AS a medical student, Assistant Professor Mikael Hartman (right) vowed never to go into epidemiology.

"Of all the subjects that I had to study in medical school, epidemiology was the most boring," he says of the field. "But it studies the distribution and determinants of health and disease."

But life has a way of making you eat your words. Prof Hartman did, in fact, find his calling in epidemiology, and it was quite by chance.

As part of his PhD candidature at the Karolinska Institute in Sweden where he also obtained his medical degree, he was studying trauma caused by explosives for defence science when he met an oncologist-turned-epidemiologist, who convinced him that doing research on breast cancer was more worthwhile.

After working on a large-scale study involving nearly 130,000 women with breast cancer, Prof Hartman was hooked.

Research on breast cancer

Now a faculty member at the National University of Singapore’s Saw Swee Hock School of Public Health and a consultant breast surgeon at the National University Hospital, Prof Hartman, 45, researches new ways to predict a woman’s risk of developing and surviving breast cancer.

His studies have found that in women who have had cancer in one breast, the risk of developing cancer in the other breast is 55 per cent in the 20 years following initial diagnosis.

This risk is higher in women who are diagnosed young and those who have a family history of breast cancer.

Prof Hartman is also studying the possibility that a woman’s outcome after breast cancer may be dependent on heredity factors.

Such research is possible because epidemiology is a toolbox to examine both the healthy and diseased in various settings.

As the analytical arm of public health, epidemiology provides a population-level understanding of disease.

Its findings help in the formulation of policies and programmes that prevent disease, prolong life and promote health. For example, finding a better way to decide which women should be screened for breast cancer could have an impact on national breast cancer screening programmes as well as the timeliness of diagnosis.

Early detection and treatment means a better outcome and higher chance of survival for patients.

"As a clinician, I see one patient at a time. But in epidemiology, the effects of my work could be multiplied many times over," says Prof Hartman.

Diversity is integral

Researchers cannot work alone, so Prof Hartman has a team of research assistants who are mainly PhD candidates at the Saw Swee Hock School of Public Health.

They have varied academic and professional backgrounds, including pharmacology, biochemistry and mathematics, and embody the multi-disciplinary nature of public health.

Working with such a diverse team helps in the understanding of trends in risk and outcome.

For example, biochemists add value to a study of how biomarkers can contribute to diagnosis or outcome prediction as they have in-depth knowledge of the subject matter.

"If we meet as many colleagues as possible whose work is relevant to each study, this helps to shed more light on how to analyse the data as well as robust ways of interpretation," says Prof Hartman.

A multi-disciplinary himself, Prof Hartman finds value in being both a researcher and a surgeon. His knowledge as a surgeon helps him to understand trends, while being an epidemiologist gives him an appreciation for evidence.

He says: "When I look at data for a particular condition, I know the clinical practice for it. In turn, it has made me a more careful surgeon because I look at the evidence for doing something before I do it."

Rediscovering epidemiology has brought so much meaning to Prof Hartman’s work that his enthusiasm for the field is infectious.

"I am trying to get at least 20 per cent of my undergraduate medical students hooked on research. Epidemiology has allowed me to observe nature’s experiments where clinical trials are not possible. I think it’s an underestimated field and certainly, a joyful experience," he says.

Article by NUS Saw Swee Hock School of Public Health. Applications for the August 2013 intake for the School’s Master of Public Health programme are open in October.

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