

HEPATITIS C THERAPEUTIC OPTIONS IN AFRICA

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BEST OF EASL- Africa

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OUTLINE- SOME QUESTIONS

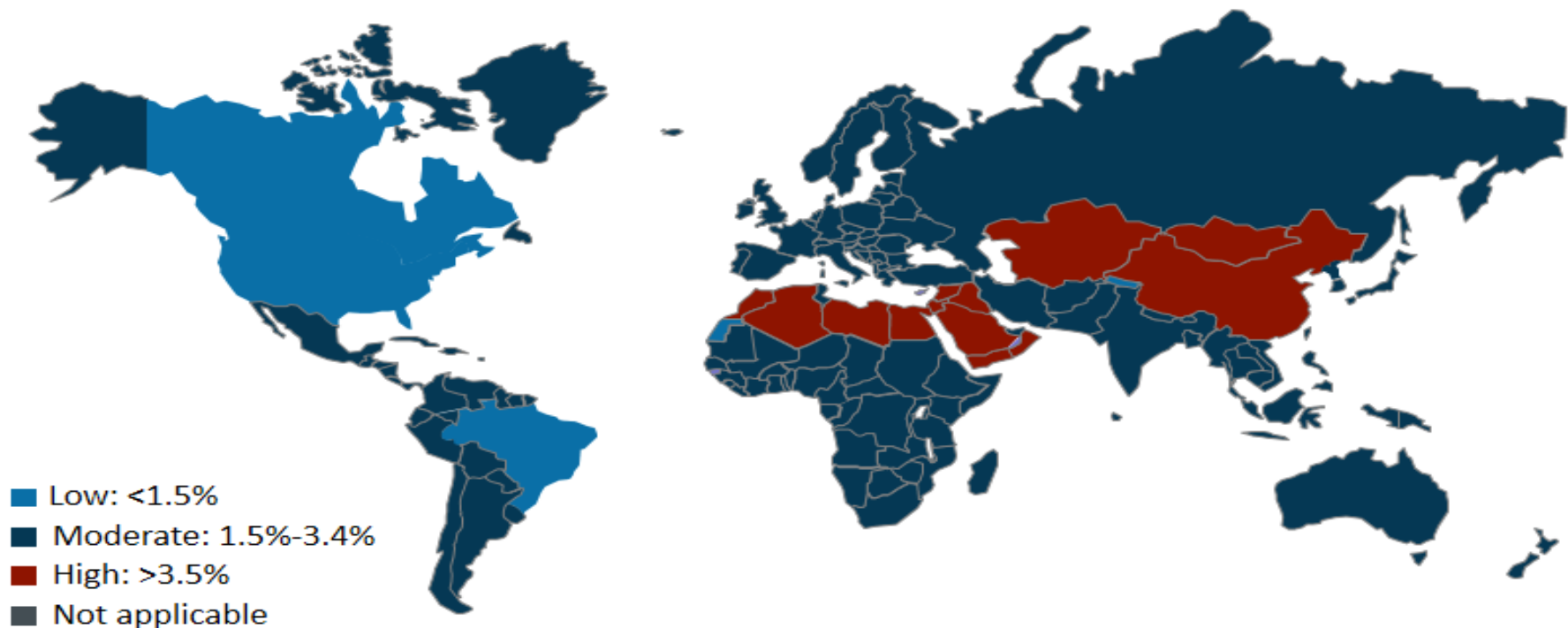
1. Is HCV a public health threat in SSA
2. Who do we screen?
3. HCV treatment in Nigeria
4. Challenges to expanding therapeutic access in SSA

INTRODUCTION

- **HCV is the most common chronic blood borne infection in the USA affecting at least 3 million Americans**
- **It is the leading cause of end-stage liver disease and liver transplantation.**
- **Availability of highly effective, yet highly costly curative therapy for HCV has converted hepatitis care into an emergency requiring urgent responses including an urgency to increase awareness and screening**
- **WHO elimination goals for 2030**

PREVALENCE

170 MILLION PEOPLE



- Estimates are derived from a meta-analysis of data from 232 studies published between 1997 and 2007 and NHANES data up to 2010. Point prevalence estimates are calculated using regional population age weights.

SUB-SAHARAN AFRICA: REGIONAL CHARACTERISTICS & VIRAL HEPATITIS CONTROL

- **Population, total 960.1 million 2014**
- **Low income economies-60%**
 - GNI per capita, Atlas method 2013 (\$1,657)
- **Urban population 37% (2014)**
- **Chronic HBV & HCV endemic - Significant public health & economic impact. Estimated 18 million cases of cirrhosis/HCC within next 20 yrs**

CHRONIC HCV IN AFRICA- 19 MILLION INFECTIONS- NEARLY 11% OF GLOBAL INFECTIONS

HCV seroprevalence 1.0-14%

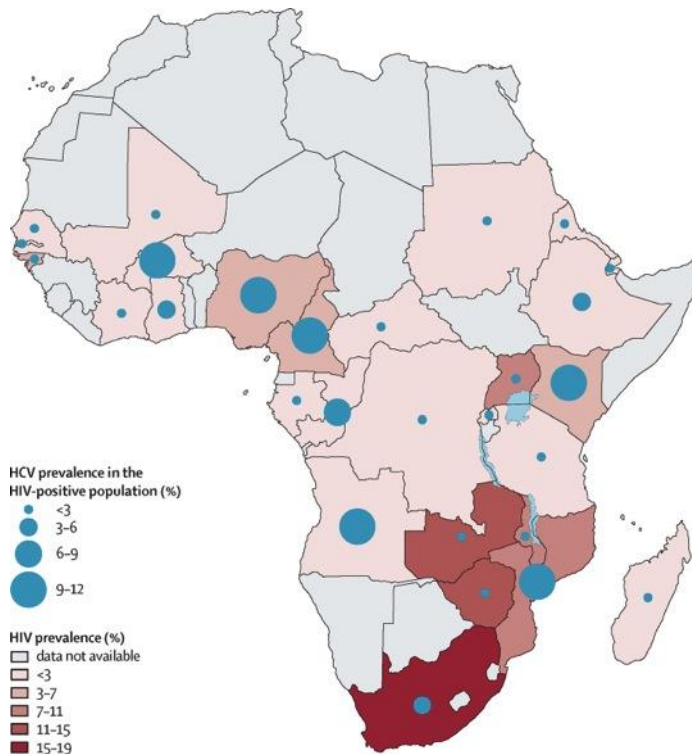
- differential historical exposure to iatrogenic transmission

SSA: Highest prevalence

- Cameroon 4.9%,
- Burkina Faso 6.1%
- Gabon 4.9%

SSA: Largest absolute number

- Nigeria- 3.1% (2.5 million persons)
- Ethiopia- 2.7% (1.26 million persons)



CHRONIC HCV IN AFRICA- 19 MILLION INFECTIONS- NEARLY 11% OF GLOBAL INFECTIONS

In Egypt

- Estimated prevalence is 14.7% affecting an estimated 6.8 million

In Africa

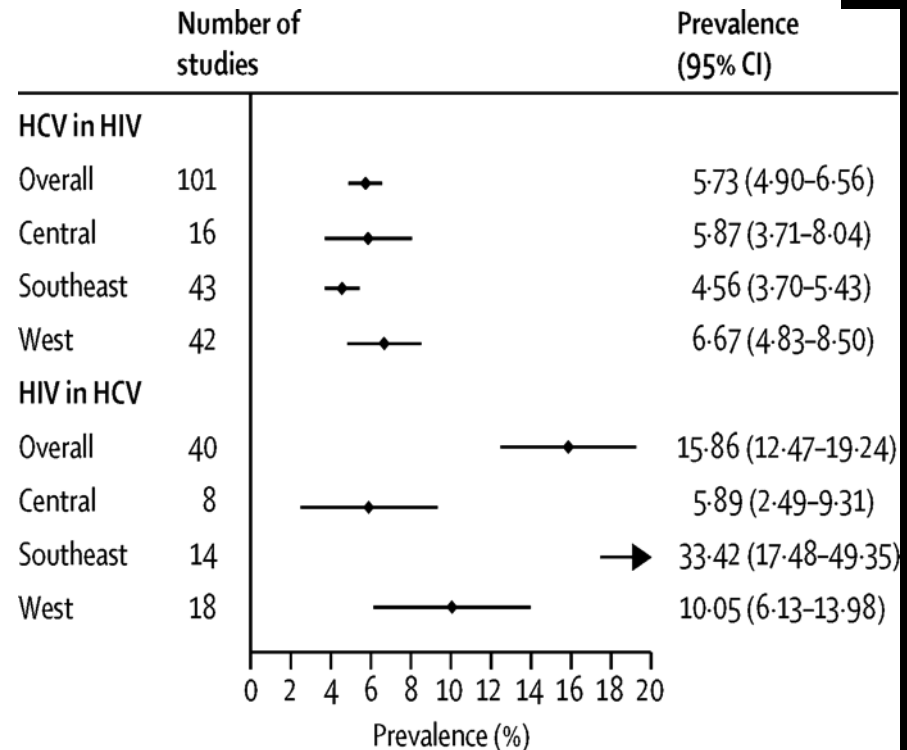
Highest prevalence

- Middle Africa (Cameroon)
- West Africa (Burkina Faso, Gabon, Benin)

Central /West Africa Country	Estimated adult seroprevalence (%)	Estimated number of adult carriers (thousands)
Angola	3.9	370
Burundi	3.1	150
Cameroon	4.9	525
Burkina faso	6.1	475
DRC	2,1	647
Ghana	3.2	426
Ethiopia	2.7	1206
Congo republic	2.9	224
Rwanda	3,1	175
Nigeria	3.1	2575

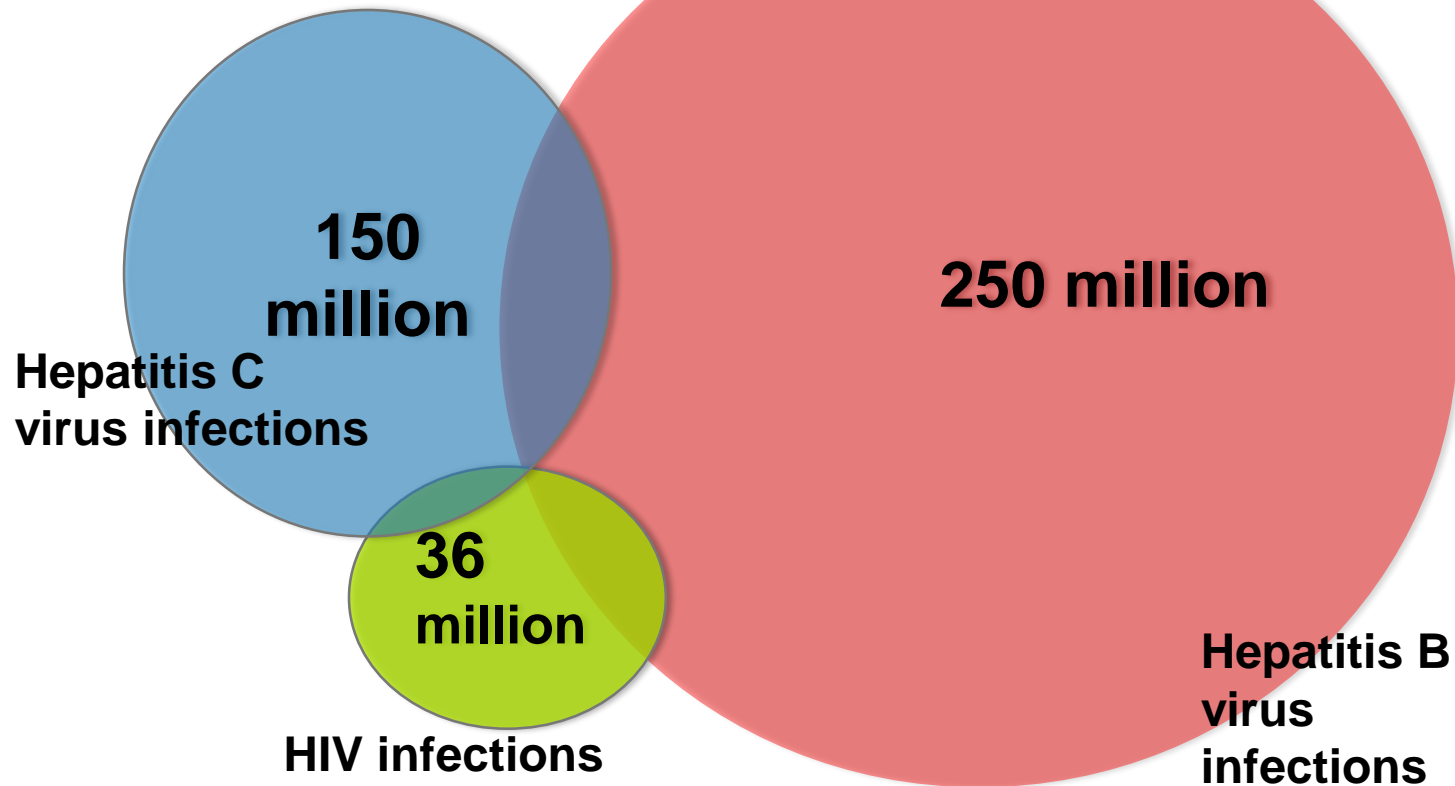
POOLED HCV SEROPREVALENCE - SSA

Risk	Prevalence	CI
Low risk cohorts	2.7%	
Antenatal clinics	3%	2.2-3.8
Blood donors	2%	1.9-2.1
HIV positive	5.7%	4.9-6.6



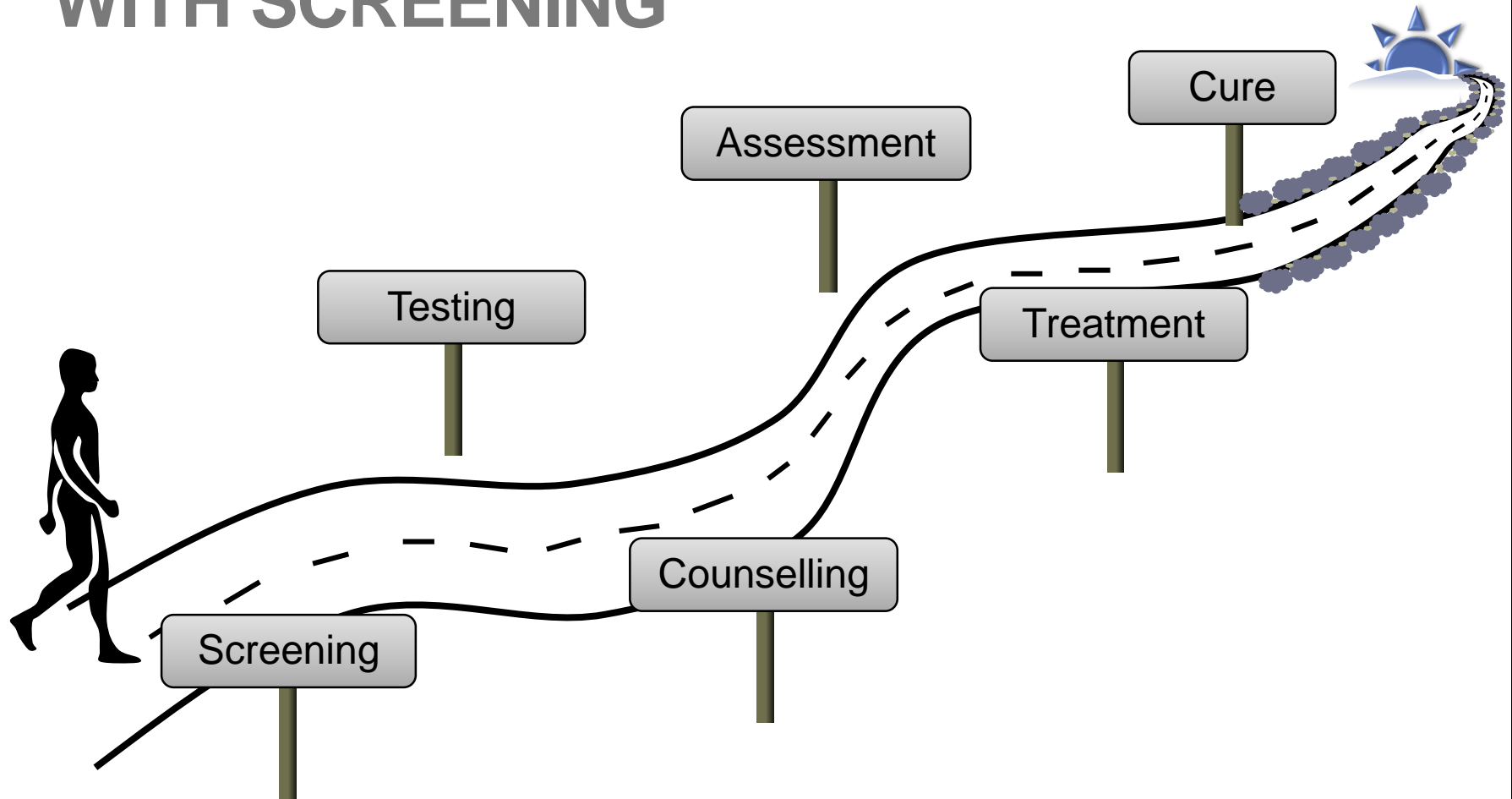
Roa VB, et al. Lancet infectious diseases 2015; 15; 819 to 824

Overlapping Epidemics of HBV, HCV and HIV

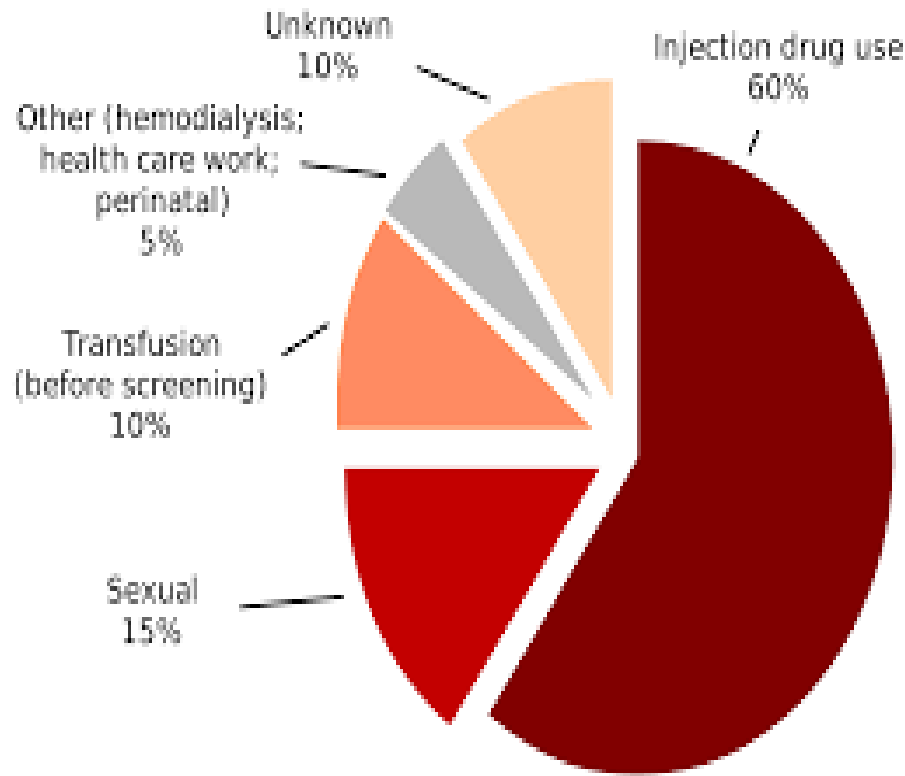


Viral hepatitis has become one of the most clinically important co-morbidity among people living with HIV. (co infection with HBV and HCV occur in 15% and 7%

THE ROAD TO THERAPEUTIC OPTIONS AND CURE FOR HCV INFECTION BEGINS WITH SCREENING



RISK FACTORS FOR VIRAL HEPATITIS-HCV



- Iatrogenic transmission
- Egypt: parenteral anti-schistosomal mass treatment in the 1960s and 1970s
- Mass treatment campaigns against yaws, malaria, syphilis in Cameroon, Gabon, CAR and DRC

Pepin J et al, Clin Infectious Diseases 2010
Njouom R et al, J Gen Virol. 2009
Ndong-Atome Gr et al, J Med Virol. 2008

UNSAFE INFECTIONS

Unsafe medical practices and injection safety- as in Egypt and Cameroon-Implications for aggressive & targetted screening



Traditional practices including scarifications, tattoos

WHO TO SCREEN: WESTERN COUNTRIES

3 approaches

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graph TD; A[3 approaches] --> B[Population screening, including antenatal]; A --> C[Risk-factor based screening e.g., PWID, MSM, prisoners]; A --> D[Birth cohort screening]
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Population screening, including antenatal

Risk-factor based screening e.g., PWID, MSM, prisoners

Birth cohort screening

- No current universal screening program
- Risk based screening: population dependent
- Birth cohort - in USA and Japan, ??? Sub-Saharan Africa

WHO TO SCREEN ? : SUB-SAHARAN AFRICA

Remains unclear

- **Persons with persistently abnormal ALT levels.**
- **Recipients of transfusions (prior) to ???**
- **Persons with recognized occupational exposures e.g. HCWs**
- **Exposure to unsafe injection or medical practices**
- **Children born to HCV-positive women**
- **HIV positive persons**
- **? Traditional practices**
- **Persons who ever injected illegal drugs**

Therapeutic Options:

Awareness, Screening, Testing

Barrier	What we need to do to access therapy and promote treatment scale-up
Lack of awareness	<p>Increase awareness of population /Health care worker /political</p> <ul style="list-style-type: none">• Information, education, research, advocacy, civil society mobilization
Screening with anti- HCV serological tests	<p>Access to testing</p> <ul style="list-style-type: none">• rural and urban population• Integration into existing facilities
NAT for HCV RNA needed for confirmation of viraemia	<p>Health system strengthening</p> <ul style="list-style-type: none">• Prequalified screening tests• Laboratory facilities for viral load and genotype <p>Newer testing strategies –eg HCV Ag test GeneXpert HCV</p>

BACKGROUND: NIGERIA, WEST AFRICA

Population :180 million

GDP per capita \$1,657

60% live below poverty line

**average HBsAg prevalence of
13.7% and anti-HCV
prevalence of <2%**

**20 million persons currently
infected with hepatitis B.**

2.5 million persons with HCV



SOGHIN

SOCIETY FOR GASTROENTEROLOGY AND HEPATOLOGY IN NIGERIA

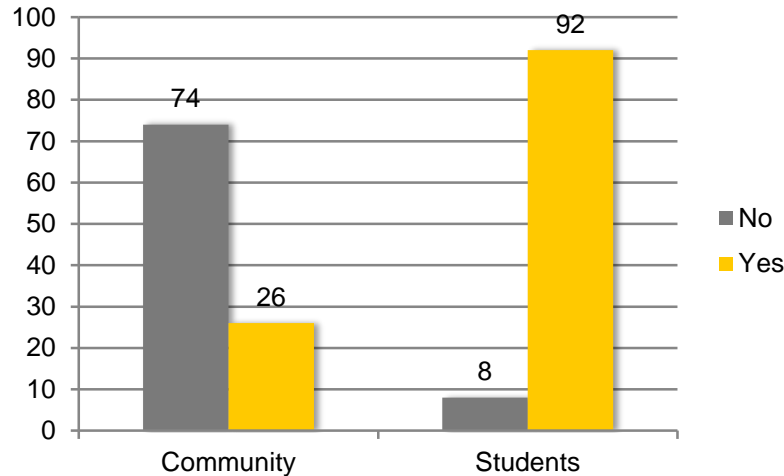


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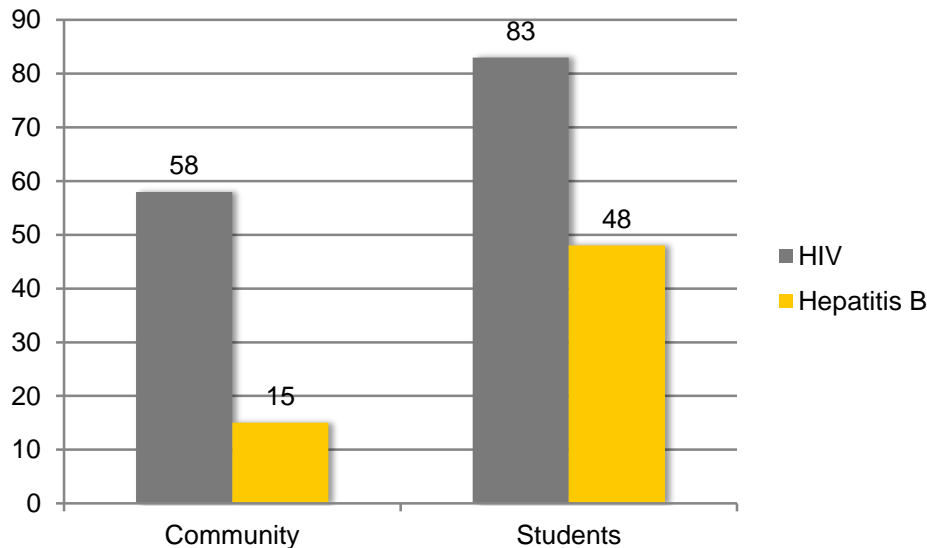


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WHD 2016: community awareness and screening in 750 subjects (community 500 and Health Sciences students-150)



Have you ever heard of viral hepatitis B or C?



Do you know your HIV status?
Do you know your Hepatitis B or C status?

HCV REGISTRY PILOT- REAL WORLD DATA- NIGERIA 2016

- Commenced July 2015 with availability of generic Sofosbuvir in the Nigerian market
- Over 300 persons treated with sofosbuvir containing regimen to date
- Gastroenterologists/ hepatologists/ National GI professional society-
- 8 recruiting collaborators/sites to date

THE NIGERIAN HCV REGISTRY- PRELIMINARY REAL WORLD DATA- 2016

	N=80
Mean Age, y (range)	59 (40-60)
Male, n (%)	43 (52%)
Risk factor	
Prior surgery/instrumentation	19 (15%)
Prior Blood transfusion	12 (9.4%)
HIV infection/IVDU/MSM	0
Genotype 1	62 (78%)
Genotype 2	10 (12.5%)
Genotype 3	2
Genotype 4	8 (10%)
No cirrhosis	48
Cirrhosis compensated	17
Cirrhosis decompensated (child Pugh) score	10
Regimen type	
Sof/Peg +/-RIBA	65
Sof/Led or Sof/Daclatasvir	10

LESSONS LEARNT FROM REGISTRY PILOT

1. “African Birth Cohort’ effect
2. Significant history of exposure to blood transfusion, health care or hospital admission/surgical intervention etc
 1. Iatrogenic transmission, unsafe injection, blood safety,
3. HCV screening driven by clinical features of liver disease or abnormal liver function tests
4. Predominant HCV genotype 1
5. High cost of care-exceeding 4000 USD

consultation, HCV viral load ± genotype, liver enzyme, fibroscan etc)
high end private health care, specialist liver care model. Mostly out-of-pocket expenses
6. Predominant use of Sof/Peg/Riba (availability)-generic sofosbuvir and Increasing availability/ use of Ledipasvir & Daclatasvir combinations (generic)
7. Limitations

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TREATMENT GUIDELINES

INTERNATIONAL GUIDELINES VS LOCAL PRACTICE

HCV DAA Treatment Landscape



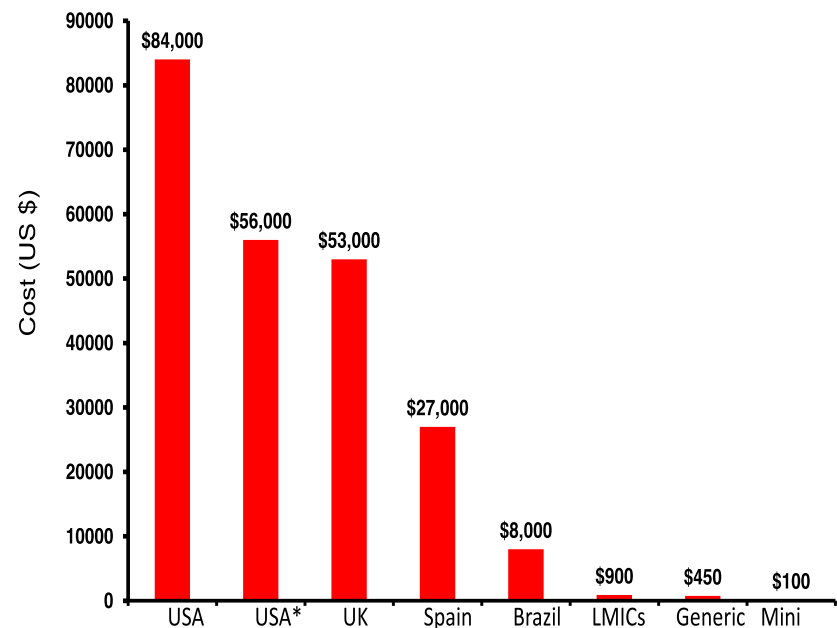
Therapeutic options: Financing access to care and drug therapy

DIRECT COSTS OF TESTS & DRUGS

	Cost (US \$)	Government subsidy/insurance reimbursement
HBV/HCV serology (5 markers)	30	Nil
Biochemistry/ liver enzymes (panel)	40-50	Nil
Ultrasound scan CT scan	30-50 200	NIL NIL
HBV DNA Viral load HCV RNA Viral load	240-450 240-450	NIL NIL
Pegylated interferon (monthly)	800-950	NIL
Sof/ledipasvir (Generic)	25-50	NIL
Sof/Daclatasvir		NIL

The availability of oral DAA have revolutionized the the treatment of HCV with cure rates over 90% even in HIV co infected subjects

**Current costs of sofosbuvir,
Per person (12 weeks)**



*discount

KEY CHALLENGES CONFRONTING SSA COUNTRIES

THE FIVE “LACKS”



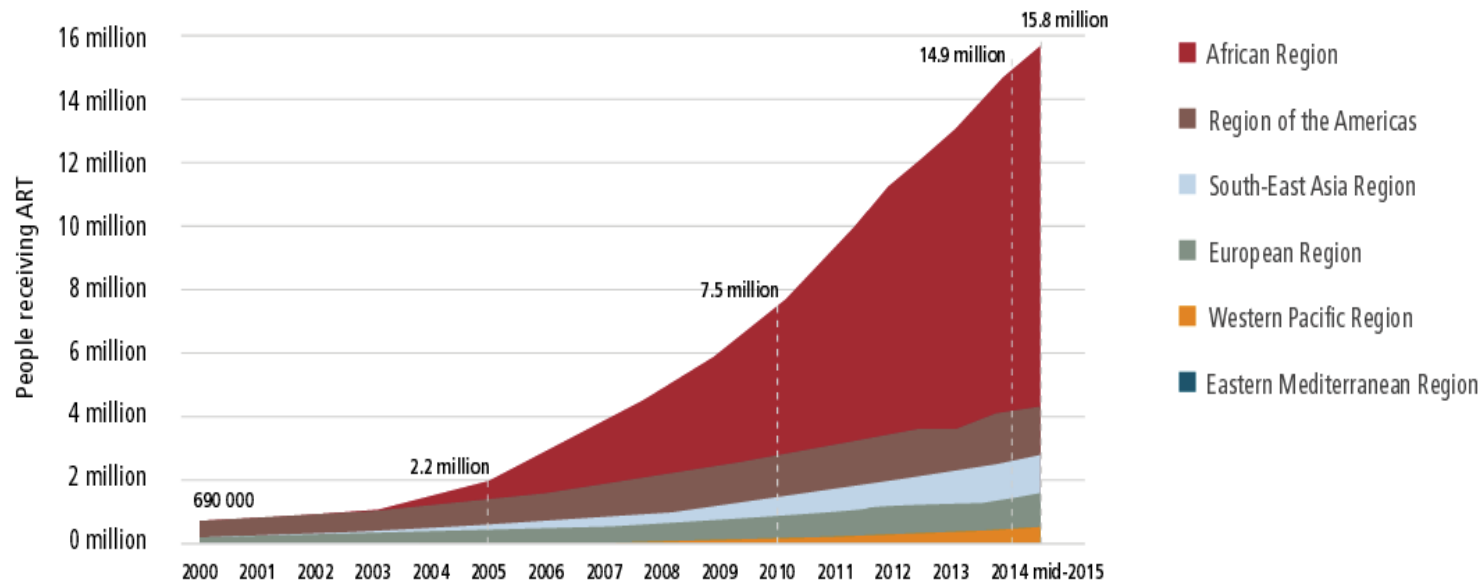
- Information gaps on disease and economic burden, treatment need, and potential impact of treatment scale-up (to build investment case)
- Not enough advocacy, leadership and commitment for hepatitis response at higher levels
- Continued limited global and country funding
- Lack of national strategies and plans and dedicated hepatitis department/focal person within MOH in many countries
- Public health sector approach to hepatitis treatment still in its infancy and Lack of case finding (testing approaches)
- High cost of DAA drugs for HCV

ENHANCING THERAPEUTIC OPTIONS

Appropriate model of care to improve access

- Individualized or public health approach
- Vertical system (like HIV) vs integrative into existing program
- Lessons learnt Public health approach successful in the control of HIV in Africa and likely to succeed in Hepatitis, Lessons from Egypt

Estimated numbers of people receiving antiretroviral therapy globally and by WHO Region and percentage coverage globally, 2000–2015



ENHANCING THERAPEUTIC OPTIONS

Health care financing

- Increased government budget
- Shared costs with other strategies
- Innovations and increased efficiencies

Drug access and funding in RLS

- Generic versions of DAA
- Tiered Pricing
- Government funding/Donor funding
- Treatment subsidization as available for HIV/AIDS, malaria and TB through international donors (Global Funds, PEPFAR, AU, others)

SUMMARY

- Significant disease burden
- Availability of curative therapy for HCV has converted hepatitis care into an emergency requiring urgent responses.
- Despite the therapeutic options, challenge of data hampers disease awareness and recognition.
Provision of screening and testing and care needed within an integrated public health system
- There is need for a 360 degree response including government commitment and collaboration, strengthening African networks and collaborations, international collaborations (donors, pharmaceuticals) health insurance and HMOs, civil society, academia.

THANK YOU



**THANK YOU FOR YOUR
ATTENTION**