Community Fit – Phase One
Report to the STP Programme Board – June 2016

1   Introduction

The NHS Future Fit programme was established to consider the future of healthcare services in Shropshire and Telford. Following extensive consultation with the public, patients and clinicians, a Strategic Outline Case was produced setting out a range of costed options to provide sustainable acute healthcare services.   These options anticipate that some activity currently taking place in the acute sector will in future be delivered in community settings.

The Community Fit project was established by the Future Fit programme Board in April 2015. The first phase of this project was designed to provide insight into the challenges facing the non-acute sector and to encourage stakeholders to consider how these challenges and those originating from Future Fit might be met.   This report summarises the work of the Community Fit project to date.

A further phase of Community Fit is now required to support the healthcare system to develop, assess and select design solutions to these challenges. This paper sets out the steps required to initiate this phase of work in the recommendations section.

2   Phase 1 - Project Deliverables & Scope

Six deliverables were expected from the first phase of the Community Fit project

1. To summarise the level and nature of activity currently taking place in the out-of-hospital health and care sectors
2. To estimate the likely impact of demographic changes on the demand for health services in these sectors.
3. To create a patient-linked dataset to provide insight into the patterns of patients' health service use across multiple sectors
4. To develop a taxonomy or classification of patients based on their patterns of healthcare use.
5. To summarise the assumptions in the Future Fit activity models about the movement of activity out of acute settings
6. To assess of the current and potential contribution to Community Fit of voluntary sector organisations in Shropshire, Telford and Wrekin.

The main analyses focus on four out-of-hospital sectors; community health services, primary medical services, adult social care services and mental health services. Setting the scope in this way was thought to provide the best balance between practicality and coverage. It is acknowledged that this approach excludes a number of important services (e.g. GP out-of-hours, children's social care, continuing healthcare, dental services etc).

The adults social care data, the patient-linked dataset and cluster analysis relate to patients aged 18+ only.

Data on adult social care packages are those which incorporate some local authority funding. Fully privately funded social care packages are not included in this analysis.

The project focuses on services predominantly delivered within the borders of Shropshire and Telford and Wrekin Unitary Authorities. Appendix 1 provides information about the number and

distribution of patients registered with a GP practice within the Shropshire and Telford and Wrekin Authorities boundaries, but living outside of these areas and vice-versa.

The project used data from 2014/15; the latest complete financial year at the point the project commenced.

Participants in the primary care reference group expressed concern about the extent to which data extracted from primary care clinical information systems could be used for the purposes of the project. Four pilot practices agreed to work with the project team to assess the quality, utility and comparability of data within clinical information systems. The outcome of this process would guide decisions about the value of extending this approach to all practice in Shropshire and Telford.

3 Phase 1 - Project Approach

Five worksteams were established to oversee the work with a reference group for each workstream. Each reference group met on approximately 5 occasions to oversee and comment on the project deliverables.

Workstream	Chair
Community Services	Mel Duffy
Mental health services	Lesley Crawford
Primary medical services	Russell Muirhead
Adult social care services	Andy Begley
Voluntary sector	n/a (Heather Osborne and Nicky Jacques reps on the board)

Membership of each of the reference groups are provided in appendix 2.

4 Description of the Nature and Level of Out-of-Hospital Health and Social Care Services

Data was supplied by each of the relevant stakeholder organisations against an agreed specification and under suitable data-sharing agreements.

Detailed descriptive analyses were produced for each of the 4 out-of-hospital sectors; community healthcare, adult social care, mental health and primary medical services[1]. This process served two purposes;
- to build a shared understanding of the quality and completeness of the underlying data
- to provide a baseline assessment for the later stages of the project

Early drafts were reviewed by the reference groups for completeness and accuracy. Final versions of these reports are provided in appendices 3 - 6, but in summary the reports contained the following information;

Mental Health Services
- For PbR services – by cluster
  - Activity and patient counts
  - Age, Gender & ethnicity profile
  - Practice prevalence
  - Admissions and length of stay
  - Seasonality of admitted care

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[1] For the 4 pilot practices

- o Transitions between clusters
- For non-PbR services – by service
  - o Activity and patient counts
  - o Age, Gender & ethnicity profile
  - o Practice prevalence
  - o Seasonality of activity

Adult Social Care Services
- Patient counts
- Age and gender profile
- Services and age group
- Change in activity levels
- Service intensity (home care)
- Activity vs cost

Primary Medical Services (4 Pilot Practices)
- Patient characteristics
- Diagnoses
- Long Term Conditions
- Patient activities
- Prescriptions

Community Healthcare Services
- Activity trends
- Patient age and gender profile
- Patients CCG by registration and residency
- Activity by contact type, contact purpose
- Activity service type and team
- Contacts rates and duration by service type

Voluntary Sector
Discussions were held with existing voluntary sector forums to test the potential for organisations to contribute to the Community Fit analysis. It was recognised that activity performed by organisations delivering under a contract to the CCG or social care would likely be captured by those workstreams. However, organisations were not at present able to deliver a data set of activity which included individual client level activity with an NHS number identifier. Both councils are exploring the possibility to jointly complete a more detailed 'state of the sector' questionnaire to inform on-going Community Fit developments alongside their own work. It was recommended that Phase Two of Community Fit should explore the potential for voluntary organisations to record NHS number.

5 The Impact of Demographic Change on Demand for Out-of-Hospital Health and Social Care Services

Changes in demography are commonly given as one of the main sources of demand pressure on a healthcare system. Community Fit developed estimates of the scale of the challenge arising from;
- changes in population size
- changes in the population age profile
- Changes in age specific health status

It is worth noting that demography is only one of a number of potential drivers of demand growth. Other sources include the development of new medical technologies, changes in thresholds for

healthcare and changes in patient expectations. This following analysis relates only to demand growth arising from demographic change.

Forecast changes in population size and age profile can be obtained from Sub-National Population Projections published by the Office of National Statistics. The 2012-based projections were used to understand the changes that were likely to occur in Shropshire. In Telford and Wrekin however, stakeholders expressed concern that these population projections did not take account of planned housing developments designed to attract working age people into Telford. T&W Council produce local population projections and these local projections were used within Community Fit to understand the likely changes to the population size and age profile within Telford and Wrekin. Utilisation rates by gender and single year of age in 2014/15 were calculated for a range of out-of-hospital services as the ratio of activity counts and population. These utilisation rates were multiplied by the forecast population in 2019/20 and summed across all ages to estimate the levels of activity in 2019/20.

Whilst this approach is commonly used in healthcare sectors to estimate demand growth associated with population change, it fails to take account of secular trends in age-specific health status – notably that older people of a given age are on average healthier than people of the same age in the past. This is reflected in improvements in disability-free life expectancy[2] since 2000. We modelled the impact of this effect on healthcare utilisation under three future scenarios;
-   a pessimistic scenario : where there is no further improvement in disability free life expectancy
-   an optimistic scenario : where improvements in disability free life expectancy result in a relative compression of morbidity – in line with recent national tends
-   an intermediate scenario : where improvement in disability free life expectancy track improvements in life expectancy

The chart below compares the anticipated change in demand for a range of out-of-hospital services under two of these scenarios. This analysis demonstrates that in most cases, increases in demand associated with a growing and aging population can be offset with modest annual improvements in disability-free life expectancy.
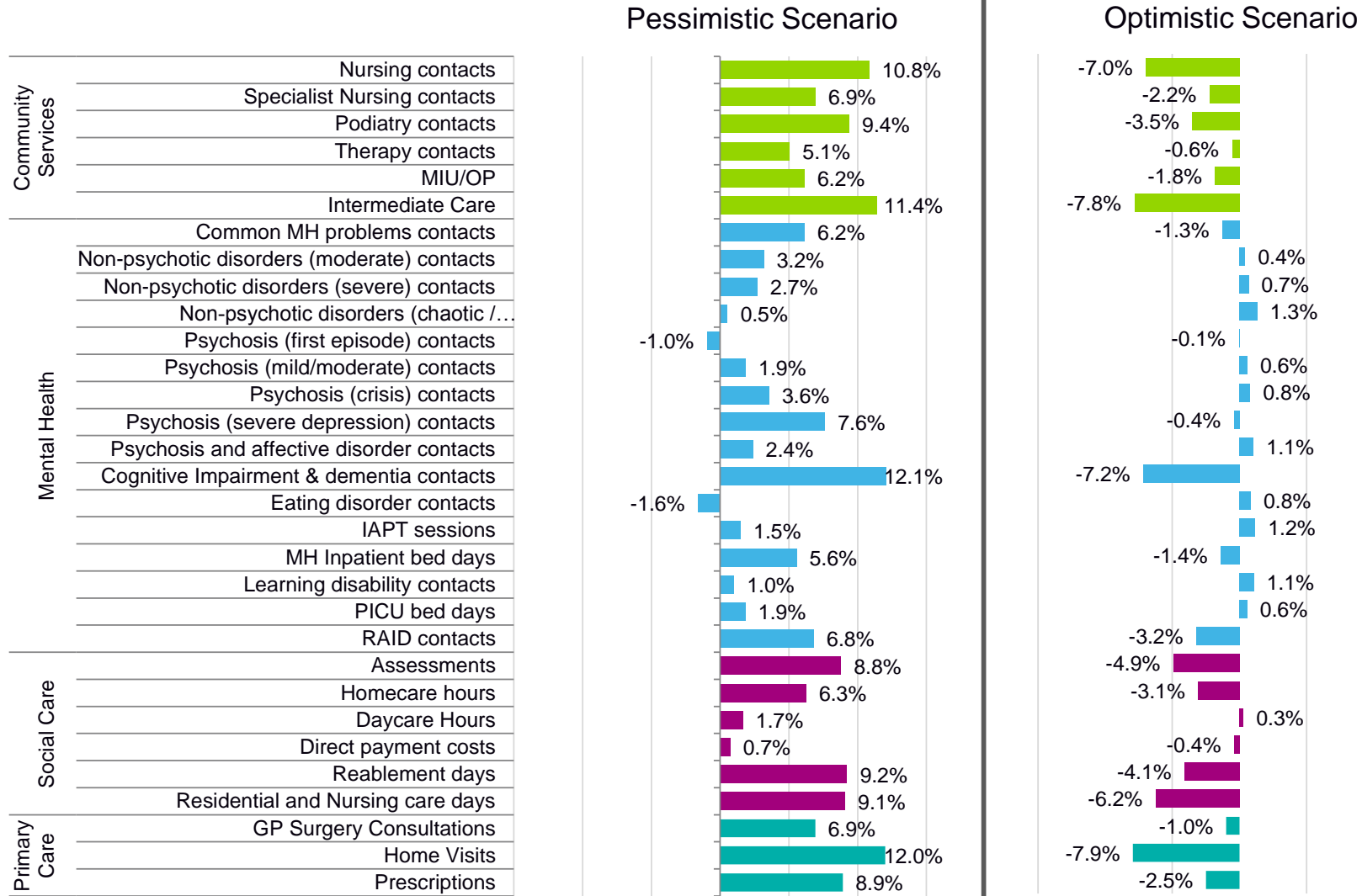
Many of the features of a healthcare service which delivers improvements in disability free life expectancy are referenced in the Future Fit Clinical Vision, notably;

-   reducing the prevalence of key lifestyle risks (e.g. smoking, excessive alcohol consumption, poor diet, lack of exercise, obesity etc) to reduce the prevalence of lifestyle related illness
-   improving the management of long term conditions to delay the disabling consequences of long term conditions
-   the use of targeted acute planned care interventions to tackle and reverse the worst consequences of a disease.
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A detailed report summarising the impact of demography for each sector is available in appendices 7 - 10.

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[2] Disability-free life expectancy is the average number of years an individual is expected to live free of disability (self-reported limiting long-term illness) if current patterns of mortality and disability continue to apply.

Figure A : Impact of Demographic Change on Healthcare Utilisation

Category	Service	Pessimistic Scenario	Optimistic Scenario
Community Services	Nursing contacts	10.8%	-7.0%
Community Services	Specialist Nursing contacts	6.9%	-2.2%
Community Services	Podiatry contacts	9.4%	-3.5%
Community Services	Therapy contacts	5.1%	-0.6%
Community Services	MIU/OP	6.2%	-1.8%
Community Services	Intermediate Care	11.4%	-7.8%
Mental Health	Common MH problems contacts	6.2%	-1.3%
Mental Health	Non-psychotic disorders (moderate) contacts	3.2%	0.4%
Mental Health	Non-psychotic disorders (severe) contacts	2.7%	0.7%
Mental Health	Non-psychotic disorders (chaotic /…	0.5%	1.3%
Mental Health	Psychosis (first episode) contacts	-1.0%	-0.1%
Mental Health	Psychosis (mild/moderate) contacts	1.9%	0.6%
Mental Health	Psychosis (crisis) contacts	3.6%	0.8%
Mental Health	Psychosis (severe depression) contacts	7.6%	-0.4%
Mental Health	Psychosis and affective disorder contacts	2.4%	1.1%
Mental Health	Cognitive Impairment & dementia contacts	12.1%	-7.2%
Mental Health	Eating disorder contacts	-1.6%	0.8%
Mental Health	IAPT sessions	1.5%	1.2%
Mental Health	MH Inpatient bed days	5.6%	-1.4%
Mental Health	Learning disability contacts	1.0%	1.1%
Mental Health	PICU bed days	1.9%	0.6%
Mental Health	RAID contacts	6.8%	-3.2%
Social Care	Assessments	8.8%	-4.9%
Social Care	Homecare hours	6.3%	-3.1%
Social Care	Daycare Hours	1.7%	0.3%
Social Care	Direct payment costs	0.7%	-0.4%
Social Care	Reablement days	9.2%	-4.1%
Social Care	Residential and Nursing care days	9.1%	-6.2%
Primary Care	GP Surgery Consultations	6.9%	-1.0%
Primary Care	Home Visits	12.0%	-7.9%
Primary Care	Prescriptions	8.9%	-2.5%

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6   Linking Patient Data across Multiple Sectors

Greater service integration and improved care coordination are often cited as objectives for health and social care system. And although linked datasets are seen as a prerequisite for greater integration and coordination, data on service usage is usually reported sector by sector.   Under normal circumstances explicit patient consent is required to link patient's data from several organisations in a way which allows individuals to be identified.   Alternative methods exist however which meet the legislative requirements and best practice guidelines on data-sharing which allows data to be linked at a patient level but in a way which does not serve to identify any individual patient.

A method known as 'psedonmysisation at source' was employed within the Community Fit project to link patient data from acute hospital services, community healthcare services, mental health services and adult social care services.

Of the c. 381k people aged 18+ living in Shropshire and Telford, 211k has a recorded contact with at least one of the service listed above where the patient's NHS number and age were recorded.

A report detailing the methods and results of this process can be found in appendix 11. We provide a few highlights here for information:

- A very small number of patients, c 2%, henceforth referred to as very high cost patients, consume approximately one third of all health and social care resources. The report describes the demographic profile of these patients, the services they receive, the health conditions they exhibit and their area of residence.

- More than 80% of costs of state-funded social care packages are spent on these very high cost patients.

- Approximately 3,000 people receive services during 2014/15 from all four sectors.

- People receiving Social Care services are much more likely to use mental health services than the general population

- The report uses data from the 4 pilot practices to demonstrate the following benefits of incorporating data about a patient's primary care use;
    - increases the coverage of the linked data considerably (given the frequency of patient interactions with primary care services)
    - allows a more accurate assessment of patient's long term conditions (i.e. using practice disease registers)
    - provides an additional dimension to descriptions of patients' service usage (e.g. that high cost patients receive on average 19 GP consultations and more than 110 prescription items per annum).

7   Classifying Patients by Service Use Patterns

Having gathered and linked data about patients' service usage, the Community Fit project explored the extent to which patients could be usefully classified in terms of service usage patterns into a relatively small number of groups.   If possible, this might support the health and social care system to identify those areas where service integration or improved care coordination might be of particular benefit and support thinking about the nature of out-of-hospital package that might substitute for care packages currently suppled in acute hospital settings.

Appendix 12 provides detailed information about the cluster analysis methods, the variables used to direct the cluster analysis and the outcomes of this method.   In summary however, 16 distinct clusters were found with the following characteristics.

Cluster	Cluster Name	Cluster size (n)
Multi-sector patients		
1	Discrete planned care with community follow-up	12,571
2	Intensive / institutional mental healthcare	180
3	Long stay acute care	3,514
4	Younger adults with complex disabilities	234
5	Well-maintained social care users	1,486
6	Complex needs – mainly managed in community	273
7	Young adults with simpler mental health needs	5,121
8	Community support-occasional acute input	7,940
9	Community & social care – occasional acute input	6,075
10	Simple investigations – physical health	20,041
11	Complex frail elderly	2,516
12	Simple investigations – physical/mental health	3,775
Single-sector patients		
13	Acute contact only	113,689
14	Community contact only	30,557
15	Mental Health contact only	270
16	Social Care contact only	2,237

See figure 2 and appendix 12 for further details.

We hope that this analysis will provide stakeholders with;
- An enhanced understanding of the common ways in which patients use health and social care services in Shropshire Telford & Wrekin

- Analysis to guide thinking about the potential to reorganise care - particularly for those patients with contact with more than one sector .
- Information to support considerations about the packages of community support that might substitute for acute care packages.

8   The Challenge from Future Fit

The activity models underpinning the Future Fit planning documents apply a series of adjustments to a baseline dataset to estimate future hospital activity and capacity. The adjustments reflect anticipated changes in demography, the effects of public health interventions, CCG lead activity avoidance and hospital efficiency strategies, changes in patient flows and market share and changes in the management of patients within the acute setting. Activity that currently takes place in an acute setting, but which is assumed to be avoided in the future can be broadly classified into three types;

a) activity avoided through the provision of a community and/or primary care alternative
b) activity avoided through public health / preventative interventions
c) activity avoided through improved policies, procedures or tightened thresholds

The charts below provide some indication of the level of avoided activity and the type of intervention (a, b or c above) required to bring about this change.

In summary, the Future Fit models assume;

- that approximately 5% of current inpatient spells might be avoided in the future. This assumption amounts to about 3 admissions per practice per month. Approximately half of these would be avoided as a result of a public health intervention, with smaller proportions avoided through the provision of community/primary care alternatives and policies/thresholds.
- that approximately 19% of current acute bed days might be avoided in the future – approximately 30 beds days per practice per month – through the provision of public health interventions and community / primary care alternatives in broadly equal measure.
- that approximately 8% of current outpatient attendances could be avoided through improved policies and thresholds.
- that approximately 1% of current A&E attendances could e avoided – though the provision of public health interventions and community / primary care alternatives in broadly equal measure.

Note that these figures are the isolated impact of avoided activity. The model assumptions about demographic change, changes in patient flows etc. are not shown here. Data marked in the charts below as 'remain with acute trust' is not assumed to remain unchanged – indeed the activity models contain detailed assumptions about the management protocols for these patients.

9   Next Steps & Recommendations

The analysis described above provides a rich resource to support stakeholders to develop and assess out-of-hospital service design options. In particular the outputs of the first phase of Community Fit provide information on current levels of service usage, the potential impact of demographic change on service demand, the patterns of service usage across multiple sectors and the activity transfer assumptions from Future Fit. The Future Fit Programme Board is now well placed to initiate this next design stage of the Community Fit programme.

The Community Fit workstream recommend that the STP programme board ensures that:

i.   the Clinical Design workstream, use the data analysis and in particular the taxonomies work to drive the development of a refreshed integrated community model, building on existing developments already underway.

ii. the Clinical Design group brings in additional expertise to boost its membership (e.g. voluntary sector, social care, mental health, community reps) use the intelligence gained from Community Fit phase 1 to describe the neighbourhood models of care closer to home.

iii. Taking a steer from the Clinical Design Discussions, 'bottom-up' redesign discussions are facilitated on a locality basis between all stakeholders, service-users, patients and service providers to coproduce the Community Fit plan for their locality.

iv. Relevant STP and Future Fit workstreams, in particular Deficit Reduction but there may be others, takes due consideration of the important and helpful analysis from Community Fit phase one.

v.   All workstreams are supported to use the Community fit analysis as a resource to inform ongoing design work and test models of care; we suggest a half day workshop to review the modelling is scheduled to facilitate this.

vi. Building on the successful work with the board of the GP Federation, secure agreement and funding to enable GP data sharing with a view to repeating the data analysis and matching later in the year to enable a more comprehensive overview to inform the development of the neighbourhood workstream, including CHC and primary care data.

vii. Work is rapidly completed to clarify the governance of workstreams to align approaches and avoid duplication; reviewing the membership of relevant groups to confirm fitness for purpose. (A further meeting of the Community Fit steering group has been scheduled to support the synthesis of the outputs from the Clinical design workshop on 22nd June, this is scheduled for 28th June. Thereafter terms of reference and membership of the group should be reviewed to align with STP structures.)

viii. Voluntary sector focus – establish feasibility of incorporating NHS number for voluntary sector organisations – scope the potential to pilot this.

A full set of 12 appendices are available separately to this report – please request these from lorna.cheeseman@nhs.net