CTC29 - Health

This event has the broad theme of **Health**. This is a broad area and can be interpreted in any way that attendees wish. Below are some ideas for challenges at the hack weekend.

Attendees will champion these ideas and, where there is interest in them, teams will be formed to work on small projects to address those challenge ideas, developing rapid prototypes over the weekend.

Add your ideas below the ones already there:

1. **Physical Activity and rehabilitation**
    a. Tech (apps and wearables) for supporting:
        - home (rehab) exercises - delivery and progress tracking
        - active accessible travel
        - healthy ageing (e.g. falls prevention)
        - self-management of chronic conditions
        - mental health/wellbeing related to PA and rehab

2. **Capture data on Sport and Leisure Trusts**
   And publish these to Wikidata
    a. EG 1 https://www.wikidata.org/wiki/Q117378968
    b. EG 2 https://www.wikidata.org/wiki/Q30282529
    c. Source? https://communityleisureuk.org/scotland/

3. **Improve searchability of A Local Information System for Scotland (ALISS)**
   The search within the open API is poor and does not always find the most relevant matches for users. Format of the service descriptions varies in length, but in general is not concise enough for people to easily know if it is the right service for them. There is a new Alexa integration to ALISS called My Scottish Community, however the user experience is not good because of the limitations of the API search. There are two main areas to the challenge:
    a. Integrating a large language model to the ALISS database that can match users based on their query terms more accurately. Possible solution could be Langchain.
    b. Using code and a language model like ChatGPT to review the 5000plus database entries and automate standardising the descriptions. Ideally each entry needs a short title (including Service Name & Location and possibly also one piece of additional context like, who the service is for, i.e. Yoga in Cambuslang for New Mums) and a short description (ideally around 200-300 characters that includes logistical information about the service and who the service of for and how it helps people). Some of the existing titles don't give any context of what the service is about, and some of the existing descriptions are too long for a voice experience.

4. **Build an interface for exploring open prescribing data for Scotland.**

   Scotland's Prescription data has been available openly since 2016. Despite promises to make it more accessible and interrogable for citizens this has not happened as far as we are aware.

   In England, Ben Goldacre and his team at Oxford created Openpresecribing.net which allows detailed analysis and comparison of such data. The site allowed theoretical savings of £410m p/a to be identified in better prescribing by GPs. See https://bmjopen.bmj.com/content/8/2/e019643

   Code The City's Ian Watt chaired a meeting in 2018 where Ben Goldacre offered to take Scottish data into the Openprescribing site, but the head of data at NHS Scotland declined to fund the small piece of development needed, stating that Scotland was building its own site. In the intervening 5 years there has been no such development that we are aware of.

   While some within the Scottish health service may be doing analysis of the data with internal tools it is not publicly straightforward to do so in Scotland.

   Building a tool to help that would be a good first step, but doing so from scratch would be a major piece of work. Thankfully the code for the open prescribing site is freely available on Github.

   While fully creating a tool over the weekend might be completely unachievable, and initial investigation, and scoping of future work should be doable.

5. **Empower Patients**

   Public service organisations have increasingly recognised the value of empowering communities to deliver services (e.g. peer and mutual aid support groups) and influence the design and improvement of services as co-producers. This idea could be extended to the virtual space by crowdsourcing actionable insights by facilitating the ready availability of open-source data as a valuable public asset.

   This is in line with the Scottish Government's Open Data Strategy which, "seeks to create a Scotland where non-personal and non-commercially sensitive data from public services is recognised as a resource for wider societal use and as such is made open in an intelligent manner and available for re-use by others." This is to promote innovation, improve transparency and ultimately ensure the data is used in the best way to improve outcomes.

   How do we go about making the skills and data accessible to patients?

6. **Facilitate Experiential Data collection and analysis**

   Increasingly, health services wish to improve by better understanding the perspective of the lived experience of patients. Citizen activists are willing to share their insights

and other activists are willing to interview volunteers and subsequently conduct thematic analysis. The results of such analysis inform the community at large about the collective experience and provide invaluable insights to enable co-production of solutions or improvements.

Managing the following administrative challenges are time consuming:

- Interviewee recruitment
- interviewer recruitment
- Recording consent
- Interviewer disclosure checks
- Interviewer training
- Matching interviewer and interviewees
- Rewarding interviewers and interviewees with a token of appreciation for participation
- Data cleansing to remove inadvertent personal disclosures
- Analysing data
- Reporting on findings
- Informing participants and services of the findings

An administrative portal to enable greater community activism in health service improvement activities would be valuable.

7. Keeping in Contact

Substance use disorders are a chronic relapsing condition. Whilst people can and do recover to lead happy, healthy and contributing lives, their recovery pathway is seldom in a straight line and often has several relapses along the way. Stigma, shame and embarrassment can lead to people disengaging or not seeking help again when they relapse.

A mechanism where people who have left care and provided consent can receive an automated SMS text enquiring after their wellbeing and providing the ability for them to say they'd like help, they are doing fine or not to contact them again would be valuable.

8. Sentiment analysis in social media

People in who are suicidal, in despair or have relapsed with problematic drug or alcohol use may say so in social media. A mechanism to monitor such media, assess whether someone might be in need and welcome signposting to support might be desirable if this could be developed in an unobtrusive way.

9. Density of Unhealthy Product Outlets

There is evidence that people are more likely to purchase unhealthy products such as tobacco and alcohol where the outlet density is higher. Creshmap.com have collated outlet density across Scotland. How can this be used to effect change in a locality?

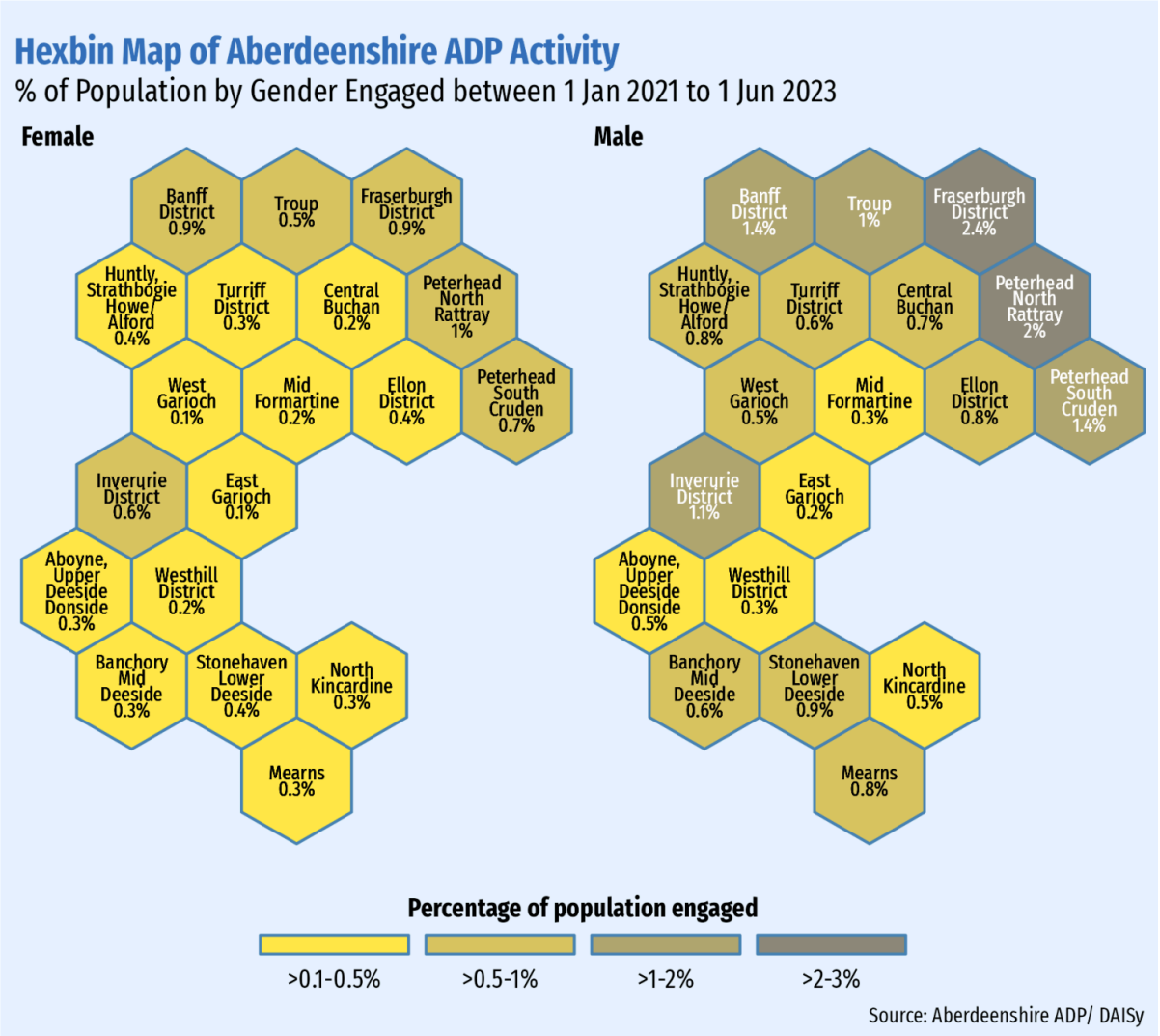
10. Early detection of liver disease

Chronic liver disease is often insidious in onset and progresses with few symptoms until advanced liver injury is established. Prevention, early detection, effective monitoring and intervention are fundamental to altering the course of the disease. Nevertheless, prevention and detection often rely on patients presenting to health services. Isolated and vulnerable populations at greater risk of liver disease are less likely to present to GPs. Most liver health related presentations to hospital are on an emergency rather than planned basis.

How could technology improve early presentation?

11. Improving Visualisation of Health Data

Health services (and the wider public service) have a lot of open data. However, this is often inaccessible and difficult to make sense of for the general public. A variety of visualisation tools are available. One that has been used locally to good effect is the use of 'hexibins'. eg



Developing a readily accessible means to publish data in such a format may reduce barriers to publicising easily digestible data.

12. Add your idea here