

# UofL biostatistician to develop statistical model that could help answer medical questions

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A University of Louisville professor is developing a statistical model that, among other things, may help determine what prolongs cancer free survival.

Somnath Datta, PhD, a professor in the Department of [Bioinformatics](#) and Biostatistics at the UofL School of Public Health and [Information Sciences](#), and his team will incorporate medical and [genomic data](#) into the [statistical model](#) to find better answers to scientific questions.

A statistical model describes how one or more random variables relates to other variables. A multi-state model, which is the type Datta and his team are developing, looks at process – for example, how a person, moves from one state to another over a period of time.

For someone with cancer, the model could analyze how the disease progresses from one stage to another. Or, for a patient in remission, the model might help determine what prolongs cancer free survival. Datta could incorporate all these factors into his statistical model.

The new statistical model will allow for broad inspection of patient patterns and data collection that are more practical.

"The model will be derived from empirical evidence - based on observation or experience - rather than unverifiable mathematical laws,"

Datta said. "As a result, the prediction from the methodology will be more robust and less likely to include model misspecification errors."

In addition to having applications to [cancer](#) research, the new statistical method will be applicable to many other disciplines ranging from engineering to political science that deal with staged systems – or any system that can transition from one phase or stage to another. In politics, for instance, this would involve all the elements from planning a campaign to taking office.

Datta recently received a two year grant from the National Security Agency (NSA) under the Mathematical Sciences Program for this project. Work is expected to begin this month.

Provided by University of Louisville

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