International Agency for Research on Cancer

World Health Organization

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Thermal ablation: cost-effective and safe for the treatment of cervical precancer (IARC Evidence Summary Brief No. 7)

Lyon, France, 17 November 2025 – Evidence from 15 years of research by the International Agency for Research on Cancer (IARC) has shown that a new portable, low-cost, battery-powered device, a thermal ablator co-developed by IARC and a team of engineers, is as effective and safe in treating cervical precancers as current standard-of-care methods.

In its seventh Evidence Summary Brief,[1] IARC highlights key findings from multiple studies conducted in research and programmatic settings that generated evidence on the efficacy, safety, feasibility, scalability, and cost–effectiveness of thermal ablation. This new Evidence Summary Brief calls on policy-makers to continue supporting the deployment of the device, particularly in low- and middle-income countries.

Cervical cancer remains a leading cause of cancer-related deaths among women in resource-limited settings. Effective treatment of precancerous lesions detected through screening is essential to prevent progression to invasive cancer.

For decades, cryotherapy was one of the major modalities available for ablative treatment of precancerous lesions. However, the high cost, unreliable supply, quality concerns, and portability issues associated with the refrigerant gas that is essential for the procedure posed significant barriers to the scaling up of cryotherapy in low- and middle-income countries.

An effective treatment option, safe and cost-effective

IARC-led studies, including extensive research in Zambia in collaboration with Professor Groesbeck Parham, Dr Leeya Pinder, and their team, have been instrumental in developing and testing the thermal ablation device. The results of these studies provided a strong evidence base for the World Health Organization (WHO) to recommend thermal ablation as a treatment option for eligible women.

“In low-resource settings, where health systems must navigate competing economic priorities, the widespread adoption of effective, accessible, and affordable technologies is not merely an option but a necessity,” says Dr Pinder of the University of Cincinnati College of Medicine (USA). “Thermal ablation directly meets this need, making it a critical tool for scaling up cervical precancer treatment.”

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[1] IARC (2025). Thermal ablation: cost-effective and safe for the treatment of cervical precancer (IARC Evidence Summary Brief No. 7). Available from: https://www.iarc.who.int/wp-content/uploads/2025/11/IARC_Evidence_Summary_Brief_7.pdf.

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Key study findings

The study that was initiated in Zambia in 2017 and involved more than 3000 women with screen-positive cervical lesions found that thermal ablation is as effective as cryotherapy and large loop excision of the transformation zone (LLETZ) for treating cervical precancer.

After 12 months, the treatment success rates were similar across all three groups, including among women living with HIV, supporting WHO recommendations that thermal ablation is a safe and effective treatment option for cervical precancer in the general female population.

The IARC study also found that thermal ablation is safe, well-tolerated, and highly cost-effective for treating cervical precancer. Patients who received thermal ablation reported very low levels of pain, and no serious complications were observed. Health providers preferred the method for its simplicity, speed, and portability. Economic analysis showed that thermal ablation costs less per treated woman than cryotherapy or LLETZ, while offering comparable effectiveness. These findings make it a strong candidate for inclusion in national cervical cancer prevention programmes.

Key evidence messages

The key evidence messages of the Evidence Summary Brief are the following:

- Thermal ablation is clinically effective and safe for the treatment of eligible cervical precancer.
- Thermal ablation, in an IARC study, is the most cost-effective treatment option for cervical precancer (with a cost of US$ 13.50 per treated woman).
- Use of thermal ablation devices is scalable and is endorsed by WHO.
- Further research is needed into how the microbiome of the cervix and other factors can guide personalized follow-up care.

Call to action

- Policy-makers should continue to support thermal ablation, which is being deployed in many countries worldwide.
- Governments should make provision for training of nurses and other health professionals in thermal ablation, within the regulatory context of their specific context.
- Programmes should ensure post-treatment follow-up care, particularly for women living with HIV because of higher risk of recurrence.
- Governments should prioritize procurement and implementation strategies for thermal ablation in low- and middle-income countries, supporting sustainable inclusion in health benefit packages.

“Limited access to affordable, effective technologies is a major contributor to the high rates of death from cervical cancer among women in low- and middle-income countries,” says Professor Parham of the University of Cincinnati Research and Training Alliance (Zambia). “For too long, product development and pricing have been

driven by the priorities of high-income markets, often overlooking the realities on the ground in low- and middle-income countries. We urge technology developers to shift towards inclusive, partnership-driven innovation – working alongside institutions in low- and middle-income countries to co-create scalable, low-cost solutions."

Note to the Editor

This IARC Evidence Summary Brief is the seventh in a series of scientific Evidence Summary Briefs published by IARC to call attention to the findings of evidence-based studies in key aspects of cancer prevention. IARC Evidence Summary Briefs are available from https://www.iarc.who.int/evidence-summary-briefs-series/.

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