

IBM's Watson assesses genetic risk for sudden cardiac arrest

Sudden cardiac arrests kill someone every five seconds. Now the fact-finding power of Watson, IBM's [Jeopardy-winning supercomputer](#), is being harnessed to help assess the genetic risk behind the condition.

Unlike a heart attack, which happens because of a blockage in blood flow to the heart muscle, sudden cardiac arrest can be caused by combinations of hard-to-predict factors, including irregular electrical disturbances that upset heart rhythm, genetic factors and the side effects of drugs. So it can appear to strike out of nowhere.

“Very often,” says Matthias Reumann at IBM’s research lab in Zurich, Switzerland, “the first symptom of sudden cardiac arrest is death.”

So he and his colleagues at the Lawrence Livermore National Laboratory in California and the University of Rochester in New York have turned to supercomputers to help them identify the risk factors leading to fatal arrhythmia. Their algorithms use CT and MRI scans to create detailed 3D computer models of the heart. The simulations mimic the electrical and mechanical behaviour of a beating heart down to the level of cells – allowing the team to recreate the conditions that cause problems. It lets them simulate what happens when you add drugs to the heart cells.

But a crucial component has been missing: genetics. No matter how good the graphics produced by the lab’s IBM Sequoia supercomputer, if a patient’s background genetic susceptibility to sudden cardiac arrest is not factored in, the risk prediction could be way off.

Read full original article: [Watson supercomputer looks for genetic heart danger](#)