

TCS/24/15 - Early detection of glaucoma in primary care using artificial intelligence aided analysis of retinal images

Glaucoma is the leading cause of irreversible blindness and the second commonest cause of severe sight loss in the UK. Glaucoma increases risk of falling and reduces ability to drive, work, and live independently. As vision lost from glaucoma cannot be restored, early detection is crucial but sadly more than half of people living with glaucoma remain undiagnosed. This research aims to determine whether Artificial Intelligence (AI) can improve glaucoma detection by analysing photographs of the retina taken at high street opticians. The project will use the SCONE database, a resource unique to NHS Scotland, which currently includes over 330,000 retina photographs, including over 11,000 from people with glaucoma (and projected to reach one million retina photographs within the next year). The software will analyse photographs to provide an estimated probability of glaucoma. As SCONE also includes images taken many years before diagnosis, a second aim is to determine how many years earlier glaucoma could have been detected using AI.