How blood and wealth can predict future disability

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Blood tests for 'biomarkers' such as cholesterol and inflammation could predict whether you will be disabled in five years—according to research from the University of East Anglia.

A new study shows how people's biological health can predict disability and healthcare demand in five years' time.

But the researchers also found that people on higher-incomes were more likely to seek GP appointments and outpatient treatments for their medical problems—with evidence of pro-rich inequity across all types of health service use.

Dr. Apostolos Davillas from UEA's Norwich Medical School, said: "We know that the poorest people in England miss out on more than a decade of good health compared with the richest.

"We wanted to find out more about the links between people's social status and their future health—and see whether blood tests could predict future disability and use of health care services."

The researchers looked at elevated bloodstream 'biomarkers' - these are the tell-tale markers linked to different diseases, and they are an objective measure of health.

Biomarkers can tell researchers a lot about what is going on in people's bodies—even before symptoms of disease begin. Testing for 'bad' cholesterol in the bloodstream for example can show a risk of heart disease.

Dr. Davillas' previous research has shown how biomarkers for stress are linked with socioeconomic position and revealed some of the hidden mechanisms connecting social inequality to health.

The researchers studied blood biomarkers from 5,286 participants involved in Understanding Society, the UK Household Longitudinal Study.

They looked at things like cholesterol, liver and kidney function and inflammation—the body's response to infections or chronic stress.

They also looked at measures of obesity, grip strength, resting heart rate, blood pressure, and lung function among the participants.

Dr. Davillas said: "What we found is that underlying biomarker differences are linked with future disability—and that we could actually predict people's level of disability in five years' time, based on the biomarkers in their blood.

"We also found that people's biological health is linked with future demand on healthcare services such as GP and outpatient consultations, as well as time spent in hospital.

"We tried to investigate the mechanism for why this happens and found that people with impaired biological health may develop disability in five years' time—resulting in increased health care and social needs."

But as a by-product of the analysis, the team found that people with higher incomes were more likely to seek the health care they need for their medical problems. This means that there is pro-rich inequity in health care use.

"In a publicly funded health care system, pro-rich inequity in health care use may be because people on lower low-incomes are heavily time-constrained, due to harsher employment and living arrangements, and may be more constrained in seeking the health care they need," Said Dr. Davillas.

The team say their work has important policy implications, particularly for screening programmes and prevention strategies.

Dr. Davillas said: "We found that the markers which matter most for disability progression are associated with lung function, grip strength, obesity, anaemia, stress-related hormones and liver function.

"Indicators such as blood pressure and cholesterol, which are the current focus of public health screening programs, are less useful as predictors of disability.

"The NHS England Health Check program mainly offers blood pressure, cholesterol tests and BMI measurements every five years to those aged 40-74.

"But our research shows that a broader set of blood-based biomarkers should be considered for public health screening programmes.

"This is increasingly feasible using dried blood spot sampling—drops of whole blood collected on filter paper from a finger prick—which offers a minimally invasive basis for carrying out a wide range of blood tests at low cost.

"We also focused our study on people who were apparently healthy, so they wouldn't normally be prioritised by the health care system. We hope our findings could lead to better policies for prevention strategies—which could potentially help the NHS save money.

"Moreover, our results show pro-rich inequity across all types of health service use.

"We hope our findings will help lead to policies to secure more equal health care opportunities across the UK."

'Biomarkers, disability and health care demand' is published in the December issue of the journal *Economics & Human Biology*.

More information: ideas.repec.org/p/zbw/glodps/517.html