



# Clinical decision support

Foreword

Key studies:  
Clinical decision support  
Clinical trials  
Genomics

Bibliography

Many early publications pertaining to Watson for Oncology (WfO) decision support were feasibility studies, looking at the concordance of WfO recommendations relative to those of individual tumor boards in countries around the globe. In some cases, clients have demonstrated rates of concordance between Watson for Oncology and local tumor boards at rates in excess of 90%. Even more important than concordance, however, is the opportunity for a decision support tool to inform treatment decisions. In two of the studies that follow, physicians reviewed and ultimately chose treatments that they had not previously considered based on recommendations from WfO.<sup>15,16</sup>

Other studies reflect potential use cases for WfO to address variability of care, demonstrate shared decision making, support evidence curation, boost patient confidence in their care plans, and improve physician and patient satisfaction.

Artificial intelligence-driven oncology decision support that brings sub-specialized expertise to practitioners with global reach is a novel endeavor. The ongoing enhancement of WfO is a journey that we carry out in close partnership with physician users across the globe.

<sup>15</sup> Jiang Z et al. Concordance, decision impact and guidelines adherence using artificial intelligence in high-risk breast cancer. *J Clin Oncol.* 2018;36 (suppl; abstr e18566).

<sup>16</sup> Lee KA et al. Concordance, Decision Impact, and Satisfaction for a Computerized Clinical Decision Support System in Treatment of Lung Cancer Patients. *European Lung Cancer Congress; April 11, 2019; Geneva, Switzerland*

A prospective blinded study of 1000 cases analyzing the role of artificial intelligence: Watson for Oncology in change of decision making of a multidisciplinary tumor board (MDT) from a tertiary care cancer centre\*

Somashekhar SP et al. ASCO Annual Meeting 2019

\*no contributing IBM author

[Link to study →](#)

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The study suggest[s] that cognitive computing decision support system[s] holds substantial promise to reduce cognitive burden on oncologist[s] by providing expert, updated, recent evidence-based [evidence-informed] insights for treatment-related decisions making.

Excerpt from abstract

MDT evaluated 1,000 breast, lung, and colorectal cancer cases



MDT was presented with Watson for Oncology's treatment options

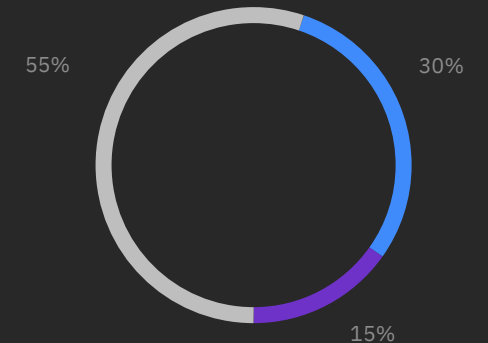


MDT reviewed and finalized their decision

The MDT changed their decision in 13.6% of the cases.

Reason for decision change:

- Evidence for newer treatments(s)
- More personalized treatment alternatives
- New genotypic, phenotypic and clinical insights



# Concordance, decision impact and guidelines adherence using artificial intelligence in high-risk breast cancer\*

Jiang Z et al. ASCO Annual Meeting 2018

\*no contributing IBM author

[Link to study →](#)

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When treatment decisions were altered, the newly selected therapies showed greater adherence to professional treatment guidelines.

Excerpt from abstract

1,997

breast cancer cases from CSCO database

Disclosure of Watson for Oncology options resulted in prescriber treatment changes in 106 or 5% of cases

106 cases (5%)



The guideline adherence rate improved in the 106 cases where decision changes were made from 89 to 97%

97%



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