The Impact of Medical Innovation on Health and Disability

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October 2025

Abstract

This paper investigates the impact of one of the most important surgical innovations in recent decades: the move from traditional open surgery to minimally invasive surgery. Using an instrumental variables strategy along with administrative data on health and disability for injured workers undergoing orthopedic surgery, we quantify the impact of minimally invasive surgery (compared to analogous open surgery) on subsequent health care use, return to work, long-term disability, and social insurance payments. The findings suggest minimally invasive surgery reduces health care costs in the two years following surgery by 33%—through both reduced complexity of the surgery itself and large reductions in subsequent medical care in the two years following surgery. Analysis by type of service suggests minimally invasive surgery reduces subsequent office visits, opioid use, and revision surgeries. Moreover, we document that minimally invasive surgery also improves broader measures of patient health and disability—speeding return to work (by 20 days), reducing permanent disability severity (by 21%), and reducing associated social insurance costs (by 25%). We conclude by documenting trends in the adoption of minimally invasive surgeries and exploring the policy implications of our findings in light of these trends.

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