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Protecting Livelihoods While Safeguarding Women's Health: A Policy and Practice Perspective A Life-Course Approach to Women in Mining

Dr Mantwa Chisale Mabotja

Public Health Med Specialist, OMP, Senior Clinical Executive

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Every mine worker returning from work unharmed every day. Striving for zero harm in our lifetime.

The question is not: Can women work in mines? BUT remain healthy through every stage of her working life?

“A woman does not enter the mine at one age — nor leave it at one age.”

Key question:

Imagine a woman (Mimi) in mining. She is 25 today. What will she need from us at 35, 48 and 60?

Framing informed by WHO life-course approach (2025) and ILO Women in Mining: Towards Gender Equality (2021).



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Women are still a minority — but the health burden is not

~15%

Women's share of the South African mining workforce reported by the Minerals Council.

72 000

Women employed in mining in Q3 2025, compared with 449 000 workers overall in mining.

17%

ILO's 2020 estimate of women's participation in South African mining.

~ 10%

20% Women in mining workforce, 23.6% Women in management. 10.3% Women in executive leadership — example from Sibanye SA

The blind spot:

- Women are underrepresented across mining age groups and occupational categories.
- Health surveillance and research have historically been built around a male mining worker.
- A smaller denominator can create a larger evidence gap — not a smaller prevention obligation.



Sources: Stats SA QLFS Q3 2025; Minerals Council South Africa WiM (2023); ILO Women and the Mine of the Future — South Africa baseline (2020).

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Why a life-course approach?

Health trajectories are shaped by cumulative exposures, critical transitions and the environments in which people live and work.

18–29

ENTER

Build health capacity
Prevent harm before
exposure becomes disease,
reproductive & sexual health
services, NCD screening,
including mental health

25–44

REPRODUCE

Fertility • pregnancy •
maternity • lactation
Protect worker + fetus/infant

40–55

MID-LIFE

NCD prevention, including
cancer screening • mental
health • menopause
Keep experienced women at
work

55+

AGEING

Functional ability • chronic
disease • safe work
Prevent premature exit

The prevention opportunity moves upstream: BEFORE disease → BEFORE disability → BEFORE exit from work.



Sources: WHO, Framework to implement a life course approach in practice (2025); WHO Women's and girls' health throughout the life course (2019).

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The mine meets a woman's life course

The same hazard can have different consequences at different life stages.

Reproductive age

MINING RISKS: Dust • diesel exhaust • heat • noise • vibration • chemicals • shift work

PREVENTION NEED: Fertility, menstrual health, pregnancy planning, contraception and preconception health

Pregnancy

MINING RISKS: Heat • strenuous work • vibration • noise • chemicals • fatigue/shift patterns

PREVENTION NEED: Risk assessment, exposure reduction, safe work or redeployment — without discrimination

Postpartum / lactation

MINING RISKS: Shift patterns • long commutes/camps • fatigue • inadequate facilities

PREVENTION NEED: Breastfeeding, recovery, childcare, return-to-work and mental health

Perimenopause / menopause

MINING RISKS: Heat • PPE burden • sleep disruption • fatigue • psychosocial stress

PREVENTION NEED: Symptom support, hydration/cooling, rest, privacy, flexibility and clinical

Older worker

MINING RISKS: Cumulative dust/noise/ergonomic exposure • NCDs • musculoskeletal burden

PREVENTION NEED: Functional ability, chronic disease management, job redesign and healthy ageing



- At 25, she enters mining.
- At 32, she wants to have a child.
- At 38, she returns to work with a young family.
- At 48, she may be navigating perimenopause.
- At 58, we should be asking how we retain her expertise safely.

Did the mine change, or did her health needs change?

Sources: ILO physical hazards and Women in Mining; WHO women's health/life-course framework; NIOSH Women in Mining (2023); South African MHSC/DMPR occupational hygiene guidance.

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1. Reproductive years: prevent before pregnancy

A healthy pregnancy begins before conception — and occupational prevention begins before pregnancy is declared.

Primary prevention

Control the hazard at source: dust, diesel emissions, heat, noise, vibration, chemicals, ergonomic overload and fatigue/shift risks.

Health promotion

Accessible reproductive and sexual health services; contraception and fertility counselling; HIV/STI prevention; NCD screening; mental-health support; menstrual health.

Exposure intelligence

Link personal exposure records with medical surveillance. Use sex-disaggregated data and occupational histories to detect patterns that a male-default system can miss.

“Women’s work is less often researched, and associated health problems less often diagnosed and compensated for than men’s.”

WHO — Gender, work and health (2011)

Sources: WHO Gender, work and health (2011); WHO International minimum requirements for health protection in the workplace (2017); DMPR occupational hygiene requirements.

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2. Pregnancy: protect the woman - not her exclusion from work

The prevention hierarchy should move the hazard before it moves the worker.

THE OLD LOGIC

“Pregnant → remove woman from production”

- South African law requires risk assessment and control for pregnant and breastfeeding employees; hazardous work should not be required or permitted.
- ILO Convention No.183 requires protection from work posing significant health risk during pregnancy/breastfeeding and protection against discrimination.
- Mining-specific prevention should explicitly assess heat, vibration, noise, physical load, chemical/airborne exposures and fatigue.

THE PUBLIC-HEALTH LOGIC

“Identify hazard → control exposure → adapt work → redeploy only when necessary”

THE POLICY TEST

“Can she remain economically secure while medically safe?”



Sources: South Africa, Code of Good Practice: Protection of Employees during Pregnancy and after the Birth of a Child (2026); ILO C183; ILO Healthy Beginnings; NIOSH reproductive-health guidance.

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3. Motherhood: the return-to-work is a safety intervention

A woman may be medically fit yet operationally unsupported.

Lactation

Private, hygienic facilities + protected time to breastfeed/express milk. Do not make the worker choose between production and infant health.

Roster & fatigue

Review night work, long shifts, commuting, camp arrangements and recovery time during return-to-work. Fatigue is an OHS issue, not a personal weakness.

Care infrastructure

Childcare referral/support, predictable rosters and family-responsibility policies improve retention and reduce the hidden cost of motherhood.

“Maternity protection is a precondition for gender equality and non-discrimination.”

ILO — Women in Mining: Towards Gender Equality (2021)

Sources: ILO C183; ILO Recommendation No.191; ILO Women in Mining: Towards Gender Equality (2021).

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4. Menopause: the most overlooked occupational-health transition

Menopause is normal. Being unsupported at work is not.

45–55

Typical age range for natural menopause globally. The transition may last several years and affect physical, emotional, mental and social well-being.

26%

Women aged 50+ represented 26% of all women and girls globally in 2021 — up from 22% a decade earlier.

657 million

ILO estimate of women navigating menopause while employed — making menopause a workforce and equality issue, not a niche wellness topic.

Mining-specific question:

What happens when hot flushes, sleep disruption, fatigue or concentration difficulties meet heat, PPE, underground conditions, long shifts and safety-critical tasks?

Practical prevention: cooling/hydration • access to care • private discussion • reasonable flexibility • symptom literacy • manager training • no stigma

Sources: WHO Menopause Fact Sheet (2024); WHO Menopause topic page (2026); ILO Menopause at work (19 Jun 2026); Taylor et al., Menopause (2025).

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5. Older women: move from “fitness to work” to “capacity to work safely”

Healthy ageing is about maintaining functional ability — not declaring people unfit because they are older.

Cumulative exposure

Years of dust, noise, vibration, heat, awkward postures and shift work can shape respiratory, auditory, musculoskeletal and cardiovascular health.

Prevention

Aggressive NCD prevention: BP, diabetes, cardiovascular risk, cancer prevention, mental health, physical activity, sleep and healthy nutrition.

Work design

Ergonomic redesign, task variation, recovery time, assistive equipment and redeployment based on function — while retaining skills and experience.

“Healthy ageing is the process of developing and maintaining the functional ability that enables wellbeing in older age.”

WHO — Healthy ageing and functional ability

Sources: WHO Healthy ageing and functional ability; WHO Working at older ages (2019); MHSC Guidance Note on NCDs and mental health (2025).

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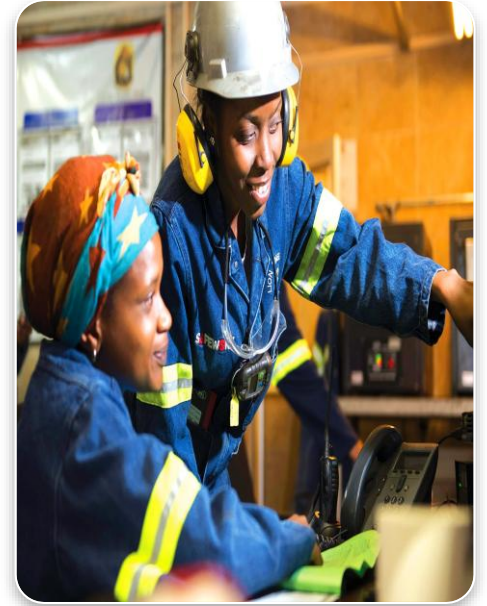


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What our current system may still be missing

South Africa has strong OHS infrastructure. The opportunity is to make it explicitly life-course and gender responsive.

- **Gender-disaggregated exposure data linked to occupational history and medical surveillance.**
- **Routine identification of women-specific health needs in occupational-health programmes — without compromising confidentiality.**
- **Pregnancy/lactation risk pathways embedded in mine COPs, rather than managed ad hoc.**
- **Menopause and healthy-ageing support within occupational health and wellness programmes.**
- **Research that deliberately includes women in technical, underground, surface, contractor and leadership roles.**
- **Monitoring of whether women leave mining because of health, safety, care burdens or workplace culture — not just whether they were hired.**



Local evidence matters

NIOH reported alarming pulmonary TB rates among women in asbestos and gold mining and a concerning trend of premature death in women in PATHAUT data (2005–2016). A 2026 MHSC study highlights needs including reproductive-health recognition, better accommodation of pregnant workers, lactation rooms, emergency sanitary products, risk-based medical surveillance and gender-responsive training.

Sources: NIOH Women in Mining/PATHAUT; MHSC CoE210903 Final Report (Jan 2026); WHO Gender, work and health.

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A prevention model for Women in Mining

Apply the hierarchy of controls to the woman's life course — not only to the machinery.

1 ELIMINATE / DESIGN OUT

Engineer safer environments; inclusive infrastructure; reduce hazardous exposure at source.

2 CONTROL / SUBSTITUTE

Ventilation, dust/noise/heat controls, safer chemicals, ergonomics, safer rosters.

3 SURVEILLANCE / PREVENTION

Risk-based medical surveillance; NCD, TB, mental health, reproductive and menopause care; exposure tracking.

4 ADAPT / ACCOMMODATE

Pregnancy, lactation, menopause and functional ageing: reasonable work adaptation and redeployment.

5 PPE + INDIVIDUAL SUPPORT

Correctly fitted PPE, education, counselling and individual clinical care — the last layer, not the first.



Sources: South African MHSA risk-management hierarchy; DMPR occupational hygiene guidance; MHSC PPE for Women in Mining; WHO occupational-health standards.

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Policy considerations for South Africa: making the life-course explicit

1. LIFE-COURSE OHS STANDARD

Add explicit life-stage requirements to mine COPs: reproductive health, pregnancy/lactation, menopause and healthy ageing.

2. GENDERED EXPOSURE DATA

Require sex- and age-disaggregated exposure and health indicators, linked safely to occupational histories.

3. PREGNANCY WITHOUT PENALTY

Standardise risk assessment, safe work, redeployment and return-to-work pathways; protect earnings and career progression.

4. MENOPAUSE AS OHS

Include heat, hydration, PPE, fatigue, sleep and psychosocial considerations; train occupational-health staff and supervisors.

5. MEASURE RETENTION

Track why women exit technical/production roles — health, safety, GBVF, care, work design, or career barriers.

6. FUND THE EVIDENCE

Use MHSC/SIMRAC research to build a national women-in-mining health evidence base and evaluate interventions.



Policy basis: MHSA 29 of 1996; DMPR occupational hygiene requirements; MHSC WiM/GBVF guidance; ILO Women in Mining (2021); WHO life-course framework (2025).

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The policy shift

“If we want women to stay in mining, we must design mines in which women can age in health.”

ZERO HARM MUST INCLUDE

- reproductive health
- safe pregnancy & maternity
- NCDs and mental health & GBVF prevention
- menopause & mid-life health
- healthy ageing & functional ability

NOT JUST

“fit for work”

BUT

**“fit for a
healthy working life”**



Closing synthesis informed by WHO life-course and healthy-ageing frameworks; ILO Women in Mining; South African MHSC/DMPR evidence.

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Thank you

Let us make “Zero Harm” a life-course commitment.

More women in mining is progress.

More women staying healthy in mining is transformation.

The goal is not simply to get women into mining. The goal is for women to enter, thrive, lead and reach later life with their health intact.



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Dr Mantwa Chisale-Mabotja

is a Public Health Medicine Specialist, Occupational Health Practitioner, and Senior Clinical Executive at a Tertiary Public Hospital in Gauteng Province. She is also a Joint-Appointed Senior Lecturer in the Department of Public Health Medicine at the University of Pretoria.

She holds the following qualifications: MBChB (UCT), FCPHM (SA), Mmed (Wits) in Public Health Medicine, and Postgraduate Diploma in Occupational Health (Wits).

She is a public health physician, healthcare leader and academic with extensive experience in health systems strengthening, clinical governance, quality improvement and healthcare management. She has worked across clinical, academic and strategic platforms, with a particular interest in translating evidence into policy and practice to improve the health outcomes of South Africans, especially women and children.

Her professional interests include occupational health, women's health, health systems strengthening, maternal and child health, healthcare quality and patient safety, research, and women's leadership in healthcare. She is passionate about advancing equitable, high-quality health systems and supporting women to thrive in leadership.



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