8.4 deaths per 100, 000 persons from 2002 to 2008, increased an average 3% yearly from 2009 to 2011 to 9.0/100, 000p, and steadily decreased to 7.5 deaths per 100, 000 persons up to 2016. HCV-related mortality peaked at 2004 at a 6.8 per 100, 000 persons and slowly decreased at a 2.6% yearly average rate till 2014 to 5.0/100, 000p. From 2014 to 2016, HCV related mortality has had a reduction to 4.04/100, 000p, which represent a decrease in mortality of 19.2%. HBV-related mortality has reduced 50% from 0.89 to 0.44 per 100, 000. Although still low in comparison with other aetiologies, NAFLD-related mortality has increased from 0.07 to 0.3 per 100, 000p representing a 297% increase from 2002 to 2016.

**Conclusion:** In our population analysis of CLD mortality in Spain, we find three relevant time-frames that coincide with the economic expansion of 2000-2008, the financial crisis and the 2014 introduction of novel HCV therapies. ALD remains the main cause of death for CLD, NAFLD has increased and both HBV and HCV-related mortality have decreased. Accuracy of death certificates based upon ICD-10 codes is subject to misreporting and misclassification.

### THU-402

### Tailored message interventions using social marketing approach versus traditional message for increasing participation in viral hepatitis screening for Japanese workers

Masaaki Korenaga[1], Tatsuya Ide[2], Chieko Ooe[3], Keiko Kamimura[3], Keiko Korenaga[1], Tatusya Ide[2], Takako Inoue[4], Jun Fukuyoshi[5].
*[1]National Center of Global Health and Medicine (NCGM) at Kohnodai, Research center for hepatitis and Immunology, Ichikawa, Chiba, Japan; [2]Kurume University School of Medicine, Division of Gastroenterology, Department of Medicine, Kurume, Fukuoka, Japan; [3]Japan Health Insurance association, Fukuoka, Japan; [4]Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan; [5]Keio University, Tokyo, Japan*
Email: dmkorenaga@hospk.ncgm.go.jp

**Background and aims:** Although community residents have been provided an opportunity to undergo hepatitis B virus (HBV) and hepatitis C virus (HCV) screening by the Japanese government, actions against hepatitis at work sites in Japan have not yet been fully implemented, and the prevalence of hepatitis virus infections at work sites remains unknown. In Japan Health Insurance Association, which is belonged to about 37 million Japanese who are working in Medium and Small Sized Companies, the attendance rates of hepatitis screening was less than 2% of workers even the cost of only $ 5. The aim of this study was to examine whether the effectiveness of a tailored message intervention based on a social marketing approach increased viral hepatitis screening.

**Method:** A leaflet which was a tailored message condition for the screening was individually sent to 398, 636 Japanese workers of Japan Health Insurance Association who wish to get annual general check-up in 2017. For control subjects, we simultaneously enrolled about 338, 145 workers with a non-tailored message condition. In addition, we sent the leaflet which mentioned having the screening for free of charge to some workers. A thorough examination of the participants who screened positive was encouraged by forwarding to them a referral letter by Japan Health Insurance Association to specialized medical institutions. The main outcome measure was attendance rates in HBV and HCV screening.

**Results:** There was a significant difference in viral hepatitis screening attendance rates at follow-up assessments between the tailored matched-message condition (n = 54, 052, 16.0%) and the control (n = 4,794, 1.2%; $p < 0.001$). In cost free subjects, the rates significantly increased (49.3%; $p < 0.001$) compared with the message condition and control group. Six hundred two workers (1.1%) were positive for HBV (n = 382, 0.7%) and HCV (n = 222, 0.4%), respectably. Among them, two hundred fifty-six (42.6%) were confirmed to medicate within 6 mounts after the screening by medical bill checking system of Japan Health Insurance Association.

**Conclusion:** A tailored-message intervention designed to increase the viral hepatitis screening rates in the Medium or Small Sized Companies. Promoting hepatitis virus screening for workers by using social marketing approach may help detect carriers who are unaware of their infection and require treatment.

### THU-403

### The consensus hepatitis C cascade of care: Methodology and initial findings from three countries

Kelly Safreed-Harmon[1], Sarah Blach[2], Soo Aleman[3], Knut Boe Kielland[4], Signe Bollerup[5], Graham Cooke[6], Olav Dalgard[7], John Dillon[8], Gregory Dore[9], Ann-Sofi Du Berg[10], Jason Grebely[9], Håvard Midgard[11], kholoud porter[12], Homie Razavi[2], Mark Tyndall[13], Nina Weis[5], Jeffrey Lazarus[1,14]. *[1]Barcelona Institute for Global Health (ISGlobal), Hospital Clínic, University of Barcelona, Barcelona, Spain; [2]Center for Disease Analysis Foundation, Lafayette, Colorado, United States; [3]HIV, Viral Hepatitis and Immunodeficiency Disorders Unit, Department of Infectious Diseases, Karolinska University Hospital/ Karolinska Institutet, Stockholm, Sweden; [4]Norwegian National Advisory Unit on Concurrent Substance Abuse and Mental Health Disorders, Sykehuset Innlandet H, 2301, Brumunddal, Norway; [5]Department of Infectious Diseases, Copenhagen University Hospital, Hvidovre, Copenhagen, Denmark; [6]Faculty of Medicine, Imperial College London, London, United Kingdom; [7]Infeksjonsmedisinsk Avdeling, Akershus Universitetssykehus, Lørenskog, Norway; [8]Division of Molecular and Clinical Medicine, School of Medicine, University of Dundee, Dundee, United Kingdom; [9]The Kirby Institute, Sydney, New South Wales, Australia; [10]Department of Infectious Diseases, School of Medical Sciences, Örebro University, Örebro, Sweden; [11]Department of Gastroenterology, Oslo University Hospital, Oslo, Norway; [12]Institute for Global Health, University College London, London, United Kingdom; [13]School of Population and Public Health, University of British Columbia, Vancouver, BC, Canada; [14]CHIP, WHO collaborating centre on HIV and viral hepatitis, Rigshospitalet, University of Copenhagen, Copenhagen, Denmark*
Email: Jeffrey.Lazarus@isglobal.org

**Background and aims:** The World Health Organization (WHO) has called for the elimination of hepatitis C virus (HCV) as a public health threat by 2030. Efforts to monitor progress toward HCV elimination are hampered by the lack of a unified approach to defining HCV cascade stages, data sources and methodologies. The aims of this study were to develop a cascade of care for use in national and sub-national monitoring worldwide with well-defined stages, and to pilot the new instrument. The ultimate goal was to support strategic decision-making aimed at maximising the progression of HCV-infected individuals from diagnosis to cure.

**Method:** Leading clinical and public health experts reviewed the published literature on existing HCV cascade of care methodologies, as well as relevant information about cascade monitoring in the HIV field. Key methodological issues were discussed and agreed by consensus, and cascade stages and definitions formulated. Experts on the epidemiology of HCV in Denmark, Norway and Sweden applied the resulting HCV cascade of care instrument to national and-in the case of Denmark-sub-national data to report on progress toward HCV elimination in these countries.

**Results:** The proposed consensus cascade is comprised of four stages: infected, diagnosed, treated and cured. The four stages were defined in relation to an annual period beginning 1 January. Definitions took into account spontaneous clearance and the time lag between treatment initiation and sustained viral response. Norway and Sweden completed the cascade using national data and estimates for the three years of interest, 2015-2017, while Denmark reported using subnational data from three of its five regions. The cascades from all three settings showed high levels of fall-off from the diagnosed to the treated stage; an estimated 3%-18% of those diagnosed in 2017 received treatment (Figure 1). Large proportions of the estimated HCV-infected populations in Norway and Sweden