Study finds myeloma care still lacking practical tools to personalize treatment

A recent study published in the European Journal of Haematology reports that patients with the same cancer diagnosis can respond very differently to treatment.

The study is of clear interest to healthcare providers and cancer centers, as it sits at the intersection of precision medicine, digital health, and patient-centered cancer care. Credit: Michal Jarmoluk

SHARJAH, EMIRATE OF SHARJAH, UNITED ARAB EMIRATES, April 27, 2026 /EINPresswire.com/ -- Although patients with the same cancer diagnosis may respond very differently to treatment, clinicians still have limited tools at their disposal to predict who is most likely to benefit or suffer from a particular myeloma therapy.

These findings are reported in a recent study published in the European Journal of Haematology, in which the authors present a comprehensive review of the field. The study maps the current approaches to prediction in multiple myeloma, highlighting what is missing and outlining the path forward for truly personalized care of cancer patients.

“This paper does not claim to have solved the problem,” said Dr. Ahmad Abuhelwa, Associate Professor of Clinical Pharmacology and Pharmacometrics at the University of Sharjah and a co-author. “Instead, it clearly identifies the problem, explains why it matters, and defines what is needed next.”

Dr. Abuhelwa explained that while existing prediction models in multiple myeloma are promising, they remain insufficient for routine care. “We highlight major gaps in tools needed to personalize treatment,” he said. “Patients with multiple myeloma … still lack reliable ways to predict treatment response before therapy begins.”

The researchers argue that practical, clinically usable tools are essential to guide personalized treatment in multiple myeloma, a disease with promising and expanding treatment options. By

identifying what precision care is currently, the authors aim to set the agenda for next-generation precision tools in multiple myeloma that are meaningful for both doctors and patients.

The researchers examine the growing interest in artificial intelligence and clinical integration. They caution that AI tools, though very useful, cannot yet provide precise prediction. The work clarifies what must be developed before clinicians can safely and effectively deploy existing prediction tools in everyday practice.

“Multiple myeloma treatment is becoming more complex,” Dr. Abuhelwa emphasized. “But decision-based tools are lagging behind. Better treatment decisions need better prediction.”

Current state of clinical prediction models

The authors, affiliated with universities in the US, Australia, Jordan, and the United Arab Emirates (UAE), conducted a structured search of PubMed and Embase/Scopus to identify multivariable clinical prediction models developed within a static treatment framework for multiple myeloma. The authors focused on models evaluating treatment-specific therapeutic or toxicity-related outcomes.

Data was extracted on treatment regimes, predictors, modeling methods, validation strategies, and reporting of clinical utility.

Analyzing the data, the researchers identified 13 eligible models, 10 of which measured therapeutic outcomes and the remaining three assessed toxicity-related outcomes. Developed across a range of treatment settings, these models included bortezomib-based induction therapy, daratumumab-containing combinations, ixazomib-based triplets, and CAR T therapy.

“Most models used traditional regression methods; calibration was inconsistently reported, and external validation was performed in seven studies. Decision curve analysis was included in only two models,” the authors write.

Precision oncology is not only about discovering biomarkers, said Mays M. Jarrah, the study’s lead author and a doctoral candidate at the University of Sharjah’s College of Pharmacy. “It is also about translating data into decisions that improve patient care. This review highlights why that translation step remains a major unmet need in multiple myeloma.”

Asked about the study’s significance, Jarrah said the findings underscore several critical messages. While promising models already exist, “very few of them have undergone the level of validation and implementation needed for real-world use. That is the gap between academic development and clinical impact and closing that gap should be the next priority.”

According to Jarrah, the study’s importance lies in its efforts to clarify where the field currently

stands and chart a path forward. “Once we [authors] identified the methodological and translational gaps,” she said, “we moved to provide a roadmap for building more clinically meaningful, patient-centered tools that could eventually help clinicians and patients make more informed treatment decisions.”

Gaps between prediction models and clinical practice

The research is of immediate practical relevance because it clearly outlines what must be in place before prediction tools can meaningfully support clinical practice. In real-world myeloma care, treatment decisions often require careful trade-offs between the risk of serious side effects and potential treatment benefits.

According to the authors, effective treatment-specific prediction models could eventually help clinicians estimate survival outcomes, predict treatment response, or assess the likelihood of severe toxicities for individual patients before treatment begins.

A key practical contribution of the study is its articulation of design standards that future tools should meet. These include stronger and more consistent validation, improved calibration, broader integration of biologically relevant variables, inclusion of patient-reported outcomes, and translation into usable platforms such as web-based calculators or decision-support systems.

“Methodological and translational gaps remain, including limited transparency, scarce external validation, and lack of patient-reported or longitudinal predictors,” the authors note. “None of the models have been implemented as online calculators or integrated into electronic decision-support systems, limiting real-world uptake. Addressing these gaps is essential for developing clinically meaningful prediction tools to support personalized treatment in multiple myeloma.”

The topic is of clear interest to healthcare providers and cancer centers, as it sits at the intersection of precision medicine, digital health, and patient-centered cancer care. It is also highly relevant for developers of clinical decision-support tools, as the review identifies the practical and methodological barriers that currently hinder useful implementation.

“Multiple myeloma is not one uniform disease,” emphasized Dr. Abuhelwa. “Patients can respond very differently to the same treatment, and that creates real uncertainty in clinical practice. Our review shows that while prediction models are emerging, the tools currently available are still not ready to fully support routine personalized treatment decisions.”

Prediction models have limits

While the authors acknowledge that the field is moving in the right direction, they find that many models still suffer from important limitations. Most rely mainly on routine clinical and laboratory variables, with only a few incorporating more advanced disease characteristics such as

cytogenetics. Notably, none of the reviewed models included patient-reported outcomes.

The authors also found that external validation was limited, calibration was inconsistently reported, and decision curve analysis was rarely performed. None of the identified models had been translated into online calculators or integrated electronic decision-support tools. “In simple terms, promising ideas exist, but they are not yet mature enough for widespread use in everyday care,” said Dr. Abuhelwa.

Multiple myeloma is the second most common blood cancer worldwide. In 2022 alone, an estimated 188,000 new cases and 121,000 deaths were reported globally. It is a highly heterogeneous disease, with patients experiencing widely different disease trajectories, treatment responses, and side effects. Although treatment options have expanded significantly in recent years, selecting the optimal treatment for the right patient remains a significant clinical challenge.

“This study is important because it shows that science is moving toward precision care in myeloma, but the practical tools clinicians need are still missing,” said Prof. Humaid Al-Shamsi of the Department of Oncology at the UAE Burjeel Cancer Institute and a co-author of the study. “We hope this work helps accelerate the development of reliable, user-friendly models that can better support patients and doctors.”

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