A novel diagnostic pathway to detect significant liver disease in the community

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Overview

• Patient perspective of the pathway

• Rationale of why initiated the project

• Development of the pathway including the challenges

• Future aims
Nurturing talent
Natural History of Chronic Liver Disease

**Risk Factors**
- Alcohol
- Obesity / Diabetes
- Viral hepatitis

**Scarring**

**Severe Scarring (Cirrhosis)**

**Symptoms**

**Death**

- 5-20 yrs
- 10-20% year
Rationale for stratifying patients at risk of chronic liver disease
Concepts of the community pathway

• Targeting risk factors
  • Synergistic in effect
  • Applicable to multiple aetiology

• Diagnostics performed in the community
  • Point of care diagnostics in primary care
  • Diagnostics/brief intervention delivered by nurses

• Specialists placed in the community
  • Integrated primary and secondary care
  • Hepatology clinics in primary care

McCorry et al QJM 2012
Dolman et al Liv Int 2013
Harman et al BMJ Open 2015
Harris et al Lancet GH 2016
Tanajewski et al BMJ Open 2017
Harman et al APT 2018
Grove et al Liver international 2018
Harris et al UEG 2018
Community pathway outcomes

- Liver disease
  - Increased detection of significant liver disease including cirrhosis (3 fold increase)
  - 73.1% of patients with proven cirrhosis had normal liver function enzymes

- Patient experience (n=349; 378 forms distributed)
  - 93.7% recommend service to friends and family
  - 94.3% felt they were given enough information

- Engagement with pathway
  - 95% of investigations were performed in the community setting
  - Attendance rate for community Fibroscan appointment was 95%
Formal health economic model by EMAHSN (Led by Professor Rachel Elliot)

- Non-alcoholic fatty liver disease:
  - £2,138 per extra quality adjusted life year (QALY)

- Alcoholic liver disease:
  - £6,537 per extra quality adjusted life year (QALY)

- Pathway independently looked at by York Health Economic consortium (Feb 2018): concluded that the pathway is cost effective and estimates were actually conservative

Tanajewski et al BMJ open 2017
Changing our Approach to Liver Disease

Current approach:
• Lacks accuracy
• Late detection
• Hospital based
• Costly and invasive

Alternative approach:
• Focus on risk factors
• Early detection
• Community testing
• Cost saving

IN A COMMUNITY POPULATION OF 20,368 PATIENTS, THE SCARRED LIVER FOUND

PATIENTS AT RISK OF LIVER DISEASE

PATIENTS WITH AN ELEVATED LIVER STIFFNESS RESULT

PATIENTS CONFIRMED WITH LIVER CIRRHOSIS

NHS innovations award winners 2013
BMJ team of the year finalists 2015
Commissioned Service in Nottingham
Engaging commissioners

• Co-produced bespoke solution to meet local challenges.

• Building robust relationships took time and energy. Both sides compromised.

• EMAHSN – supported implementation and evaluation

• Momentum and opportunity – CCG interest, NICE guidance, Lancet Commission report & exemplar, NIA Fellowship, AHSN Atlas of Innovation etc.

• Pathway commissioned in Sep 2016 by 4 CCGs (population of 0.7 million)
Patient perspective

• Instrumental in conception and development of pathway

• Feedback from 1,208 patients on the pathway. >95% rated the service as very good in all domains of NHS F&F test

• Created patient videos and resources to support the pathway
National influence

• NHS innovation accelerator fellowship (2015-2018)
  • NIA brochure (Feb 2018): Scarred liver listed as one of 37 evidence-based innovations.

• British Liver Trust and Royal College of General practitioners
  • Pathway highlighted under innovation and best practice
  • National commissioning group (JM and NG invited members)
  • Lancet commission (pathway in report) and JM invited to join panel in 2018

• King’s Fund
  • One of 12 innovations highlighted within innovation report (Jan 2018)

• NICE
  • Listed on NICE website as exemplar for implementation of cirrhosis guidelines
Unanswered questions

• Can the pathway be adopted to work in areas outside Nottingham (spread and adoption)

• How does the pathway continue to function after implementation

• Developing therapeutic intervention allied to diagnostic stratification

• Iteration and adaption of the pathway
Evolution of the clinical pathway

- Conceptual evidence + feasibility of nurse led service (McCory et al., 2012; Dolman et al., 2013)

1. Rushcliffe CCG Community Pilot
   - 2 GP Practices
   - 10,479 pop.
   - 2013/14
   - Winner of NHS Innovation Challenge Prize in Diagnostics

2. Nottingham City CCG Community Pilot
   - 2 GP Practices
   - 10,389 pop.
   - 2014/15
   - Secured EMAHSN Support
   - Lancet Commission Report showcased project

3. Leicester City CCG Community Pilot
   - 1 GP Practice
   - 4,150 pop.
   - 2015/16
   - NHS Innovation Accelerator Fellowship awarded

4. 4 x South Nottinghamshire CCGs – Adult Liver Disease Stratification Pathway
   - 108 GP Practices
   - c. 700,000 pop.
   - 2016/17
   - NICE guidance (NG49) for NAFLD updated
   - Launch of South Nottinghamshire Pathway

5. NICE exemplar of implementation for cirrhosis guidelines

6. Service Evaluation (Sitton-Kent et al., ongoing)

Health Economic Evaluation + Evidence to Support community detection for Liver Disease (Tanajewski et al.; Harris et al.; Ginés et al., 2017, Harman et al 2018)

Diagnostic Study (Harman et al., 2015)
Further information and resources can be found at:

http://www.scarredliverproject.org.uk/
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Thanks to...
Questions?
Supplementary slides
Commissioning challenges

Challenge: implementing innovation in a challenging financial climate

• Specific issues:
  • Evidence: what we perceived to be important e.g. robust health economic model did not match their focus on budget end financial outcomes
  • Demand: service change may overwhelm available resources
  • How did our solution solve their own problems

Challenge: needs passionate individuals working across organisations to break down barriers

• Specific issues
  • Tempting to “outsource” responsibility for impact to a third party. However a passive approach may not lead to impact or delay
  • Implementation phase requires individuals who can traverse clinical/research interface
Scientific contribution

Research Papers produced in parallel to implementation:

McCorry et al *QJM* 2012- Nurse led scanning
Dolman et al *Liv Int* 2013- Diagnostics
Harman et al *BMJ Open* 2015- Feasibility pilot
Gines et al *Lancet Gastroenterol/Hep* 2016- Population screening
Harris et al *Lancet Gastroenterol/Hep* 2017- Systematic review of community diagnostics
Tanajewski et al *BMJ Open* 2017 - Health economics
Harman et al *APT* 2018- Risk stratification
Grove et al *Liver international* 2018- Risk stratification
Harris et al *UEG 2018 (in press)* – Probe accuracy