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# From high costs to high access: breaking barriers in breast magnetic resonance imaging artificial intelligence, abbreviated protocols, and the future of accessibility

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**Objective:** To provide a comprehensive overview of the main tools currently in development, expected to optimize the accessibility of magnetic resonance imaging (MRI) in the context of breast cancer screening and diagnosis. **Methods:** This is a literature review performed on the PubMed database using the terms “low-field MRI”, “barriers breast MRI”, “future breast MRI”, “costs breast MRI”, between the years 2020 and 2025. **Results:** A total of 148 studies were evaluated; of those, 24 articles described innovative strategies in development to improve breast MRI accessibility. Abbreviated protocols have been validated to reduce exam duration and lower costs compared to traditional MRI by utilizing only essential sequences for evaluating high-risk patients. Additionally, models utilizing isolated diffusion-weighted imaging sequences have shown promise, offering insights into tissue cellularity and membrane integrity, with potential applications in high-risk screening. Artificial intelligence (AI) software has been designed to improve diagnostic accuracy and reduce interpretation time, thus increasing exam capacity and lowering per-exam costs. Certain tools, such as AISmartDensity, analyze mammograms to identify patients who may benefit from additional MRI, thus preventing and optimizing the use of limited resources available in public healthcare systems. Moreover, studies also explored reducing magnetic field strength (0.55T–1T) as a means of improving cost-effectiveness, utilizing AI to enhance signal-to-noise ratio and image acquisition, as the reduced magnetic field may result in compromised image quality. Additionally, theoretical studies suggest a future role for portable MRI systems and simulated contrast MRI, although commercial models are not yet available. **Conclusion:** Addressing disparities in breast MRI is both possible and should be encouraged through cost-reduction strategies, as well as the development and support of novel software. Furthermore, protocol optimization ought to be stimulated in institutional centers, considering its potential impact on breast cancer care, particularly for high-risk women.

**Keywords:** magnetic resonance imaging; artificial intelligence; future.