

# UK'S BREAST CANCER SCREENING GLITCH

Last May, Health Secretary Jeremy Hunt announced that 450,000 women between the ages of 68 and 71 in the UK failed to receive invitations for a final routine breast cancer screening. Of note, women in the UK from the age of 50 who are registered with a family doctor are automatically invited for screening with a letter every three years until their 71st birthday. Patients cannot ask for an appointment themselves until that age; after that, screening requests can be made every three years.

As a result of the 450,000 failed invitations it has been estimated that up to 270 women succumbed to the disease. This gross mistake spanned over a period of almost ten years, between 2009 and 2017. The first question is posed ... who is to blame? To put it mildly, a computer algorithm failure, involving the programming of people's ages. The second question arises naturally ... how was this glitch revealed? Following an upgrade to the breast screening invitation IT system, which allowed for improved data on the actual ages of the women receiving screening invitations.

Further to this, Sheikh and Sasieni studied data from the screening programme between 2004 and 2017,<sup>1</sup> which included looking at the number of eligible women who were sent invitations each year from the ages of 45 to 70. In a letter to *The Lancet*, they claim that over 502,000 women may have actually been affected.

It is indeed bewildering how such a grave error went unnoticed for all these years. Obviously this has opened a Pandora's box of medico-legal issues which I will not delve into. However, one needs to clearly discuss how this and related problems can be prevented from happening again through periodic independent audits; this is of special importance considering our gradual increasing reliance on intelligent analytics within the internet of things [it is estimated that 26 billion things will be connected to the internet by 2020]. At this stage, artificial intelligence [incorporating failsafe automation systems] within the realm of blockchain may have a pivotal role

in reducing the incidence of this and similar algorithm failures.

The application of artificial intelligence in blockchain also has another important application relating to diagnostic accuracy. In keeping with this, in February of 2018, Skychain Global, a blockchain startup, has successfully conducted a medical diagnostics test in Russia, reviewing the number of errors committed by doctors vs the number of errors generated by AI. The test related to the accuracy of melanoma and breast cancer diagnosis as well as the interpretation of ECG results. The challenge may be viewed at [www.youtube.com/watch?v=NeqnhaghfrI](http://www.youtube.com/watch?v=NeqnhaghfrI). Of note is the considerable reduced false positive and false negative results by AI; in real life, the utilization of such AI-powered diagnostic software in clinical practice would possibly translate in a reduction in financial burden of further diagnostic workup, reduction of patient morbidity, etc.

As Nicholson Price notes in his piece *Black Box Medicine*,<sup>2</sup> medicine "already does and increasingly will use the combination of large-scale high-quality datasets with sophisticated predictive algorithms to identify and use implicit, complex connections between multiple patient characteristics." This will allow doctors to increase the precision and accuracy of health care diagnosis and decision-making, thereby reducing medical errors. Obviously, an increased reliance on artificial intelligence and machine learning could complicate potential malpractice cases arising from improper treatment as the result of algorithm errors. However, on the other hand, diagnosis and decision-making algorithms may help reduce the costs associated with defensive medicine. ❄️

*Ian Ellul*

#### REFERENCES

1. Sheikh S, Sasieni P. When should the errors in the UK's breast screening programme have been spotted? *Lancet* 2018; pii: S0140-6736(18)31137-1.
2. Price N. Black-Box Medicine. *Harv. J.L. & Tech* 2015;28(2):420-467.

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