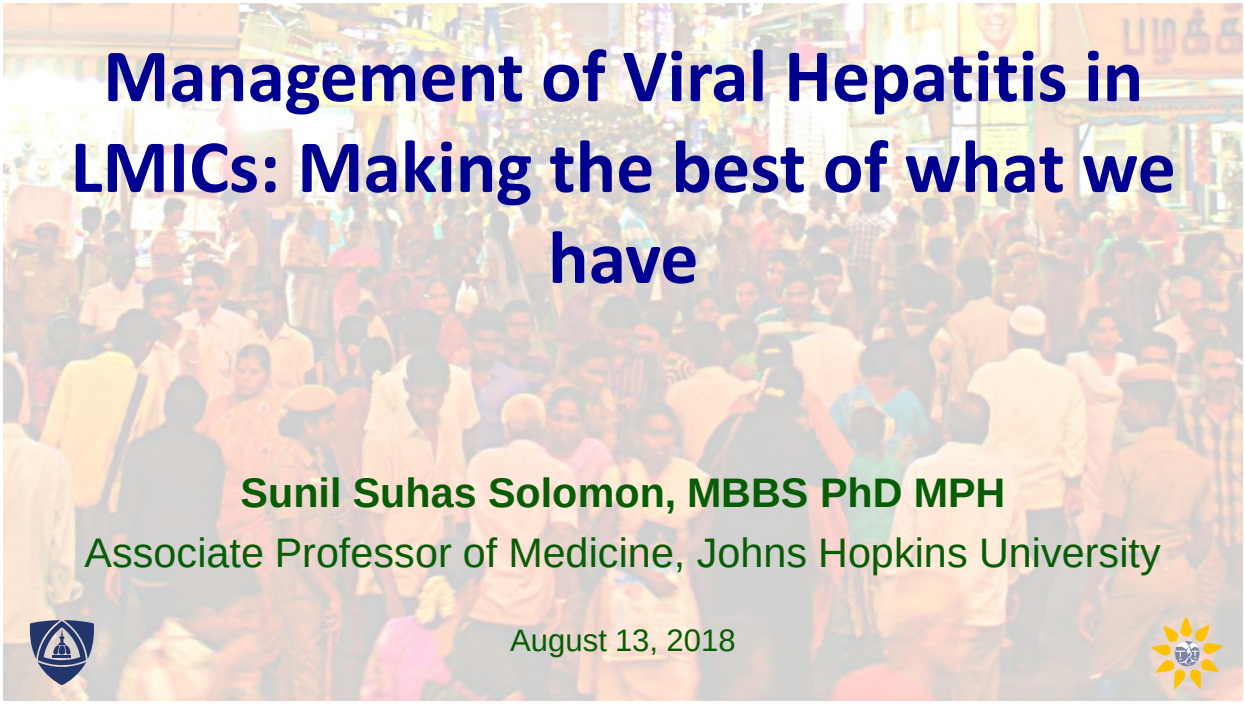

Management of Viral Hepatitis in LMICs: Making the best of what we have

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August 13, 2018

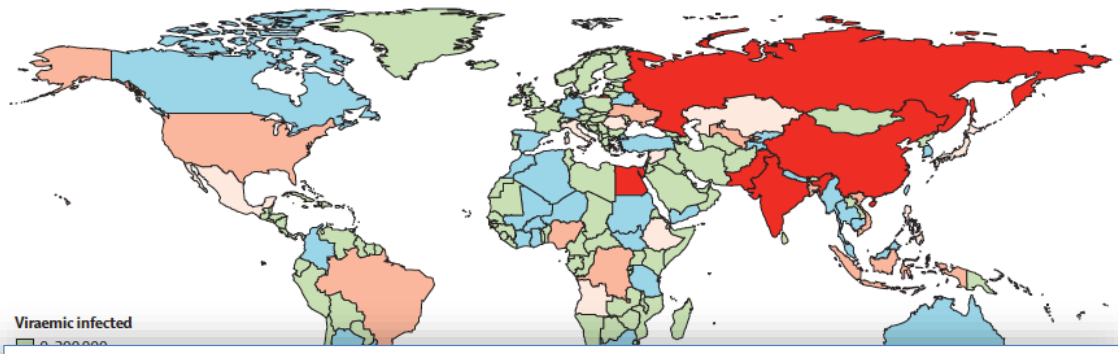
Disclosures

- Research funding from:
  - Gilead Sciences, Inc
  - Abbott Diagnostics

WHO Targets

- WHO Targets for 2030
  - 90% reduction in new infections
  - 60% reduction in mortality
- To achieve these targets:
  - 90% need to be diagnosed
  - 80% need to be treated
- These targets need to be achieved in all populations especially those living in LMICs

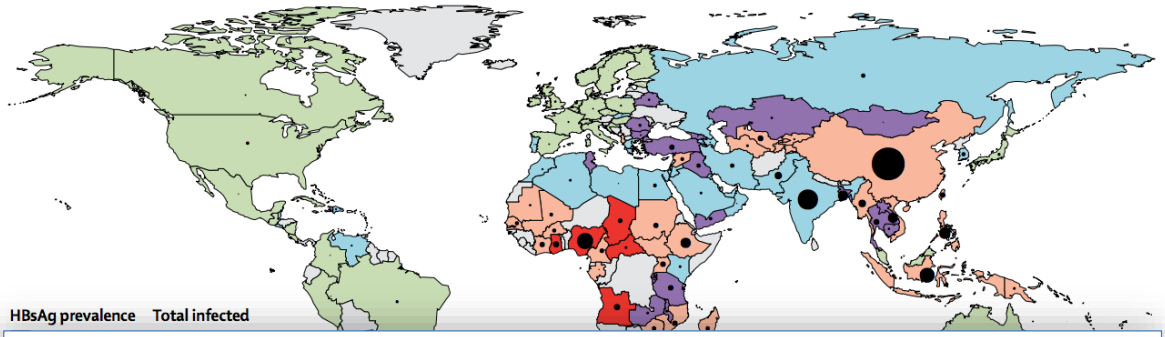
Global distribution of HCV



Over 70% of HCV viremic persons live in LMICs!

The Polaris Observatory HCV Collaborators; Lancet Gastroenterol Hepatol 2017

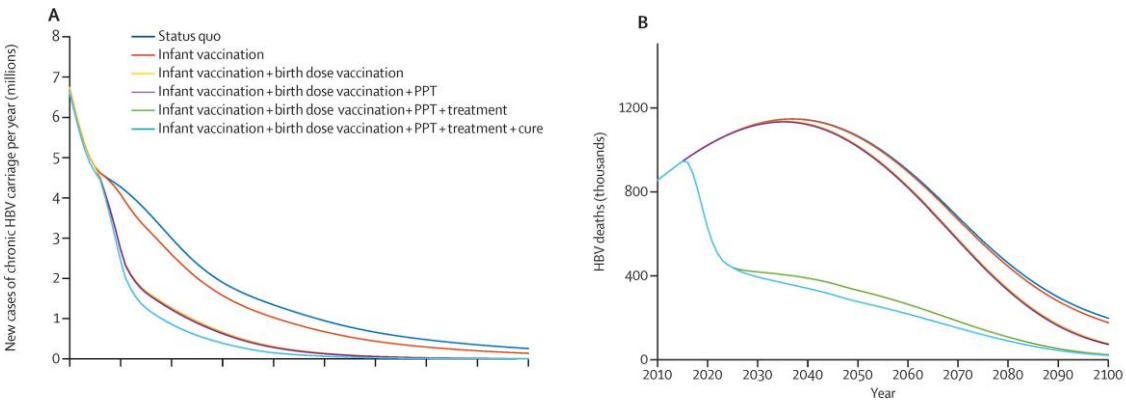
Global distribution of HBV



Over 80% of HBsAg positive persons live in LMICs!

The Polaris Observatory Collaborators; Lancet Gastroenterol Hepatol 2018

Targets not achievable without treatment



Nayagam S et al; Lancet ID 2016

LMICs: Pros & Cons

DISADVANTAGES
○ Do not have access to the latest antivirals (dependent on licensing agreements)
○ Access to laboratory monitoring limited (monitoring more expensive than treatment!)
○ Most countries do not have health insurance programs (out of pocket payments except where government programs exist)
○ No CME programs in many settings (knowledge outdated among certain physicians)

LMICs: Pros & Cons

DISADVANTAGES	ADVANTAGES
○ Do not have access to the latest antivirals (dependent on licensing agreements)	○ Generic medications when available are very cheap
○ Access to laboratory monitoring limited (monitoring more expensive than treatment!)	○ Labor is cheap (clinicians to peer-health workers) and a little money goes a long way
○ Most countries do not have health insurance programs (out of pocket payments except where government programs exist)	○ Government already has extensive infrastructure for HIV and/or TB
○ No CME programs in many settings (knowledge outdated among certain physicians)	○ Good mobile phone penetration with cheap data plans

Integration of diseases

- Capitalize upon already existing infrastructure:
  - Currently, cannot treat HCV and HBV without molecular testing
- CB-NAAT (Gene Xpert) widely available for TB
  - Capitalize upon this for viral hepatitis programming
  - Dried Blood Spots is also possible
  - Volume guarantee could lower prices
- Advantages:
  - Cost-sharing across programs
- Disadvantages:
  - May be different risk profiles
  - Stigma of one disease might get passed on to another?

Task-shifting

- Develop standardized algorithms for treatment:
  - Punjab HCV model
  - Developed by medical gastroenterologists but being delivered via district hospitals with telemedicine support (ECHO)
  - ~50,000 patients treated for HCV with SVR~93%
- Community-based models:
  - Could be delivered by the community to the community especially in key-populations
  - Community buy-in = better uptake!

Incentivizing health care visits

- Several competing priorities
  - Long waiting times in several facilities
  - Loss of daily wages
- Incentives can be used to promote:
  - Diagnosis (HBV and HCV)
  - Linkage (HBV and HCV)
  - Adherence/medication refills (HBV and HCV)
  - Vaccination (HBV)
- The cost of the incentive will be offset by disease averted

Role of confirmatory HCV RNA testing

- HCV RNA testing is required in all HCV antibody positive persons to confirm active HCV RNA
- Could we get rid of HCV RNA testing?
  - Depends on the setting, population, cost of DAA and HCV RNA
  - Need good surveillance data

Can we get rid of confirmatory HCV RNA?

Case scenario: 100 HCV Ab+ PWID

- 100 HCV Ab+ PWID
- Assume clearance: 20%
- HCV RNA testing: USD 100
- DAA therapy: USD 900
- To treat the 80% chronically infected:
  - (100 x 100) + (80 x 900) = USD 82,000

If we use DAA prices negotiated by Punjab government, it is already cheaper!!

- If clearance is 10%, it would cost more to screen for HCV RNA and then treat!

Role of confirmatory HCV RNA testing

- HCV RNA testing is required in all HCV antibody positive persons to confirm active HCV RNA
- Could we get rid of HCV RNA testing?
  - Depends on the setting, population, cost of DAA and HCV RNA
  - Need good surveillance data
- **Advantages:**
  - "**Test and Treat**" on the field or home-based or facility-based
  - Could minimize losses between testing and treatment
- **Disadvantages:**
  - You may treat people who do not need treatment

Role of SVR assessment

- Do we really need to do confirm SVR?
  - EASL recently revised as "recommended"
- SVR vs. monitoring for re-infection:
  - Vulnerable populations will anyway need be monitored for re-infection
- **Advantages:**
  - Dramatically reduce program costs associated with both testing and tracking
- **Disadvantages:**
  - Will not be able to measure program outcomes
- What about pooled RNA testing for SVR assessment?

Management of HBV

- Current guidelines require a combination of HBsAg, HBeAg, ALT and HBV DNA
  - These could cost over 100$, where available
  - And after spending 100$, patient may not be eligible for treatment
- What is the **"cost of inaction"**?
  - What if this patient does not come back?
  - Could we just use HBsAg +/- ALT to make treatment decisions?
  - Individual vs. Societal (Treatment as Prevention) benefit
- TDF for a year could be as low as $60/year
  - TAF has been licensed to generics

Capitalizing upon mobile platforms

Capitalizing upon mobile platforms

- Treatment literacy/testing/vaccination campaigns:
  - Platforms such as Whatsapp/YouTube/Instagram
- Initiating treatment is the easy; ensuring optimal adherence is challenging!
  - Follow-up visits/pill refill reminders
  - SMS/IVRS reminders
  - Video DOT
- Mobile top-up cards for "good" behaviors can also be leveraged to improve outcomes

Conclusions

- We have a lot of "resources" even in "resource-limited settings"
- Need to think outside the box if we need to achieve the WHO targets:
  - Tailor programs to resources available and underlying populations
  - Cannot be achieved without treatment
- **One size does not fit all!**

Acknowledgements

- People who inject drugs and people living with viral hepatitis who generously participate in research studies
- Johns Hopkins University
  - Greg Lucas, Shruti Mehta, Mark Sulkowski, David Thomas, Allison McFall
- YR Gaitonde Centre for AIDS Research and Education
  - Aylur K Srikrishnan, S Anand, CK Vasudevan, Pradeep Amrose
- Funding sources:
  - NIDA, NIH
  - Elton Johns AIDS Foundation