ASBESTOS: Why both early detection and prevention are key

TACKLING THE ONGOING THREAT

Asbestos, once valued for its durability and insulating properties, remains a significant health threat. The long-term effects of exposure, which often emerge decades later, include serious diseases such as lung cancer, mesothelioma, and asbestosis.

In this article, Prof. Jan Van Meerbeeck, a leading authority in oncology and pulmonary medicine, discusses the persistent dangers asbestos poses and its continued impact on public health. Meanwhile, Farouk El Abdellati, founder of QLab, underscores the importance of precise asbestos detection and safe remediation practices to mitigate these ongoing risks.

THE LEGACY OF ASBESTOS

Despite being banned nearly 30 years ago, asbestos remains a significant public health issue. According to the Public Waste Agency of Flanders (OVAM), an estimated 2.3 million tons of asbestos-containing materials are still present in buildings and infrastructure constructed before 2001. While awareness has increased, people should still exercise caution when embarking on renovation projects.

The danger arises when microscopic asbestos fibres are released into the air through wear, degradation, or disturbance. Once inhaled, these fibres penetrate deep into the lungs, where they cannot be broken down or expelled, triggering a chronic inflammation which is considered a hallmark of cancer. Over time, this can lead to severe health conditions such as lung cancer, mesothelioma, and asbestosis. “The threat of asbestos exposure is heightened by its long latency period, as diseases often remain dormant for decades, complicating early diagnosis and treatment,” Professor Van Meerbeeck emphasises. “Although the incidence of asbestos-related diseases has now stabilized, a noticeable decline in patient numbers is only expected in the coming years, as the long-term effects of past exposure gradually diminish.”

ASSOCIATED HEALTH RISKS

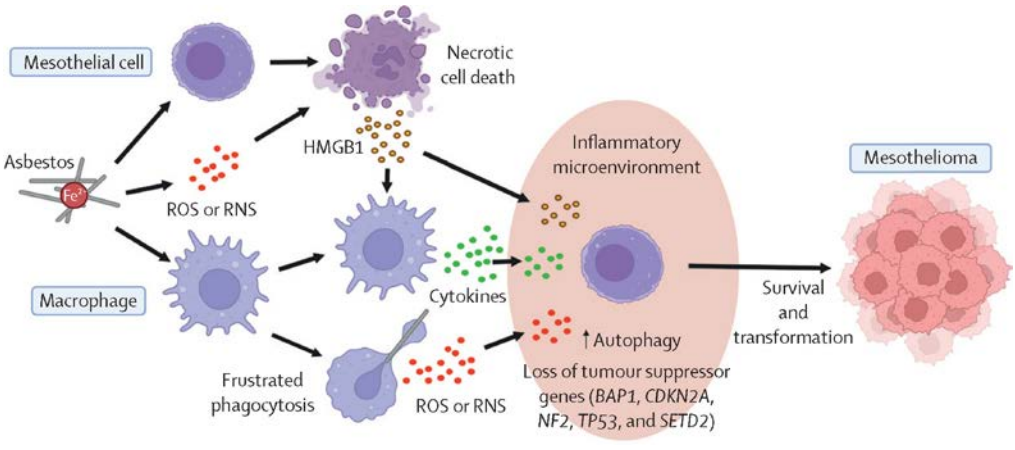
“Asbestos exposure is linked to a range of both benign and malignant pulmonary conditions. Benign diseases include pleural plaques and asbestosis. Pleural plaques are localised thickening of the pleura, which may become calcified. Asbestosis, a form of interstitial lung fibrosis, involves progressive scarring of lung tissue, impairing respiratory function and potentially leading to respiratory failure,” Professor Van Meerbeeck explains.

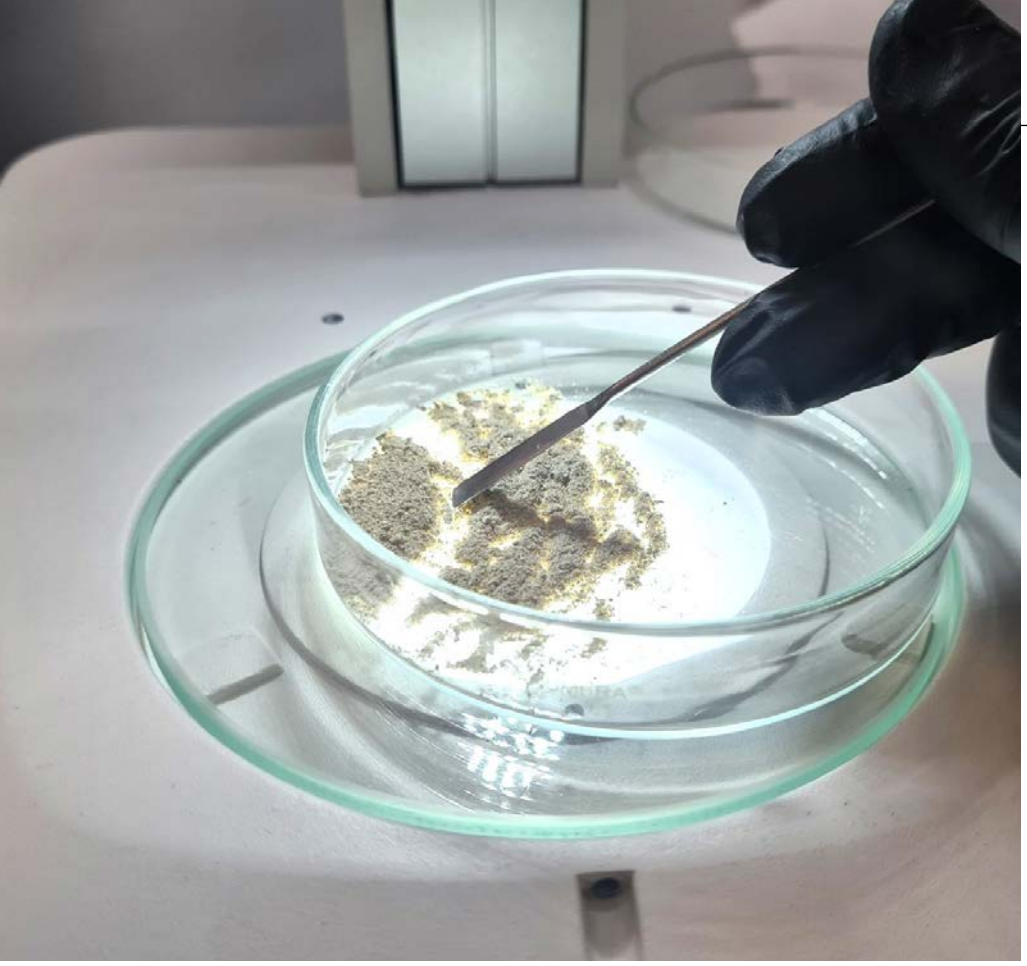
“On the malignant side, asbestos exposure is most commonly associated with lung cancer and malignant mesothelioma. Mesothelioma, a rare and aggressive cancer of the pleura, typically has a poor prognosis due to its late diagnosis, when treatment options are limited. Similarly, lung cancer linked to asbestos exposure is often diagnosed at an advanced stage, after the cancer has metastasised.”

DIAGNOSTIC AND CLINICAL CHALLENGES

Professor Van Meerbeeck highlights the challenges of diagnosing asbestos-related diseases, noting that “the symptoms, such as persistent coughing,

Asbestos-induced chronic inflammation and mesothelioma carcinogenesis
van Zandwijk N, Rasko JEJ, George AM, The Lancet 2022; 23: 1245-48





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shortness of breath, and chest pain, are often nonspecific and can overlap with other pulmonary conditions, including Chronic Obstructive Pulmonary Disease (COPD)." This diagnostic ambiguity often results in delays, particularly for mesothelioma, which is typically identified at an advanced stage when treatment options are severely limited. "By the time symptoms become apparent, significant damage may have occurred, limiting treatment options and reducing the likelihood of positive outcomes," he cautions.

When it comes to screening efforts, Professor Van Meerbeeck expresses skepticism about large-scale screening programmes. "Some European countries invest in CT scan screening for asbestos-exposed workers; however, I believe that such mass screening campaigns often lead to a false sense of security and unnecessary anxiety."

TREATMENT STRATEGIES

Professor Van Meerbeeck explains that there currently is no cure for malignant mesothelioma. "Treatment primarily focuses on extending survival and alleviating symptoms. Surgical interventions may benefit selected patients, particularly in the early stages, by removing affected pleural tissue. However, due to the invasive nature of the surgery and patient eligibility limitations, this option is not widely suitable."

According to Professor Van Meerbeeck, immunotherapy, particularly combination therapies with immune check point inhibitors, is a promising approach. "These therapies enhance the body's immune response to cancer cells and have shown positive results in clinical trials. They offer hope for improving survival and quality of life in patients with advanced disease." He emphasizes that palliative care remains a cornerstone of mesothelioma treatment, "managing symptoms such as pain and breathlessness,. While it cannot cure the disease, it plays a critical role in enhancing quality of life through comfort and symptom relief."

THE POTENTIAL OF EARLY DETECTION

"Recent research has shown promise in the early detection of asbestos-related diseases through blood-based DNA methylation markers," Professor Van Meerbeeck says. "Studies at the University of Antwerp suggest these biomarkers could help in the early detection of mesothelioma in individuals at high risk, when treatment is more effective. This early research holds the potential to transform the diagnosis of asbestos-related diseases and allow an appropriate early intervention."

A CALL FOR CONTINUED VIGILANCE

Despite stringent regulations to reduce exposure, asbestos remains present in many older buildings and industrial complexes, underscoring the need for careful planning in renovation projects. "In Belgium, the introduction of an asbestos certification programme has been a crucial step in promoting safer practices", Farouk El Abdellati, an expert in asbestos detection says. However, continuous vigilance is essential to help enforce these regulations and assist the drive to protect public health.

El Abdellati also highlights the importance of accurate analysis. "Asbestos experts collect samples from buildings and send them to specialised laboratories like QLab, located at the Science Park of the University of Antwerp, for detailed analysis." These labs play a critical role in identifying and categorising asbestos types, which is vital for safe and effective remediation. "With six distinct types of asbestos, each posing different health risks, the precision of laboratories like QLab is essential in accurately assessing and managing potential exposure," he emphasises.

TOWARDS A SAFER FUTURE

Asbestos-related diseases continue to pose major public health challenges. While progress has been made in understanding exposure risks, significant gaps remain in early detection and treatment. Ongoing research into diagnostic tools, such as DNA methylation markers, along with comprehensive prevention strategies, can help mitigate the long-term health effects of asbestos contamination. By strengthening data surveillance, improving treatment options, and promoting safe renovation practices, we can reduce the incidence of asbestos-related diseases and enhance public health outcomes.

About Prof. Dr. Jan P. van Meerbeeck
Jan P. van Meerbeeck is an honorary professor at Antwerp and Ghent University and a senior consultant at Antwerp University Hospital. He obtained his MD magna cum laude from the University of Antwerp (1980) and later specialized in internal medicine, pulmonology, and thoracic oncology. In 1997, he earned a PhD on lung cancer presentation in Flanders.
He previously led the Thoracic Oncology Program at Ghent University Hospital and later served as director of Pulmonology and Thoracic Oncology at Antwerp University Hospital. His research focuses on lung cancer screening, mesothelioma management, and volatile biomarkers. He has coordinated multiple international clinical trials and supervised 18 PhD graduates. Prof. van Meerbeeck is a fellow of the European Respiratory Society (ERS), former chair of its Thoracic Oncology Assembly, and a member of IASLC. He has held leadership roles in the EORTC Lung Cancer Group, Belgian College of Oncology and the Belgian Respiratory Society (BeRS). With over 450 peer-reviewed publications, he remains active in scientific advisory boards and cancer charities.

About Farouk El Abdellati
Farouk El Abdellati is a freelance engineer and founder of QLab, a laboratory specializing in asbestosis analysis. He holds a Master's degree in Chemical Engineering Technology from the University of Antwerp (2013–2018) and has extensive experience in production and project engineering. Before launching QLab, he worked as a Technical Service Engineer at Nippon Gases, a Manufacturing Project Engineer at Atlas Copco, and a Production Engineer at Saint-Gobain.
At QLab, Farouk integrates his materials expertise and engineering background to provide reliable asbestos analysis while expanding the lab's consultancy services.

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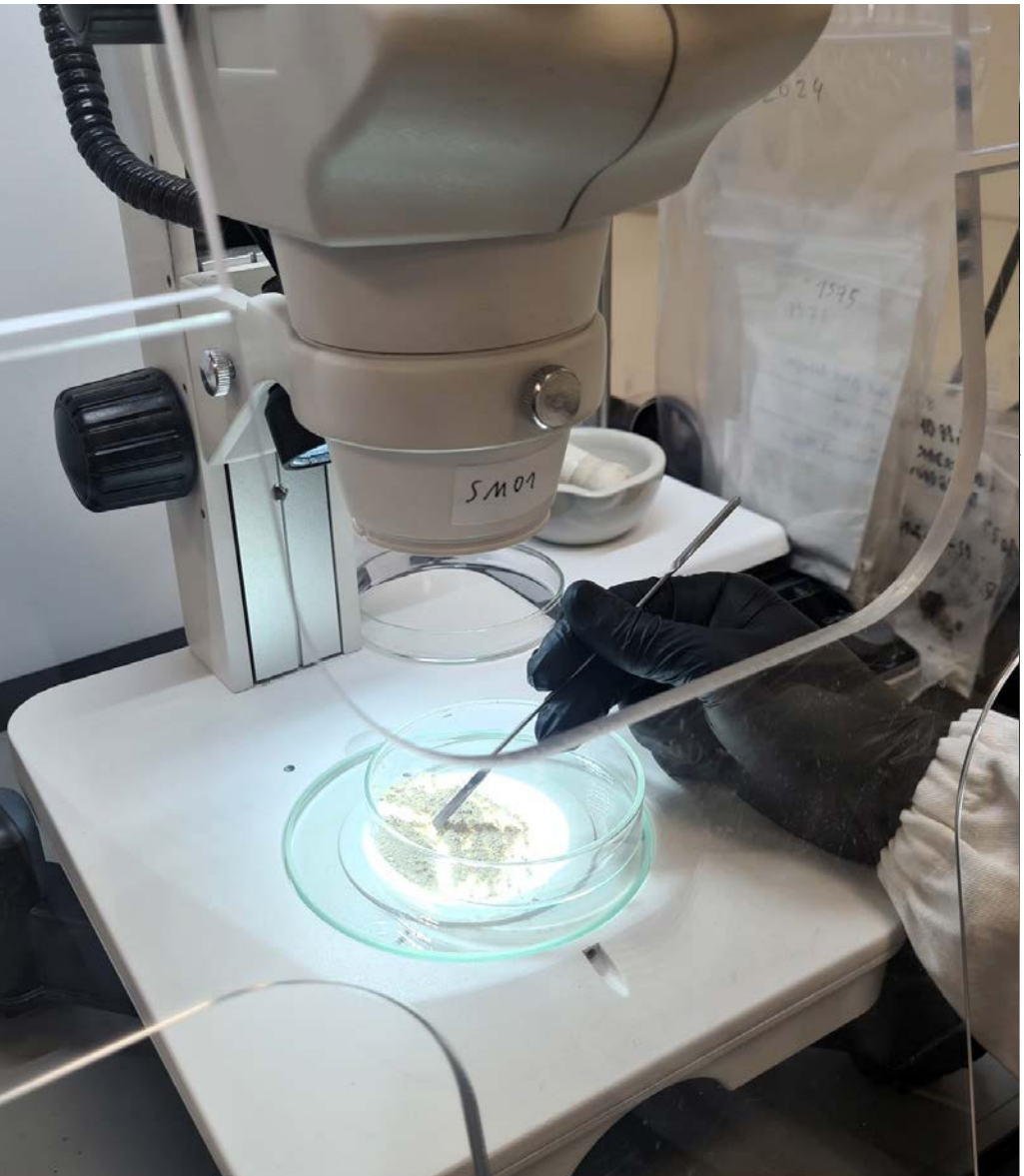

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