



New AI developed at OSF HealthCare to help those who help cancer patients

Algorithm designed to predict and better distribute work among cancer patient navigators

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(June 23, 2023 | PEORIA, ILLINOIS) – A cancer diagnosis can be overwhelming. Nurse navigators offer much-needed service and support to help prevent patients from becoming overwhelmed by uncertainty, appointments, diagnostics, treatment, their job, and financial concerns, as well as the psychological impact of a serious diagnosis. Cancer patient navigators provide education, advocacy and support while facilitating the process of cancer care.

But the job of a cancer patient navigator can be challenging. The complexities of health care, the gravity of a cancer diagnosis, and the growing number of cancer patients served by the health system can create enormous stresses on all involved, including the cancer patient navigators. This can lead to burnout which could threaten the ability to recruit and retain those performing this critical service for cancer patients. OSF HealthCare has 15 cancer patient navigators at its largest hospital, Saint Francis Medical Center in Peoria, Illinois. Each navigator specializes in serving patients with specific types of cancer.

At any point in time, one navigator in a specialty might have much more work than others in the same specialty. However, OSF cancer patient navigators typically do not transfer care to another navigator when workloads are heavy, because they seek to maintain consistent patient relationships throughout the care journey. Within these constraints, a team led by OSF's Senior Fellow for Innovation, Jonathan Handler, MD, sought to develop a solution to better balance workloads among cancer patient navigators within a cancer specialty.

The team included researchers from OSF Healthcare and its [OSF Innovation group](#), the University of Illinois College of Medicine Peoria, the University of Illinois Urbana-Champaign, and the Northwestern University Feinberg School of Medicine. The work was funded by a grant from [Jump ARCHES](#), a strategic partnership between OSF HealthCare, the University of Illinois College of Medicine at Peoria, and the University of Illinois Urbana-Champaign.

The team developed a model to predict the upcoming week's work for each navigator's existing patients and for new patients needing navigation. A second model then distributes the new patients among navigators within a specialty to minimize differences among those navigators in their upcoming week's workload. The model makes the predictions using data already contained in a patient's electronic health records, such as demographics, cancer type, and prior health care utilization.

"Our cancer patient nurse navigators are highly dedicated, and their workload can sometimes be overwhelming. They never want to shortchange the patient, so they shortchange themselves, working extra hours and sacrificing their own well-being to help patients. We hope our system can even out those workloads and improve their work-life balance."

- Dr. Jonathan Handler, OSF Healthcare Senior Fellow, Innovation

As part of this research, predictor-informed distribution and random distribution were compared, assessing resulting workload differences among navigators in the same cancer specialty. The random comparison was used because OSF cancer patient navigators distribute patients nearly-randomly; except in unusual cases, patients are distributed to relevant specialized navigators on an alternating basis. Anticipated patient needs, navigator experience, and existing workload are generally not considered for this distribution. In this retrospective simulation study, the predictor-informed model achieved significantly greater workload fairness than random distribution. This research was [published in JCO® Clinical Cancer Informatics](#), a peer-reviewed scientific journal.

"At OSF HealthCare, we use innovation to create greater effectiveness, efficiency and access for patients who want clinical excellence, convenience, support, and a positive patient experience," Dr. Handler explains. "We also take

innovative approaches to retain our greatest asset, our Mission Partners (employees), and to help ensure that OSF HealthCare remains an outstanding and gratifying place to work.”

To integrate the smart algorithm for improved cancer patient navigation, OSF Innovation plans to leverage [OSF Community Connect](#), a platform that automates workflows to help OSF Healthcare orchestrate care and resources.

Tenille Oderwald, MSN, RN, a co-author of the paper and manager of Oncology Services at OSF Saint Francis, says the next step will be to pilot the tool. With the planned opening of the [OSF Cancer Institute](#) next year, Oderwald says being able to help navigators’ support and guide patients through appointments and treatment will be important as more people seek care through OSF at its world-class facility.

For additional assets, please visit the [OSF Newsroom](#).

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OSF HealthCare is an integrated health system owned and operated by The Sisters of the Third Order of St. Francis, headquartered in Peoria, Illinois. OSF HealthCare has 15 hospitals – 10 acute care, five critical access - with 2,084 licensed beds throughout Illinois and Michigan. OSF employs nearly 24,000 Mission Partners throughout 150+ locations; has two colleges of nursing; operates OSF Home Care Services, an extensive network of home health and hospice services; owns Pointcore, Inc., comprised of health care-related businesses; OSF HealthCare Foundation, the philanthropic arm for the organization; and OSF Ventures, which provides investment capital for promising health care innovation startups. OSF OnCall, a digital health operating unit, was established in 2020 to improve patient experience, using digital tools for 24-7 communication, on-demand care, remote patient monitoring, and offers the largest hospital-at-home program in Illinois. OSF HealthCare has been recognized by Fortune as one of the most innovative companies in the country. [More at osfhealthcare.org](#).

OSF Innovation was launched in 2016 as a multidisciplinary innovation center focused on internal and external innovation to solve the largest health care challenges. More at [osfinnovation.org](#).