

## **Secondary Use of Clinical Data Contained in Optometry Electronic Patient Records to Establish a Population Profile of Refractive Error**

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**MSc in Health Informatics, 2015**

### **Abstract:**

Refractive error is a common problem, affecting the vision of approximately 2.3 billion people globally. However research into refractive error and its population prevalence is relatively rare, particularly in Ireland, despite some evidence that in parts of the world the prevalence of myopia, in particular, appears to have risen significantly in recent years. Large-scale studies are expensive to conduct and take long periods of time to complete.

Collecting the data contained in the electronic patient records kept by optometrists could be a means of conducting population-level research into refractive error and other aspects of eye health and primary eye care in a fashion that is efficient, inexpensive and timely. The primary aim of this study was to determine if optometry EPR data could be used to produce a population profile of refractive error in Ireland.

Following a literature review which established that data from optometry EPRs had never been used in this way previously, primary research was conducted to collect qualitative and quantitative data by carrying out a survey of practising optometrists and by designing, developing and piloting a software tool to extract appropriate anonymous data from the EPR systems of six optometry practices.

It was found that 80% of optometrists in Ireland use EPR systems and that the level of interest amongst optometrists in potentially extracting and submitting their data for secondary (research) purposes is very high despite many possible barriers being identified. These findings indicate that the potential exists to collect data relating to refractive error on up to 450,000 individuals annually.

The data extraction pilot gathered data on approximately 30,000 individuals and analysis of these data resulted in a distribution profile of refractive error for that sample population. This profile compared well with that of other conventionally-conducted studies into the prevalence of refractive error in other Western European populations. The successful data extraction pilot also

demonstrated how many of the potential barriers to such a system of secondary use of EPR data could be addressed and overcome.

The study concluded that it is possible to automatically collect data from optometry EPRs in Ireland and, through analysis of these data, to produce a population profile of refractive error and facilitate future research into the field.