COVID-19 & Disparities of Liver Disease Care
Webinar Moderator

Naudia L. Jonassaint, MD, MHS

- Medical Director, Hepatology
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- University of Pittsburgh
- Pittsburgh, Pennsylvania, United States
Webinar Moderator

Julius M. Wilder, MD, PhD

• Diversity Chair, Duke Division of Gastroenterology
• Assistant Professor of Medicine
• Duke University School of Medicine, Duke Clinical Research Institute
• Durham, North Carolina, United States
# Webinar Agenda

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<td>Drs. Wilder and Jonassaint</td>
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<td>Social Determinants of Disparities in COVID19 and Liver Disease</td>
<td>Drs. Wilder and Jonassaint</td>
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<td>Black, Asian and Minority Ethnic (BAME) groups in England are</td>
<td>Dr. Ala</td>
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<td>at increased risk of death from COVID-19</td>
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<td>COVID-19 and Disparities in Liver Care in Canada</td>
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<td>Panel Discussion / Q&amp;A</td>
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Webinar Q&A

• Submit your questions anytime during the webinar in the Q&A box at the top or bottom of your screen.

• Questions will be answered at the end of the presentations.
Webinar Presenter

Aftab Ala, MBBS, MD, FRCP, PhD

- Professor of Hepatology
- The Royal Surrey NHS Foundation Trust
- University of Surrey, Guildford
- Kings College Hospital, London, UK
Webinar Presenter

Saumya Jayakumar, MD
• Assistant Clinical Professor
• University of British Columbia
• Vancouver, British Columbia, Canada
Andrew Reynolds  
Hepatitis C Wellness Manager  
San Francisco AIDS Foundation  
San Francisco, CA, USA

Shari S. Rogal, MD, MPH  
Assistant Professor  
Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System  
Pittsburgh, PA, USA

Carla W. Brady, MD, MHS, FAASLD  
Associate Professor of Medicine  
Duke University  
Durham, NC, USA

Mayur Brahmania, MD, FRCPC, MPH  
Assistant Professor of Medicine  
Western University  
London, Ontario, Canada
AASLD’s COVID-19 Clinical Oversight Subcommittee

- Co-chair, Oren K. Fix, MD, MSc, FAASLD, Swedish Medical Center (Washington)
- Co-chair, Elizabeth C. Verna, MD, MS, Columbia University (New York)
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- Mark W. Russo, MD, MPH, FAASLD, Carolinas Medical Center (North Carolina)
- Michael Schilsky, MD, FAASLD, Yale University (Connecticut)
- Norah Terrault, MD, MPH, FAASLD, Keck Medicine of USC (California)
- Andrew Reynolds, (Patient Advocate)
- Raymond Chung, Massachusetts General Hospital (Massachusetts) (ex-officio)
- K. Rajender Reddy, University of Pennsylvania Medical Center (Pennsylvania) (ex-officio)
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- Alexis G. McCary, MD, PhD, Kaiser Permanente (Maryland)
- Nizar Mukhtar, MD, Swedish Medical Center (Washington)
- Lauren D. Nephew, MD, MScE, Indiana University (Indiana)
- Sonali Paul, MD, University of Chicago Medical Center (Illinois)
- Saikiran Kilaru, MD, Trainee (New York)
COVID-19 & Disparities in Liver Disease

Social Determinants of Disparities in COVID19 and Liver Disease
Objectives

- Provide a better understanding of health disparities uncovered by the COVID19 pandemic
- Describe the factors increasing the prevalence of health care disparities during the initial phase of the COVID19 crisis
- Discuss Potential Solutions for reducing disparities in liver disease and COVID19
### COVID-19 CASES, HOSPITALIZATION, AND DEATH BY RACE/ETHNICITY

<table>
<thead>
<tr>
<th>FACTORS THAT INCREASE COMMUNITY SPREAD AND INDIVIDUAL RISK</th>
<th>CROWDED SITUATIONS</th>
<th>CLOSE / PHYSICAL CONTACT</th>
<th>ENCLOSED SPACE</th>
<th>DURATION OF EXPOSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate ratios compared to White, Non-Hispanic Persons</td>
<td>American Indian or Alaska Native, Non-Hispanic persons</td>
<td>Asian, Non-Hispanic persons</td>
<td>Black or African American, Non-Hispanic persons</td>
<td>Hispanic or Latino persons</td>
</tr>
<tr>
<td>CASES¹</td>
<td>2.8x higher</td>
<td>1.1x higher</td>
<td>2.6x higher</td>
<td>2.8x higher</td>
</tr>
<tr>
<td>HOSPITALIZATION²</td>
<td>5.3x higher</td>
<td>1.3x higher</td>
<td>4.7x higher</td>
<td>4.6x higher</td>
</tr>
<tr>
<td>DEATH³</td>
<td>1.4x higher</td>
<td>No Increase</td>
<td>2.1x higher</td>
<td>1.1x higher</td>
</tr>
</tbody>
</table>

Race and ethnicity are risk markers for other underlying conditions that impact health — including socioeconomic status, access to health care, and increased exposure to the virus due to occupation (e.g., frontline, essential, and critical infrastructure workers).

### ACTIONS TO REDUCE RISK OF COVID-19

- **WEARING A MASK**
- **SOCIAL DISTANCING (6 FT GOAL)**
- **HAND HYGIENE**
- **CLEANING AND DISINFECTION**

1 Data source: COVID-19 case-level data reported by state and territorial jurisdictions. Case-level data include about 80% of total reported cases. Numbers are unadjusted rate ratios.


3 Data source: NCHS Provisional Death Counts. Numbers are unadjusted rate ratios.

[cdc.gov/coronavirus](https://www.cdc.gov/coronavirus)
Fundamental Cause of Disease Theory

RACE + Ethnicity

Racial/Ethnic differences in COVID19
SES: The Virus and The Quarantine

• The negative economic impact of the pandemic has disproportionately impacted populations who were more likely to be below the poverty level prior to the economic crisis caused by COVID19

• The negative impact of low socioeconomic status on health is exacerbated by the quarantine caused by the pandemic
Neighborhood As A Social Determinant Of Health

- Black or Hisp/Latino neighborhoods
  - Higher density areas
    - More difficult to social distance
- Lower resource Hospitals
  - Technological resources
  - Specialists
  - Higher mortality rates (Smedley et al. 2003)
Occupation As A Social Determinant Of Health

• Black and Hisp/Latino populations are overrepresented among essential, frontline, and critical infrastructure workers

• Also overrepresented in low-wage jobs that lack health benefits (Brown 2018, U.S. Bureau of Labor Statistics, 2020)
Fundamental Causes of Disparities in COVID19 and Liver Disease

• Long standing fundamental causes of disease have contributed to the racial/ethnic disparities in the COVID19 pandemic in the US

• These same mechanisms contribute to disparities in liver disease and are mirrored in countries around the world

• Our ability to address the COVID19 pandemic as well as disparities in liver disease depends on our ability to address social determinants of health
  • SES
  • Neighborhood
  • Structural Racism
There are recognized disparities in liver health exacerbated by the COVID-19 pandemic

<table>
<thead>
<tr>
<th>Problems</th>
<th>Solutions</th>
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<tbody>
<tr>
<td>• Delay in <strong>Diagnosis</strong></td>
<td>• Telemedicine</td>
</tr>
<tr>
<td>• Decreased <strong>Access</strong></td>
<td>• Flexibility in resource</td>
</tr>
<tr>
<td>• Delay or Lack of <strong>Treatment</strong></td>
<td>allocation (Human/Physical Plant/Machine/Medicine)</td>
</tr>
<tr>
<td>• Increased <strong>Exposure</strong></td>
<td>• Protection (PPE/Vaccinations)</td>
</tr>
</tbody>
</table>
Fig. 1. 30-day cumulative probability of overall mortality and COVID-19-related or liver-related mortality. (A) 30-day cumulative probability of overall mortality and (B) 30-day cumulative probability of either COVID-19-related or liver-related mortality; survival curves were estimated by the Kaplan-Meier method.
Fig. 1. Outcome in patients with non-cirrhotic chronic liver disease or cirrhosis with COVID-19. Graphs depict data from 152 submissions to COVID-Hep.net and COVIDCirrhosis.org registries between 25th March 2020 and 20th April 2020. (A) Case fatality rate by liver disease stage. (B) Rates of hepatic decompensation by stage of cirrhosis (defined as one or more of new or worsened ascites, spontaneous bacterial peritonitis, new or worsened hepatic encephalopathy, or variceal haemorrhage). \( p \) values derived using chi-squared test. CLD, chronic liver disease without cirrhosis; CP, Child-Pugh.
Figure 1. Excess 2020 (grey bars) and COVID-19 (black bars) mortality rates for different Italian regions.
Impact of COVID-19 on global hepatitis C elimination efforts

Sarah Blach, MHS, CPH, Loreta A. Kondili, MD, Alessio Aghemo, MD, Zongzhen Cai, MS, Ellen Dugan, MPH, Chris Estes, MPH, Ivane Gamkrelidze, BA, Siya Ma, MS, Jean Michel Pawlotsky, MD, Devin Razavi-Shearer, BS, Homie Razavi, PhD, Imam Waked, MD, Stefan Zeuzem, MD, Antonio Craxi, MD
Global impact of a 1-year delay in HCV programming (relative to the status quo with no delay)

- New diagnoses, 2020-2030
- Treatment starts, 2020-2030
- Incident HCV, 2020-2030
- Liver related deaths, 2020-2030
- Incident HCC, 2020-2030
- Viremic infections, 2030

Number

-1,200,000 -800,000 -400,000 0 400,000 800,000
Figure: Trends in COVID-19 spread over time in France and the USA and recovery of organs and solid-organ transplantation procedures from deceased donors. Number of COVID-19 diagnoses and number of solid organs recovered for transplantation over time in France (A) and the USA (C). Total number of transplants from deceased donors, with separate trend lines for kidney, liver, heart, and lung, over time in France (B) and the USA (D). Data were obtained from Public Health France (A), the National Organ Procurement Agency (B), Xu et al (C), and the United Network for Organ Sharing (D). Data accessed April 11, 2020. COVID-19 = coronavirus disease 2019.
Our power to improve the health of our world lie in our equitable and sustainable solutions

- Those with chronic liver disease and cirrhosis have increased mortality from COVID-19
- There is an excess death in 2020 not fully accounted for by COVID-19
- Our international agenda for Hepatitis C elimination is at risk secondary to the COVID-19 pandemic
- Organ procurement and rate of transplantation decrease with the rise in COVID-19 cases
- There has been a longstanding pandemic of poverty, lack of access, treatment and diagnosis and COVID-19 has made those things real for all of us and exacerbated this pandemic for the most vulnerable
Black, Asian and Minority Ethnic (BAME) groups in England are at increased risk of death from COVID-19

Aftab Ala MB BS MD PhD FRCP

Professor of Hepatology

Professional Director Research and Development

Royal Surrey NHS Foundation Trust, Guildford, UK

University of Surrey, UK

King's College London, UK

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COVID-19 has a disproportionate impact on UK Black Asian and minority ethnic BAME groups.

22nd May 2020 ICNARC (Intensive care and National audit and Research centre)

Black and Asian patients (15.2% and 9.7%) were over represented amongst critically ill confirmed COVID-19 receiving advanced respiratory support.
Intensive care and hospital worker deaths data provided early warnings about the increased risk of COVID for BAME communities

BAME individuals account for 63 per cent of deaths in staff groups

Source: https://www.hsj.co.uk/exclusive-deaths-of-nhs-staff-from-covid-19-analysed/7027471.article
NHS Death data at end of April 2020 included ethnicity for the first time

- We used NHS and ONS (Office of National Statistics) data from patients with a positive Covid-19 test.
- People included died in hospitals in England from March 1 to April 21.
- We accounted for differences in age and region.
- We calculated the increased risk using the Standardised Mortality Ratio (SMR).
Risk of COVID-19-related death by *ethnic group and sex*, England and Wales, 2 March to 10 April 2020

**Males**

- Comparison group: White
- Increased risk of dying from COVID-19
- Just as likely
- 1.5x as likely
- 2x as likely

**Females**

- Comparison group: White
- Increased risk of dying from COVID-19
- Just as likely
- 1.5x as likely
- 2x as likely

Source: ONS [https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/coronavirusrelateddeathsbyethnicgroupenglandandwales/2march2020to10april2020](https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/articles/coronavirusrelateddeathsbyethnicgroupenglandandwales/2march2020to10april2020)
We must act now \textit{to prevent people getting infected}

- Ensure that linguistically and culturally appropriate public health communication, targeted messaging, sustained engagement is provided

- Reduce:
  1. household overcrowding
  2. poor accommodation
  3. occupational risk of infection
We must act now to *improve outcomes* in those infected by:

I. Remove barriers in access to NHS care  
II. Improve care of long-term health conditions

For migrants specifically:
- Limited healthcare entitlement results in untreated conditions and poorly managed chronic conditions

I. Removal of all NHS charges  
II. Stop data sharing between NHS & Home Lands Security
We must act now to reduce the wider impacts of COVID by:

- Reduce the greater adverse consequences of the extensive social distancing measures in place
- Ensuring children receive an education and safeguarding
- Provide adequate income protection to ensure low paid, non-salaried and zero-hours contract workers can (i) afford to follow isolation & (ii) “stay at home” recommendations
• These unacceptable differences are an extreme example of the long-standing inequities affecting BAME groups in our society.

• As we emerge from the COVID-19 pandemic we must ensure that these unfair & avoidable disparities are addressed.
## Mitigating the response to ethnicity and COVID-19 - the UK Public Health research strategy

<table>
<thead>
<tr>
<th>INVESTIGATOR</th>
<th>Theme</th>
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<tr>
<td>Dr Manish Pareek, University of Leicester</td>
<td>UK-REACH (UK Ethnicity And COVID-19 outcomes in Healthcare workers)</td>
</tr>
<tr>
<td>Dr Robert Aldridge, UCL</td>
<td>Minority ethnic and migrant groups: household transmission, occupation, co-morbidities, healthcare usage, and mental health and economic impacts.</td>
</tr>
<tr>
<td>Professor Aftab Ala Royal Surrey, Kings and University of Surrey</td>
<td>Behavioral change: reduce COVID-19 risk by delivering targeted, culturally appropriate health interventions to BAME communities</td>
</tr>
<tr>
<td>Professor Julia Hippisley-Cox University of Oxford; Dr Hajira Dambha-Miller University of Southampton</td>
<td>40 million primary care records across rural and urban areas of England to create one of the largest COVID-19 cohorts in the UK. - Risk of infection and death from COVID-19</td>
</tr>
<tr>
<td>Professor Thomas Yates, University of Leicester</td>
<td>UK Biobank cohort - linked to national COVID-19 data</td>
</tr>
<tr>
<td>Professor Shaun Treweek, University of Aberdeen</td>
<td>Factors that may reduce inclusion of BAME participants in clinical trials</td>
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Acknowledgements

- NIHR
- UKRI
- Royal Surrey
- Kings College Hospital
- UCL
- UCL Global Health
- Chatham House
- Bart’s London
- Public Health England
- NHS Digital

- Mass gatherings and global health
- London School of Hygiene and Tropical health
- Public Health England
- NHS England
- Muslim Council of Britain
- British Sikh Associations
- Kingston University
- Brunel University
COVID-19 and Disparities in Liver Care in Canada
Saumya Jayakumar, MD, FRCP(C)
Mayur Brahmania, MD, FRCP(C)
Disclosures

• No relevant financial disclosures
Measures of Health Care Quality

- Social Determinants of Health
  - Income, income distribution
  - Education
  - Unemployment, Job Security
  - Employment, Working Conditions
  - Early Childhood Development
  - Food Insecurity
  - Housing
  - Social Exclusion
  - Social Safety Network
  - Health Services
  - Aboriginal Status
  - Gender
  - Race
  - Disability
## Canadian Health Care System

### Coverage

<table>
<thead>
<tr>
<th>Layer one Public services (Medicare): all public funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals, Physicians, Diagnostics</td>
</tr>
<tr>
<td>Funding: Public taxation</td>
</tr>
<tr>
<td>Administration: Universal single-payer systems, Private self-regulating professions</td>
</tr>
<tr>
<td>Delivery: Private professional for-profit and not-for-profit facilities, and public arm’s length facilities</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Layer two Mixed services: combination of public and private funding</th>
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<tbody>
<tr>
<td>Prescription drugs, Home care, Long-term care, Mental health care</td>
</tr>
<tr>
<td>Funding: Public taxation, Private insurance, Out-of-pocket payments</td>
</tr>
<tr>
<td>Administration: Public coverage is targeted, Public regulation of private services</td>
</tr>
<tr>
<td>Delivery: Private professional for-profit and not-for-profit facilities, and public arm’s length facilities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Layer three Private services: almost all private funding</th>
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</thead>
<tbody>
<tr>
<td>Dental care, Vision care, Complementary medicine, Outpatient physiotherapy</td>
</tr>
<tr>
<td>Funding: Primarily private insurance, out-of-pocket payments, with some public taxation</td>
</tr>
<tr>
<td>Administration: Private ownership, Private professions Limited public regulation</td>
</tr>
<tr>
<td>Delivery: Private professional for-profit facilities</td>
</tr>
</tbody>
</table>

- Of 11 countries from around the world (e.g., US, UK, Scandinavia, Australia)
  - Safe – 10th
  - Timely – 11th
  - Efficient – 10th
  - Effective – 7th
  - Equitable – 9th
  - Patient-centered – 8th
Geographic Distribution – Canadian Population

Distribution of the Aboriginal population by population centre size, Canada, 2016

- 30.3%
- 20.0%
- 10.8%
- 38.9%

Rural
Small population centre
Medium population centre
Large population centre
Initial Hypotheses Regarding COVID-19 Disparities in Health Care

- Socioeconomic Status
- Poor technical literacy
- Age
- Patients living in remote areas without access to cellular signal
- Aboriginal/Inuit patients
- Patients with mental health concerns
- Essential services workers

- Families with 2 income households unable to access childcare during pandemic
- Patients with disabilities
- LGBTQ2I
- Women/children fleeing domestic violence
- Incarcerated populations
Liver Transplant Assessment in COVID-19 Era

- Ability to complete required testing needed for listing for transplant
  - Delay in listing leading to increased mortality
- Ability of MD to assess patient for transplant
  - Frailty testing – not able to complete hand-grip testing, FraiLT
  - Need for face to face assessment vs telephone vs telemedicine (unexpectedly frail patients who had previously only been assessed via telephone)
- Ability to have family supports available to care for patient if not living in same residence as patient
- Delay in surveillance/locoregional treatment of HCC
- Delay in obtaining labs pre and post-transplant for hepatic function/graft function surveillance
COVID-19 in Toronto, Ontario

Share of COVID-19 cases among ethno-racial groups compared to the share of people living in Toronto, with valid data up to August 16, 2020 (N=4,560)

<table>
<thead>
<tr>
<th>Ethno-racial Group</th>
<th>COVID-19 Cases</th>
<th>Toronto Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arab, Middle Eastern or We..</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>Black</td>
<td>22%</td>
<td>9%</td>
</tr>
<tr>
<td>East Asian</td>
<td>13%</td>
<td>4%</td>
</tr>
<tr>
<td>Latin American</td>
<td>10%</td>
<td>3%</td>
</tr>
<tr>
<td>South Asian or Indo-Caribbean</td>
<td>20%</td>
<td>13%</td>
</tr>
<tr>
<td>Southeast Asian</td>
<td>16%</td>
<td>7%</td>
</tr>
<tr>
<td>White</td>
<td>48%</td>
<td>17%</td>
</tr>
</tbody>
</table>

Share of COVID-19 cases by household income compared to the share of people living in Toronto by income group, with valid data up to August 16, 2020 (N=2,672)

<table>
<thead>
<tr>
<th>Income Group</th>
<th>COVID-19 Cases</th>
<th>Toronto Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0 - $29,999</td>
<td>27%</td>
<td>14%</td>
</tr>
<tr>
<td>$30,000 - $49,999</td>
<td>25%</td>
<td>15%</td>
</tr>
<tr>
<td>$50,000 - $69,999</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>$70,000 - $99,999</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>$100,000 - $149,999</td>
<td>17%</td>
<td>15%</td>
</tr>
<tr>
<td>$150,000 or more</td>
<td>18%</td>
<td>11%</td>
</tr>
<tr>
<td>$200,000 or more</td>
<td>21%</td>
<td>7%</td>
</tr>
</tbody>
</table>
Ethnic Composition of Canada

The top 20 ethnic origins reported alone or in combination with other origins (single or multiple response), Canada, 2016

- Canadian
- English
- Scottish
- French
- Irish
- German
- Chinese
- Italian
- First Nations (North American Indian)
- East Indian
- Ukrainian
- Dutch
- Polish
- Filipino
- British Isles origins, n.i.e.¹
- Russian
- Métis
- Portuguese
- Welsh
- Norwegian

Response type:
- Single response
- Multiple response

Response count:
- 0 1 2 3 4 5 6 7 8 9 10 11 12 millions

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Case – Ms. KS

- 21 yo female transplanted in Jan 2020 for accidental APAP OD
- Lives in remote community, requiring travel by ferry, then bus to travel to transplant center – travel time ~6 hours
  - Community primarily Aboriginal, small (<10,000 population)
  - No hospital in community, nearest care centre 3 hours away
- July 2020 – Developed ACR – no response to steroids
- Admitted to hospital for steroid pulse, then ATG
- Traveled to transplant centre initially with family member, who themselves became ill requiring admission
- Patient responded to ATG, but now not allowed to travel back to community because of “risk of COVID after living in big city”
- Now living alone in hotel in transplant centre city, unable to videochat with family at home (sketchy cellular reception)
- New onset depression
Survey Responses – Canadian Hepatologists
Patient Population Groups Most Felt to be Affected by COVID-19

- Patients living in remote locations...
- Elderly patients unable to access/use...
- Patients who are socioeconomically... (60%)
- Patients with mental health or addictions...
- Other (please specify)
Panel Discussion

• Please submit your questions to the Q&A Chat now.