HEPATOLOGY RESEARCH GROUP
INSTITUTE OF TRANSLATIONAL AND STRATIFIED MEDICINE, PLYMOUTH UNIVERSITY PENINSULA SCHOOLS OF MEDICINE AND DENTISTRY

Hepatology Research Group (HRG) structure:

Head
Prof Matthew Cramp, Professor of Hepatology and Consultant Hepatologist

Senior Clinical Academics:
Dr David Sheridan, Associate Professor (Senior Lecturer) of Hepatology and Honorary Consultant Hepatologist,
Dr Ashwin Dhanda, NIHR Academic Clinical Lecturer

Senior Scientists:
Dr Daniel Felmlee, Lecturer,
Dr Doha Hegazy, HRG Manager

Clinical Research Fellows:
Dr Ollie Rupar – PhD student, Dr Kris Bennett - NIHR Academic Clinical Fellow,
Dr Asma Ahmed (writing up) and Dr Evi Mandalou (MD submitted)

PhD Fellows:
Isaac Shawa (PhD awarded Dec 2017), Paula Boeira

Hepatology Research Group Annual Report 2017

Overview:
2017 was another successful year for the Hepatology Research Group (HRG) with further growth and diversification of our research portfolio. A highlight of the year was the move in September into the Derriford Research Facility, the new headquarters of the Institute of Translational and Stratified Medicine (ITSMed). This landmark £17 million investment by the University into its biomedical research infrastructure has delivered state-of-the-art laboratories and a rich, collaborative environment for the HRG with many other university researchers now co-located. This is already facilitating new and closer collaborations, and is generating many new ideas for future projects with a large group of scientists working in one area.
The HRG published a good number of high impact papers as well as presenting our findings at national and international meetings. The group has increased from 3 to 4 main areas of research interest, with the fourth strand researching liver cancer getting underway in 2017 in collaboration with Dr Jemimah Denson from the Derriford histopathology department and Dr Michael Jarvis from the School of Biomedical & Healthcare Sciences which is now based at the DRF.
The 4 areas of research are:
1) hepatitis C virus infection and protection from infection
2) non-alcoholic fatty liver disease and metabolic liver diseases
3) alcohol related liver disease
4) liver cancer development and its prevention.

A short summary of the work in each of these areas is included in this report.

There were two notable individual successes in 2017 with Matthew Cramp elected as President of the British Association for the Study of the Liver for a 2 year term from October 2017, and in November Ashwin Dhanda was awarded Medical Research Council funding for his work on alcoholic hepatitis. Ashwin is a co-applicant on the MRC Stratified Medicine Alcoholic Hepatitis Consortium which was granted £4.8 million to conduct clinical trials and biomarker and mechanistic studies. Ashwin will lead the work looking at biomarkers of steroid responsiveness.

The group were successful in appointing Dr Kris Bennett to an NIHR supported Academic Clinical Fellow post. This is a 3 year post for Kris to develop his own PhD proposal and seek grant funding.

The HRG inflammatory liver disease biobank gained full ethics and HTA approval in 2017. This allows us to prospectively collect and archive blood and tissue specimens from consenting patients with any underlying cause of liver disease. This long term project will underpin much future work with samples stored in the biobank expected to be used for a wide variety of scientific studies. The biobank has already facilitated our research programmes on non-alcoholic fatty liver disease and liver cancer.

The research group, together with the wider clinical team of the South West Liver Unit, continue to be actively involved in clinical trials and are major recruiters to

many interventional studies (including those for HCV infection, non-alcoholic fatty liver disease, primary biliary cirrhosis, alcoholic hepatitis, and advanced decompensated liver disease) as well as additional observational studies.

A useful ongoing collaboration with Bath University saw 2 excellent undergraduates complete their year with the HRG in August. Both students completed ambitious laboratory based projects and presented their work at national meetings. Another student has joined us from September and is making excellent progress. We hope to continue with this successful link.

Hepatitis C Virus infection and Protection from Infection
Leads: Matthew Cramp, Dan Felmlee

The HRG studies on HCV exposed but uninfected cases continue to uncover new findings and shed light on mechanisms of viral resistance. We have continued searching for genetic components of resistance to HCV infection by poring over genome sequences of blood transfusion HCV exposed but uninfected cases, with an aim of finding novel targets to prevent infection even after high dose exposure. In six of eight individuals we have identified six candidate genes that have extremely rare variants. Dan, with the help of Philippa one of our undergraduate students from Bath, made good progress to develop the cell culture model to functionally validate the genes associated with the high level resistance. Using the CRISPR /Cas-9 system to knock out the identified genes he is developing cell lines that can then be challenged with HCV to determine if they can be made resistant to infection. This work will be greatly facilitated once the CL3 lab is open, but for now the work will continue in collaboration with the MRC Centre for Virus Research at Glasgow University.

Isaac Shawa completed, submitted and was awarded his PhD thesis in 2017 in record time. His work on lipidomics in the injection drug using HCV exposed uninfected cohort was presented at several meetings, generated a lot of interest and points clearly towards virus-lipid interactions being key in establishing infection. Isaac completed novel work on the innate immune response in his exposed uninfected cohort in 2017. This has highlighted major upregulation of innate responses to viral RNA stimulation in EU cases, compared to infected cases. Kris and Dan are now further investigating this important finding, while Isaac prepares to submit his findings for publication.

Asma Ahmed continues to analyse her complex data on the evolution of innate immune responses in patient undergoing anti-viral therapy and is working toward submitting her MD thesis in early 2018. Evi Mandalou submitted and was awarded her MD in 2017 and is now writing up some of the key findings on the role of IL-27 in exposed uninfected cases.

David Sheridan's on-going contribution to the International Hepatitis C genetics consortium has led to publications in Gastroenterology and Nature Genetics, enhancing understanding of the contribution of host genetics to liver fibrosis progression in viral and non-viral liver disease

Non-alcoholic fatty liver disease and metabolic liver diseases
Lead: David Sheridan, Dan Felmlee

Research developments in the area of NAFLD and metabolic liver disease continued apace in 2017. Dr Sheridan published the first national survey of care standards for assessment and treatment of NAFLD in the United Kingdom. As clinical lead for NAFLD, local referral pathways have been revised, and he has presented on NAFLD diagnostics and treatment at the regional obesity meeting in Exeter. Emerging themes for development in 2018 are in the areas of streamlining NAFLD management care pathways with primary care, and links to weight management services, with a research focus on the utility of non-invasive diagnostics within clinical pathways and motivation / behaviour changes for lifestyle interventions.

Dr Sheridan has established a growing reputation in the study of metabolic liver diseases, and is an invited speaker at the international inherited disorders of metabolism affecting the liver meeting in Leuven, Belgium in March 2018, and co-chair of the metabolic liver disease symposium at the BASL Basic Science meeting in 2018. He has provided peer review for grants and publications from Wellcome, MRC, NIHR and Cancer Research UK in 2017.

Successful recruitment into global phase 2 and 3 clinical trials for novel therapeutic targets for NASH continues, with Plymouth Hospitals being a major recruiting centre. We are using Multiparametric MRI scanning technology from Perspectum Diagnostics Ltd in clinical trials sponsored by Intercept and Novartis, and are exploring further utility of this non-invasive diagnostic technology in clinical diagnostic pathways as an alternative to liver biopsy.

The Inflammatory Liver Diseases Biobank (ILB) is now established, and focusing on collection of healthy liver tissue for surgical liver resections, liver cancers and fatty liver disease donors, with paired blood samples and clinical data. The governance structures and HTA regulations for the ILB are in place, with the intention of this resource growing to support a wide range transitional liver disease research projects in the future.

We welcomed Paula Boeira for the first year of her PhD with the HRG, with Dr Sheridan as Director of Studies. Paula has been effective in isolating primary human hepatocytes (PHH) from liver resection samples surplus to diagnostic requirements donated to the ILB which has already become a very valuable resource of biological samples. Paula has been using the 3D cell culture 'LiverChip' in collaboration with

CN Bio Innovations to sustain primary human hepatocytes in the lab, and is interrogating mitochondrial bioenergetics in a PHH NASH model, co-supervised by Charlie Affourtit and Dan Felmlee. She presented her project outline at the BASL basic science meeting in May 2017.

Alcohol related liver disease
Lead: Ashwin Dhanda

2017 was a successful year for HRG research in alcohol-related liver disease. Ashwin was awarded funding as part of a Medical Research Council Stratified Medicine Consortium bid to pursue studies in patients with alcoholic hepatitis over the next 5 years. He will lead the evaluation of a bioassay he developed to measure steroid responsiveness in these patients as well as investigate other potential disease biomarkers. He will also contribute to several clinical trials in alcoholic hepatitis which will benefit local patients. This exciting consortium will strengthen Plymouth's links with other leaders in the field and provide the opportunity for future collaborative working.

Ashwin continued his laboratory work investigating immune dysfunction in alcohol-related liver disease, supported by Euan Yates, an undergraduate placement student from the University of Bath. This led to the presentation of 5 posters at international conferences and publication of 1 manuscript with a further manuscript in preparation. This year also saw the publication of revised NICE clinical guidelines for the management of alcoholic hepatitis for which Ashwin was Topic Expert.

Ashwin has successfully obtained 2 small project grants to carry out projects investigating alcoholic hepatitis. The first, funded by Core, will measure global immune function to determine if this is related to mortality and the second, funded by the PHNT charitable fund, will measure a range of trace elements as biomarkers of survival in collaboration with colleagues at Imperial College Healthcare NHS Trust.

Liver cancer development and its prevention
Lead: Matthew Cramp, Jemimah Denson, Michael Jarvis

This new area of study got underway with the arrival of Dr. Ollie Rupar in early 2017. Ollie is studying universal tumour associated antigen (U-TAA) expression in various types of liver tumour using a combination of histological and genetic methods. His first hurdle was to get ethical approval to study archived liver tumour tissue held by the hospital pathology department. Having achieved that, he has already successfully extracted tumour DNA from archived tissue and is refining the staining techniques that will be needed. The study of U-TAA in primary liver tumours is in its infancy but has considerable potential. We hope our findings will help better refine the identification of early malignancy and also variant tumours that progress more rapidly

as well as help identify serum markers able to diagnose hepatic malignancy at an earlier stage. In the longer term we will seek to use an immunotherapeutic approach targeting U-TAA to alter the course of liver tumour progression.

HRG Management and teaching
Lead: Doha Hegazy

The HRG structure and dynamic were significantly developed during 2017 with successes in many areas. First of all, our laboratory and research activities moved smoothly from the John Bull Building to the DRF in September 2017. The move is a great opportunity and the DRF is an excellent environment for networking with many scientists with different areas of expertise to enhance our research projects.
At the student level, 2017 was a good year with Isaac Shawa being awarded his PhD and Evi Mandalou successfully defending her thesis with her MD to be awarded in early 2018. Dr Asma Ahmed is now completing her writing up. Our collaboration with Bath University proved very fruitful with 2 excellent undergraduates joining us both of whom successfully completed their projects in August 2017.
Doha's focus is always to provide good support to students at different levels and in all areas of laboratory work. She has ensured all HRG members are trained to meet the required standards in information governance and data security, clinical trials and the Human Tissue Act which is especially important with the development of the inflammatory liver diseases biobank.
Inspiring the next generation of researchers is key, and the HRG led by Doha ran a number of successful Special Study Units in 2017 to introduce undergraduate medical students to the laboratory and to foster interest in translational research.
Doha and Dan attended training at Porton Down to prepare for the containment level 3 work the group will be undertaking in 2018.

Current and future plans

2017 saw the opening of the Derriford Research Facility (DRF) adjacent to the main Plymouth University Peninsula Schools of Medicine and Dentistry (PUPSMD) building and right beside Derriford Hospital. The DRF has brought medical, dental and biomedical laboratory-based researchers much closer together and is already facilitating enhanced interdisciplinary working and clinical collaborations.

The DRF has significantly expanded the laboratory facilities of the HRG at the medical school site and we now have a containment level 3 (CL3) laboratory. The approval of CL3 laboratories is an involved process, and this has taken time and investment. Good progress is being made and the DRF CL3 lab is expected to be fully commissioned in early 2018. This will allow the HRG to undertake the viral challenge work needed to better understand the mechanism of HCV resistance identified in the blood transfusion cohort of cases.

Collaborations, both within University of Plymouth and outside the university, remain a major part of the groups long term viability strategy. The relocation of many of our internal collaborators to the DRF represents a major step in the right direction. Our collaborations with Imperial College London and other centres was key to being part of the successful MRC stratified medicine bid in alcoholic hepatitis and our ongoing work with the MRC Centre for Virology in Glasgow forms part of another current application for MRF funding to support work on HCV resistance.

Our newest area of research investigating the pathogenesis of liver cancers and the role of universal tumour antigens has established a useful collaboration between the HRG, the School of Biomedical & Healthcare Sciences and the clinical histopathology and liver surgery services at Derriford. This useful link between clinical services and scientific researchers is important and will be a continuing focus for the HRG.

Building on previous work with the SW Academic Health Science Network exploring support for funding streams to develop alcohol services, we have achieved new resource allocation from commissioners to implement an alcohol assertive outreach service in Plymouth, with the aim of decreasing hospital admissions due to alcohol related harm.

Our involvement in clinical trials continues. The HRG and SWLU are the largest recruiter to trials in liver disease in the southwest and have brought a range of new treatments to patients from across Devon Cornwall and Somerset. Trials in hepatitis C virus are changing as the drug treatment options are now so effective, but as the numbers of these studies reduce so opportunities for studies into NAFLD, portal hypertension and other areas increases. In 2018 we look forward to new interventional studies in alcoholic hepatitis, non-alcoholic fatty liver disease, portal hypertension and in primary biliary cholangitis.

A key marker of the groups success is grant support and 2017 saw a number of applications for external grant support by the group and our first ever Medical Research Council funding awarded to Dr Dhanda. Ensuring the financial sustainability of the group at time of great pressure on university and academic funding remains a key priority and in 2018 we will be submitting a number of new applications. Current grant applications include a 3 year project grant application to the Medical Research Foundation to research HCV resistance, and to EASL (European Association for the Study of the Liver) for a PhD fellowship to study NALFD. The generosity and financial support provided by the Mary Kinross Trust over a number of years to fund Dr Doha Hegazy has been instrumental in seeing the HRG grow, strengthen and diversify and we are extremely grateful to them for their support in 2017 and their ongoing commitment for support in 2018.

We remain indebted to all the patients and their families who have supported us by getting involved in clinical trials and consenting to the research work, to the clinical team at the SWLU and to all our collaborators both in the UK and abroad.

Research Outputs for 2017:

Publications:

Disease burden and costs from excess alcohol consumption, obesity, and viral hepatitis: fourth report of the Lancet Standing Commission on Liver Disease in the UK.
Williams R, Alexander G, Armstrong I, Baker A, Bhala N, Camps-Walsh G, **Cramp ME**, de Lusignan S, Day N, Dhawan A, Dillon J, Drummond C, Dyson J, Foster G, Gilmore I, Hudson M, Kelly D, Langford A, McDougall N, Meier P, Moriarty K, Newsome P, O'Grady J, Pryke R, Rolfe L, Rice P, Rutter H, Sheron N, Taylor A, Thompson J, Thorburn D, Verne J, Wass J, Yeoman A.
Lancet. 2017 Nov 29. Epub ahead of print.

Fine-mapping of genetic loci driving spontaneous clearance of hepatitis C virus infection.
Huang H, Duggal P, Thio CL, Latanich R, Goedert JJ, Mangia A, Cox AL, Kirk GD, Mehta S, Aneja J, Alric L, Donfield SM, **Cramp ME**, Khakoo SI, Tobler LH, Busch M, Alexander GJ, Rosen HR, Edlin BR, Segal FP, Lauer GM, Thomas DL, Daly MJ, Chung RT, Kim AY.
Sci Rep. 2017 Nov 20;7(1):15843.

Enhanced natural killer cell activity is found in exposed uninfected recipients of hepatitis C-contaminated blood.
Ow MM, Hegazy D, Warshow UM, Cramp ME.
J Viral Hepat. 2017 Oct 24. doi: 10.1111/jvh.12810. Epub ahead of print

Exploration of potential mechanisms of hepatitis C virus resistance in exposed uninfected intravenous drug users.
Shawa IT, Felmlee DJ, Hegazy D, Sheridan DA, Cramp ME.
J Viral Hepat. 2017 Dec;24(12):1082-1088.

Global prevalence and genotype distribution of hepatitis C virus infection in 2015: a modelling study.
Polaris Observatory HCV Collaborators. (**Cramp ME**)
Lancet Gastroenterol Hepatol. 2017 Mar;2(3):161-176.

Hepatitis C virus prevalence and level of intervention required to achieve the WHO targets for elimination in the European Union by 2030: a modelling study.
European Union HCV Collaborators. (**Cramp ME**)
Lancet Gastroenterol Hepatol. 2017 May;2(5):325-336.

Application of prognostic scores in the STOPAH trial: discriminant function is no longer the optimal scoring system in alcoholic hepatitis.
Forrest EH, Atkinson SR, Richardson P, Masson S, Ryder S, Thursz MR, Allison M, STOPAH trial management group (**Dhanda A**).
J Hepatol. 2018 Mar;68(3):511-518.Epub 2017 Nov 2

Felmlee, DJ, Grun, D. & Baumert, T.F. Zooming in on Liver Zonation.
Hepatology. 2017 Sep 27 [Epub ahead of print] doi: 10.1002/hep.29554.

Infection does not increase long-term mortality in patients with acute severe alcoholic hepatitis treated with corticosteroids.
Dhanda AD, Sinha A, Hunt V, Saleem S, **Cramp ME**, Collins PL.
World J Gastroenterol. 2017 Mar 21;23(11):2052-2059.

Cohort Profile: The Hepatitis C Virus (HCV) Research UK Clinical Database and Biobank.
McLauchlan J, Innes H, Dillon JF, Foster G, Holtham E, McDonald S, Wilkes B, Hutchinson SJ, Irving WL; HCV Research UK Steering Committee. (**Cramp ME**)
Int J Epidemiol. 2017 Oct 1;46(5):1391-1391

Hepatorenal syndrome: Update on diagnosis and therapy.
Acevedo JG, Cramp ME.
World J Hepatol. 2017 Feb 28;9(6):293-299.

New metrics for the Lancet Standing Commission on Liver Disease in the UK.
Williams R, Alexander G, Aspinall R, Bosanquet J, Camps-Walsh G, **Cramp M**, Day N, Dhawan A, Dillon J, Dyson J, Ferguson J, Foster G, Gardner R, Gilmore SI, Hardman L, Hudson M, Kelly D, Langford A, Liversedge S, Moriarty K, Newsome P, O'Grady J, Pryke R, Rolfe L, Rutter H, Ryder S, Samyn M, Sheron N, Taylor A, Thompson J, Verne J, Yeoman A.
Lancet. 2017 May 20;389(10083):2053-2080.

Care standards for non-alcoholic fatty liver disease in the United Kingdom 2016: a cross-sectional survey.
Sheridan DA, Aithal G, Alazawi W, Allison M, Anstee Q, Cobbold J, Khan S, Fowell A, McPherson S, Newsome PN, Oben J, Tomlinson J, Tsochatzis E.
Frontline Gastroenterology. 2017 Oct;8(4):252-259.

TLL1 rs17047200 Increases the Risk of Fibrosis Progression in Caucasian Patients With Chronic Hepatitis C.
John M, Metwally M, Mangia A, Romero-Gomez M, Berg T, **Sheridan D**, George J, Eslam M.
Gastroenterology. 2017 Nov;153(5):1448-1449.

Seladelpar (MBX-8025), a selective PPAR-δ agonist, in patients with primary biliary cholangitis with an inadequate response to ursodeoxycholic acid: a double-blind, randomised, placebo-controlled, phase 2, proof-of-concept study.
Jones D, Boudes PF, Swain MG, Bowlus CL, Galambos MR, Bacon BR, Doerffel Y, Gitlin N, Gordon SC, Odin JA, **Sheridan D**, Wörns MA, Clark V, Corless L, Hartmann H, Jonas ME, Kremer AE, Mells GF, Buggisch P, Freilich BL, Levy C, Vierling JM, Bernstein DE, Hartleb M, Janczewska E, Rochling F, Shah H, Shiffman

ML, Smith JH, Choi YJ, Steinberg A, Varga M, Chera H, Martin R, McWherter CA, Hirschfield GM.
Lancet Gastroenterology & Hepatology. 2017 Oct;2(10):716-726.

IFN-λ3, not IFN-λ4, likely mediates IFNL3-IFNL4 haplotype-dependent hepatic inflammation and fibrosis.
Eslam M, McLeod D, Kelaeng KS, Mangia A, Berg T, Thabet K, Irving WL, Dore GJ, **Sheridan D**, Grønbæk H, Abate ML, Hartmann R, Bugianesi E, Spengler U, Rojas A, Booth DR, Weltman M, Mollison L, Cheng W, Riordan S, Mahajan H, Fischer J, Nattermann J, Douglas MW, Liddle C, Powell E, Romero-Gomez M, George J; International Liver Disease Genetics Consortium (ILDGC).
Nature Genetics. 2017 May;49(5):795-800.

Hepatitis C virus and atherosclerosis: A legacy after virologic cure?
Bassendine MF, Nielsen SU, Bridge SH, **Felmlee DJ**, **Sheridan DA**, Packard CJ, Neely RD.
Clinics & Research in Hepatology and Gastroenterology. 2017 Feb;41(1):25-30.

Conference Presentations:

European Association for the Study of the Liver meeting Amsterdam April 2017:

A Dhanda, E Williams, **E Yates**, P Collins, R Lee, **M Cramp**. Intermediate ($CD14^{++}CD16^{+}$) monocytes from patients with acute severe alcoholic hepatitis are activated and functionally similar to classical ($CD14^{++}CD16^{-}$) monocytes.
Presented as poster; awarded Young Investigator Bursary.
Journal of Hepatology. 66: S346.

A Dhanda, S Atkinson, M Thursz. Variation in the use of corticosteroids for the treatment of acute severe alcoholic hepatitis in the post-STOPAH era: results of a UK national survey.
Presented as poster

FibroScan-based score to identify patients with non-alcoholic steatohepatitis: development in a multi-centric British cohort and validated in French and American cohorts
Magali Sasso, Stephen A. Harrison, Peter Eddowes, Quentin M Anstee, Indra N Guha, **David Sheridan**, Emmanouil Tsochatzis, Jeremy Cobbold, Michael Allison, Céline Fournier[1], Véronique Miette, Katharine K. Robert, Angelo H. Paredes, Katherine M. Cebe, Valérie Paradis, Pierre Bedossa, Victor de Ledinghen, Philip N Newsome Presented as poster
Elbasvir/grazoprevir plus sofosbuvir in treatment-naive and treatment-experienced cirrhotic patients with hepatitis C virus genotype 3 infection treated for 8, 12, or 16 weeks: final results of the C-ISLE study

Foster G, Agarwal K, **Cramp M**, Moreea S, Barclay S, Collier J, Brown A, Ryder S, Ustianowski A, Forton D et al.
Journal of Hepatology. 66: S503-S504. 2017 Presented as poster

Successful treatment of patients with HCV GT3 infection and cirrhosis with elbasvir/grazoprevir plus sofosbuvir does not correct insulin resistance by 12 weeks post-treatment
Foster G, Agarwal K, **Cramp M**, Moreea S, Barclay S, Collier J, Brown A, Ryder S, Ustianowski A, Forton D et al.
Journal of Hepatology. 66: S504-S505. 2017 Presented as poster

BASL Basic Science Meeting, Seale Hayne Conference centre, Devon, June 2017:

Serum lipid profiling using Ultra-performance liquid chromatography mass spectrometry (UPLC/MS) discriminates HCV exposed uninfected injection drug users from those susceptible to infection. **Isaac Thom Shawa;** Maria Gomez Romero; Alexandros Pechlivanis; **Daniel J Felmlee; Doha Hegazy,** Mary Crossey; Elaine Holmes; Maggie Bassendine; Simon Taylor Robinson; **David A Sheridan; Matthew E Cramp**
Oral presentation

Developing a 3D cell culture model for progression to non-alcoholic steatohepatitis
Paula Boeira, Daniel Felmlee, Doha Hegazy, Matthew Cramp, Charles Affourtit, David Sheridan
Oral presentation

BSG Annual Meeting, June 2017

A novel functional bioassay predicts 90-day survival in patients with severe alcoholic hepatitis.**E Yates, M Cramp, A Dhanda**.
Presented as poster

BASL Annual Meeting, Warwick, Sept 2017

Upregulated Innate immune responses in an HCV exposed uninfected cohort.
Isaac Thom Shawa, David A Sheridan, Daniel J Felmlee, Doha Hegazy, Asma Ahmed, Connor Wood, Simon Jackson, Gyorgy Fejer**, Matthew E Cramp**
Presented as poster

Seeking the genetic determinants of resistance to hepatitis C virus infection in a highly resistant cohort.
P Redondo, D Felmlee, M Ow, M Cramp
Presented as poster

Risk-adjusted survival in liver transplant patients assessed and managed by a non-transplanting centre: the South West Liver Unit experience.
A Srivastava, B Norton, K Ramos, L Vine, A Zarankaite, E Allen, **M E Cramp**

Presented as poster

American Association for the Study of Liver Disease meeting Washington Oct 2017:

Abstract 184: Performance of liver stiffness by FibroScan in a large prospective multicentre UK study: Applicability, reliability, diagnostic performance and influence of the probe type and of steatosis on the liver stiffness measurement.
P Eddowes, M Allison, E Tsochatzis, Q Anstee, **D Sheridan**, N Guha, J Cobbold, V Paradis, P Bedossa, P Newsome
Presented as poster

Abstract 2147: Comparison published non-invasive biomarkers to reliably exclude severe fibrosis in NAFLD patients.
P. Eddowes, M Allison, E Tsochatzis, Q Anstee, N Guha, J Cobbold, **D Sheridan**, V Paradis, P Bedossa, P Newsome.
Presented as poster

EASL/AASLD alcohol related liver disease conference, Oct 2017

T cell cytokine profile predicts outcome of patient with severe alcoholic hepatitis.
E Yates, M Cramp, A Dhanda.
Presented as poster; awarded Young Investigator prize

EASL First NAFLD Summit: Target oriented approach to diagnosis and pharmacotherapy of NASH, a dialogue between academia and industry. Rome 9-11th November 2017

Algorithm to identify non-alcoholic steatohepatitis (NASH) patients with a NAS≥4 and F≥2: algorithm derived in an American screening cohort and validation in a British non-alcoholic fatty liver disease (NAFLD) cohort**.**
SA. Harrison, AH. Paredes, PJ. Eddowes , M Allison, E Tsochatzis, QM. Anstee, **D Sheridan** , IN. Guha , JF. Cobbold , J Whitehead , V Paradis10, P Bedossa10, PN. Newsome
Presented as poster

Guideline development

NICE Clinical Guideline 100: Alcohol Use Disorders; updated April 2017. Topic expert:
A Dhanda