

# ESLRR symposium: Epidemiology of Visual Impairment

**Chairs: Antonio Filipe Macedo, PhD and Cornelis A. Verezen, PhD**



Antonio Filipe Macedo, currently teaching at University of Linnaeus (Linnéuniversitetet), Department of Optometry and Medicine, Kalmar, Sweden. He has an active research group at University

of Minho, department of Physics and Optometry, Braga, Portugal. He has a strong interest visual function assessment, vision rehabilitation and socio-economic problems of vision loss. Apart from Optometry or Ophthalmology his projects involve collaborations with colleagues working in health economics, public health, psychology, mathematics and neurology. In the laboratory, he has interest in oculomotor studies.



Anton Verezen, optometrist, was educated at School of Optics Rotterdam and received his optometry degree at University of Applied Sciences, Utrecht. He received his PhD in medical sciences from University of

Nijmegen on a LVA related thesis. He became a Fellow of the AAO in San Antonio Texas 1997 and became Fellow of the European Academy of Optometry & Optics, Prague 2011. Besides clinical practice he is involved in research projects and published papers on optometric visual rehabilitation. Anton is president of the Dutch Optometric Association.

## Symposium outline

Temporal and spatial estimations of visual impairment occurrence are fundamental for disease monitoring and rehabilitation planning. This kind of information can be obtained by studying the prevalence and/or the incidence of visual impairment in the population. The classic methods to determine prevalence are cross-sectional studies; however, these studies are expensive because they imply, for example, screening a significantly large sample of the population. For conditions, such as visual impairment, total ascertainment (the process of attempting to ascertain all cases in a population) relies often on registries. Registries aim to collect information about all new cases of visual impairment and often rely on a regular collection of data from specialists (in hospitals or elsewhere) but some cases are typically not reported. We prepared this symposium to cover three aspects of epidemiology of visual impairment: 1) current estimates of prevalence from countries with information; 2) current challenges to keep information updated; 3) solutions available and their implementation (cases studies) to determine prevalence of visual impairment from “imperfect” registers. Speakers will direct their discussion to the importance of this information for rehabilitation services and research priorities.

## Symposium speakers

***Antonio Filipe Macedo, Portugal and Sweden***

***Catey Bunce, UK***

And four abstracts from open submissions

# ABSTRACTS

## Incomplete registers and the use of CR methods: a case of prevalence of visual impairment in Portugal

**António Filipe Macedo(1, 2); Pedro Lima Ramos (1, 2); Amandio Rocha-Sousa(3,4); Cristina Freitas(5); Gary Rubin(6); Rui Santana(7)**

*(1) Department of Medicine and Optometry, Linnaeus University, Kalmar, Sweden. (2) Vision Rehabilitation Lab.; Centre / Department of Physics and Optometry, University of Minho; Braga (3) Department of Ophthalmology, Hospital São João, Porto, Portugal. (4) Faculty of Medicine, University of Porto; (5) Hospital de Braga; Portugal. (6) UCL Institute of Ophthalmology, London, UK. (7) Centro de Investigação em Saúde Pública, Escola Nacional de Saúde Pública, Universidade NOVA de Lisboa, Portugal.*

### **Abstract**

Capture-recapture (CR) methods have been applied to determine the prevalence of many conditions as an alternative to cross-sectional studies. This method has been reported in the ophthalmic literature to estimate the prevalence of congenital cataracts in the UK, of nystagmus in Leicestershire and, more recently, to determine the prevalence of blindness in Australia. The aim of this talk is to present a case-study of calculation of prevalence of visual impairment in a region of Portugal (Braga) and discuss methodological options given the assumptions of the method. The use of CR requires some assumptions such as: 1) the study population is closed; 2) the lists are independent of one another; 3) all members of the population have the same probability of being captured; 4) all population members can be matched on all lists. During one calendar year, cases of visual impairment (VI, acuity equal or less than 0.3 decimal in the better eye) detected at Hospital-de-Braga were listed. Additional lists were obtained from those requiring disability certificates from the local health authority (ACES) and the list of those receiving support from the local blind association (ACAPO). With 3 lists and using the Schnabel method we estimated that the total number of people with VI would be 2467 (in 181 989 population). This would correspond to a prevalence of VI of 1.36%. During this talk, I will highlight what are the current methodological challenges to apply the method to other areas of the country.

*Acknowledgments: The authors report on behalf of the Portuguese Vision Impairment Study Group (PORVIS). Support from FCT, grants: PTDC/DPT-EPI/0412/2012 and UID/FIS/04650/2013. We acknowledge Direção Nacional da ACAPO and the local health authorities (ACES Braga) for providing information.*

# The incidence and cause of certifiable visual loss in England and Wales in the past 25 years : 1990/91 to 2015/6

**Catey Bunce**

*King's College London, Reader in Medical Statistics, Department of Primary Care & Public Health Sciences, London, UK*

## **Abstract**

In England and Wales, when an individual's vision has fallen below a certain threshold and their consultant ophthalmologist deems them eligible and they accept, they may be registered as severely sight impaired (blind) or sight impaired (partially sighted) with their local social services department. Registration may entitle the individual to certain benefits and has been described as very helpful by individuals who have been registered. The first step in registration is completion of a form known as the Certificate of Vision Impairment (CVI) by a consultant ophthalmologist. One copy of this form is sent to the Certifications Office, London, which operates under the auspices of the Royal College of Ophthalmologists for epidemiological analysis of the cause of certifiable visual loss. This talk will present figures provided by the Certifications Office and compare these against those last reported by the Office of National Statistics in 1990/91.

*Bio sketch: Dr Catey Bunce is a Reader in Medical Statistics based at King's College London. She has worked in ophthalmic research for over 20 years and has honorary lectureships at the NIHR Moorfields BRC and the London School of Hygiene and Tropical Medicine. Catey chairs the virtual CVI committee which oversees data captured during certification as sight impaired in England and Wales and is statistical editor for the Cochrane Eyes and Vision Group. She leads the Ophthalmology Research section of the NIHR Statistics Group and has published over 300 papers in peer-reviewed journals.*