



The effect of spinal disorders in low- and middle income communities: the status of non-surgical care in Africa.

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IMPACTING SPINE CARE AROUND THE WORLD

**Why do we care about spine disorders in
underserved populations?**

Is it personal or is it the numbers

GP

36 year old hospital employee was happily married with 2 children at school before onset of spine pain

Presents to the WSC clinic in Botswana with 10 year history of low back pain that expanded to encompass the entire spine.

Could not care for self - needs help to go to toilet, bathe, bend over.

Could not make love to her husband.

Husband unable to take care of her and their children and leaves.

Moves in with her family who now have to take care of her.

Unable to work in the hospital and loses job. Stops paying taxes.

No worker's compensation or social net.

Tries to start business making jewelry at home to survive.

Could not travel to sell her jewelry.

Could not take care of children or clean her home.

Does not have funds to send children to school.

Impact extends beyond the person with pain

Employer loses skilled employee

Husband loses additional financial support for family, companionship and conjugal relations

Children stop going to school

Family stressed by having additional 3 people to care for

Government loses tax revenue

1 Billion

people in the World
suffer from spinal disorders at any one
moment in time

Global Burden of Disease 2010 Report. *Murray et al. Lancet* 2012
Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions,
1990–2010



Estimates of World Disability Prevalence

Disability threshold of 40 (on a 100 point scale)
 Considered significant disability

Subpopulation or subgroup	Higher income countries	Lower income countries
Male	9.1% (SE 0.32)	12.0% (SE 0.18)
female	14.4% (SE 0.32)	22.1% (SE 0.24)
Age 18-49	6.4% (SE 0.27)	10.4% (SE 0.20)
Age >60	29.5% (SE 0.66)	43.4% (SE 0.47)
Urban	11.3% (SE 0.29)	14.6% (SE 0.25)
Rural	12.3% (SE 0.34)	18.6% (SE 0.24)
Poorest quintile	17.6% (SE 0.58)	22.4% (SE 0.35)
Richest quintile	6.5% (SE 0.35)	13.3% (SE 0.25)

World Report on Disability 2011

WHO and World Bank

- Arthritis, rheumatism and back problems were the most common health conditions related to disability
- People with disabilities have generally
 - poorer health
 - lower education achievements
 - fewer economic opportunities and higher rates of poverty

Low back pain leading global
cause of disability

Back pain is a 21st century
global epidemic



Chronic low back pain Globally:

Point prevalence	18.1%
12-month prevalence	38.1%

Chronic low back pain in Africa

Point prevalence	32%
12-month prevalence	50%

Jackson T et al. *Anesth Analg* 2016;123:739–48

Chronic low back pain Prevalence in LMICs

In workers

52%

- Jackson T et al. *Anesth Analg* 2016;123:739–48

Global prevalence of spinal disorders

- Global burden of disease study
 - Low back pain #1 cause of disability
 - Neck pain #6 cause of disability
- Most is non-specific
- Persistent, episodic
- 85% lifetime prevalence of back pain
- Increasingly recognised as high impact NCD

Impact of spinal disorders across the life course.

Africa: 1 year prevalence of low back pain:
adolescents 33%; adults 50%



Widespread impact of spinal disorders

- National economies
- Local economies
- Workforce and business prosperity
- Family and community impact

Direct impact is
the tip of the
iceberg



Co-morbidity

- Lack of physical activity
 - Obesity
 - Cardiovascular disease
 - Diabetes
- Lack of ability to work
 - Financial hardship
 - Burden on other family members
- Lack of ability to participate in community and family
 - Psychosocial co-morbidity

Health in Africa

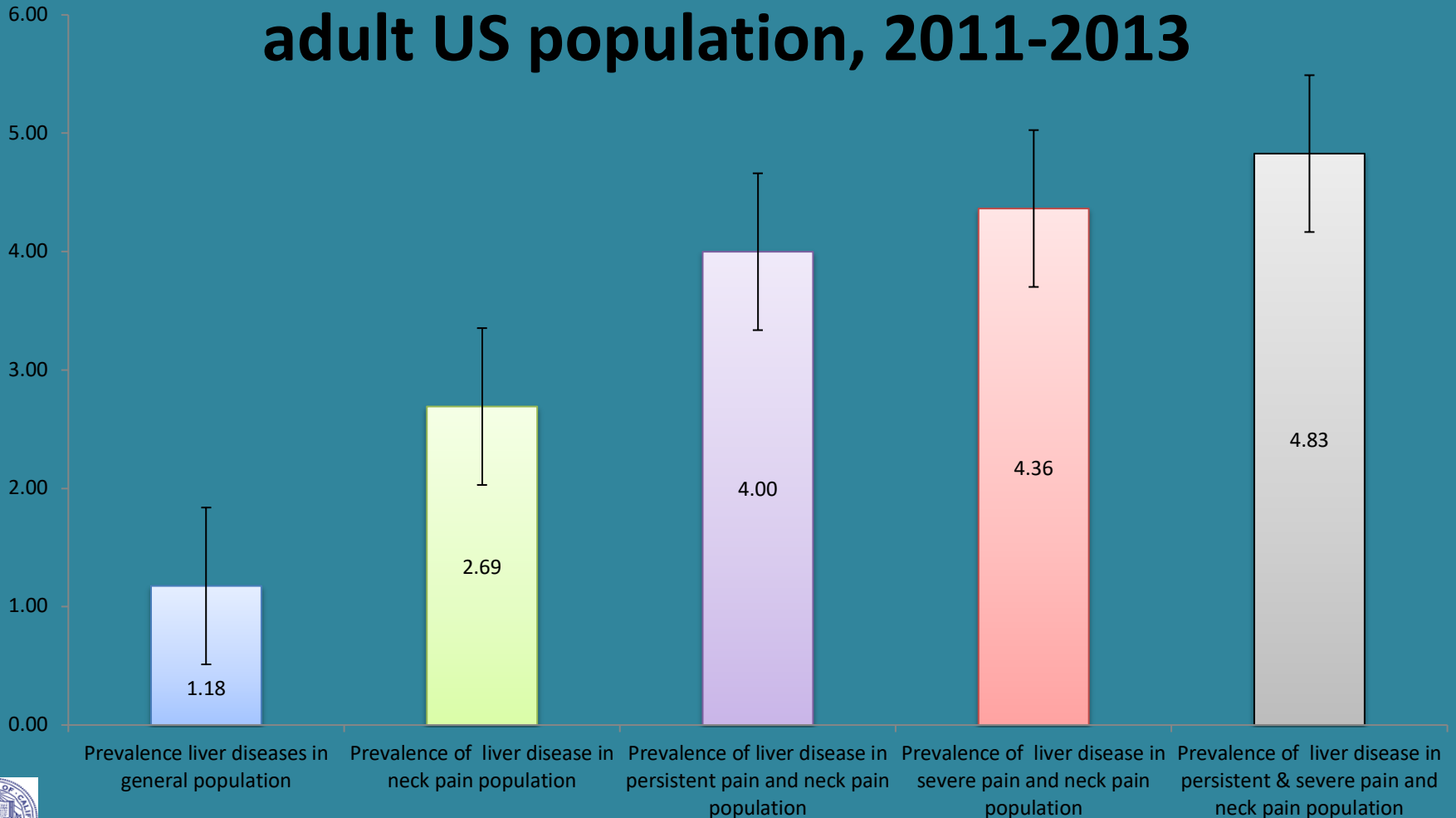
- 14% of world's population
- Disproportionate burden of disease
- Only 4 out of 25 poorest countries in the world are not African
- +ve causal relationship between income and health
- Spinal disorders not prioritised despite prevalence

- Back pain and neck pain combined are **second** only to ischemic heart disease in the impact on the global burden of disease
- Back and neck pain combined have a greater impact on global health than
 - **HIV/AIDs** --
 - **Alzheimer's Disease**
 - **Malaria** -- **Diabetes**
 - **Lower respiratory infections** -- **Depression**
 - **Breast and lung cancer combined** -- **Stroke**

Global Burden of Disease 2010 Report. *Murray et al. Lancet* 2012

Disability-adjusted life years (DALYs) for 291 diseases in 21 regions, 1990–2010

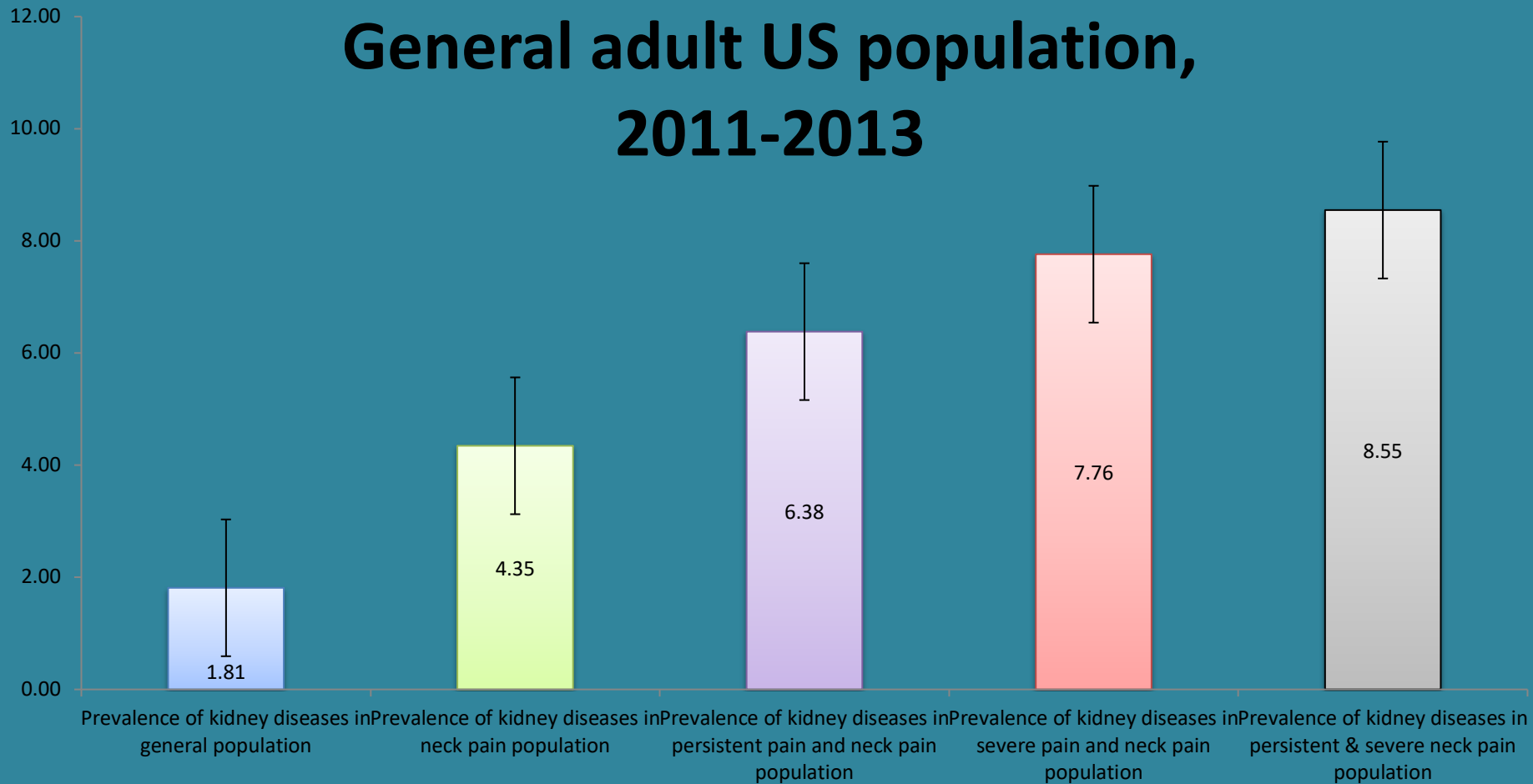
Prevalence of liver diseases in general adult US population, 2011-2013



NHIS Data – Yang H and Haldeman S



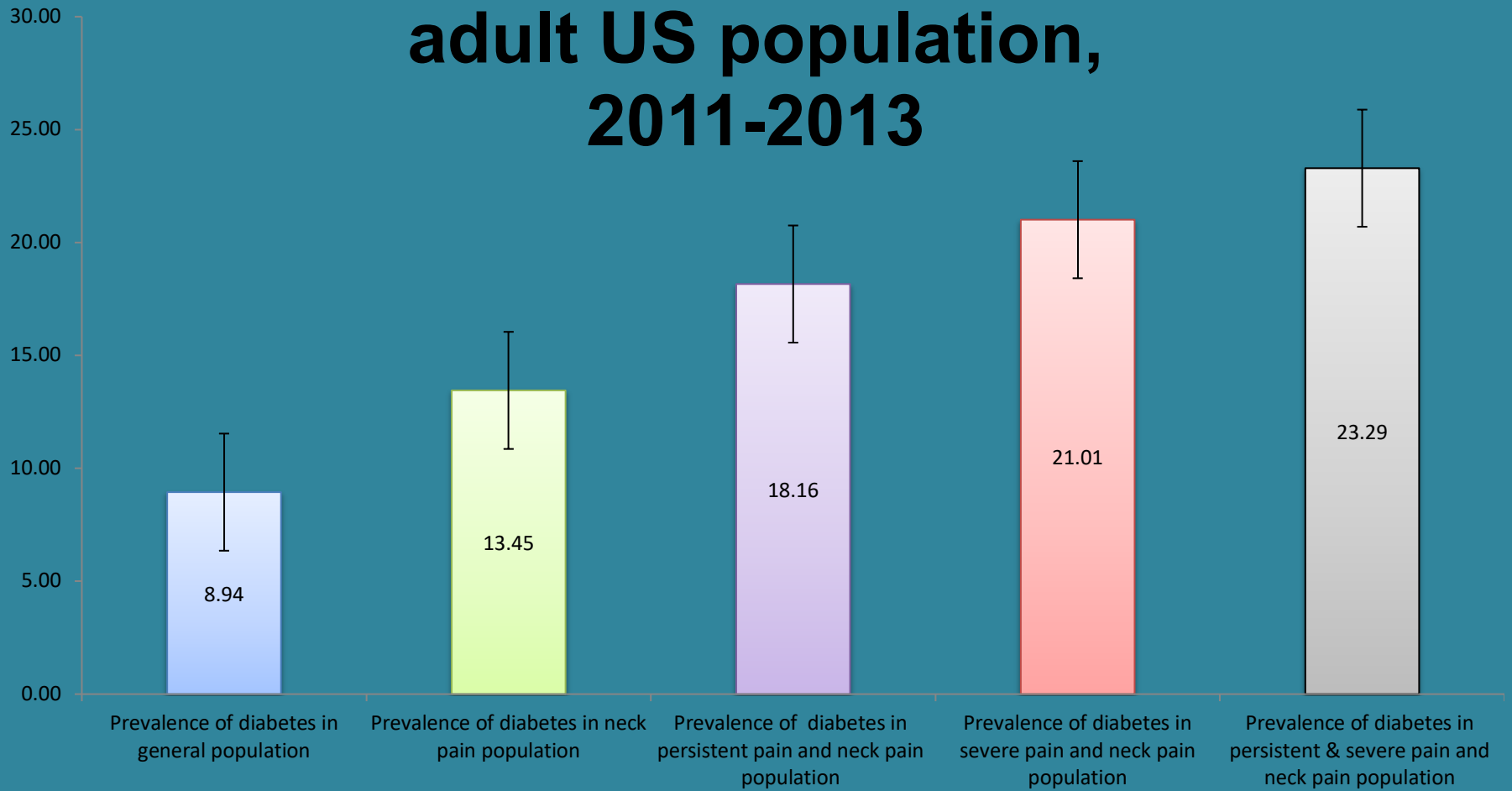
Prevalence of kidney disease in General adult US population, 2011-2013



NHIS Data – Yang H and Haldeman S



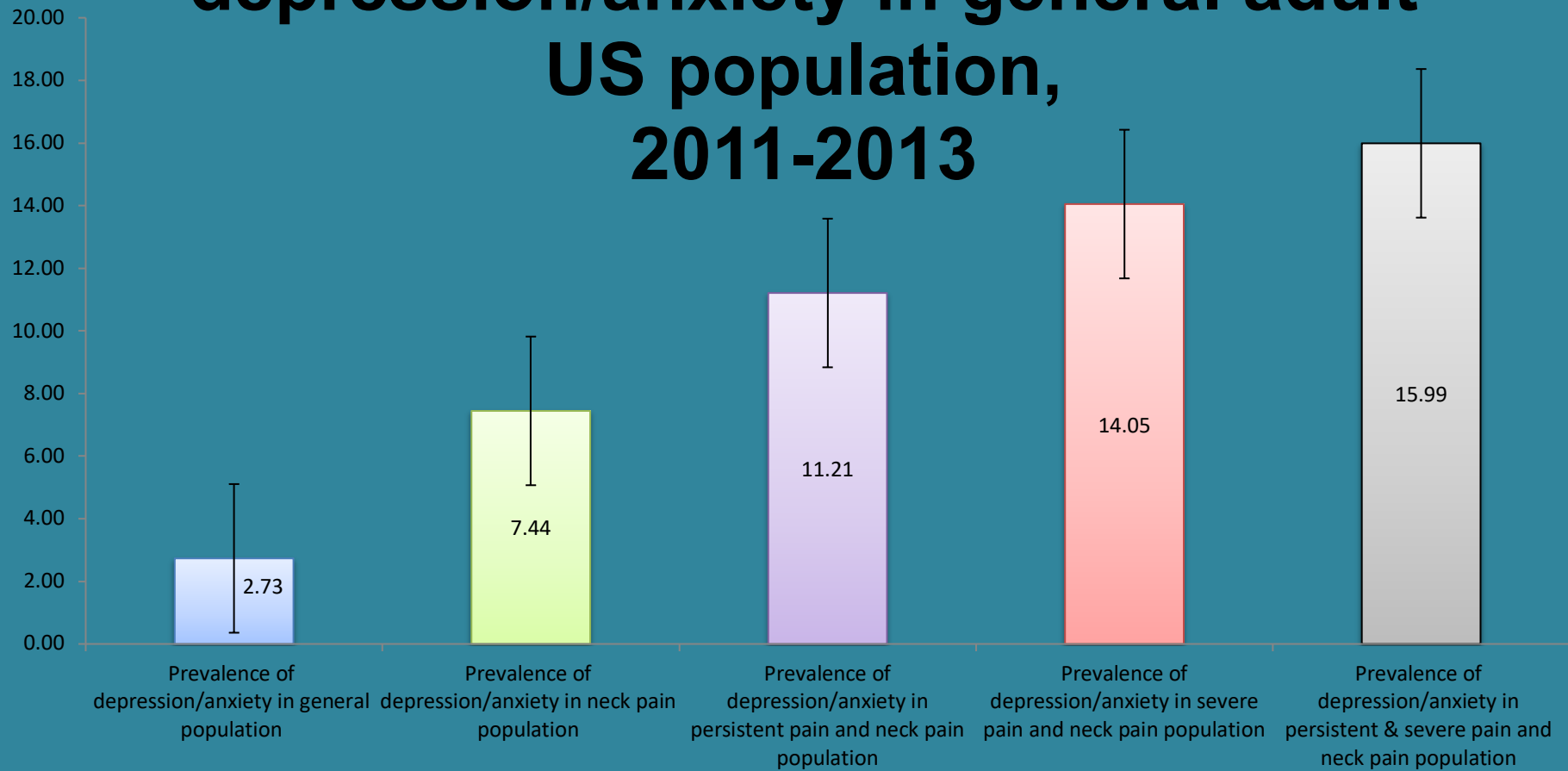
Prevalence of diabetes in general adult US population, 2011-2013



NHIS Data – Yang H and Haldeman S



Prevalence of the depression/anxiety in general adult US population, 2011-2013



NHIS Data – Yang H and Haldeman S



People over the age of 70 with
back pain

13%

increased all cause mortality per
year lived

Fernandez M. et al. Is this back pain killing me? All-cause and cardiovascular-specific mortality in older Danish twins with spinal pain. *Eur J. Pain* 2017:

Docking RE et al. The relationship between back pain and mortality in older adults varies with disability and gender: *Eur J Pain* 19 (2015) 466--472

Social determinants of health

- Social
- Political
- Environmental
- Economic

Ageing population

- Expanding global ageing population
- Spinal disorders increase in prevalence with age
- WHO: Integrated Care for Older People
- Focus on functional capabilities, intrinsic capacity
- Physical activity, falls prevention, nutrition, sensory capacity.

Impact in low- and middle income countries

- Key interventions are those with high impact and low resource
- Education of local community health workers to deliver group spine care interventions
- Access to low-cost primary care manual therapy interventions with emphasis on patient education, self-help, sustainable models of care

Some of the difficulties in managing spinal disorders in low and middle income communities

Primary care physician consultation time: a systematic review of 67 countries

Irving G, Neves AL, et al. BMJ Open 2017

In countries representing about 50% of
the global population spend
**5 min or less with their primary care
physicians**

Primary care physician consultation time: a systematic review of 67 countries

Irving G, Neves AL, et al. BMJ Open 2017

- Examples:

 - Tanzania – 3.8 minutes
 - India – 2.3 minutes
 - China – 2 minutes
 - Bangladesh – 1 minute
 - UK, Spain, Japan, The Netherlands, Brazil – 5-10 minutes
 - US, Canada, Australia, France, Denmark – 15-20 minutes

Primary care physician consultation time: a systematic review of 67 countries

Irving G, Neves AL, et al. BMJ Open 2017

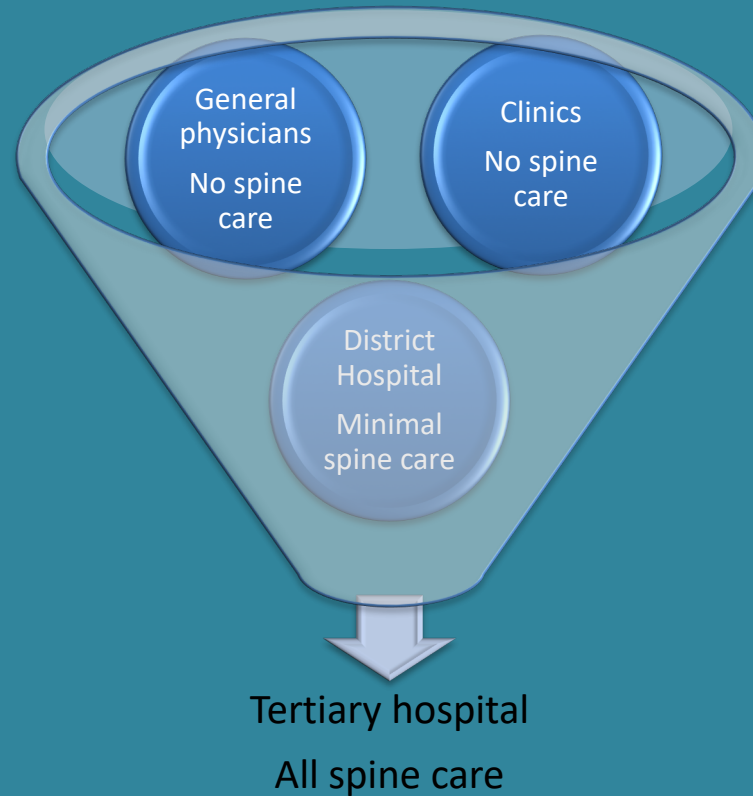
Short consultation length was responsible for:

- **driving polypharmacy**
- **higher hospital admission rates**
- **overuse of antibiotics**
- **poor communication with patients**

**Limited health care providers
(doctors, nurses, and surgeons)**

**Limited understanding and education on
the latest guidelines and methods of
evaluating and treating patients with
spine disorders**

Current model in many low and middle income communities



High incidence of Serious Red Flag Disorders in LMICs

Outerbridge G, Eberspaecher S, Haldeman S. J Can Chiropr Assoc 2017; 61(3)

From the World Spine Care clinics
Primary spine care setting

- Shoshong, Botswana (rural) 10%
- Mahalapye, Botswana (urban) 9%
- Dominican Republic (urban) 12%

A list of serious pathology and bony deformity presenting to the WSC clinics from 2012 to 2017

<ul style="list-style-type: none"> • Situs inversus • Cervical fracture • Rheumatoid arthritis • Polyneuropathy • Fractured dens • Sprengel's deformity • Klippel Fiel syndrome • Tuberculosis of the spine • Scoliosis • Traumatic coccydynia • Peroneal nerve entrapment • Hydroseal • Metastatic bone tumor • Kaposi sarcoma • Peptic ulcer • Cerebral Palsy • Traumatic paraplegia • Traumatic hemiparesis • Gout • Rib fracture • Myositis • HIV • Stroke • Jaw fracture • Paget's disease • Type II diabetes • Blount's disease 	<ul style="list-style-type: none"> • Cauda equina syndrome • Cervical stenosis with radiculopathy • Cervical disc herniation with radiculopathy • Vertebral body compression fracture • T7 myelopathy secondary to burst fracture • Organic referred – multiple locations • Lumbar disc herniation with radiculopathy • Lumbar stenosis with radiculopathy • Diffuse Idiopathic Skeletal Hyperostosis • Congenital interspinous pseudoarthrosis • Peripheral nerve entrapment • Hemorrhagic ovarian cyst • Rheumatoid arthritis • Malignant GI tumor • Reflex sympathetic dystrophy • Diabetic polyneuropathy • Facial nerve palsy • Polymyalgia rheumatica • Arthritis secondary to infection • Friedrich's ataxia • Motor delay due to in utero hypoxia • Neurofibromatosis with IVF stenosis secondary to dumbbell neurofibroma • Legg–Calvé–Perthes disease • Benign paroxysmal positional vertigo • Cervical spondylotic myelopathy • Non-union of shoulder fracture • Uterine fibroid causing pelvic nerve compression • Ankylosing spondylitis
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Outerbridge G, Eberspaecher S, Haldeman S. J Can Chiropr Assoc 2017; 61(3)



Non-surgical care

- Majority of spinal disorders are not suitable for surgery
- Key to managing spinal disorders is patient empowerment and education of community workers
- Primary spine care workers can focus on keeping people moving and addressing risk factors early.



Summary

- Addressing the burden of spine care disorders in Africa has to be centrally resourced, community focused, and patient-centred.
- The benefits of international initiatives, such as ICOPE, must be communicated from the top down
- Tackling the burden of spinal disorders as an emerging NCD must be prioritised to improve the health of nations

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Thank you

