

# Spin Is Common in Studies Assessing Robotic Colorectal Surgery: An Assessment of Reporting and Interpretation of Study Results

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**BACKGROUND:** Spin has been defined previously as “specific reporting that could distort the interpretation of results and mislead readers.”

**OBJECTIVE:** The purpose of this study was to determine the frequency and extent of misrepresentation of results in robotic colorectal surgery.

**DATA SOURCES:** Publications referenced in MEDLINE or EMBASE between 1992 and 2014 were included in this study.

**STUDY SELECTION:** Studies comparing robotic colorectal surgery with other techniques with a nonsignificant difference in the primary outcome(s) were included.

**INTERVENTIONS:** Interventions included robotic versus alternative techniques.

**MAIN OUTCOME MEASURES:** Frequency, strategy, and extent of spin, as previously defined, were the main outcome measures

**RESULTS:** A total of 38 studies (including 24,303 patients) were identified for inclusion in this study. Evidence of spin was found in 82% of studies. The most common form of spin was concluding equivalence between surgical techniques based on nonsignificant differences (76% of abstracts and 71% of conclusions). Claiming improved benefits, despite nonsignificance,

was also commonly observed (26% of abstracts and 45% of conclusions). Because of the small sample size, we did not find evidence of an association between spin and study design, type of funding, publication year, or study size. Acknowledging the equivocal nature of the study happened rarely (47% of abstracts and 34% of conclusions). The absence of spin predicted whether authors acknowledged equivocal results ( $p = 0.02$ ). A total of 50% of studies did not disclose whether they received funding, whereas 39% of studies failed to state whether a conflict of interest existed.

**LIMITATIONS:** A limited number of randomized controlled trials were available.

**CONCLUSIONS:** Spin occurred in >80% of included studies. Many studies concluded that robotic surgery was as safe as more traditional techniques, despite small sample sizes and limited follow-up. Authors often failed to recognize the difference between nonsignificance and equivalence. Failure to disclose financial relationships, which could represent potential conflict(s) of interest, is concerning. Readers of these articles need to be critical of author conclusions, and publishers should ensure that conclusions correspond with the study methods and results.

**Financial Disclosure:** Dr Wexner has stock options in Intuitive Surgical for consulting.

Podium presentation at the meeting of The American Society of Colon and Rectal Surgeons, Boston MA, May 30 to June 3, 2015.

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Dis Colon Rectum 2015; 58: 878–884  
DOI: 10.1097/DCR.0000000000000425  
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**KEY WORDS:** Colorectal surgery; Robotic surgery; Spin.

Robotic surgery has increased in popularity in colon and rectal surgery. Hoping to expand on the recognized advantages of laparoscopic colorectal surgery, robotic platforms are being used for the resection of both benign and malignant colorectal pathologies. Consequently, a growing number of studies have been published to validate the use of robotics in colon and rectal surgery. The perceived advantages of robotic surgery, including better visualization, improved mechanics, and