the hair, skin and nails and there are a variety of organisms that may cause this problem. The source of the infection depends on whether the organism



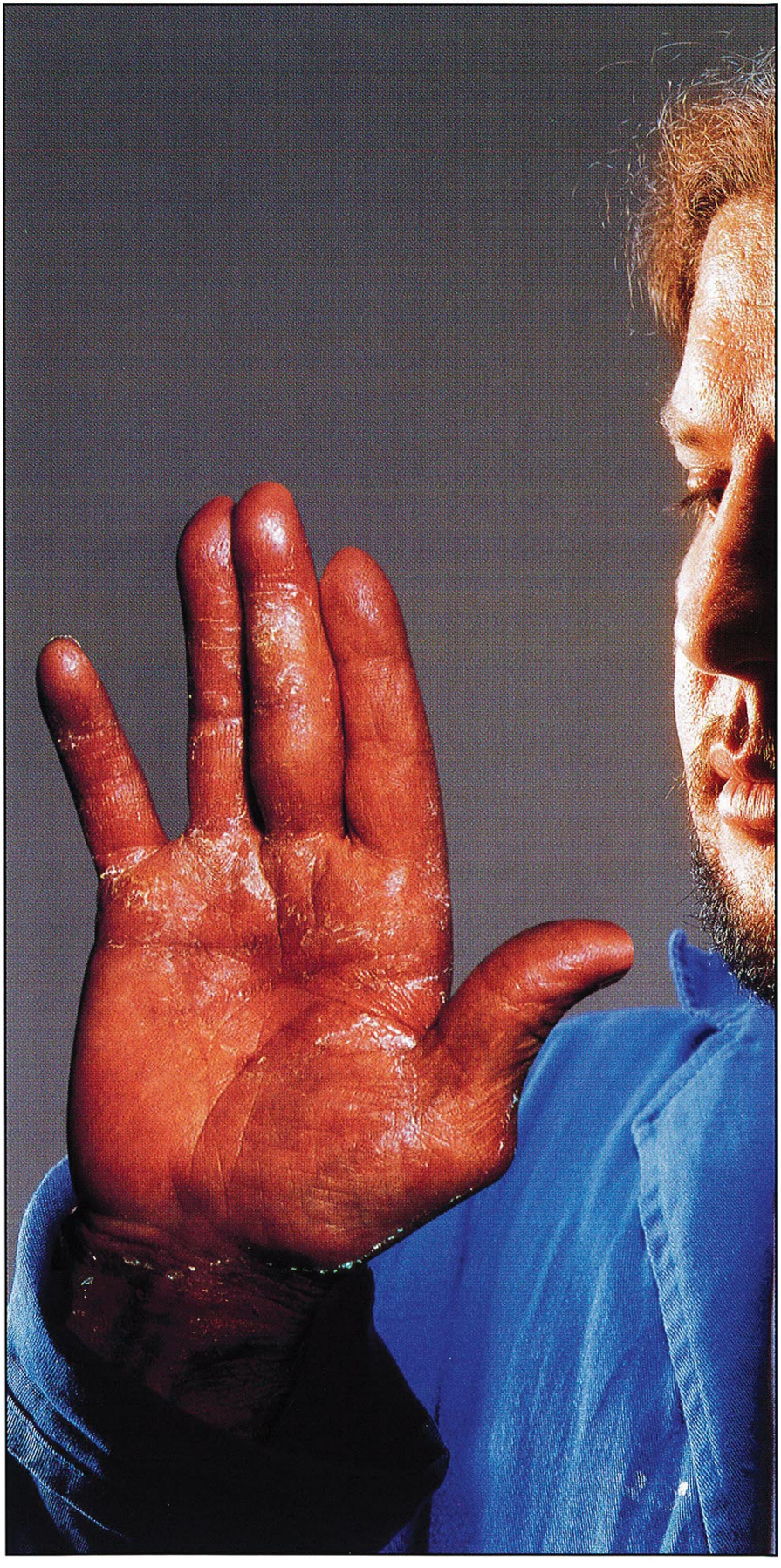
Tinea pedis

normally resides in humans, animals or the soil. In general the animal "ringworms" tend to cause a more inflammatory response than the human type. The condition is named depending on the site affected e.g. Tinea pedis is athletes foot and Tinea capitis affects the scalp. Clinically the lesions are scaly and have a distinct margin. There tends to be central clearing of the lesions. Note that with one exception, namely Favus or "Witkop," Tinea capitis occurs in children and not in adults. Thus it is most unlikely that a scaly scalp condition in an adult can be attributed to "ringworm."

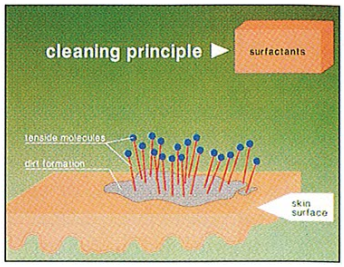
The diagnosis is suggested clinically and confirmed on microscopy and culture.

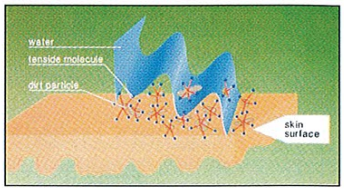
Many treatments are available and they vary in price! The old cheap compounds include Whitfields ointment and Mycota cream and powder. Griseofulvin is the long-standing oral antifungal agent which is indicated for extensive infections or for tinea capitis. Unfortunately it is poorly absorbed and has to be crushed and taken with a fatty meal. Newer effective treatments include the broad spectrum antifungals of the imidazole group which include such topical creams as clotrimazole, miconazole,

PUT UP YOUR HAND IF YOU HAVEN'T HEARD OF STOCKHAUSEN SKIN PROTECTION



FOR PERFECT SKIN PROTECTION





In industry and in many workplaces the human skin particularly the hands are subject to contact with various kinds of harmful substances and hazards.

This has led to a continual increase in occupational skin disease – in fact industrial dermatitis constitutes over 50% of all reported occupational accidents in South Africa.

At a time when there is a shortage of skilled people, every employer should be automatically involved in safeguarding workers from skin disease.

Unfortunately there is no universal skin protection cream which works against all harmful substances – that's where Stockhausen comes in. Stockhausen are specialists in industrial skin protection and non aggressive skin cleaning.

For more information on how Stockhausen can be used in your company contact MSA Africa (Pty) Ltd.

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bifonazole and econazole. Terbenafine is available in a topical preparation and together with itraconazole and fluconazole are availalable in the oral forms. Albeit extremely effective these treatments are expensive.

Tinea versicolour

This is caused by a dimorphic fungus known as Malassezia Fufur or Pityrosporum orbiculare. As the yeast form it is a normal commensal of the skin. In hot and humid conditions such as might be present in a factory environment or certainly underground, the organism invades the superficial layers of the keratin of the skin and causes the characteristic clinical appearance.

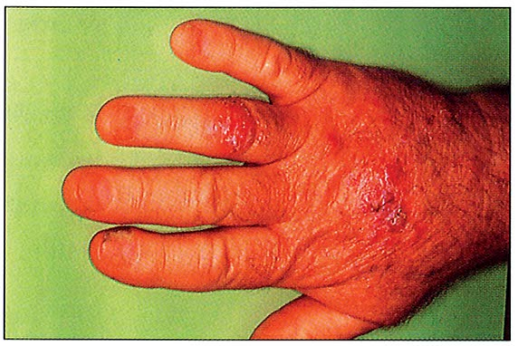
The rash is distributed from the centre of the chest and back and extends downwards and onto the shoulders and upper arms. The lesions are discoloured and superficially scaly.

Treatment includes:

- Selsun shampoo which is worked into a lather and applied overnight for three consecutive nights.
- 20% sodium sulphite solution applied to the entire area as above.
- Topical imidazoles e.g. Pevaryl foaming solution, Nizshampoo, or equivalent lotions or solutions.
- Topical Lamisil.
- Oral treatments may be indicated in severe or recurrent infections and these include oral ketoconazole or itraconazole.

Treatment will remove the fine scaliness of the lesions but pigmentation will take longer to recover. However the condition is recurrent and may well recur the following summer or if the patient continues to work in a humid environment.

Sporotrichosis



Sporotrichosis

This is a fungal infection caused by the fungus Sporotrichium schenkii. The fungus is found as a contaminant on organic plant material such as wood, straw, or rose thorns. Thus sporotrichosis may be an occupational hazard for gardeners and agricultural workers. Mine workers may contract sporotrichosis from the timber props used to support the underground tunnels. During the 1940s an epidemic occurred affecting thousands of workers.

Clinically the condition is characterised by a non-tender scaly papulo-nodule on an exposed area of skin. If untreated, further similar nodules will develop proximal to the initial lesion and also along the line of lymphatic drainage. Occasionally the infection may become systematised and cause joint swelling.

The diagnosis is confirmed on histology or culture of the superficial scales.

Treatment with mist potassium iodide (600 mg t.d.s) over a period of 4-6 weeks is effective and cheap. The newer antifungal agent, itraconazole, is effective yet expensive.

Bacterial infections:

Folliculitis

This is a superficial infection surrounding the hair follicles. It may be precipitated by contact with oils or by heat, humidity and friction. The organism involved may be a coagulase positive or negative staphylococcus.

Treatment would consist of topical antiseptic creams or soap such as hibitane or topical antibiotics such as fucidin or bactroban. If severe or extensive an oral antibiotic of the tetracycline class may be indicated.

Furunculosis (boils)

This is a deep necrotic infection of the hair follicle. It is caused by staph. aureus. It is uncommonly associated with underlying immune conditions such as diabetes. Recurrent boils may be associated with carriage of the staphylococcal organism in the nose of the patient or of his family or work associates.

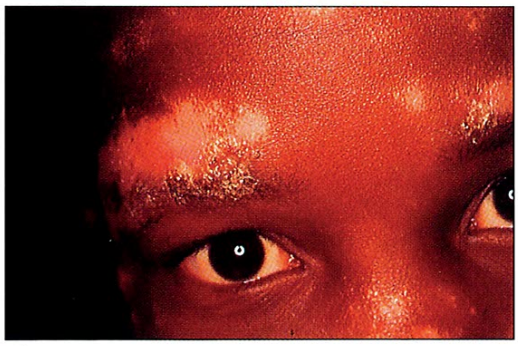
Treatment would include lancing of the abscess if necessary and the indicated antibiotics would be cloxacillin, flucloxacillin, erythromycin, or first-generation cephalosporins which are likely to be beta lactamase resistant.

Topical creams include bactroban and fucidin. Nasal swabs from the patient and his family may yield staph aureus in which case fucidin or bactroban should be used intranasally.

Carbuncles

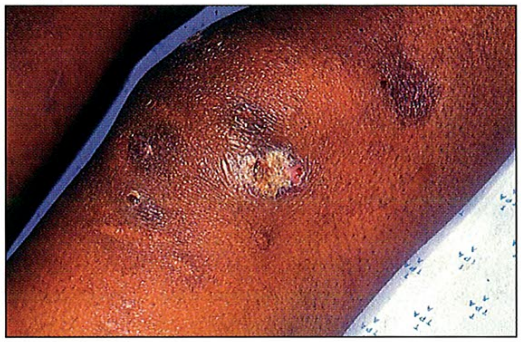
Unlike boils carbuncles are almost invariably associated with underlying diseases such as diabetes and this should be investigated. Penicillinase resistant antibiotics are the indicated treatment.

Impetigo and Ecthyma



Impetigo

Impetigo is an infection of the superficial layers of the epidermis with the pyogenic organisms streptococcus or staphylococcus or both. It often occurs in children, especially on the face and as its name implies, it is extremely infectious. Treatment involves topical or oral antibiotics. In view of the fact that the staphylococcal organism is often found in these lesions penicillinase resistant antibiotics would be preferred. Ecthyma or "veld sores" is a similar infection but sited more deeply and penetrating the dermis. It therefore leave scarring upon healing. It often occurs on the legs . Treatment is the same as for impetigo.



Ecthyma

Erysipelas and cellulitis

Erysipelas and cellulitis are caused by Lancefield group A streptococci. In children it may be caused by H.influenza.

Erysipelas affects the dermis and is characterised by a tender diffuse red swelling with a defined edge. It may blister. It often occurs on the face.

Cellulitis affects the dermis and the subcutaneous tissues and is therefore less defined. It often affects the lower legs and may be associated with venous insufficiency. It may have to be distinguished from deep vein thrombosis in this site. Cellulitis may be recurrent and causes lymphatic damage.

Complications caused by the spread of this organism may be severe. They include myositis, necrotising fasciitis and abscesses. Spread from orbital cellulitis may result in meningitis or cavernous sinus thrombosis.

The organism may be cultured from blister fluid or possibly a throat swab.

In severe cases, treatment includes admission to hospital and intravenous penicillin. If less severe, oral antibiotics may be used.

Viral infections:

Warts (HPV infection)

There are at least 55 different serotypes of the Human papilloma virus. Type 1 is associated with plantar warts and 16 and 11 with genital warts. Types 16 and 18 are premalignant. It spreads through direct or indirect contact and the infectivity is high especially in genital warts.

It is important to differentiate plantar warts from callosities (corns). To do this the lesion should be pared down with a scalpel blade. Warts are characterised by small bleeding points or black dots which are thrombosed capillaries. Callosities on paring demonstrate a smooth yellow uniform appearance that is the thickened keratin. They may have a central keratin core that is well described by the Afrikaans name for callosity i.e. "liddoring". Workers who wear ill-fitting and heavy boots are far more likely to have corns than warts and treating corns inappropriately will aggravate the problem.

Because warts are caused by a virus they are eventually self- limiting and will spontaneously resolve once the body's immune system is stimulated. Overtreatment must be avoided. In the past, severe and often crippling deformities have been caused by radiotherapy and removal by surgery or cautery causing scarring. On the soles of the feet this scarring may predispose to the development of painful callosities.

Thus treatment includes an explanation as to their self-limiting nature. Spread should be prevented by covering the warts with a plaster if communal showers are used. Conservative topical applications such as duofilm with detailed instructions as to its use over a period of 3 months, posalfilin and 3% formalin soaks are useful and often effective. Saturated solution of monochloroacetic acid may be applied by the doctor but this may cause severe pain. Cryotherapy (liquid nitrogen) may be applied if available. Removal with curettage and light cautery under local anaesthetic is in my view the best treatment. Genital warts are treated with podophyhyllin or cautery under general anaesthetic.

Herpes zoster and varicella

Varicella or chickenpox represents the primary infection with the herpes varicella virus. Herpes zoster or shingles is a reactivation of the virus, which in its latent form resides in the dorsal root ganglion of the spinal cord. On reactivation the virus travels down the nerve and infects that area of skin that the nerve supplies. The manifestation of the infection in an individual depends on the state of his immunity. A fully immune person will not develop the infection at all. A non-immune individual will develop chickenpox and a partially immune person will develop Herpes zoster. Herpes zoster may affect anyone including children, but nowadays is commonly the presenting condition in HIV-infected individuals.

Clinically the individual lesions are umbilicated blisters. In chickenpox they are distributed on the face and body and are found in varying stages of development. In herpes zoster the lesions are grouped according to the dermatome supplied by the particular nerve and thus characteristically are unilateral and do not cross the midline.

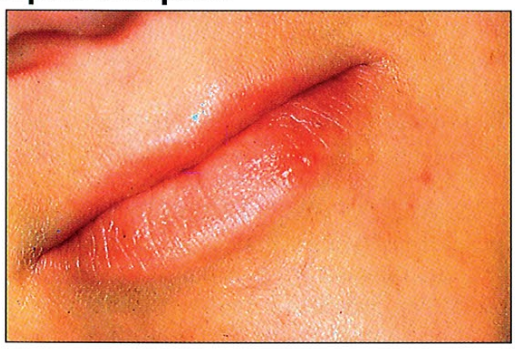
If the trigeminal nerve is affected the blisters will occur on the face and may involve the eye. Both varicella and herpes zoster are self-limiting and do not necessarily require treatment. Complications may arise and suggest that treatment with the newer antiviral agents is indicated.

Chickenpox occurring in an adult may be complicated

by pneumonia and herpes zoster, especially in old people, and may cause post-herpetic neuralgia. If infection is contracted in early pregancy it may result in foetal abnormalities, and perinatal infection may result in severe systemic disease in the neonate.

In HIV-infected people the herpes zoster may be severe and recurrent. Treatment in high risk patients consists of the antiviral agents acyclovir, valacyclovir and famcyclovir. Vaccination is available and in high risk neonates specific immune globulin may be used. In herpes zoster the oral treatment needs to be started within 72 hours after onset of the first symptom.

Herpes simplex



Herpes simplex

Type 1 and type 2 herpes virus cause a similar picture and may overlap. Generally the type 2 virus is the cause of genital herpes and is venereally transmitted.

As with the varicella zoster infection, the primary infection varies in severity from a mild subclinical infection to a severe ulcerating form. This in the type 1 form is likely to be a gingivo-stomatitis and probably in childhood. In the type 2 form the primary form is likely to be in the ano-genital area and occurs after puberty.

During the latent phase the virus lies dormant in the sensory ganglion of the nerve that supplies that area of skin which was initially infected.

Triggering factors which would provoke a recurrence include menstruation, a fever, or sun-exposure. Typically recurrent type 1 infection occurs on the lip and results in the well-known fever blister or cold sore. It may however occur on any site of the body. The type 2, as is well known, mainly affects the ano-genital area.

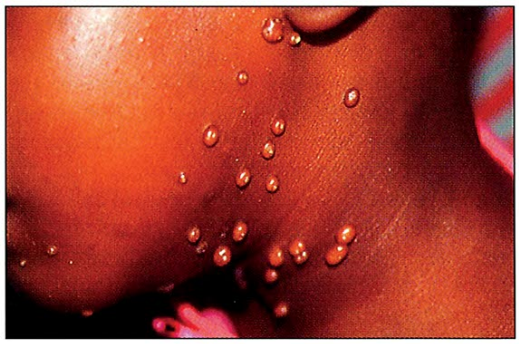
The recurrent infection is usually mild and self-limiting after about one week. Complications will occur in immune-suppressed individuals and AIDS patients may develop severe non-healing ulceration. Eczema herpeticum occurs in people with severe atopic eczema and the infection becomes generalised but confined to the skin. Primary infection of the mother or the neonate during the peri-natal period may result in severe systemic disease. The baby may become infected during vaginal delivery if the mother has an active infection.

The diagnosis is easily made on viral culture and the result is available within 2 days. The correct viral transport medium needs to be obtained from the laboratory. Cytology can also yield a rapid answer (Tzanck smear). In this procedure the blister is gently opened and a scraping taken from the undersurface of the roof of the blister. The scraping is smeared onto a slide and fixed with the Pap smear fixative. After H&E staining the typical giant cells with "ground glass" nuclei can be identified. Serology can be done and a positive anti-herpes IgM antibody will point to a recent infection. Tests can distinguish antibodies against the type 1 infection from those of the type 2 or genital type.

Many of the type 2 infections are subclinical and transmission occurs unbeknown to either of the sexual partners. This has distressing psycho-sexual implications for the genital herpes carrier and therefore influences choice of treatment.

Treatment is usually symptomatic only. The antiviral ointments are probably not really effective because they are not absorbed into the skin. However zovirax ointment is available. The oral treatments include Famcyclovir , acyclovir and valcyclovir. In severe and frequently recurring infections oral treatment is indicated. It may be prescribed as a 5-day course and the tablets must be started very soon after the onset of the first symptom. It may also be used prophylactically. This would be indicated if the patient is having numerous and severe recurrent episodes of infection, or perhaps if one partner is infected while the other is not. Prophylactic treatment involves a lower dose of the oral antiviral agent but over a period of about one year. This is expensive.

Molluscum contagiosum



Molluscum contagiosum

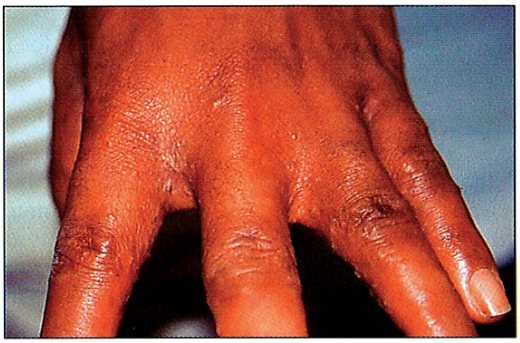
This is a viral infection caused by a pox virus which is one of the largest viruses. It occurs mainly in children and babies, but can occur in adults and especially in HIV infection may be extremely florid.

The lesions consist of papulo-nodules with an umbilicated centre which contains cheesy material. They occur in the groin and inner aspects of the thighs and upper arms but may also occur on the trunk. As their name implies they are infectious from one area of the body to another and from one person to another.

Treatment involves destroying the lesion, either with light cautery, cryotherapy, or curetting the umbilicated centre.

Parasitic infestations

Scabies:



Scabies

Scabies is caused by the human mite, Sarcoptes scabiei var hominis. " Mange" is the canine equivalent.

The transmission is direct and spreads amongst members of a family, amongst children at school, and venereally. The mite may also be picked up from unwashed sheets or clothing.

Infection with this parasite is an occupational hazard of nurses and doctors especially in old age homes or other institutions. Infected workers may be a source of infection to others if they work in close physical contact with one another.

The incubation period is between 3-4 weeks.

Clinically it is characterised by severe itch and it is known as "jollie juk" and " lekkerkrap."

Suspect scabies if more than one family member is itchy.

Small itchy and excoriated papules are typically distributed between the fingers, the anterior aspects of the wrists, the posterior aspects of the elbows, the periumbilical area and the nipple area, and in the male on the penis and scrotum. In the genital area the lesions may be nodular.

On close inspection the pathognomonic "burrows" may be seen. These represent the track that the female mite makes as she burrows into the epidermis where she lays her eggs. A skin scraping can be done, and if skilfully performed, the female mite together with several ova in varying phases of development can be demonstrated microscopically to the horrified but impressed host!

Complications occur as a result of the severe itch and resultant scratching. They include impetigo and eczematisation of the skin.

Normally between 8-10 female mites only account for the infection. In Norwegian scabies the patient is infested with thousand of mites. This type of infection may be found in immuno-suppressed people or mentally retarded people in institutions and they are a source of potential infection to their carers.

Various treatments are available but specific and careful instructions must be given to the patient as to their use.

- Tetmesol soap should be worked into a lather and left on the skin for 12 hours. This should be repeated twice. It is related in structure to antabuse and so your patient should be instructed not to imbibe alcohol for a few days.
- Benzyl benzoate (ascabiol) is applied to the skin overnight for 3 days only. It is unpleasant and irritating. It may cause eczema and therefore perpetuation of the itch even though the mite has been effectively destroyed.
- Quellada lotion or gamma benzene hexachloride is effective and non-irritating and is used as a single 24 hour application. It should be re-applied after one week if the itch persists. In small children it should be applied for only 6 hours.
- Malathion 0.5% in water is available in the U.K. but not in South Africa.
- Permethrim 5% cream should be applied for three consecutive nights.
- 5% sulphur in aqueous cream. This must be applied to the whole body for three nights consecutively. It is the preferred treatment in pregnant women and small babies since the previous medications have not been proven to be safe in pregnancy or early infancy.
  - N.B. Care must be taken to explain to patients that clothes and bed linen may be infested with the mite and that these should be washed and hung in the sun. Blankets, duvets and mattresses should be exposed to sunlight to kill the mite. Boiling is unnecessary.
  - Secondary infection and eczema should be treated with antibiotics and a dilute topical steroid cream. Warn your patient that the itch may persist after the mite has been destroyed because of the ongoing allergic reaction.
- Ivermectim is an oral drug that has been used for years by vets for the treatment of mange in dogs (but not collies in whom it causes hepatitis). It has been supplied free of charge by the drug company, Merck Sharpe and Dome, to the W.H.O. which has organised the treatment of millions of people in West Africa at risk of the disease River blindness. It is taken as a single oral dose and is safe and effective. It is available on a named basis but has not yet been registered.

Humans can be affected by animal mites such as the sarcoptic mange mite. It is rare for this mite to take up residence on a human. The cheyletiella mite may infest dogs or cats and bite humans. Bird mites may be a problem as well as harvest mites in old stored grain or straw. These may cause itchy rashes in workers exposed to infected animals or products.

Lice

Three different species of lice cause three different infestations in humans.

Pediculus humanus capitis is the head louse well known to all with children at school no matter the social class or level of enthusiasm for cleanliness.

Pediculus humanus humanus is the body louse. This actually infests clothing rather than the wearer and is related to hygiene and the availability of water and soap.

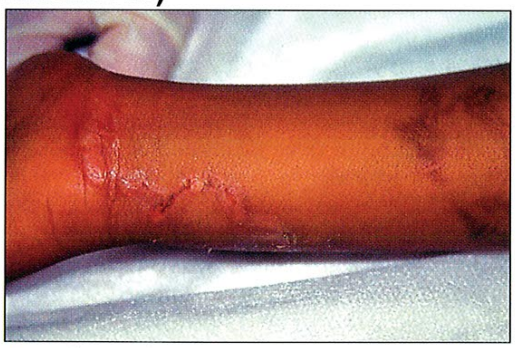
This louse is responsible for epidemic louse-borne fever. Treatment would be to disinfect all clothing. Infestation with this louse is associated with poverty, homelessness and displacement in warfare.

Phthirus phthirus is the crab louse and is spread venereally. It may infest the eyelashes.

The treatment involves insecticides such as quellada , malathion and permethrim . Resistance to medication is becoming a problem. Soaking the hair in liquid paraffin and using a nit comb sometimes works.

Although this would not be regarded as an occupational disease certainly lice are a common problem and would present to an occupational health clinic.

Cutaneous larva migrans (sandworm)



Cutaneous larva migrans

This is caused by the larva of the dog hookworm. Eggs are deposited in dog faeces in sand. They hatch into larvae that will penetrate the skin of a human. However the human is a dead end host. The larva therefore migrates in the dermis to give rise to the typical serpiginous inflamed swelling before being destroyed and reabsorbed by the host.

The treatment is Albendazole 400mg daily for three days.

Conclusion

Although these infections may not be primarily contracted in a workplace setting, they are common and would certainly, at one time or another, present to occupational health nurses and doctors. They should be recognised, diagnosed and usually treated in a primary health care setting.

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COID training project - a SASOM report

DR. WM Coombs, Prof. DJ Kocks, DR. B Girdler-Brown, Dr. CP Roos, Dr. M Felix, Prof. M Ross, Mrs. D. Müller
SASOM COIDA Sub-Committee

Occupational Health SA 1999; Vol 5, No. 4: 40 - 42

The Compensation for Occupational Injuries and Diseases (COID) Training Project arose out of a common concern about the under-reporting and the quality of reporting of occupational injuries and diseases. Particular problems identified were the lack of knowledge about the obligations to report and assist patients with compensation claims and the correct reporting procedures. Under the provisions made in the Compensation for Occupational Injuries and Diseases Act (Act 130 of 1993), the Compensation Commissioner granted funding to the South African Society of Occupational Medicine (SASOM) to develop a training programme and to train 2000 South African medical practitioners within a period of one year. SASOM undertook to provide the training at various centres around the country.

The project started in July 1997 and a decision was taken by the SASOM Executive Committee to end Phase 1 of the project at the end of January 1999. By this time, SASOM trainers had succeeded in training 1 456 doctors.

SASOM and its Executive can look back on 20 months of hard work. The project proved to be the highlight of the Society's 50th Anniversary. The feedback from delegates has been very positive and medical practitioners and other health professionals agree that there is a significant need for this training.

Introduction

There is concern about the under-reporting of occupational diseases as well as the quality of reporting of both occupational injuries and diseases under the COID Act. Figures from the Compensation Commissioner show that in 1991 there were 185 725 cases notified whilst for the 1997 year, the total number of claims had increased to 263 340. In 1991, there were only 104 cases of industrial (occupational) disease compensated i.e. a rate of 0,06% of total notification - in comparison with the1997 year when there were 3 615 cases of occupational disease submitted for compensation i.e. a rate of 1,4% of total notifications.

The notification of the 1997 cases submitted for compensation included:

1 903	cases of noise-induced hearing loss
605	cases of major depression/post traumatic stress
388	cases of dermatitis
250	cases of asbestosis/silicosis
231	cases of tuberculosis
184	cases of occupational asthma
54	cases of mesothelioma

The increase in notification of occupational diseases can be ascribed to the introduction of the Occupational Health and Safety Act as well as the significantly higher profile that noise-induced hearing loss has had. However, compared to developed countries, the number of notifications of occupational diseases are grossly under-reported.

As a result, SASOM undertook a project - with financial and other assistance from the Compensation Commissioner - to train medical practitioners about the reporting of occupational diseases and injuries. The objective was twofold:

- To improve the under-reporting of claims, especially occupational disease
- To improve the general quality of the reporting proceedure

A target of 2 000 medical practitioners or 6-7% of doctors in each province was set.

Training manual

A comprehensive training resource manual was developed using documentation and input from the

office of the Compensation Commission, the National Centre for Occupational Health and the executive committee of SASOM. Several individuals gave comment and reviewed the contents before the manual was printed. This manual was given to all medical practitioners who attended the training courses.

Universities have subsequently included the COID manual as part of their curriculum for post-graduate studies for the Diploma in Occupational Health (DOH).

Trainers

All trainers themselves underwent training in all aspects of the COID training programme and the manual. SASOM's three regions were invited to submit names of members interested in becoming trainers. Only five names were returned and, as a result, fourteen additional SASOM members and one non-member were approached. Finally, the project was carried out by eleven trainers.

Marketing of training sessions

The project was announced through advertisements in *Occupational Health Southern Africa*, the Medigram and over the SAMA network by e-mail to all subscribing practitioners. As a result, 74 inquiries were received from around the country. Attendance at a training session was free of charge to the doctors and they were promised a manual and a certificate for attending. They would be required to supply their HPCSA number and if applicable, a practice number. The target audience included all registered medical practitioners. However, registered chiropractors, dental practitioners, osteopaths and homeopaths were permitted to attend provided they had dealings with the Compensation Commissioner.

The market was split into 'soft' and 'hard' groupings. A 'soft' group was a captive audience, for example, students attending a DOH or Family Medicine courses. 'Soft' groups offered only minimal marketing costs for SASOM and this sometimes included covering the cost of teas and venues. 300 doctors were trained in this way. 'Hard' groups were those where SASOM would have to spend money on marketing. This usually consisted of sending invitations (by fax approximately 2-3 weeks before the session) to doctors living in the vicinity of a training session.

Names and fax numbers were obtained from the SAMA database for a fee or at no cost from private hospital lists or from the telephone directory. It was found that the South African Medical Association's database was less than 70% accurate in terms of both numbers and details. So, apart from the Gauteng area, this was only used on a few occasions. The reason for using the SAMA database rather than the telephone directory was that the directory often did not list the fax number, necessitating two calls and extra expense.

There was an average 10% response rate to these invitations and approximately 66% of those who accepted the invitation actually turned up. There was, however, quite a variation regionally. For example, in Pietermaritzburg, 255 invitations were sent out, 59 accepted and 45 attended (almost 20%), whereas in Florida 460 were invited, only 18 accepted and 17 (less than 4%) were ultimately trained. In general, response rates in Gauteng were poor.

Results

Table 1 shows the number of sessions offered in each province and the number of delegates who attended each session.

Table 2 shows the percentage of doctors (general practitioners and specialists) working in each province who have been trained. The percentages are based on the distributions contained in the HPCSA register for September 1998 and, of course, the details contained in the register do not always accurately reflect where a doctor is practising. Nevertheless, it gives an idea of the penetration of the project in each province. The small numbers of non-medical trainees (dentists, chiropractors etc) have been excluded:

The target was to train 6 - 7% of the doctors in each province. The result in Gauteng was disappointing in view of the intensive marketing campaign in that province which is estimated to have reached at least 70% of all doctors, mainly through personal invitations. Gauteng doctors were offered 29 training sessions at 9 different sites. Sessions were offered during the afternoons, in the evening and on various days of the week. The result is especially disappointing in view of the high concentration of industries in the province. The number trained in the Western Cape is also low, however, a contributing factor may have been that effectively there were only two trainers and one trainer was not available for most of the time due to pressure of work.

Table 1			
Province	**Town**	**Session**	**Attended**
Eastern Cape		**5**	**151**
	East London	1	35
	Mossel Bay	1	13
	Umtata	1	40
	Port Elizabeth	2	63
Northern Cape		**3**	**17**
	Kimberley	1	6
	Springbok	1	2
	Upington	1	9
Western Cape		**15**	**151**
	Cape Town	10	67
	Moreesburg	1	7
	Paarl	1	10
	Stellenbosch	1	22
	Tygerberg	1	35
	Worcester	1	10
Free State		**4**	**77**
	Bloemfontein	2	32
	Welkom	2	38
Gauteng		**29**	**523**
	Benoni	1	46
	Carletonville	1	12
	Florida	1	17
	Garankuwa	1	12
	Johannesburg	15	253
	Pretoria	9	173
	Vanderbijlpark	1	10
Kwazulu Natal		**16**	**326**
	Durban	11	229
	Estcourt	1	10
	Ladysmith	1	14
	Newcastle	1	14
	Pietermaritzburg	1	45
	Richards Bay	1	14
Mpumalanga		**4**	**119**
	Middelburg	1	48
	Nelspruit	1	26
	Secunda	1	34
	Witbank	1	11
Northern Province		**3**	**62**
	Phalaborwa	1	10
	Pietersburg	2	52
North West Province		**3**	**37**
	Klerksdorp	1	14
	Potchefstroom	1	12
	Rustenburg	1	11
Grand total		**82**	**1456**

Table 2	
Province	**Percentage (%) of doctors trained**
Eastern Cape	5.2
Northern Cape	6.4
Western Cape	2.0
Free State	2.7
Gauteng	4.4
Kwazulu Natal	6.9
Mpumalanga	25.7
Northern Province	9.7
North West Province	4.6
Total	**4.8**

Accreditation

SASOM held a full-day seminar on 30 July 1999 at the CSIR. This was well attended by other health professionals, such as occupational health nurses as well as management and administrative staff of various companies. 7 Accrediatation points have been allocated by SAMA.

The society will also hold similar accredited seminars in Natal, the Western Cape and the Eastern Cape during the year 2000.

Conclusion

The number of cases of both occupational diseases and injuries will continue to increase in the future and due to the complexity of the notification process and the various forms that are required to be completed, on-going training of medical practitioners is essential. It is also important that this training should be expanded to other health care professionals such as occupational health nurses who also play an important role in the notification procedure.

However, it is difficult to establish how effective the actual training has been and whether those doctors who have been trained process claims more quickly and accurately and whether they report a greater number of occupational diseases and injuries. The Compensation Commissioner has indicated that she will attempt to assess this aspect.

Acknowledgements

Dr Bertie Rautenbach and Dr Van der Merwe of the Compensation Commissioner's office are thanked for their invaluable input to initiating the manual. Furthermore, a special word of thanks should be extended to Prof. Mary Ross and Dr. Marianne Felix for their dedication in compiling and finalising the manual. Many thanks go to Ms Lea Roodt and Prof. Gail Todd and all our SASOM colleagues who have assisted us with suggestions and contributions in revising the manual at each stage of development and particularly to Dr Begley of Rand Mutual Assurance for his extensive assistance with the revision. A final word of thanks goes to Engela Venter for her help with editing the manual. Furthermore, we are grateful for the very explicit way in which the Project leader Dr. Brendon Girdler-Brown initiated and planned the project. We would also like to extend a special thankyou to those Executive Members who gave so much of their time without any remuneration (amounted to R88 470) and the helpful administrative staff at the national office who have put in every effort since July 1998 to reach the target of 2000. Last, but not least, we would like to thank the Compensation Commissioner for giving SASOM the opportunity to train doctors country-wide.

Noise monitoring - A basic overview

B. Brits
Richards Bay Minerals, KwaZulu Natal
Occupational Health SA 1999; Vol 5, No. 4: 43 - 44

Accurate noise measurement and determination of noise levels within the work environment is a crucial part of control. Without accurately measured noise levels, correct absorption materials or adequate personal protective equipment cannot be selected. This could result in waste of money on inferior absorption material or selection of personal protective equipment that does not adequately reduce noise levels with noise reduced hearing loss as the outcome.

Background

Noise levels in most of industry worldwide are usually of such a nature that it could lead to hearing loss or specifically noise-induced hearing loss. There are three possible scenario's with regard to hearing loss, i.e.:

- Conductive hearing loss which is the result of a "malfunction" in the outer or middle ear. This type of hearing loss is very rarely brought on by exposure to noise
- Natural hearing deterioration with increasing age
- Noise-induced hearing loss brought about by damage or change to the hair cells in the inner ear. Exposure to intense noise levels or long-term exposure to high noise levels causes these changes.

Exposure to high noise levels can also produce other effects such as:

- Tinnitus, which is a ringing, or buzzing sound heard by the affected person. This often accompanies noise - induced hearing loss
- Irritation and annoyance, i.e. the monotonous noise produced by a vibrating loose panel of an airconditioning unit in an office environment. This type of continuous background noise can easily lead to irritation and annoyance.

There are a few control options for reducing or removing noise levels in the work environment. These include:

- Control noise levels at the source
- Control noise along the transmission path
- Reduce the exposure time of the workforce by implementation of administrative control measures
- Control noise exposure at the exposed persons through provision of personal protective equipment as a last resort.

In order to implement the above control measures we would need to know what the noise levels are. For insulation purposes or for the use of absorbent materials it is imperative to know the sound/noise characteristics and this can only be obtained through monitoring. The same applies for the selection of adequate personal protective equipment. You would need to know the noise level in the work environment in order to select protective equipment with a sufficient noise reduction rate to ensure adequate personal protection.

Monitoring noise exposure

SABS 083 of 1996 - "Measurement and assessment of occupational noise for hearing conservation purposes" is the method used for monitoring purposes in the South African industrial environment and it includes specific audiometric test and monitoring equipment requirements.

Specific instrumentation would include an integrating sound level meter that complies with requirements specified for a type one instrument in IEC 651 and IEC 804 and as an in-house calibration source a sound calibrator that complies with the requirements prescribed for a type one calibrator in IEC 942.

Preparation for a noise exposure assessment would include:

- Obtain/draw floor diagrams of the area intended for measurement and indicate all equipment and noise sources on the plan
- Ensure the instrument's annual calibration is still valid
- Perform a pre-survey calibration of the sound level meter
- Carry out a "scanning" survey of noise levels in the entire measurement area, using short-duration $L_{AR,T}$ measurements
- Identify work areas where the noise rating levels $L_{AR,T}$ exceeds 85dB. Draw boundaries in on the floorplan for those areas where the noise rating levels were in excess of 85dB(A)

Note that this is not a noise survey but rather a preliminary noise survey.

Once properly prepared, a comprehensive assessment of the measurement area would be conducted as follows:

- Carry out detailed surveys in each identified area where the rating level was above or equal to 85dB(A) during the "scanning" survey
- If there is only one person in the work environment that will be exposed to noise then place the sound level meter microphone at the approximate position of the person's ear which is closest to the noise source
- For larger areas where the average exposure should be determined, ensure that the microphone is 1,5 m above floor level and at least 1,2m away from any surface that may reflect sound
- There are also alternative measurement positions where the microphone height is prescribed for sitting and standing persons. This may be the more accurate route to follow with regard to personal exposure
- It is important to ensure that the noise levels measured relate to normal operating conditions. There may be some maintenance work in the area that does not form

part of the normal exposure of employees in the area. This can be corrected by ensuring that the measured noise is at least 10 dB higher than the interference. If the levels are below that, corrections need to be made to the measured levels as per table 1 of SABS 083 of 1996

- Most processes either have cycles or may be continuous. This needs to be determined beforehand to ensure that measurement represents a true reflection of exposure. It would be utterly useless to measure noise levels in a plant area during a quiet cycle of the process. Communication with plant personnel in this regard is important
- Always perform a post-survey calibration on the instrument. If there is a difference of more than one dB from the pre-survey calibration level the readings should be regarded as non-representative and repeated.

Note: Make use of a windscreen during all measurements as any air movement could influence the results. It is also good practice to measure wind speed throughout the monitoring process, as wind speed above 5m.s^{-1} will influence the readings irrespective of the windscreen. If the wind speed is above 5m.s^{-1} at any time during the assessment, measurement should be postponed.

Other issues for consideration

- Noise measurement and zoning should be repeated at regular intervals. Any changes in the process or equipment should also result in re-assessment of the noise levels in the area
- It is good practice to consider the maintenance plan or schedule for a specific area, as this will also be an indication of a possible rise in noise levels
- Carefully consider installation of new machinery. The supplier's specification may indicate that the noise levels for a specific machine is below 85dB. However by installing two of the same machines in one area where the supplier indicated the noise level to be 83dB will result in a noise level of 86dB and a doubling in sound power.

SABS 0103 of 1994 - "Measurement and rating of environmental noise with respect to annoyance and to speech communication" is generally used for determining the influence of noise levels coming from a factory would have on the surrounding community with regard to disturbance. SABS 0103 of 1994 can also be used to evaluate the influence of low noise levels on speech communication within the office environment.

Abbreviations, definitions and explanations

- Noise reduction rate - The amount, in decibel, by which noise is reduced
- Type one sound level meter - A sound level meter that complies with the IEC specification
- IEC - International Electromechanical Commission
- Type one calibrator - An external acoustic calibrator that complies with the IEC specifications
- M.s^{-1}- meters per second
- dB - decibel, the unit for measuring noise
- $L_{AR,T}$ - rating level - The value of the impulse-corrected equivalent continuous A-weighted sound pressure level, in decibels, within a specified time interval T, that is representative of the noise in the working environment
- Windscreen - a fitting, supplied by the soundlevel meter manufacturer that fits over the microphone to reduce influence of air movement on readings.

Conclusion

Industry noise levels can and does cause noise-induced hearing loss in many who are subjected to this noise over extended periods of time. Manufacturing companies and mining houses could do much to minimise this problem which affect almost all workers - even those in office environments! The above suggestions could be followed to measure noise levels in everyday working environments and then implementing changes to alleviate problems at the source. Noise problems should ideally be considered at the time of installation of machinery, planning of buildings, or preferably right from the design stages of industrial processes.

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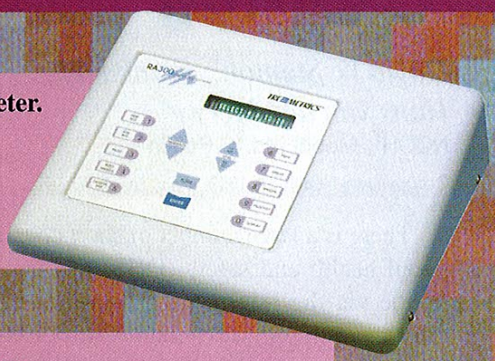

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RA'S/437/0799

Online OHS Training

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NCOH[†]; Mondi Ltd.[§]; Polifin[φ]

Occupational Health SA 1999; Vol 5, No. 4: 46 - 47

There is a large number of short courses in occupational health and safety (OHS) that can be accessed online via the Internet. This form of education and training is rapidly expanding. In 1998 an MPH in Occupational Health and Safety Management was introduced by Tulane University, USA, and is offered via distance learning using the Internet (http://caeph.tulane.edu/mph_occupational_health.htm).

The WHO sees the new information and communication technologies creating unprecedented opportunities for human development, particularly in education, and has published several online public health lectures.

Through the Internet, high quality learning opportunities can be made available to many people, in many locations, on a 24-hour basis.

This second NetPage provides a list of sites providing free online OHS and related education and training and training material. You can easily access the listed sites through World Links (Online Training page) at ASOSH.ORG (http://www.asosh.org). Additional OHS and related sites for Kids, Students and Teachers are also listed at ASOSH.ORG.

The next issue of the NetPage will cover important OHS sites (which will also provide extensive education and training resource material). We look forward to your comments and suggestions for the NetPage.

Agricultural Safety
AgSafe: Agricultural Safety Training Materials (http://www.cdc.gov/niosh/nasd/docs/ashome.html) The National Ag Safety Database, USA.
Farm Safety & Health Information Clearinghouse (http://www.bae.umn.edu/~fs/) University of Minnesota, USA.
Chemical Safety
Chemical safety (http://www.ilo.org/public/english/90travai/cis/chemicalsafety.html) ILO. Safe use of chemicals at places of work, classification systems for the labelling and transport of dangerous goods, reading and use of chemical safety cards, basic overview of toxicology.
Hazardous Materials Transportation Training Course: Air and Highway (http://www.text-trieve.com/tsi/) U.S. Department of Transportation.
Pesticide Education Resources (http://ianrwww.unl.edu/ianr/pat/ephome.htm) University of Nebraska-Lincoln, USA.
Pesticide and Environmental Stewardship (http://pep.wsu.edu/) Washington State University, USA.
Ergonomics
Computers and Eye Strain (http://www.eyenet.org/public/faqs/computers_faq.html) American Academy of Ophthalmology.
Ergonomics (http://www.inform.umd.edu/des/erg/index.html) University of Maryland, USA.
Ergonomics Guidelines (http://www.lib.utexas.edu/Pubs/etf/guidelines.html) University of Texas, USA.
Ergonomics Program (http://www.virginia.edu/~enhealth/ERGONOMICS/toc.html) University of Virginia, USA.
Occupational and Environmental Health
Carbon Monoxide Learning Site and Lead Learning Site (http://www.njpies.org/) New Jersey Poison Information and Education System (NJPIES), USA.
Environmental Management (http://www.es.lancs.ac.uk/es/people/teach/sjl/env111/ENV111.html) Lancaster University, UK.
Index of Teaching Resources in Occupational & Environmental Health (http://www.med.ed.ac.uk/HEW/alpha.html) University of Edinburgh, UK. Educational Resources (http://www.med.ed.ac.uk/HEW/links/educatn.html).
Indoor Air Quality (http://www.hc-sc.gc.ca/ehp/ehd/bch/air_quality/indoor_air.htm) Health Canada.
Ozone via Cartoons (http://www.unep.org/ozone/cartoons/) UNEP Ozone Secretariat.
Supercourses (http://www.who.int/peh-super/othlec/index.html) WHO. Lectures on arsenic, health telematics, indoor air and Legionellosis.
Workplace Health: A Professional Development Programme (http://www.med.ed.ac.uk/HEW/wh/default.htm) Health Education Board for Scotland (HEBS), UK.
Workplace Health (http://www.wearwork.co.uk/control/pro.html) Wearside's Healthy Workplace, UK.

OHS - General
Abrasive Blasting Training Manuals (http://www.chm.msu.edu/oem/index.htm) Michigan State University, USA. Training manual and instructors manual with transparencies.
Education and Training (http://www1.safetyline.wa.gov.au/education.asp) SafetyLine Institute, WorkSafe Western Australia. Information on OHS specifically designed for students, persons undergoing vocational training and young workers.
SafetyLine Institute Courses (http://www1.safetyline.wa.gov.au/institute/default.asp) WorkSafe Western Australia. Wide variety of lectures available at two levels after enrollment: OSH Management Essentials and Advanced OSH Management.
OHS's Website for Youth (http://www.osh.dol.govt.nz/kidz/index.html) Safety Net, Department of labour, New Zealand. Includes: I fought the Law, Back on the Farm, Workshops of Horror (with graphic pictures of disease or accidents), Brain Strain (computer generated quiz).
Laboratory Survival Manual (http://www.virginia.edu/~enhealth/guide.html) University of Virginia, USA.
Occupational Hearing Conservation Home Page (http://facstaff.uww.edu/bradleys/ohc/home.html) University of Wisconsin-Whitewater, USA. Provides links to online resources.
Online Training Modules (http://www.pp.okstate.edu/ehs/modules/home.htm) Oklahoma State University, USA.
OSHA's Small Business Outreach Training Program (http://www.osha-slc.gov/SLTC/smallbusiness/index.html) U.S. Department of Labour. Basic information about selected topics in OHS. The topic discussions are available in both HTML and PDF formats. Overhead masters for presenting the topic and student handouts are available in PDF format.
OSHA Logging Advisor (http://www.osha-slc.gov/SLTC/logging_advisor/mainpage.html).
OSHA Respiratory Protection Advisor (http://www.osha-slc.gov/SLTC/respiratory_advisor/mainpage.html).
OSHA Silicosis Advisor (http://www.osha-slc.gov/SLTC/silica_advisor/body_mainpage.html).
Safety education (http://www.rospa.co.uk/safeeduc.htm) The Royal Society for the Prevention of Accidents (RoSPA), UK. Guides on: Minibus Safety, School Trips, Road Safety, Home Safety, Occupational Safety, Product Safety, Water and Leisure Safety.
Web-Based Training Courses @ LLNL (http://www-training.llnl.gov/wbt/) Lawrence Livermore National Laboratory, USA. Variety of OHS training courses for new employees plus refresher training.
www.Free-Training.com (http://www.free-training.com/) USA. Courses available: Forklift Operation and Safety, Hazard Communication, Personal Protection Equipment, Back Safety and Hearing Conservation.
Toxicology
Introduction to Applied Toxicology (http://www.bio.hw.ac.uk/edintox/page1.htm) The Edinburgh Centre for Toxicology (EdinTox), UK.
Tutorials (http://sis.nlm.nih.gov/tehip.htm): Toxicology and Environmental Health Information Program Slide, Demonstration of TEHIP Databases, Toxicology Tutor I (Basic Principles) and Toxicology Tutor II (Toxicokinetics), National Library of Medicine, USA.

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DEPARTMENT OF HEALTH

SORDSA News

WHO/SA Technical Cooperation Programme

Surveillance of Work-Related and Occupational Respiratory Diseases in South Africa

Volume 3, No. 1 **February - June 1999**

In this issue:

Unfortunately Dr Eva Hnizdo has recently left us to work for NIOSH (National Institute for Occupational Safety and Health) in the USA. However, she will continue to be involved with SORDSA, and I am certain she will be a valuable contact person, and strengthen the ties between NIOSH and NCOH. Eva has contributed an article to this issue on respiratory effects related to the indoor work environment, as this is becoming a high priority research area for NIOSH.

SORDSA's results were presented at the SA Pulmonology Congress held at the Wild Coast from the 20th to 25th March. SAPS has always been very supportive of SORDSA, and I am grateful to have been given this opportunity in which SORDSA received some valuable exposure. The conference included a symposium on current perspectives on occupational lung disease, and we held a meeting for participants in the SORDSA multicentre occupational asthma study at this conference. Minutes of the meeting are available to those participants who could not be present.

SORDSA exhibited at the Rand Mutual Assurance TB, AIDS and Dust Conference, held on the 22nd April in Woodmead, Gauteng. This proved to be an excellent opportunity to introduce SORDSA to occupational health practitioners in many different industries, including the mining industry. This issue includes part two of the feature article in our January 1999 issue, on mining related lung diseases in the labour sending areas.

SORDSA's web site address is **http://www.asosh.org/Programmes/SORDSA/Sordsa.htm.** ASOSH.ORG has been listed in the top 50 OHS sites in the world, and is well worth a visit by anyone interested in occupational and environmental health and safety.

RESULTS FOR THE REPORTING PERIOD OCTOBER 1996 TO APRIL 1999

After a slight delay with printing of the SORDSA reporting books for 1999, reporting for the third year is now well underway. Table 1 shows that 3760 cases of occupational respiratory disease have been reported to SORDSA since October 1996. Since October 1998, 504 new cases have been reported. Pneumoconiosis still makes up the majority of cases (58.1%), but occupational asthma is now the second most frequently reported condition, increasing from 6.8% to 7.6% of the cases in the last six months. Reports of inhalation accidents have also increased, from 4.5% to 5.8% of the cases. Average annual incidences per million are also shown in Table 1.

Table 1: Cases by Disease Group(ending 04/1999)

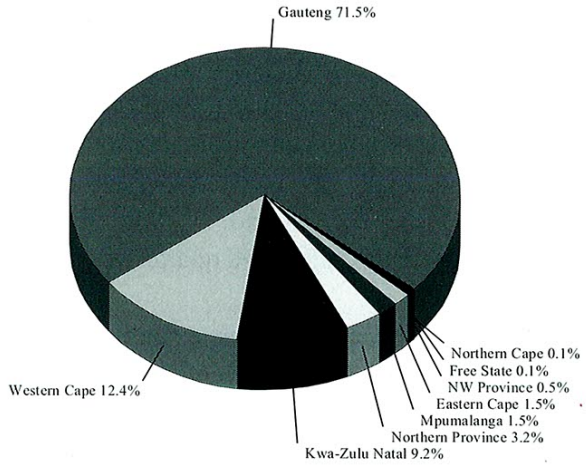
Disease Group	N	%	Annual Incidence
Pneumoconiosis	2184	58.1	21.5 *
Occupational asthma	287	7.6	12.6
TB and Pneumoconiosis	277	7.4	2.7 *
COPD and Pneumoconiosis	228	6.1	2.2 *
Inhalation accident	218	5.8	9.6
Non malignant pleural disease	121	3.2	5.3
TB work related	120	3.2	5.3
Latex allergy	58	1.5	2.6
Mesothelioma	57	1.5	2.5
COPD	54	1.4	2.4
Bronchitis	44	1.2	1.9
Rhinitis	30	0.8	1.3
Lung cancer	26	0.7	1.2
Irritant reaction	24	0.6	1.0
Other	18	0.5	0.8
Byssinosis	14	0.4	0.6
Total	**3760**	**100.0**	

* A denominator of 40 583 373 (total population of South Africa according to 1996 census) was used for these diseases since the population also included retired workers. For all other diseases, a denominator of 9 113 847 was used (employed economically active people).

The mean number of cases per reporting member is highest in the Northern Province (59.5), followed by Gauteng (25.5), Western Cape (12.3), Mpumalanga (4.5), and KwaZulu Natal (3.9). Figure 1 shows the proportion of cases reported by province. Although most cases were

reported from Gauteng, a large number of these cases were actually from the Northern Province, but the reporting doctor resides in Gauteng (see SORDSA News, 2 [4]: 3-4). Figure 1 shows that 5 out of the 9 provinces report less than 7% of SORDSA's cases.

Fig 1: Cases by Province (10/1996 to 04/1999)



An estimate of the average annual incidence of reported diseases per province is shown for all diseases reported to SORDSA, and for occupational asthma in Table 2. The figures for employed economically active people per province, according to the 1996 census were used as denominators. Surveillance systems like SORDSA are not designed to, and cannot accurately measure disease incidence, due largely to gaps in reporting. However, this does give us a means to compare reporting in the provinces. Table 2 shows that Gauteng reported the highest annual incidence of respiratory diseases to SORDSA, but the Western Cape reported the highest incidence of occupational asthma. KwaZulu Natal showed the second highest reported annual incidence of occupational asthma, followed by Gauteng. The Gauteng incidence of OA was the same as that estimated for South Africa as a whole (12.6 per million).

Table 2: Average annual incidence per million employed people by province (10/1996 to 04/1999)

Province	All diseases	Occupational asthma
Gauteng	419.16	12.6
Eastern Cape	28.0	1.5
Western Cape	136.2	29.1
Northern Cape	7.4	0
Kwa-Zulu Natal	88.4	23.4
Northern Province	83.5	2.1
Mpumalanga	38.3	4.0
N W Province	9.9	1.1
Free State	2.3	0
South Africa	165.0	12.6

The general category of causative agents most frequently reported to SORDSA, was dust (3057 cases, 81.5%), of which asbestos was the most common (2294 cases), followed by silica (288 cases), and combination of asbestos and silica (254 cases). Chemicals were the second most frequently reported general category (318 cases, 8.5%), with sulphur dioxide (81 cases), chlorine (79 cases), and isocyanates (51 cases) frequently reported. Formulated products (140 cases, 3.7%) included latex (108 cases) and welding fumes (16 cases). Other general categories included organic agents (80 cases), metals (58 cases), combinations (54 cases), unknown (28 cases), and miscellaneous (18 cases).

Cases from the mining industry continue to dominate SORDSA's reports (2492 cases, 66.4%). These are mainly ex miners (see pages 3 and 4 of this issue). Cases of currently employed miners, who have been reported, are not presently included in the results, until full statistics are available from MBOD. The asbestos industry had 201 cases reported; health care, 137; paper and pulp, 112; building and roadworks, 106; and the chemical industry, 91. Only 8 cases have been reported from the agricultural sector so far. Our next issue concentrates on this exposure and the associated diseases.

HEALTH EFFECTS ASSOCIATED WITH INDOOR WORK ENVIRONMENT

Eva Hnizdo

Health problems associated with the indoor work environment are receiving more attention in recent years as the number of workers who spend their time indoors increases, as well as the number of people who share the same indoor environment. The most common health problems attributable to the indoor work environment are non-specific symptoms such as eye, nose, and throat irritation; headache, rhinitis, and sinusitis with skin irritation; cough, shortness of breath; and dizziness, nausea, and mental confusion. The symptoms (sometimes referred to as sick building syndrome, SBS) usually occur on entering the problem building, tend to be worse in the afternoon, and usually clear shortly after leaving the building. A more serious health problem is building-related disease, and although there might be an overlap with SBS, building-related disease is a much more definite condition with recognizable medical signs and positive laboratory findings and includes illnesses such as humidifier fever, allergic alveolitis, asthma, allergic rhinitis, and Legionnaires' disease.

The main air pollutants that are known to, or potentially can cause these diseases are viruses, bacteria and fungi that are polluting the heating, ventilation and air

conditioning system. Although air conditioning systems probably play a minimal role in viruses multiplication and dissemination, their transmission through the ventilation system cannot be completely ruled out as some viruses are transmitted by air droplets (e.g. influenza, measles) or by material shed from the body such as scabs (smallpox, chicken pox). Some species of bacteria can swim through liquid media or swarm over moist surfaces. Most of the bacteria found in the indoor environment are harmless, but some species can cause serious health problems (e.g. Legionnaires' disease). Fungi can reproduce sexually and asexually and produce abundance of spores that can be carried in air streams. They are ubiquitous in nature and are very resistant, and once they have established themselves in the building are difficult to completely eradicate. They can cause infectious as well as allergic conditions. Some species such as *Aspergillus spp.* are known to cause serious lung infections. Other important organisms are protozoans which can move and reproduce in stagnant waters and serve as carriers of other microorganisms. This can give rise to potent allergens which if inhaled can cause allergic alveolitis, humidifier fever, asthma, or allergic rhinitis or serious infections.

Fungi and bacteria isolated from heating, ventilation, and air conditioning system and other parts of buildings can cause problems in susceptible people by causing infection or allergic reactions. In the case of infection, the living organisms penetrate the body's defenses and colonize tissues, causing eye, nose, and throat irritation or respiratory tract disease. In the case of allergic conditions, individuals become sensitized and suffer a variety of symptoms and even more serious conditions such as asthma, humidifier fever, etc. The affected individuals usually show acute symptoms such as malaise, fever, shortness of breath, dizziness, coughing, rhinitis, and muscular pain. The symptoms are reduced on leaving the building for several days.

OCCUPATIONAL LUNG DISEASE IN LABOUR SENDING AREAS

JCA Davies and T Esterhuizen

The compilation of a register of cases of occupational lung diseases should result in intervention. The obvious intervention is in the workplace, but there are other issues which must be given prominence, particularly among those who currently report to SORDSA. As a rule, the diagnosis of a work related condition should lead to reports to the compensation authority, the employer, and the Department of Labour. It is the issue of compensation which is addressed here.

As a result of community based action to provide access to compensation for women and men who have worked in mines, between seven and eight thousand individuals have attended benefit examinations in the Northern Province during the period November 1991- November 1992. Since October 1996, the clinical diagnosis made as a result of the benefit examination has been reported to SORDSA. In a previous essay (1) we demonstrated that the pattern of clinical and geographic data entered into the SORDSA data base is overwhelmed by this activity, so much so that those who read the SORDSA newsletter need to understand the background in order to interpret the summary statistics published quarterly.

Using pneumoconiosis as an example, we ranked the postal codes given by the patients by frequency. Twenty-seven postal codes occur ten or more times. All but three of these are from the Northern Province, and 22 lie along the Driekop axis. The geographical features of the area and the position of the asbestos mines in the "Pietersburg asbestos field" have been important in determining the areas from which workers had easy access to the mines, the route taken by the main roads and the preferred sites for medical practitioners to settle or visit. The Strydpoort Mountains, on the southern slopes of which most asbestos mines occur, run west to east from Potgietersrus to meet the Drakensberg range as it turns inland towards Tzaneen (see figure 2). The main road from Pietersburg to Lydenburg, via Steelpoort or Burgersfort, parallels the Strydpoort Mountains once it has passed through Chuenespoort. Not surprisingly the commonest postal code is Driekop (440 cases), followed by Burgersfort (302), Mathabatha (140), Mphahlele (140), Mmafefe (87) and Penge (79). The remainder are situated along and to the south of a line from Gompies and Koringpunt in the east to Ohrigstad in the west. The epicentre, as judged by the postal codes of the addresses given by the applicants, is at Driekop, 25 km south of Penge mine and 25 km west of Burgersfort.

Apart from asbestos mines, all of which are now closed, there are or have been chrome, platinum, vanadium, manganese and andalusite mines in the area. In adjacent areas there are diamond and tin mines, and further west the major gold and platinum mining areas of the Witwatersrand and Rustenburg. During the 19th century migrants from Sekhukhuneland worked on the fruit farms of the Cape and the diamond mines at Kimberley. In Sekhukhuneland today the are sizeable communities of

Xhosa speaking people recruited to work on Penge mines who elected not to return home. A recent study of a random sample of ex-miners in the Eastern Cape (2) has shown how common occupational lung diseases is in another of the major labour sending areas within South Africa. Based on the findings of that study, and the findings of a similar study in Botswana (3) an estimate of the likely costs to the community has been made (4). The estimate is very large - 9 billion rand if the compensation liability to the workers migrating to the mines from outside South Africa is included.

The role of compensation for occupational injury and disease in injecting funds into the impoverished rural areas which have been the source of the muscle which built our economy cannot be overemphasised. For anyone with basic medical examination skills, a sabbatical spent examining former miners in the rural areas would be both instructive and rewarding.

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2. Trapido AS, Mqoqi NP, Williams BG et al. Prevalence of occupational lung diseases in a random sample of former mine workers, Libode district, Eastern Cape Province, South Africa. Am J Ind Med. 1998; 34:305-313.
3. Steen TW, Gyi KM, White et al. Prevalence of occupational lung disease among Botswana men formerly employed in the South African mining industry. Occup Environ Med. 1997; 54:19-26.
4. Trapido A, Goode R, White NW. Costs of occupational lung disease in South African Gold Mining. J Mineral Policy Business and Environment. 1998; 13:26-33.

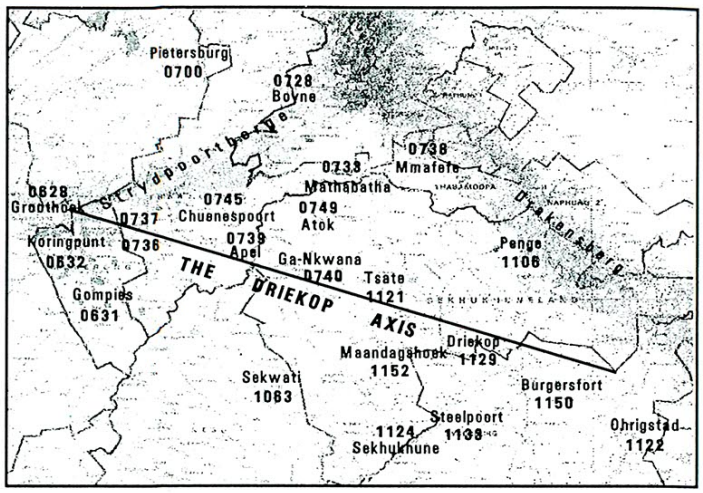

Figure 2 : Postal code distribution in the Driekop axis

Forthcoming Events

1. SASOM is holding a COID Seminar at CSIR Conference Centre, Pretoria on the 30 July 1999. Please call (012)667 5161/0 for details, or e mail sasomdm@iafrica.com

2. Safety, Health and Environment Exhibition 1999 will be held at Gallagher Estate, Midrand, from 14th -16th September. This includes a Speaker's Corner, with interactive discussions on critical topics in occupational health and safety. Call Joan de Beurges at RAI on (011) 794 5511 for details.

To advertise an upcoming event of interest to SORDSA News readers, please contact SORDSA well in advance and we will print the details in this slot free of charge.

SORDSA Regional Representatives

Province	Regional Representatives (Physicians)	Regional Representatives (Sisters)
Gauteng: Johannesburg	Prof David Rees (011) 720-5734	Sr Bev Hoggins (011) 871 8600
Pretoria	Dr Ferdie Smith (012) 323-5394	Sr Louwna Pretorius (012)321 7736
Vereeniging		Sr Annemarie Hattingh (016)421 3396/7
Krugersdorp		Sr Doreen Botha (011)762 1036
Eastern Cape	Dr Clifford Panter (0431) 40-1040	Sr Denise O Hagan (0431) 311 111
Port Elizabeth		Sr Sharon Alfond (041)396 1073
George		Sr Charmaine Wilbrahm (044)875 9030
Western Cape: Cape Town	Dr Rodney Ehrlich (021) 406-6435	Sr Dalene Lorimer (021)550 2417/6
	Prof Neil White (021) 404-4434	
Stellenbosch	Dr E van Schalkwyk (021) 938-5790	Sr E Nolokwe (021)981 1111
Northern Cape	Dr Joseph H Mynhardt (0531) 814-914	Sr Hannetjie Van der Merwe (053)741 1234
KwaZulu Natal: Durban	Dr Mandy Ryan (031) 902-1818	Vacant
Pietermaritzburg		Sr Marie Janse Van Vuuren (0331)951 331
Richards Bay		Sr Sally Van Vuuren (0351)904 040
Northern Province	Dr H P Vorster (0154) 7353/4/5	Sr Lona Wepener (015)293 8401
Mpumalanga	Dr I S van der Merwe (013)755-6170	Sr Susan Pieterse (013)719 9711
North West Province	Dr J R Blankson 082 8501128	Sr Dalene Sadler (018) 484 1461
Free State	Dr M Prins (051) 4053130	Sr Trish Housten (05776)31151

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The Custard slice test

To the Editor

Recall the custard slices at the school tuckshop, delivered on a large metal tray fifty or more at a time? Was icing ever so sweet, custard ever so well set, or pastry so tasty? Except for those round the edges, the successive layers of icing, pastry, custard and more pastry were, as near as makes no difference, absolutely uniform in depth and flavour. Each individual slice was separated from those adjoining and became a sample of the whole population of the large metal tray. It differed not at all from the rest, excepting those on the fringes.

It has become the norm in epidemiology to decry studies which do not fulfil strict criteria for representivity - that is that the sample studied truly represents the population from which it was drawn.

Some years ago in reporting the reasons for admission to the isolation hospitals in Harare I wrote: "It is customary, in academic departments and among statistically oriented epidemiologists, to decry the value of hospital statistics. It can be said with confidence that this hospital is an accurate reflection of the community problems in the field of infectious disease. The tragedy is that hospitals do not communicate their experience better."

Health planning becomes much easier if reliable routinely collected data is carefully studied, particularly if it is possible to plot change over time. Despite this the bulk of routine information is not used productively.

During the examination of 2 205 former mineworkers in the Northern Province a huge data set was compiled in order to describe the population of ex-miners in what was once called "the Pietersburg asbestos field". A random sample of the population of about 250 000, of whom tens of thousands are thought to be former miners, was impossible as no sampling frame exists, and a preliminary census was beyond our resources.

Now that we are analysing the data it becomes obvious that the case series, collected over a period of six months at six widely separated centres, is surprisingly uniform. In the single slice of the population which enrolled for benefit examinations in terms of the Occupational Diseases in Mines and Works Act about one third are women. In an analysis of the first 200 persons seen 67 were women (33,5%) and in the whole sample 770 women account for 35%. In the first 200, 36/67 women (54%) were widowed, as compared with 410/770 (53%) in the whole group.

Based on the individual's mining history, a single chest X-ray and a careful examination 98% of the women occupationally exposed to asbestos were found to have asbestosis, posing the obvious question: "do 98% of the women who have worked in the asbestos mines of the Northern Province have asbestosis?" Considering the size of this case series and the uniformity of the sample it seems very likely that they do.

In due course we will carry out some more sophisticated statistical tests of the thickness of the icing, the custard and the two layers of the pastry in the slice we studied. We hope thereby to find support for the hypothesis that any other slice of the mining population will show a comparable prevalence of asbestosis. We may even add to the epidemiological repertoire!

Professor Tony Davies,
Ferndale,
Randburg

World Class

To the Editor

In a series of recent presentations I have been providing the profile of a world-class company today. Apart from characteristics like focus, being unique, having a global reach and inspiring a perpetual spirit of innovation, a world-class company now needs to have environmental and social responsibility.

Consumers simply will no longer purchase from a company that they are not happy with in terms of treatment of its employees, the public and the environment.

Hence, the EHS function, i.e. the Environment, Heath and Safety is now a central part of management along with production and finance.

Moreover, it has been shown that there is no trade-off between a high level of EHS performance and bottom-line results.

Quite the reverse. Companies that have a good all-round record of management provide the best resturns for shareholders.

The key elements of a world-class EHS function are now as follows:

- Assigning the EHS responsibility to a member of the board of directors
- Having an EHS committee as a full committee of the board which formulates an EHS policy for the company and monitors performance
- Having regular internal and external audits to ensure compliance with the policy
- Setting measurable goals which lead to a continual improvement in EHS performance
- Incorporating EHS awareness as a key component in the training of all employees
- Providing a regular report to shareholders and the public on progress in EHS matters.

Clem Sunter,
Anglo American Corporation of SA Ltd,
Johannesburg

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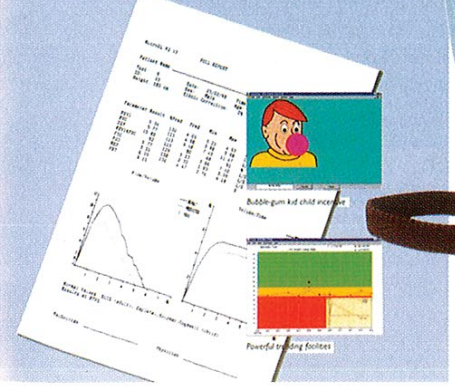

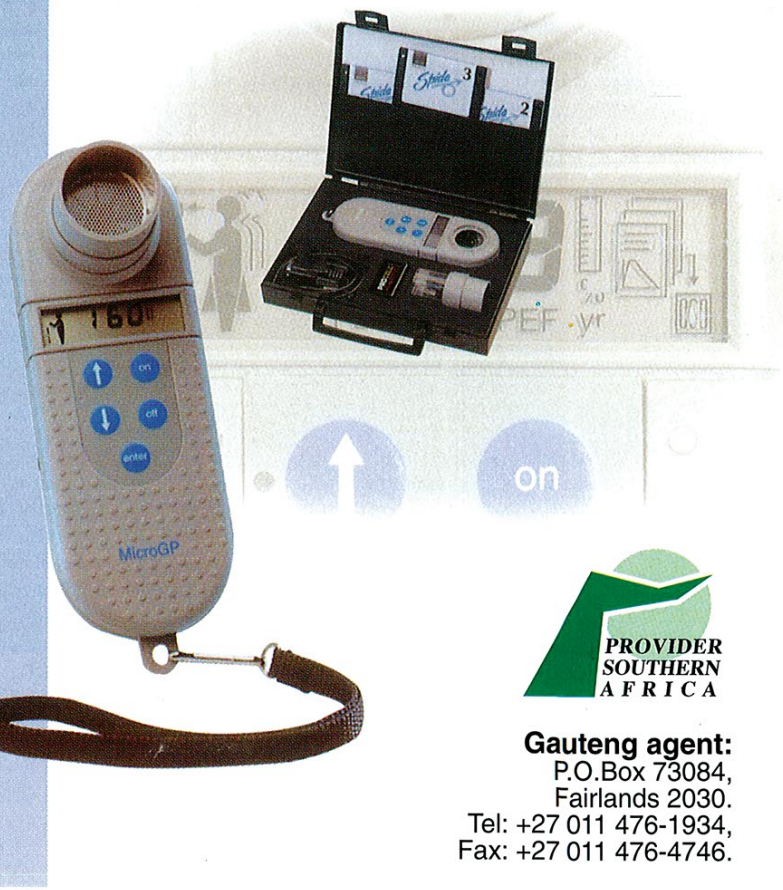

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Calender of Congresses and Conferences

1999			
August			
24 - Sept 5	Medical Arts Exhibition	Houghton, Jhb	Pharmaceutical Society of SA 52 Glenhove STr, Houghton Roche Products (011) 928-8735
September			
12-16	X1th International Conference on AIDS/STDs in Africa	Lusaka, Zambia	X1-ICASA Secretariat PO Box 38718 Ridgeway Lusaka Zambia Tel : +260-1-254 621/614; Fax: +260-1-254 626
13-17	XIV International Symposium on Night and Shiftwork: Shiftwork in the 21st Century	Wiesensteig, Germany	Symposium Secretariat, Heidi Dolde, Hertzstr.16, D-76187 Karlsruhe Germany Tel: +49-721-608-4461, Fax: +49-721-75 8909, E-mail: peter.knauth@wiwi.uni-karlsruhe.de
14 -16	ASOSH '99 Conference	Gallagher Estate, Midrand, Johannesburg	Brenda Webster Conference Co-ordinator PO Box 35764 Menlo Park 0102 Tel/Fax: (012) 467424 Email: brendaw@icon.co.za
14 - 16	Safety, Health and Environment '99 Exhibition	Gallager Estate, Midrand, Johannesburg	Joan de Beurges, PO Box 652495 Benmore 2010 Tel: (011) 794-5511; Fax: (011) 794-5811 Email: raisa@iafrica.com
29 - 2 Oct	5th PACOH '99 - Pan African Conference on Occupational Health	Tunis	Secretariat, PACOH '99, 138 Boulevard du 9 Avril - 1006 Tunis - Tunisia Tel: (216-1) 596244 Fax: (216-1) 564280; Email:rafik.gharbi@ing.tn
October			
7-9	Allergy Conference	Spier Estate	Professor Bardin Tel: (021) 938 9554 Fax: (021) 933 3591
14-17	Dermatology Congress	Wilderness	Ms Sally Elliott, Postgraduate Conference Division UCT Medical School Observatory 7925 Cape Town Tel: (021) 406-6381; Fax: (021) 448 6263 Email:sally@medicine.uct.ac.z
10-14	EPICOCH, 14th International Conference on Epidemiology in Occupational Health	Herzlia, Israel	Conference Secretariat Optra Ld 1 Nirim Street PO Box 9352 Tel Aviv 61092 Israel Tel: +972-3-638 4444; Fax: +972-3-638 4455 Email: info@ortra.co.il
October			
21-24	Lesedi Afrika '99. International Union against Sexually Transmitted Infections (IUSTI) and Sexually Transmitted Diseases Society & Infectious Diseases Societies of Southern Africa, Medical Society for the Study of Venereal Diseases (MSSVD) 6th World Congress and 38th IUSTI General Assembly	Sun City	Lesedi '99, Congress Secretariat Priscilla May, South African Institute for Medical Research PO Box 1038 Johannesburg 2000 Tel : (011) 489 9011; Fax: (011) 489 9012 Email : website: or http://www.mssvd.org.uk
2000			
July			
9 - 14	XIII International Conference on AIDS	Durban	Administative Secretariat X111th International AIDS Conference Congrex Sweden AB PO Box 5619 Linnegarten 89A 114 86 Stockhol Sweden. Tel : +46-8-459 6600; Fax : +46-8-661 9125 Web-site: http://www.ias.se
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

Always safe with ALCO-Safe

ALCO-Safe is the major supplier of electronic Breath Alcohol Detectors and accessories in South Africa with a 25 -year history in manufacturing, distribution and support.

ALCO-Safe's extensive experience with both large and smaller companies enables guidance to be given across the entire spectrum of substance abuse problems encountered in the workplace. This includes assistance with the development of substance abuse policies and control programmes that have proven to bring about a rapid and considerable reduction in accidents, injuries and losses for management and workforce representatives.

ALCO-Safe represents LION - CMI, world leaders in alcohol detection technology.

Instruments supplied include high-speed testers capable of testing up to six people per minute at site entrance/exit points and portable instruments for use at remote sites which provide immediate printed evidence.

A complete repair and calibration service is provided and training and certification of personnel in the correct operation and calibration of instruments is regularly undertaken.

In-house awareness programmes are offered to clients, highlighting alcohol's many negative effects in the workplace; legal aspects, consumption versus bodily alcohol concentration, myths, health and other matters.

For further information, contact ALCO-Safe at telephone (012) 46-9251

Noise induced deafness - a scourge of the past

A safety feature that is being appreciated increasingly by those working in noisy environments is the guaranteed, leak-proof fit provided by Variphone hearing protectors which protects them from noise-induced hearing loss.

According to HASS Industrial CEO, Nico van der Merwe, Variphone is the only hearing protector available in South Africa that can be tested for a leak-proof seal. This absolute leak-tightness is tested using an extra test channel incorporated into Variphone hearing protectors and is carried out while each custom made unit is fitted in the ear of the wearer. The complete system is also tested to ensure it is functioning at its optimum.

An outstanding feature is that Variphone allows the wearer to communicate with fellow workers in a noisy environment and use a radio or telephone without removing his hearing protection.

For further information contact Pieter van Deventer on telephone: (012) 333-3130

Largest safety company formed by merger

Africa's largest and most prominent safety company has been formed through the merger between two leading industry players - MSA and Campbell Gardwel.

The deal was signed after Sentry Group Ltd announced its decision to sell Campbell Gardwel in a bid to focus on its security business.

The merger will join their strengths to form the most influential manufacturer and supplier of personal protective equipment (PPE) and allied safety products in all of Africa. Currently the companies enjoy the largest share of the African safety market which is expected to increase over the next five years as a result of the merger.

Both companies are ISO 9002 registered and enjoy good synergy in terms of their product ranges, management styles, technical expertise and national distribution infrastructure.

MSA is a global company based in Pittsburgh, USA, with companies in 28 countries. Its primary product range comprises respiratory products, gas detection instruments, fire-fighting equipment, self-rescuers, industrial air filters and mining cap lamps. MSA (Africa) are also at the forefront of the fall-arrest (safety harness) and skin protection markets.

"The merger of the two companies will create an organisation capable of servicing customers with a complete range of safety requirements" says Cliff Roberts, MD of MSA (Africa).

Campbell Gardwel has been leading player in SA and neighbouring African countries for over 25 years originally specialising in above-the-neck safety products, the company diversified into personal protective clothing, shoes and gloves in 1994. It also exports safety products to South America, Europe, Africa and the Middle East.

The company has exclusive agencies for world-renowned hearing and eyewear protection products (AEARO) as well as special types of safety cans.

For more information, contact Cliff Roberts at telephone (011) 394-5630/47.

Influenza Pill

Roche Products and Quintiles has announced that they are conducting clinical trials on an oral flu pill for the treatment of influenza.

The trials underway are targeting specific groups of patients, over and above those already tested during the 1998/99 Northern Hemisphere flu season, including asthmatic children between six and 12 years of age, geriatrics and at risk adults for example: patients with cardiac or upper respiratory disease. (Only patients that fit the above criteria will be eligible to enrol in the studies)

Local flu testing sites have been activated and anyone with flu-like symptoms, which includes the chills, fever, body aches and lethargy, should immediately call the trial hotline **(tollfree number 0800 116692)** for possible inclusion in the studies.

Advisors manning the hotline will supply information on the doctors involved in the research. If patients do not see one of the trial doctors within 36 hours of the appearance of symptoms, however, they will not be able to participate in the study.

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MAKING HEPATITIS A & B PREVENTION A PRIORITY IN THE WORKPLACE

Every employer has the responsibility to promote health and safety within the workplace and help prevent infectious occupational hazards[1]. As hepatitis B is one of the most prevalent occupational diseases, it places a sizeable proportion of the working population at serious risk every day of their lives[1]. Hepatitis A, on the other hand, is the most frequent vaccine preventable infectious disease to threaten international travellers[2]. It is therefore, imperative that measures are taken to prevent the spread of both hepatitis A and hepatitis B.

Hepatitis B

Healthcare workers have long been recognised as the classic group at high risk of contracting hepatitis B, the largest single group being nurses[1]. Unvaccinated healthcare workers, are on average, twice to ten times more likely to get hepatitis B than the general population[1].

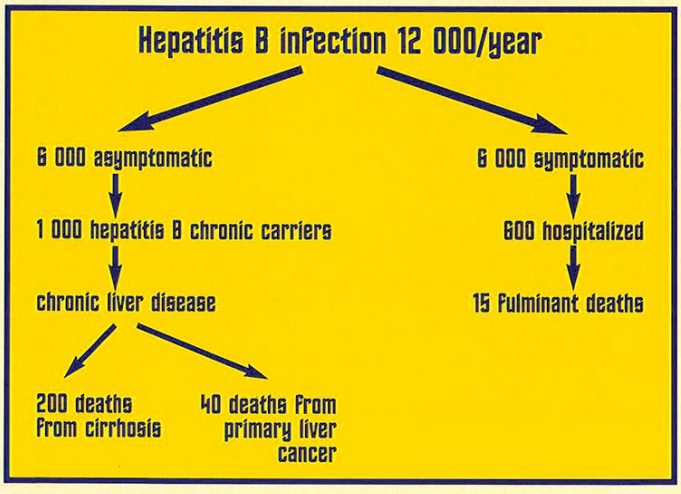
AT RISK HEALTHCARE WORKERS INCLUDE[1]:

- Doctors
- Nurses
- Midwives
- Ambulance staff
- Paramedics
- Firefighters
- Laboratory workers
- Cleaners/laundry
- Cleaners of healthcare equipment
- Medical equipment technicians

Infected blood is the major vehicle for the transmission of the hepatitis B virus (HBV) [1]. However, the virus has also been detected in almost all body secretions and excretions, although only blood, saliva, semen and vaginal fluids have shown to be infectious[1].

In the workplace, infection can be spread by accidental needle stick injuries or penetration of the skin by an infected object. Infection can also occur during exposure to, or contact with infected material and small lesions on the skin[1].

Outcome of hepatitis B infections in high-risk healthcare workers in the US (1983-1987 estimates)[3]



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1. Preventing hepatitis B in the workplace. SmithKine Beecham Belgium.
2. Havrix 1440. The One Step Approach. SmithKline Beecham. Belgium.
3. Making hepatitis B prevention a priority in the workplace. News from the viral hepatitis prevention board. Viral hepatitis. Action on hepatitis B as an occupational hazard. No 1.
4. A world of experience in Hepatitis B protection. Engerix-B. SmithKline Beecham Biologicals. Belgium.
5. Zuckerman J. *Hepatitis A and B. Travel-related risks.* United Kingdom: The Medicine Group (Education) Ltd, 1997.

S2 Havrix 1440: Each 1 ml dose contains not less than 1440 Elisa units of viral antigen. Reg. No. :29/30.1/0310

S2 Engerix-B: Each 1 ml dose consists of 20µg antigen protein adsorbed on 0,5 mg Al as aluminium hydroxide Reg. No. :U/30.1/186

Vaccination against HBV[4]

Vaccination with ENGERIX-B will provide:

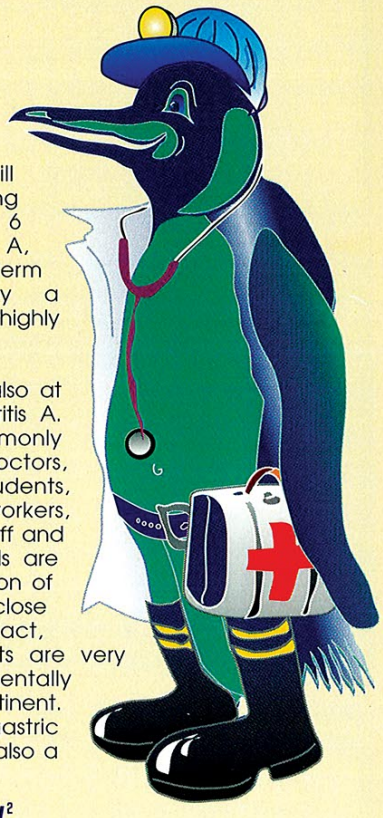
- Immunity against HBV for at least 5 years if three injections are given over 6 months

Hepatitis A

Hepatitis A in unprotected travellers is 1000-times more common than cholera and 100-times more common than typhoid[5]. Business travellers may be further exposed to hepatitis A as they make several short visits to a number of destinations[2]. The business traveller is not the only person at risk[5], if hepatitis A is brought home, susceptible family members, friends and contacts at work may also become infected[5]. The incidence of hepatitis A in travellers staying in high-quality accommodation, in tourist areas, is reported as 3-6 cases/1000 travellers/month of travel[5].

The hepatitis A virus (HAV) is transmitted mainly via the faecal-oral route[5] and hence the travel-related risk factors for HAV include:[2]

- Drinking contaminated water
- Eating salads and fruit washed in contaminated water
- Drinking beverages with contaminated ice cubes
- Uncooked foods prepared by an infected person
- Eating contaminated shellfish
- Bathing in contaminated water



The business traveller will want to avoid being incapacitated for 4 to 6 weeks with hepatitis A, therefore the long-term immunity provided by a hepatitis A vaccination is highly recommended[2].

Healthcare workers are also at risk of contracting hepatitis A. Nurses are most commonly affected, although doctors, dentists, medical students, therapists, laboratory workers, cleaning staff, laundry staff and food handlers in hospitals are also at risk. The transmission of HAV is usually through close person to person contact, especially if the patients are very young, immobile, mentally retarded or faecally incontinent. The handling of nasogastric tubes and catheters are also a source of infection[2].

Vaccination against HAV[2]

Vaccination with HAVRIX 1440 will provide:

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