Vitamin D - Update

Royal College of Paediatrics & Child Health
London
December 9, 2010

Professor Robert Heaney
Mike Fischer
Rufus Greenbaum

Vitamin D - Update

2:00	Introduction & Overview	RG
2:15	Overview of the evidence	RH
3:00	IOM Report – Commentary	RH
3:15	Discussion on the IOM Report	All
3:30	Roundtable Discussion	All
	- How some doctors treat Vitamin D deficiency	
	- How to treat Vitamin D deficiency	
	- Next Steps	
5:00	End	

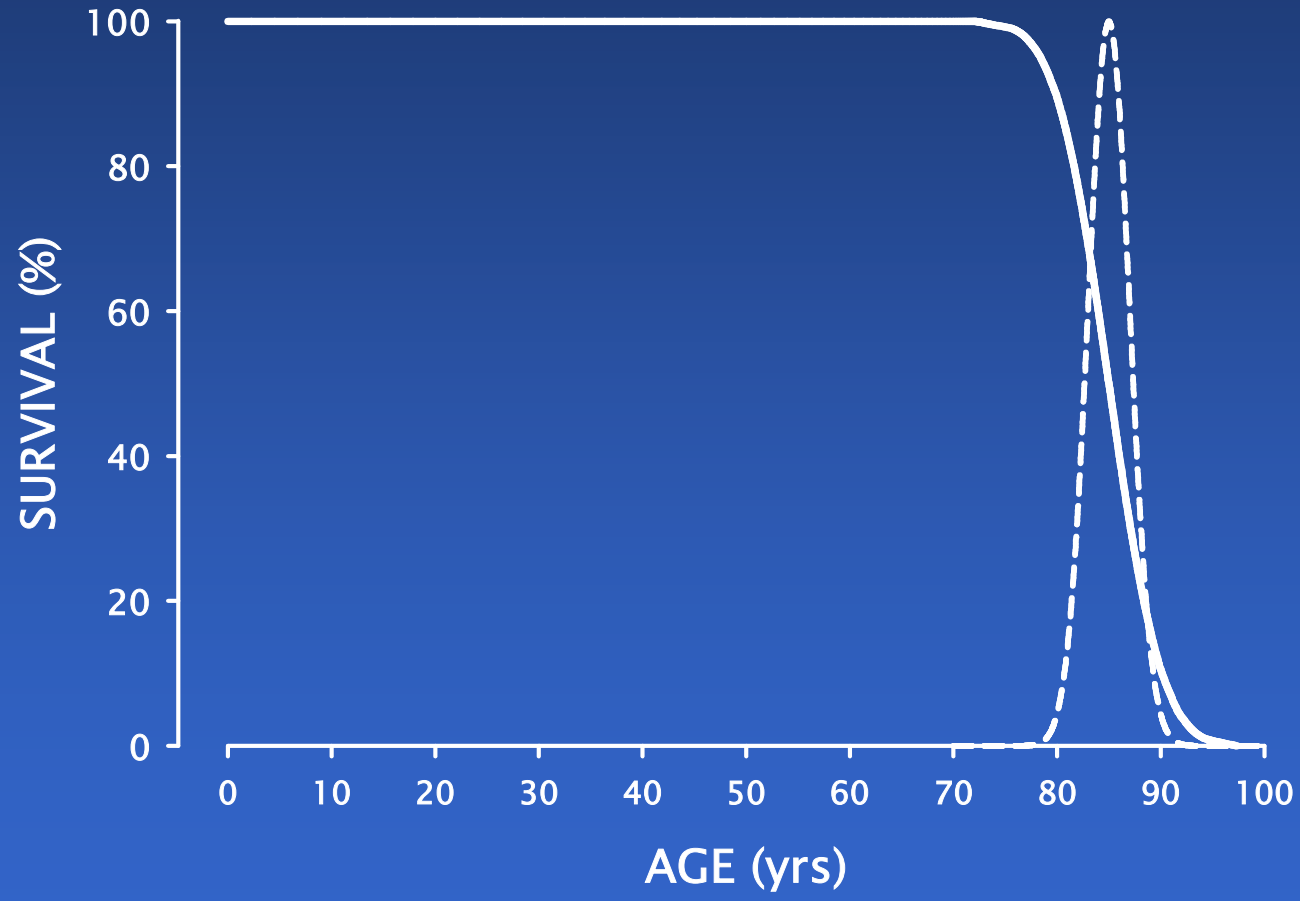
Introductions & Housekeeping

We want to be able to give personal opinions without problems from reports in the press, disciplinary action at work or legal action.

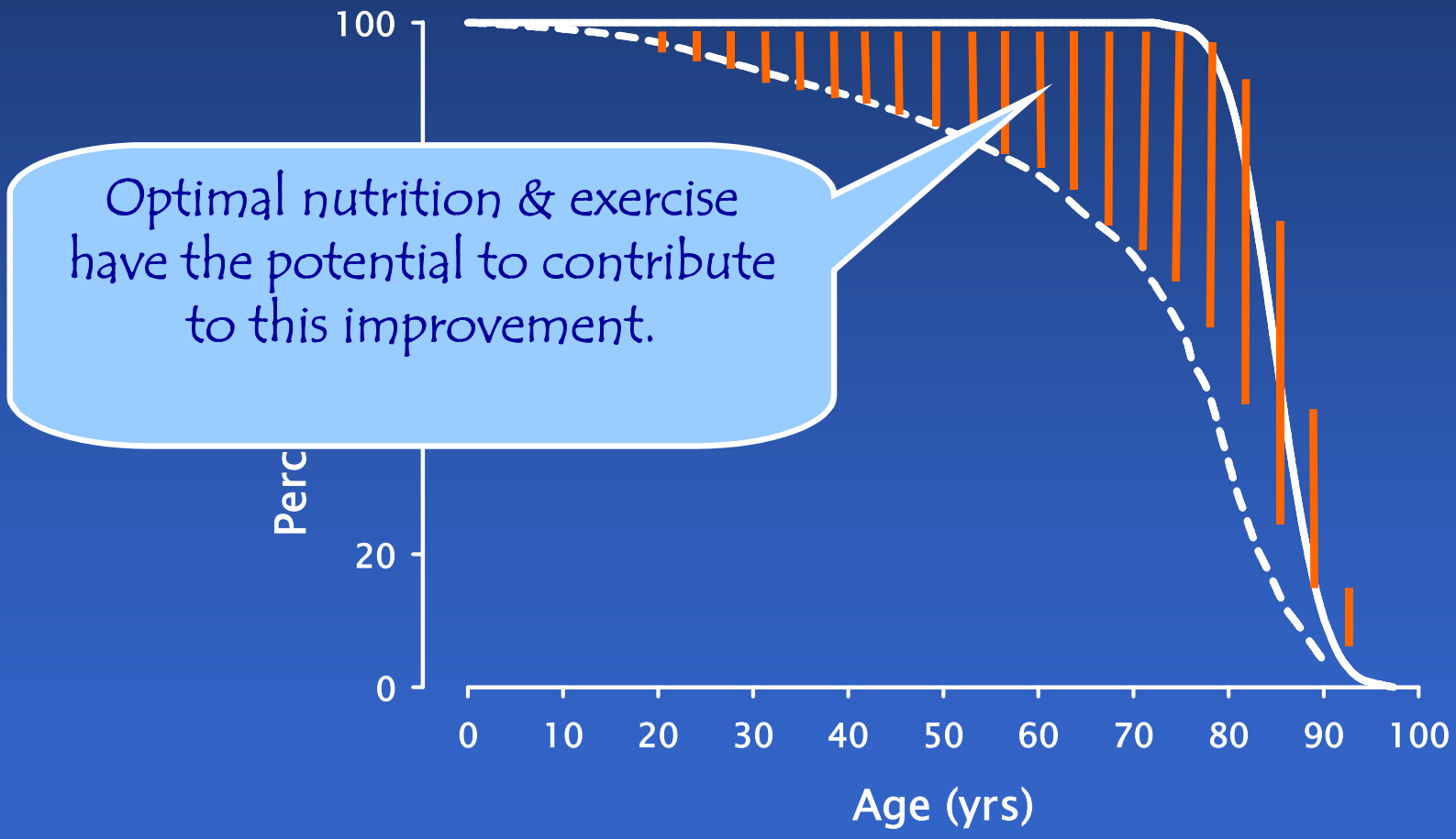
- ***No public reporting of subjects discussed***
- ***No public reporting of names or attribution***
- ***No video or audio recording***

If you cannot accept this, please leave at 3:30pm

Theoretical Mortality Curve



Live Longer


Optimal nutrition & exercise have the potential to contribute to this improvement.
100
20
0
0
10
20
30
40
50
60
70
80
90
100
Age (yrs)

Live Longer – my sources

Books:

10% solution	Ray Kurzweil
Fantastic Voyage	Ray Kurzweil & Dr Terry Grossman
TRANSCEND	Ray Kurzweil & Dr Terry Grossman
The CR Way	Paul McGlothin & Meredith Averill
Ending Aging	Aubrey de Grey & Michael Rae
Maximum Life Span	Roy Walford

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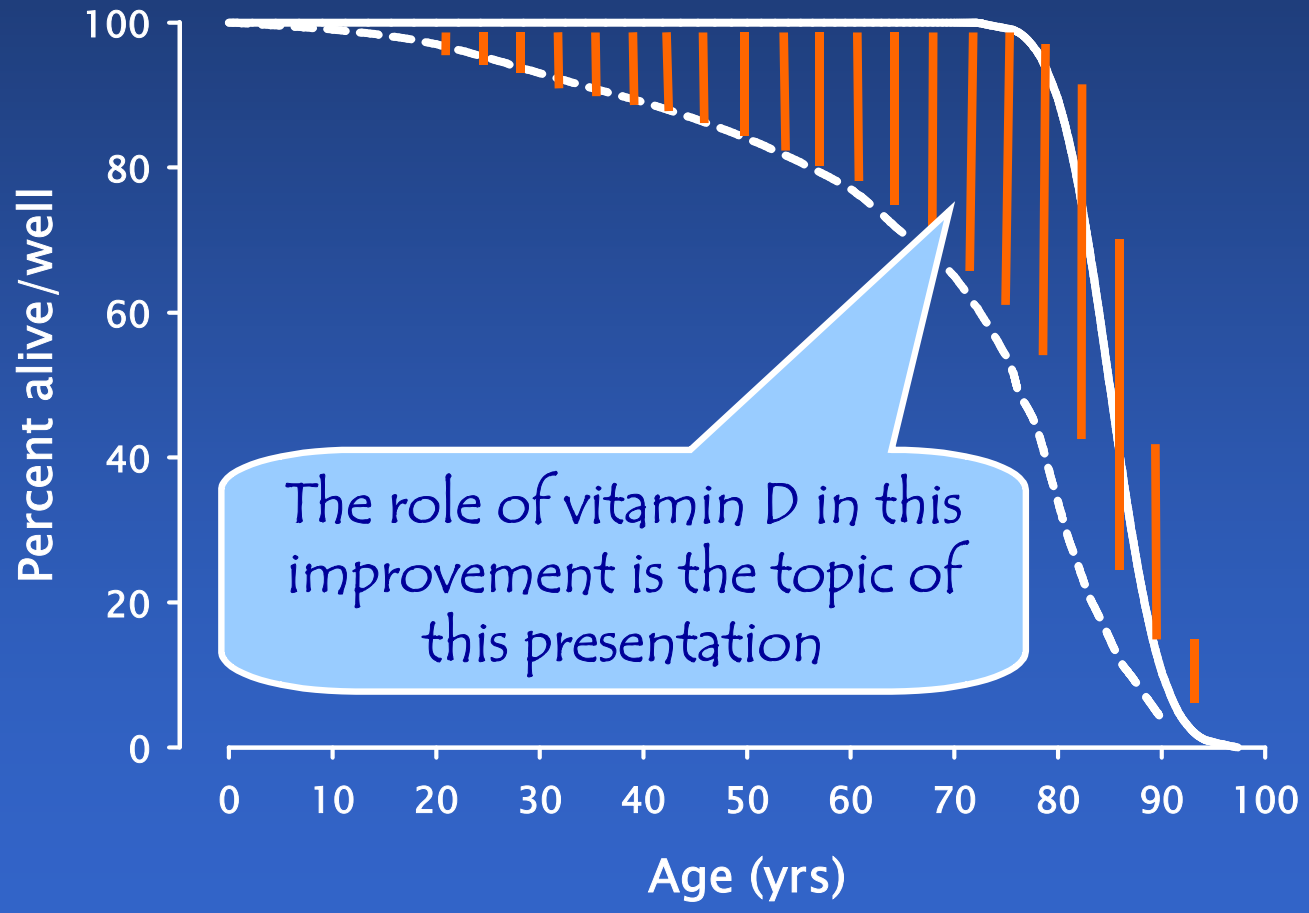
Websites:

www.fantastic-voyage.net
www.rayandterry.com
www.crsociety.org
www.sens.org

The role of Vitamin D ?



rufus@greenbaum.com

Vitamin D – my sources

Books:

Vitamin D & cholesterol	Dr David Grimes
The Vitamin D Solution	Dr Michael Holick
The Vitamin D Cure	Dr James Dowd
Power of Vitamin D	Dr Sarfraz Zaidi
4 online books	Dr Oliver Gillie

Websites:

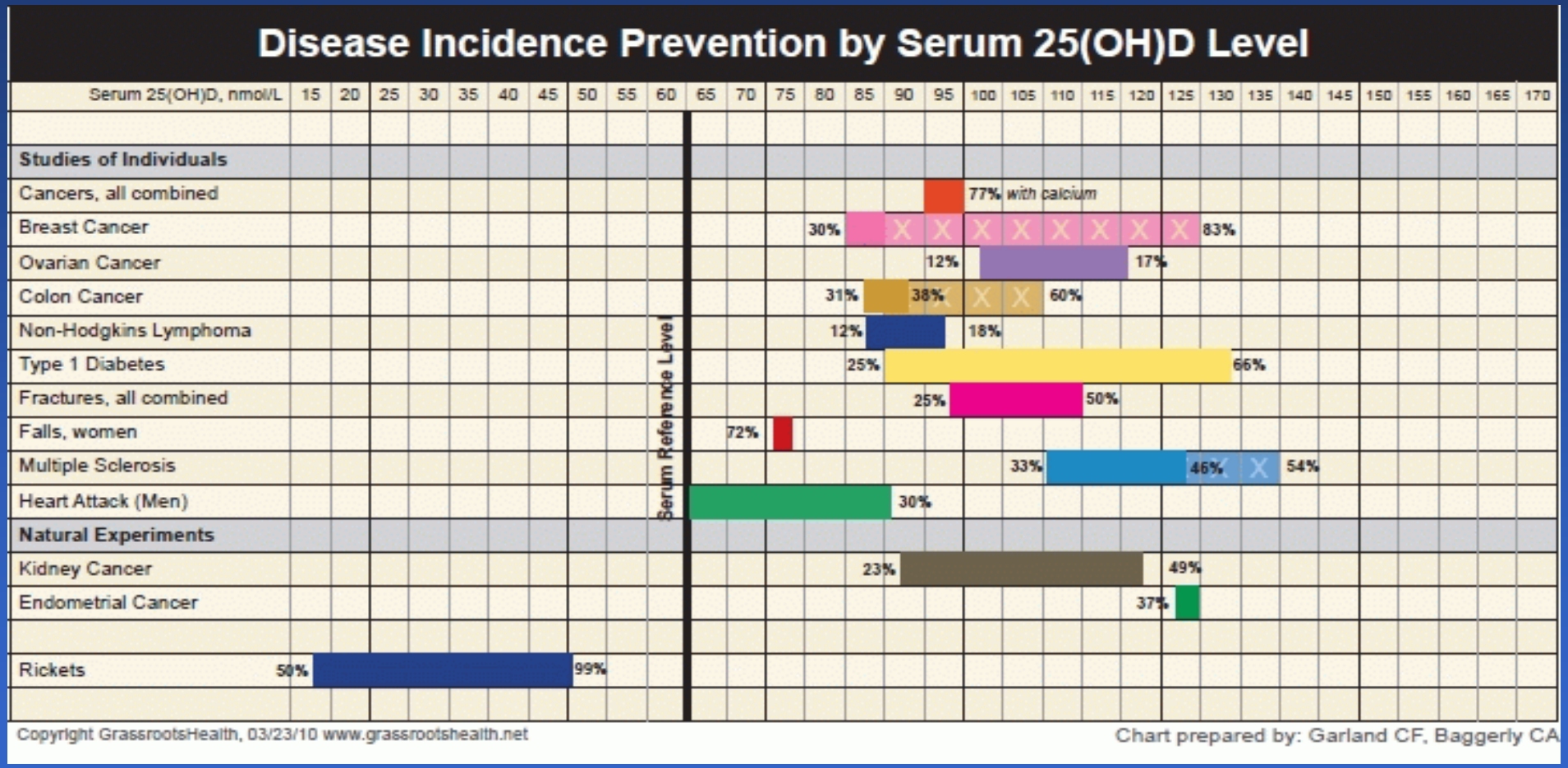
www.vitamindwiki.com	Evidence & commentary
www.grassrootshealth.net	Call To Action & Videos
www.vitamindcouncil.org	Evidence & commentary
www.healthresearchforum.org.uk	4 online books

Vitamin D – Overview

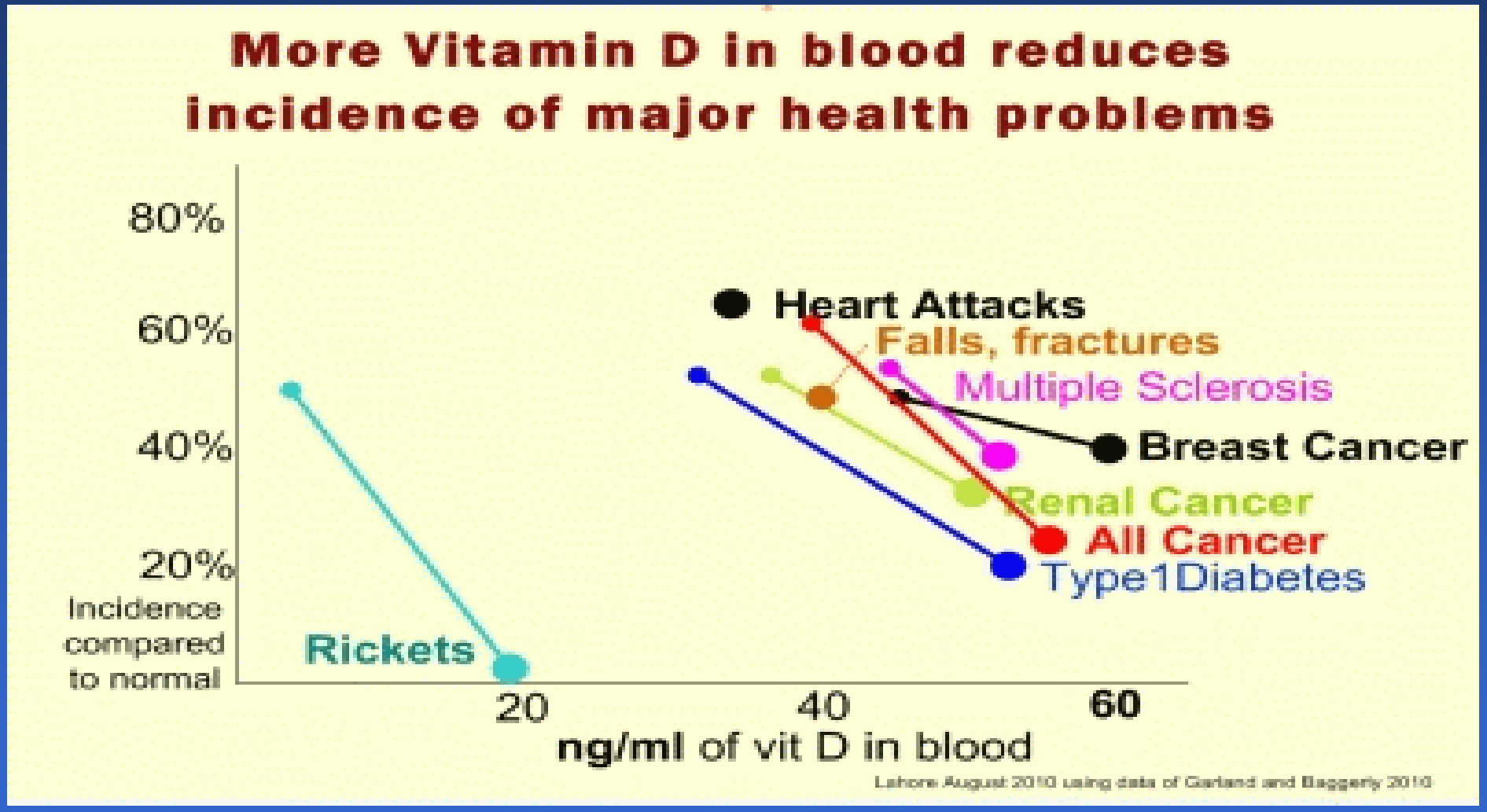
. . diverse range of health problems associated with vitamin D deficiency. (with list of over 60 illnesses)

Dr Peter Lewis
Manly, Sydney, Australia
BMJ Rapid Responses, January 2010

Disease Prevention



Vitamin D – Overview 2



Vitamin D – Overview 3

Hypothesis: Reduced sun exposure over past 40 years relates to more disease worldwide

Less sun = Less Vitamin D = More disease

Less time outdoors
- Air Conditioning
- TV & internet & video games
- Live in smoggy cities
  or in suburbs with little walking
- Less work outdoors

Less sun when outdoors
- Sunscreen
- Protective clothing

Henry Lahore July 2010

More disease

Cancers of prostate, breast, bladder, skin, Osteoporosis, Rickets, MS, Falls/fractures in elderly
→ **Strong Proof** that increase in Vit D decreases incidence

Diabetes, Influenza, Kidney, Depression, Chronic fatigue, Birth problems, SAD, Pancreas Overweight, Heart disease, Lupus, Chronic Pain, ALS, TB, IBD, COPD, Colds, All cancers, Psorasis, Bone density/fractures
→ **Associated** with low Vit D for most people with the disease

Autism, Gum, Allergy, AIDS, Asthma, Headache, Rosecea, Battered child, Cystic Fibrosis
→ **Suspected** relationship with low Vitamin D

Vitamin D – Call to Action - 1

Vitamin D*action

A Consortium of Scientists, Institutions, and Individuals
Committed to Solving the Worldwide Vitamin D Deficiency Epidemic

University of California Scientists Panel

University of California Davis
Bruce D. Hammock, Ph.D.
Hari A. Reddy, Ph.D.
Ray Rodriguez, Ph.D.

University of California Los Angeles
John Adams, M.D.
Martin Hewison, Ph.D.
H. Phillip Koeffler, M.D.
Keith C. Norris, M.D.

University of California Riverside
Mathew Mizwicki, Ph.D.
Anthony W. Norman, Ph.D.
Laura P. Zanello, Ph.D.

University of California San Diego
Richard L. Gallo, M.D., Ph.D.
Cedric F. Garland, Dr. P.H.
Frank C. Garland, Ph.D.
Edward D. Gorham, Ph.D.
Tissa Hata, M.D.

University of California San Francisco
David Gardner, M.S., M.D.
Bernard P. Halloran, Ph.D.

Scientists' Call to D*action

The Vitamin D Deficiency Epidemic

40-75% of the world's population is vitamin D deficient.

The causal link between severe vitamin D deficiency and rickets or the bone disease of osteomalacia is overwhelming, while the link between vitamin D insuffiency and osteoporosis with associated decreased muscle strength and increased risk of falls in osteoporotic humans is well documented by evidence-based intervention studies

There are newly appreciated associations between vitamin D insufficiency and many other diseases, including tuberculosis, psoriasis, multiple sclerosis, inflammatory bowel disease, type-1 diabetes, high blood pressure, increased heart failure, muscle myopathy, breast and other cancers which are believed to be linked to the non-calcemic actions of the parent vitamin D and its daughter steroid hormone. However a causal link has yet to be proven by appropriate vitamin D intervention studies.

Vitamin D – Call to Action - 2

International Scientists Panel

Atascadero State Hospital
John J. Cannell, M.D.
Boston University School of Medicine
Michael F. Holick, Ph.D., M.D.
Creighton University
Robert P. Heaney, M.D.
Joan M. Lappe, Ph.D., R.N.
Harvard School of Public Health
Edward Giovannucci, M.D., ScD.
Walter C. Willett, Dr. P.H., M.D.
McGill University
John H. White, Ph.D.
Medical University of South Carolina
Bruce W. Hollis, Ph.D.
Mt. Sinai Hospital
Reinhold Vieth, Ph.D.
Roswell Park Cancer Institute
Candace Johnson, Ph.D.
Donald L. Trump, M.D.
Society For Medical Information und Prevention
Joerg Spitz, M.D.
Sunlight, Nutrition and Health Research Center
William B. Grant, Ph.D.
University of Alberta
Gerry Schwalfenberg, M.D., CCFP
University of Saskatchewan
Susan J. Whiting, Ph.D.
University of Toronto, Mt Sinai Hospital
Reinhold Veith, Ph.D.

It is projected that the incidence of many of these diseases could be reduced by 20%-50% or more, if the occurrence of vitamin D deficiency and insufficiency were eradicated by increasing vitamin D intakes. The appropriate intake of vitamin D required to effect a significant disease reduction depends on the individual's age, race, lifestyle, and latitude of residence. New evidence indicates that the intake should be in the range of 2000 IU per day for adults. Intake of 2000 IU/day is the current no adverse event level of the National Academy of Sciences, Institute of Medicine, Food and Nutrition Board.

It is well documented that the darker the skin, the greater the probability of a vitamin D deficiency. Even in southern climates, 55% of African Americans and 22% of Caucasians are deficient.

More than 1 billion people worldwide are affected at a tremendous cost to society.

A Scientists' Call to Action has been issued to alert the public to the importance to have **vitamin D serum levels between 40 and 60 nanograms/milliliter (100-150 nanomoles/liter)** to prevent these diseases. Implementing this level is safe and inexpensive.

The benefit of an adequate vitamin D level to each individual will be better overall health and a reduction in illnesses and, ultimately, a significant reduction in health care costs. The benefit of adequate vitamin D levels to society/businesses is a more productive workforce and, lower health care costs.

The D*action project has as its purpose to serve as a model for public health action on vitamin D. It is a test bed for techniques, and for providing outcome evaluation

Vitamin D - UK - National

Department of Health

Secretary of State for Health	Andrew Lansley
Minister of State for Health	Simon Burns
Minister of State for Care Services	Paul Burstow
Under Secretary of State for Public Health	Ann Milton
Under Secretary of State for Quality	Lord Howe

Chief Medical Officer (CMO)
National Institute for Health & Clinical Excellence (NICE)
Scientific Advisory Committee on Nutrition (SACN)
Medicines & Health Regulation Agency (MHRA)
Food Standards Agency (FSA)

Other key influencers ?

Vitamin D - UK - Local

- **Local Primary Care Trust**
  - * Public Health
  - * Paediatric Endocrinology
  - * Community Paediatrics
  - * Community Dietetics
  - * Health Visitors
  - * Midwives
  - * General Practice
  - * Pharmacy
- **Collaboration for Leadership in Applied Health Research and Care**
  - * Potential NHS project: ***Vitamin D – Implementing Best Practice***
    I missed £100,000 funding for 18-month trial with ***Mothers & Babies***
    I made contact with Paediatricians in 20 hospitals in NW London

UK Hospitals – St Mary's Paddington

Dear Rufus,

We all recognise this is a very serious problem and last year we had some very sick children presenting here with seizures, Stridor and heart failure due to vit D deficiency.

Please make contact with Mike Coren who is our lead for vit D.
I am sure he would be interested to collaborate with you.

Hermione Lyall MD
Consultant Paediatrician, Infectious Diseases
Chief of Service for Paediatrics
Imperial College Healthcare NHS Trust Sep 17, 2010

UK Hospitals – Blackburn

Over the past 35 years I have seen immigrants arrive from India, Pakistan & Bangladesh

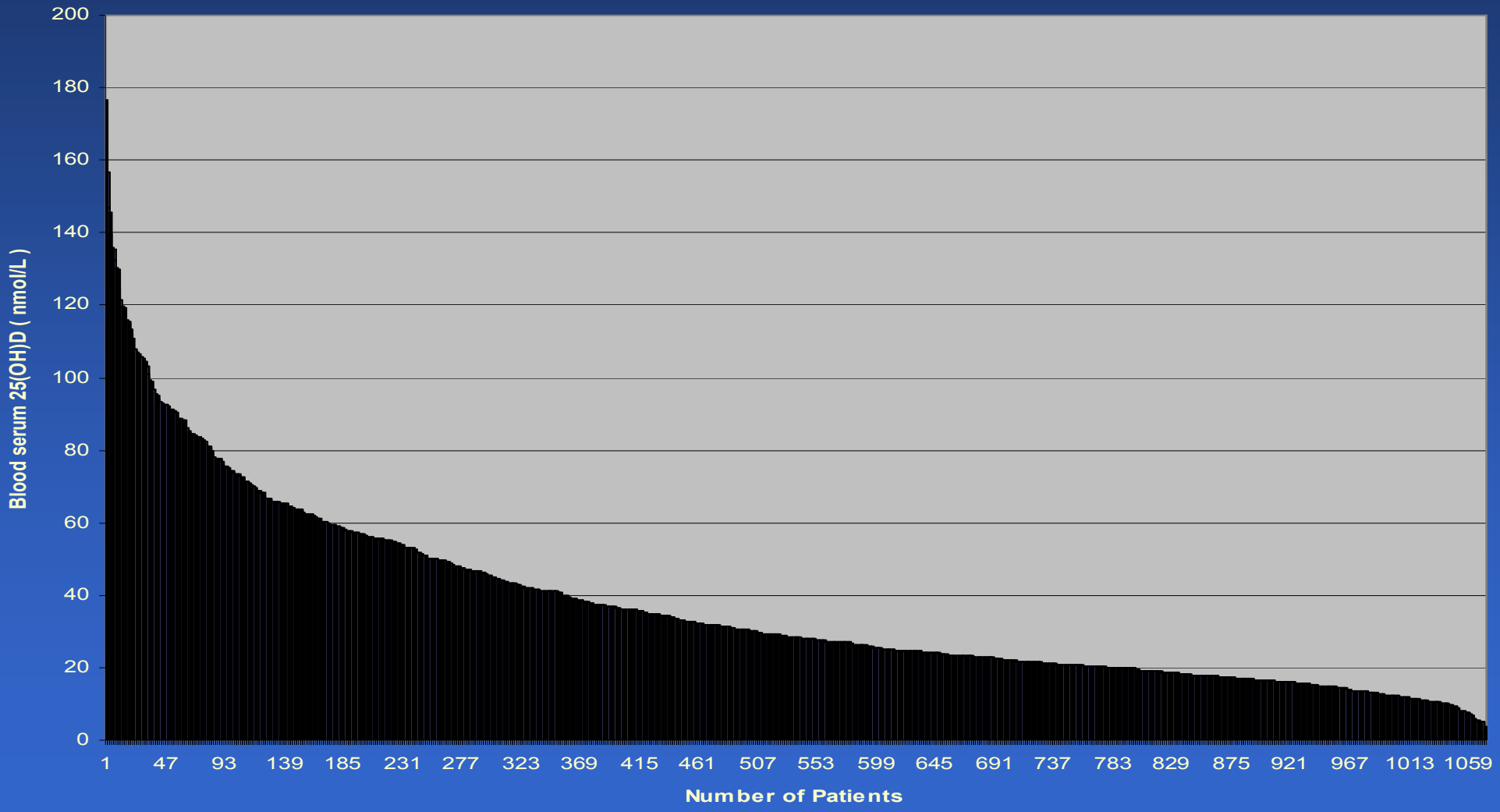
Within 5-10 years many of them have become ill

Some of their children have been born with rickets

Dr David Grimes
Consultant Gastroenterologist
Blackburn Hospital

PS: I am resolving many gastric problems, such as Irritable Bowel Disease & Crohn's Disease with large doses of Vitamin D

UK Hospitals – Blackburn



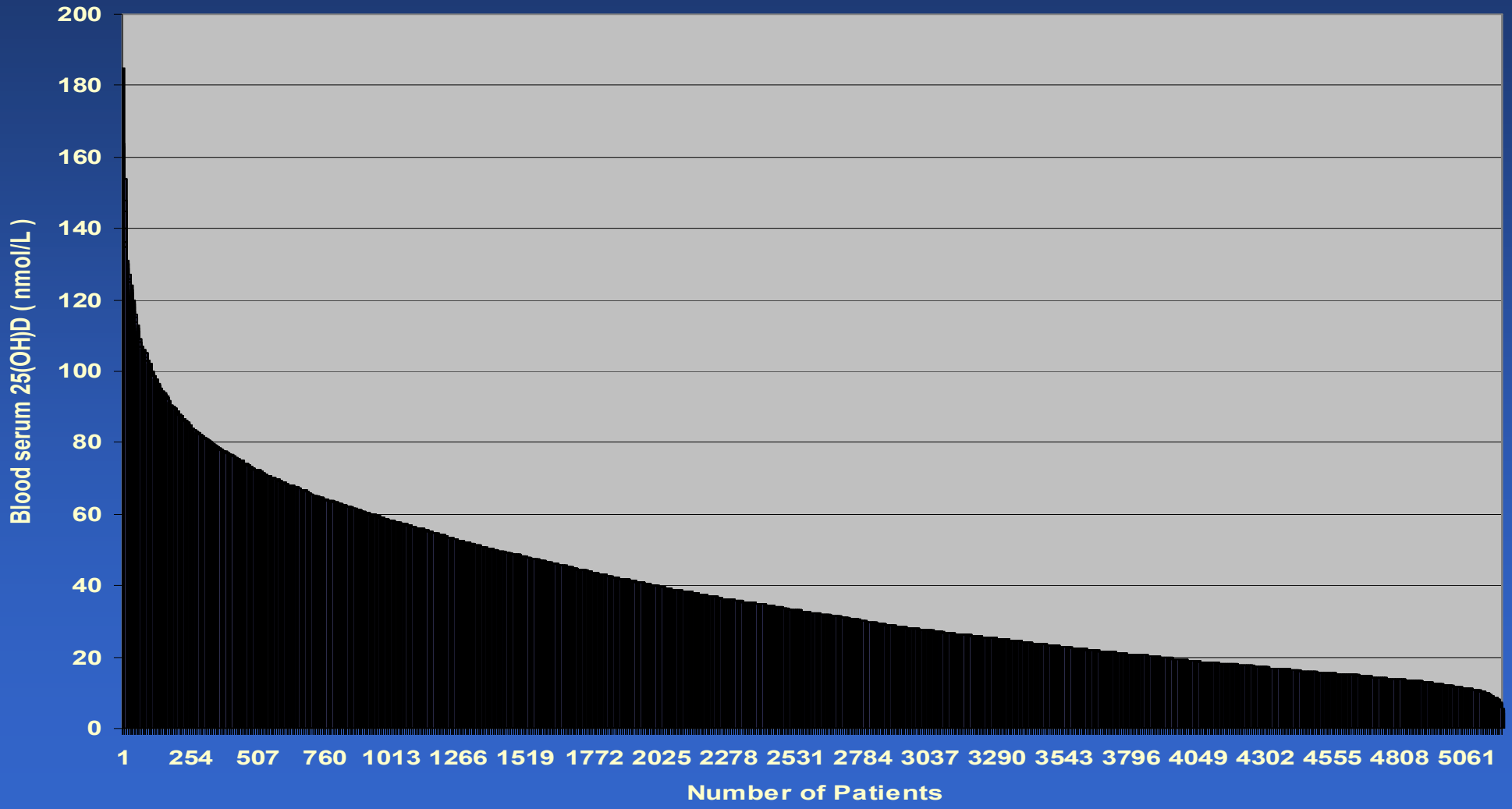
UK Hospitals – Ealing

17 infants admitted from 2006 to 2008
- hypocalcaemic seizures, secondary to vitamin D deficiency
- majority had raised alkaline phosphatase and parathyroid hormone levels
- many had delays in achieving gross motor milestones especially in walking, as was reported in Victorian times.

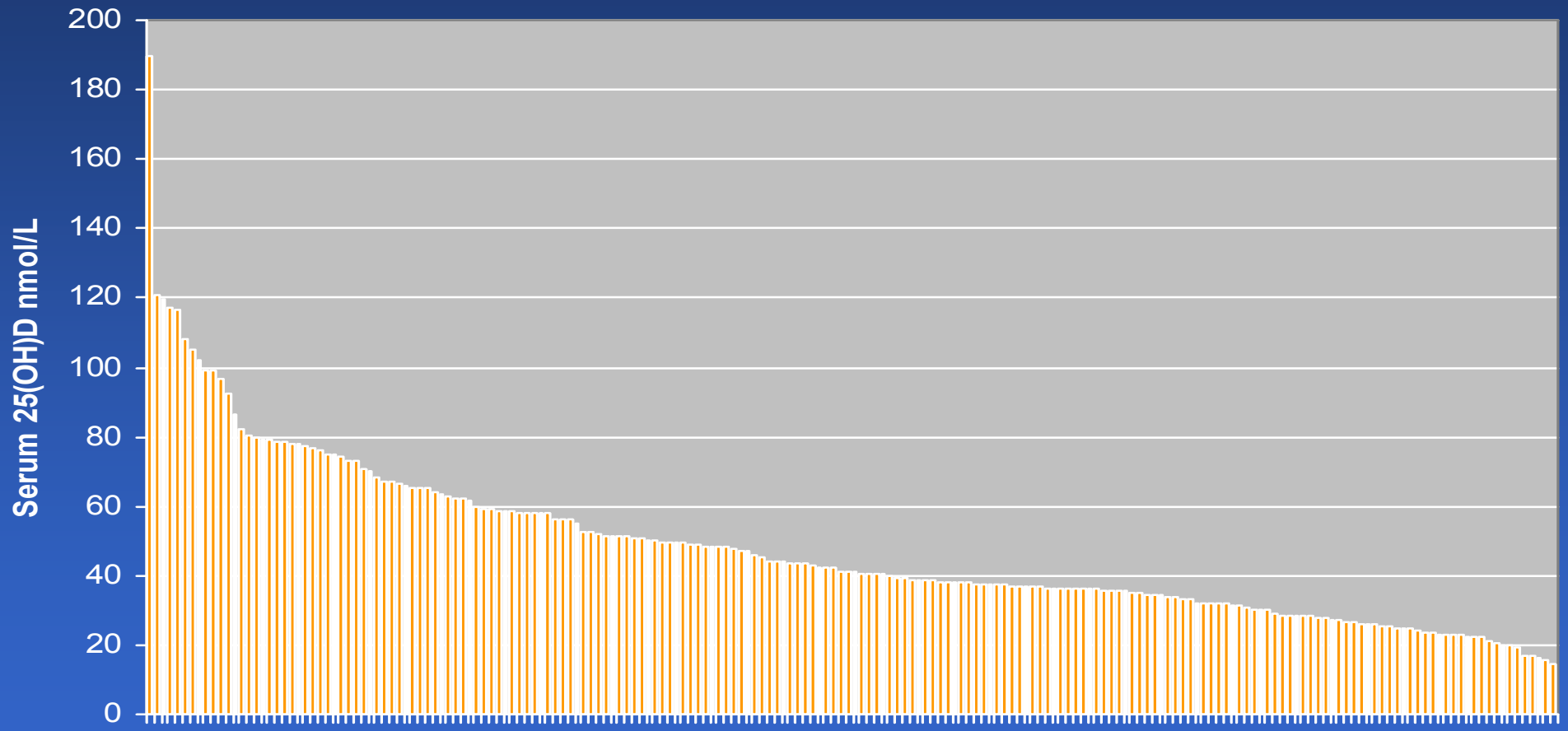
Small numbers of cases presented with cardiac failure, clinical rickets, tuberculosis, fractures and respiratory complications including wheezing in infancy.

Dr Colin Michie
Consultant Paediatrician
Ealing Hospital

UK Hospitals – Ealing

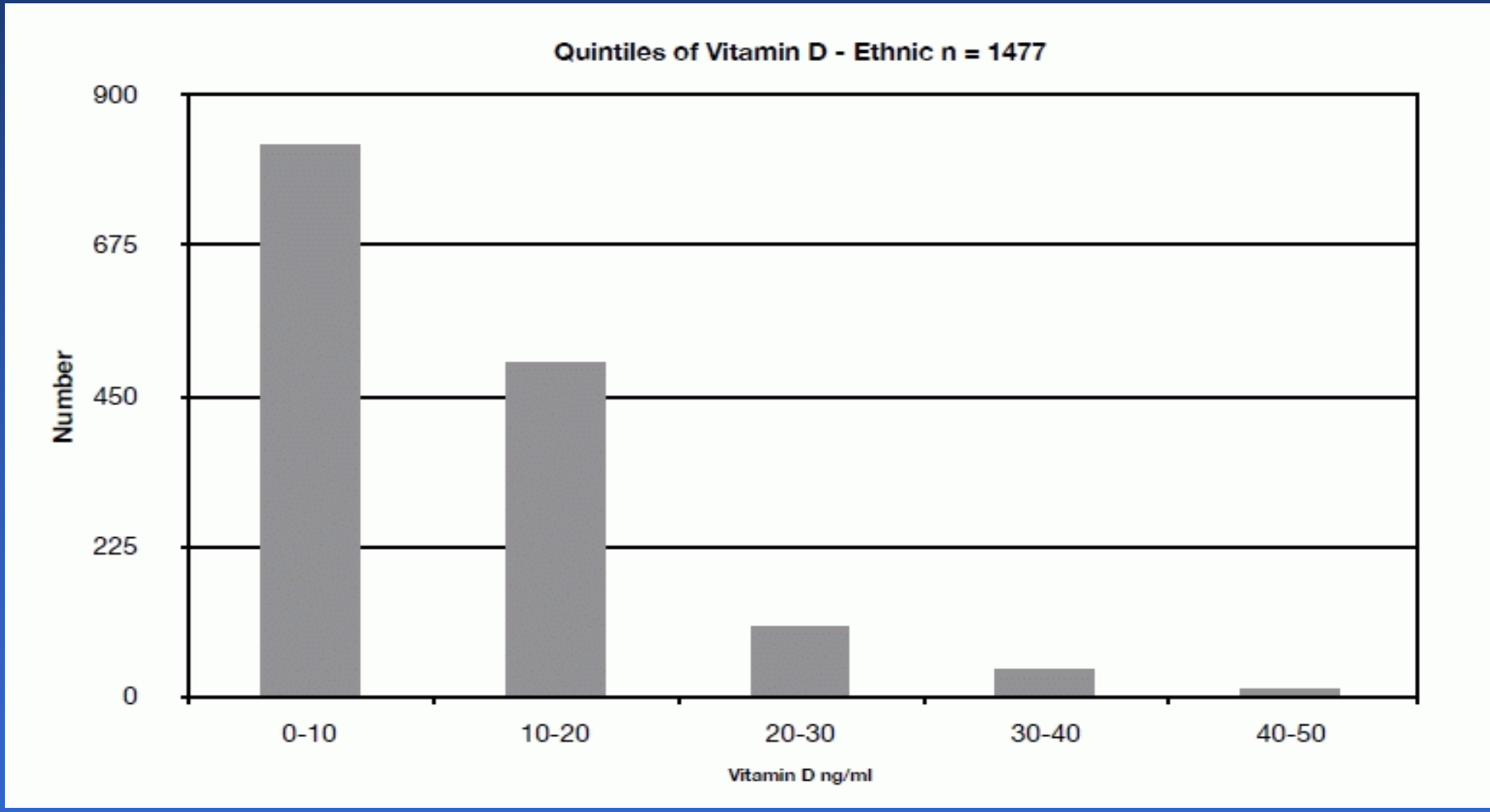


UK Hospitals – Wexham Park

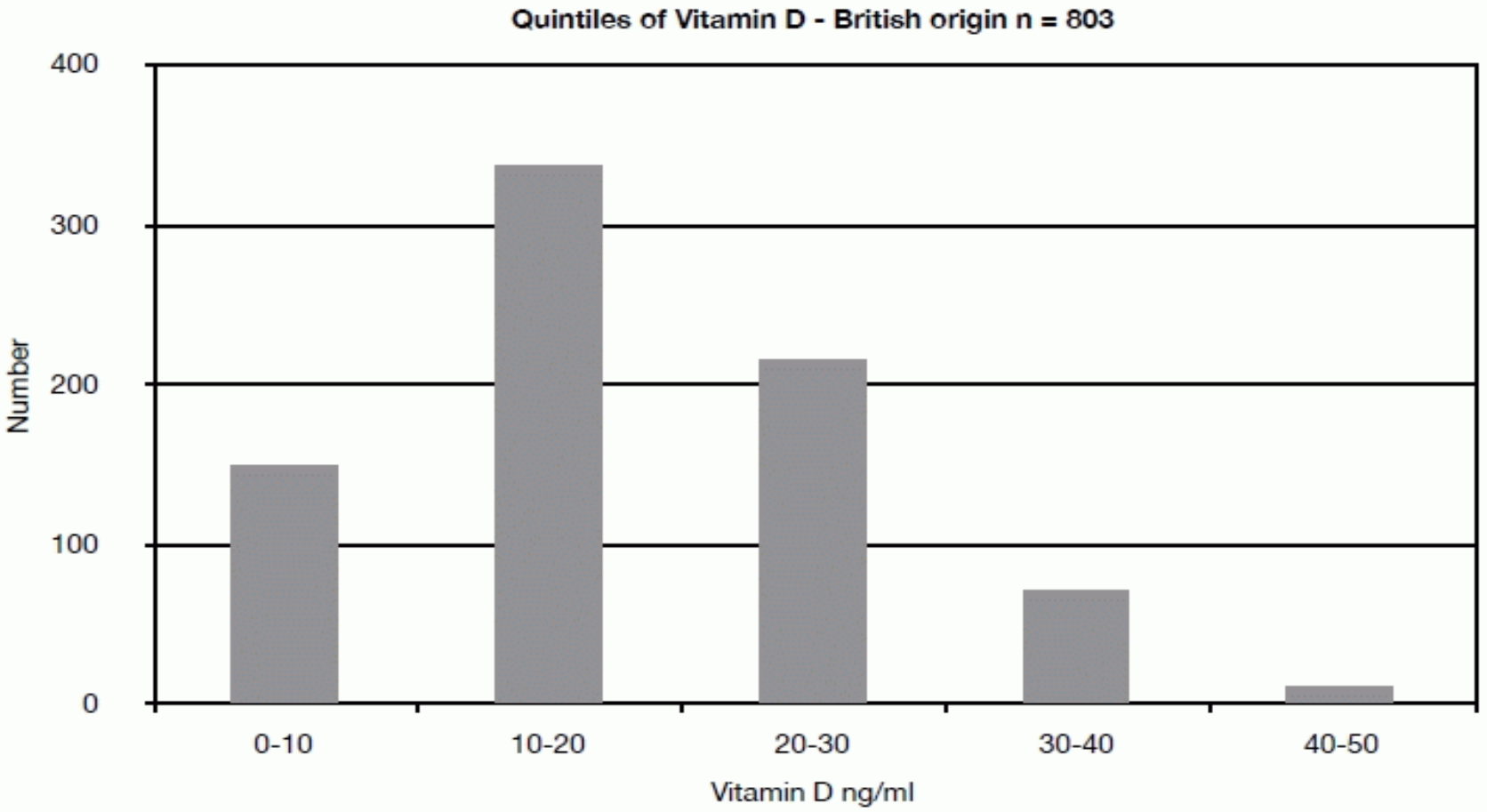


rufus@greenbaum.com

UK Hospital – "Ethnic"



UK Hospital – "Non-ethnic"



UK Data – England (50-55˚N)

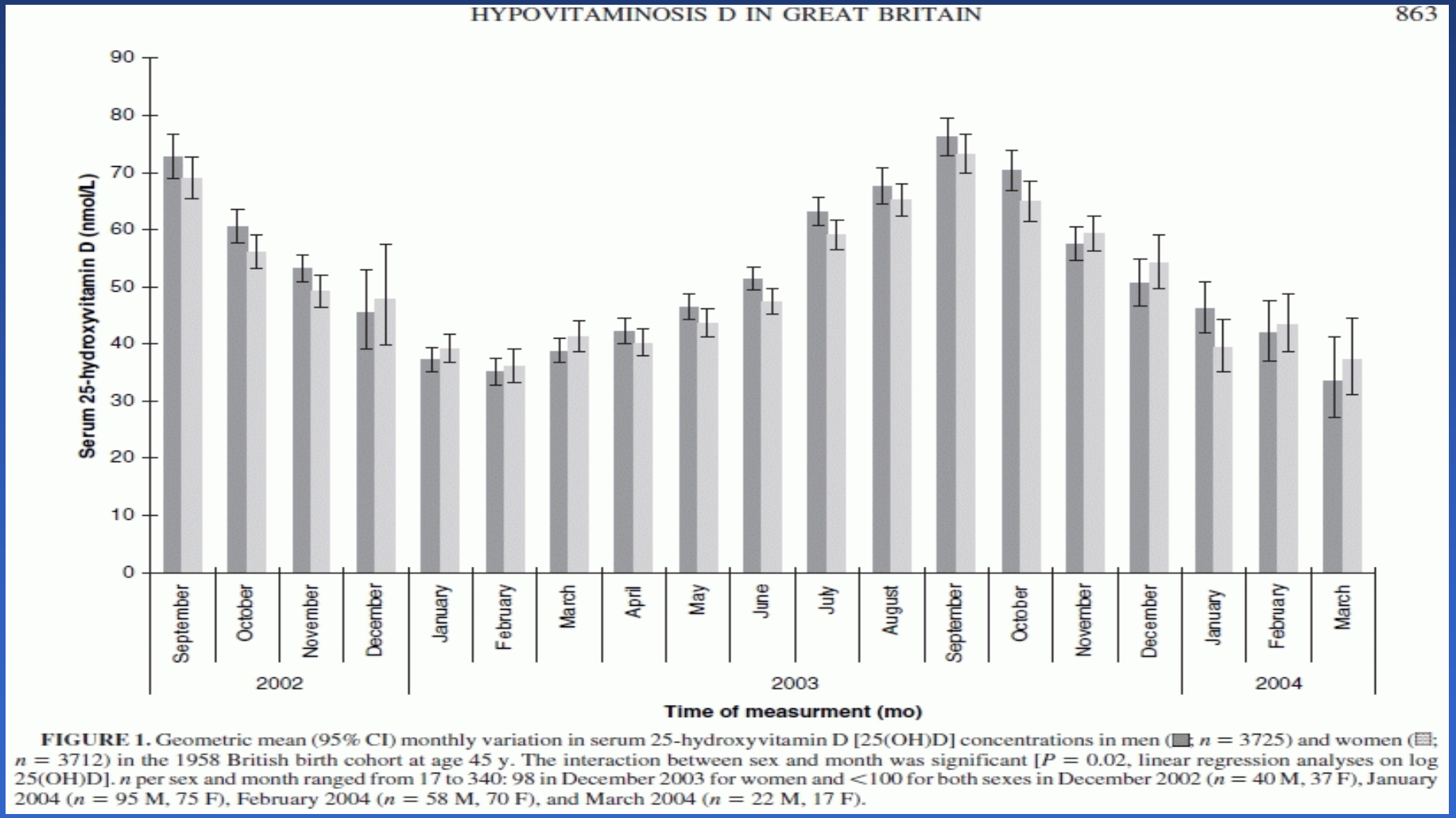
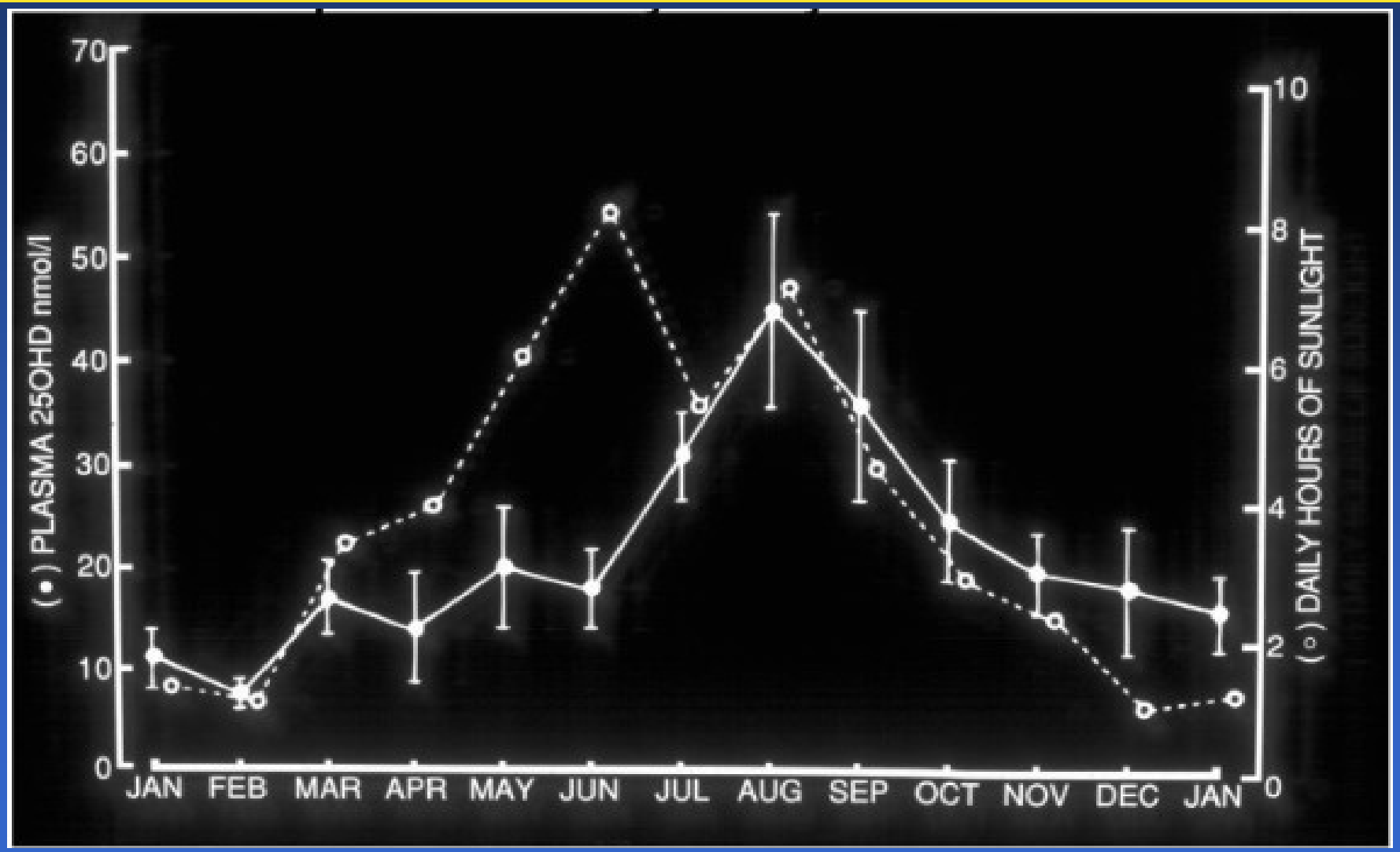


FIGURE 1. Geometric mean (95% CI) monthly variation in serum 25-hydroxyvitamin D [25(OH)D] concentrations in men (■; $n = 3725$) and women (▤; $n = 3712$) in the 1958 British birth cohort at age 45 y. The interaction between sex and month was significant [$P = 0.02$, linear regression analyses on log 25(OH)D]. n per sex and month ranged from 17 to 340: 98 in December 2003 for women and <100 for both sexes in December 2002 ($n = 40$ M, 37 F), January 2004 ($n = 95$ M, 75 F), February 2004 ($n = 58$ M, 70 F), and March 2004 ($n = 22$ M, 17 F).

UK Data – Scotland (56-57˚N)



Professor Robert Heaney
Creighton University, Omaha NE

He has held faculty appointments at the University of Oklahoma, at George Washington University, and at Creighton, where for nine years he served as Chairman of the Department of Internal Medicine from 1961-1969. Dr. Heaney was Creighton's first Vice-President for Health Sciences, a position he held from 1971-1984, and since 1984 has held the all-university chair named in honor of the University's founder.

Dr. Heaney serves or has served on the editorial boards of all the major scientific publications in the field of bone biology and chaired the Scientific Advisory Panel on Osteoporosis of the Office of Technology Assessment (U.S. Congress). He is a past member of the Board of Directors of Loyola University of Chicago and of the Association of Academic Health Centers, and currently is an emeritus member of the Board of Trustees of the National Osteoporosis Foundation. He served as a member of the panel on Calcium and Related Nutrients of the Food and Nutrition Board (NAS) in the most recent setting of the DRIs for bone-related nutrients.

Dr. Heaney has worked for over 50 years in the study of osteoporosis, vitamin D, and calcium physiology. He is the author of three books and has published over 400 original papers, chapters, monographs, and reviews in scientific and educational fields. The major theme of his work has been quantitative physiology, for example, the elucidation of how much vitamin D was necessary to produce the nutrient's canonical effect on calcium absorption, how much vitamin D is metabolized each day, how much vitamin D is synthesized in the skin, and the degree to which skin pigmentation modifies that synthesis, how much vitamin D is stored, and the extent to which input levels modify that change.

At the same time, he has engaged nutritional policy issues and has helped redefine the context for estimating nutrient requirements. Specifically he has shown that nutrient deficiencies produce long-latency disease as well as their classical acute disorders, and has focused attention on the inadequacy of drug-based research designs for the evaluation of nutrient efficacy.