# OCCUPATIONALhealth

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Volume 32, Issue 1, 2026



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# Close the HIV Treatment Gap & End TB Together

The Masoyise Health Programme tackles HIV and TB, supporting the National Department of Health's campaign to close the HIV treatment gap and end TB. The Close the Gap campaign runs from January to December 2026.

Masoyise HP encourages regular screening and testing, early treatment, workplace education, reducing stigma and strengthening employee wellness through collaboration with NGOs and industry partners.




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# The uncredited architects of academic quality



**Gill Nelson,**
**Editor-in-Chief**

Having written editorials on peer review and journal editing in the past, it was encouraging to read a recently published paper by Alvin Munsamy from the University of KwaZulu-Natal's College of Health Sciences.[1] He writes about the attention given to authorship, citations, and journal impact metrics, while the critical work of peer reviewers and journal editors often remains unseen and undervalued. These contributors are foundational to research integrity, yet their contributions are persistently unrecognised within institutional reward systems.

Munsamy begins by outlining the structure of the academic publication value chain: authors, reviewers, editors, and publishers all play important, interdependent roles in ensuring that scholarship is rigorous, accurate, and effectively disseminated. Authors of published papers benefit in terms of institutional reputation and standing within the scientific community, which improve their chances of successful research grant applications, promotion, etc. However, peer reviewers and editors carry responsibilities that are often disproportionate to the visibility and credit they receive. Despite being drawn from the academic community and managing complex tasks, their work typically remains invisible.

Peer review is considered part of academic citizenship, requiring time and expertise without direct compensation or formal recognition from either the institution in which they work or the international research community. The voluntary nature of this model is becoming increasingly difficult to sustain as academic teaching loads become heavier, research expectations remain high (in a time where USA funding has been withdrawn and more grants need to be written without guarantee of success), and research supervision duties increase with student numbers. In occupational health and other medical fields, academics are often required to meet their clinical responsibilities in addition to those already mentioned.

The scientific community – and the public – rely on the peer review process to maintain research integrity through the critique of methodology, originality, and relevance. However, these additional tasks are rarely considered in promotion applications or workload assessments. Journal editors are arguably even less recognised. Their responsibilities are far more than administrative. They assess manuscripts for relevance and quality, mediate disputes, guide authors in strengthening their arguments, and uphold ethical standards. They often liaise with authors through multiple revisions of manuscripts, even doing the work of co-authors without recognition. As for peer reviewing, journal editing remains largely "unseen".

In 2020, Moher et al. published the Hong Kong Principles, which were developed as part of the 6th World Conference on Research Integrity, "with a specific focus on the need to drive research improvement through ensuring that researchers are explicitly recognized and rewarded for behaviors that strengthen research integrity".[2] This was echoed in 2024 by the Academy of Science of South Africa in its call for recognising editorial and review work in academia.[3] Continued lack of acknowledgement will make journal editors' tasks of finding appropriate reviewers for manuscripts increasingly difficult – something that is already experienced by major occupational health journal editors[4] (and others). Consequently, the quality assurance mechanisms upon which all scholarly publishing depend will be undermined.

Several initiatives have attempted to address this. Platforms such as Publons (integrated with *Web of Science*) allow researchers to record and verify their peer review activity, enabling them to include this work in CVs, grant applications, and institutional reviews.[5] Similarly, ORCID supports the addition of peer review activities to researcher profiles, increasing visibility.[6]

Without formal acknowledgement mechanisms – whether through institutional policies, digital platforms, or integrated contribution taxonomies – peer review and editorial efforts risk becoming increasingly burdensome and less attractive to scholars. Giving credit for review work can improve the quality and accelerate the review process, while providing tangible rewards can encourage participation, particularly among early-career researchers who benefit professionally from documented review experience.

## Declaration

ChatGPT was used in this editorial for improvement of flow and rephrasing of some sentences.

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### Another giant has fallen

The loss of another stalwart of occupational health has left our community bereft. A fitting tribute to Tony Cantrell can be found on page 4. Our hearts are heavy, and our lives are poorer without him, but his contribution to this worthy profession will not be forgotten. Our thoughts and prayers are with his family – Jemima, his wife, who shared his passion for making workplaces healthier, his son John, and his daughters, Helen and Sarah.

# Inflation, race, and legislation – the erosion in the real value of monetary compensation for miners' occupational lung disease in South Africa, 1973–2024

We would like to bring to the attention of a regional audience an open access article that we recently published in the *American Journal of Industrial Medicine*: Inflation, race, and legislation – The erosion in the real value of monetary compensation for miners' occupational lung disease in South Africa, 1973–2024.[1] This summary, solicited from the authors by the Editor, highlights the key findings and conclusion.


## Summary

For more than a century, South Africa's mining industry has been linked to high rates of occupational lung disease, particularly silicosis and tuberculosis. Compensation systems were introduced early in the twentieth century to address this burden. However, this new analysis shows that the monetary compensation paid to affected miners has steadily lost its real value over time.

Although formal racial discrimination in compensation ended after apartheid, a combination of inflation, infrequent and inadequate adjustments, failed governance, and a structural flaw in the system has eroded the value of payments. As a result, many miners remain inadequately compensated.

The study traces compensation levels from 1973 to 2024, comparing them against two benchmarks: inflation and miners' earnings. During the final decades of apartheid, South Africa experienced very high inflation, with prices increasing roughly 15-fold from 1973 to 1995. Compensation levels, however, were adjusted only sporadically – only eight times over the same period.

The consequence was a dramatic fall in real value of compensation amounts – compensation had declined by 81% for white miners and 67% for black miners. By 1995, the racial gap had narrowed, but compensation for white miners was still seven times higher than for black miners. Figures 1, 2, and 3 in the paper provide a stark visual summary of this long-term decline in compensation payouts.

The dismantling of apartheid brought important legislative reform. A 1993 amendment to the Occupational Diseases in Mines and Works Act (ODMWA),[2] implemented in 1995, abolished racially differentiated compensation. Payments were raised to the higher levels previously reserved for white miners, representing a substantial increase for black workers. Yet this progress proved short-lived. By 2024, the real value of both first- and second-degree awards had declined approximately sixfold, leaving them equivalent to only three and six months' wages, respectively.

A key finding of this study is the role played by the statutory "earnings cap" introduced in the 1993 amendments in driving the marked decline in the proportion of miners' income covered by compensation. The cap has undermined the central aim of the legislation – to replace a racially differentiated system with one based on actual earnings.

Remarkably, the processes described above appear to have occurred with little public scrutiny or protest.

The trend has been reversed in recent years with relatively frequent increases in the payment schedule. However, the amounts paid remain, in most comparative scenarios, inferior to those under general workers' compensation law. For example, under the ODMWA, disability is based on a limited two-grade classification with stringent impairment thresholds, and there is no provision for inflation-indexed monthly payments ("pensions") for serious disability.

It is common cause that statutory payouts under the ODMWA bear no relation to actual loss of earnings, a state of affairs laid bare by this study. While the mining industry benefited through higher profits, and the State through central taxation of those profits, the true costs – beyond compensation – of miner ill-health have effectively been externalised to workers and their communities over decades. Some redress has been achieved outside the statutory system through a series of settled lawsuits for silicosis and tuberculosis, and through direct technical and financial support of the miners' compensation agencies by the mining industry, via the Minerals Council South Africa.

Current legislative reforms under consideration are the repeal of the current Act; a quasi-independent statutory agency with its own governance board; extension of the levy to cover the costs of administration of the system, including benefit medical examinations and certification of claims; and the introduction of limitation of liability for owners of mines similar to that operating under the general workers' compensation system.

The last-mentioned will remove miners' civil law recourse for negligence against employers. Whether the envisaged administrative changes – important as they are – will, in due course, be sufficient to overturn a century of inequity to make up for the loss of this recourse remains to be seen.


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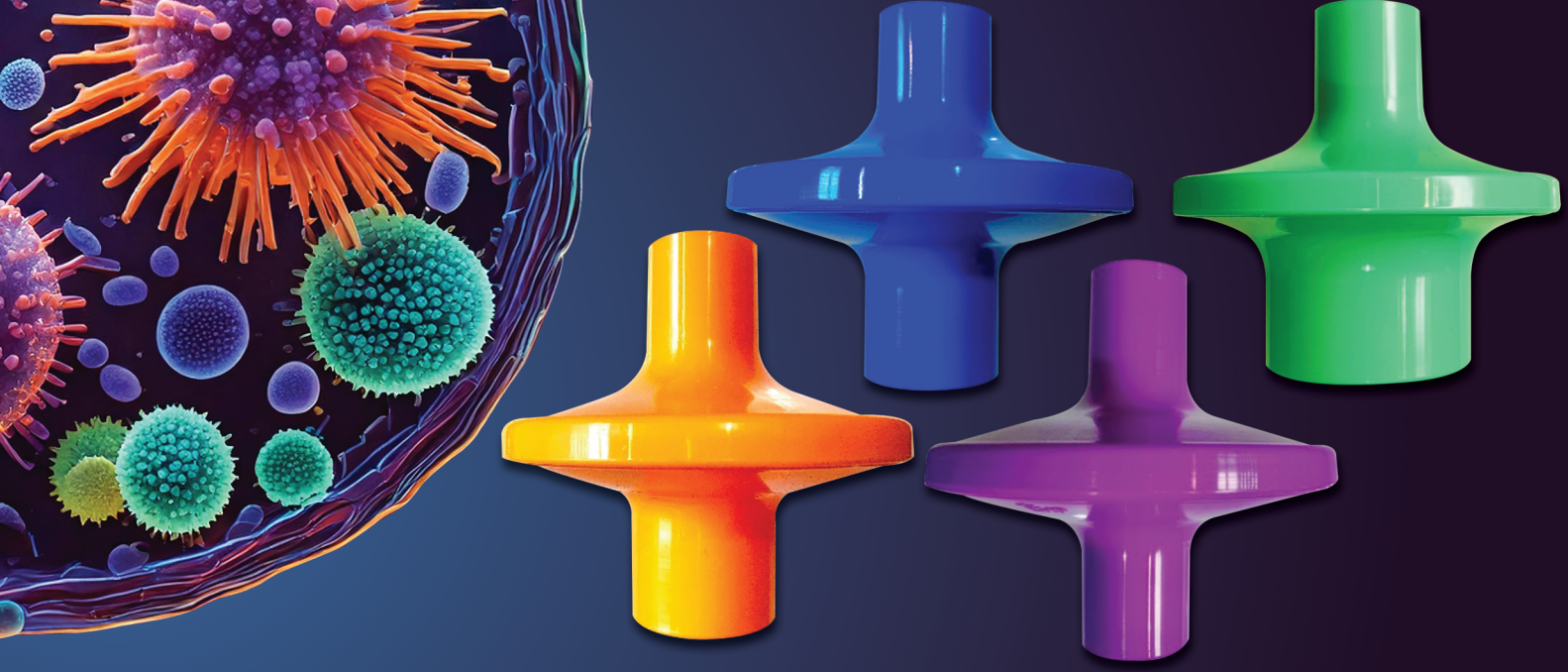
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# Tribute to Anthony Cantrell (1943–2026)

Professor Anthony (Tony) Cantrell retired from the National Institute for Occupational Health (NIOH) in November 2007 as Head of the Information Services Section, after more than three decades of dedicated service to occupational health and to the Institute. His retirement marked the end of an era defined by intellectual rigour, generosity of spirit, and an unwavering commitment to worker health and safety.

Tony possessed an extraordinary breadth of knowledge across multiple disciplines, particularly toxicology, industrial processes, and information sciences. He was not only a scholar of remarkable depth, but also an exceptional educator and mentor. When he left the NIOH, his absence was felt deeply – not only for his technical expertise, but also for his collegiality, mentorship, and wry humour, which often brought perspective and balance to complex scientific discussions.

## Institutional legacy

Under Tony's leadership, the Information Services Section became a national and regional hub for occupational health knowledge. During his tenure, the NIOH housed South Africa's national reference library for occupational health and functioned as a National Resource Centre, maintaining publications from several international agencies and providing regular reporting and consultancy services.

The Institute also served as the national International Labour Organization's (ILO's) International Occupational Safety and Health Information Centre (CIS), the knowledge management arm of the ILO SafeWork Programme, ensuring access to critical information for the prevention of occupational injuries and diseases. In addition, it operated as a clearing house for occupational health information across the Southern African Development Community (SADC) region – a vital service in the pre-internet era – and managed a query-handling service providing technical occupational health information to practitioners throughout the region.

### A PERSONAL REFLECTION FROM PROFESSOR SPO KGALAMONO

**To many colleagues, Tony was far more than a respected scholar – he was a mentor, confidant, and friend. He affectionately called me 'Spokie', a nickname that still echoes in my heart. Shortly after I completed my postgraduate diploma as his student, he invited me to co-lecture the programme with him. That professional partnership continued for 15 years, until his formal retirement from teaching. Yet our friendship and mentorship endured long after.**

**He remained a constant presence in my life and, in many ways, was like a father to me. He often called simply to check in, to ask how I was managing in a new role, or to offer quiet words of wisdom when they were most needed. His kindness, generosity, and steady encouragement left an indelible mark on all who had the privilege of knowing him.**




**'Professorial kindred spirits'** – Spo Kgalamono and Tony Cantrell
*Photograph: courtesy of Prof. Spo Kgalamono*

Through these initiatives, Tony strengthened national and regional capacity to access and apply evidence-based occupational health information. Practitioners, students, workers, managers, health and safety representatives, and union officials alike benefited from his commitment to making reliable knowledge accessible.

## Academic and professional contributions

A longstanding member of the University of the Witwatersrand (Wits) community, Tony completed his PhD at Wits and later served as a Visiting Professor in the Wits School of Public Health. In this role, he mentored generations of students and practitioners in occupational and environmental health, contributing significantly to the development of the discipline in South Africa and beyond.

His contributions to the understanding and prevention of occupational lung disease, particularly asbestos-related disease, remain an enduring part of his professional legacy. Throughout his career, his work reflected a profound and principled commitment to public and worker health.

## The teacher and the man

Tony was, above all, a devoted teacher. Many former students still recall with remarkable clarity his detailed explanations of the health effects of hexavalent chromium – a testament to his ability to make complex toxicological concepts both engaging and memorable. Colleagues frequently sought his advice on the health effects of chemicals, confident that he would respond not only with a clear explanation of the underlying pathophysiology, but also with thoughtful guidance on exposure control and clinical management.

He related to everyone with warmth and ease. Intelligent without arrogance and authoritative without intimidation, Tony had a distinctive sense of humour that was often quite disarming – a gentle reminder that scientific rigour and humanity must always go hand in hand.

## Life beyond the profession

Beyond his professional achievements, Tony was a man with wide interests and sincere personal commitments. He was a lover of nature and approached the world with a fierce curiosity, always eager to learn, explore, and understand.

As a dedicated husband, father, and grandfather, he remained ever present and engaged in the lives of those he cherished, offering them the same warmth, wisdom, and steady support that he extended to colleagues and students, always with patience and humility.

For many years, Tony was an enthusiastic runner and cyclist, embracing the outdoors with the same energy and discipline that characterised his professional life. Although health challenges eventually required him to slow down, his spirit of determination and zest for life remained undiminished.

## Enduring impact

Even after his formal retirement, Tony remained a valued mentor, advisor, sounding board, and true friend to colleagues from the NIOH and Wits. His influence extended across institutions, generations, and borders.

Tony will be deeply missed. His legacy lives on in the knowledge he shared, the professionals he mentored, and the countless workers whose lives are healthier and safer because of his dedication.

Rest in eternal peace, dear colleague and friend, you will be forever in our hearts and minds.

*Spo Kgalamono and Claudina Nogueira*

### A PERSONAL REFLECTION FROM PROFESSOR EMERITUS DAVID REES

**I count myself very lucky to have known and worked with Tony over many years. He was warm, supportive, humorous, and interesting; the kind of person who made you look forward to being with him, even if drudging through writing the NIOH Annual Reports – a thankless task he shouldered for years.**

**I never fully thanked Tony for establishing the Information Services at the NIOH. He was ideal: he had a large network of colleagues – and friends – in South Africa and far afield, and an unmatched depth and breadth of knowledge and experience on work processes, exposures, and real-world toxicology. Tony was ready to share his expertise with whoever needed it – many did, including me; I learnt a great deal from him. When Tony retired, I said he was irreplaceable, and he was.**

**Tony was wonderful with students – he really enjoyed being with them and they enjoyed being with him. Many stayed in contact years after being in his classes, and all of them gained professionally from a uniquely equipped teacher and advisor.**

**The NIOH, the Wits School of Public Health, and Tony's many friends and colleagues are going to miss him. Our thoughts are with Jemima Cantrell and Tony's family.**



**'A rose amongst the thorns'** – Tony Cantrell with colleagues and friends from the NIOH at the celebration of his 80th birthday, recalling many years of shared work, camaraderie, and humour. L to R: Prof. Gill Nelson, Prof. Spo Kgalamono, Mrs Jemima Cantrell, Prof. Tony Cantrell, Prof. Halina Röllin, Prof. Jill Murray, and Ms Claudina Nogueira

*Photograph: courtesy of Prof. Spo Kgalamono*

# The fight against TB is also the fight for human rights

**Renier Coetzee:** Associate professor, School of Public Health, University of the Western Cape, South Africa
**Ingrid Schoeman:** TB Proof, South Africa

Each year on World Tuberculosis Day on 24 March, the global community pauses to reflect on the continuing impact of tuberculosis (TB) and the work still required to end the disease. The date marks Robert Koch's 1882 scientific breakthrough, announcing the discovery of the bacterium that causes tuberculosis. More than a century later, that discovery still underpins modern TB diagnosis and treatment.

Globally, TB continues to cause immense suffering. According to the World Health Organization (WHO), an estimated 10.7 million people developed TB in 2024, and more than 1.2 million people died from the disease. Despite decades of medical advances and international commitments to eliminate TB, it remains the leading cause of death from a single infectious agent, worldwide.

South Africa remains one of the countries most affected by TB. Each year, hundreds of thousands of people in South Africa develop the disease, and tens of thousands die from it. The country has one of the highest TB incidence rates in the world. These statistics tell a story; they reflect the lived experiences of communities where the disease continues to spread in homes, workplaces, on public transport, and in healthcare settings. Tuberculosis is closely intertwined with broader social conditions, including inequality, unemployment, and the ongoing burden of HIV.

For this reason, TB cannot be understood only as a clinical or biomedical problem. It is also a question of rights, governance, and social justice. In South Africa, the legal framework for protecting people affected by TB is unusually strong. The Constitution of the Republic of South Africa recognises healthcare as a fundamental right and places a duty on the state to take reasonable legislative and other measures, within available resources, to progressively realise that right.

In the context of TB, this constitutional guarantee has important implications. Access to healthcare includes the availability of diagnostic services, medicines, prevention programmes, and functioning public health facilities. When patients cannot obtain a TB test, when medicines are interrupted, or when health facilities are unable to provide adequate care, the realisation of this constitutional right becomes compromised.

## The role of the courts

South African courts have played an important role in interpreting the meaning of the right to healthcare. In the *Soobramoney case*, the Constitutional Court acknowledged that the state's duty to provide healthcare services must be understood within the limits of available resources. While the Court did not order the provision of dialysis treatment in that particular case, the judgment clarified that Government decisions about healthcare allocation must still be reasonable and justifiable.

A few years later, the Constitutional Court took a more interventionist approach in the *Treatment Action Campaign case*. In that landmark decision, the Court held that the Government's restrictions on the distribution of antiretroviral medicines to prevent mother-to-child transmission of HIV were unreasonable. The Court ordered the state to expand access to treatment and confirmed that policies which unnecessarily limit life-saving healthcare may violate constitutional rights.

Although these cases did not deal specifically with TB, their principles apply directly to TB programmes and services. These cases affirm that the right to healthcare is not merely symbolic. Government policies, health system planning, and public health programmes must all meet the constitutional standard of reasonableness. When systemic failures prevent people from accessing diagnosis or treatment, the constitutional promise of healthcare becomes fragile.

## Shared obligations

At the same time, the Constitution also recognises that rights operate not only vertically between individuals and the state but also horizontally between people. Section 8 provides that the Bill of Rights may apply to relationships between private persons where appropriate. This principle of horizontal application is particularly relevant in the context of infectious diseases such as TB.

Tuberculosis spreads through the air when people with active disease cough, speak, or breathe in close proximity to others. The health of one person is, therefore, closely connected to the health of those around them. In legal terms, this means that the exercise of individual rights is linked to the protection of the rights of others. A community cannot meaningfully protect the right to health if individuals ignore the collective responsibilities that accompany that right.




**Anyone who breathes can get sick with TB, as it is caused by bacteria that spreads in the air, yet it remains a stigmatised disease**
*Photograph: Shayne Robinson/TAC*

In practice, this principle requires members of society to respect and uphold one another's rights. When individuals delay seeking medical care despite persistent TB symptoms or being part of at-risk groups that might not experience symptoms, like people living with HIV and close TB contacts, they may inadvertently expose others to infection. When stigma discourages patients from disclosing their illness or accessing treatment, it undermines both individual wellbeing and public health. When workplaces or communities exclude or shame people with TB, they violate the dignity that lies at the heart of the Constitution.

This constitutional principle was affirmed in the *Dudley Lee case*, where the Constitutional Court found the state responsible for an inmate contracting TB because reasonable steps were not taken to prevent its spread. The judgment highlighted that when conditions allow TB transmission to continue unchecked, the rights to health, dignity, and humane treatment are placed at risk, reinforcing the need for accountability across all settings where people live and work.

Human rights, therefore, operate not only as protections, but also as shared obligations. Respect for the rights of others requires creating social environments in which people feel supported to seek testing, begin treatment, and complete the course of medication required to cure the disease. Supporting people through treatment, encouraging early diagnosis, and reducing stigma are not simply acts of kindness; they are ways in which communities give practical effect to constitutional values.

**'Protection and direction'**

Global health researchers and advocates have long argued that TB persists because it is strongly linked to social inequality. The disease disproportionately affects people living in poverty, those in overcrowded housing, workers in high-risk environments, and individuals who face barriers to healthcare access. Addressing TB, therefore, requires more than new medicines or diagnostic technologies. It requires societies to confront the structural conditions that allow the disease to continue spreading.

In this sense, the struggle against TB reflects a broader constitutional vision. The Constitution does not only promise legal rights; it also commits South Africa to building a society based on dignity, equality, and freedom. Achieving that vision requires collective effort from Government, healthcare systems, researchers, civil society organisations, and the public.

Thus, ending TB will require stronger health systems, sustained political commitment, and continued public engagement. It will also require recognising that rights are not abstract promises. They are living principles that must be upheld every day in ordinary interactions between people, institutions, and communities.

In the long struggle against TB, the Constitution offers both protection and direction. It reminds us that health is a right, that dignity must be respected, and that the wellbeing of each person is tied to the wellbeing of all. Only when those principles are actively lived out in society will the goal of eliminating TB become truly achievable.

World TB Day is, therefore, more than a symbolic event on the calendar. It is a reminder that the fight against TB sits at the intersection of science, law, and social responsibility. South Africa has the legal tools, the medical knowledge, and the constitutional framework necessary to confront the disease. The challenge lies in translating those commitments into everyday realities for the people most affected by TB.

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*Note:* ***Spotlight*** *aims to deepen public understanding of important health issues by publishing a variety of views on its opinion pages. The views expressed in this article are not necessarily shared by the editors of* ***Occupational Health Southern Africa****, nor* ***Spotlight****.*

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# Employment and Labour on elimination of silicosis in non-mining sectors

The elimination of silicosis in non-mining sectors remains a priority for the Department of Employment and Labour, according to the Department's Labour Policy and Industrial Relations Acting Deputy Director-General, Mr Thembinkosi Mkalipi. Mkalipi said South Africa, as a member of the international community and the International Labour Organization (ILO), has an obligation to reduce workers' exposure to silicosis. He warned that literature continues to show an increase in cases of the disease and emphasised that the Department is focusing on priority sectors where workers remain vulnerable. He was speaking on Tuesday, 10 March 2026, in Kempton Park during a seminar marking the release of research findings on the "Benchmark study on silicosis in non-mining sectors".

Silicosis is an irreversible and progressive occupational lung disease caused by inhaling crystalline silica dust. It leads to inflammation, permanent lung scarring, and severe breathing difficulties. While treatment includes medication and avoiding further exposure, the disease remains fatal in many cases. Workers in sectors such as construction, mining, and stone fabrication are among those most vulnerable.

To determine the prevalence of silicosis, the Department of Employment and Labour commissioned the Council for Scientific and Industrial Research (CSIR), the National Institute for Occupational Health (NIOH), the University of the Witwatersrand, and the Wits Health Consortium to conduct a comprehensive study.

The study aimed to determine the prevalence of silicosis across industries between 2012 and 2018, analyse trends in deaths from silica-related diseases over the same period, and develop occupational health strategies and programmes to reduce exposure to respirable silica dust and eliminate silicosis in South Africa by 2030.

Professor Nisha Naicker, Head of Epidemiology and Surveillance at the NIOH, explained that the project was divided into three work packages.

The first work package focused on prevalence assessment, the second on guiding prioritisation and implementation of elimination strategies, and the third on developing a toolbox of tools and methods for silicosis elimination.

Key findings from Work Package 1 included:

- A total of 225 workers participated in the study
- 178 workers had more than 10 years of work experience
- The majority of participants were from the brick-making sector (40%), followed by construction (34%)
- Participants' ages ranged from 24 to 65 years, with an average age of 45.33 years
- The majority of participants were male (81.78%)
- Participants with more than 10 years of experience had an average of 20.43 years of sector experience, ranging from 11 to 43 years
- None of the participants reported a prior diagnosis of silicosis
- Symptoms suggestive of tuberculosis were experienced by 12.44% of participants during screening
- Chest X-ray results identified one case of silicosis, representing a prevalence of 0.5%. The affected participant was a 45-year-old male crusher operator in the mineral processing sector, with 15 years of experience, and is currently receiving medical care

The Department's Inspection and Enforcement Services branch Deputy Director, Mr Warren Mallon, emphasised that safeguarding the safety and health of workers is a fundamental right.

He noted that occupational accidents, injuries, and diseases carry significant human, social, and economic costs, and reaffirmed the Department's commitment to eliminating exposure to silicosis.

"The Department's National Programme for the Elimination of Silicosis was initiated in 2004," Mallon said. The programme included the training of inspectors and the introduction of employer reporting requirements on worker exposure levels.

He added that, in line with ILO conventions and obligations, South Africa remains on track to achieve the elimination of silicosis by 2030. The Department's Occupational Health and Safety Strategy 2024–2029 also places emphasis on achieving zero injuries and occupational diseases.

The study concluded that there is no single, simple, or reliable method of collecting data on silicosis cases. It recommended strengthening diagnosis processes, improving reporting in terms of the Compensation for Occupational Injuries and Diseases Act and the Occupational Health and Safety Act, establishing a national silicosis register, analysing medical aid databases, and conducting targeted surveys.

The research focused on sectors including construction, artificial stone manufacturing, brick manufacturing, and pottery and ceramics.

Professor Emeritus David Rees of the University of the Witwatersrand, who led Work Package 3, noted that the study assessed silica exposure levels in 11 companies. The findings indicated that workers were at risk of silicosis in all sectors studied, except roof tile manufacturing. He warned that the elimination of silicosis could be undermined if exposure risks are not addressed effectively.

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*Issued by:*
*Department of Employment and Labour*

# Tshiamiso Trust reaches halfway milestone, with R2.5 billion paid to eligible claimants

The Tshiamiso Trust has officially reached the halfway mark in administering compensation for the historic Silicosis and TB Settlement Agreement. As of 9 February 2026, the Trust has disbursed R2.5 billion to eligible claimants, shortly after crossing the midpoint of its 12-year legislative lifecycle in December 2025. The R2.5 billion disbursed to date is a result of the Trust's work across South Africa, Lesotho, Botswana, Eswatini, Mozambique, and Zimbabwe – and relies on prescribed claim processes to ensure fairness, accuracy, and compliance with the Trust Deed.

"Reaching the halfway mark of our lifecycle allows us to reflect on our progress while sharpening our focus for the remaining years ahead", says Tshiamiso Trust CEO, Dr Munyadziwa Kwinda. "Our mandate remains clear: to ensure that every eligible claimant receives what is due to them."

## Progress amid complexity

The Trust operates in a complex environment, where the wide geographical spread of claimants, the sourcing and verification of historical records, and the rigorous implementation of the Trust Deed requirements continue to pose operational challenges. "This has necessitated extensive, careful, methodical processes to ensure fairness, accuracy, and compliance with the Trust Deed", says Kwinda. "And unfortunately, not all claims meet the eligibility criteria."

Despite these complexities, the Trust has steadily expanded its reach through on-the-ground interventions, outreach programmes, and partnerships with service providers, governments, and community-based structures. These efforts are aimed at improving access, accelerating claims processing, and ensuring eligible claimants are supported throughout the process.

## A call to action: the urgency to lodge

With the window for new claim lodgements closing in December 2029, urgency is paramount. Kwinda explains: "Time is of the essence. We do not want any eligible person to miss out because they waited too long. If you or a family member worked at gold mines owned by African Rainbow Minerals, Anglo American South Africa, AngloGold Ashanti, Harmony Gold, Sibanye Stillwater, or Gold Fields between 1965 and 2019, come forward as soon as possible!"

This invitation extends to any former mineworker whose condition has worsened after having a previously unsuccessful claim. Those mineworkers are permitted to lodge a second claim with the Trust. Payment would be required for the Benefit Medical Examination (BME), with this cost being refunded if they meet the medical eligibility criteria.

## Essential support

"The Trust extends its appreciation to government partners, ex-mineworker organisations, traditional leaders, civil society, and service providers who continue to play a critical role in supporting claimants and facilitating access to the compensation process. Their collaboration remains vital in ensuring the Trust fulfils its mandate during the remaining years of its lifecycle."



**Dr Munyadziwa Kwinda, Tshiamiso Trust CEO**
*Photograph: courtesy of the Tshiamiso Trust*

"As we move forward, the Tshiamiso Trust remains focused on fulfilling its mandate with integrity, urgency, and respect for the people it was established to serve", concludes Kwinda.

For more information, visit www.tshiamisotrust.com or contact 080 1000 240 (South Africa) / 00 27 10 500 6186 (outside South Africa).

## About the Tshiamiso Trust

The Tshiamiso Trust was established to implement the settlement agreement reached between six mining companies and claimant attorneys in the historic silicosis and TB class action. The companies are African Rainbow Minerals, Anglo American South Africa, AngloGold Ashanti, Harmony Gold, Sibanye Stillwater, and Gold Fields. The Trust is responsible for compensating all eligible current and former mineworkers across southern Africa who have permanent impairment due to silicosis or work-related TB, or their dependents where the mineworker has passed away.

*For further information, please contact:*
*Tshiamiso Trust Stakeholder Relations & Communications*
*communications@tshiamisotrust.com*
*+27 60 890 1080*

## Useful links:

- To see if the mineworker qualifies to lodge a claim: https://www.tshiamisotrust.com/information/status-check/
- To view the claims process: https://www.tshiamisotrust.com/information/how-to-claim/
- To view the compensation classes: https://www.tshiamisotrust.com/information/compensation-classes/
- To view daily progress of claims and payments: https://www.tshiamisotrust.com/information/progress-report/

# Compliance, risk, and workplace safety take centre stage at A-OSH EXPO 2026

Occupational health and safety (OHS) in South Africa remains under increasing pressure as regulatory oversight tightens, workplace risk profiles shift, and organisations face growing scrutiny around compliance and employee wellbeing. From construction and manufacturing to logistics, mining, and commercial property, safety performance is directly linked to operational continuity and reputational protection.

A-OSH EXPO 2026, taking place from 2 to 4 June at Gallagher Convention Centre, places OHS in South Africa at the centre of the conversation. Co-located with Securex South Africa, Facilities Management Expo, Firexpo, and RE+ South Africa, the event reflects how workplace safety, risk management, fire safety compliance, and operational efficiency intersect in real-world environments.

For safety practitioners, safety, health, environment, and quality (SHEQ) professionals, risk managers, and compliance officers, this is a practical working environment – not a theoretical showcase.

## Regulatory compliance and practical risk control

Occupational health and safety in South Africa is no longer limited to policies and documentation. Organisations must demonstrate measurable safety performance, proactive hazard identification, and effective incident prevention strategies.

Visitors to A-OSH EXPO can explore:

- Personal protective equipment (PPE) innovations
- Workplace monitoring and detection systems
- Occupational hygiene solutions
- Fall protection and working-at-height systems
- Safety training and compliance services
- Digital reporting and risk management platforms

The show's free-to-attend Saiosh Seminar Theatre and Working at Height Seminar Theatre will unpack current compliance requirements, enforcement trends, and practical strategies to strengthen workplace safety performance.

## Exhibitor showcase

A-OSH EXPO 2026 will feature a diverse range of OHS solutions designed to strengthen compliance, reduce workplace risk, and improve operational resilience in South Africa. From PPE innovations and fall protection systems to digital risk management platforms and occupational hygiene technologies, exhibitors will showcase practical tools that safety professionals can implement immediately. The breadth of solutions on display reflects the growing complexity of OHS in South Africa and the need for integrated, measurable safety performance strategies.

North Tech (Hall 3, Stand E34a) will display its most advanced Bullet-Trapp at A-OSH EXPO 2026. The solution stops an accidental discharge (AD) with less health risks to the shooter. Additional improvements this year include being able to report an AD to a cell phone or control room according to the client's needs.

Plum Safety ApS (Hall 3, Stand A07) will showcase emergency eyewash, first aid stations, and rapid-response solutions for hazardous workplaces. Visitors can explore compliant, easy-to-use systems that reduce injury severity, improve response time, and help safety managers and PPE professionals protect workers across industrial, laboratory, and construction environments.

Trigas (Hall 3, Stand A15), specialists in gas detection and connected safety, will be launching its new Blackline Safety G8 and EXO 8.




**Safety professionals can explore OHS South Africa solutions at A-OSH EXPO, co-located with Securex, Facilities Management Expo, and Firexpo** *Photograph: courtesy of Montgomery Group Africa*

Torga Optical & Uvex (Hall 3, Stand E39) will showcase prescription safety spectacles tailored to the wearer's vision, while providing certified workplace eye protection. Compliant with EN 166, the spectacles protect against UV radiation, dust, and flying particles, while functioning as corrective lenses for clear vision in safety-critical environments.

**Safety performance as business performance**

According to Mark Anderson, Portfolio Director at Montgomery Group Africa, occupational safety has become a strategic business function. "Organisations are under pressure to protect employees while maintaining productivity and regulatory compliance. A-OSH EXPO connects safety professionals with practical tools and technologies that strengthen compliance and reduce operational risk."

Co-location strengthens this value. Visitors can evaluate how OHS in South Africa integrates with facilities management, fire protection, and security infrastructure in one visit, saving time while strengthening cross-functional alignment.

"For professionals responsible for workplace compliance, risk mitigation, and employee wellbeing, A-OSH EXPO 2026 provides direct access to suppliers, specialists, and solutions that can be implemented immediately. We encourage visitors to visit the website at www.aosh.co.za to beat the queues by pre-registering for free", says Anderson.

Organisations wishing to exhibit at A-OSH EXPO 2026 can contact the A-OSH EXPO team on zelda.jordaan@montgomerygroup.com or johan.vanheerden@montgomerygroup.com to book a space or capitalise on a sponsorship opportunity.

See some of the A-OSH EXPO 2025 highlights: https://www.youtube.com/watch?v=xgOUusGJFf4

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# Deon Jansen van Vuuren

*BSc Hons (North-West University), National Diploma in Safety Management (University of Johannesburg), Certificate in Operational Competence and Diploma in Professional Competence in Occupational Hygiene (British Occupational Hygiene Society), SAIOH Fellow*

From the outset of his career, Deon demonstrated a strong commitment to occupational hygiene and a willingness to engage actively in the field. This interest dates back to his postgraduate studies, during which he completed month-long practical placements at the Chamber of Mines Research Organisation (COMRO) and the Council for Scientific and Industrial Research (CSIR), now CSIR Miningtek. During this period, he was mentored by leading practitioners, including Dr Johan Kielblock and Mr Schu Schutte, who were undertaking pioneering work on heat acclimatisation for underground mining.

Following his postgraduate studies, Deon completed the mandatory two-year national military service with the South African Army. After basic training, he successfully applied to join a newly established unit responsible for developing and delivering occupational health and safety (OHS) training programmes across the military service. In recognition of his contributions and completion of the necessary officers' training course (SA Army College), he was promoted through the ranks to lieutenant.

After completing his compulsory service, Deon remained involved with the South African Army Citizen Force (CF) for a further 15 years, providing OHS support until the CF's disbandment in 1994. During this time, he attained the rank of captain, again completed the necessary officers' training course, and received three 'Chief of the South African Army' commendations for excellent service.

Deon's civilian career included appointments as a Regional Safety Advisor at the National Occupational Safety Organisation (NOSA), OHS Manager at a manufacturing plant, and Chief OHS Officer at the Roodepoort City Council. At the City Council, he developed and implemented a comprehensive OHS programme, improving its NOSA grading from two to four stars. He was subsequently recruited by Middelburg Steel and Alloys, a NOSA five-star organisation, to manage OHS and occupational hygiene programmes across three manufacturing plants. When the company became Columbus Stainless, Deon was appointed Group Manager for Occupational Hygiene.

In this role, Deon was tasked with establishing an occupational hygiene consultancy to serve the broader group of companies, including Columbus Stainless, Gencor (BHP Billiton and Samancor), and Anglo American. This initiative evolved into Gijima Occupational Hygiene, Environmental Services and Laboratory (Gijima OHES&L), an occupational hygiene approved inspection authority (AIA), accredited by the Department of Employment and Labour (DEL) and the South African National Accreditation System (SANAS) under SANS ISO 17020. The consultancy provides services to industry, mining, and government, supported by an accredited analytical chemistry laboratory (SANAS ISO 17025). Its scope expanded to include environmental monitoring, electromagnetic fields and non-ionising radiation, vibration, diesel particulate matter, vehicle illumination surveys, and ergonomics assessment and training.




**Deon Jansen van Vuuren – SAIOH General Manager**
*Photograph: courtesy of SAIOH*

A hallmark of Deon's leadership was his commitment to professional development. He adopted a strategy of recruiting and mentoring young occupational hygiene practitioners in alignment with the Southern African Institute for Occupational Hygiene (SAIOH) certification framework. Under his management, the Occupational Hygiene Business Unit (BU) achieved an exceptional professional profile, with approximately 45% of staff registered as occupational hygiene assistants, 25% as occupational hygiene technologists, and 30% as registered occupational hygienists.

By the time of his retirement at age 65, the Occupational Hygiene BU comprised approximately 85 staff members, making it the largest of its kind in South Africa. The period under Deon's leadership had a lasting and far-reaching impact on the practice of occupational hygiene, nationally. Following its sale to Gijima IT Company as part of the Human Capital Management (HCM) Division, the BU became both highly sustainable and profitable and, by 2018, it was the highest-performing entity within the group.

Alongside his professional career, Deon made extensive voluntary contributions to the profession. He joined the Occupational Hygiene Association of South Africa (OHASA) in 1980 and later the Institute for Occupational Hygienists of Southern Africa (IOHSA), serving on the Examination Board. Following the amalgamation of OHASA and IOHSA to form SAIOH in 2001, he chaired the Professional Certification Committee (PCC) for many years and served as Chief Examiner. He was elected SAIOH President in 2005, serving a three-year term during which South Africa hosted the International Occupational Hygiene Association (IOHA) Conference at the Pilanesberg Nature Reserve in North West province. In 2007, SAIOH Fellow, Rob Ferrie, who was the IOHA President, then recruited and nominated Deon onto the IOHA National Accreditation Recognition Committee (NARC), which

manages a global recognition scheme for occupational hygiene certification programmes. Deon played a leading role in securing international recognition for SAIOH, successfully guiding three applications to the NARC. He subsequently served on both the IOHA Board and the NARC, including a four-year term as Chair of the NARC.

After retiring from Gijima OHES&L in 2018, Deon was appointed as SAIOH General Manager, a position he still holds. During this period, he strengthened SAIOH's financial sustainability, expanded its administrative capacity, implemented the *MySAIOH* electronic membership system, and supported the delivery of seven highly successful annual scientific conferences. Under his leadership, SAIOH's membership has grown to nearly 1 000 members, and the Institute has been accredited three times by the South African Qualifications Authority (SAQA) as the sole professional registration body for occupational hygiene in South Africa.

Over more than 46 years, Deon has served the discipline of occupational hygiene with exceptional dedication and integrity. Much of this contribution was provided on a voluntary basis, both nationally and internationally. Rather than stepping back after retirement, he chose to continue serving the profession with the same commitment and generosity. In recognition of his lifelong contribution, Deon was awarded the IOHA Lifetime Achievement Award in 2024, following his successful nomination by SAIOH (he was one of four finalists). The award honoured his enduring impact on the advancement of occupational hygiene, the promotion and development of occupational hygiene standards and practices, and the protection of worker health. In 2025, SAIOH also bestowed the SAIOH Lifetime Achievement Award on Deon, the first in the history of SAIOH.

# UPCOMING EVENTS

**SOUTH AFRICA**

**MMPA Golf Day**
**26 July 2026**
**e-mail:** noluthandos@mpas.org.za

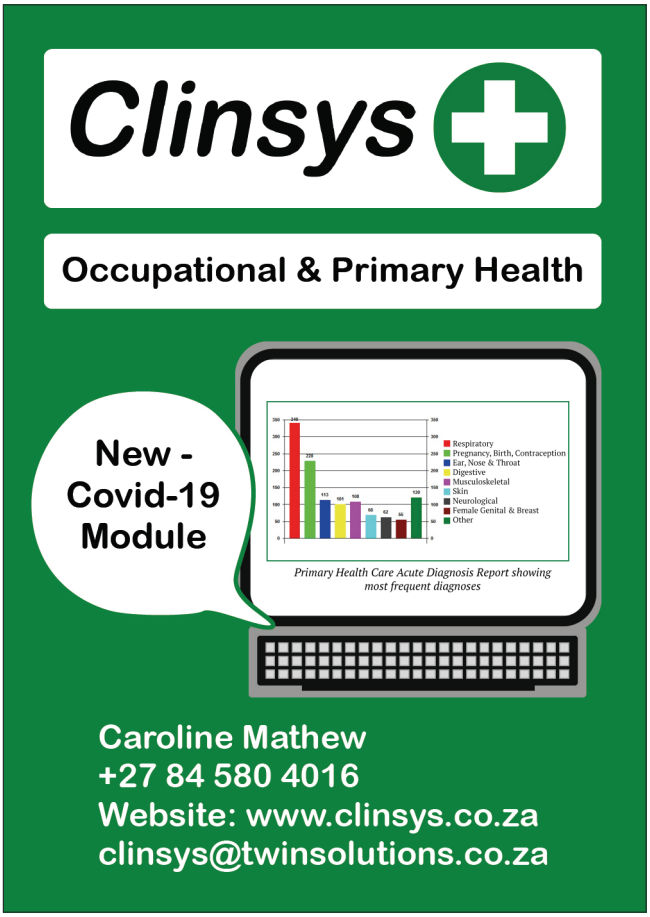
**INTERNATIONAL**

**WHWB Webinar- Engineered Stone**
**Monday, March 30, 5:00 p.m. EDT; 9:00 p.m. GMT, Tuesday, March 31, 8:00 a.m. AEDT**
**30-31 March 2026**
**Website:** https://whwb.org/
**Registration:** https://us02web.zoom.us/meeting/register/lplnSMjKRjGVcHVia60J1Q#/registration

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# Comparative postural analyses of front versus back infant loading among rural African caregivers

**TJ Ellapen, TC Muluvhu, Y Paul, C Ribeiro-Wagener**

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## ABSTRACT

***Background:*** Back infant loading (BIL) among African females has been associated with postural misalignment and musculoskeletal pain. This study investigated whether front infant loading (FIL) could mitigate such postural deviations.

***Objective:*** To compare postural differences between BIL versus FIL among African caregivers.

***Methods:*** An observational, randomised control, cross-over study was conducted among 100 South African female caregivers (aged 18–40 years). Kinanthropometrical and postural variables, namely body mass, standing vertex, hip height, craniovertebral angle (CVA), and standing pelvic angle (SPA) were assessed under three conditions: BIL, FIL, and unloaded. Participants were divided into two groups (50 in each). Group one was initially assessed during FIL, while group two was assessed during BIL; the groups then crossed over to the alternate loading conditions. The data were analysed descriptively and summarised as means, standard deviations, frequencies, and percentages. A repeated-measures analysis of variance (ANOVA) was conducted to assess differences in kinanthropometrical and goniometrical measures between the BIL, unloaded, and FIL states. Statistical significance was set at 5%.

***Results:*** Back infant loading produced a significantly smaller mean CVA, viz. 28.79 ± 6.59° than the unloaded state (35.29 ± 6.78°) and FIL (40.57 ± 5.75°) ($p < 0.0001$). Conversely, BIL stimulated a larger mean SPA (30.86 ± 5.64°) than the unloaded state and FIL (24.83 ± 5.26° and 20.94 ± 5.51°, respectively) ($p < 0.0001$). Front infant loading generated the tallest standing vertex heights of all three states, viz. 1.57 ± 0.07 m, 1.56 ± 0.06 m, and 1.54 ± 0.06 m for FIL, unloaded state, and BIL, respectively ($p < 0.0001$).

***Conclusion:*** Front infant loading resulted in an upright posture characterised by a larger CVA and smaller SPA. In contrast, BIL was associated with a shortened, slouched posture, leading to a smaller CVA and a larger SPA. Back infant loading is one of the primary occupational duties of African females' daily tasks, which adversely impacts their posture and quality of life. Front infant loading is recommended to prevent deviated posture when carrying infants.

## INTRODUCTION

The common sight of women carrying infants wrapped in a piece of cloth on their backs may seem like an everyday image in Africa, but this act of maternal affection is steeped in history and culture.[1] This practice has persisted for centuries, deeply ingrained in African cultural identity, maternal ingenuity, and cultural bonding.[1] Before the advent of baby carriers and strollers, nomadic African females trekked across the savannas and deserts, searching for food, water, and firewood while carrying infants on their backs. Agricultural communities greatly benefited from this maternal strategy. African female farmers continued to sow seeds and harvest crops, without depriving their infants of maternal supervision.[2] In urban African societies, many female domestic workers and caregivers carry infants while simultaneously sweeping, completing laundry, and cooking.[3]

The great diversity of African landscapes encouraged the selection of various fabrics and unique wrapping styles.[2] In Ghana and Nigeria, a rectangular cloth known as a *kanga* or *pagne* is often used to cradle the infant onto the caregiver's back, with the cloth being knotted over one shoulder. In Tanzania and Kenya, *kangas* are used, but the fabric designs and wrapping methods vary. The *kanga* is sometimes wrapped around the waist and over one shoulder to form a snug pocket for the infant. In Mozambique and South Africa, the *capulana/kanga* is a fabric baby carrier that is tied around the caregiver's torso, and can be adjusted to better accommodate the shape of the growing body of the infant.[2]

Infant carrying or loading is a symbiotic action that benefits both the caregiver and the infant. In African communities, infant loading begins once the baby can support its own neck at approximately eight months old, and may continue for several months thereafter.[3] Grobler et al. (2024) reported that African caregivers carry infants as heavy as 12 kg and as old as four years of age.[4] The act of carrying a baby, whether in a wrap or carrier, creates a sense of security for both the infant and caregiver, which reduces the mother's postpartum depression and the baby's crying.[5] It promotes a strong maternal relationship and family bonding.[6] Back infant loading (BIL) helps infants develop their neck and back strength, as they frequently lift their heads to view their surroundings.[7] The straddled leg positioning of the infant reduces the risk of hip dysplasia.[4] Van Eeden et al. (2023) qualified BIL as an ingenious method of freeing the caregiver's hands, allowing them to complete tasks while simultaneously attending to the infant.[3] Often, older siblings, aunts, and grandmothers act as surrogate caregivers, when biological mothers need to return to their paid employment.[3]

Infant loading, whether in a sling or a carrier, poses physical challenges for caregivers, and may lead to musculoskeletal pain and increased stress on muscles and joints due to misaligned posture for prolonged periods.[8,9] Ojukwu et al. (2017)[9] and Van Eeden et al. (2023)[10] reported that the most susceptible sites of musculoskeletal pain were the neck, shoulders, and lower back. Back infant loading alters the postures of caregivers by shortening their standing vertex height and simultaneously anteriorly rotating their pelvises.[3]

In an attempt to establish an ergonomic solution to alleviate the misaligned posture and musculoskeletal pain associated with BIL, many African caregivers have begun to practise front infant loading (FIL). However, the anecdotal reports of the efficacy of this infant carrying method among African caregivers as an ergonomic solution needs to be validated. Grobler et al. (2024) recommended an empirical investigation to determine if FIL would prevent the deviated posture and musculoskeletal pain commonly associated with BIL.[4] In this study, we compared the postural effects of FIL and BIL to assess the efficacy of FIL, as a potential ergonomic strategy, to combat misaligned posture associated with BIL.

## METHODS

One hundred women aged 18 to 40 years, who cared for infants daily and were residents of the Glendale region in the iLembe District of KwaZulu-Natal, comprised the study participants. A local member of the Glendale Baptist Church served as an intermediary and was present during data collection.

Baseline testing was conducted during which caregivers stood upright while not carrying an infant (unloaded state). The caregivers' body masses were measured at baseline and when carrying the infants, using an electronic scale. The infant's body mass was calculated by subtracting the caregiver's unloaded body mass from the total body mass.

The participants were randomly assigned to experimental groups one or two (50 in each) through their selection of stickers from a coloured chart. An orange sticker allocated the participant to experimental group one, where posture during FIL was measured. A green sticker allocated the participant to experimental group two, where posture during BIL was measured. Posture measurements comprised kinanthropometrical heights and goniometrical angles on the right side. Participants then crossed over into the other experimental groups.

### Kinathropometrical measurements

Kinathropometrical measurements comprised the caregiver's body mass, and standing vertex, shoulder, and hip heights in accordance with the International Society for Advancement of Kinanthropometry protocol.[11]

### Postural goniometrical angles

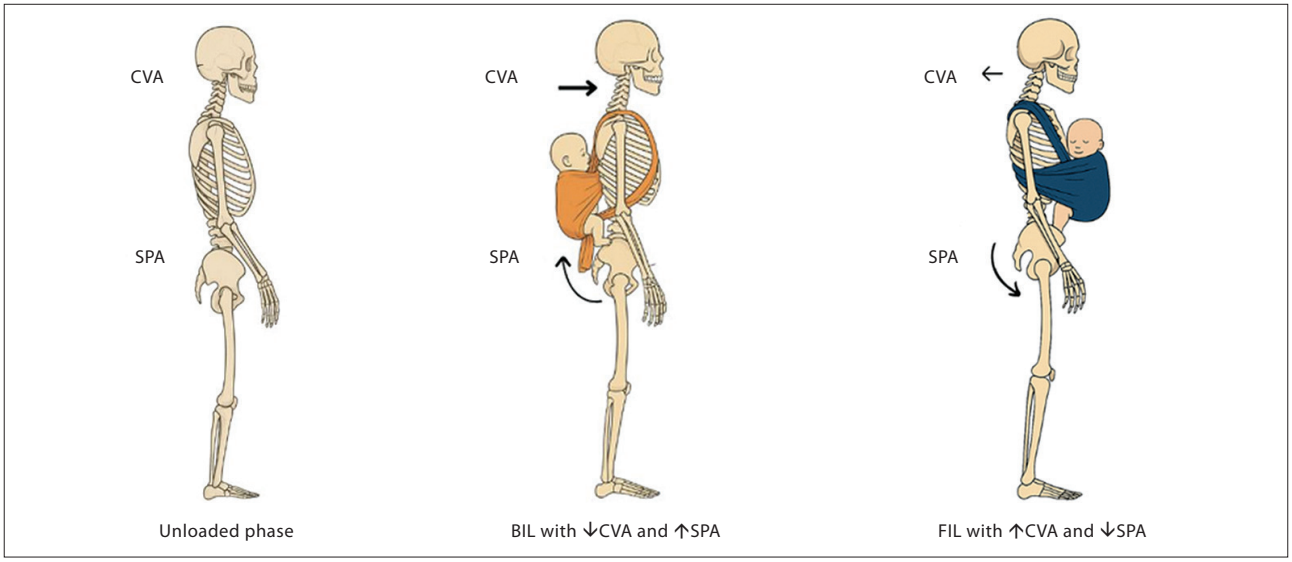
The postural goniometrical angles included the craniovertebral angle (CVA) and standing pelvic angle (SPA). The CVA and SPA were measured according to protocols published by Lau et al. (2009)[12] and Kim et al. (2009).[13]

Ethical approval was obtained from the Tshwane University of Technology (HREC2025=03=006 (Science)). The study design was a pre-test, post-test, cross-over, observational randomised, controlled experiment. Participant informed consent and iLembe Royal court gatekeeper permission were secured before data collection.

**Table 1. Kinanthropometrical and goniometrical measures in the different load-carrying states (N = 100)**

| | Load-carrying state | | | | |
|---|---|---|---|---|---|
| | Unloaded Mean ± SD | BIL Mean ± SD | FIL Mean ± SD | F-statistic | p value |
| **Kinanthropometrical measure** | | | | | |
| Standing vertex (m) | 1.56 ± 0.06 | 1.54 ± 0.06 | 1.57 ± 0.07 | 50.2 | < 0.0001 |
| Shoulder height (m) | 1.29 ± 0.06 | 1.27 ± 0.06 | 1.31 ± 0.06 | 137.3 | < 0.0001 |
| Hip height (m) | 0.94 ± 0.04 | 0.90 ± 0.04 | 0.96 ± 0.04 | 456.9 | < 0.0001 |
| **Goniometric measure** | | | | | |
| CVA (°) | 35.29 ± 6.78 | 28.79 ± 6.59 | 40.57 ± 5.75 | 38.47 | < 0.0001 |
| SPA (°) | 24.83 ± 5.26 | 30.86 ± 5.64 | 20.94 ± 5.51 | 46.52 | < 0.0001 |

SD: standard deviation, BIL: back infant loading, CVA: craniovertebral angle, FIL: front infant loading, SPA: standing pelvic angle




BIL: back infant loading, CVA: craniovertebral angle, FIL: front infant loading, SPA: standing pelvic angle

**Figure 1. Comparative differences in sagittal plane posture between unloaded, BIL, and FIL states**

### Data analysis

The data were analysed descriptively and summarised as means, standard deviations, frequencies, and percentages. A repeated-measures analysis of variance (ANOVA) was conducted to assess differences in kinanthropometrical and goniometrical measures between the BIL, unloaded, and FIL states. Statistical significance was set at 5%.

## RESULTS

The mean age and body mass of the caregivers were 29.5 ± 7.0 years (18–40 years) and 78.2 ± 23.1 kg (40.3–149.9 kg), respectively. The infants' body mass averaged 17.9% of their caregivers' body masses.

The change in posture between the infant carrying states is presented as differences in kinanthropometry and goniometry findings.

The variance among the load-carrying states was large for all measures as indicated by the F-statistics (Table 1). The differences in all measured heights were significantly different between the load-carrying states. The kinanthropometrical measurements suggest that FIL caused caregivers to stand upright, as indicated by the higher standing vertex, shoulder, and hip heights than those measured during BIL. In contrast, BIL was associated with a slouched posture characterised by reduced standing vertex, shoulder, and hip heights.

There were also significant differences in the mean CVAs and SPAs during the three load-carrying states. When FIL, caregivers adopted a more upright posture than when BIL or in the unloaded state, which increased their mean CVA, but reduced their mean SPA. As an observation, during FIL, caregivers' enlarged CVA allowed them to look over the heads of the infants who sat on their waists, while the infants' heads were positioned in front of their faces. The decreased SPA indicated posterior pelvic rotation, which assisted the caregiver in standing upright. Back infant loading was characterised by a slouched posture, which was accentuated by a smaller CVA and a larger SPA. During BIL, the infant rested on the caregiver's lower back, which increased the SPA, signifying greater anterior pelvic rotation.

## DISCUSSION

The main findings of the study were that FIL caused an increase in CVA and posterior pelvic rotation among caregivers, resulting in an upright posture. When BIL, caregivers adopted a slouched posture, characterised by a diminished CVA and greater anterior pelvic rotation, as shown in Figure 1.

### Front versus back infant loading posture

In our study, FIL produced an enlarged CVA, which concurs with the findings of Grobler et al. (2024) and Havens et al. (2020).[4,8] The increased CVA during FIL is indicative of a posterior translation of the cervical vertebrae on the thoracic vertebrae, resulting in the adoption of an erect head-on-neck posture.[12] Grobler et al. (2024) reported that FIL stimulates the cervical vertebrae to adopt an erect posture along the Frankfurt plane, which elevates the anatomical landmark where standing vertex was measured, thereby increasing postural height.[4] In our study, the smaller SPA when FIL was suggestive of posterior pelvic rotation. This novel finding contradicts reports by Havens et al. (2020) and Junqueira et al. (2015).[8,14] We propose that posterior pelvic rotation elevated the anterior superior iliac spine (ASIS) landmark where hip height was measured, elevating hip height. Collectively, the increased CVA and the posteriorly rotated pelvis increased the caregivers' standing vertex heights. The increased standing vertex, shoulder, and hip heights suggest that FIL decompressed the intervertebral discs, which contributed to increasing the height and causing a more upright posture than in the unloaded and BIL states.

An opposite biomechanical cascade of events resulted from BIL, which created a shortened standing posture. Our study showed that, during BIL, caregivers' CVAs were smaller than when in the unloaded state or FIL, accompanied by larger SPAs, which concurs with findings from previous studies.[3,15] The increased SPA is indicative of greater anterior pelvic rotation when the infants rested on the caregivers' lower backs, causing them to lean forward from their hips.[13] The increased SPA lowered the ASIS landmark where the hip height was measured, justifying the lower hip height.[3,13] The reduced CVA is suggestive of the anterior translation of the cervical vertebrae on the thoracic vertebrae.[3,12] Furthermore, the reduced CVA lowered the landmark where standing vertex height was measured, resulting in a lower postural height, consistent with previous findings.[3] Collectively, during BIL, the reduced CVA and increased SPA reduced caregiver standing vertex height, resulting in a slouched postural appearance (Figure 1). The decreased standing vertex, shoulder, and hip heights suggest that BIL compressed the intervertebral discs, which contributed to a diminished standing vertex height and slouched posture. The increased SPA and decreased CVA accentuated the normal anterior-posterior weight-bearing curves of the vertebral column, creating a slouched posture, which explains the lowered standing vertex height.

### Limitations

The study sample size was relatively small, at 100 participants, due to the reluctance of women to participate in the study. All participants were volunteers; many did not participate in the study because it would have taken them away from their daily domestic chores and other responsibilities.

### Recommendations

A longitudinal study, comparing the long-term effects of FIL versus BIL on caregivers' postural and musculoskeletal wellbeing, should be conducted. An empirical investigation should be conducted to determine the relative optimal infant body mass – as a percentage of the combined mass of the infant and caregiver – that produces no sagittal plane postural misalignment. A literature review of the effects of FIL and BIL on the sagittal, frontal, and transverse planes of the posture of caregivers would be useful as a basis for future research.

Caregivers should be made aware that FIL potentially combats the slouched shortened posture induced by BIL. The findings of this study must be shared with communities, and awareness campaigns should be designed and communicated via radio, television, social media, newspaper articles, and local magazines.

## CONCLUSION

The findings from this study suggest that when caregivers carry infants in front, rather than on their backs, they adopt a more erect cervical vertebral posture supplemented with a posteriorly rotated pelvis. Caregivers should be encouraged to practise FIL rather than BIL to prevent the negative postural effects of BIL, which may lead to pain. Back infant loading produces smaller CVAs and anterior pelvic rotation, which causes intervertebral disc compression and pain.

Front infant loading produces increased CVA and posterior pelvic rotation, which decompresses the vertebral column, thereby alleviating neck, shoulder, and lower back pain.

## KEY MESSAGES

1. Front infant loading changes sagittal plane posture, which is characterised by an upright posture with a larger CVA and a posteriorly rotated pelvis.
2. Back infant loading changes sagittal plane posture, which is characterised by slouching with a diminished CVA and an anteriorly rotated pelvis.
3. Front infant loading should be the preferred method of carrying infants, to prevent adverse effects on posture and related pain.

## FUNDING

No funding was received for this study.

## DECLARATION

The authors declare that this is their own work; all the sources used in this paper have been duly acknowledged and there are no conflicts of interest. Artificial intelligence (AI) was not used in preparation of the manuscript.

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## AUTHOR CONTRIBUTIONS

Conception and design of the study: TJE
Data acquisition: TJE, CR-W
Data analysis: TJE
Interpretation of the data: TJE, YP, TCM, CR-W
Drafting of the paper: TJE, YP, TCM, CR-W
Critical revision of the paper: TJE, CR-W, TCM, YP

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# Perceived barriers to infection prevention and control in the hairdressing industry

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## ABSTRACT

***Background:*** Infection prevention and control (IPC) is essential for preventing infection-related harm in healthcare and public settings. In the hairdressing industry, effective IPC practices protect both clients and hairdressers; however, implementation is challenged by context-specific factors such as economic capacity and infrastructure.

***Objective:*** We explored perceived barriers to IPC of hairdressers and their clients in formal, semi-formal, and informal hairdressing salons in the Rustenburg Local Municipality, North West province, South Africa.

***Methods:*** A cross-sectional mixed methods study design was used. Data were collected from December 2020 to August 2021. Qualitative data were obtained through individual interviews with 20 purposively sampled salon clients. Quantitative and qualitative data were collected from 272 hairdressers selected through convenience sampling; a self-administered questionnaire was used. Qualitative data were analysed thematically, quantitative data were analysed descriptively, and the findings were integrated.

***Results:*** Most of the salon clients were women (n = 18, 90.0%); 12 (60.0%) frequented semi-formal salons. Of the 272 hairdressers, 52.6% (n = 143) had no formal hairdressing training, and 83.8% (n = 228) had not received IPC training. Client-related IPC barriers included poor adherence to IPC practices (poor hand hygiene, frequenting salons when ill, and not using personal protective equipment (PPE)), and limited understanding of infection risks, despite some awareness of contamination. Hairdresser-related barriers included knowledge gaps, work and financial pressures that led to poor adherence to IPC procedures, and inconsistent adherence to cleaning, hand hygiene, and use of PPE. Environment-related barriers included inadequate infrastructure, service and utility constraints (water shortages, load shedding, and poor refuse disposal), and shortages of functional equipment and essential supplies such as gloves, disinfectants, and sanitisers.

***Conclusion:*** Infection prevention and control in hairdressing salons in Rustenburg is constrained by client behaviour, hairdresser practices, and environmental conditions. Strengthening health literacy, formal training, regulatory oversight, and infrastructure are essential for improving IPC implementation.

## INTRODUCTION

The World Health Organization (WHO) defines infection prevention and control (IPC) as a scientific approach to preventing infections, informed by knowledge of infectious diseases, epidemiology, and the social sciences.[1] Infection prevention and control measures are categorised into two main groups: standard precautions and transmission-based precautions. Standard precautions are basic infection control practices applied to all individuals, regardless of their infection status. In contrast, transmission-based precautions involve additional protective measures implemented when a person is known or suspected to be infected or colonised with a specific pathogen(s).[1]

Infection prevention and control are crucial in community contexts, as community-acquired infections can spread in environments such as schools, workplaces, and personal service industries.[2] Hairdressing salons are places of concern due to close physical contact and the use of shared instruments, which put both clients and hairdressers at risk of exposure to biological agents.[3-10] Diseases can be transmitted between clients and hairdressers through direct contact with body fluids, e.g. coughing, sneezing, and contaminated blood, sores, cuts, and grazes.[4] Infections include fungal infections such as ringworm, bacterial infections such as *Staphylococcus aureus*, viral infections such as Hepatitis B and C, and influenza, and yeast infections such as *Candida* species.[3, 11-13]

With the growth of the hairdressing industry, the public has become more aware of the potential for infection transmission between hairdressers and clients[4] – a risk highlighted by the COVID-19 pandemic. In addition, the expansion of hairdressing techniques and procedures has increased the risk of infection transmission, in general.[3] The risk of infection is associated with the types of procedures performed, the equipment used, and the level of infection prevention measures implemented, such as personal protective equipment (PPE) and the sanitisation, disinfection, and sterilisation of instruments.[4]

Sharp instruments such as needles and razors can transfer bloodborne infections if they have not been correctly sanitised. Studies have found microbial contamination on equipment such as razors, scissors, clippers, combs, and nail instruments, suggesting inadequate sterilisation practices and highlighting the risk of infection transmission in the hairdressing industry.[3,4,12,13]

In developed countries, IPC measures are well regulated and supported by structured training programmes and licensing systems. Countries such as Canada, Australia, and New Zealand have implemented comprehensive guidelines to maintain IPC measures within the industry. These guidelines provide hairdressers with essential knowledge of hygiene, safe handling of equipment, and IPC protocols, which are reinforced by regulatory frameworks.[14-18]

Infection prevention and control barriers can take various forms and apply to healthcare facilities, community environments, and the food and beauty industries. Barriers in the healthcare system that could be transferred to the personal services environment include deficiencies in IPC training, bottlenecks in facility maintenance and repair, inadequate hand hygiene infrastructure, poor water availability, and limited access to PPE.[19] In the personal services environment such as the hairdressing industry, additional barriers include the poor application of healthcare guidelines and standards, inadequate education and training, the absence of workplace and practice audits, and the lack of regulation of personal services.[20]

In South Africa, hairdressing salons are classified as formal, semi-formal, and informal, based on registration, the operating environment, training, and regulatory oversight, consistent with distinctions between registered formal businesses and largely unregulated informal enterprises.[21] Formal salons operate from commercial premises with trained staff. Semi-formal salons are partially registered, operate from community or home-based spaces, and employ both formally and informally trained hairdressers. Informal salons are typically unregistered, located in townships, street corners, or markets, rely mainly on experiential or apprenticeship-based skills, and make up a substantial proportion of the hairdressing industry.[21] These distinctions are critical for IPC, as variations in regulation, training, infrastructure, and access to hygiene and sterilisation resources directly influence IPC compliance and infection risk.

Understanding the barriers to IPC in these different settings can guide policy development, inform industry guidelines, shape education and training programmes, and support improvements in resources and infrastructure.

The objective of this study was to explore the perceived barriers to IPC of hairdressers and their clients in formal, semi-formal, and informal hairdressing salons in the Rustenburg Local Municipality, North West province, South Africa.

## METHODS

A cross-sectional mixed methods study design was used.

The first study population comprised hairdressers aged 18 years and older working in formal, semi-formal, and informal salons in the Rustenburg Local Municipality. Due to the absence of an official registry and the large informal sector, the size of the study population was estimated to be approximately 1 000, with an average of two employees in each of the estimated 500 salons. The calculated sample size was 278.[22] Participants were selected using convenience sampling.

The second study population comprised hairdresser clients aged 18 years and older who had visited informal, semi-formal, or formal salons within the municipality. Purposive sampling was used. Participants were interviewed until data saturation was reached and no additional themes emerged.

### Data collection

Data collection took place from December 2020 to August 2021. Data were collected from hairdressers using a self-designed, self-administered, paper-based questionnaire. It included questions about demographic characteristics and three open-ended questions that sought perspectives about barriers to IPC in their salons. To ensure clarity and feasibility, the questionnaire was piloted amongst three hairdressers who were excluded from the main study. Three hundred and twenty hairdressers were invited to complete the questionnaire in the main study.

Data were collected from clients using an interview schedule. Interviews were conducted in English – the language in which all interviewees were proficient – and audio recorded. The schedule included biographical questions and an open-ended question: "What has been your experience in hairdressing salons with infection prevention and control practices?" Probes were used to explore further barriers related to clients, hairdressers, and the environment. Two pilot interviews were conducted with clients prior to the main study, who were not included in the main study. Saturation was reached after conducting 20 interviews.

### Data analysis

Quantitative data were entered into Microsoft Excel and analysed in SPSS v21, using descriptive statistics. Frequencies and percentages were used to summarise demographic characteristics. Qualitative data from the hairdressers and clients' transcripts were analysed for themes and subthemes, using ATLAS.ti. The two datasets – hairdresser and client responses – were analysed separately, and findings were integrated.

### Trustworthiness

To enhance credibility, participant triangulation included the views of hairdressers and their clients. During the client interviews, sufficient time was allocated to participants, and the main themes were discussed. The researcher's understanding of each participant was checked at the end of the interview. Dense descriptions of the design, methods, and results were provided to enhance the transferability of the findings. An audit trail of questionnaire data, interview transcripts, analysis memos, and records was maintained to ensure confirmability and dependability. A co-coder analysed the data and reached a consensus regarding saturation and the emerging themes and subthemes.

### Ethical considerations

Ethical approval was obtained from the Tshwane University of Technology's Research Ethics Committee [# FCRE 2020/08/008 (FCPS 01) (SCI)]. The Environmental Health Services Division of the Rustenburg Local Municipality granted permission for data collection.

## RESULTS

Of the 320 hairdressers invited to participate in the study, 272 completed the questionnaire (85.0% response rate). The numbers of men and women were similar: 133 (48.9%) and 130 (47.8%), respectively (Table 1). The majority had at least a secondary school education (n = 208, 76.5%). More than half (n = 143, 52.6%) had no formal training in the hair and beauty industry, and most (n = 228, 83.8%) reported never having received IPC training.

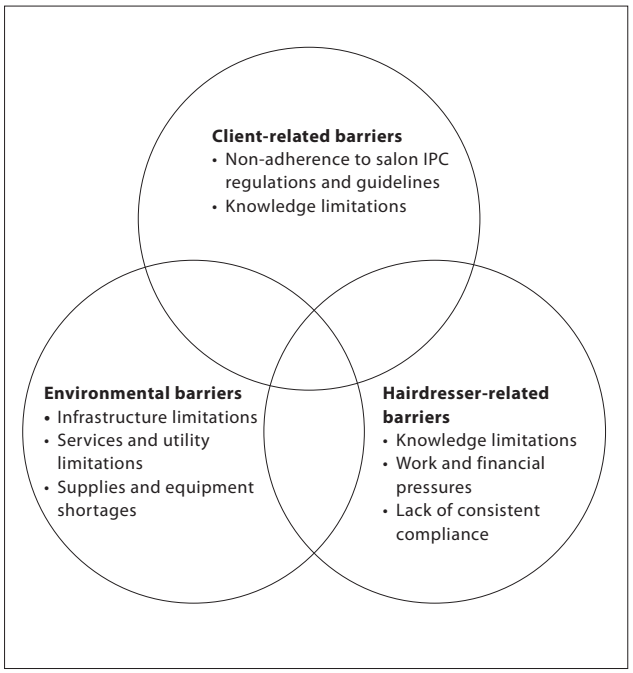
The 20 clients were aged 18–50 years; most were older than 40 (n = 11, 55.0%) and women (n = 18, 90.0%). Most (n = 12, 60.0%) visited semi-formal salons, five (25.0%) visited formal salons, and three (15.0%) visited informal salons. The majority (n = 18, 90%) had tertiary educations.

## Perceived barriers to infection prevention and control practices

Overlapping client- and hairdresser-related perceived barriers to IPC practices are illustrated in Figure 1.

**Table 1. Socio-demographic and work characteristics of hairdressers (N = 272)**

| Characteristic | | n | % |
|---|---|---|---|
| Sex | Male | 133 | 48.9 |
| | Female | 130 | 47.8 |
| | Missing | 9 | 3.3 |
| Age | 18–30 | 93 | 34.2 |
| | 31–40 | 135 | 49.6 |
| | 41–50 | 34 | 12.5 |
| | > 50 | 5 | 1.8 |
| | Missing | 5 | 1.8 |
| Education | No formal education | 26 | 9.6 |
| | Primary | 29 | 10.7 |
| | Secondary | 176 | 64.7 |
| | Tertiary | 32 | 11.8 |
| | Missing | 9 | 3.3 |
| Professional training (hairdressing/beauty) | None | 143 | 52.6 |
| | Formal hairdressing training | 74 | 27.2 |
| | Barbering | 24 | 8.8 |
| | Hair and beauty | 15 | 5.5 |
| | Beautician | 7 | 2.6 |
| | Missing | 9 | 3.3 |
| IPCP training | Yes | 39 | 14.3 |
| | No | 228 | 83.8 |
| | Unknown | 5 | 1.8 |




IPC: infection prevention control

**Figure 1. Perceived barriers to infection prevention and control in hairdressing salons**

## Client-related barriers

One hundred and nineteen (43.8%) hairdressers reported no client-related barriers to infection prevention and control in their salons.

### *Non-adherence to salon infection prevention and control regulations and guidelines*

Hairdressers reported that clients often failed to follow salon IPC guidelines, including handwashing and avoiding salon visits when ill. Some noted that clients refused to comply with PPE and hand sanitiser use, as they perceived these measures as "excessive". A hairdresser explained:

> *Clients do not adhere to the rules, which often results in arguments or clients leaving the salon.* [H04]

A client's perspective mirrored this finding:

> *Sometimes the rules feel unnecessary, and when we question them, it turns into an argument. We just want our hair done without being told what to do all the time.* [C03]

The study was conducted during the COVID-19 pandemic when infection prevention strategies were being implemented. However, hairdressers stated that clients did not fully adhere to these regulations, further complicating IPC. One hairdresser explained:

> *Clients sometimes complain about wearing masks during the hairdressing services, saying it is too hot or uncomfortable.* [H16]

One client also said:

> *Wearing a mask while getting my hair done makes breathing hard, especially in the summer.* [C06]

### *Knowledge limitations*

A limited understanding of the importance of infection prevention was linked to poor knowledge. Hairdressers frequently encountered clients who did not perceive the salon as a setting where infections could spread. One hairdresser said:

> *Many clients do not understand the importance of these measures and see them as unnecessary rules.* [H33]

Not having an understanding about infections by clients was a barrier; therefore, clients with scalp infections would visit the salons despite being advised by the hairdressers to first seek treatment, as one hairdresser explained:

> *They do not follow what we tell them or treat the infection completely before doing their hair again.* [H51]

A client had a similar view:

> *I do not think touching hair can spread infections; why make a big deal out of it?* [C05]

Although lack of knowledge was highlighted, especially by hairdressers, many clients were aware of the contamination risk:

> *With impetigo, … you can see that this disease is infectious... and it moves from one person to another, so there is a chance that you can get it from the hair salons if the hair salons do not sterilise their things, their combs, they are using dirty towels, they are using dirty utensils.* [C01]

> *Then I can recommend using this cutter for me and washing your hands in between the haircutting and touching different people.* [C03]

### Hairdresser-related barriers

One hundred and forty-two (52.2%) hairdressers reported no hairdresser-related barriers to IPC in their salons.

#### *Knowledge limitations*

Hairdressers reported limited knowledge about infectious diseases and their prevention. A hairdresser explained:

> *… do not know the rules about infection control, especially new staff* [H184]

or that hairdressers did not know how to use equipment correctly to prevent the spread of infection, by saying:

> *Some of my colleagues do not know how to use equipment like a dryer, for instance, properly; they will blow hair all over the salon.* [H171]

Clients also highlighted a knowledge deficit by hairdressers as a barrier. One client said:

> *It seems like some hairdressers are not properly trained in hygiene practices.* [C02]

#### *Work and financial pressures*

Time constraints were a recurring challenge for hairdressers. Some hairdressers reported that the pressure of serving multiple clients led them to forgo essential IPC measures that they were aware of, such as disinfecting equipment between clients. One hairdresser stated:

> *We do not always have time to disinfect tools between clients when the salon is busy.* [H73]

Clients were also observant of these lapses in disinfection:

> *I have seen hairdressers rushing to finish and skipping cleaning steps when there is a long queue.* [C02]

Another client explained:

> *I think that because of the money, money, making much money, they forget about the salon's cleanliness. Keeping everything clean.* [C17]

#### *Compliance limitations*

Regardless of time constraints, hairdressers and clients reported inconsistent cleaning practices, including inadequate sanitisation and sterilisation of equipment. A hairdresser said:

> *Some hairdressers do not follow procedures. They do not abide by the rules of stopping the infection.* [H76]

A client had a similar view:

> *Some hairdressers do not seem to take these rules seriously – they only follow them when they are being watched.* [C08]

Clients further indicated that hairdressers employed ineffective hand hygiene and PPE practices:

> *It is unlikely to see the hairdressers' washing hands. They can move from one client to another without washing their hands.*

and

> *Some of them are using gloves, but they will use the same gloves from one client to another.* [C04]

### Environment-related barriers

Eighty-four (30.9%) hairdressers reported no environment-related barriers to infection IPC in their salons.

#### *Infrastructure limitations*

Many hairdressing salons were very small and overcrowded, making it difficult to maintain social distancing. A hairdresser explained:

> *Our salon is small, so maintaining social distancing between clients is challenging.* [H114]

Clients also felt uneasy in such small environments, as one noted:

> *The salon feels overcrowded at times, making me uncomfortable about hygiene.* [C03]

Another client said:

> *Sometimes you get into a salon, and you cannot even breathe. There are 10 people in a small space.* [C03]

Informal salons operate without formal structures, often in open spaces. One hairdresser said:

> *We are doing hair next to the road and taxi rank with no building or resources.* [H212]

Another hairdresser stated:

> *Our salon building is open, and dust and rain are always disturbing us. It is not conducive.* [H265]

### *Services and utility limitations*

Water shortages and inconsistent water supply in salons limited hairdressers' abilities to maintain cleanliness and hygiene. Frequent power outages due to load shedding interrupted the use of electric appliances required to maintain hygiene and ensure IPC.

A hairdresser stated:

> *We repeat towels on clients because of shortage of water. Shortage of water supply and load shedding* [are barriers]. [H130]

Some salons had limited refuse disposal, making it difficult to maintain hygiene standards. As two hairdressers explained:

> *We do not have special bins for sharp equipment*. [H104]

> *Lack of proper bins and disposal bins for contagious tissues, etc.* [H27]

Waste management was also a concern for clients:

> *In terms of waste collection, like haircuts, there is nothing like proper waste management. They do not have resources, actually, and there is no guidance.* [C07]

### *Equipment and supply shortages*

The condition and cleanliness of salon appliances, such as scissors and clippers, posed an infection risk. Some hairdressers used outdated, poorly maintained equipment, which posed challenges for sanitisation. One hairdresser explained:

> *We struggle to keep our tools clean because some of the equipment is old and hard to sanitise properly.* [H177]

Another stated:

> *Our hair salons have limited equipment.* [H33]

A client also expressed concern about equipment maintenance:

> *The tools used on my hair did not look clean – I worry about infections from reused combs or scissors.* [C03]

A shortage of supplies such as disposable gloves, disinfectants, and sanitisers was another environmental barrier. A hairdresser said that they:

> *Often run out of disposable gloves or cleaning products because the salon cannot afford them.* [H04]

Hairdressers explained about not having the necessary supplies for IPC:

> *The products that are expensive, like sanitiser and buying new towels.* [H04]

Clients shared similar views about the shortage:

> *Sometimes I do not see sanitisers or gloves in use, and I wonder if they have run out of stock.* [C05]

## DISCUSSION

The objective of this study was to explore the perceived barriers to IPC of hairdressers and their clients in hairdressing salons. The findings suggest that barriers related to clients, hairdressers, and the environment impede the effective implementation of IPC practices across formal, semi-formal, and informal salons.

### *Client-related barriers*

The finding of non-adherence to IPC regulations by clients is consistent with published research highlighting that clients often perceive IPC measures in non-medical settings as unnecessary or overly restrictive. A Polish study, published in 2021, on the risk of blood-borne infections from a public health perspective, found that stereotypes about safety and risk, such as the belief that there was no risk of infection in hairdressing salons, threatened efforts to prevent blood-borne infections.[23] Studies on public adherence during the COVID-19 pandemic similarly reported resistance to measures such as mask-wearing and hand sanitisation, particularly when individuals did not perceive themselves as susceptible to infection in that setting.[24-26]

Client knowledge limitations further exacerbated non-adherence in our study. The literature on health literacy and theories of health behaviour change supports the notion that limited understanding of infection severity and susceptibility to infection is a barrier to compliance with IPC practices.[27] Similar to our findings, a study in Nepal, published in 2012, found that 53% of hairdressing clients had low awareness of beauty salon hygiene.[28]

### *Hairdresser-related barriers*

Unlike healthcare professionals, hairdressers generally do not receive formal training in infection prevention, resulting in limited implementation of IPC practices in their field. The absence of formalised infection control education and structured training workshops presents a significant barrier to maintaining hygiene standards. In our study, less than half of the participants had received formal training in hairdressing or beauty. Only 14% had ever received training in IPC. These gaps in both professional hairdressing education and IPC practices lead to inconsistent implementation of safe practices in hairdressing salons.

Hairdressers' limited knowledge of IPC practices was consistent with findings from similar studies in the health and beauty industry. Similarly, research among barbers in Pakistan found inadequate knowledge and inconsistent hygiene practices related to the prevention of communicable diseases, suggesting limited awareness of infection risks within the hairdressing profession,[8] as well as ineffective disinfection practices and the reuse of disposable equipment, which created conditions for the transmission of diseases and infections. Studies in Ghana suggested that hairdressers had good knowledge about HIV but limited knowledge about Hepatitis B, tuberculosis, eczema, and cholera and the required prevention practices in hairdressing salons.[29,30] Other studies similarly found that hairdressers, barbers, and beauty salon workers lacked basic knowledge about infection transmission routes and infection prevention.[5,10,31] This knowledge is critical in interrupting the chain of infection,[32] and lack thereof could lead to adverse events for both beauty salon customers and hairdressers.[33]

Work and financial pressures contribute to lapses in adherence to IPC practices in hairdressing salons. Previous studies have identified high client volumes, long working hours, and the economic imperative to serve as many clients as possible as factors that lead to non-compliance with hygiene practices. These work and economic pressures align with findings in other service-based industries, where time and financial constraints often lead to inconsistent adherence to infection prevention protocols.[33]

### *Environment-related barriers*

Infrastructure limitations in many hairdressing salons, particularly those operating informally, present challenges to maintaining IPC standards. Overcrowding and poor ventilation are common.

Water shortages and inconsistent electricity supply impeded the effective implementation of IPC practices among hairdressers in our study. A study in western Ghana also found that the availability of water supply systems in salons was poor due to infrastructure constraints.[30]

Outdated tools, inadequate disinfectants, and insufficient PPE reported by hairdressers reflect broader systemic inequities in resource distribution. Research in healthcare settings has highlighted the high cost of IPC supplies as a barrier in resource-constrained settings.[34]

A study of healthcare workers in Malawi emphasised barriers to maintaining environmental health and infection control, mirroring concerns raised by hairdressers in the industry that inadequate training, poor infrastructure, limited resources, and funding constraints hinder effective IPC practices, despite workers' knowledge of relevant protocols.[19] In the same way, hairdressers face challenges in maintaining safe and hygienic environments in salons. Similarly, a review of barriers to hand hygiene compliance among healthcare workers in sub–Saharan Africa identified that high workloads, inadequate access to hygiene resources, and poorly positioned or malfunctioning facilities impacted on effective IPC practices.[35]

### Limitations

The hairdresser questionnaires did not record whether they worked in formal, informal, or semi-formal salons; therefore, it was not possible to compare perceived barriers to ICP across these three sectors. In addition, non-probability sampling does not provide a representative sample of the study population and could have biased the results. Social desirability bias may have influenced responses, as some participants may have underreported barriers to IPC practices.

### Recommendations

Both clients and hairdressers demonstrated knowledge limitations, emphasising the need to improve health literacy on IPC and to enhance formal education and training for hairdressers. Knowledge limitations and non-adherence, associated with a perception of low susceptibility, should be addressed through targeted public health education, tailored to the unique dynamics of the hairdressing salon environment, and delivered via multiple channels, including social media and local radio stations.[10,28,36]

Behavioural factors such as resistance to IPC measures were reported by both clients and hairdressers, suggesting the need to increase knowledge of infection susceptibility and self-efficacy to prevent infection transmission in salons, and to improve regulation and monitoring of the hairdressing industry. The South African Department of Higher Education and Training has identified critical skills gaps in health and safety within the hairdressing sector, and has recommended awareness initiatives such as roadshows.[37]

Adequate regulation and monitoring of the hairdressing industry could improve adherence to IPC practices. Inconsistent adherence to IPC practices reflects broader systemic challenges in ensuring accountability and standardisation in the hairdressing industry. A lack of licencing and training contributes to this.[31] Formal training of hairdressers, regulations, protocols, monitoring, regular audits, and certification programmes could promote consistency in the implementation of IPC practices in hairdressing salons.[9,10,27] Infrastructure and resources supported by government and local authorities should prioritise informal salons, ensuring access to handwashing facilities and subsidising IPC equipment and consumables.

## CONCLUSION

The Rustenburg Local Municipality's hairdressing sector faces multifaceted barriers to implementing effective IPC practices, including client behaviour, hairdresser practices, and environmental constraints. Both clients and hairdressers demonstrated gaps in IPC knowledge, highlighting the need to strengthen population health literacy and enhance formal education and training for hairdressers. Addressing behavioural resistance, improving the regulation and monitoring of the industry, and supporting salons (especially informal salons) with adequate infrastructure, utilities, and subsidised IPC resources are essential to improve IPC compliance and reduce the transmission of infection.

## KEY MESSAGES

1. Client-related barriers to IPC in the hairdressing industry include knowledge limitations and inconsistent implementation of IPC practices.
2. Hairdresser-related barriers to IPC include knowledge limitations, work and financial pressures, and inconsistent compliance.
3. Environmental barriers to IPC include inadequate infrastructure, service and utility limitations and supplies, and equipment shortages.

## DECLARATION

The authors declare that this is their own work; all the sources used in this paper have been duly acknowledged and there are no conflicts of interest. The authors used ChatGPT (OpenAI) 5.1 and Grammarly to support language editing and readability in the preparation of this manuscript. The authors take full responsibility for the content of the published manuscript.

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## AUTHOR CONTRIBUTIONS

Conception and design of the study: CAM, YH, TSR
Data acquisition: CAM
Data analysis: CAM
Interpretation of the data: CAM, YH, TSR
Drafting of the paper CAM, YH, TSR
Critical revision of the paper: CAM, YH, TSR

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# Asbestos in materials submitted for analysis to the National Institute for Occupational Health, South Africa, 2018–2022

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## ABSTRACT

***Background:*** Although asbestos mining, manufacturing, and use has been banned in many countries for decades, its legacy remains. Asbestos-related diseases are still being diagnosed, globally. Surveillance of asbestos-containing materials in both occupational and environmental settings is pivotal in monitoring the elimination of asbestos exposure in southern Africa. The National Institute for Occupational Health (NIOH) in South Africa provides gold-standard scanning electron microscopy services for asbestos fibre identification and analysis.

***Objective:*** In this report, we describe the prevalence and types of asbestos in bulk materials, soil, and air filter samples analysed from 2018 to 2022.

***Methods:*** Samples were analysed using scanning electron microscopy and electron dispersive spectroscopy. Statistical descriptive analysis was conducted using STATA 16.

***Results:*** Of the 1 012 samples received in the five-year period, 444 (43.9%) contained asbestos. Approximately half (n = 425, 53.4%) of the bulk samples contained asbestos. A smaller proportion (n = 19, 9.3%) of the air filter samples and none of the soil samples contained asbestos. The largest proportion (n = 207, 20.5%) of samples was received from the public administration, defence, and social security governmental sector. Amongst the samples that contained asbestos, chrysotile was present in 87.6% (n = 389) and 33.8% (n = 150) contained a mixture of amphibole and serpentine minerals. Cement products, including roofing and pipes, were the materials that most commonly contained asbestos.

***Conclusion:*** Despite the banning of mining and use of asbestos in South Africa, fibres, particularly chrysotile, are still found in commercial materials and air samples. The large number of asbestos-containing samples received by the NIOH for analysis over the last few years highlights potential continuing environmental and occupational exposure in South Africa.

## INTRODUCTION

Asbestos is an established carcinogen, with no verified effect threshold exposure limit.[1,2] There are two classes of asbestos: amphiboles and serpentines. The amphibole group comprises riebeckite (crocidolite), anthophyllite, tremolite, actinolite, and grunerite (amosite), in the form of needle-like fibres.[2] Chrysotile is the only serpentine asbestos type and is distinguished by long, curly, and flexible fibres.[2,3]

South Africa, a mineral-rich country,[4] was one of the major miners of asbestos in the world, and the only country to mine three types of asbestos, i.e. chrysotile, crocidolite, and amosite.[5] The last mine closed in 2002,[6] while the manufacturing, importing, exporting, and use of asbestos-containing materials (ACMs) was prohibited by the Government in 2008.[4]

Asbestos-containing materials in the environment present a challenge as the fibres released during weathering or disturbance/s from natural disasters, repair, replacement, or demolition activities may become airborne and inhalable.[1,4,7] Consequently, the risk of exposure to asbestos and the development of asbestos-related diseases (ARDs) remains.[1,7]

Known ARDs include lung cancer, pleural plaques, malignant mesothelioma, and asbestosis.[8] More recently, some ovarian and laryngeal cancers have been attributed to asbestos exposure.[9,10]

The 2020 global statistics show that there were 30 870 new cases of mesothelioma and 26 278 asbestos-associated deaths in that year.[11] In Africa in the same year, both mesothelioma and lung cancer were amongst the top five cancers with high mortality-to-incidence ratios of 0.93 and 0.90, respectively.[12] In southern Africa (Botswana, Lesotho, Namibia, South Africa, and Eswatini) the standardised incidence (0.55 per 100 000) and mortality rates (0.51 per 100 000) of mesothelioma were double those of global rates.[11]

In the past, emphasis was placed on occupational exposure to asbestos as the primary route of disease, but non-occupational, domestic, and environmental exposures to asbestos have been highlighted in several studies.[13-16] A cohort study in Denmark, published in 2021, suggested that environmental asbestos exposure in childhood may increase the risk of cancer later in life.[17] According to the Australian Faculty of Occupational Medicine,

almost all cases of mesothelioma are asbestos related and can arise from exposures to asbestos levels as low as those found in the general environment to which all urban residents are exposed.[1]

In this paper, we describe potential sources of exposure to ACMs from samples submitted for testing to the National Institute for Occupational Health (NIOH), thereby highlighting sources of asbestos exposure and maintaining awareness of the presence of asbestos in the environment.

## METHODS

The NIOH, in Johannesburg, Gauteng province, South Africa, provides a specialised scanning electron microscopy service for the identification and quantification of asbestos in bulk samples and air sampling filters. The Institute has maintained an asbestos sample database since the service began in 2003, which has been the subject of two previous papers.[4,6]

The materials received from companies that conduct risk assessments and private individuals concerned about the potential of asbestos in their environments are analysed quantitatively and qualitatively, based on their structural and chemical compositions. As described by Milne et al. in 2013,[4] the samples and descriptive information pertaining to them (such as source, activities, and location) are provided by submitting companies and individuals, including accredited inspection authorities. The samples are classified into bulk samples, which include products and materials; soil; and air sampling filters. Samples are received mainly from South Africa, although some are sent from the Southern African Development Community (SADC) region, e.g. Botswana, Zimbabwe, and Lesotho.

### Asbestos identification and quantification

The preparation and analysis of the samples was carried out as described in detail by Milne and colleagues.[4] Briefly, all samples were coated with gold using the Emitech K550X sputter coater (Quorum Technologies, United Kingdom). They were macroscopically examined and analysed microscopically, using the JEOL-JSM 5600 SEM (JEOL Ltd, Tokyo, Japan) equipped with a Thermo Noran system 6 for energy dispersive spectroscopy (EDS) (Thermo Fisher Scientific Inc., USA).

Analysis for the presence of fibres is qualitative for bulk samples and qualitative and quantitative for air filters. Samples are considered positive for asbestos if they meet both the physical and chemical structural characteristics of asbestos as per Asbestos: The Analysts' Guide – HSG248[18] for bulk samples and the recommended technical method No. 2 (RTM2) requirements for air filters. These methods were quality assured through participation in the Asbestos in Material Scheme (AIMS) run by the Health and Safety Laboratory (HSL) in the United Kingdom.

### Data management and analysis

Details about each sample were captured and recorded in an electronic database (Epi Info ver. 7.2.5.0). The Standard Industrial Classification of all Economic Activities (SIC)[19] was used to classify the source industry and the activity associated with each sample provided. Summary frequencies of the data were generated using STATA ver. 16.1 (Stata Corp, College Station, TX, USA).

## RESULTS

### Geographical distribution of samples received

In the five-year study period (2018–2022), the Institute received and analysed 1 012 samples, an average of 202 samples per year. Fewer samples were received in 2020, reflecting the impact of the COVID-19 pandemic (Figure 1).

The majority of samples were from South Africa (n = 729, 72.0.0%), with the remainder coming from Botswana (n = 275, 27.2%) and Zimbabwe (n = 8, 0.8%). The samples from Botswana comprised 275 bulk material samples, while Zimbabwe sent eight air samples. More than half of the samples from Botswana contained asbestos (n = 153, 55.6%).

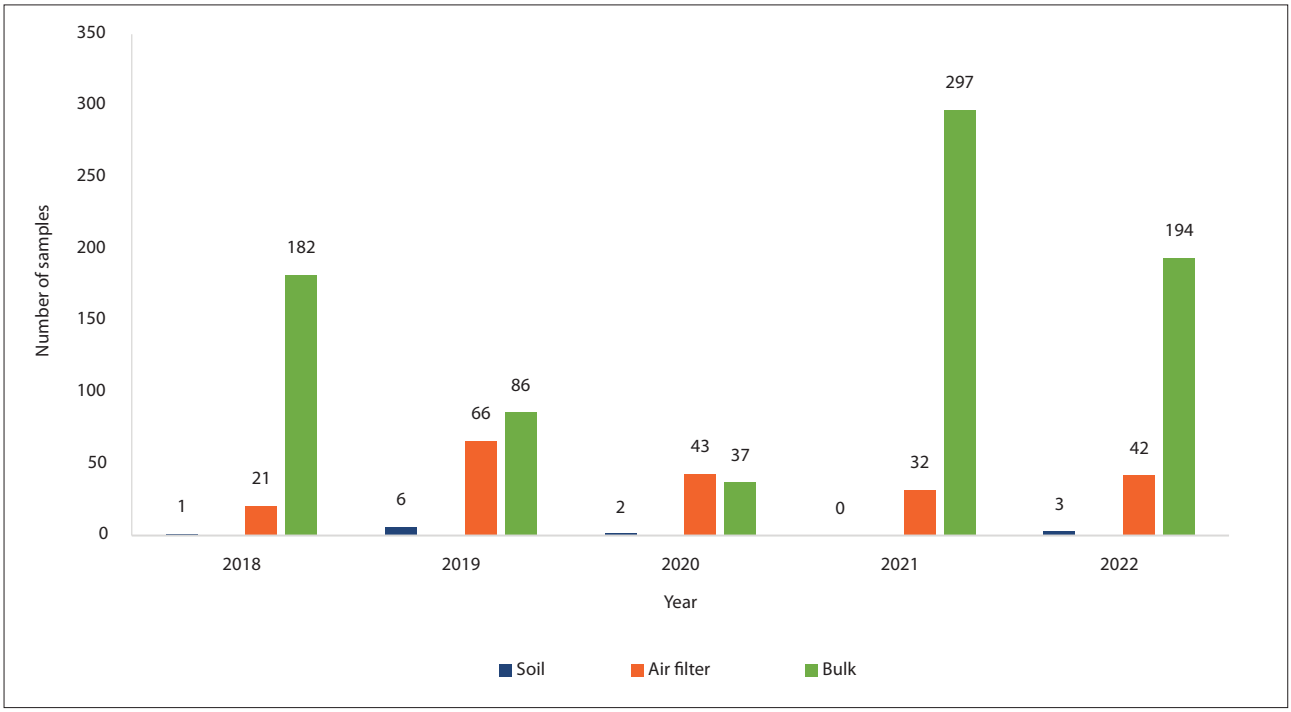



**Figure 1. Number of samples received at the National Institute for Occupational Health for asbestos analysis, 2018–2022 (N = 1 012)**

Only one air filter from Zimbabwe (12.5%) contained asbestos. Within South Africa, most samples came from Gauteng province (n = 275, 27.2%) (Table 1).

Asbestos fibres were detected in 425 (53.4%) of the bulk samples and 19 (9.3%) of the 204 air monitoring filters (Table 1). The number of soil samples received was small and none contained asbestos fibres.

Bulk samples from the Eastern Cape province had the highest proportion (82.4%, n = 103) of ACMs, whereas Limpopo province had the lowest at 24.1% (n = 7), as shown in Table 1. Five provinces submitted air filters; the highest proportion of samples in which asbestos was detected was from the Free State province (14.3%, n = 2).

## Industry groups and activity type associated with submitted samples

Most (n = 207, 20.5%) samples received were from the public administration, defence, and social security industry group, predominantly from government departments; more than half (n = 117, 56.5%) contained asbestos (Table 2).

Information on the activity associated with the material or the location from which it was collected was poorly reported. Of the 108 bulk samples that were collected during renovation activities, 55.6% (n = 60) were positive for asbestos; six (5.6%) of these samples were from demolition activities and all contained asbestos. Of the 204 gold-coated air monitoring filters submitted from air monitoring activities, 9.3% (n = 19) were positive for asbestos. The majority of air monitoring filters that contained asbestos came from the mining industry or mining areas.

**Table 1. Bulk samples and air filters received for asbestos analysis from South African provinces, 2018–2022**

| Province | Samples analysed | | | | | | | | Samples containing asbestos | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | All | | Bulk | | Air | | Soil | | Bulk | | Air | |
| | n | %* | n | %† | n | %† | n | %† | n | %‡ | n | %§ |
| Gauteng | 275 | 37.7 | 197 | 71.6 | 77 | 31.4 | 1 | 0.4 | 94 | 47.7 | 9 | 11.7 |
| Eastern Cape | 125 | 17.2 | 125 | 100 | 0 | - | 0 | - | 103 | 82.4 | 0 | - |
| Western Cape | 111 | 15.2 | 107 | 96.4 | 1 | 0.9 | 3 | 2.7 | 38 | 35.5 | 0 | - |
| Northern Cape | 106 | 14.5 | 9 | 8.5 | 92 | 86.8 | 5 | 4.7 | 4 | 44.4 | 7 | 7.6 |
| Free State | 35 | 4.8 | 21 | 60.0 | 14 | 40.0 | 0 | - | 8 | 38.1 | 2 | 14.3 |
| Limpopo | 29 | 4.0 | 29 | 100 | 0 | - | 0 | - | 7 | 24.1 | 0 | - |
| Mpumalanga | 20 | 2.7 | 16 | 80.0 | 4 | 20.0 | 0 | - | 12 | 75.0 | 0 | - |
| KwaZulu-Natal | 18 | 2.5 | 15 | 83.3 | 0 | - | 3 | 16.7 | 5 | 33.3 | 0 | - |
| North West | 2 | 0.3 | 2 | 100 | 0 | - | 0 | - | 1 | 50.0 | 0 | - |
| Unknown | 8 | 1.1 | 0 | - | 8 | 100 | 0 | - | 0 | - | 0 | - |
| **Total** | **729** | | **521** | **71.5** | **196** | **26.9** | **12** | **1.6** | **272** | **52.2** | **18** | **9.2** |

*percentage of all samples analysed, †percentage of all samples analysed (per province), ‡percentage of bulk samples analysed (per province), §percentage of air samples analysed (per province)

**Table 2. Industry classification of samples analysed for asbestos, 2018–2022**

| Industry* | Samples analysed | | Samples containing asbestos | |
|---|---|---|---|---|
| | n | % | n | % |
| Public administrative and defence, compulsory social security | 207 | 20.5 | 117 | 56.5 |
| Mining and quarrying | 154 | 15.2 | 27 | 17.5 |
| Human health and social work activities | 111 | 11.0 | 39 | 35.1 |
| Professional scientific and technical activities | 110 | 10.9 | 76 | 69.1 |
| Construction | 109 | 10.8 | 61 | 56.0 |
| Electricity, gas, steam, and air-conditioning supply | 80 | 7.9 | 8 | 10.0 |
| Administrative and support services | 61 | 6.0 | 48 | 78.7 |
| Residential and real estate activities | 53 | 5.2 | 29 | 54.7 |
| Water supply, sewerage, waste management, and remediation | 44 | 4.4 | 3 | 6.8 |
| Manufacturing | 35 | 3.5 | 14 | 40.0 |
| Education | 19 | 1.9 | 9 | 47.4 |
| Agriculture, forestry, and fishery | 10 | 1.0 | 6 | 60.0 |
| Other# | 6 | 0.5 | 5 | 83.3 |
| Unknown | 13 | 1.3 | 1 | 7.7 |
| **Total** | **1 012** | | **444** | |

*based on the Standard Industrial Classification of all Economic Activities (SIC), Seventh Edition[19]
#includes arts entertainment and recreation, financial and insurance activities, transportation and storage, wholesale and retail trade, and repair of motor vehicles and motorcycles

### Asbestos-containing materials in bulk samples

The numbers and percentages of each sample type that contained asbestos are presented in Table 3. Most of the bulk samples were cement-like materials, tiles, fascia, and ceiling boards, used mainly in buildings. Of the 449 bulk samples – most of which were cement material, piping, and roofing – 71.3% contained asbestos; over 30% of fascia board, ceiling panel, and floor tile samples contained asbestos; 23.8% (n = 5) of insulation materials contained asbestos. Only one gutter sample, which contained asbestos, was received (Table 3).

### Asbestos fibre types

Five of the six recognised asbestos fibre types were identified in the samples analysed (Table 4); anthophyllite fibres were not identified. Of the samples that contained asbestos fibres, the most common fibre type was chrysotile (n = 389, 87.6%). Amphibole fibres were found in 205 samples (46.2%). The most prevalent amphibole was crocidolite, which was found in 176 samples (39.6%), followed by amosite in 32 samples (7.2%). Mixtures of asbestos fibres (amphibole(s) and serpentine) were observed in 150 samples (33.8%) (Table 4).

## DISCUSSION

The NIOH monitors the burden of ACMs by compiling annual surveillance reports, which are published on the Institute's webpage (https://www.nioh.ac.za/asbestos-surveillance-reports/), providing information about potential exposures to asbestos within South Africa and the SADC countries. In our study, approximately half of the samples sent to the NIOH contained asbestos, confirming that asbestos fibres and the risk of exposure remain in the environment in southern Africa.

The risk of developing ARDs is not directly from exposure to ACMs, but from exposure to fibres that are released through the degradation of these materials from weathering, poor maintenance, and/or destruction of ACMs during renovation and construction activities.[1,7]

The presence of ACMS in the SADC region is concerning, as sub-Saharan Africa is endemic to human immunodeficiency virus (HIV). Individuals who are HIV-positive are more prone to developing various types of cancers,[20] and asbestos exposure could increase the risk of developing cancer, further burdening the public health and economy of affected countries. The continued need for awareness and testing programmes, and enforcement of legislation to abate and reduce exposures to asbestos in the environment, is clear.

From 2018–2022, the NIOH received and processed samples from three southern African countries – South Africa, Botswana, and Zimbabwe. The number of samples received from the neighbouring countries has increased substantially from that reported by Vorster and colleagues: from 91 in the period 2003–2017[6] to 283 in the period 2018–2022. Asbestos fibres were detected in 43.9% of samples received, confirming that asbestos remains in materials in South Africa, Botswana, and Zimbabwe.

Within South Africa, most samples originated from Gauteng province, as in Vorster et al.'s study,[6] possibly due to the Institute being based in Johannesburg. Very few samples were sent from the former asbestos mining provinces of North West and Limpopo. This may be due to the use of other asbestos analytical laboratory services in these provinces.

The industry with the highest proportion (0.79) of ACMs was non-governmental administration and support services. The industry includes rentals of motor vehicles, leasing of property, and services to buildings. This suggests that there may be asbestos exposure due to activities that involve the handling of ACMs in the built environment and motor vehicle maintenance.[21] The electricity industry sent the largest number of samples in the previous surveillance period (2003–2017),[6] mainly from power stations, but sent fewer in the 2018–2022 period.

**Table 3. Types of samples received and proportion containing asbestos, 2018–2022**

| Sample type | Samples analysed | | Asbestos-containing materials* | |
|---|---|---|---|---|
| | n | % | n | % |
| Cement material | 401 | 39.6 | 278 | 69.3 |
| Gold-coated air filter | 204 | 20.2 | 19 | 9.3 |
| Fibrous material | 76 | 7.5 | 9 | 11.8 |
| Floor tile | 71 | 7.0 | 34 | 47.9 |
| Fascia board | 65 | 6.4 | 23 | 35.4 |
| Ceiling panel | 55 | 5.4 | 22 | 40.0 |
| Cement roof/sheet | 40 | 4.0 | 35 | 87.5 |
| Insulation material | 21 | 2.1 | 5 | 23.8 |
| Soil | 12 | 1.2 | 0 | - |
| Cement pipe | 8 | 0.8 | 7 | 87.5 |
| Cotton wool | 5 | 0.5 | 0 | - |
| Polystyrene | 4 | 0.4 | 0 | - |
| Dust | 3 | 0.3 | 0 | - |
| Gutter | 1 | 0.1 | 1 | 100 |
| Other[$] | 46 | 4.6 | 11 | 23.9 |
| **Total** | **1 012** | | **444** | |

*rope-like material; cladding; window putty; concrete fence; flooring material/board; lagging; powder; gasket; cardboard; notice board; heater/wall heater; flowerpot; debris; gutter; sponge material; silver foil-like material; paper bag; paint; filter (cement-like material); safety mask; glossy, mesh-like and wood-like materials

**Table 4. Asbestos types detected in samples, 2018–2022 (N = 444)**

| Asbestos type | Bulk | | Air | | Total | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| Chrysotile only | 233 | 54.8 | 6 | 31.5 | 239 | 53.8 |
| Crocidolite only | 21 | 4.9 | 7 | 6.8 | 28 | 6.3 |
| Amosite only | 15 | 3.5 | 2 | 10.5 | 17 | 3.8 |
| Actinolite only | 0 | - | 1 | 5.3 | 1 | 0.2 |
| Chrysotile and crocidolite | 132 | 31.1 | 3 | 15.8 | 135 | 30.4 |
| Chrysotile and amosite | 6 | 1.4 | 0 | - | 6 | 1.4 |
| Chrysotile, crocidolite, and amosite | 3 | 0.7 | 0 | - | 3 | 0.7 |
| Chrysotile and actinolite | 4 | 0.9 | 0 | - | 4 | 0.9 |
| Chrysotile, crocidolite, and actinolite | 2 | 0.5 | 0 | - | 2 | 0.5 |
| Crocidolite and amosite | 5 | 1.2 | 0 | - | 5 | 1.1 |
| Crocidolite and actinolite | 1 | 0.2 | 0 | - | 1 | 0.2 |
| Crocidolite, actinolite, and tremolite | 1 | 0.2 | 0 | - | 1 | 0.2 |
| Crocidolite, amosite, and actinolite | 1 | 0.2 | 0 | - | 1 | 0.2 |
| Actinolite and tremolite | 1 | 0.2 | 0 | - | 1 | 0.2 |
| **Total** | **425** | | **19** | | **444** | |

The majority of the ACMs were cementitious materials of a construction/building-related nature, (cement materials/roof, ceiling panels, fascia board, and tiles). These findings are similar to those reported in two other studies. Kisting (2001) reported that asbestos cement industry workers were identified as a high-risk exposure group in South Africa,[22] while Luberto and colleagues (2019) reported that the asbestos cement industry was the largest (85%) consumer of asbestos.[23] As many of South Africa's construction industry employees (473 000 in 2020)[24] may have been occupationally exposed to asbestos, it is imperative that activities that include the destruction or disturbance of ACMs such as demolition, construction, and renovation should be conducted under containment in accordance with asbestos regulations and industry best practices.[25]

As almost 55% of samples from the residential and real estate activities sector contained asbestos, environmental asbestos exposure in the general population is possible. While asbestos exposure in non-occupational settings is generally much lower than in occupational settings, exposures can be sufficient to cause ARDs.[16] Childhood exposure is a possible cause of mesothelioma in those diagnosed with the disease at younger ages.[26,27]

Studies also reported an increased risk of developing mesothelioma after household exposure, supporting the risk of non-occupational asbestos exposures.[13]

Non-occupational exposure does not occur only within residences, but also in the larger environment, e.g. asbestos pollution from industrial sources such as manufacturing plants, demolition and waste handling, and old school and government buildings. More efforts need to be made to limit asbestos exposures in communities near facilities that generate asbestos fibres, such as asbestos tailings dumps. Musti et al. (2009)[28] found that individuals with no domestic or occupational exposure, but living at close proximity to former asbestos plants, had increased odds (OR 5.29, 95 CI 1.18–23.74) of developing malignant mesothelioma.

Asbestos was found in 9% of air filters in 2018–2022 compared to 16% in the 2003–2017 period, as reported by Vorster et al.[6] It should be noted that fewer air filter samples were received in the more recent period. The provinces from which air filters that contained asbestos came were the Northern Cape, where most of the asbestos mining was carried out until the late 1990s and early 2000s,[4] and Gauteng and Free State, where air filters were collected from mining areas. The presence of asbestos in the air filter samples from the Northern Cape province confirms the persistent environmental legacy of asbestos in areas surrounding asbestos mining, as noted in other studies.[5,14]

The higher proportion of air filter samples that contained crocidolite than chrysotile fibres was not reflected by the higher prevalence of chrysotile in the bulk samples, but may have been influenced by the small numbers of air filters received. The presence of crocidolite fibres in air may be of concern. Visona et al.'s study on 72 autopsies (with previous occupational and/or anthropogenic environmental exposure to asbestos), whose cause of death was found to be either mesothelioma or asbestosis by forensic autopsy, reported that crocidolite fibres were the main asbestos type fibres found in the lungs of those with ARDs.[16]

Chrysotile was detected in 88% of the ACMs (bulk and air filters) – an increase from the 72% reported by Vorster et al. in 2018.[6] The percentage of bulk samples that contained chrysotile in our study was 89%, which is comparable to the 85% reported by Vorster and colleagues.[6] These findings are reflective of chrysotile being the most abundantly used asbestos fibre type, worldwide.[29]

While some researchers have defined chrysotile as the least hazardous of all the asbestos types,[30] others have concluded that the risk of developing lung cancer or asbestosis from exposure to chrysotile is similar to that from exposure to amphibole asbestos, although lower than the risk of developing malignant mesothelioma.[13] Therefore, the abundance of chrysotile in the samples analysed at the NIOH should not be considered as harmless. No level of asbestos exposure has been shown to carry zero risk of disease.[31] The prevalence of amphiboles in the bulk samples (approximately 45%) is concerning, as crocidolite (the most common amphibole in bulk samples) is said to be the most hazardous amphibole fibre.[3]

## CONCLUSION

Asbestos, particularly chrysotile and crocidolite, continue to be found in commercial materials in the southern African region. The majority of the ACMs were cementitious materials of a construction/building-related nature. The risk of exposure to asbestos – occupational and environmental – remains in South Africa and neighbouring countries. Increased awareness of, and adherence to, asbestos regulations would assist in limiting exposure to the public. Expanded surveillance is required to account for or document the abundance of asbestos in South Africa and neighbouring countries. Through engagement with other service providers, a more comprehensive and expanded monitoring of asbestos can be achieved.

## LIMITATIONS

The findings described in this paper are based on samples received at the NIOH for analysis. However, samples may also be sent to other service providers for asbestos analysis. The NIOH service is provided for a fee, which may stop some individuals from sending samples, even if they suspect that materials with which they are working, or those in the environment, may contain asbestos. Thus, the findings may not be representative of the whole of South Africa, and are not representative of southern Africa.

## KEY MESSAGES

1. More than half of the cementitious materials submitted to the NIOH contained asbestos.
2. Chrysotile was the most abundant fibre type identified in the submitted samples, in line with it being the most commonly mined asbestos type in South Africa.
3. Asbestos continues to be found in commercial materials in the southern African region.

## DECLARATION

The authors declare that this is their own work; all the sources used in this paper have been duly acknowledged and there are no conflicts of interest. Artificial intelligence (AI) was not used in the preparation of this manuscript.

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## AUTHOR CONTRIBUTIONS

Conception and design of the study: ZN, LM
Data acquisition: ZN, LM
Data analysis: ZN, TM, LM, KW
Interpretation of the data: ZN, KW, LM, TM, DGL
Drafting of the paper: ZN
Critical revision of the paper: ZN, KW, LM, TM, DGL

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# When the healer becomes the patient: occupational tuberculosis in a South African health worker

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## ABSTRACT

***Introduction:*** Occupational pulmonary tuberculosis (PTB) remains a significant challenge for health workers in South Africa, particularly in high-burden settings. This case report examines the clinical and occupational aspects of tuberculosis in a consultant surgeon, highlighting diagnostic and management complexities, workplace risk assessment, and legislative considerations relevant to health worker protection and occupational health practice.

***Case description:*** In 2025, a 46-year-old consultant surgeon developed symptoms consistent with PTB, including night sweats, fever, and pleuritic chest pain. Despite repeatedly negative microbiological investigations, radiological findings and documented occupational exposure supported a clinical diagnosis of PTB. Treatment was complicated by drug-induced liver injury, necessitating regimen modification.

***Results:*** The patient completed a six-month course of anti-tuberculosis therapy with full clinical recovery. A workplace hazard identification and risk assessment, supported by the literature on tuberculosis risk among health workers, identified a moderate underlying risk of tuberculosis acquisition. Insufficient mitigating controls were identified as an additional contributing factor to the disease outcome. At the time of writing, the case has been submitted to the Compensation Commissioner as an occupational disease; the outcome is pending.

***Conclusion:*** This case highlights the importance of maintaining a high index of suspicion for PTB in health workers, even in the absence of microbiological confirmation, and reinforces the need for strengthened occupational health systems, routine surveillance, and effective infection prevention and control strategies. According to national regulations, "If it is impossible to isolate *Mycobacterium tuberculosis* using microscopy or bacterial culture, other acceptable diagnostic techniques may be used". However, it is unclear whether expert opinion and multidisciplinary consensus will be deemed sufficient for compensation purposes in this case, reflecting ongoing ambiguity in the interpretation of occupational disease regulations.

## INTRODUCTION

Pulmonary tuberculosis (PTB) continues to be a leading cause of morbidity and mortality among health workers (HWs), worldwide, with South Africa classified as one of the 30 high-PTB-burden countries.[1] The World Health Organization (WHO) recognises HWs as a particularly vulnerable group due to frequent exposure to infectious patients, inadequate infection prevention and control (IPC) measures, and systemic challenges within healthcare environments.[2]

Evidence from low- and middle-income countries (LMICs) estimates PTB incidence among HWs to be two-to-three times higher than in the general population, reflecting the combined impact of occupational and community transmission.[3] This elevated risk is supported by cohort data from South Africa's Free State province, where incidence rates in HWs are approximately double those observed in the general population.[4] The excess risk persists across multiple years, with incidence rate ratios consistently exceeding unity, and appears to be more influenced by demographic and employment duration factors than by specific facility types or occupational category. This suggests that tuberculosis exposure in healthcare settings is widespread, rather than confined to high-risk roles.[4]

This case report describes occupational PTB in a consultant surgeon, outlining the clinical presentation, diagnostic challenges, management course, and workplace risk assessment. The case highlights legislative and policy uncertainties that complicate the recognition of PTB as an occupational disease, and provides a platform to discuss broader occupational health implications, the effectiveness of current preventive strategies, and areas requiring systemic improvement within the South African healthcare sector.

## CASE DESCRIPTION

We evaluated a 46-year-old consultant surgeon employed at a tertiary academic hospital in South Africa. The individual presented to the occupational medicine clinic with a two-month history of intermittent night sweats and fevers, initially self-attributed to a viral illness. During the two weeks prior to consultation, the symptoms progressed to a non-productive cough and pleuritic chest pain. The patient had self-medicated with antibiotics without improvement, and a chest X-ray (CXR) had revealed a cavity lesion in the right upper lobe, raising a strong suspicion of PTB. At the time of presentation, the patient denied weight loss, haemoptysis, or changes in appetite, and was unable to produce sputum for microbiological testing.

The medical history was notable for pyelonephritis secondary to ureteric stenosis in 2022, with no chronic conditions, no known drug allergies, and no history of gastro-oesophageal reflux disease or atopy. The patient reported no current chronic medication use. Previous cigarette smoking, with a transition to vaping several years prior to presentation, was noted. There was no association between tobacco or vaping use and the onset of symptoms, and the patient

reported ongoing vaping and moderate alcohol intake. Of note, the patient denied any known household or close community exposure to active tuberculosis.

From an occupational perspective, the patient had more than 25 years of continuous clinical exposure, including regular 12-hour shifts and on-call duties often extending beyond 24 hours. Routine responsibilities included regular clinical work in overcrowded and poorly ventilated emergency and acute care settings, followed by contact with newly admitted patients during ward rounds, participation in multidisciplinary meetings, and the performance of surgical procedures. These sustained and cumulative occupational exposures were considered the most likely route of tuberculosis acquisition, a conclusion later supported by findings from the workplace hazard identification and risk assessment (HIRA). The patient had received Bacillus Calmette-Guérin (BCG) vaccination during childhood, and reported no prior PTB infection or treatment.

## RESULTS

On initial examination, the patient appeared well with no signs of acute or chronic illness. Vital signs were within normal limits. No digital clubbing, oedema, or other systemic abnormalities were observed. There was no lymphadenopathy, and chest auscultation revealed normal breath sounds without adventitious findings. Overall, the systemic examination was unremarkable, with no evidence of PTB or immunosuppression, and functional status remained preserved.

### Diagnostic assessment

The patient's clinical presentation and radiological evidence of an upper lobe cavitary lesion suggested several possible conditions. Pulmonary tuberculosis was considered the leading diagnosis, given the occupational exposure and high prevalence of PTB in the local setting. Alternative differential diagnoses were considered:

- Pulmonary tuberculosis – occupationally or community acquired
- Community-acquired pneumonia – both typical bacterial and atypical organisms
- Post-infectious organising pneumonia
- Malignancy – including primary lung carcinoma or metastatic disease
- Sarcoidosis
- Fungal infection – less likely, given the local epidemiology

While the spectrum of differential diagnoses was broad, the combination of occupational exposure, clinical features, and radiological findings strongly favoured a diagnosis of PTB.

### Investigations

#### *Radiology*

The initial CXR revealed a well-defined cavitary lesion in the right upper lobe with associated airspace opacification. There was no evidence of pleural effusion or lymphadenopathy. In the context of significant occupational exposure, these findings were strongly suggestive of active PTB.

#### *Microbiology*

The patient was unable to produce sputum for GeneXpert (Xpert) testing or culture. A private pulmonologist subsequently performed a bronchoscopy with bronchoalveolar lavage (BAL). Samples were submitted for Xpert MTB/RIF Ultra, acid-fast bacilli smear, and mycobacterial culture; all results were negative for *Mycobacterium tuberculosis.* Six weeks later, a repeat bronchoscopy with BAL and transbronchial nodal aspiration (TBNA) of the right hilar lymph node was undertaken at the academic hospital. Once again, all microbiological investigations were negative for *Mycobacterium tuberculosis*.

#### *Laboratory*

Baseline blood tests, including full blood count (FBC), liver function tests (LFTs), renal function, C-reactive protein (CRP), and human immunodeficiency virus (HIV) enzyme-linked immunosorbent assay (ELISA), were all within normal limits. Hepatitis serology was negative. An interferon-gamma release assay (IGRA) was not performed, as this investigation is not routinely recommended for the diagnosis of PTB in LMIC settings, including South Africa.[5]

#### *Multidisciplinary team review*

Given the strong clinical and radiological suspicion of PTB and the absence of an alternative diagnosis, the case was presented to the hospital's multidisciplinary team (MDT), comprising specialists in pulmonology and infectious diseases. Following discussion, the MDT reached a consensus to initiate anti-tuberculosis (anti-TB) treatment empirically, in accordance with both national and international guidelines that permit a clinical diagnosis in cases where microbiological confirmation is lacking, particularly within high-risk occupational settings.[5]

### Therapeutic and workplace interventions

#### *Anti-TB treatment*

The patient commenced standard first-line anti-TB therapy, consisting of rifampicin, isoniazid, pyrazinamide, and ethambutol at the occupational medicine clinic, a designated tuberculosis treatment centre. Clinical response and potential adverse effects were monitored monthly. After six weeks of therapy, the patient reported complete resolution of symptoms. A repeat CXR demonstrated interval improvement, with residual calcification in the right upper lobe and no radiological evidence of active disease.

#### *Complication: drug-induced liver injury*

At the six-week follow-up, routine LFTs revealed significant transaminase elevation (ALT 320 U/L, AST 280 U/L), consistent with drug-induced liver injury (DILI). The patient was asymptomatic, with no jaundice or hepatic tenderness. Anti-TB medications were immediately suspended. Further investigations, including FBC, renal function, hepatitis serology, international normalised ratio (INR), and HIV ELISA, were repeated and remained within normal limits.

The patient was counselled regarding the avoidance of alcohol and hepatotoxic medications. Serial LFTs were monitored weekly. As per national PTB guidelines, a liver-friendly regimen was initiated two weeks after normalisation of LFTs, consisting of levofloxacin 500 mg twice daily, ethambutol 1 200 mg daily, and linezolid 600 mg daily.[5] After eight weeks of this regimen, the patient was successfully rechallenged with rifampicin and isoniazid, completing a six-month course in total.

#### *Adherence and support*

The patient received support throughout the treatment process, which included education on medication adherence, early recognition of potential adverse effects, and psychological counselling to support recovery and adjustment. The importance of regular follow-up visits and prompt reporting of any new or concerning symptoms was reinforced at each review.

### Workplace assessment

#### *Occupational exposure*

The patient's workplace, a tertiary referral hospital in South Africa, is characterised by a high burden of PTB among patients, frequent overcrowding, and suboptimal ventilation in many clinical areas. The hospital employs more than 4 000 staff, including doctors, nurses, allied health professionals, and support staff. Infection prevention and control policies are in place, but implementation is variable, with wards lacking standardised protocols, formalised tracking systems, and documented compliance rosters.

The patient's role as a consultant surgeon involves daily ward rounds, outpatient clinics, theatre lists, and multidisciplinary meetings. The patient is frequently exposed to undiagnosed PTB cases, particularly in emergency and surgical admissions. Prolonged working hours and overnight on-call shifts increased cumulative exposure. The patient reported inconsistent use of N95 respirators, primarily due to discomfort during prolonged clinical activities. Respiratory protection was typically used when there was explicit knowledge of tuberculosis disease in a patient, or during specific procedures.

#### *Workplace controls*

A recent HIRA conducted at the hospital highlighted a complex occupational environment where multiple layers of IPC measures coexist, yet effectiveness remains inconsistent. Infection prevention and control effectiveness varied across clinical areas due to inconsistent infrastructure and implementation. Some wards had functional but partially obstructed ventilation, while others lacked adequate ventilation, and access to isolation rooms was variable. Engineering controls included limited negative-pressure facilities, and reliance on natural ventilation. Although administrative controls and personal protective equipment (PPE) programmes, such as quantitative fit testing, were formally established and coordinated by a dedicated IPC department, adherence to protocols, hand hygiene practices, and tuberculosis awareness differed across wards.

#### *Occupational health*

The hospital's occupational health service (OHS) maintains a PTB surveillance database and provides passive screening for staff. However, underreporting and delayed diagnosis remain challenges. The OHS team also manages compensation claims under the Compensation for Occupational Injuries and Diseases Act (COIDA), but many HWs are unaware of their rights and entitlements.[6]

Unpublished facility-level occupational health surveillance data indicated that a limited number of occupational tuberculosis cases were recorded among healthcare workers during the reporting period. When expressed as an annual incidence rate, this figure appeared lower than national and provincial estimates. This observation may reflect underreporting, differences in screening practices, or limitations within institutional surveillance systems.

#### *Follow-up and outcomes*

The patient was reviewed monthly at the occupational medicine clinic, where ongoing clinical assessment, CXR evaluation, and serial blood investigations were performed. Adherence to therapy was excellent, and the modified treatment regimen was well tolerated. Liver function tests normalised within four weeks of discontinuing the initial drug regimen. The patient returned to work after two weeks of anti-TB treatment and resumed full clinical duties with minimal disruption, supported by appropriate workplace accommodations.

At the completion of six months of treatment, the patient remained asymptomatic, with normal LFTs and no radiological evidence of active PTB. Functional capacity was fully restored, allowing the resumption of all professional and personal activities. The case was included in the annual tuberculosis surveillance report, and all documentation required in terms of the COIDA was submitted.

## DISCUSSION

### Epidemiology

Health workers in South Africa are at a markedly higher risk of developing PTB than the general population, and are approximately five times more likely to require hospitalisation for drug-resistant PTB.[7] This elevated occupational risk underscores the need to maintain a high index of suspicion when evaluating HWs and to pursue a thorough, evidence-based diagnostic process to ensure timely detection and appropriate management.

Comparable occupational tuberculosis cases have been described among surgeons with documented exposure to infectious patients. One reported case involved a surgeon with a known history of contact with a tuberculosis patient, reinforcing the vulnerability of surgical specialists who may not routinely be perceived as high risk, despite regular exposure in ward, theatre, and peri-operative settings.[8] Similar to the case discussed in this paper, occupational exposure was a key determinant in attributing disease causation, highlighting the importance of recognising cumulative and often under-acknowledged exposure risks among senior clinicians.

### Diagnostic challenges

The diagnosis of PTB is often complicated by atypical clinical presentations and difficulties in obtaining sputum samples for microbiological confirmation. Broncho-alveolar lavage with Xpert MTB/RIF Ultra offers rapid and specific confirmation of tuberculosis in patients who are unable to produce sputum; however, sensitivity is lower than mycobacterial culture and is further reduced in paucibacillary disease. Consequently, negative BAL results do not exclude active tuberculosis and should be interpreted within the broader clinical, radiological, and occupational context, particularly in HWs with sustained exposure.[9]

In this case, the absence of bacteriological evidence required reliance on clinical and radiological findings, supported by consensus from the MDT. While this approach aligns with accepted diagnostic practice, it raises particular concerns for HWs who face both a higher risk of acquiring PTB and a greater likelihood of drug-resistant infection. Ideally, treatment in HWs should be guided by confirmed drug susceptibility results, to ensure that management is both effective and appropriate.

### Management and adverse effects

Drug-induced liver injury is a well-recognised complication of anti-TB therapy and is reported to occur in up to one third of patients.[10] Management requires early recognition, withdrawal of the offending agents, and initiation of a liver-friendly regimen. Once liver function tests normalise, a cautious rechallenge with first-line drugs is recommended. Ongoing monitoring and patient education are essential to ensure treatment adherence and to minimise morbidity. For occupational medicine practitioners, understanding the incidence, recognition, and management of DILI is critical, particularly when advising on fitness for work and safe continuation of therapy.

### Occupational health systems

An effective approach to preventing occupational PTB begins with a structured HIRA. This process identifies high-risk areas and tasks within healthcare settings where exposure to *Mycobacterium tuberculosis* is most likely to occur. Once hazards are identified, a hierarchy of control measures should be applied, starting with the elimination of risks where feasible, followed by substitution, engineering controls to improve ventilation and isolation, administrative controls such as screening and patient flow management, and the appropriate use of PPE.

Where residual risk remains despite these interventions, a medical surveillance programme must be implemented to enable early detection of occupational disease among HWs. In instances where preventive measures fail, and an HW develops PTB, the case should be reported in accordance with the COIDA. Importantly, each confirmed occupational case should feed back into the HIRA process to refine control strategies, strengthen preventive systems, and close existing gaps.

In terms of reporting such cases, the 2023 "…Pulmonary Tuberculosis in Health Worker…" COIDA regulations recognise that occupational PTB may be diagnosed in the absence of microbiological confirmation, explicitly allowing for the use of "other acceptable diagnostic techniques" when sputum microscopy or culture is not feasible.[11] While the Act acknowledges clinical and radiological evidence and requires a demonstrable relationship between workplace exposure and disease onset, it provides limited guidance on the evidentiary role of specialist judgement or MDT consensus in clinically diagnosed cases. This regulatory ambiguity has important implications for HWs in high-burden settings, where complex and ambiguous PTB presentations are common and may complicate compensation adjudication.

Although many healthcare facilities have formal IPC and occupational health structures in place, implementation remains inconsistent due to resource constraints, and competing service and delivery pressures. Evidence from South Africa demonstrates that inadequate access to, training in, and use of PPE remains a significant contributor to occupational tuberculosis across health worker categories, including laboratory and support staff, highlighting persistent gaps between policy and practice.[12]

Strengthening occupational health and safety capacity, improving staff awareness, and fostering a sustained culture of prevention and accountability are critical to reducing the burden of occupational PTB and ensuring that affected HWs receive appropriate recognition, protection, and compensation.

## RECOMMENDATIONS

This case highlights the urgent need for systemic improvements within the South African healthcare sector, particularly through investment in infrastructure, IPC, and comprehensive occupational health services. Strengthened research and surveillance are equally important to guide evidence-based policy and practice.

The COVID-19 pandemic underscored the vulnerability of HWs to airborne infections and the necessity of building resilient health systems capable of protecting frontline staff. This case also illustrates a regulatory gap: when PTB is diagnosed clinically rather than microbiologically, as often occurs in HWs, there is uncertainty about how such cases are recognised under existing frameworks.[11] Clear guidance is required to ensure that HWs receive appropriate protection and compensation, and that reporting processes are clearly defined and consistently implemented in accordance with the COIDA.

## KEY MESSAGES

1. Health workers face a high risk of developing both PTB and multidrug-resistant tuberculosis due to occupational exposure.
2. Diagnostic challenges are common in HWs, often requiring multidisciplinary and specialist input, particularly because of the high likelihood of drug resistance in this population.
3. Up to one third of patients receiving anti-TB therapy may develop DILI, underscoring the importance of close monitoring and early intervention.
4. Health workers should be continuously aware of their elevated occupational risk and engage in regular screening and preventive measures.
5. Existing legislation does not always provide clear guidance in complex or clinically diagnosed cases of occupational PTB; consultation with occupational medicine specialists is essential for appropriate management and reporting.

## DECLARATION

The author declares that no funding was received for the preparation of this case report or the conduct of the related work.

The author used ChatGPT 5.2 to assist with language editing, grammar formulation, and sentence structuring in the preparation of this manuscript. The author takes full responsibility for the content of the published manuscript.

## ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical clearance for this case report was obtained from the relevant academic institutional ethics committee (Project ID 32758; HREC reference C25/03/007). Written informed consent for publication was obtained from the patient.

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# Exposure compliance does not equal health risk: a practitioner's perspective on South Africa's Regulations for Hazardous Chemical Agents

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While working on an article with colleagues in which we were comparing how different countries determine exposure compliance, I was forced to re-examine a long-held assumption about South Africa's 2021 Regulations of Hazardous Chemical Agents.[1] I have argued that South African legislation implicitly invokes statistical decision-making, such as requiring the 95th percentile exposure to be below the occupational exposure limit (OEL), or the exceedance fraction to be less than 5%, because the Regulations reference the Occupational Exposure Sampling Strategy Manual (OESSM).[2] I assumed that referencing the OESSM implied that compliance of a homogeneous exposure group (HEG) must be demonstrated through upper-tail statistical estimates. After revisiting the Regulations, I am no longer convinced that this assumption holds.

The Regulations reference the OESSM primarily in relation to sampling strategy – specifically to support monitoring of the highest-exposed workers within an HEG. In practice, this places the focus on representativeness of peak exposures rather than on probabilistic decision-making. Conceptually, this can be illustrated by an HEG comprising 10 workers. Sampling most or all workers increases the likelihood that the highest-exposed workers are included. This example is illustrative rather than prescriptive, but it reflects the underlying intent of identifying the highest exposures rather than statistically characterising the exposure distribution.

What the Regulations do not clearly specify is how compliance should be statistically demonstrated once data are collected. There is no explicit requirement to demonstrate that the exceedance fraction is below a defined threshold, or that a particular upper percentile lies below the OEL. Instead, compliance is assessed through direct comparison of measured exposures of the highest-exposed workers against the OEL. This creates an interesting tension, demanding a high sampling effort to ensure capture of the most exposed workers, yet not requiring that the resulting data be pooled or evaluated collectively, using inferential statistics.

Alternative approaches, such as those promoted by bodies like the American Industrial Hygiene Association (AIHA),[3] place greater emphasis on statistical inference to determine exposure control. In these frameworks, a limited dataset can be used to model the upper tail of the exposure distribution and to make probabilistic statements about compliance. From an industry or inspectorate perspective, a deterministic approach based on observed measurements without probabilistic inference has clear operational appeal. However, it highlights an important distinction: legal compliance risk is not synonymous with health risk.

Demonstrating legal compliance by showing that all measured exposures are below the OEL does not necessarily mean that exposure is adequately controlled from a health risk perspective. The absence of observed exceedances does not guarantee that the upper tail of a typically log-normal exposure distribution is well managed, particularly when variability and uncertainty are not explicitly evaluated. This distinction is further reinforced by the nature of South African OELs, which are not purely health based and incorporate socio-economic considerations. Many South African OELs are derived by doubling health-based threshold limit values (TLVs).[1] This is understandable within a developing economic context, but it underscores why legal compliance sampling should not be equated with health risk control.

South Africa's Occupational Health and Safety Act (Act No. 85 of 1993)[4] establishes a clear mandate that employers must provide and maintain workplaces that are safe and without risk to employees' health, as far as is reasonably practicable. Legal compliance, therefore, remains a necessary baseline. It is not, however, sufficient for understanding exposure variability or health risk. From a health risk perspective, exposure assessment is typically concerned with low exceedance probabilities, which implies the use of inferential statistics, despite not being explicitly required.

At a minimum, the non-health-based nature of local OELs should be recognised and accounted for when interpreting exposure data. Distinguishing between legal compliance risk, defined by regulatory thresholds, and health risk, defined by exposure variability and toxicological considerations, may partially explain why compliant workplaces may still exhibit unmanaged health risk. Conversely, where legal compliance cannot be demonstrated, it is unlikely that health risks are adequately controlled.

## Declaration

This reflects a practitioner's reading of how the Regulations function in practice and is not intended as a legal interpretation. The author used ChatGPT to refine language and critique the logical coherence of the interpretation in the preparation of this article. The author takes full responsibility for the content of the published manuscript.

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# Zambia's OHS revolution: what employers need to know about the 2025 Occupational Health and Safety Act

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The Zambian Occupational Health and Safety Act 16 of 2025 (2025 OHSA) received Presidential assent on 23 December 2025 and came into operation on 30 December 2025. It repealed its predecessor, the Zambian Occupational Health and Safety Act 36 of 2010 (2010 OHSA). The 2025 OHSA seeks to continue the existence of the Occupational Health and Safety Institute (OHSI), redefine its functions, reconstitute the Board of the Institute (the Board), introduce health and safety committees at workplaces, and regulate health and safety at workplaces.

This article sets out the material changes introduced by the 2025 OHSA, and highlights the key issues that occupational health and safety (OHS) officers and employers need to know.

## Application of the OHSA

The 2010 OHSA was primarily focused on the mining industry, leaving workers in other industries without adequate protection. The application of the 2025 OHSA now extends to all workplaces. It expressly excludes the Defence Force, National Security Services, and the Civil Service.

## The OHSI and the Board

The OHSI was established in 1945 and continues to exist in terms of section 4(1) of the 2025 OHSA. Its functions have been expanded to include facilitating health risk assessments, occupational hygiene surveys, collaborating with scientific bodies, and advising the Minister.

The Board now includes an OHS expert and trade union and employer representatives from the most representative organisations, respectively. Notably, the Board no longer sets standards, as this function now vests in the OHSI.

## Health and safety committees

Section 9 introduces a strict 30-day deadline for establishing a health and safety committee. The clock starts from the day that the employer first employs 10 or more employees. The 2010 OHSA imposed no deadline. Compliance is mandatory and failure to comply exposes an employer to enforcement action.

The 2025 OHSA also removes the committee's power to independently 'resolve' risk matters. Committees may now only investigate and make recommendations to the employer. This materially limits the committee's decision-making authority.

## Mandatory health and safety policy

Section 14 requires an employer to prepare a health and safety policy. The policy must describe the organisation and arrangements for implementing and reviewing the policy. Employers must also display the policy in a prominent place, signed by the Chief Executive Officer (CEO) or an equivalent officer, and disseminate it to all employees.

Under the 2010 OHSA, a policy was only required when directed by the Director. The 2025 OHSA makes it mandatory for all employers, without exception.

## Employer's duty to report employee ill-health

The 2025 OHSA introduces an entirely new duty on employers to notify the Institute regarding employee ill-health and occupational absences.

In terms of section 15(1), an employer must report, in a prescribed manner and form, any employee ill-health or absence from work for occupational health reasons. This enables the Institute to identify whether there is a link between the incidents of ill-health or absences and potential workplace health hazards.

This is an entirely new and proactive reporting duty. Employers should implement internal procedures to monitor and report employee ill-health and workplace-related absences in the prescribed format.

## Duties of persons in control of workplace or plant

Under section 19 of the 2010 OHSA, employers and persons with management or control of a workplace were required to take measures to ensure that the workplace, its means of access, and any plant or substance in use were safe and did not pose a risk to the health and safety of those using them. A breach of these obligations could result in a penalty of up to 700 000 penalty units, seven years' imprisonment, or both. The 2025 OHSA does not retain this provision. Employers should be aware of the resulting gap and consider whether contractual or other mechanisms are needed to preserve accountability for those exercising management or control over workplaces.

## Duties of designers, manufacturers, suppliers, and importers

The 2025 OHSA introduces expanded duties on a broader range of parties in the supply chain. Two aspects merit particular attention:

- First, duties imposed on suppliers now also apply to ostensible suppliers, i.e. intermediaries who facilitate supply between a supplier and an end-user. The 2025 OHSA reverses the 2010 position in that duties now fall squarely on the ostensible (intermediary) supplier rather than the effective (original) supplier. This significantly increases liability for intermediaries who may previously have considered themselves outside the regulatory net.
- Second, section 20 requires any person who designs, constructs, manufactures, supplies, or imports an article, device, item, or substance to comply with standards set by the Zambia Bureau of Standards, the Zambia Compulsory Standards Agency, or other relevant body. The 2025 OHSA adds the Zambia Compulsory Standards Agency as an additional standards body.

### Codified risk assessment framework

Section 23 introduces a mandatory biennial risk assessment obligation for employers with 10 or more employees. The 2010 OHSA had no equivalent duty. Each assessment must identify workplace hazards; assess the risks they pose, and implement control measures to reduce employee exposure. Risk assessments must be conducted every two years and/or sooner if there is a change in the work process, an accident occurs, or the Institute requests a risk assessment. The completed risk assessment must be submitted to the Institute for approval and associated fees are payable. Employers should factor both into their planning and budgeting.

### Comprehensive medical examination certificate regime

The 2025 OHSA introduces an entirely new and detailed medical examination certificate regime, which did not exist in the 2010 OHSA as a standalone regime.

Section 24 prohibits employment without a medical examination certificate issued by the Institute, where the Institute has determined that the workplace presents a significant risk of exposure to a workplace hazard.

Section 25 establishes four formal types of medical examinations: pre-placement, in-employment, exit, and post-employment medical examinations, as well as any other examinations the Institute may determine.

- **Pre-placement:** before engaging a prospective employee, the employer must present them to the Institute for a pre-placement medical examination on payment of a prescribed fee.
- **In-employment:** within 30 days of the approval of the employer's risk assessment report, employees must be presented to the Institute for an in-employment medical examination. Thereafter, examinations must take place on an annual basis, unless the degree of risk to health and safety of employees in the workplace requires them to be conducted more frequently.
- **Exit examination:** within 30 days of an employee's termination or retirement, employees must be presented to the Institute for an exit medical examination on payment of a prescribed fee.
- **Post-employment examination:** one year after leaving employment, a person must present themself to the Institute for a post-employment medical examination on payment of a prescribed fee. This is a rare feature in regional OHS legislation.

To support the new regime, the Zambian Government recently revised and gazetted medical examination fees under Statutory Instrument No. 70 of 2025. This was the first major revision of such fees since 2003, and is intended to strengthen the Institute's capacity to deliver occupational health services.

### Enforcement: suspension and closure of workplaces

Under section 27 of the 2010 OHSA, an authorised officer who had reasonable grounds to believe that a contravention was likely to cause death or bodily harm could order closure of the workplace. Where there was no immediate danger, the officer could permit work to continue under restrictions and require the employer to remedy the contravention.

The 2025 OHSA introduces a graduated enforcement framework. Section 39 addresses the suspension of workplace activities, while section 40 deals with closure of the workplace. This graduated approach gives the Institute and its authorised officers more proportionate enforcement tools. The 2025 OHSA also introduces new enforcement provisions, including arrest without warrant under section 38 and administrative penalties in terms of section 48, in addition to criminal prosecution.

- **Arrest without warrant:** the 2025 OHSA introduces a new express power of arrest without warrant, exercisable by law enforcement officers.
- **Suspension of workplace activities:** the 2025 OHSA restructures the closure/suspension power. It is now vested in the Institute rather than individual officers and includes a 14-day show-cause procedure before suspension. However, suspension is now accompanied by mandatory newspaper publication, which poses significant reputational risk for employers.
- **Immediate workplace closure:** the 2025 OHSA retains immediate closure powers and extends them. The trigger now includes specific mention of harm to the public, not just employees or other persons.

In addition, the dedicated Appeals Board has been abolished. Appeals now go directly to the Minister within 30 days. Employers have 30 days to file an appeal, as opposed to seven days under the old Appeals Board. The removal of the technical Appeals Board may result in less specialist review of occupational health and safety decisions.

### Register and public accountability

Section 44 of the 2025 OHSA requires the Institute to keep and maintain a public register of risk assessments and risks, suspended workplace activities, closed workplaces, workplaces whose employees have undergone medical examination/surveillance, and exempted employers. Employers whose workplaces are suspended or closed will be publicly identifiable, creating significant reputational risk. This is an entirely new provision.

The Director-General, under the Board's direction, must ensure that copies of the register are printed and published in the *Gazette* and a daily newspaper. A published copy of the register is prima facie evidence in legal proceedings; absence of a name is prima facie evidence of non-registration. The register, therefore, has evidential weight in legal proceedings and absence from it may be used against employers in court.

### Corporate liability

Under section 49 of the 2025 OHSA, where an offence is committed by a corporate or unincorporated body with the knowledge, consent, or connivance of the director, manager, shareholder, or partner, that person is liable on conviction.

The 2025 OHSA extends personal liability to shareholders in addition to directors and managers. However, the 2025 OHSA requires proof of knowledge, consent, or connivance, and removes the reverse burden of proof (due diligence defence) previously available to directors and managers under the 2010 Act. This changes the prosecutorial burden. The breadth of exposure is wider, but the prosecutorial burden is now higher.

### Administrative penalties as a new enforcement tool

Section 48 of the 2025 OHSA introduces administrative penalties as a distinct enforcement mechanism. The 2010 OHSA did not provide for such penalties as a separate enforcement tool. This is a

| Offence category | 2010 OHSA (maximum) | 2025 OHSA (maximum) | Direction of change |
|---|---|---|---|
| Breach of employer duties | 500 000 penalty units/five years | 375 000 penalty units/three years | Reduced |
| Duty of persons in control of workplace | 700 000 penalty units/seven years | Provision removed | Removed |
| Employee duty (general) | 300 000 penalty units/three years | 50 000 penalty units/one year | Reduced |
| Employee operating unsafe machinery | 300 000 penalty units/three years | 500 000 penalty units/five years | Increased |
| Designer/manufacturer/supplier breach | 700 000 penalty units/seven years | 300 000 penalty units/three years | Reduced |
| Compliance with standards breach | 700 000 penalty units/seven years | No standalone penalty | Removed |
| Architect/engineer breach | 500 000 penalty units/five years | No standalone penalty | Removed |
| Failure to conduct risk assessment | Not applicable | 300 000 penalty units/three years | New offence |
| Failure to present for medical examination | Not applicable | 375 000 penalty units/three years | New offence |
| Employing without medical certificate | Not applicable | Fine/two years | New offence |
| Administrative penalties | Not applicable | Daily-accruing, amount prescribed by Minister by statutory instrument | New |

significant development as it allows the Institute to impose financial penalties without resorting to criminal prosecution, lowering the enforcement threshold and potentially leading to more frequent regulatory action. This creates a parallel civil enforcement track alongside criminal prosecution, with potential for significant cumulative financial liability for continuing breaches.

## Penalties

Various penalties have been removed, reduced, increased, and added as a new offence, as set out in the table above.

## Key takeaways

The 2025 OHSA is a comprehensive overhaul of Zambia's occupational health and safety legal framework. Employers and workplace duty-bearers should take urgent steps to understand and implement its requirements. The most material changes to be aware of are as follows:

- **Expanded scope: the 2025 OHSA extends to all workplaces**; the 2010 OHSA was primarily focused on mining, leaving workers in other industries without adequate protection. That gap has now been closed.
- **Express exclusions from scope:** the Defence Force, National Security Services, and the Civil Service are now expressly excluded, providing legal certainty that did not exist under the 2010 OHSA.
- **Mandatory health and safety policy:** now required of all employers, signed by the CEO, displayed, and disseminated; those without one are in immediate breach.
- **30-day deadline for health and safety committees:** triggered automatically on employing 10 employees, with no equivalent deadline under the 2010 OHSA.
- **New duty to report employee ill-health:** a proactive reporting obligation backed by administrative penalties; internal procedures must be implemented immediately.
- **Mandatory biennial risk assessments:** required for employers with 10 or more employees, with Institute approval and fees payable.
- **New medical examination certificate regime:** covering pre-placement through to post-employment examinations; no employment may proceed without an Institute-issued certificate in hazard-exposed workplaces.
- **Expanded supply and construction chain liability:** importers, architects, engineers, and intermediary suppliers are now expressly duty-bearers, with liability for intermediary suppliers materially expanded.
- **Graduated enforcement with administrative penalties:** the Institute may impose daily accruing financial penalties without criminal prosecution; suspension notices must be published in a daily newspaper.
- **Public register with evidential value:** suspended and closed workplaces are publicly identifiable, and the register is admissible in court as prima facie evidence.
- **Extended personal liability to shareholders:** with the due diligence defence removed, personal exposure is broader and more difficult to defend.

Employers and workplace duty-bearers operating in Zambia should conduct an immediate compliance audit against the 2025 OHSA requirements, and seek specialist legal advice where required.

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# Labour Appeal Court confirms jurisdictional boundaries that standalone processing operations fall outside MHSA

**Kate Collier:** Partner, Webber Wentzel
**Amy King:** Knowledge Lawyer, Webber Wentzel

In a judgment delivered on 17 February 2026, the Labour Appeal Court confirmed that standalone surface processing operations are regulated by the Occupational Health and Safety Act No. 85 of 1993 (OHSA), rather than the Mine Health and Safety Act No. 29 of 1996 (MHSA). This decision finally settles a fundamental question about whether standalone processing operations are governed by the MHSA or the OHSA.

The Labour Appeal Court dismissed the appeal brought by UASA and the National Union of Mineworkers, confirming the declaration made at the Labour Court in May 2024 that the MHSA does not apply to separate processing operations, even where such operations are located on land associated with other parties' mining areas.

Between 2016 and 2018, Rustenburg Platinum Mines (RPM), owned by Anglo American Platinum Mines Limited (AAP), disposed of its Rustenburg Section and Union Section mining operations and associated mineral rights to third parties, while retaining ownership of certain separate surface processing facilities, including smelters and refineries. Following these transactions, a separation occurred between the disposed underground mining operations and the surface-based processing operations retained by RPM.

After reassessing the applicable health and safety regulatory framework considering the revised organisational structure and the impact of the commercial transaction, the respondents concluded that the OHSA was the applicable regime and engaged in consultations with the Department of Mineral Resources and Energy, the Department of Employment and Labour, and recognised trade unions. The Department of Employment and Labour confirmed that it would assume jurisdiction as the competent regulator and enforce the OHSA in relation to the retained operations.

## The legal question of what constitutes a "mine"?

The determination of whether the MHSA or OHSA applies depends on the proper interpretation of these two Acts, particularly whether the processing operations fall within the statutory definition of a "mine" or constitute "mining" for purposes of the MHSA.

The Labour Appeal Court conducted an analysis of the statutory definitions. The Court identified two critical issues: firstly, whether the concentrate processed at the retained operations is a "mineral" within the statutory definition, and secondly, whether the retained operations constitute a place where a "mineral deposit" is being exploited or processed.

## Concentrate is not a "mineral"

Central to the Court's reasoning was its finding on the nature of metal concentrate. Metal concentrate is the product of an industrial beneficiation process applied to raw ore and does not occur naturally on or in the earth. It exists only as a result of crushing, milling, and flotation processes at concentrator plants located at mine sites.

The MHSA defines a "mineral" as any substance that occurs naturally in or on the earth and that has been formed by or subjected to a geological process. The Court held that the concept of a "mineral" is confined to substances that occur naturally in or on the earth and owe their existence to geological processes, and that once ore has been severed from the earth and subjected to manufacturing processing, it becomes a new object distinct from the mineral-bearing material from which it was derived.

In reaching this conclusion, the Court relied on the Supreme Court of Appeal's decision in Marula Platinum Mines,* which held that the conversion of ore into mineral-bearing concentrate through crushing, milling, and flotation is a process of "manufacture" and not "mining", noting that concentrate is significantly different from raw ore and saleable as a commercial commodity.

## The retained processing operations are not a "mining area"

The Court confirmed that the processing operations retained by RMP are not located in any core mining area and that RPM holds no mining right or permit over the specific land concerned. The Court held that the concept of a "mining area", as defined in the Mineral and Petroleum Resources Development Act No. 28 of 2002 (MPRDA), is necessarily and inextricably linked to a mining right, and operations fall within that concept only if they are related or incidental to the extraction authorised under a mining right.

Rustenburg Platinum Mines either entirely separately mines or independently procures concentrate from third parties and, once received at the retained operations, the concentrate is subjected to further industrial processes aimed at producing platinum group metals that meet market requirements, with RPM not being involved in extracting the raw ore. Accordingly, the retained operations constitute standalone industrial activities and do not fall within the extended concept of a "mining area".

## Implications for the mining industry

This judgment has far-reaching implications for the smelting and refining industry in South Africa. It establishes clear jurisdictional boundaries based on the nature of operations rather than historical regulatory treatment.

* Commissioner, South African Revenue Service v Marula Platinum Mines Ltd 2017 (2) SA 398 (SCA)

The decision confirms that once mining is complete and the extracted material has been transformed into concentrate, any subsequent smelting and refining carried out by a separate entity or at a separate operation away from the mining area constitute manufacturing activities falling outside the ambit of the MHSA. This applies even where processing operations are in immediate proximity to mining activities conducted by third parties. In this regard, the Court held that where an operation no longer falls within the statutory definitions of a "mine", "mining area", or "works", the MHSA ceases to apply by operation of law, and sections 79 and 80 of the MHSA (dealing with exemptions and ministerial declarations) are not engaged. This clarifies that entities are not required to seek formal exemption from the MHSA where the jurisdictional facts necessary for its application are absent.

For processing operations that have been structurally or operationally separated from mining activities, whether through corporate restructuring, asset sales, or the sourcing of concentrate from multiple third-party suppliers, this decision provides regulatory certainty. The determinative factors are whether mineral rights are held over the relevant area, whether minerals in situ are being exploited, and whether operations are related or incidental to authorised mining activities.

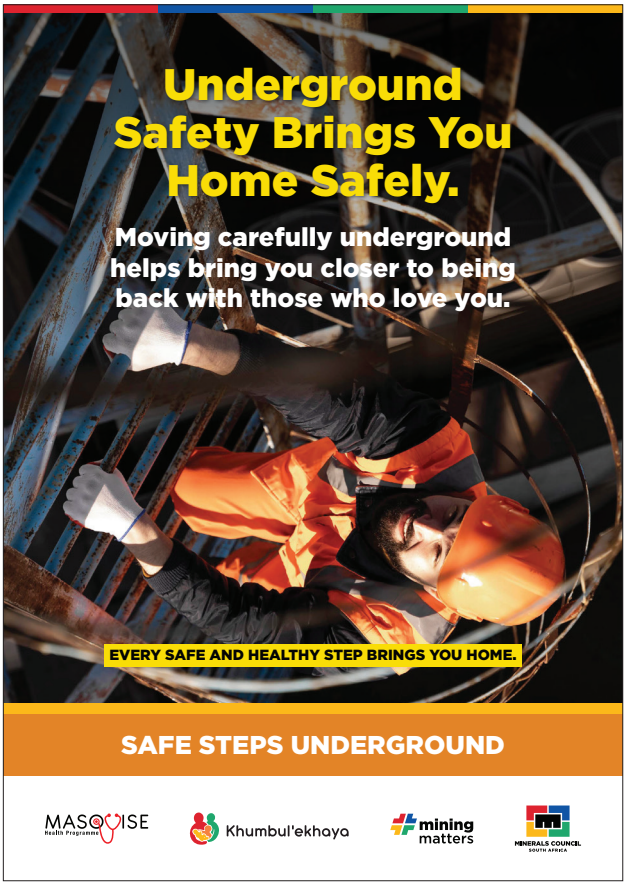
This judgment represents a seminal contribution to occupational health and safety jurisprudence, clarifying the jurisdictional scope of the MHSA and providing much-needed guidance on the regulatory treatment of standalone processing operations across the mining and metals sector.

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# SASOM news

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## BREAKING NEWS: OCCUPATIONAL MEDICINE AT THE UNIVERSITY OF PRETORIA

The South African Society of Occupational Medicine (SASOM) is proud to announce another landmark achievement for the profession: the formal accreditation of the Master of Medicine (MMed) degree in Occupational Medicine at the University of Pretoria (UP). In a letter dated 23 February 2026, the Council on Higher Education (CHE) confirmed the programme's accreditation. This achievement is the culmination of a dedicated multi-year effort spearheaded by SASOM Chair, Prof. Daan Kocks, and Prof. Deb Basu, Head of Department: Public Health Medicine, UP. The CHE accreditation confirms that this academic pipeline meets the rigorous requirements of the Colleges of Medicine of South Africa (CMSA), providing a robust foundation from which future occupational medicine specialists will emerge as accomplished clinicians and researchers.

## SASOM ANNUAL GENERAL MEETING 2025: A YEAR IN REVIEW

SASOM held its Annual General Meeting (AGM) and Annual Conference on 15 November 2025 at the Marriott Hotel Fire & Ice!, Menlyn, Pretoria, Gauteng province, and its last Executive Committee (ExCo) meeting of the year on 14 November 2025. A report on the Conference was published in the last issue of *Occupational Health Southern Africa* in 2025.

The 2025 annual report, prepared by the SASOM National Office Coordinator, Ms Claudia Frost, and reviewed and presented by the SASOM 2025 National Secretariat, Drs Frank Fox and Itumeleng Ntatamala, covered the period 1 November 2024 to 31 October 2025 and highlighted the following activities and outcomes for 2025:

### SASOM National Office

- SASOM office bearers for 2026: Prof. Daan Kocks (Chair), Dr André Kotzé (Vice Chair), Dr Frank Fox (Secretary), and Dr Geoffrey Tafaune (Treasurer).
- As of 31 October 2025, SASOM had 357 members, including 11 honorary members. The membership base continues to consist largely of practising occupational medicine practitioners (OMPs) and affiliated professionals, demonstrating sustained professional relevance.
- SASOM's financial results for the period 1 November 2024 to 31 October 2025 indicate a year of consolidation and disciplined financial stewardship. SASOM continued its financial support of *Occupational Health Southern Africa* during the year, aligned with the shared objective of sustaining a credible and accessible scientific publication within the discipline.

### SASOM Guidelines

Guidelines remain a core professional support tool for SASOM members, with consistently high download numbers and purchase activity during the reporting period. The most frequently accessed guidelines include Fee Structures and Practices, Medical Requirements for Fitness to Drive, Vision Testing, Spirometry in the Workplace, and Medical Surveillance Procedures. Ongoing updates and accessibility improvements remain a priority.

### SASOM website, member portal, and digital security

- Members gained the ability to download certificates directly from their SASOM accounts.
- Website analytics confirmed that the 'Member Login', 'OHSA Journal', and 'Guidelines' pages were the most visited.

### Continuing Professional Development (CPD) events and chapter coordination

SASOM delivered a consistent and active CPD presence throughout 2025. This reflects strong commitment from chapters and volunteer leadership, despite earlier challenges relating to coordination, scheduling, and communication timelines.

| SASOM chapter | Delivery format | Number of events |
|---|---|---|
| Western Cape | Monthly webinars | Many: continuous across 2025 |
| KwaZulu-Natal | In-person CPD sessions | 2 |
| Northern Cape | Hybrid CPD session | 1 |
| SASOM National Office | Online and hybrid sessions | 1 Annual Conference and AGM<br>4 ExCo meetings<br>2 international webinars |

### SASOM liaison – international, regional, and local

SASOM maintained strong collaborative relationships with major national and international stakeholders, including the Health Professions Council of South Africa (HPCSA), the National Institute for Occupational Health (NIOH), the Council for Health Service Accreditation of Southern Africa (COHSASA), the South African Society of Occupational Health Nursing Practitioners (SASOHN), the South African Medical Association – Private Practice Committee (SAMA-PC), CMSA, the Department of Employment and Labour (Ministerial and Technical Forums), the National Department of Health, *Occupational Health Southern Africa*, the International Occupational Medicine Society Collaborative (IOMSC), and the International Commission on Occupational Health (ICOH).

Formal communication with organisations engaged in the enhancement of occupational health and medicine continued with SASOM ExCo members (co-opted) from the Compensation Commissioner (CC), Southern African Society of Travel Medicine (SASTM), Mine Medical Professionals Association (MMPA), NIOH, and ICOH.

Key liaison activities undertaken by the SASOM Chair, Prof. Daan Kocks, during the reporting period:

- HPCSA stakeholder meeting, 15 July 2025, OR Tambo Airport: SASOM participated in a high-level engagement where the HPCSA reaffirmed that it functions as a regulatory authority rather than an employment-enhancement organisation.
- Occupational Health and Safety Operational Planning Workshop, 29–30 July 2025, National Department of Health, OR Tambo Airport: the Department clarified that 'occupational health' is not included under the National Health Insurance (NHI) Act, but is governed by other national legislation, and that occupational medicine remains recognised as a medical practitioner function.
- Engagement on the Role of Clinical Associates, July 2025: during the same workshop, the President of the Clinical Associates Forum requested SASOM's guidance in integrating preventive occupational health components into their practice. SASOM responded formally in August 2025, indicating that SAMA could assist in developing an appropriate support framework.
- Collaboration with SASOHN and SAMA, September 2025: SASOM contributed to the initiation of a memorandum of understanding (MoU) and the establishment of a joint forum with SASOHN and SAMA. The objective is to coordinate with the Health and Welfare Sector Education and Training Authority (HWSETA) in developing structured technician training programmes in vision testing, spirometry, and audiometry.
- SASOM, an ICOH affiliate member, and Ms Claudina Nogueira, the ICOH National Secretary (NS) for South Africa, contributed information for the following ICOH requests, during Q1 and Q2 of 2025:
  - National list of occupational diseases – the official list in South Africa – for comparative analysis and for identifying emerging occupational health risks that may merit inclusion in the revised International Labour Organization (ILO) list, which will be updated from the 2010 version
  - ICOH survey on occupational biohazards post COVID-19, developed and undertaken by the ICOH Scientific Committee on Biohazards and Occupational Health (SC BOH)
- In Q3 of 2025, the NS for South Africa participated in the following activities, undertaken collaboratively with ICOH:
  - ICOH-Institution of Occupational Safety and Health, UK (IOSH)-Lancaster University project on the delivery of occupational safety and health (OSH) services, by participating in a semi-structured interview to share the experience and situation in OSH service provision in the country
  - Global Insights: Mapping National Policies for Work-Related Psychosocial Hazards and Risks, by completing an online questionnaire via Qualtrics, focusing on national policies for psychosocial risks at work; and shared the survey link with other OSH experts and entities
- Contributions from the NS for South Africa to the *ICOH Newsletter*, for the reporting period:
  Volume 22 Number 3, December 2024:
  - In Memoriam – Dr Max Lum
  - Wrap-up article on the 34th International Congress on Occupational Health (ICOH2024) (including a link to a photographic account of ICOH2024)
  - ICOH National Secretaries from the 'Global South' collaborate to host a webinar on 'OHS in Mining' (co-authored with Drs Diana Cuervo, Adolfo Hernández, and Norvil Mera Chú)
  - News from SASOM, the ICOH affiliate member in Africa (content: SASOM National Roadshow 2024, and the launch of a new book on occupational lung diseases in the South African mining industry, authored by Dr Vanessa Govender)

  Volume 23 Number 1, April 2025:
  - SASOM Annual Conference 2024
  - Workplace Health Without Borders (WHWB), the newest ICOH affiliate member (www.whwb.org)

  Volume 23 Number 2, August 2025:
  - Occupational Health of Informal and Migrant Workers – SASOM National Webinar

These linkages continue to strengthen SASOM's role in policy discussions, academic development, and international occupational health collaboration.

SASOM also provides professional advice and support to members upon request. The Society is fortunate to have access to best-in-class OMPs and a qualified OMP with a Master of Laws degree (MLB) to offer comprehensive guidance on both legal and medical aspects of practice.

## Colleges of Medicine of South Africa – College of Public Health Medicine Medals 2025

SASOM shared the announcement from the College of Public Health Medicine (CPHM) regarding the 2025 medal awards, and extended its heartfelt congratulations to the two Fellowship examination winners on their outstanding academic achievements:

- FCPHM Henry Gluckman Medal: Dr Sayuri Pillay (University of Pretoria)
- FCPHM Occupational Medicine SASOM Medal: Dr Yumna Williams (University of Cape Town)

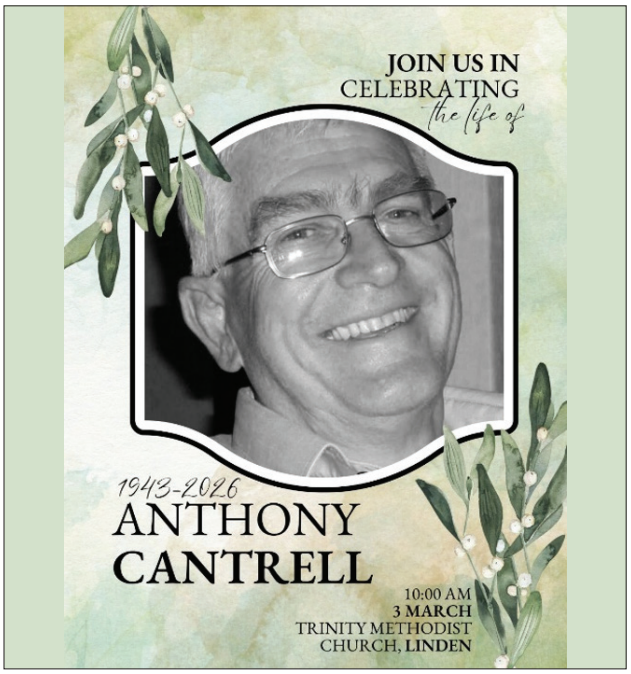
These medals are conferred on candidates who achieve the highest marks in the respective Fellowship examinations within a calendar year, provided a minimum threshold of 70% is attained. SASOM wishes Drs Pillay and Williams every success in their specialist careers, as well as all candidates who successfully completed their Fellowship examinations in 2025.

## SASOM outlook for 2026

The 2024–2025 reporting period reflects measurable advancement alongside deliberate consolidation. Membership levels stabilised following the renewal cycle, CPD engagement remained strong and well supported, clinical guidelines continued to be widely accessed and utilised, and both operational resilience and governance systems were further strengthened. Looking ahead, SASOM's focus for 2026 will include continued investment in guideline development, CPD delivery, digital systems, and deepened collaboration with national and international stakeholders.

## IN MEMORIAM: PROF. ANTHONY CANTRELL (1943–2026)

It is with deep sadness that SASOM announces the passing of Prof. Anthony (Tony) Cantrell, a longtime colleague, friend, and a distinguished figure in occupational health in South Africa. Throughout his career, Tony was renowned for his generosity, kindness, and unwavering commitment to advancing knowledge in toxicology, industrial processes, information sciences, and occupational health education. His exceptional teaching and mentorship left a lasting




*Photograph: courtesy of the Cantrell family*

impact on generations of practitioners, students, and colleagues. Tony's contributions were instrumental in building capacity for sourcing and applying OSH information across southern Africa, benefiting workers, managers, health and safety representatives, union officials, and students alike.

Following his formal retirement after more than 30 years at the NIOH, Tony continued to serve the occupational health community as a mentor, advisor, and friend, remaining deeply engaged in professional societies and networks.

The leadership and members of SASOM extend their heartfelt condolences and deepest sympathies to Tony's family and loved ones. His professional legacy, personal warmth, and unique spirit will be remembered fondly, with respect and admiration. May his soul rest in eternal peace.

## NEWS FROM THE GLOBAL OCCUPATIONAL HEALTH ARENA

### ICOH MIDTERM MEETING 2025

ICOH convened its Midterm Meeting in Naples (Napoli), Italy, from 20 to 22 October 2025. Ms Claudina Nogueira, ICOH NS for South Africa and ExCo member of SASOM, attended the meeting by invitation, and represented the Africa region.

#### Naples – a city of history, culture, and living heritage

The city's historic centre, an Historic Centre of Naples UNESCO (United Nations Educational, Scientific and Cultural Organization) World Heritage Site, reflects over two millennia of layered Greek, Roman, Norman, Spanish, and Bourbon influence. Within walking distance lie architectural landmarks such as the Naples Cathedral (*Duomo di San Gennaro*), renowned for its Baroque splendour, and the *Castel dell'Ovo*, dramatically positioned along the waterfront. The nearby Royal Palace of Naples stands as a reminder of the city's former status as capital of the Kingdom of the Two Sicilies, while the National Archaeological Museum of Naples houses one of the world's most important collections of Greco-Roman antiquities, including treasures from Pompeii and Herculaneum. Beyond its monuments, Naples is celebrated for its dynamic street life, artistic traditions, and culinary heritage – notably as the birthplace of pizza – offering visitors a rich and memorable cultural experience alongside the formal meeting programme.

#### The meeting hosts and venue

The Midterm Meeting was made possible through the valued support of the Italian Workers' Compensation Authority (INAIL) and was hosted at the historic *Villa Colonna Bandini*, a distinguished 19th century villa located on the Colli Aminei, a hilly and verdant residential district overlooking Naples. Originally built in the early 1800s, during the Bourbon period, as a hunting residence associated with the nearby Royal Palace of Capodimonte, the villa later became the private property of Princess Bianca Doria Colonna of Avella, and was redesigned in an elegant neoclassical style by the Florentine architect, Antonio Niccolini. Surrounded by terraced gardens with diverse botanical species, the villa remains a refined example of Naples' aristocratic architectural heritage, and presents an evocative setting for cultural and institutional events.



**'Come one, come all'** – **The ICOH Midterm Meeting brought together representatives of the organisation's leadership to review progress and strategic priorities in line with the current triennial work plan** *Photograph: courtesy of ICOH Secretariat, Italy*



**The historic *Villa Colonna Bandini*, an imposing 19th century villa, provided a fitting and evocative venue for the ICOH Midterm Meeting**
*Photograph: Claudina Nogueira (South Africa)*



**View across Naples from the meeting venue, *Villa Colonna Bandini* in the Colli Aminei: a sweeping panorama of historic rooftops, the Bay of Naples, and the commanding silhouette of Mount Vesuvius beyond**
*Photograph: Claudina Nogueira (South Africa)*

## The main event

ICOH Officers, Board Members, Chairs of Scientific Committees (SCs), and selected NSs participated in the proceedings. The gathering provided a structured forum to review progress and strategic priorities across ICOH's SCs, NSs, Task Groups, and Working Groups, in line with the current triennial work plan. Delegations responsible for upcoming congresses presented forward-looking updates, including preparations for ICOH2027 in Mumbai, India, and ICOH2030 in Rome, Italy. A notable achievement during the meeting was the signing of an MoU between ICOH and the American College of Occupational and Environmental Medicine (ACOEM).

In keeping with tradition, a dedicated international scientific event was held on 21 October, titled 'Global Roundtable on Priorities for the Future of Occupational Safety and Health (OSH) Services Delivery'. The session examined key findings from the research initiative, 'Effective delivery OSH services: promoting OSH as a universal fundamental right at work'. The project was funded by the IOSH (UK), led by Prof. Stavroula Leka and her team at Lancaster University, with ICOH contributing as a project partner. The presented findings were the preliminary results from the third ICOH Survey on Occupational Health Services, administered by ICOH to its NSs. The extended results from the survey will be presented in an official ICOH report and included in the ICOH Triennial Report to be published at the time of the ICOH2027 Congress in Mumbai.

Complementing the scientific programme, delegates enjoyed a thoughtfully curated cultural evening, highlighted by a visit to the renowned sculpture, *The Veiled Christ*, housed in the Cappella Sansevero in central Naples (https://www.museosansevero.it/en/the-chapel-and-the-veiled-christ/the-veiled-christ). Created in 1753 by the Neapolitan sculptor Giuseppe Sanmartino, the masterpiece is celebrated for its extraordinary depiction of a life-size figure of the dead Christ beneath a delicately carved marble shroud. The transparency and fluidity of the 'veil', sculpted from a single block of marble, have long astounded viewers and are regarded as pinnacles of Baroque artistry. Beyond its extraordinary craftsmanship, the sculpture evokes powerful emotions and a sense of contemplative calm, securing its place among Naples' most revered works and leaving a lasting impression on all who view it. This cultural experience provided a reflective pause, connecting the meeting's professional themes with the enduring creativity, devotion, and human expression captured in Naples' artistic heritage.

No visit to Naples would be complete without acknowledging the city's dramatic setting. Dominating the Bay of Naples and visible from many vantage points throughout the city, the active volcano, Mount Vesuvius, stands as both a symbol of natural power and a reminder of resilience – its historic eruptions having shaped the region's landscape and history for centuries. Bathed in changing light from morning to dusk and framed by terraced gardens, historic streets, and the shimmering bay, the view of Mount Vesuvius leaves a lasting impression, reinforcing Naples as a city where history, culture, and the forces of nature converge – an inspiring backdrop to the work of the delegates of the ICOH Midterm Meeting.

## Second Announcement of the ICOH2027 Congress

The second announcement of the ICOH2027 Congress has been released. Themed *Occupational Health, Safety and Environment – Growth and Sustainability in Changing Times*, the Congress will bring together leading researchers, practitioners, and policymakers from around the world to exchange knowledge and advance OSH at the largest global gathering in occupational health. The scientific programme has been developed through the active engagement of the 37 SCs of ICOH, together with the Board and the Regional and National Secretaries. Plenary speakers, selected from among internationally recognised leaders, will share their insights and perspectives on key developments in OSH.



**'United Nations selfie' at the ICOH Midterm Meeting** – **L to R: Dr Rosa Maria Orriols, Spain (Chair: ICOH Scientific Committee on Occupational Hygiene); Ms Claudina Nogueira (ICOH National Secretary for South Africa); Prof. Shyam Pingle, India (ICOH Vice President for National Secretaries); and Prof. Frida Marina Fischer, Brazil (Chair: ICOH Working Group on Demographic Changes, Inequalities and Future of Decent Work)**
*Photograph: Rosa Maria Orriols (Spain)*

Through a diverse programme of plenary and semi-plenary sessions, special and oral presentations, a Global Policy Forum, poster sessions, workshops, and symposia, the Congress will explore a broad range of emerging challenges and innovative solutions in OSH. The programme will highlight local, regional, and global initiatives and research, providing delegates with valuable opportunities to exchange ideas, strengthen international networks, and contribute to lasting collaborations beyond the Congress itself.

Registration and the call for abstracts are now open and available at: https://www.icoh2027.in/index.html

**Important dates: ICOH2027 Congress**

| | |
|---|---|
| Opening of early bird registration | December 2025 |
| Opening of call for abstracts | December 2025 |
| Closing of abstract submission | 30 April 2026 |
| Abstract acceptance notification | 14 July 2026 |
| Closing of early bird registration | 15 August 2026 |
| Closing of mid-term registration | 30 November 2026 |
| ICOH2027 Congress opening ceremony | 14 February 2027 |

## ICOH webinars

The most recent instalment of the ICOH Webinar Series, titled 'Mental health at work: breaking paradigms and building healthy workplaces', was held on 22 January 2026. The webinar was co-organised by the ICOH NSs for Peru (Dr Norvil Mera Chú) and South Africa (Ms Claudina Nogueira), and the São Paulo Association of Occupational Medicine (APMT, Brazil), an ICOH affiliate member. ICOH members in good standing have free access to the ICOH Webinar Series, while non-ICOH members are charged a small fee for participation. The topics and presenters were:

- 'Psychosocial risks and digitalisation': Dr Quentin Durand-Moreau, ICOH Board member (University of Alberta, Canada)
- 'Strategies for psychosocial risk management: good practices in Indonesia': Dr Nuri Purwito Adi (University of Indonesia, Jakarta, Indonesia)
- 'Psychosocial risks at workplaces: experiences and impacts inside companies in Peru': Dr John Astete (National Centre for Occupational Health and Environmental Protection for Health (CENSOPAS), Lima, Peru)
- 'Psychosocial risks at workplaces: experiences and impacts inside companies in Brazil': Prof. João Silvestre Silva Junior (University of São Paulo Medical School, Brazil)

The presentations were followed by an engagement session between presenters and participants to end the webinar.

The ICOH SC on Aging and Work organised and presented a free webinar, titled 'Chronic diseases and labour underutilization in the (potential) workforce', on 30 January 2026. The topics and presenters were:

- 'Determinants of different forms of labour underutilization in the Netherlands: a nationwide study': Dr Sander van Zon (University of Groningen and Netherlands Organisation for Applied Scientific Research)
- 'Impacts of different measures of health on labour market exit': Dr Raun van Ooijen (University of Groningen)

The free webinar, 'Occupational risk factors in outdoor workers: UV, heat stress and others' was presented on 12 February 2026, as a collaboration between three ICOH SCs, viz. Occupational Medicine (SC OM), Occupational and Environmental Dermatoses (SC OED), and History of Prevention of Occupational and Environmental Diseases; and the ICOH NS for Peru, Dr Norvil Mera Chú. The topics and speakers were:

- 'Occupational risk factors in outdoor workers: skin diseases and cancer': Dr José Hernán Alonso (Norway), Chair of the SC OED
- 'Climate change and outdoor exposure: impact on workers' health': Dr Loubna Tahri, ICOH NS for Morocco
- 'Heat stress: current challenges for medical surveillance at workplaces': Dr Brett Shannon (USA), member of the SC OM steering committee
- 'Heat stress and outdoor worker exposure: lessons from the past, challenges still in the present': Esteban Arias (Costa Rica), lead hygienist and vice president for health and hygiene at La Isla Network (https://laislanetwork.org/).

## *Repository for Publications on Basic Occupational Health Services and Similar Initiatives*: sharing an updated version of a free digital resource

An astounding 85% of workers worldwide lack access to expert-based occupational health services. To assist in remedying this situation, the Learning and Developing Occupational Health (LDOH) Foundation (https://ldoh.net/) has recently released the second edition (2025) of the free digital resource *Repository for Publications on Basic Occupational Health Services and Similar Initiatives*, authored by Drs Frank van Dijk (the Netherlands) and Suvarna Moti (India), both active and long-term members of the ICOH SC on Education and Training in Occupational Health (SC ETOH).

Over the past two years, the repository has been substantially expanded and refined. The number of publications added has doubled from the first edition (2022), while the overall readability has been improved and a structured keyword search system has been developed to facilitate easier navigation and retrieval of information.

The repository provides access to a wide range of materials that are often difficult to locate, including scientific articles, books, reports, lecture abstracts, and policy documents produced by major international organisations such as the World Health Organization (WHO), International Labour Organization (ILO), World Organization of Family Doctors (WONCA), and ICOH.

The collection covers the period from approximately 2000 to 2024. Each of the 365 records includes full bibliographic details, a brief description or abstract (where permitted), and a direct link to the full publication, with approximately 90% of the sources accessible online.

The compendium is largely based on systematic literature searches, and serves as a useful starting point for targeted enquiries by professionals, researchers, and students. It provides information on current knowledge and practice, drawing on studies from more than 45 countries. The repository also includes selected materials on informal workers, participatory approaches, and key publications in ergonomics.

In addition, the resource provides background information on the concept and implementation of basic occupational health services (BOHS) and related innovations. Its aim is to support improved access to occupational health services and to contribute to the advancement of occupational healthcare for all workers.

The LDOH Foundation is an international not-for-profit organisation located in the Netherlands. Its mission is to support professional education in OSH and promote occupational health for all workers. The LDOH website offers information on the objectives of the foundation, staff, products, an e-library of learning materials, and a web shop. The resource is accessible at no cost from https://shop.ldoh.net.

# SAIOH news

*The Southern African Institute for Occupational Hygiene (SAIOH) remains committed to serving its members and advancing the occupational hygiene profession. As part of this commitment, the Institute regularly shares updates and highlights key developments with its community. SAIOH thrives on the active participation and ethical contributions of its members, whose engagement continues to shape and strengthen the field. The Institute, therefore, welcomes and encourages feedback on the topics presented in this publication, as part of its ongoing effort to support dialogue and collective progress.*

## SAIOH PRESIDENT'S ADDRESS

**Prof. Cas Badenhorst:** SAIOH President
e-mail: president@saioh.co.za



**Prof. Cas Badenhorst, SAIOH President**
*Photograph: courtesy of SAIOH*

Fellow members and colleagues,

The past quarter has tested SAIOH's resolve, exposing vulnerabilities in our administrative systems even as our profession's importance grows across southern Africa. Rapid membership expansion, compounded by staff shortages and an essential but rigorous audit of continuing professional development (CPD) submissions, have strained our capacity to deliver the timely service you expect. I acknowledge the frustration that many of you have experienced with delayed certificates, unanswered enquiries, and a website that has not met our needs. For all these constraints, on behalf of the SAIOH Management Board, I apologise.

These operational pressures coincided with a leadership transition in December 2025, when Ms Karen du Preez stepped down and I accepted the presidency. Together with the SAIOH Management Board and our dedicated staff, we have moved quickly to stabilise governance, approve a responsible 2026 budget, and prioritise a focused action plan for the year ahead. Our immediate objectives are clear: strengthen administrative capacity, revitalise branch functionality, and finalise the quality management system (QMS) and new website to restore efficient member services.

Despite constraints, our professional work continues: the Professional Certification Committee (PCC) is progressing assessments, the Occupational Hygiene Skills Set and ethics initiatives are advancing, and members retain access to international CPD through the offerings from the Internationa Occupational Hygiene Association (IOHA) and the American Industrial Hygiene Association (AIHA). We are also forging ahead with Conference preparations – 28 September to 1 October 2026 in Johannesburg – where SAIOH and the National Institute for Occupational Health (NIOH) will convene to build stronger partnerships for healthier workplaces.

SAIOH's resilience is rooted in our membership, volunteers, and partners. I am confident that, by concentrating on these priorities and fostering open communication, we will convert recent challenges into lasting improvements that strengthen our profession and better serve our members.

### SAIOH's quarter in review

The past quarter has been one of the most challenging periods for SAIOH in recent memory. From November 2025 to February 2026, the organisation has grappled with mounting administrative pressures, driven by a rapidly expanding membership base and compounded by reduced staff capacity.

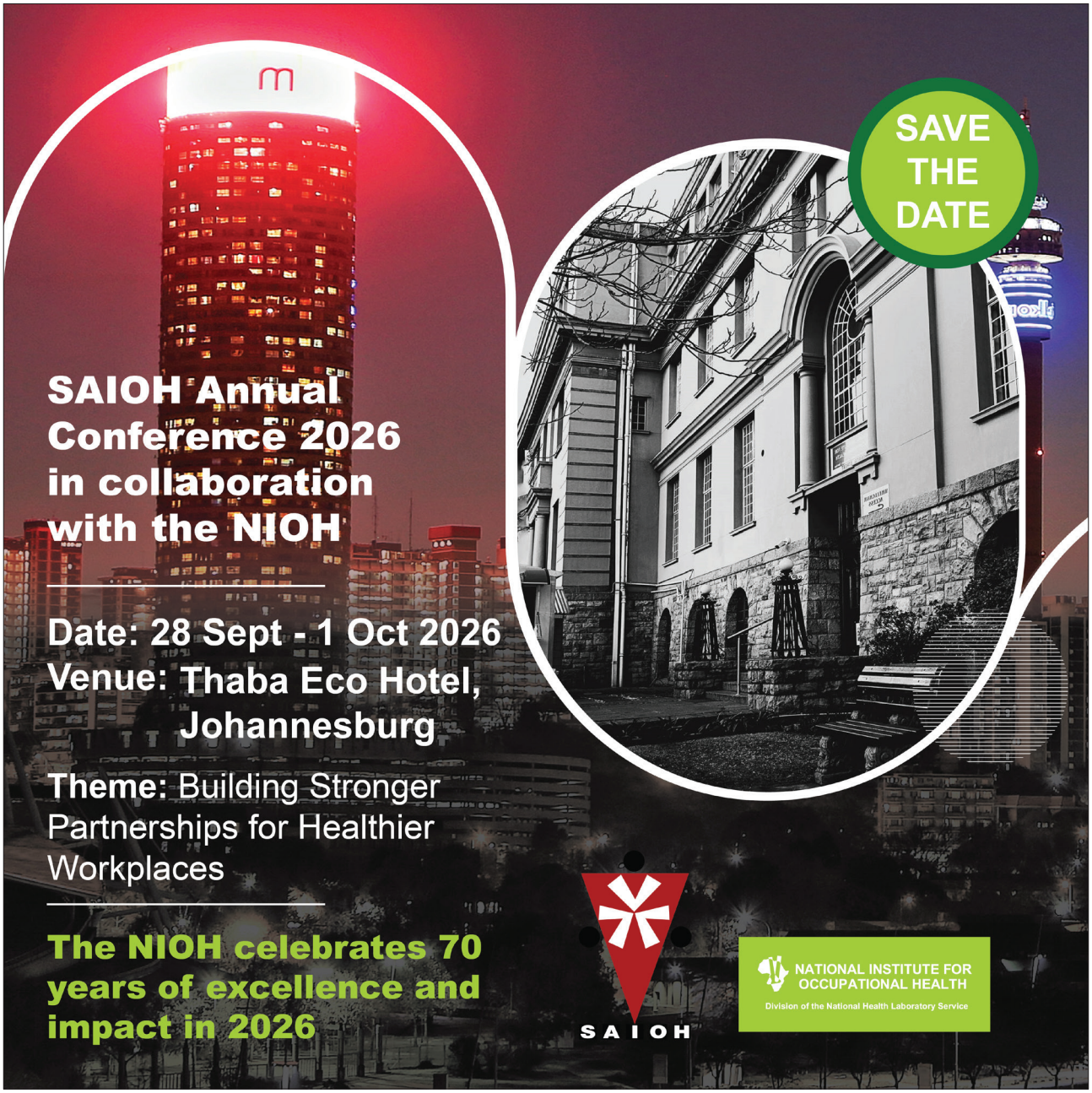
With one team member on maternity leave and the PCC enforcing a full audit of CPD submissions, the strain on the administrative office has been palpable. Member frustrations have grown, with complaints of unanswered calls, delayed certificates, and a website with limited functionality while awaiting its long-overdue upgrade.

Leadership changes added to the turbulence. In December 2025, SAIOH bid farewell to its President, Ms Karen du Preez, who stepped down for personal reasons. Prof. Cas Badenhorst, the Vice President, assumed the presidency, guiding the organisation through this transitional phase. The SAIOH Management Board approved the 2026 budget, keeping fee increases modest at 4%, and has resolved to tackle the administrative crisis head-on. The focus will be sharpened in three critical areas: strengthening administrative capacity, revitalising branch functionality, and finalising both the QMS and the new website.

Despite these operational constraints, the PCC continues to discharge its core mandate, with first-quarter written assessments proceeding, subject to a brief postponement, yet remaining firmly on track. The Occupational Hygiene Skills Set development team remains committed, meeting regularly to advance professional standards. Members also benefit from ongoing access to international webinars through the IOHA and AIHA, ensuring CPD opportunities.

Looking ahead, there is cause for optimism. Planning for the 2026 SAIOH Annual Conference is well underway, led by the Gauteng Branch in collaboration with the NIOH. Scheduled for 28 September to 1 October at the Thaba Eco Hotel in southern Johannesburg, the Conference will celebrate NIOH's 70th anniversary under the theme, *Building Stronger Partnerships for Healthier Workplaces.*

While the quarter has tested SAIOH's resilience, it has also underscored the organisation's determination to adapt, refocus, and deliver on its commitment to members. The months ahead will be critical in turning challenges into opportunities for renewal.




## SAIOH NATIONAL COUNCIL FEEDBACK

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## SAIOH MANAGEMENT BOARD UPDATE: 19 NOVEMBER 2025 TO 25 FEBRUARY 2026

### Governance and operational engagements

The SAIOH Management Board held several impromptu/special meetings, over and above its scheduled meetings, to address a broad range of issues, viz. the resignation of Ms Karen du Preez from her position of SAIOH President and the appointment of the new President, Prof. Cas Badenhorst, who stepped up to the plate from his post of SAIOH Vice President; the way forward for SAIOH as it manages the change in leadership and addresses the current administrative crisis; the development and approval of the budget for 2026; and an initial discussion around the current SAIOH Strategy Plan 2023–2027 and areas of focus for 2026 in preparation for the SAIOH Strategy Session (19 November 2025, 1 and 4 December 2025, 22 January 2026, 16 and 17 February 2026). Two administrative staff meetings were held on 19 and 20 November 2025; and the Chief Administrative Officer, Ms Kate Smart, and SAIOH PCC Administrator, Ms Lee Doolan, attended a three-day online management training course presented by Dr Charles Cotte (an independent global learning and development strategist and practitioner).

SAIOH is experiencing an administrative support crisis, including:

- The current administrative staff not being able to keep up with a large and growing membership

- One of the four administrative staff members – Ms Tracy Mphaphuli – taking maternity leave over this critical time
- The decision taken by the PCC to audit 100% of all CPD submissions before releasing members' registration certificates (mainly due to apathy and dishonesty from members in self-reporting of CPD activities)
- An ever-increasing number of complaints from the members regarding poor service delivery, such as unanswered telephone calls and e-mails, certificates not being released, etc.
- The complicated logistics around in-person written PCC assessments
- The additional administration burden around the next cycle's 'Ethics Certificate'
- The QMS, which is incomplete and outdated, combined with the non-functional existing website, which is yet to be updated

The SAIOH Annual Strategy Session was held on 23 February 2026 in hybrid format at the Spaces premises in Broadacres, Johannesburg. A decision was made to focus only on critical areas within the SAIOH Strategy Plan 2023–2027 (coordinated by Mr Jaco Pieterse) – at least for the remainder of the current year – to manage uncertain times and address the administrative crisis faced by SAIOH over recent months. Critical areas include increasing administrative capacity, an overhaul of the functionality of SAIOH Branches, and finalising the website and QMS – all aimed at improved service delivery to SAIOH members. The first SAIOH Council meeting of the year followed on 24 February 2026, in virtual format.

Other engagements worth noting include:

- The last meeting of the Occupational Hygiene Skills Forum (OHSF) for the year was held virtually on 25 November 2025; the OHSF also hosted an online Occupational Hygiene Training Association (OHTA) feedback meeting for the OHTA Approved Training Providers (ATPs) on 4 December 2025.
- Several members of the SAIOH Management Board attended the online meetings of the Occupational Hygiene Approved Inspection Authority (OHAIA) Association on 21 November 2025 and 20 February 2026.
- On 3 December 2025, several SAIOH Management Board members attended and presented at the Eskom Occupational Hygiene Management Groups (OHMAG) workshop at Drager SA in Midrand, Gauteng.
- The SAIOH Assistant Manager, Ms Claudina Nogueira, represented SAIOH at the South African Qualifications Authority (SAQA) Professional Registration Bodies Forum online workshop on 28 January 2026.
- The South African National Accreditation System (SANAS) reported that there are currently 58 accredited OHAIAs; the new ISO IEC 17020 of 2026 will be shared shortly; and SANAS has started its assessments and competency declarations on the new Noise Exposure Regulations (NER).
- The new occupational hygiene report formats from the Department of Employment and Labour (DEL) came into effect on 30 June 2025 and are strictly enforced during assessments; and the DEL invited SAIOH members to attend its hybrid Occupational Health and Safety Conference at the Birchwood Conference Centre in Johannesburg, 17 to 19 March 2026.

## SAIOH Code of Ethics and Training Course

SAIOH has finalised a draft *Code of Ethics and Disciplinary Procedure,* developed by the SAIOH Management Board and Ethics Committee Chair, Mr Oscar Rikhotso, with legal support from NGO Law. The document is currently under final internal review and is expected to be approved by the SAIOH Management Board in Q1 of 2026. Once adopted, the Code will form part of the SAIOH QMS and will be published on the SAIOH website and shared with key stakeholders, including OHAIAs and the DEL.

SAIOH continues to strengthen ethics training for certified members. This training has been mandatory since January 2023, supported by professional development courses delivered by Mr Terry McDonald of the British Occupational Hygiene Society (BOHS) and by a new assessment quiz developed by Dr Hennie van der Westhuizen and Ms Lee Doolan.

Looking ahead, SAIOH is collaborating with North-West University (NWU) to develop a dedicated occupational hygiene ethics course tailored to the southern African context. The first draft was received in November 2025, with finalisation and rollout anticipated in mid-2026.

## SAIOH Branch activities

- The Western Cape Branch held an in-person meeting on 21 November 2025.
- The Botswana Branch/Botswana Association for Occupational Hygiene (BAOH) held an online meeting on 4 December 2025, at which the SAIOH General Manager, Mr Deon Jansen van Vuuren, provided feedback on SAIOH activities and decisions.
- Efforts are underway to establish an Eastern Cape Branch of SAIOH, led by the SAIOH Council Branch Coordinator, Ms Lizette Greeff, and Mr Shaun Ramroop of Nelson Mandela University, although no formal update has been received to date.
- Several other regional structures – including the Central (Free State), Northern Cape, and Mpumalanga Branches, and the Zululand Discussion Group – remain inactive.

## SAIOH Technical Committee feedback

The SAIOH PCC Technical Committee (a sub-committee consisting of SAIOH and the OHAIA Association members) completed the SAIOH Position Paper on Welding Fumes. The document was circulated to SAIOH members and stakeholders (specifically the DEL) and posted on the SAIOH website. Subsequently, an error was identified in one of the listed occupational exposure limits (OELs). The updated corrected version (dated 23 January 2026) has been re-distributed.

Other technical guidance documents on heat stress management, real-time monitoring, and ergonomics risk assessments are in various developmental phases.

## Communications, marketing, and training – local and international

SAIOH publishes its newsletter and President's page in two electronic media formats, namely *Occupational Health Southern Africa* and the *African Occupational Safety and Health* (A-OS&H) magazine. These publications are issued every two-to-three months, with the most current issues published in December 2025. As the issues are published online, the links are shared with SAIOH members via the Mailchimp system and posted on the SAIOH website.

Several e-mail notifications on occupational hygiene and health webinars, conferences, and short courses were distributed during the reporting period, including:

- Safety-First's PPE Conference (held on 10–11 March 2026 at Emperors Palace) – Ms Karen du Preez, Prof. Cas Badenhorst, and Dr Jeanneth Manganyi, among other SAIOH members, delivered presentations

- The announcement of the 8th International Conference on the History of Occupational and Environmental Health, 15–17 April 2026 in Leuven, Belgium, organised by the International Commission on Occupational Health (ICOH) Scientific Committee on the History of the Prevention of Occupational and Environmental Diseases
- The announcement of the IOHA webinar 'Crystalline silica exposure and the innovative practices shaping prevention worldwide', held on 8 December 2025, where Prof. Cas Badenhorst presented on South Africa's 20-year journey to reduce and eliminate respirable crystalline silica exposure – driven by strengthened regulations, advanced dust-control technologies, industry collaboration, and robust worker education initiatives
- The announcement for the IOHA webinar 'Beryllium: haven't we been here before?' held on 25 February 2026 and organised by the IOHA's Beryllium Health and Safety Committee (BHSC)
- The newsletters *OHTA Global Link* (latest issue being November 2025) and the *IOHA Global Exposure Manager* (GEM, the July-September 2025 issue was shared in December 2025) posted on the SAIOH website and shared with SAIOH members via the Mailchimp system

SAIOH maintains regular engagement with its members through direct e-mail notifications, e.g. the Mailchimp system, telephone calls, and virtual meetings. These communications provide updates on:

- Legislative changes and new standards
- Industry news and technical developments
- Professional opportunities in occupational hygiene
- Products, services, courses, and webinars related to occupational hygiene, occupational health, and environmental safety

### SAIOH 2026 Annual Scientific Conference

The Conference Organising Committee, led by the SAIOH Gauteng Branch, has held a few meetings since December 2025. This year's Conference will be hosted by SAIOH in collaboration with the NIOH, in celebration of the latter's 70th anniversary:

- Dates: 28 September to 1 October 2026
- Venue: Thaba Eco Hotel in southern Johannesburg (www.thabahotel.co.za)
- Theme: *Building Stronger Partnerships for Healthier Workplaces*

The Organising Committee has finalised two guideline documents for the organisation and management of the Conference, viz. 'Terms of Reference for Conference Collaboration between SAIOH and NIOH', and a proposed fees structure for Conference participants. Deliberations about tracks and sub-themes for the programme and pre-conference sessions are underway.

## PROFESSIONAL CERTIFICATION COMMITTEE

**Lee Doolan:** SAIOH PCC Administrator
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**Deon Jansen van Vuuren:** SAIOH General Manager
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**Ivan Niranjan:** PCC Chairperson
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- The PCC ExCo held its first online meeting of the year on 25 February 2026.
- The results of the CPD assessments for 2025 were circulated to the PCC and ExCo, and to the SAIOH Council and Management Board. A summary of the assessment results for the period February to December 2025 is available from the PCC Administrator, on request.
- The SAIOH PCC written and oral assessment dates and deadlines for 2026 are indicated in Table 1 below. The first PCC written assessments, scheduled to take place on 27 February 2026, were postponed to 6 March 2026, due to the current SAIOH administrative crisis.

### Other news from the PCC:

- The SAIOH PCC continues to strengthen its certification, assessment, and professional development systems.
- Significant progress has been made in developing the Occupational Hygiene Skills Set to support a new PCC Self-Assessment and Gap Analysis Tool. The draft framework has been completed and is undergoing verification before submission to the PCC ExCo for approval. The working group is also refining oral assessment scenarios and guidelines, while continuing assessor training initiatives that were introduced in 2025, including the launch of the tool at the 2025 SAIOH Annual Scientific Conference.
- In response to security concerns and the growing risk of artificial intelligence (AI) misuse in examinations, the PCC will not pursue fully electronic written assessments at this stage. Written assessments will be conducted at controlled venues and invigilated by at least two PCC assessors, with all examination papers securely couriered and centrally coordinated. Oral assessments will continue primarily online via Zoom or Microsoft Teams, with recordings retained for quality assurance, while in-person assessments remain an option.
- Enhancements have been implemented in the CPD system. Members can now upload CPD activities throughout the year via *MySAIOH* and, from February 2025, all CPD submissions are subject

**Table 1. SAIOH PCC written and oral assessment dates and deadlines, 2026**

| Assessment type | Deadline for applications and payments | Final deadline for all assessment payments | Assessment date |
|---|---|---|---|
| Written | 9 January | 6 February | 6 March |
| Oral | - | - | 27 March* |
| Written | 24 April | 15 May | 12 June |
| Oral | - | - | 10 July* |
| Written | 7 August | 28 August | 9 October |
| Oral | - | - | 13 November* |

*Oral assessments begin on this date and will be conducted over a two-week period

to audit prior to certificate release. New annual CPD minimum requirements for the different categories of occupational hygiene practitioners have replaced the previous five-year rolling cycle, and updated guidelines are under revision. Due to the increased administrative complexity of the new system, SAIOH will appoint an additional full-time administrative staff member to strengthen PCC capacity.

- Members may request CPD amnesty or extensions through a motivated submission to the PCC ExCo.
- The updated 'SAIOH QMS Chapter 2: PCC Assessment Rules and Procedures' is available on the SAIOH website.

### Occupational Hygiene Skills Forum (OHSF)

The SAIOH OHSF continues to coordinate the recognition of occupational hygiene training materials, training providers, and academic programmes, while supporting the development of assessment systems where required. During 2025, the OHSF engaged with the OHTA-Approved Training Provider Forum and advanced the accreditation of tertiary qualifications. Notably, the occupational health qualification from Cape Peninsula University of Technology (CPUT) was approved in July 2025. Engagements were also undertaken with several regional and national institutions to expand recognition of occupational hygiene programmes, with details of approved providers and qualifications to be published on the SAIOH website to guide students and certification candidates.

Looking ahead, the OHSF plans to develop a SAIOH occupational hygiene legislation course in 2026 to support members who do not meet the legislative training requirements through existing pathways. The Forum is also strengthening professional development initiatives through collaboration with Mr Hennie van der Westhuizen to develop CPD questions based on articles published in *Occupational Health Southern Africa*, encouraging proactive member engagement with the Journal content.

# Postgraduate students in occupational health – African tertiary intitutions invited to list studies on the Journal website

*Occupational Health Southern Africa* invites tertiary institutions in Africa to list completed occupational health studies of postgraduate students. A study is listed according to its title, abstract, and institution with a link provided to the tertiary institution's open-access repository. Listing of a study will not be considered as a publication in *Occupational Health Southern Africa* in any form, but this listing aims to inform those with an interest in occupational health in Africa of research done by postgraduate students since 2020. For submissions and other criteria, please visit http://www.occhealth.co.za/ under the Postgrad Research menu (top right of page).



# MMPA Symposium

**Fezile Gabellah:** Occupational medical practitioner, Seriti
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## BACKGROUND

On 14 March 2026, the Mine Medical Professionals Association (MMPA) held its continuing professional development (CPD) accredited Symposium at the Fairway Hotel in Johannesburg. The Symposium was focused on capacitating healthcare professionals in the mining industry with the latest legislation changes, case study learnings, and approaches to challenging scenarios. The Symposium is held twice a year to ensure that healthcare professionals are kept abreast of new leading practices.

## INTRODUCTION

The Symposium focuses on topical issues that have been raised in various occupational health dialogues, subcommittees, and workshops throughout the year. The focus this year was on addressing the recurring challenges that professionals in the mining space experienced.

## PROGRAMME OF THE DAY

The Symposium was opened by the Vice-President of the MMPA, Dr Angel Ndlovu. The Programme Director was Dr Fezile Gabellah. There were 83 delegates in attendance.

Dr Thabiso Mofokeng, an ophthalmologist in private practice, was the first speaker and he spoke about the importance of preventing monocular vision, or "one eye disease" as he called it, and emphasised that control, monitoring, and early detection can spare an employee from losing vision. He presented several case studies and highlighted the importance of using indirect ophthalmoscopic examinations when examining employees. He also shared tools that healthcare workers can use to screen for vision and explained how to differentiate between gross and fine depth perception. It was clear that another session is needed to discuss further the various tools, which proved to be helpful.

Dr Brenda Khubeka-Chauke, a physician with a special interest in ethics, gave a talk on the importance of being aware of serving two masters (employer and employee), and of maintaining a strong sense of morality in advocating for employees. She highlighted the challenges that healthcare workers face and the conundrum they may experience, emphasising the importance of remaining steadfast in one's convictions to do the "right thing". Dr Khubeka-Chauke highlighted that, in as much as ethics may not be rule-bound, one needs to uphold the oath to not do, or contribute to, harm to the patient. A point of reflection for the attendees was to consider their confidence in being resuscitated if they collapsed at their own places of work. Attendees were asked to be cognisant of the adequacy of resources for the employees that they and other healthcare workers serve.

Dr Pravesh Lakha, a senior occupational medicine practitioner (OMP) from Harmony Gold Mining Company, presented on heat-related illnesses. He differentiated between illnesses due to heat exposure and those that may be aggravated by heat but are not directly due to heat exposure, such as influenza. He shared the medical investigations required, history-taking, and the importance of comprehensively interviewing the patient to understand the causative mechanism. He also spoke about the importance of conducting a detailed section 11.5 investigation to ensure the safety of all employees working underground. Dr Lakha explained the process of re-integrating the employee back at work by conducting heat tolerance stress testing to assess if they are acclimatised to, or intolerant of, heat.




**Dr Fezile Gabellah welcoming attendees to the Symposium**
*Photograph: Nqobile Nkosi*



**Dr Miranda Moloto handing over a gift of gratitude to Dr Lucas Mosidi**
*Photograph: Nqobile Nkosi*




**Dr Dankiso Mkwanazi presenting on work-related upper limb disorders** *Photograph: Nqobile Nkosi*




**Dr Dipalesa Mokoboto discussing the Annual Medical Report** *Photograph: Nqobile Nkosi*

The attendees' interests were piqued by new colleagues joining the industry, including those working in the coal mining industry.

Dr Dankiso Mkwanazi, an OMP, ergonomics risk assessor, and exposure scientist based in private practice, and Dr Lucas Mosidi, a claims manager at Rand Mutual Assurance (RMA), shared an enlightening presentation on work-related upper limb disorders. They provided a background on the consolidation of repetitive strain injuries and how these conditions are collectively known as work-related upper limb disorders. Dr Mkwanazi spoke about history-taking, focusing on musculoskeletal examinations and the importance of submitting detailed reports that highlight any occupational association with the injury. Interestingly, he stated that, even if a claim is repudiated, one is duty-bound to substantiate and submit adequate evidence that establishes occupational tasks as the cause of the injury. Dr Mosidi reiterated this and emphasised that RMA is a social insurance – meaning they are not punitive in their processes, but look at the evidence in its totality to adjudicate claims.

Dr Miranda Moloto, Head of Rehabilitation at RMA, shared the published Compensation for Occupational Injuries and Diseases Amendment Act No. 10 of 2022 Regulations for Rehabilitation, Reintegration and Return to Work (see https://bowmanslaw.com/wp-content/uploads/2026/03/2904-Bowmans-COIDA-Infographic-HR-Director-Conference-Collateral-digital.pdf for more information). She shared copies of brochures detailing the duties of employers and healthcare providers regarding affected employees. She also shared the date of implementation, which is 1 April 2026, alerting attendees to ensure compliance.

Dr Dipalesa Mokoboto, Chief Director of Occupational Health at the Department of Mineral and Petroleum Resources, discussed the changes to the Department's 2026 Annual Medical Report template. She took the attendees through each section and explained what is required of OMPs in their reporting. There was robust discussion regarding these changes. Of note were concerns about potential duplication of information, the need for further guidance on reporting of deaths in the industry, and the practicality of measuring waist circumferences.

The session closed with an open discussion, led by Dr Gabellah, regarding a question posed by a colleague anonymously, about the duty of the OMP when the occupational hygienist fails to attend scheduled section 11.5 investigations pertaining to tuberculosis. The room was alive with discussion, and many participants emphased that when legal compliance is not followed the general manager should be alerted, as this practice is not in accordance with the law.

The Symposium was well attended, and the feedback, engagement, and robust discussions highlighted the importance of these events.