

TITLE:

Global Trends and Prospects in Health Economics of Robotic
Surgery: A Bibliometric Analysis

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Supplemental Digital Content 3: study in context

To provide readers with an opportunity to thoroughly explore and gain deeper insights into the novelty of our study, we conducted a search in the Web of Science database using the following search strategy: "TS=(robot or robotic or robot-assisted or robot-enhanced) AND TS=(surgery or surgical or operation or operative) AND TS=(bibliometric or bibliometrics)." This search yielded a total of 34 documents. From these, we analyzed the content of 19 documents published within the last three years, which are summarized in the table below.

Among the 19 analyzed documents, we found that some were considered less relevant to robotic surgery. However, the remaining bibliometric analyses of robotic surgery could be categorized into three types:

- 1) studies focusing on robot-assisted surgery within specific disciplines,
- 2) studies focusing on surgical robots applied in specific disciplines
- 3) studies examining robotic surgeries in general

However, none of these studies focused on the health economics of robotic surgery, as our study does. The novelty of our study lies in being the first bibliometric analysis that specifically focuses on the health economics of robotic surgery. By analyzing global trends and prospects, our study aims to provide valuable insights for scholars working in the field of robotic surgery as well as policy makers.

Category	Title	Publish date	Keywords	Main content	Reference
Less relevant	Research hotspots and trends in internal fixation of femoral neck fractures from 2010 to 2022: A 12-year bibliometric analysis.	Jun 09 2023	none	This study reveals the future research focus of the internal fixation of femoral neck fractures (INFNF), providing valuable insights into future research directions and ideas for those working in this field.	1
Less relevant	The global status and hotspots of research in the field of trans-oral endoscopic thyroidectomy (TOET) from 2008 to 2022.	Apr 27 2023	thyroidectomy transoral vestibular approach research trends TOET bibliometrics	This study uncovers the main research topics of trans-oral endoscopic thyroidectomy (TOET), suggesting that more academics will focus on the safety of the procedure and reducing complications.	2
Less relevant	Evolution of Inguinal Hernia Publications: A Bibliometric Analysis from 1980 to 2021.	Apr 25 2023	bibliometrics laparoscopy hernia femoral inguinal	This study analyzes the keywords in inguinal hernia publications in recent years	3
Type 2	Global research status and trends in orthopaedic surgical robotics: a bibliometric and visualization analysis study.	Apr 05 2023	bibliometrics information visualization orthopaedics surgical robot	This study reveals the current status and trends of global research on orthopaedic surgical robots, providing directional guidance and	4

				research ideas for further research on the technological development and clinical evaluation of orthopaedic surgical robots.	
Less relevant	Global productivity and research trends of colorectal carcinoma: A scientometric analysis of studies published between 1980 and 2021.	Feb 22 2023	bibliometric analysis colon cancer colorectal cancer rectal cancer trends	This study analyzes the hot topics, inter country cooperation, and citation relationships of the Colorectal Cancer (CRC), and found a significant positive correlation between the number of articles produced by the countries on CRC and gross domestic product and human development index	5
Less relevant	Clinical Application of Rapid Upper Limb Assessment and Nordic Musculoskeletal Questionnaire in Work-Related Musculoskeletal Disorders: A Bibliometric Study.	Jan 20 2023	bibliometrics citation analysis top cited articles work-related musculoskeletal disorders	This study identifies and describes the 50 most cited scientific articles in work related Musculoskeletal orders (WMSDs), and explores factors that contribute to making the articles influential.	6
Type 1	R2 advances in robotic-assisted spine surgery: comparative analysis of	Dec 14 2022	robot spine degenerative disease	This review examines the application of robots in spinal surgery, the publication output,	7

	options, future directions, and bibliometric analysis of the literature.		spinal surgery	surgical results, screw accuracy, and cost-effectiveness of these technologies over time.	
Type 3	A Bibliometric Analysis of Robotic Surgery From 2001 to 2021.	Mar 8 2022	accuracy science web	This study suggests that research into robotic surgery is still in its infancy with further reviews of the literature and greater output through large randomised controlled trials in multiple centres through collaborative research needed.	8
Type 3	Top 100 most-cited original articles, systematic reviews/meta-analyses in robotic surgery: A scientometric study.	Apr 22 2021	robotic surgery original article systematic review meta-analyses scientometrics	This study analyzes the focus of the top 100 most cited original articles, systematic reviews (SRs)/meta-analyses (MAs) in robotic surgery.	9
Less relevant	Pediatric urology research in 2020: A bibliometric analysis of the top 100 most cited articles.	Dec 29 2021	pediatric urology bibliometric analysis top cited articles transitional care robotic-assisted laparoscopic surgery	This study reveals the distribution and research focus of the top-cited articles in pediatric urology.	10
/	Letter to the Editor Regarding "Global Research Trends in Robotic Application in	Dec 15 2021	surgery	None	11

Neurosurgery: A Systematic
Bibliometric Analysis .

Type 1	Clinical application of robotic orthopedic surgery: a bibliometric study.	Nov 22 2021	bibliometrics research robotic surgical procedures orthopedics	This study summarizes the clinical research of orthopedic robots on study type, sample size, type of surgery, robot information, surgical site, most popular keywords, most cited papers, journals, authors, institutions, and countries.	12
Type 1	Global Research Trends in Robotic Applications in Spinal Medicine: A Systematic Bibliometric Analysis.	Sep 06 2021	bibliometrics keyword research hotspots robotic applications spine	This study provides a bibliometric overview of robotic applications on the spine.	13
Type 3	A Bibliometric Analysis of Overall and Top 100 Most-Cited Studies About Robotic Surgery Versus Open Surgery.	Jun 30 2021	bibliometric robotic surgery	This study suggests that the lack of close cooperation among scientific research institutions may have affected the industrialization process of surgical robots.	14
Less relevant	Bibliometric Analysis of the Top-Cited Articles on Unicompartmental Knee Arthroplasty.	Apr 27 2021	unicompartmental arthroplasty bibliometric analysis top cited articles knee	This study reveals the output and citation trend, geographical distribution and research hotspots of researches on Unicompartmental Knee	15

Less relevant	Research on neck dissection for oral squamous-cell carcinoma: a bibliometric analysis.	Apr 01 2021	None	Arthroplasty via analyzing the top cited articles. This study assessed the development of research on neck dissection for oral squamous-cell carcinoma (OSCC) in terms of the historical evolution, current hotspots and future directions, which will assist investigators in exploring potential research directions.	16
Type 1	A progressive scholarly acceptance analysis of robot-assisted arthroplasty: a review of the literature and prediction of future research trends.	Jan 03 2021	robot-assisted arthroplasty total hip arthroplasty total knee arthroplasty unicompartmental knee arthroplasty progressive scholarly acceptance literature review	This study analyzes all published robot assisted arthroplasty (RAA) primary studies and evaluates their acceptance as orthopedic surgical techniques.	17
Less relevant	The most influential papers in mitral valve surgery; a bibliometric analysis.	Jul 20 2020	mitral valve mitral valve replacement mitral repair bibliometric analysis valve surgery cardiac surgery cardiovascular	This study analyzes the top 100 cited papers relevant to mitral valve surgery, identifying the most influential papers that guide current management, the institutions that produce them and the	18

			minimally invasive percutaneous surgery robotic surgery	authors involved.	
Less relevant	Modeling the Research Landscapes of Artificial Intelligence Applications in Diabetes (GAP(RESEARCH)).	Mar 02 2020	artificial intelligence machine learning diabetes bibliometric IDA	This research analyzes five emerging research fields of applying artificial intelligence to diagnosis, management and prediction of diabetes.	19

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