Diabetic Retinopathy Screening and Treatment in Sub Saharan Africa

Clare Davey

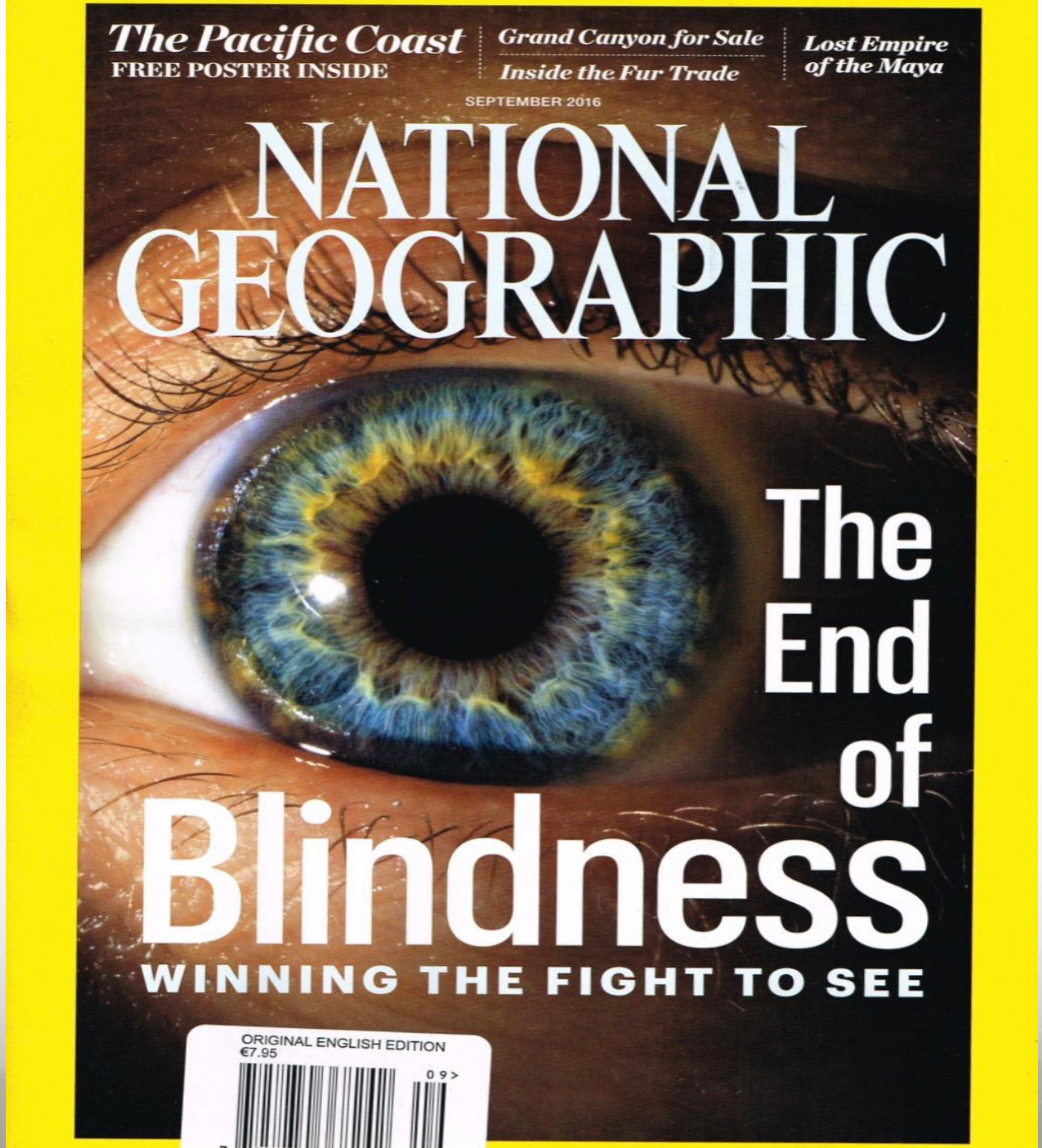
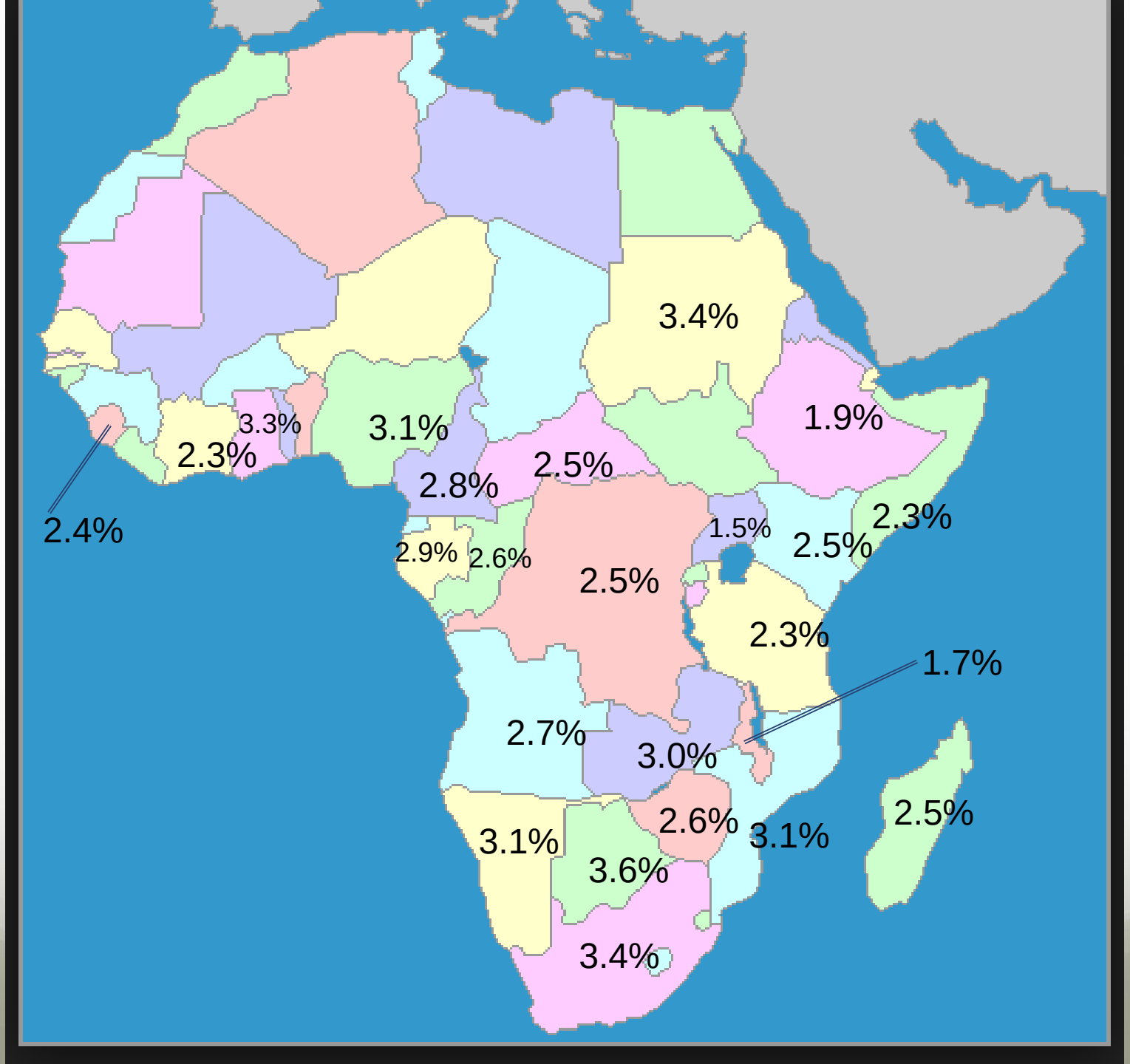

The Pacific Coast
FREE POSTER INSIDE
Grand Canyon for Sale
Inside the Fur Trade
Lost Empire of the Maya
SEPTEMBER 2016
NATIONAL GEOGRAPHIC
The End of Blindness
WINNING THE FIGHT TO SEE
ORIGINAL ENGLISH EDITION
€7.95
09>

Photo Terry Cooper

Diabetes in Africa - Epidemiology

International Diabetes Federation 2003

- 2003 overall incidence 2.4%
- Cohort studies using Glucose tolerance tests
- Good epidemiological studies difficult in SSA
- Some data is projected from known population statistics


3.4%
1.9%
3.3%
3.1%
2.3%
2.5%
2.8%
2.4%
1.5%
2.3%
2.9%
2.6%
2.5%
2.5%
2.3%
1.7%
2.7%
3.0%
2.6%
3.1%
2.5%
3.1%
3.6%
3.4%

Epidemiological Factors

- Overall adult diabetes 2-3% but large variation
- Commoner in
  - Urban areas
  - High Indian population
  - North Africa
- Low incidence of Type 1 diabetes
- Malnutrition type Diabetes
- Atypical ‘Ketosis prone’ diabetes
- Hypertension is common (45%) and difficult to control
- Whiting DR, Hayes L, Unwin NC (2003) Diabetes in Africa. Challenges to health care for diabetes in Africa. J Cardiovasc Risk 10:103–110

International Diabetes Federation 2009

- 2010, 12.1 million people with diabetes in SSA
- 2030, 23.9% projected
- Fastest growing diabetes prevalence
- 31 of the 48 least economically developed countries are in SSA – a significant health care challenge.
- Due to
  - Urbanisation
  - Sedentary lifestyle
  - Obesity
  - Population Growth
  - Aging (success with infectious diseases)

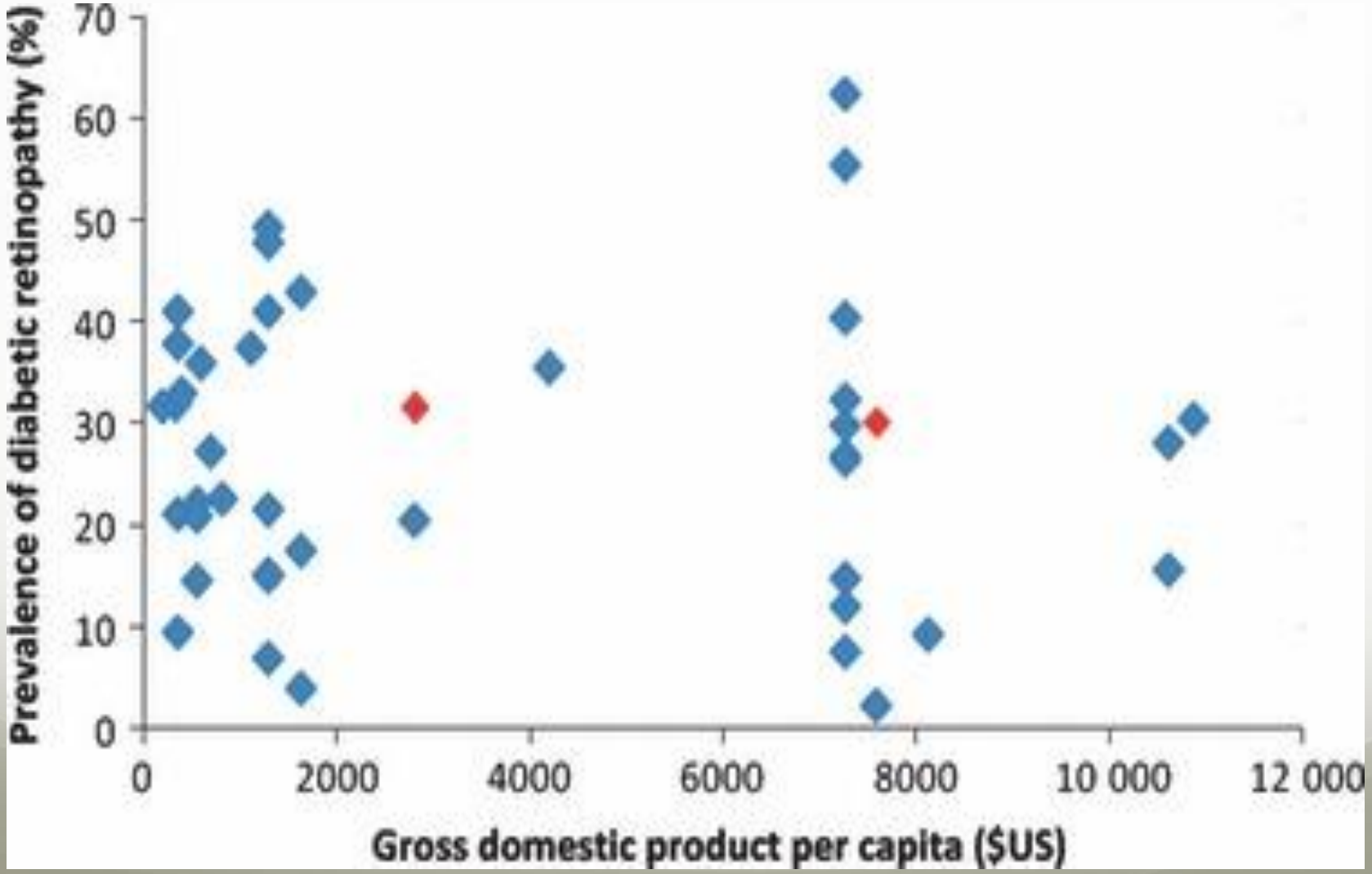
*IDF Diabetes Atlas 4th Edition. International Diabetes Federation; 2009. Brussels

Systematic review, 62 studies 2013 All Africa from Pubmed

- 3 population surveys,
  - Any DR -30.2- 31.6%
  - Proliferative 0.9 – 1.3%
  - Any maculopathy 1.2-4.5%
- 11 diabetes clinic based surveys
  - any DR 7.0- 62.4%
  - Proliferative 0- 6.9%
  - Any Maculopathy 1.2 – 31.1%

- Epidemiology of diabetic retinopathy in Africa: a systematic review. Burgess et al Diabet med 2013 399-412

No Association found between prevalence of DR and Gross Domestic product



Visual Impairment in Diabetes

- WHO estimates in USA and Canada – 17% of blindness attributable to Diabetes
- Data are sparse in Africa, but is certainly lower
- Co-morbidities and difficulty in management of these mean much greater levels of blindness in diabetic patients
  - Cataract
  - Corneal opacity
  - Uncorrected refractive error
  - Glaucoma
- Data from Egypt show 7.3% of adults with diabetes have BCVA < 6/60 in the better eye

Infectious Diseases and Diabetes

- 3 fold incidence of Tuberculosis in those with diabetes
- TB increases the risk of developing diabetes
- Anti -retrovirals for HIV is associated with increased risk of diabetes and possibly HIV itself
- 69% deaths in SSA is caused by infectious diseases and 25% from non-communicable disease (cancer, heart disease, diabetes respiratory disease)

- A review of co-morbidity between infectious and chronic disease in Sub Saharan Africa: TB and Diabetes Mellitus, HIV and Metabolic Syndrome, and the impact of globalization Fiona Young*, Julia A Critchley, Lucy K Johnstone and Nigel C Unwin

Barriers to an effective Service

Photo Terry Cooper

Barriers to an effective diabetes service in SSA

- Poor patient attendance at clinics
- Low doctor to patient ratio leading to short consultation times and little or no time for patient education
- Low staff levels including a lack of trained nurses and other health workers
- A lack of systematic evaluation and monitoring of the complications of diabetes
- Non-existent or inadequate referral systems
- Poor record keeping
- Lack of national policies

Barriers

- Lack of ophthalmologists
- Low number of ophthalmologists with training and experience in management of DR
- Low numbers of opticians and OCOs to perform opportunistic screening; commercial opticians are only accessible to the wealthy
- Inadequate referral systems from primary to secondary care and from medical departments to ophthalmic services
- Little access to imaging technology including fluorescein angiography and optical coherence tomography
- Non-existent systematic screening programs
- Lack of treatment infrastructure including lasers and laser maintenance

*Diabetic retinopathy in sub-Saharan Africa: meeting the challenges of an emerging epidemic
Philip I Burgess,Gerald Msukwa and Nicholas AV Beare

Photo Terry Cooper

A Few Projects

Diabetic Retinopathy Network DR-NET

- Links 15 Hospital in 10 Low- medium income countries, Based on Vision 2020 Links programme
- Established in 2014 from a grant from Queen Elizabeth Diamond Jubilee Trust based at International Centre for Eye Health (ICEH)
- Catchment of 3.8 million with diabetes
- 400,000 people with estimated ST diabetic retinopathy 10,000 currently identified
- Co-ordinated planning between Ministry of Health, Diabetologists and Ophthalmologists
- 5 year project, On going network of partners who support each other, regular training visits- aim for sustainability.
- Emphasis on capacity building

Peek

- Diagnostic tools including visual acuity, fundus camera using smart phone. Uses cloud based systems to allow data sharing, referral and follow up. Mobile and portable. Andrew Bastouros

Peek

- Beautiful and extensive studies in the field in Kenya and Tanzania
- Difficulties getting product to commercial availability
- Difficulty getting 40 degree photographs
- Other optical companies have brought out their own design using smart phones (Volk INview and D-EYE)

D-EYE

Automated Retinal Image Analysis for Detection of Diabetic Retinopathy in Nakuru, Kenya

- Part of a large survey looking at all eye disease to look at baseline
- 3,460 retinal images with Topcon camera
- Automated Iowa Detection Programme vs human grading at Moorfields Reading Centre
- Automated IDP as good as human reading
- 113 had (any) DED, prevalence of 3.3%

Eye Care Workers in Africa – the future

- Slides from Ronnie Graham - IAPB(with permission)

THE AFRICAN CONTEXT : OVERVIEW

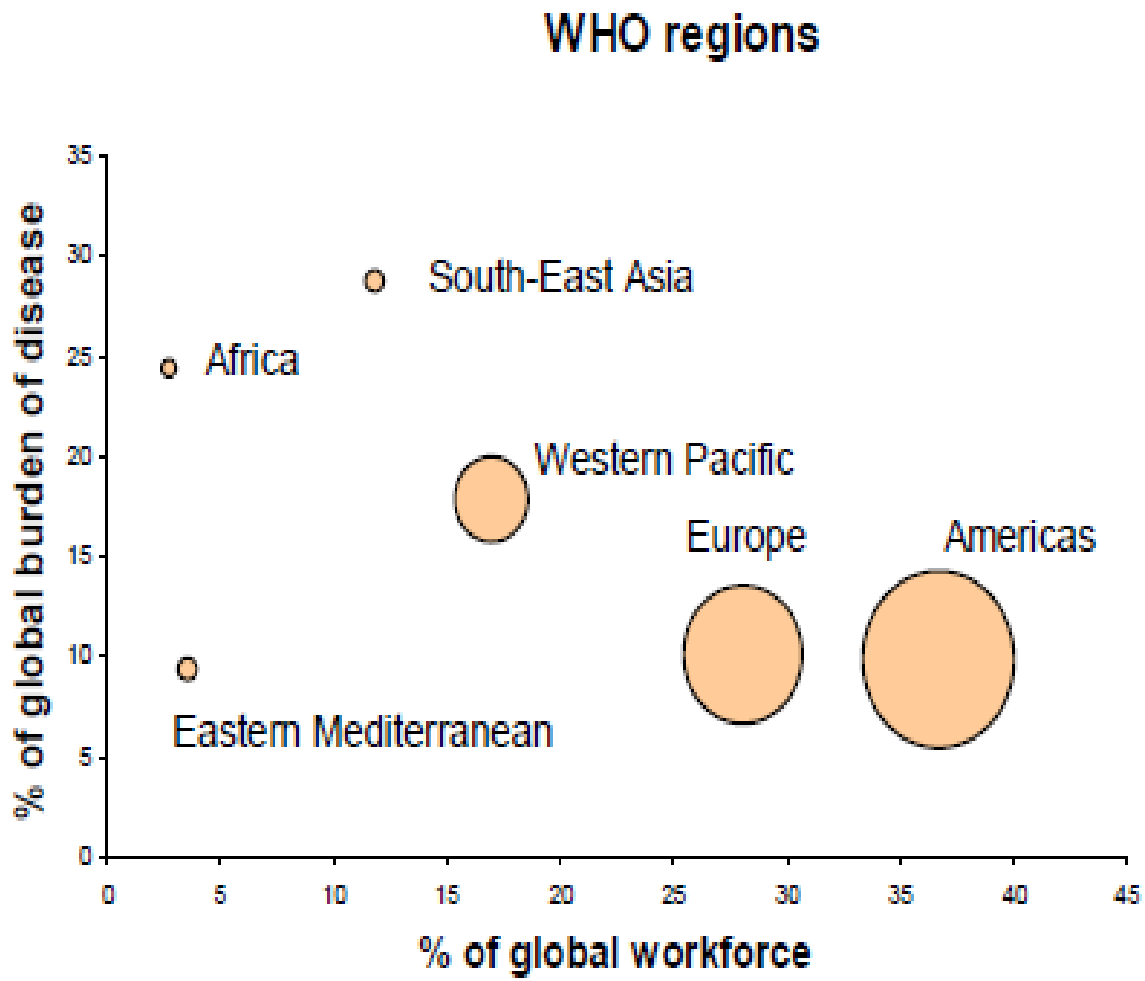
1. **Eye health workforce gaps at all levels and in all countries.**

- **2. Not just numbers: Major issues around training, distribution, retention, productivity, competency, quality, career development, recognition, supplies, support and supervision**

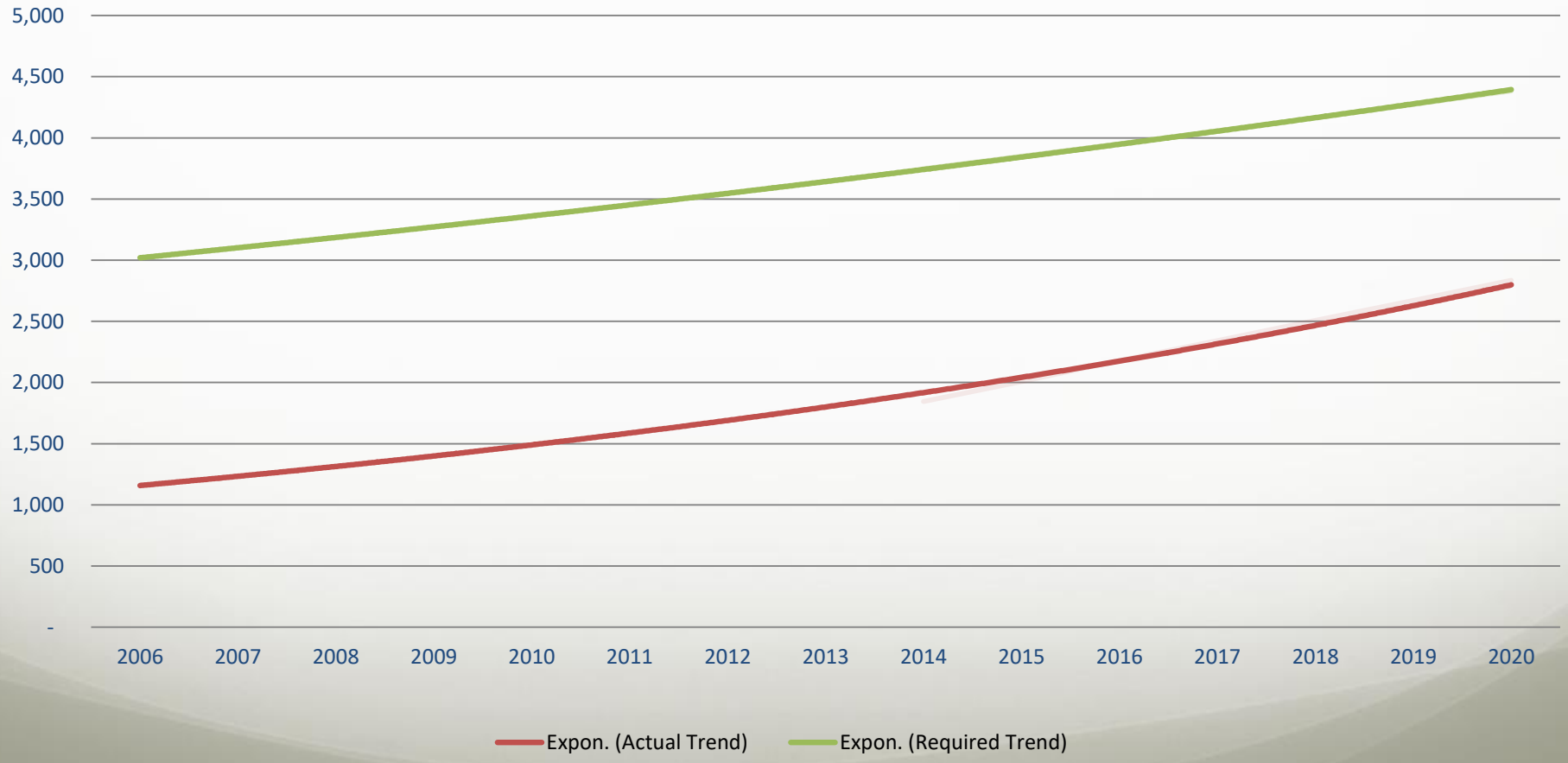
- **3. Imbalances between rural and urban and between Anglophone and Francophone/Lusophone Africa**

- **4. Many training institutions are under funded, fragile and sometimes under subscribed.**

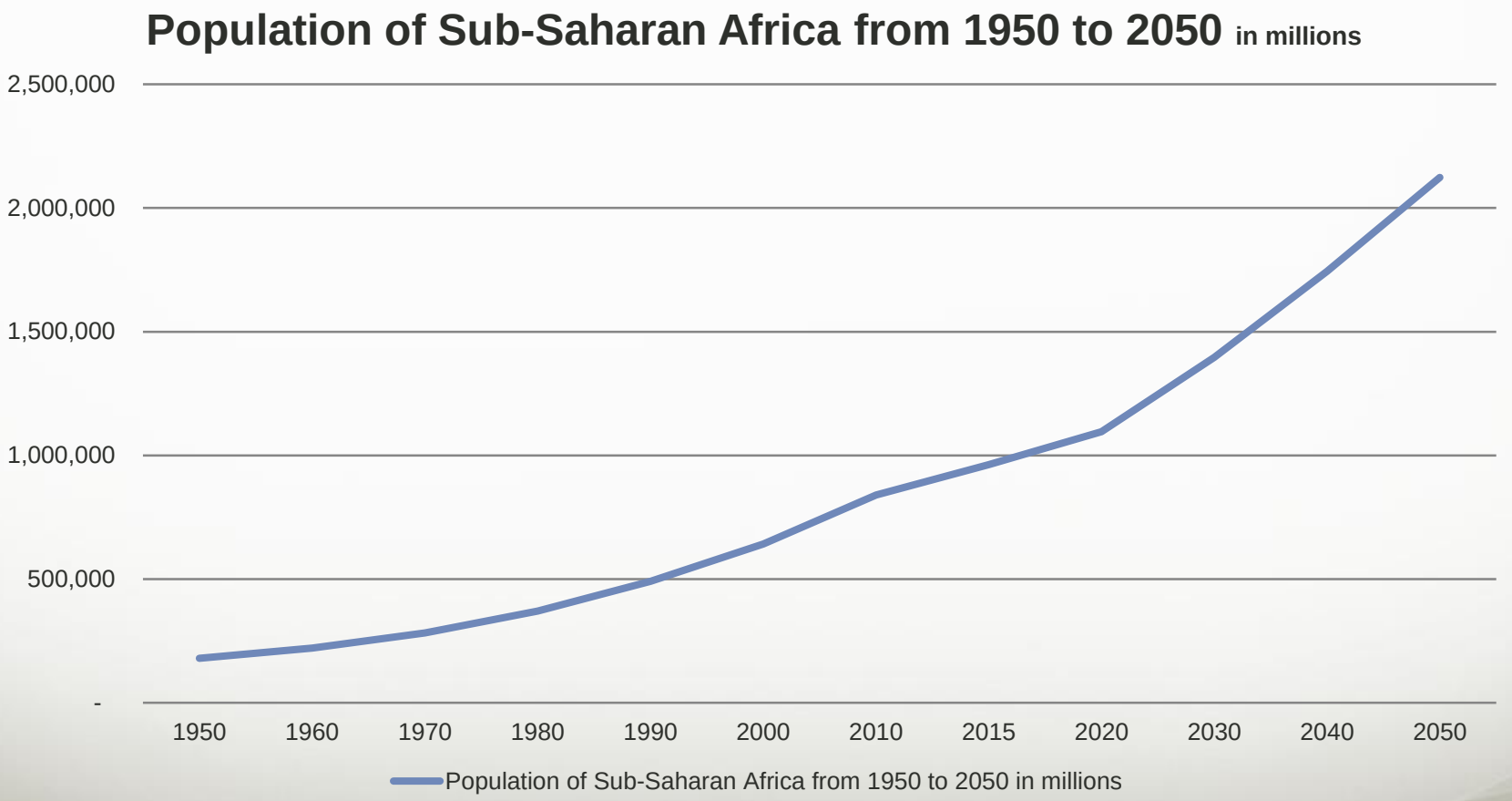
Mal-distribution – Health Care Worker Density versus Burden of Disease



Trend of the number of Opthalmologists in Sub-Saharan Africa from 2006 to 2015



UN Population Projections, 2015



A SLOW ONSET FUNDING DISASTER ?

- **Funding becomes harder with every passing year.**
- **Changes in Australian foreign policy in 2014 led to severe funding cuts for BHVI and FHF**
- **BREXIT in 2016 means UK agencies can no longer access EU funding and may mean changes to the UK aid budget.**
- **EU and USAID funding often carries heavy conditionality.**
- **The public in the UK increasingly cynical about the value of overseas aid.**

News

I'll curb waste and theft of foreign aid, minister vows

Michael Savage
Chief Political Correspondent

Some of Britain's £12 billion aid money is being stolen or wasted, the international development secretary has warned. Priti Patel, a long-term critic of the aid budget, said that she would be overseeing a major overhaul of the cash sent overseas.

Ms Patel said that she wanted to ensure aid would "deliver for our national interests" and boost trade after Brexit. However, in a victory for David Cameron, she said that she would be sticking by his pledge to spend 0.7 per cent of Britain's GDP on foreign aid. Mr Cameron praised the pledge in his final speech as prime minister.

Ms Patel, who once called for her current department to be abolished, said that "too much aid doesn't find its way through to those who really need it.

"Too often, money is spent without a proper focus on results and outcomes that allow the poorest to stand on their own two feet," she writes in the *Daily Mail*. "It rightly infuriates taxpayers when money intended for the world's poorest people is stolen or wasted on inappropriate projects. I am infuriated.

"My predecessors worked hard to make sure that British aid ends up where it should. But we can improve.

"I want to use our aid budget to directly address the great global challenges that affect the UK — like creating jobs in poorer countries so as to reduce the pressure for mass migration to Europe." She also said that there were some aid agencies which "are resistant to criticism and sometimes unwilling to understand genuine concerns".

She hinted that money handed to EU aid programmes could be cut after Brexit. "Of course, I want to use our greater freedom from leaving the EU to deliver better value for UK taxpayers."

Her refusal to cut the aid budget will frustrate some on the Tory right, who hoped her appointment would spell the end of Mr Cameron's pledge.

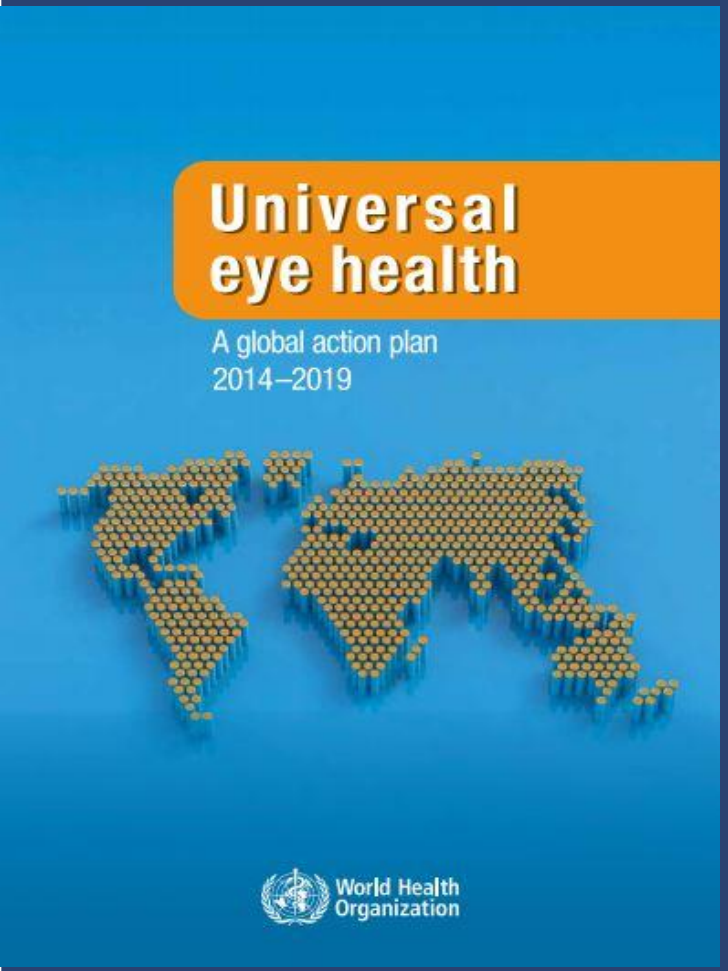
JUSTIN TALLIS/AFP

Bottom-Line ?

Population growth + the eye health needs of an ageing population are increasing faster than our capacity to train and deploy more eye health professionals.

- Palmer, Blanchett et al, Mapping, Distribution and Retention Study, 2014

Global Action Plan 2014-2019



3 Indicators.

1. The prevalence and causes of visual impairment

2. The number of eye care personnel, broken down by cadre

3. Cataract Surgery