FACULTY OF HEALTH SCIENCES

UNIVERSITY OF CAPE TOWN

Singapore Lecture
The impact of health inequity in women with gynaecological cancers

Lynette Denny

Department Obstetrics & Gynaecology, University of Cape Town and Groote Schuur Hospital and Director, South African Medical Research Council Gynaecological Cancer Research Centre (SAMRC GCRC)

Declaration of interests

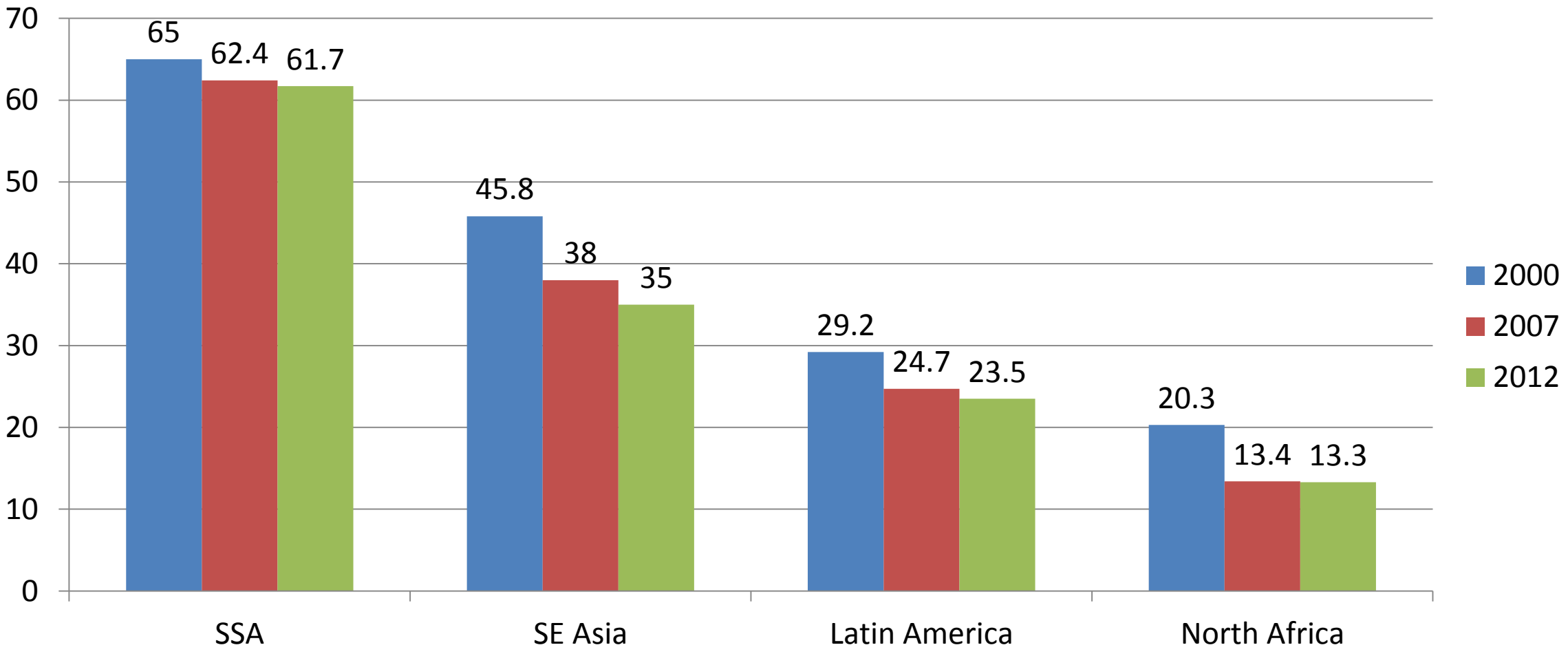
- Received honoraria in the past for appearing on speaker forums for GlaxoSmithKline, Merck (HPV Vaccination) and Roche (HPV DNA Testing)
- Research grants from all three companies in the past
- No current conflicts of interest

Introduction*

- The world is characterised by inequality and inequity in multiple ways, particularly in health and where and how people live and work
- Of the 3.5 billion people who live in urban settings, 1 billion live in slums
- Regions of the world with the fastest growing urban populations are also the regions with highest proportion of slum dwellers
- Data from 2003 show that almost half of all urban dwellers in developing regions live in slums and this rises to 4 out of 5 urban dwellers in poorest countries
- Urbanisation in itself is shaping population health problems, particularly among urban poor, towards greater incidence of NCDs, injuries and violence, alcohol and substance abuse and the impact of ecological disasters

*Commission on Social Determinants of Health: Closing the Gap: Michael Marmot (Chair). Final Report

Proportion of people living in urban slums by region over time*



*2013 Ibrahim Forum Facts & Figures, Addis Ababa

Introduction

- More than 50% of Mozambiquans have to walk longer than 30 mins to obtain water; only 5% of the rural population have piped water
- 126 million children aged 5 – 17 years are working in hazardous conditions
- In India, 86% of women and 83% of men employed in areas outside the agricultural sector are in informal employment
- In Africa, coverage for old age income protection is lower than 10% of the labour force
- ¾ of Africa's urban population are less than 35 years of age
- 1/3 of urban dwellers in Africa have no access to electricity

Introduction

- Top fifth of the world's people in the richest countries enjoy 82% of the expanding export trade and 68% of foreign direct investment – the bottom fifth around 1%
- In 1999 the developing world spent US$13 on debt repayment for US$1 received in grants
- 20% of people living in developed countries consume 86% of the world's goods
- Many countries spend more on military than on health:
  - Eritrea spends 24% of GDP on the military and only 2% on health
  - Pakistan spends less on health and education combined than on military

Introduction

Gross national income per capita in nominal US$			
Year	Richest countries*	Poorest Countries*	Ratio
1980	US$ 11 840	US$ 196	60
2000	US$ 31 522	US$ 274	115
2005	US$ 40 730	US$ 334	122

* World Bank's World Development Reports from 1982, 2002 and 2007

Cancer health care disparities

- National Cancer Institute cancer definition of health disparities is quoted as follows*:
  - Disparities or inequalities occur when members of some population groups do not enjoy the same health status as other groups
  - Disparities in cancer care are measured by:
    - Incidence (number of new cancers)
    - Mortality (number of cancer deaths)
    - Survival rates (length of survival following diagnosis of cancer)
- In USA significant disconnect between cancer research and delivery of care to patients with the greatest burden of cancer falling on some racial and ethnic minority groups, people with low SES, residents in certain geographical locations and other medically underserved groups
- Lack of stable and quality health insurance coverage is a major contributor to cancer health diagnosis and failure for patients to receive adequate care

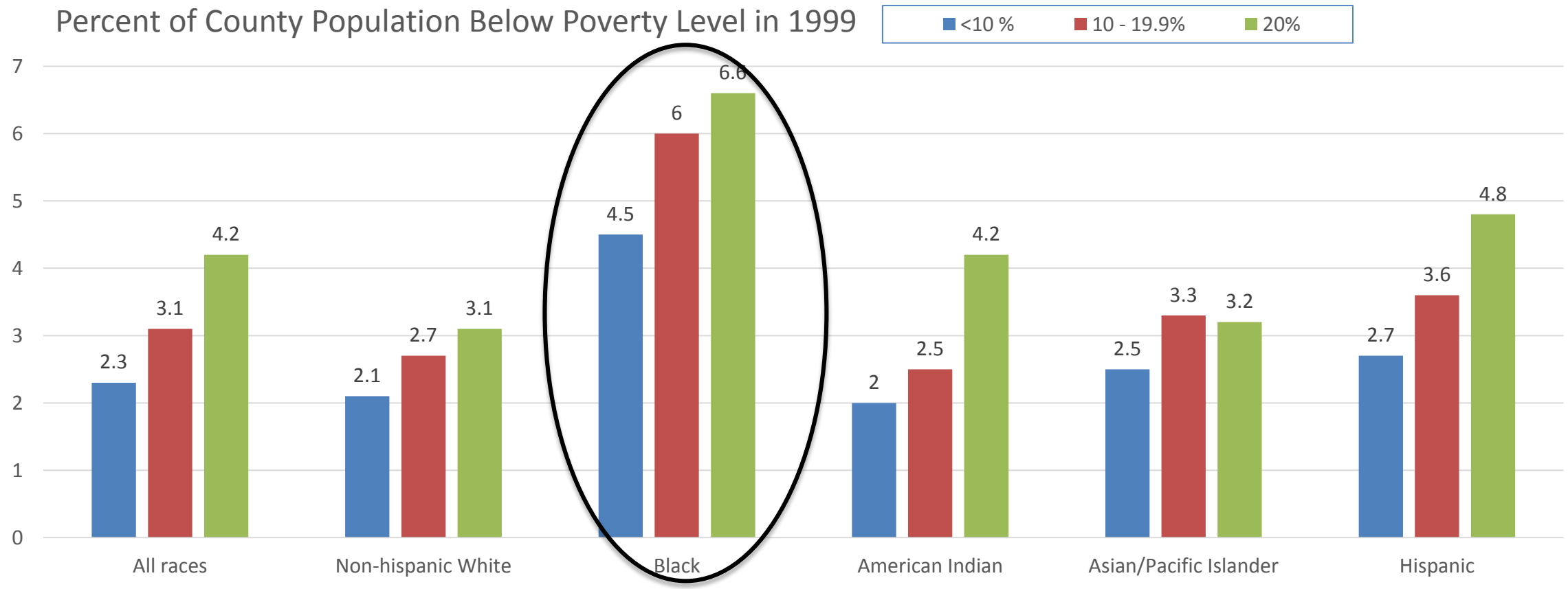
*Economic Costs of Cancer Health Disparities. Summary of meeting proceedings, National Institute of Health, December 2004

Causes of Cancer Health Disparities*

- Causes of cancer health disparities include (among others):
  - Poverty (low socio-economic status)
  - Culture
  - Social justice
  - Gender
  - Race
  - Ethnicity
  - Geographic location
- Poorer people present at more advanced stage of disease, have less access to diagnostic and treatment facilities and a significantly higher case to fatality rate
- Rates of disparity vary from country to country, within countries, and along the North – South divide

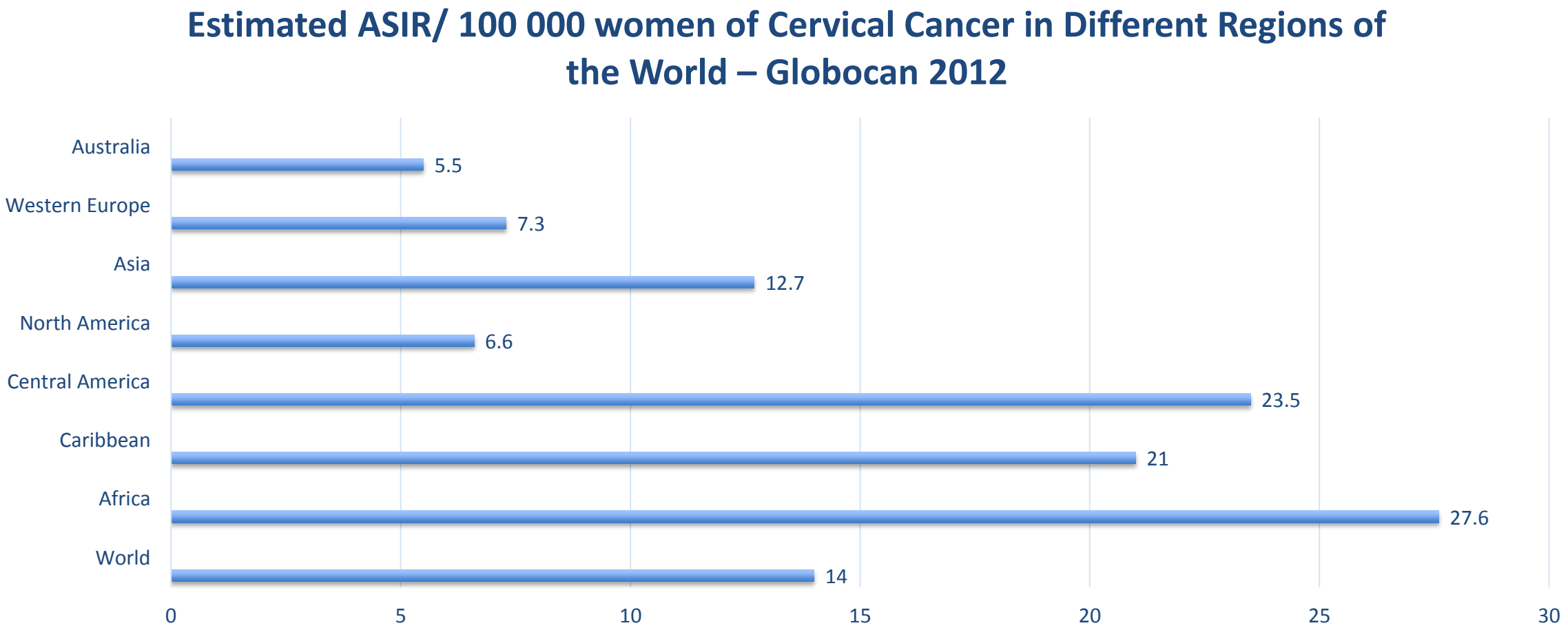
*Economic Costs of Cancer Health Disparities. Summary of meeting proceedings, National Institute of Health, December 2004

US Cervical Cancer Mortality by Race and Poverty level 1996 – 2000*



*Economic Costs of Cancer Health Disparities. Summary of meeting proceedings, National Institute of Health, December 2004

Estimated ASIR of Cervical Cancer by Region 2012*



Global political determinants of health*

- The global political determinants of health include the *distribution and use of power* expressed in (among others):
  - Global governance
  - Economic crises and austerity measures
  - Knowledge and intellectual property
  - Foreign investment treaties
  - Food security
  - Transnational corporate activity
  - Migration
  - Violent conflict

*Ottersen et al. The Lancet –University of Oslo Commission on Global Governance for health. The political origins of health inequity: prospects for change. Lancet February 11th, 2014

Adverse effects of global political determinants of health

- Ottersen et al* found five dysfunctions that enable the adverse effects of global political determinants of health:
  - Lack of participation in health planning by civil society, health experts and marginalised groups
  - Weak accountability mechanisms
  - Institutional inability to respond to changing needs in society
  - Inadequate policy space for health care planning, triage and expenditure
  - Absence of interaction internationally
  - *Well illustrated by the events around the Ebola outbreak*

*Lancet 2014

Adverse effects of global health inequity

- *'Although the poorest population groups in the poorest countries are left with the heaviest burden of health risks and disease, the fact that people's life chances differ so widely is not simply a problem of poverty, but one of socioeconomic inequality.....it is now well established that the more unequal the society, the worse the outcomes for all – including those at the top'

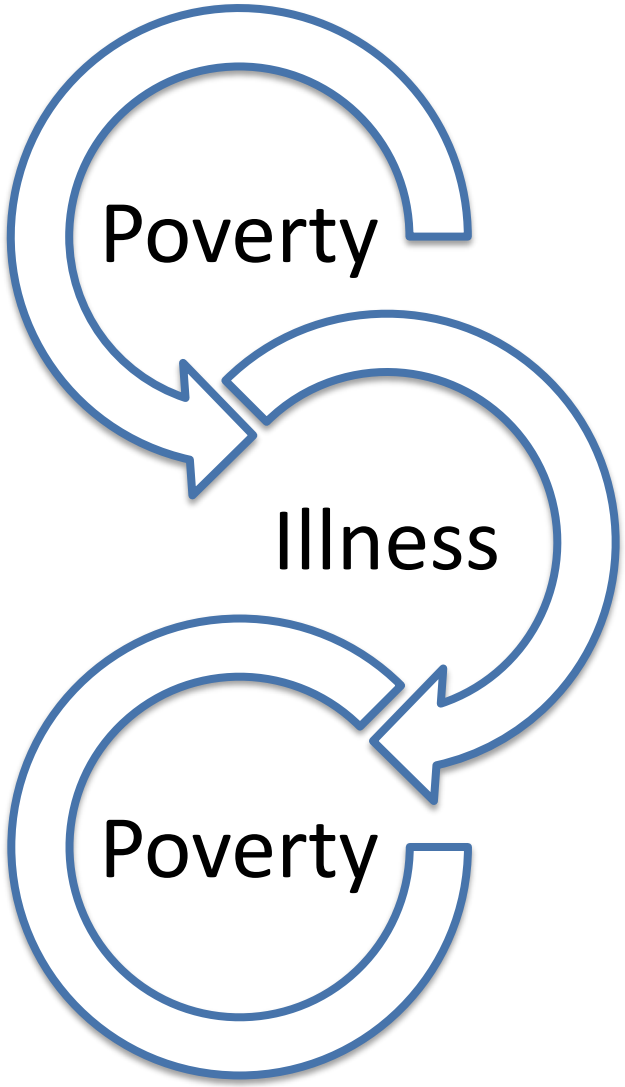
*Wilkinson R et al. The spirit level: why equality is better for everyone. London: Penguin books. 2010

Health Inequity

- Health inequities are defined as 'avoidable inequalities in health between people within and between countries…'
- Obvious examples:
  - Infant mortality rate (number of live births surviving first year of life)
    - 2 /1000 Iceland
    - 120/ 1000 in Mozambique
  - Lifetime risk of maternal death
    - 1 in 17 400 in Sweden
    - 1 in 8 in Afghanistan
- The poorest of the poor have the worst health

RCOG/UCT 2017


Employment
Data on burden of disease
Social exclusion
Health systems
Health inequity
Public health priorities
Globalisation
Gender Equity
Early childhood development


Poverty
Illness
Poverty

Actions required to address health inequity

- ‘Improve the conditions of daily life:
  - Circumstances in which people are born, grow, live, work and age
  - Tackle the inequitable distribution of power, money and resources globally, nationally and locally
  - Measure the problem, evaluate action, expand the knowledge base, develop a workforce that is trained in the social determinants of health, and raise public awareness about the social determinants of health’

*Commission on Social Determinants of Health: Closing the Gap: Michael Marmot (Chair)

Global inequalities in Cervical Cancer Incidence and Mortality*

- Incidence rates of cervical cancer for women in 184 countries using 2008 Globocan data-base showed a 10 – 20 fold higher rate in very poor countries
- HDI and poverty rate explained >’r than 52% of the global variance in mortality
- Incidence and mortality rates increased in relation to lower HDI and higher gender inequality levels
- A 0.2 unit increase in HDI was associated with a 20% decrease in cervical cancer risk and a 33% decrease in cervical cancer mortality risk

*Singh et al. International Journal of MCH and AIDS. 2012;1(1):17 - 30

Cancer case fatality rates by World Bank Income Group*

Cancer site	Low income	Lower middle income	Upper middle income	High income
Breast	56.3	44.0	38.7	23.9
Cervix	68.4	58.6	48.2	32.6
Colorectal	70.5	62.4	60.1	42.4
Lung	91.3	87.1	92.5	82.2
Oral Cavity	55.4	54.2	47.6	27.7

*Economic Intelligence Unit, 2009

Impact of cervical cancer globally

- Worldwide an estimated 169.3 million years of healthy life were lost due to cancer in 2008*
- SSA contributed to 25% of infection-related cancers (liver, stomach and cervix) to the total burden of cancer
- Areas with highest incidences of cervical cancer (i.e. over 30 /100 000) include: Eastern Africa (42.7), Southern Africa (38.6), Middle Africa (30.6) and Melanesia (33.3)+

*Soerjomataram I, Lancet 2012; 380 (9856): 1840 – 50; +Ferlay et al. International Journal of Cancer2014;136:E359 - E386

Impact of cervical cancer

- Cervical cancer remains a leading cause of premature death and disability in women*
- The Age- adjusted DALY (disability-adjusted life-years) per 100 000 population in women with cervical cancer in 2008 was the highest in:
  - Sub-Saharan Africa 641/100 00 compared to
  - 355 in Latin America and the Caribbean
  - 243 in South-East Asia
  - 466 in India
  - 58 in Australia and New Zealand

*Soerjomataram I, Lancet 2012; 380 (9856): 1840 - 50

Impact of cervical cancer

- The global distribution of cervical cancer is testimony to great inequity in health care
- This preventable disease is the fourth most common in the world, second most common in Africa, and first most common in around 55 countries of the world
- The group of women most affected are in their 40 – 50s, primetime in their lives when they are often heads of households, and the moral and social stalwarts of their societies
- Failure of the world to tackle this disease with vigour and commitment may well be considered a *human rights violation*

Impact of cervical cancer

- A number of country specific studies have been done to evaluate the role of socio-economic/demographic factors in premature cervical cancer mortality
- In Colombia* between 2005 and 2013, 16 634 (2.2% of deaths in women of all ages) women died from ICC, of whom 30.6% were aged 20 – 49 years
- Major risk factors in those who died were:
  - Educational levels
  - Types of health insurance
  - Region of residence
  - Age

* Bermedo-Carrasco et al. BMC Public Health 2016;16:981- 994

Impact of cervical cancer

- Socio-economic impact of cervical cancer on patients and their families in Argentina*
- Cervical cancer disproportionately impacts women with low S-E-S resulting in dramatic consequences for:
  - Living conditions
  - Falling into poverty or deeper poverty
  - Loss of employment and income
  - Changes in household responsibilities

*Arrossi et al, Gynecologic Oncology 2007;105:335 - 340

Impact of cervical cancer

- Arossi et al studied 120 patients with ICC in Buenos Aries where mean age was 51 years, 35% were heads of households
- 76% had no health coverage, 45% were living below the poverty line, 30% lived in inadequate dwellings, no patient had socially protected employment
- 40% of households lost family income, resulting in delayed payment of utilities with concomitant loss of access to utilities
- Significant increase in food insecurity, loss of homes and savings
- Major absences of children from school and problems paying for education leading to withdrawal from education

Premature death of mothers in Bangladesh*

- In many poor communities death of a mother is a major determinant of the survival of infant and child
- In a study in Bangladesh between June 1982 and Dec 2005
  - 144 861 live births and 14 868 (10%) deaths in children < 10 years
- Mothers of 1385 (1%) died during the first 10 years of their children's lives
- Very young children died shortly after their mother's deaths (median of 20 days), children aged up to 11 months lived for on average 2 months after their mother's death and if the mother died after first birthday children survived up to 287 days (9 months)

Ronsmans C. et al Lancet 2010; 375: 2024 - 31

Premature death of mothers in Bangladesh*

- Cumulative probability of survival of the child from birth to 10 years of age was 24% in children whose mothers died before the child's ten birthday versus 89% in those whose mothers stayed alive ($p<0.0001$)
- After the first month but before the sixth month of life, the death of the mother increased child mortality by 25 times and these effects remained significant up to 10 years
- Infants whose mothers died were likely to die from diarrhoeal disease, respiratory illnesses, nutritional deficiency and injury compared to children whose mothers survived ($p<0.0001$)
- Overall the age specific death rates were slightly higher in children whose fathers had died than in those who had survived, but most Confidence Intervals included 1

Out of pocket (OUP)health care expenditure

- (OUP) is associated with high levels of catastrophic health expenditure and impoverishment in both rich and poor countries
- Xu et al* studied the financial consequences of paying for care using 116 surveys in 89 countries
- Threshold for defining financial catastrophe occurs with health care payments at or exceeding 40 % of a household's capacity to pay in one year
- In their analysis, financial catastrophe affected around 150 million people each year and 100 million are pushed under the poverty level due to having to pay for health services
- More than 90% of these people live in low income countries

*Xu et al. Health Affairs 2007;26(4):972 - 983

Radiation facilities in Africa

- IAEA analysis of 52 countries in 2010
- 23 offered external beam radiotherapy in 2010
  - 160 radiation centres recorded on the continent
- 80 cobalt- 60 units and 189 linear accelerators
  - 92 machines in South Africa and 76 in Egypt, accounting for 60% of all radiation equipment in Africa
- Only 20/52 countries offered brachytherapy
- Calculated that this could only provide treatment for 24 300 patients per year

*Abdel Wahab et al Lancet Oncology 2013;14(4):168 - 175

RCOG/UCT 2017

Radiation facilities in Africa

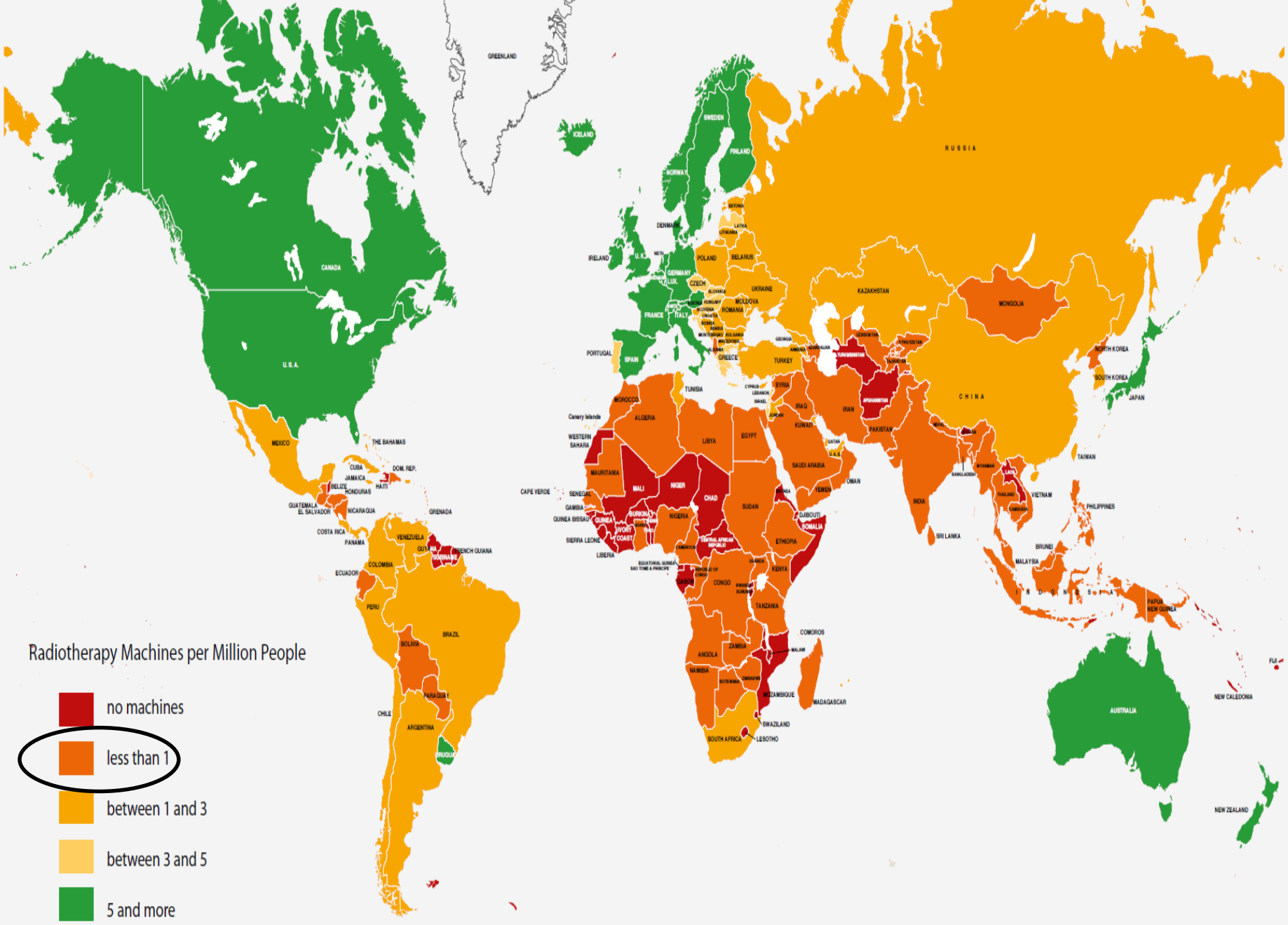
- ***198 million people live in the 29 countries that do not have any teletherapy facilities***
- Range of two machines per 80 million population in Ethiopia to one machine for every 1.1 million people in Morocco
- By contrast:
  - Europeans have 15 machines per million population
  - North America 6 per million population

RCOG/UCT 2017

Number of Radiotherapy machines needed in Africa*

	Population	New cancer cases 2008	Pts who need RT	Existing RT machines	Additional machines
Egypt	81527	68 805	44 035	76	22
Ghana	23 351	16 580	10 611	2	22
Nigeria	**151 212**	**101 797**	**65 150**	**7**	**138**
Angola	18 021	9 198	5 887	1	12
DRC	**64 257**	**33 746**	**21 597**	**0**	**48**
Sudan	41 348	21 860	13 990	7	24
Ethiopia	**80 713**	**51 707**	**33 092**	**2**	**72**
South Africa	48 793	74 688	47 800	92	14
Zimbabwe	12 463	11 915	7 626	2	15

*Lancet Oncology 2013:14(4): 168 - 175



Source: DIRAC (Directory of Radiotherapy Centres), 2011 / IAEA

For more information: *http://www-naweb.iaea.org/nahu/dirac/*
dirac@iaea.org

Chemotherapy

- Requires comprehensive 'eco-system' with trained oncologists, pharmacists, laboratory support, access to treatment of complications
- One study from Tanzania evaluated 384 adult cancer patients registered for chemotherapy
- Availability of appropriate chemotherapeutic drugs was 50% and over 70% of patients did not receive prescribed chemotherapeutic agents
- Costs from private sources were equivalent to the average income of 7 months*

*Yohana E et al. East Afr J Public Health 2011, 8(1):52-7

Surgery and global health

- Estimated that 2 billion people worldwide do not have adequate access to surgical care
- Unmet need for surgical care translates into significant impact on local, regional and national economies
- Study on the number of operating theatres per 100 000 people in 21 sub-regions of the world (769 hospitals in 92 countries)*

* Funk LM et al. Lancet 2010; 376:1055 -1061

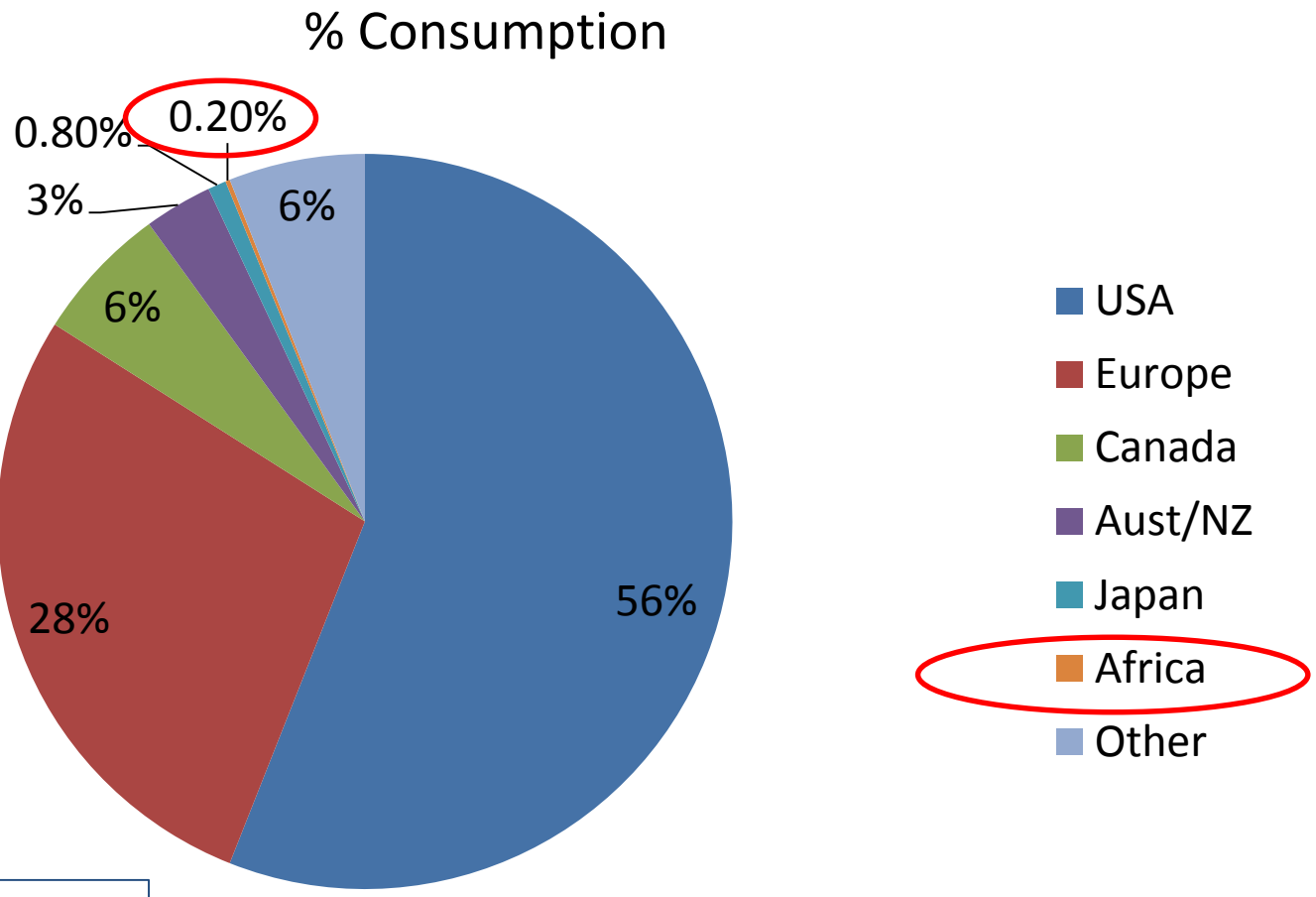
Estimated number of operating theatres per 100 000 people*

Region	GNI (US$) per capita	No. of theatres per 100 000 population
Asia Pacific	32 834	24.3
Western Europe	38 010	14.7
Australasia	34303	14.3
South East Asia	1912	2.6
SSA – East	434	1.1
SSA - West	755	1.0
SSA – South	4436	3.1
SSA - Central	844	1.2

* Funk LM et al. Lancet 2010; 376:1055 -1061

RCOG/UCT 2017

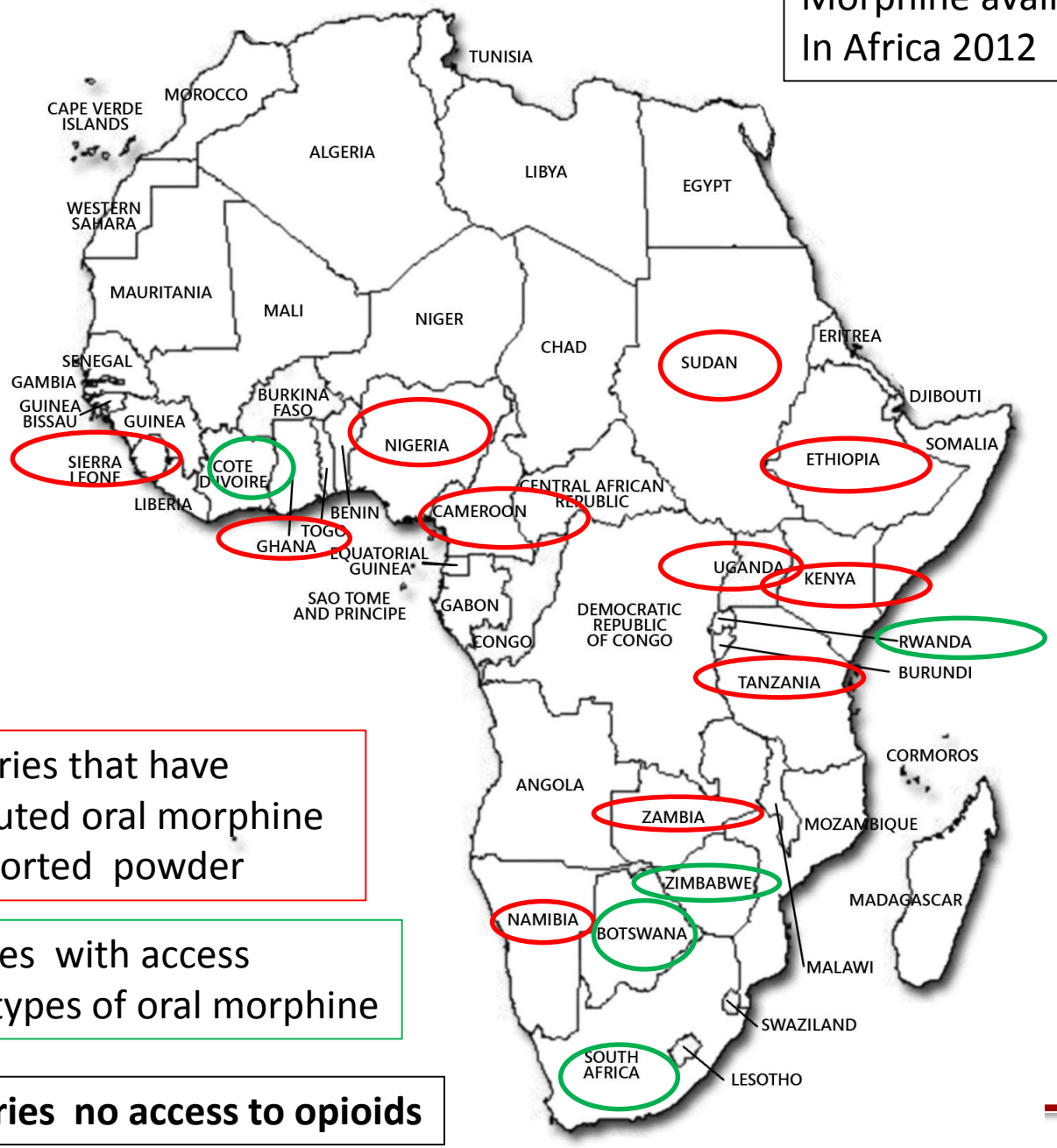
Consumption of Morphine by Region 2009*



RCOG/UCT 2017

*International Narcotics Control Board

Morphine availability In Africa 2012



11 Countries that have reconstituted oral morphine from imported powder

5 Countries with access to other types of oral morphine

38 countries no access to opioids

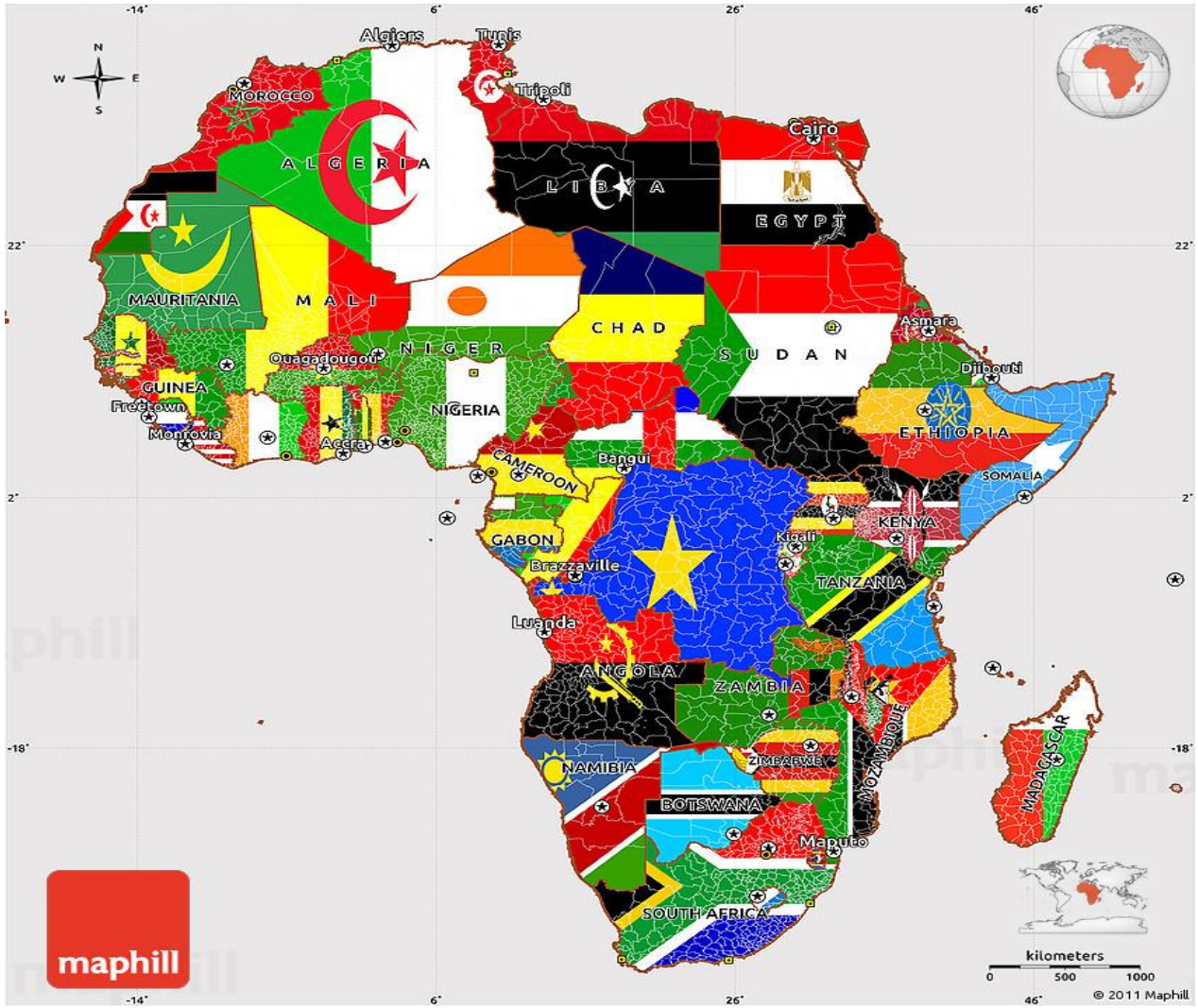
Conclusions

- Health and wealth are strongly correlated
- Cancer care in developing countries is abysmal and not recognised as a public health problem
- Health systems in poor countries are too weak to support the most basic care, let alone cancer with its complexity and expense
- Incidence to mortality ratio for cancers in Africa is around 80% compared to 36% in wealthy nations
- Prevention is the only feasible option for intervention at this point in time
  - Tobacco control
  - Decent water and sanitation
  - Avoidance of western style diet
  - Screening
  - Vaccination
  - Control of environmental toxicity

RCOG/UCT 2017

Conclusions

- Cancer is not recognised as a significant health problem
- Afflicts women who do not prioritise their own health needs and are often breadwinners and heads of households
- User fees may be crippling
- Lack of health care professionals and training
- Lack of investment by many African Governments in the health of their people



RCOG/UCT 2017