A System Integrator Implementation Guide

Adapting Learnings from Gesundes Kinzigtal to Fareham and Gosport

September 2018

NEL · Imperial College Health Partners · OptiMedis UK cobic · Social Finance · PPL

Acknowledgement

This document was prepared and written by the Integrator Team comprising of NEL (prime contractor), OptiMedis Cobic, Imperial College Health Partners (ICHP), PPL and Social Finance in response to a procurement for the development of a System Integrator in Fareham and Gosport.

The Integrator would like to offer thanks to the Project Sponsor, Alex Berry (Director of Transformation), Sara Tiller, Dr Donal Collins, Dr Tom Bertram, Dr Paul Howden, Chris Complin, Amanda Gray, Kerry Cooper, Dr Robin Harlow, Sandra Sprat and the transformational leads for their input into the project.

The Integrator team working on this project comprised of Dr Nicholas Hicks (Project Director), Andrew Smith, Dr Oliver Groene, Justin Rautenberg, Ramesh Rajah, Colin Styles, Steve Reiners, Dr Manpreet Baines, Katja Behrendt, Henry Ireland, Vish Valivety, Quirine Van Voorst, Tara Rowe and Susan Gardiner.

Foreword

In my opinion, I am a very ordinary GP who just would like to make a difference to the population who call themselves my patients. I have been very privileged to be selected as one of the "Better local Care" Vanguard sites in Hampshire. This was all about trying to deliver the quadruple aim-improving quality, improving population health, increasing value, all while improving staff satisfaction.

We endeavoured to deliver this across a system that was working in silos, not thinking about whole population health but just about each organisation and the impact that the population had on the organisation. It became clear to me that we needed several things to make the system work better. First and foremost was data that the frontline would understand and could adapt to. The only data we had access to was data that influenced commissioners at a more strategic level and as interesting as this was, it did not tell us about the five patients I need to do something with today that may prevent an adverse outcome in coming months.

My experience of seeing organisations talking at a system level was drivers "in-house" trumping system drivers. Or "as long as I am all right, then we can do this" attitude.

I felt we needed a neutral conductor standing in the middle who could act as an honest broker to make each organisation to do what was right and then shift resource to make sure no organisation was injured as a result of doing the right thing.

The integrator team were a partnership of organisations with expert knowledge in "population health management" including a CSU with data expertise, an AHSN with quality improvement expertise, and a data expert from Europe who had delivered quality improvement change at scale in primary care setting.

My experience of working the integrator team was very positive. It was great to have a bunch of enthusiastic, knowledgeable people with a "can-do" attitude around. What was harder was the recognition that the system was not ready for such a culture change. Reasons for a lack of engagement included: "it was part of a system", "not our idea" and "not our priority".

Pressures from regulators had created priorities that are more pressing for different stakeholders in system. Big learning for me was that to bring such a large-scale change in, there needed to be a big organisational development piece that probably would have taken years.

When we did work with the integrator with front line teams, the effect of data revealing facts that clinicians were completely unaware of was transformative. This then led to quality improvement work in localities with clear pieces of work, showing clear effects of work i.e. if you do "x" to these 25 people, then "y" was likely to happen. These included tangible benefits from an analyst who was able to turn numbers into a story that everyone could understand.

Three practices in Fareham have worked closely with integrator to develop collaborative working, improvement of system processes to ensure patients would similar experiences on all three sites. We have developed an understanding that improving quality for the patient really does bring business efficiencies to each site.

Dr Donal Collins, GP Partner for the Highlands Practice and Better Local Care MCP / Vanguard Site lead.

Contents

Executive summary

This practical guide is written for all those in a health and care system working to achieve the ambitious goals of the Five Year Forward View (NHS England)[1] by creating new place based integrated care systems.

It draws on lessons learnt from Gesundes Kinzigtal (GK) in Germany, one of the world's best established, best documented and most effective integrated care systems, which has delivered on all dimensions of the Quadruple Aim[2]. They have extended length of life by 1.4 years, achieved high levels of citizen satisfaction, reduced system costs by more than 7 per cent and solved recruitment and retention problems. By adapting the principles and lessons learnt in GK, we believe the same or better can be achieved in the NHS.

The Integrator team also draw on their practical experience of adapting the GK experience to the UK as prototyped in Fareham and Gosport, Hampshire.

There are various key lessons from >10 years of the integrator team at GK. First, meaningful impacts require changes at the front line. This is best achieved through a strong 'bottom-up' approach involving front-line staff that complements the usual top-down approaches to change management typically adopted by the NHS. Second, the basic 'delivery unit' serves a defined population of about 30-100,000. It comprises people from different organisations and teams who can get to know each other by name. Third, change is guided by the combination data analysis, evidence and local knowledge and experience and enthusiasm. In this context, it is essential to present and use analyses of clinically relevant data (rather than relying solely on administrative data). To facilitate change processes, it is important to align incentives for individuals as well as organisations with system goals (better health, lower cost, better quality and experience of care). Underpinning change with a broad definition of population health encourages action that is not just reactive but also proactive and that addresses prevention, citizen/patient 'activation', and the broader determinants of health. Front line staff should be involved and committed to be part of data driven facilitated quality improvement work and apply established quality improvement methods such as PDSA.

This guide shows how all these principles can be adapted and applied in the NHS. Transformational change is as much a social process as a technical one, and the 'softer' elements of work such as relationships, winning 'heart and minds', developing compelling narratives, and celebrating successes require as much attention as 'harder' technical issues such as data analysis and contractual form.

The definition of population health management that we work to, and that is used throughout this document, is:

Population health management comprises the systems and processes required to achieve the greatest improvement in health and relief of suffering for a defined population from the resources available through:

a. The efficient and effective delivery of care in response to individual presenting to and asking for help from the health and care system

b. Identification of individuals and offer of intervention to those currently not in receipt of interventions that evidence suggests are likely to improve their health and wellbeing, reduce the risk of future ill-health, and/or reduce costs to both the health system and the wider community

c. Salutogenesis i.e. provision of support for individuals and communities and the use of local assets to protect and promote health through:

   - Promoting individual knowledge, behaviours and attitudes that promote health
   - Supporting the development of strong social networks
   - Creating a health sustaining physical environment

Too often, we have come across places where only the reactive element of integrated care and population health is addressed. Inevitably, that misses most of the potential benefits. This guide reflects the learning derived from the work of the Integrator Team in Fareham and Gosport and offers practical advice about how place based integrated care can be achieved. Key steps are:

1. Secure commitments from key service providers to come together and participate in facilitated quality improvement activities.
2. Encourage the formation of neighbourhood representing 30-100,000 people.
3. Undertake a high-level system health and needs assessment to identify the big-ticket issues for the local health economy.
4. Identify a clinically relevant topic to work on reflecting the high level needs assessment and neighbourhood interest and relevance.
5. Access and prepare clinically relevant data for analysis.
6. Ensuring that Data Processing and Sharing agreements are in place from the onset of the programme. The learnings from the Integrator programme included difficulty and delays in getting Data Access Request Service (DARS) approved which led to significant delay and the inability to obtain acute data. Going forward, it is strongly recommended for future that [an Integrator fully explores the need for Data Sharing and Data Processing Agreements OR] that the HIOW system obtain formal legal opinion to agree a single system view of what can and can't be shared.
7. Work with front-line neighbourhood teams to agree clinically relevant questions to answer with local data.
8. Identify practical changes with front-line staff that would improve quality of care and outcomes.
9. Co-design new services with relevant staff and citizen stakeholders.
10. Agree intended benefits and indicators of those benefits.
11. Implement a PDSA cycle with regular review.
12. Share improvements with other neighbourhoods.
13. Import improvements from other neighbourhoods.
14. Align incentives within neighbourhood and between neighbourhood and the system.
15. Coordinate through establishment of Integrator role at both system and neighbourhood levels.
16. Put in place capability and development programme for future integrator staff.

This guide demonstrates expands on these steps illustrating points from the prototyping with the Fareham Three which resulted in the Fareham 3

generating actions and services that address all three elements - reactive, proactive and salutogenic - of population health management.

We recommend that the next steps are now to:

	Replication	Expansion
Governance and Contracting	• Set out to define and understand the benefits of working collaboratively • Develop a set of governing principles between commissioners and providers around collaboration • Create a governance form that allows for decision to be made jointly but without sacrificing sovereignty	• Define a shared approach to risk and benefit sharing • Set up a Collaboration Board with equal representation from provider organisations and commissioners • Agree an outcomes-based framework which builds in incentivisation up to the locality level
Data	**Collect** • Create strong data sharing agreements between GP practices • Determine the data requirements **Aggregate** • Quality Assurance approach • Create a static dashboard and basic segmentation	**Collect** • Develop Data Sharing Agreements between practices, acute providers and social care • Create a shared data repository between providers and commissioners **Aggregate** • Create an automated dashboard that is standardised between localities • High level segmentation, impactibility modelling and risk stratification to identify local at-risk cohorts
Clinical	**Understand** • Basic understanding of population segments • Process mapping between practices **Improve** • Introduce Quality Improvement principles to GP practices **Enable** • Understanding the need and scope of patient involvement **Manage** • Begin to share data and explore standardisation and new approaches	**Understand** • Systematic approach to clinical pathways using latest evidence • Embed a shared QI methodology across the locality **Improve** • Continuous monitoring of QI work **Enable** • Building in a forum for citizen involvement **Manage** • Development of locality quality circles to share data and approach at scale (including Business Analyst and a Transformation Manager)
System wide working	• Select one key condition to focus on based on biggest local impact • Develop a sub-locality of practices to start prototyping • Start by working with groups of practices and community	• Expand towards a population based approach, covering multiple conditions • Expand to support approach across whole locality (pan-CCG) • Involve primary care, acute trust, public health, voluntary sector and others

1. Introduction

1.1 Who is this guide for?

This guidance is written for the Hampshire Health and Care economies. It should also be of interest to anyone interested in integrated population health management, in England. It is based on proof of concept work undertaken in Fareham and Gosport CCG localities (as part of the Hampshire Integrated Care System), lessons learned in other areas such as Dudley and Croydon and the adaptation of successful integrated care delivered over more than a decade in Germany.

The guidance addresses action required at two levels

a. the creation and support of neighbourhoods serving populations of about 30,000 – 100,000 people as the basic building blocks of integrated care and population health delivery

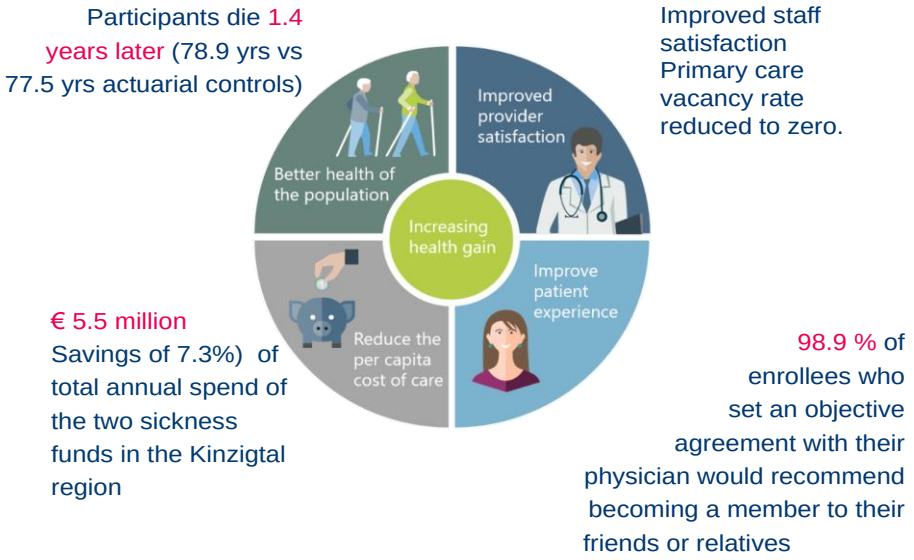
b. the system and integrator roles in enabling, scaling, spreading and supporting front-line service transformation across the whole the Integrated Care System (ICS)

The heart of this guide sets out how the system create system building blocks of teams serving populations to deliver the quadruple aim by focusing on whole populations, evidence-based pathway and service redesign and focus on identifying and addressing waste and unwarranted variation (overuse, misuse, underuse).

We hope this guide will be available to all with an interest in the success of the health and cares system including citizens, patients, carers, the voluntary sector, NHS, Local Authority and providers.

The principles underpinning the work described here are derived from lessons and experience gained from 12 years of working designing and delivering integrated care in Germany, creating what has become one of the world's best-documented and most effective integrated care systems, Gesundes Kinzigtal[3]. Their achievements on each of the four dimensions of the quadruple aim - improved population health, improved quality and experience of care, reduced cost per case, and increased staff joy at work- are substantial. Most significantly over ten years compared to actuarially matched control populations they have increased length of life by 1.4 years, have more than 95 per cent enrolled citizens satisfied with their care, achieved system savings of 7.5 per cent and increased pride and joy at work and reduced primary and community care vacancies to nearly zero.

The diagram below summarises the Gesundes Kinzitial Quadruple aim delivery:



It is important to understand that much about the delivery of health and care is highly context specific. This means that it is rarely possible to 'lift and shift' successes from one health and care system to another. Therefore, much of this work has had to be about taking the principles developed in Germany and adapting their implementation to Fareham and Gosport, as an exemplar for the English NHS.

This adaptation was undertaking with local clinicians and managers, drawing heavily on the team's front-line experiences. The teams focused on people living with, or at risk of, type 2 diabetes mellitus as a case study, exemplar and proof of concept. Although the work focuses on diabetes, the principles of this guidance, and in particular the demonstration that it is possible to undertake proactive and preventive care led by the font-line, can be used for developing practical front-line population health for other disease area and population groups across whole systems.

1.2 What is Population Health Management?

The phrase "Population Health Management (PHM)" means very different things to many different people. We strongly recommend that systems take a broad view of PHM that explicitly encompasses proactive and preventive action. Without building in systematic approaches to proactive care and prevention, much of the potential benefits and value of integrated care will not be realised. A definition of Population Health Management is outlined in the executive summary of this document.

Delivery of truly effective PHM and integrated care requires all elements of a health and care system to work effectively and in conjunction with each other. Successful Population Health Management can result in

- Effective responses to demand for health and care expressed by individuals in the population.
- Understanding which available problems are 'impactable'.
- Systematic approaches to support individuals, communities and places.

- A shift toward more self-care, more preventive care, care closer to home more extensive use of community assets and less dependence on hospital-based care.
- Lower cost/case with a greater proportion of money being spent on primary, community and preventive services.

1.3 What are the lessons from Gesundes Kinzigtal?

The key lessons from Gesundes Kinzigtal are set below:

- Meaningful impacts require changes at the front line. This is best achieved through a strong 'bottom-up' approach involving front-line staff that complements the usual top-down approaches to change management typically adopted by the NHS. There is no meaningful change without front-line change.
- The basic 'delivery unit' serves a defined population of about 30-70,000. It comprises people from different organisations and teams who can get to know each other by name.
- Change is guided by the combination data analysis, evidence and local knowledge and experience and enthusiasm. It is essential to present and use analyses of clinically relevant data (rather than relying solely on administrative data).
- Change requires a baseline upon which to demonstrate value achieved/evidence change.
- It is important to align incentives for individuals as well as organisations with system goals (better health, lower cost, better quality and experience of care).
- Underpinning change with a broad definition of population health encourages action that is not just reactive but also proactive and that addresses prevention, citizen/patient 'activation', and the broader determinants of health.
- Involve – and commit – front line staff to be part of data driven facilitated quality improvement work.
- Implement change using established quality improvement methods such as PDSA.
- Establish a neighbourhood integrator function to support and coordinate the work of each neighbourhood/locality.
- Spread and share initiatives between neighbourhoods and the provision of specialist support to neighbourhoods.
- Shared electronic clinical records are an important facilitator of integrated and better-coordinated care.
- Progress will not be uniform – work with the willing first, and do not wait to get going. If you wait for everyone, you will never start.
- The population level impact through an integrator is greater than the sum of the impact of the individual programmes.
- Health and care systems behave more as complex adaptive systems than as predictable linear machines. Much greater change and sustainable comes from releasing and responding to the energy and ideas of intrinsically well-motivated staff than from target driven performance management processes.

- Successful PHM and integrated care requires proactive data and evidence informed coordination – 'an integrator function' - at both neighbourhood and system levels.
- Evaluating processes and outcomes of the integrator function is of substantial importance both to generate learning for continuous quality improvement and to ensure accountability to all stakeholders, including local actors and finally the NHS, and facilitates attracting subsequent R&D grants.

We have sought to make sure that each of these lessons has been reflected in the work in Fareham and Gosport.

2. A framework for delivering change

An integrator team

The authors of this guide have sought to encourage and support local staff to take on elements of the integrator function and to model elements of that role themselves. Skills required are both technical (e.g. data and analytic skills), social (e.g. facilitation of inter-professional work). This needs to be complemented with local knowledge and a good understanding of health, health care and social care.

Ideally, this group would lead to the development of:

- a clear (regionally defined) reference population
- a total budget limit or assumption of financial responsibility for the population, and
- the presence of a regional integrator to take responsibility for the quadruple aims.

To reach these outcomes, which would progress a system towards the goals of the Quadruple Aim, an Integrator team would require capabilities to:

- assess and manage population health
- redesign health and care services
- achieve system integration at the macro level, and address local issues
- establish partnerships with individuals and families
- implement tailored solutions with the involvement of all stakeholders.

Creating a foundation for change

Effective population health management means that people and institutions delivering care should take on responsibility for maintaining and improving the health of defined populations, and not just reacting to people presenting to them. This is a bigger change in role and responsibility than many people realise.

Creating neighbourhoods based on GP lists

A prerequisite for effective PHM is defining relevant populations. In the UK, the only part of the delivery system that starts with a defined population is general practice. Every other service deals only with subsets of populations. The work in GK demonstrates that effective PHM can be delivered to populations of 30-100,000 people. Therefore, an early task is to create 'neighbourhood populations' defined by the aggregates of the registered lists of practices totalling 30-100,000 willing and able to work with each other. These GP groups need to make a commitment to working together, and to participating in reflective and facilitated quality improvement activities. These is made easier if the right incentives are put in place, both between the practices and between the neighbourhood and the system. These incentives are discussed late in the report.

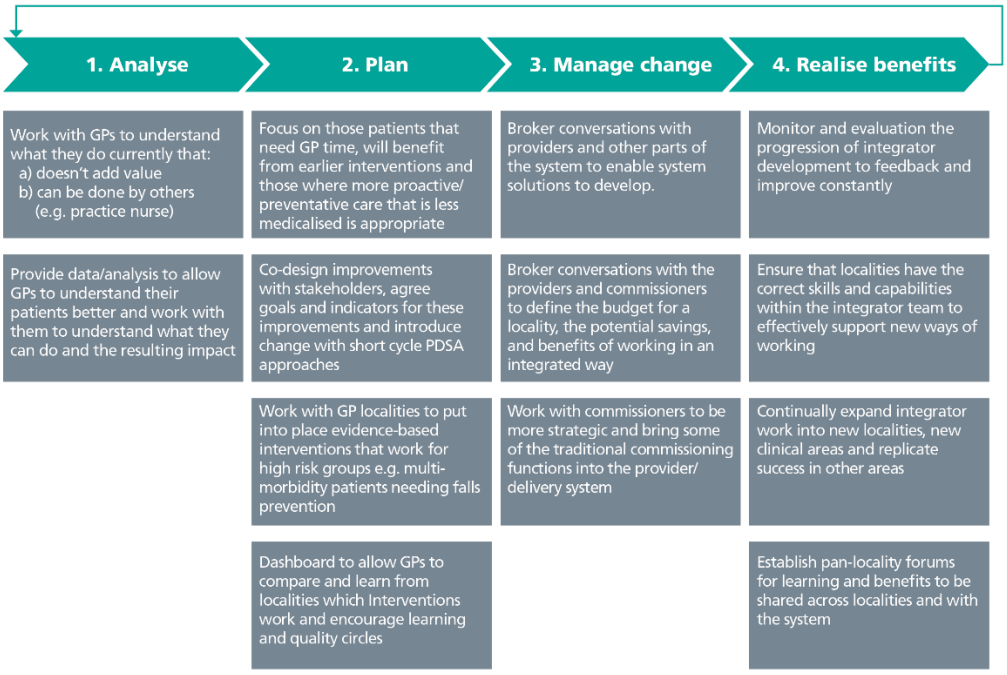
Before an integrator team can start the prototyping process, commitment to change and work together under a robust and transparent governance structure was established from key service providers, not just the general practices. The integrator team worked with primary care providers, community care providers and the CCG to agree the scope and ambition of a change programme within Fareham and Gosport. Some of this was secured following the submission of a high-level overview of health and opportunities for improvement summarised in a 'Due Diligence' document in an earlier phase of this work. Involving the local voluntary sector is also

important, as is discussion with hospital-based specialists about their contribution to neighbourhood teams.

To get started, it is important to start test, deliver and implement this change by working with the willing during the prototyping period. Not everyone will be convinced from the outset that they want to work in this way. The Integrator Team identified three practices in Fareham that were willing and able, so by mutual agreement, it was agreed to prototype here. A significant pre-requisite for selecting these practices was the availability of their primary care data through agreed Data Processing Agreements. The Fareham Three practices are Highlands Practice, Jubilee Surgery and Whitely Practice. The coming together of these three practices represented the formation of neighbourhood. They and community staff employed by Southern Health NHS Foundation Trust agreed to work together to maintain and improve the health and wellbeing of the 40,000 people registered with the three practices. With these practices, the integrator team designed a framework that set out the stages the practices being able to deliver effective front-line population health management that met the definition of PHM given above. The key elements of the work are the familiar elements of many change processes.

1. Analyse – understanding the baseline inputs, process and outcome; what works, roles and responsibilities and analysing the data
2. Plan – agreeing intervention strategies, identifying the target cohort and co-designing place based evidence-based interventions. Agreeing goas, metrics, mobilising resources. Providing tools to support intervention areas.
3. Manage change – brokering conversation between all parts of the system to enable system wide solution. Defining budgets and methodology for calculating savings.
4. Realise benefits – obtaining data from the service, capturing the evidence of what works and informing the future development of the service.

The diagram below summarises the four stages of the delivery framework.



3. Stage One - Analyse

The earlier analytic due diligence process involved the Integrator Team undertaking a high-level system health and needs assessment to identify the major issues and opportunities for the local health and care economy to improve health, wellbeing and value. The 'Analyse Stage' became a practical local method at a neighbourhood level to address these priorities, working together with primary and community care. The goal was to reduce unwarranted variation and improve the quality and value of care provided to patients as defined by established process and outcome measures. Encouraging people to use the Institute of Medicine's classification of poor quality (overuse, misuse, underuses) leads to the simultaneous consideration of quality, waste and unwarranted variation.

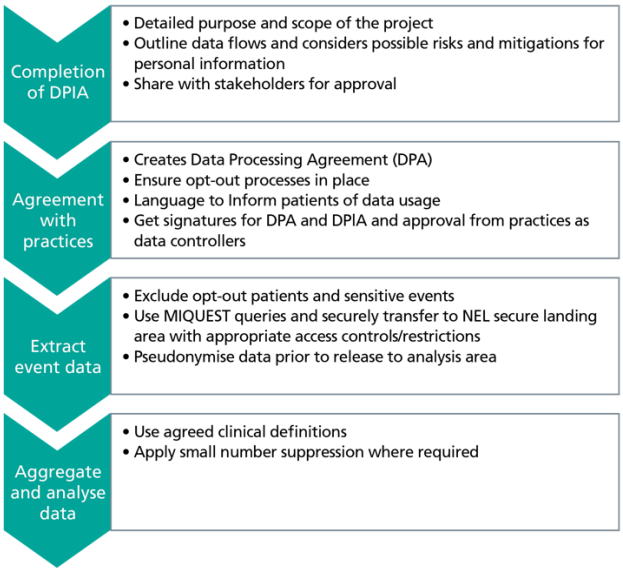
The evidence base for this stage is a lesson from GK; the analysis of clinical data, combined with local knowledge and experience is essential when trying to achieve change. In other words, it is important to engage front line clinicians and understand the clinically relevant questions that they want to use the data to answer. This requires dialogue between analysts and clinicians. Enabling these date informed conversations and making sure they are effective are a key integrator role. It is worth emphasising that data analysis is best undertaken in person, with relationships between the data extractor, analyser, user/clinical teams being key – a fluid and organic process reaps better rewards than a technocratic process.

The underpinning principles of this stage were:

1. Development of data analytics to support improvement & redesign, through identification of opportunities;
2. A facilitated process of clinical enquiry leading to the identification of. redesign opportunities based on objective data and subjective local knowledge
3. Conversations underpinned by quality improvement and innovation methods.

The analysis phase began with three practices in Fareham, who had indicated an interest in the underpinning processes of data driven change, were committed to sharing their data for this work and were committed to working with the team.

The diagram below outlines the steps taken by the integrator team to collect and analyse data for this stage of the prototyping:



3.1. Establishing governance

All change management processes require appropriate governance and decision-making arrangements. The lesson from Germany is that effective change requires a strong 'bottom-up' element driven by ideas developed in localities. It is essential that the system give enough autonomy and decision-making capacity to neighbourhoods for them to be able to implement changes quickly and without recourse to long, slow and often expensive

bureaucratic processes. This requires a degree of 'letting go' by system managers – which, although, necessary may feel uncomfortable initially especially to those familiar with and powerful in a system managed from the top-down. Our experience from many other geographies in the NHS is that the role of commissioners are changing and there is now a move towards smaller 'strategic commissioning' units and teams that might have traditional sat in CCGs now sitting in shared teams with providers, working towards system goals. Neighbourhoods have therefore to be sufficiently robust to give confidence that they can be entrusted with these additional responsibilities and freedoms.

The first step in establishing this is to agree roles and responsibilities, key outcomes and the project plan for the duration of the prototyping phase. The list of key members reflects the lesson highlighted by GK; in order to achieve any meaningful impact, things have to change at the front line.

The key members were GP practitioners for the three practices, the respective General/Business Managers and clinical and analytical members of the Integrator Team. It was agreed that these meetings would be held weekly and lasting for 90 minutes. The objectives of this stage, as agreed during the initial kick off meeting were:

a. opportunity analysis
b. an interactive dashboard
c. a proposed set of metrics
d. standardised clinical protocols
e. a training handbook and a roll out plan.

Suggested tool - a how-to guide for change management can be found in Appendix One.

3.2. Agreeing the legal basis of data sharing and analysis

It is well recognised that collaborative data sharing in general practice has the potential to make a meaningful contribution to improving the quality of care[4]. The GK example further affirms the importance of shared clinical records as an important enabler of integrated and better co-ordinated care.

With the introduction of the mandatory General Data Protection Regulation (GDPR) in May 2018, the legal basis and enabler for useful data sharing is a robust Data Protection Impact Assessment (DPIA), detailing data flows along with any potential risks and mitigation for these. Practices will also need to update their Privacy Statements and give patients the opportunity for their data not to be excluded from analyses.

Much of the data work described here was undertaken before GDPR came into force and, to enable the data to be processed by the Integrator, each practice signed a Data Sharing Agreement allowing the use of their primary care data for the purposes of Population Health Management. The relevant primary care data (excluding opt-out patients) was extracted using existing assured methods for secure download, with all patient level data being anonymised. Aggregate output reports were provided to practices, with small number suppression techniques being applied to any reports shared more widely.

Ensuring that Data Processing and Sharing agreements are in place from the onset of the programme. The learnings from the Integrator programme included difficulty and delays in getting Data Access Request Service (DARS) approved which led to significant delay and the inability to obtain acute data. Going forward, it is strongly recommended for future that [an Integrator fully explores the need for Data Sharing and Data Processing Agreements] OR that the HIOW system obtain formal legal opinion to agree a single system view of what can and can't be shared.

3.3. Organising the data

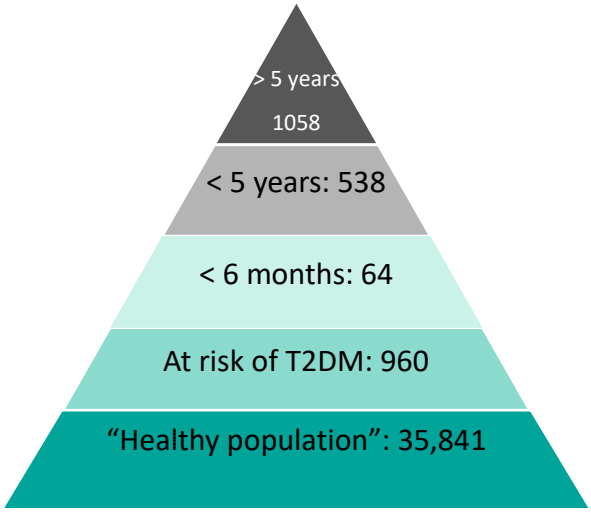
One way that Population Health Management achieves change in healthcare delivery is by generating actionable insights into the health and healthcare management of the population – both overall and within specific patient subgroups e.g. multiple co-morbidities, frailty. Working at neighbourhood level, it becomes possible for individual people who may be overusing, misusing or underusing care, and people with very specific risks and opportunities for preventive intervention to be identified to responsible clinicians. Getting to his level of practical actionable detail is an important element of effective front-line population health management.

The GK experience is that analysing whole population data rather than data about those with a specific diagnosis generates insights that enables the current focus on reactive individual healthcare to be complemented with broader proactive and preventive elements of care, do fulfilling our definition of population health management. That also proved to be the case in Fareham.

To maintain a focus during the prototyping period, the team worked from high-level system needs assessment and engaged with front line staff to identify a clinically relevant topic to work on. In the case of the Fareham Three, type 2 diabetes was identified as an area with a lot of interest and an especially large opportunity to improve the care delivered. The data analysed was whole population data, not just data relating to people with a diagnosis of diabetes. This generated conversation and action for people at high risk of diabetes and about practical whole population management of risk factors such as smoking and obesity in ways that were new to the local clinical teams.

Once Type 2 diabetes had been identified as a topic, discussion with the clinical team led to identifying of clinically relevant segments and clinically relevant questions. This area allowed the team to access and prepare clinically relevant data for analysis using the process outlined in this section. Importantly, the segments were not predetermined as they are in so many risk stratification tools, but instead were built around the practical clinical questions of the local clinical teams.

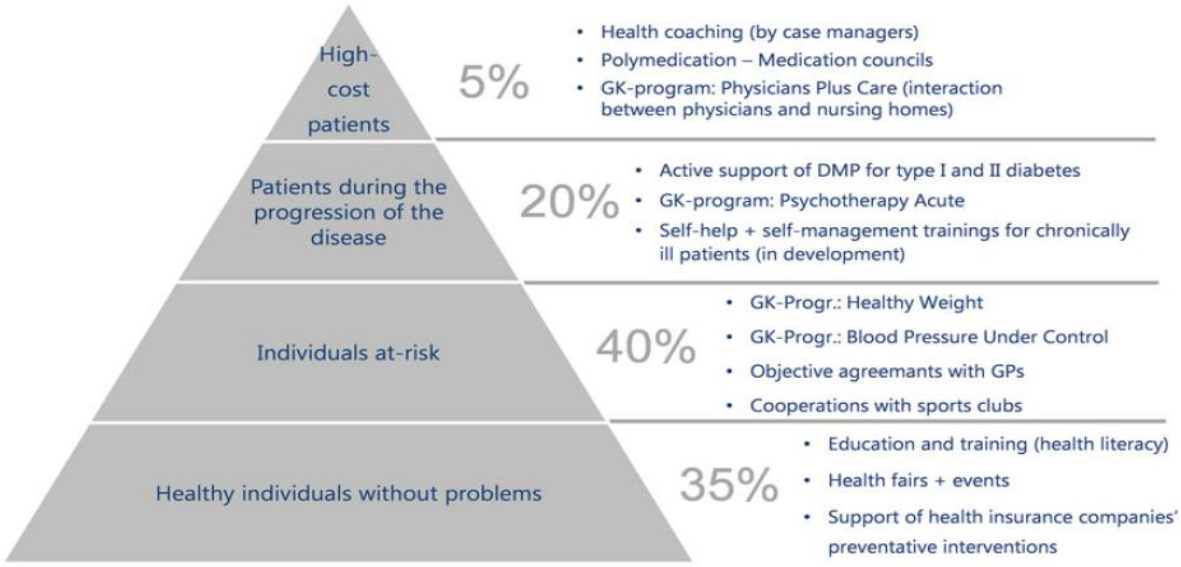
The following provides an illustration of this in a 'pyramid' view of the Fareham three population with respect to their position on the type 2 diabetes pathway:



Total practice population 38,461 patients across the three practices (December 2018)

Population view of Fareham Three – Type Two Diabetes Mellitus

In addition, for comparison, an illustrative example of how the Gesundes Kinzigtal's segmentation model, developed by Optimedis can be used to provide different programmes of care to individuals dependent on their position in the triangle is shown below.



In order to provide this 'deep dive' understanding of their population, it was necessary to link together primary care activity at patient level. While the inclusion of acute data was sought and would have been useful, it was not available to the Integrator Team within the constraints of the project. The access to and analysis of acute data alongside community and primary care data is an issue that needs addressing. Our experience is that the rich data of the full clinical record is far more useful than abstractions with limited data.

The other key data sets reviewed and analysed alongside clinical data were the social and demographic determinants of health – these include the Public Health Profiles, housing, education and deprivation datasets.

Patients were grouped along the following 'dimensions' that were of interest to front-line clinicians:

- Administrative & demographics – practice, age band, gender.
- Lifestyle – weight (BMI), smoking status, and alcohol intake.
- Clinical – type 2 diabetes mellitus status (e.g. identified as at risk or as diabetic), diabetes control (HbA1c), diabetes treatment (medication levels), cholesterol level, blood pressure level, number of long term conditions (both physical and mental health), complications (macro- and microvascular e.g. retinopathy).

Analysis of the whole registered population across these dimensions enabled 'micro-segmentation' i.e. the ability to identify very specific populations and generate insights (for example elderly patients whose diabetes with normal sugars but who are still on medication likely to cause hypoglycaemia, falls, fractures and confusion).

The initial findings from this phase were:

1. There was an eagerness and enthusiasm from clinicians' curiosity to see and

learn from the data being presented. They were surprised at the number of simple actions that could be found to improve quality, safety and effectiveness of care both among people with diabetes and those at risk of diabetes.

2. It is important to create the time and capacity for people to engage in this work, with a recognition that the transformation work may lead to greater capacity. Several people commented how interesting and how much 'fun' the sessions were and that they added variety and interest to their working week.
3. The data allowed clinicians to identify topics that could be addressed quickly e.g. stopping medications that could increase the risk of falls vs. those that could be used to complement and measure the impact of service redesign, and others that they wanted to pursue e.g. understanding what could be offered through public health teams and 3rd sector organisations to help people tackle risk factors and how those initiative could be linked to the advice and care they and their teams provided;
4. Clinicians were also surprised to find current duplication in the care processes and current processes do not align to best practice guidance in some instances (as per NICE Guidance or local CCG Guidance), again leading to rapid actions to improve the quality and cost of care.
5. The learning from the GK experience, as reflected in their T2DM management triangle, is that much of an integrator's effort focuses on the management of at-risk patients and on preventing people from developing T2DM. This requires going beyond clinical interventions and addressing health literacy and prevention. The GK experience shows that a local integrator can have an impact on "neighbourhood public health", especially when self-management and patient activation is added as a priority area within neighbourhoods.

4. Stage Two - Plan

4.1. Making sense of the data

While a collection of data by itself may help, it was important the team worked with front-line neighbourhood teams to agree clinically relevant questions that the data would answer. This is an iterative process. It requires the data analyst to be involved in the conversation. Ideally, the data is of a form that analyses can be undertaken in real time to support an evolving conversation.

In Fareham, the conversations were developed by presenting the Fareham Three practices were presented with two views of the population based on the initial questions they had said they were interested in.

The first was a snapshot view as at a point in time, this was presented as both graphs and tables, each enabling the user to filter or split the data by the dimensions detailed in the previous section.

The second set of views provided a timeline of activity for each patient, providing insight into typical readings and interventions over time for the cohorts.

Examples of data visualisation from the analysis can be found at the end of this section.

Some of the data drawn and presented in dashboard is available in Appendix Three.

This segmentation allowed the local teams to understand their population needs and start to consider designing services based upon these requirements, with appropriate workforce. For example,

- Some of the "healthy population" were identified as moderate to heavy smokers with a high BMI- could these patients benefit from some tailored interventions in the community e.g. health coaches?
- Some patients were identified as having type two diabetes mellitus for over five years with multiple risk factors and requirements of medication. Are these patients better suited to being reviewed by healthcare professionals in the GP practice e.g. practice nurses or GPs?

These segmentations of the data generated conversations that covered the reactive, proactive and salutogenic elements of care. In other words, it generated conversations that addressed each of the elements of population health management, and as such was a practical demonstration of the introduction of practical population health management into primary and community care.

As described above a key element of the Gesundes Kinzigtal model is the ability to support the introduction of front line PHM, and that the benefits multiply once the approach is adopted for multiple topics. The ten week programme in Fareham has demonstrates that this approach is feasible and practical in an NHS setting if introduced to with a facilitative and co-production approach.

Suggested tool – the interactive tool/dashboard used for analysing the data has been handed over to the Fareham Three. Other localities may use the tool but will require approval in writing from the Fareham Three practices.

During this Plan phase, the Integrator team acquired data from six other GP practices. The interactive dashboard will be replicated and presented to those practices along a training guide for their use.

4.2. Aligning findings to support clinical interventions

Once key clinically relevant questions were asked and answered with the data, with the help of facilitation and examples from elsewhere, front line staff could identify practical changes that would improve quality of care and outcomes. This crucial step leads to action some of the detail of changes is best generated together with service users and other stakeholders from across the health economy. Enabling these conversations and the actions that follow is a key integration task.

The method used to underpin this work is summarised in the diagram below. In addition to developing the data dashboard, a facilitated process of improvement and redesign is needed using specific quality improvement and design techniques were used, as set out below. In the prototype we used a version of nested short cycle PDSA (Plan Do Study Act) which was also used in Kinzigtal. Other QI methods could also be used but we have found PDSA to work well and be readily understood by all key groups (including staff that you could be developed into integrator roles).

Process mapping

To work towards co-designing a rapid cycle of change with frontline staff, the Integrator Team ran a process mapping session to understand how processes existed in reality to act as a baseline for change. Here, the practice leads worked with their team to map out the current processes with regards to:

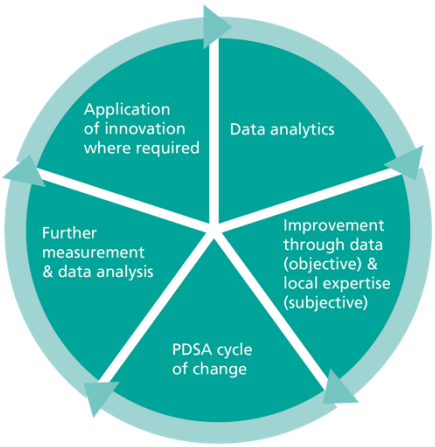
a. The annual review for a patient with type two diabetes.

b. A patient identified as "at risk" of T2DM.

c. A patient identified as newly diagnosed with T2DM.

The outputs from the session is attached as Appendix 2.

Diagram: Overview of the Methodology Applied



Building momentum

Based on the benefits that involving front line staff yielded in GK, the local team and the Integrator Team brought together the process mapping and the relevant results of the data analyses to a redesign workshop.

The community diabetes team attended, plus wider members of the three general practice teams. Depending on the nature of the change being discussed patient representatives, 3rd sector provider, specialists and other stakeholders e.g. public health should also be involved. The purpose of the session was threefold:

1. Bring together the three practices and community diabetes team to achieve a shared vision for this work.
2. Present some of the initial findings of the data dashboard with this group to generate conversation.
3. Agree some key outcomes (both short and medium/long term) which aim to link to wider system goals identified through the Hampshire Outcomes Framework.

The main outputs from this meeting were:

1. An alignment of the process by which the three practices manage patients identified with type two diabetes

mellitus, to be agreed through an "away day" between the practices.

2. A developed series of ongoing quality "spot checks" around the T2DM pathway focused on safety and quality improvement. The immediate questions identified include:
    a. Identifying patients with a diagnosis of T2DM, over 75 years old, with a HBA1c < 48 mmol/mol and on a hypoglycaemic agent.
    b. Identifying patients with a diagnosis of T2DM not on metformin.
    c. Identifying those who have significant risk factors (heavy smoker and obesity I-III) with development of an offer for those patients e.g. health coaching.
3. Development of a quality assurance process of the data arising from the dashboard.
4. Agreement of a process of patient input into the redesign process.

In short, the group was brought together to design and implement a PDSA cycle with regular review and quality checkpoints to move their improvement actions forward.

The data analysis highlighting the patients at risk is attached as Appendix 3.

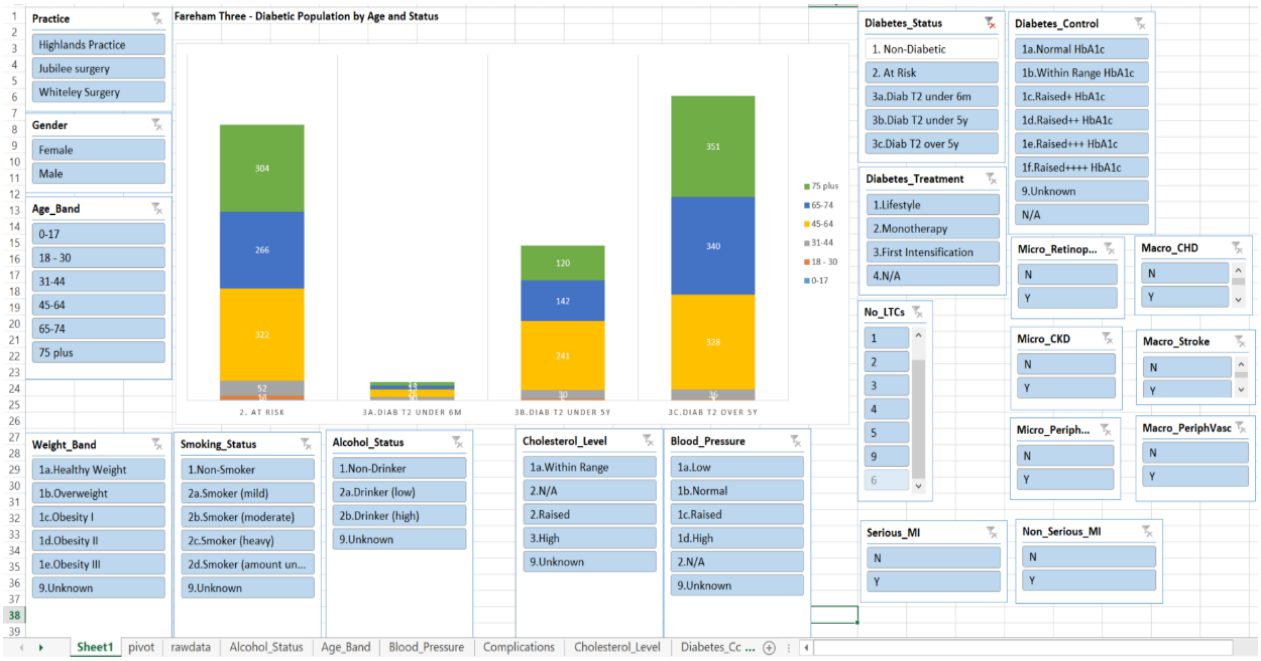
This work was then presented to a wider group through the Clinical Assembly on 3 July 2018, where the local team was able to present some of the data across GP practices in Fareham & Gosport CCG and NE Hampshire CCG. The intention behind this presentation was to establish an area integrator function and spread improvements and learning to other neighbourhoods and a wider area based on the neighbourhood integrator function in GK.

Once learning spreads across different areas, lessons that they learn and new findings they uncover will allow for the import of improvements from other neighbourhoods. This results in an overall improvement of the wider localities and system as a whole mirroring what the Integrator team has seen in GK.

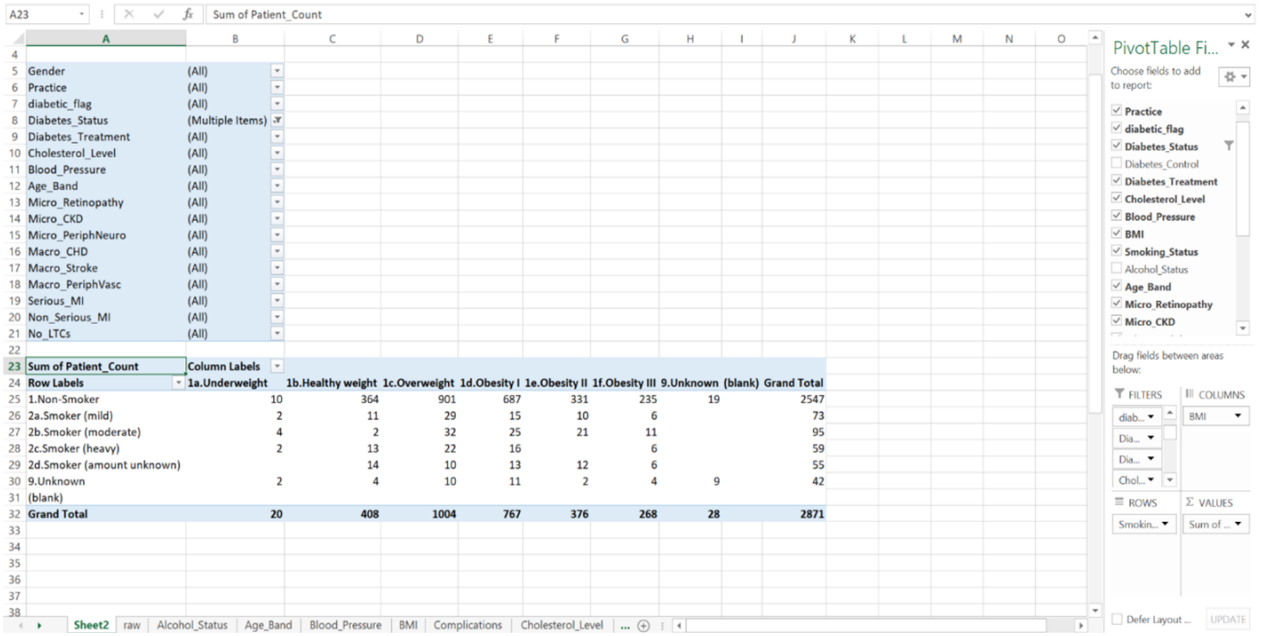
Suggested tool - the process-mapping tool used is available online at:

http://www.rcgp.org.uk/clinical-and-research/our-programmes/quality-improvement/quality-improvement-guide-for-general-practice.aspx

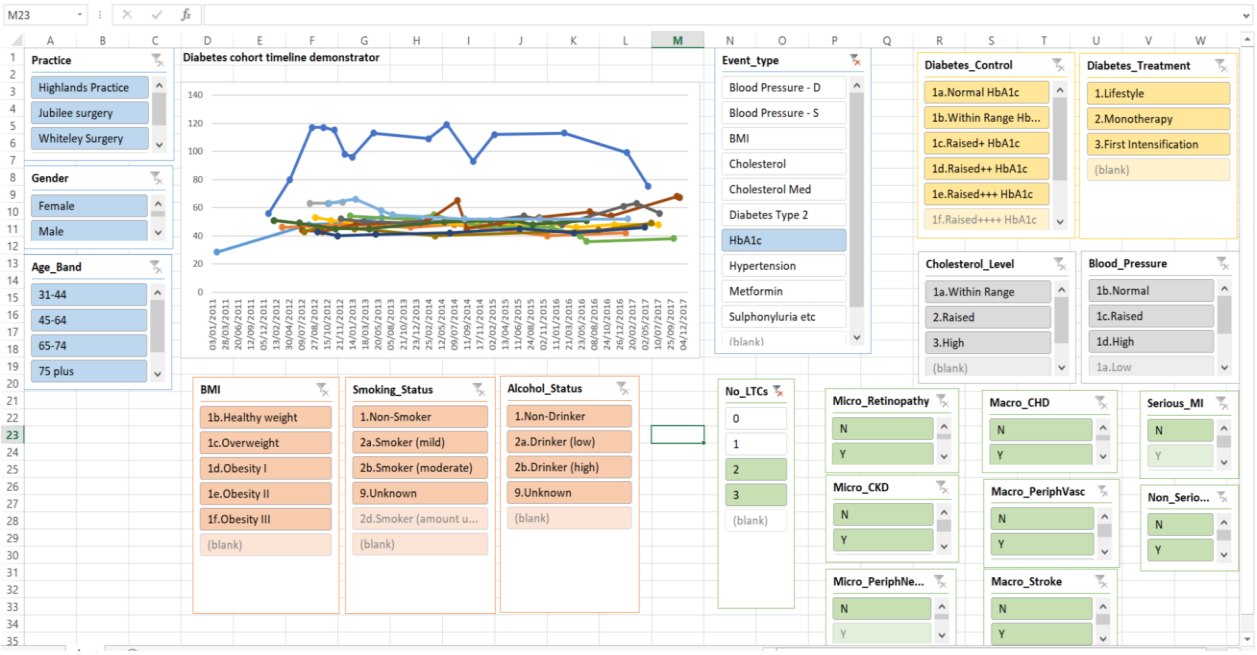
Example 1 – Interactive graph showing diabetes status by practice:



Example 2 – Interactive table showing patients with Type 2 Diabetes Mellitus by weight and smoking status:



Example 3 – HbA1c timeline for patients with Type 2 Diabetes Mellitus plus two or more other long-term conditions:



*Note that examples have been anonymised and subjected to small number suppression.

5. Stage Three – Manage change

While developing a neighbourhood's ability to ask critical questions, extract the correct data to answer them and develop quality cycles to implement change represented a large step forward, the Integrator team's experience in GK showed that higher-level development was also needed. Change can only be sustained if further building blocks of neighbourhoods are established, and there are system level mechanisms in place to support the different building blocks.

In developing this system-wide support structure between neighbourhoods, GK saw effects and benefits that were larger than what would have been possible if the neighbourhoods had operated in silos.

To build upon the good work accomplished in developing a single neighbourhood around a single disease area, this phase focuses on:

- Aligning incentives within and between neighbourhoods
- Developing incentives for collaborative working between commissioners and providers
- Creating a forum to share initiatives between neighbourhoods and specialist teams
- Promoting the spread of integrated work to other neighbourhoods

The initial step that the Integrator Team supported was facilitating the case for change and engaging with local stakeholders to align incentives within a neighbourhood and between the neighbourhood and the system.

A project team was established consisting of representation from the Fareham Three practices, a neighbouring locality, the local GP Alliance, the local community health provider and commissioners. The individuals in this group all had the appropriate level of authority, attributes, skills and commitment to lead and support the contracting workstream until finalised.

A key principle to setting up the group was to ensure and recognise the need for different expertise and resources available across the various commissioning and provider organisations within Fareham. Following this, a collaborative approach to designing and delivering services for the people of Fareham was agreed. The terms of reference for the group defined roles and responsibilities of each organisation - in addition to the processes, behaviours and frameworks to which the collaboration partners should abide by- creating a collaborative agreement. The key aims and objective of the group were:

- To identify the benefits arising from collaborative working.
- To agree the governing principles to enable collaborative working.
- To agree the financial principles that form the basis of overall collaboration and the approach to individual ventures.
- To explore appropriate organisational form to deliver collaborative services.
- To consider contractual principles to build future initiatives upon.

To ensure the aim and objectives of the group were achieved; a governance structure for joint decision-making was established.

A significant next step was to agree the statement of shared vision and an appetite for developing services. The commitment from stakeholders to establish a credible and viable model of what works to deliver an improved and efficient way of delivering services.

Members of the group recognised the areas of opportunities for Fareham, as identified by the due diligence report. In addition to that, there was also a recognition of further improvements to achieve within the current system, alongside structural reforms that will allow delivery in a more financially efficient way. Members agreed that 'do nothing' was not an option.

In addition to the current situation in Fareham, there was also learnings from Gesundes Kinzigtal and other successful examples of integrated care, which could be applied to a Hampshire setting.

To do this, the Integrator team worked with one locality to learn how best to apply these lessons, tailoring these for the Hampshire situation.

5.1 Developing a framework for collaborative working

The project team, facilitated by the Integrator Team, worked together on agreeing a Collaboration Framework. The aims of the framework outline the process, benefits and the principles of working collaboratively with efforts from organisations and individuals being coordinated through the establishment of an Integrator role.

The group agreed that working collaboratively would allow for many benefits for strategic, business and clinical areas. This hearkens back to a key lesson that the Integrator team has learned from GK – that working collaboratively facilitates aligning the incentives to a wider group of individuals and organisations, which in turn allows stakeholders to be more engaged and receptive to changes and new ways of working.

The four key areas that the framework focused on were: a) risk b) shared resources c) shared governance and d) shared roles and responsibilities.

Governing principles

Working through with stakeholders, the Integrator Team facilitated discussions on the principles that would be required to work together. The five categories the team worked to were:

- Improvement of patient care- improving care for patients through co-ordinated services across the pathways and ensuring the adequate engagement by each service.
- Transparency in decision making- maintaining principles of openness, honesty and transparency where possible to collaborate as a single, integrated, high performing team that makes decisions to achieve the best results for the patients of Fareham.
- Shared resources – commitment to appropriate resources and services required for seamless and efficient delivery.
- Outcome delivery – work together to achieve the Quadruple Aim for patients and staff, not just for individual organisations, but also across the system. Collaborative arrangements to deliver outcomes within agreed budgets.
- Innovation and learning – sharing and embracing a culture of innovation, learning and spreading best practice, local, national and international within and beyond the collaboration and at all levels.

Suggested tool - a proposed list of governing principles can be found in Appendix 4.

Financial principles to incentivise collaboration

Traditional business cases focus on defining the acute activity reduction that may be attributable to a single service and estimating the associated decrease in cost. Once this is approved, there is

often no measurement back to determine success, and no measurement on additional strains that may occur across the system. In GK, the Integrator approach instead focuses on developing system-wide benefits that allow providers and commissioners to work together. This was a key lesson that was shared to the project team and one that resulted in an agreement to look beyond simple returns but rather benefits that added up to more than the sum of the whole.

Working with the project group, a set of financial principles was developed that focused on the development of future system wide benefits that would incorporate new services. The consensus was that a co-ordinated approach to identifying and working with residents that commonly enter the system though A&E, but if managed more effectively, might be treated elsewhere, or indeed, not require urgent care at all. The principles included staff management and other resources such as IT delivery, insurance, access to premises.

The broad financial principles that were discussed between the commissioners and stakeholders were:

- Incentivisation – focusing on efficiencies for stakeholders to work together, reduce cost, and release savings. Any savings generated will be distributed equally between stakeholders in proportion to investment and risk undertaken by each.
- Financial governance – creating 'fund holders' for holding budgets, providing report and management support and maintaining an 'open book accounting' with transparency around investments, financial risks and benefits arising.
- Opportunities – defining how providers work with commissioners to identify opportunities to reduce contractual costs, review historical finance lines, defining activity and finance assumptions for each new service.
- Risk – where unforeseen costs arise, there will be an agreed mitigation process and all parties should work within the defined risk and benefit sharing arrangements.

During the prototype phase, the Integrator Team supported in reviewing and contributing to several business cases. Whilst the focus of the review steered towards financial perspectives, the quality and safety measures are just as important.

Suggested tool – a proposed the list of financial principles can be found in Appendix Five.

Governance

A key requirement for supporting joint-decision making and applying the financial and governing principle is an effective and appropriate governance structure that includes representation from all stakeholders. The project group agreed that structures should be small, comprising of an agile group of people with delegated authority to make decisions. Structures should be lean and decisions should be made by consensus.

5.2 Spreading the Integrator

As stated previously, lessons from GK indicated that while a single neighbourhood promoting an Integrator approach is a fantastic start, the real value of an integrator comes from multiple neighbourhoods taking up the approach and working together. Following on the development of the collaborative working framework with the project group, the next stage was to support the implementation of arrangements within a wider set of neighbourhoods. To engage in a tangible and real process rather than a pure thought

exercise, a real initiative acted as a vehicle for this implementation- the Fareham Home Visiting Service. This service looks to provide faster treatment to patients who are too infirm to travel to their local GP practice. Nurses or other clinicians will travel to patients' homes, which in turn will free up GP appointment slots at the practice.

This implementation would embed what worked in Gesundes Kinzigtal and apply it within Hampshire across a set of GP practices. The Integrator team, working with local stakeholders facilitated a workshop outlined a process to transfer the learnings from Germany to Hampshire. Following the workshop, a framework for driving change was developed and is attached in Appendix 6.

This process also outlines the approach taken by the integrator team from the start of this prototyping journey, and represents the first point is looking beyond purely the Fareham Three practices. What was achieved in engaging with the Home Visiting Service was:

- An initial outline of a shared savings contract involving Portsmouth Hospital and Fareham and Gosport CCG. Further work however is needed to involve all other stakeholders such as primary care colleagues.
- A revised governance structure to enable shared decision-making and accountability.
- A proposed risk sharing agreement (fixed and variable costs by organisation).
- A business case with that sets out savings assumptions (based on co-ordinated support of commissioners and providers.
- A matrix of collaborative agreement, outlining the responsibility of each organisation for providing a range of functions to deliver the Health Visiting Service.

These outputs aligned with the overall financial and governance principles developed by the project team, tying back to the alignment between the system and the neighbourhoods that was one of the initial goals of this phase.

The key next steps for this initiative is to ensure that the system Integrator works as a lynchpin to maintaining a governance framework that keeps focus on the strategic deliverables and keeps all stakeholders engaged. Any re-designing of pathways, introduction of new services will also need to be carefully managed, especially with the interface with the overall system.

5.3 Locality development/sustaining the change

Working as an Integrator requires a radical shift from the current ways of working but also the current ways of thinking. In GK, a large amount of work was done to understand the requirements needed to make such a system work. This included thinking about:

- The types of capabilities that were required across the system and the neighbourhoods.
- The types of professionals that are required to act as part of the system Integrator but also to deliver effectively.
- The type of organisational development and cultural change needed to reinforce the new ways of working.

The Integrator team worked with the system in Hampshire to implement a similar capability building session that will focus on facilitating programmes of support for delivery teams, commissioners and providers that take multidisciplinary teams on a journey of culture

change (facilitated with technical support) on how to change the way they commission and deliver services.

The integrator team will do this through the development of a capability and development programme for future integrator staff and by:

- Supporting Fareham to create a vision for an integrated system/develop shared goals and outcomes.
- Holding workshops on system leadership, organisational development and governance in an Integrated System together with an operational level change capability building and organisational development programme.
- Holding face-to-face sessions with locality teams as they develop, prototype, iterate and secure the quality processes.

Enthusiasm and commitment are essential from front line staff to achieve long lasting change. This starts with identifying the willing and then sharing success and learning to bring a wider group on the journey. Considering this and to sustain the journey to cultural change, the Integrator team designed and developed a locality development programme, to be rolled out to all five localities. The programme involves sessions that are made up of GPs, commissioners, providers and lay representatives. The session usually works on a specific theme (e.g. diabetes) and it is structured in a way to take attendees on a journey (with practical work in groups, homework, reading materials etc.) from the ambition/narrative of what they are trying to do, through to engaging with patients and the system and creating a new model of care that makes real change happen.

By developing a number of neighbourhoods and bringing them together in a coordinated way, these sessions will also act as a focal point for different areas to share what has worked for them, what has not and what can be done differently – both across the system and within individual neighbourhoods.

At the time of this guide being written, the Integrator is working closely with the CCG to agree the logistics of holding the session. It is expected though, that due to time and diary constraints of front line staff, it may not be possible to deliver the training to all localities. The approach therefore will be one of train the trainer where local teams will be empowered to deliver the training through the agreed structure and outline of the session.

Suggested tool – outline of the locality development programme can be found in Appendix 7.

6. Stage Four – Realising benefits

The prototype phase implemented and tested the findings from the due diligence report. The outcomes identified a number of opportunities. Crucially, it also supported the building blocks required to scale up the system integrator concept to all localities and to form a basis of ICS wide expansion.

The work undertaken in stage 2 (planning) identified a number of areas for improvement. This included targeting patients that could be better managed on metformin, individuals diagnosed with diabetes in the last six months that would benefit from health coaching regimes and patients with multiple long-term conditions.

Initial work was carried in understanding the potential metrics that could be used to measure and monitor improvements in patient's outcome. The Hampshire Outcomes framework and its associated relevant indicators could potentially be used to document progress towards the quadruple aim and hold providers to account. This should include assessing the sensitivity to change of potential outcome indicators. The outcomes may be used as a tool from which to derive indicators to hold the localities and the Fareham and Gosport collaborative joint venture to account.

The financial evaluation would be based on new and agreed accountable payment models based on clear, measurable outcomes that are linked to the outcomes framework and described over timescales – near term, mid-term and longer-term.

The design and development of the KPIs and outcomes were discussed during weeks six to ten of the 10 week implementation plan. An initial scope at the metrics to be used was discussed, as above, and a framework for implementation was reviewed. The elements of the framework is described in the next few paragraphs.

The initial step in identifying potential outcomes needs to align with the overall aim of the Integrator. In this instance, it was agreed that integration of care and services leads to improved outcomes which supports: ensuring the right outcomes for patients with T2DM; making pathways as efficient as possible; reducing duplication and delay; identifying targeted interventions; working across the current barriers; co-ordinating care across the localities and improving overall quality in primary care.

The principles of designing/developing outcomes that the Fareham Three agreed were:

- The approach should be consistent with the aim of the integrator.
- There needs to be clinical buy-in of any metrics/outcomes agreed.
- The T2DM outcomes/KPIs identified for the Fareham Three should be with aim of scaling across all localities.
- Outcomes/KPIs should be driven concurrently with the primary care analysis (dashboard development).
- A pragmatic approach is needed given the challenging timescales. The group suggested no more than six metrics initially.
- The data sources identified should be based on best/most robust information available that can be used for this population.
- Ambitions should be stretching but achievable.

Using the initial outputs from the interactive dashboard, the initial issues that discussed in developing the outcomes were:

Baselines:

- Is the baseline consistent with current expectations?
- What does the baselines look like compared to other localities/CCGs (using national datasets, etc.)
- Are there any other key benchmarked data available that we could use to test the proposed outcome/KPIs?
- Are there previous years baselines available as a reference?
- Are there any trends showing? Is this consistent with expectations?

A number of national datasets and local datasets were used to identify benchmarks during the due diligence phase but those will require further refinement to localise for the Fareham Three.

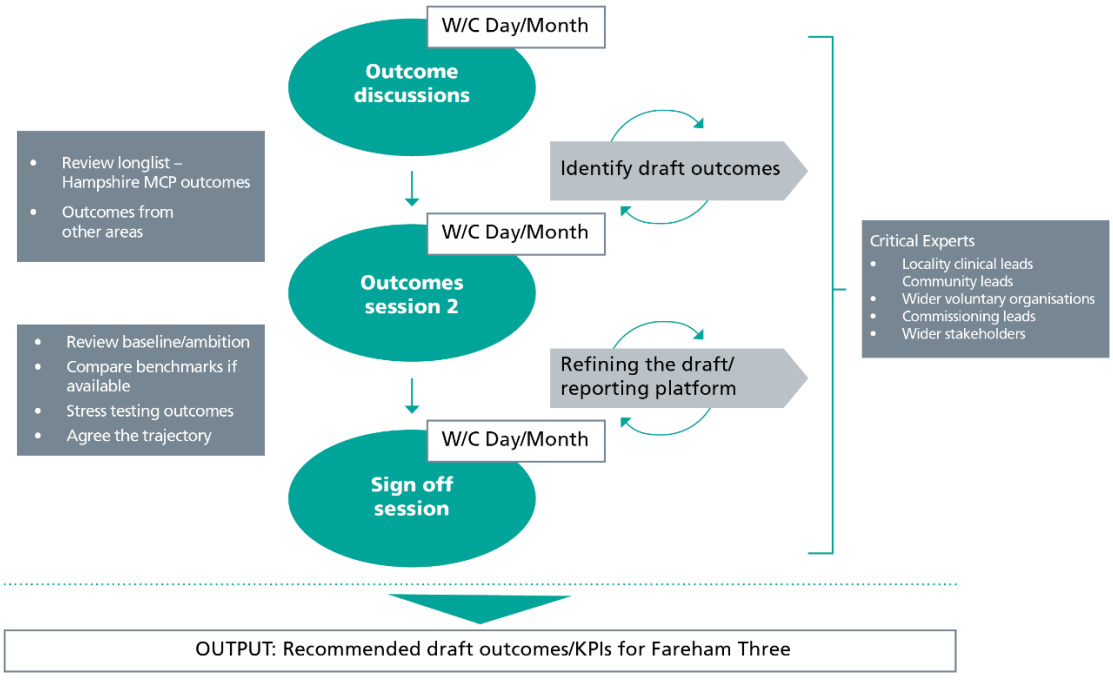
A key challenge for the Fareham Three was also agreeing a single baseline. Individual practices had their own baselines but working as an Integrator will require the working of an agreed averaged baseline across the three practices.

Ambitions:

- Confidence in what the data is showing?
- Is the ambition consistent with the proposed locality model (link with governance and contracting workstream)
- How quickly do we want to achieve the ambitions?
- Incentives to encourage providers/wider stakeholders within the localities to achieve outcomes
- Trajectories – achievable initially and harder in the subsequent years?

Following the work on the due diligence and during the 10 week implementation period, a long list of potential metrics were identified along with the data sources. See Appendix 8.

The process/framework that the Fareham Three were working to is illustrated below. The next steps for the Fareham Three is to review the long list and develop a short list, or others that may be appropriate to local issues that may requirement improvements.



7. Implementing at scale

The overall strategic aim of the project is to:

"Systematically work across various sectors to coordinate and direct the resources allocated to a population group with the aim of optimising performance against the triple aims of better quality, better health of the population and lower costs. This will include new transformational models using data with an evidence based population health approach which would focus on utilization of services ensuring patients get the right care, in the right place at the right time"

This section of the guide focuses on the strategic solution for scaling the lessons learnt from the prototype phase at the Fareham Three across the system, continuing the journey from locality, system and an Integrated Care System. This report, deliberately written as a guidance document, aims to ensure that the learnings from the prototype phase for the Fareham Three can and will be replicated across Fareham and Gosport and Hampshire wide.

At the 6 December workshop event, a key conclusion identified by stakeholders was that there should be:

"one person or body responsible for overseeing this change, sharing good practice, giving a framework for others to follow, sharing learning and challenging and supporting local development".

In the team's view, this is the system integrator function – we are pleased to note that South East Hampshire CCGs has made serious and transparent steps towards achieving this.

This section will also outline the building blocks and recommended key activities required for continued future development towards an integrator operating within an ICS.

The building blocks needed for continued future development towards a bespoke System Integrator operating within an ICS are described in the following sections:

7.1. Evidence based scaling up models

In reviewing the scaling up of learning from the Fareham Three, the Integrator team considered learnings from other scaled up models. One such model is from Gesundes Kinzigtal which highlighted a number of lessons to be considered to successfully transfer and scale-up this model elsewhere. The Integrator organisation is the operational arm for delivering integrated care, however, it needs to be supported by an organisation capable of providing investments, engaging in negotiations with high-level decision-makers, providing advanced health data analytics and pursuing long-reaching value-development instead of short-term profits. This is important as the Integrator may need start-up investment to set up the organisational structures and implement the integrations plans and two causes of time lags limit early return on investment:

- The time lag between intervention onset and successful health improvements.
- The time lag in obtaining the data reflecting such improvements (which often amounts to another year).

A vision to go beyond traditional organisational boundaries for planning interventions is needed, in particular in the form of interventions that place a focus on improving wider population health aspects. In doing so, the size of the population needs to be appropriate to ensure networking among providers, the identification of local solutions and the exchange of ideas

amongst all stakeholders. While it may be tempting to grow towards larger, STP size areas, it is unlikely that the local "kit" (a common culture, mental models, mutual understanding of local issues, and trust) needed to motivate stakeholders towards a common goal can be easily established.

A comprehensive information technology package (including shared patient records) and competencies for advanced health data analytics to inform intervention planning, feedback reports to providers, and internal evaluation are crucial in order to ensure seamless care and monitor performance. The experience from Gesundes Kinzigtal shows that an approach focusing on collaboration through transparency and benchmarking and based on management theory is needed to support the continuous strive towards improvement and to facilitate effective knowledge sharing in cross-functional teams (Ghobadi S 2012). It is the Integrator team's view that the scientific evidence-base underlying the GK experience and implementation prerequisites above, can be successfully transferred and achieved to Fareham and Gosport.

Other studies of accountable care and integrated care systems have shown a number of instances of models that have worked well. Their findings describe that there are shared factors to success and from this they have been able to develop a set of principles and attributes that govern a good system and the steps needed to move towards that goal. This is best encapsulated in the McClellan Maturity Matrix[5].

From this model, the key functions of a successful system are:

- A well-defined, geographically defined population (rather a population defined based on age groups or health conditions).
- A set of outcomes that have been defined by the population and centre around the individual.
- A consistent and thorough measurement and improvement processes.
- A sophisticated payment model that allows for variances based on quality, outcomes and capitation.
- Integration of data and clinical pathways.

	Population	Outcomes	Metrics and learning	Payments and incentives	Co-ordinated delivery
5	Expand to whole population	Outcomes defined by population that span providers and build a holistic framework	a) Data comparable and consistent across providers b) publicly reported	a) Full capitation, population based budget b) Health and social care integration?	a) Clinical and data integration of provider network b) Health and social care integration? c) co-designed with patients and public d) Ongoing evaluation and improvement cycles
4	Use risk-stratification model to identify at risk individuals	a) Population focussed, b) includes healthy population	a) Used by clinicians to learn and for continuous improvement work build into clinical work flow	Loss sharing, professional competition?	a) care plans that are put into practice and managed transitions b) Patients empowered to self care
3	Integrated dataset (primary and secondary care), EMR	a) Comparable and standardised metrics behind I statements (linked dataset needed) b) Outcomes used to inform service redesign	a) shared electronic record b) Real time data	Gain sharing (shared savings)	a) multi-disciplinary teams inter-organisationally across an account b) Staff (clinicians and managers) empowered to review and improve interventions inter-organisationally (system redesign)
2	Define population/segment a) Choose segment - Easy to define definition (codes etc) b) Definition of segment according to needs not activity c) Use segmentation model for whole population	Local I-statements developed, but not backed up by indicators	a) Metrics include outcomes metric that reflect pathways and system integration b) Evidence based metrics	a) Understand real costs (TDABC etc). b) Bundled payments with quality controls for episodes of care (including whole pathway)	a) multi-disciplinary teams intra-organisationally b) Staff empowered to review and improve interventions inter-organisationally as an accountable care system c) teams working on top of their license
1	Understand population a) demography, Activity, Equity/access, Geography b) Cost (contract values)	Process/cost measures that don't span care pathways and providers	Process and administrative metrics for individual providers only	Pay for performance "on top"	a) Small, local projects, duplication b) "care coordination" on top of fragmented system
0	No population defined	No outcomes defined	No metrics	Payment by activity/block contracts	No coordination of care

Using these functions, the Integrator team has adapted a matrix where tangible evidence of maturity towards an integrated system can be tracked. Using this, we have reviewed the situation and environment in Fareham and Gosport to measure the local system's maturity to assess where the system had started from (in bold) and to determine how much progress has been made towards an integrated system and how prepared the area is to develop an Integrator. Broadly, Fareham and Gosport's maturity in the delivery of population health management was judged as between levels 0 and 2 on each dimension.

7.2. Risk and challenges

The key risks and mitigations associated with scaling up of the System Integrator are outlined in the table below:

Financial	Scaling to a System Integrator does not deliver the planned savings resulting in an unsustainable financial situation	Adopt a bottom up approach where savings are also driven by accurate data together with the quality and safety elements.
Engagement	Localities are not sufficiently well engaged which leads to slow decision-making, difficulty in getting buy-in	Proposed Hampshire system wide structure in place. To ensure that all stakeholders are signed up (or adjusted accordingly) to obtain buy in.
Capacity	Limited CCG resource to deliver the locality transformation at scale, leading to delays.	Explore availability of external funding and recruiting to the right capability. Review and prioritise transformation programme.
Culture	**The locality transition can be disruptive, leading to a loss of focus on business as usual and maintaining staff.**	Communicate the benefits of new ways of working to staff. Co-production of plans with staff and implement OD programmes to upskill
Information	Data Processing and sharing agreements are not in place to facilitate the flowing of data for analysis. Lack of engagement from data owners.	Agree on a system wide data sharing agreement. Build a clear plan with timelines for obtaining data. Ensure a single lead for co-ordinating the process. Clear communication to Data Controllers on purpose of using the data.

8. The next steps

8.1. Recommendations from the prototype phase

To sustain the approach and for locality teams to continue the development of this work, the recommendations have been divided into two categories. The first will be for replicating the work done within the Integrator Team's prototyping phase in the Fareham Three to other localities. The second set of recommendations will be those to expand upon the team's work further, potentially Hampshire wide.

	Replication	Expansion
Governance and Contracting	• Set out to define and understand the benefits of working collaboratively. • Develop a set of governing principles between commissioners and providers around collaboration. • Create a governance form that allows for decision to be made jointly but without sacrificing sovereignty.	• Define a shared approach to risk and benefit sharing. • Set up a Collaboration Board with equal representation from provider organisations and commissioners. • Agree an outcomes-based framework which builds in incentivisation up to the locality level.
Data	**Collect** • Create strong data sharing agreements between GP practices. • Determine the data requirements. **Aggregate** • Quality Assurance approach. • Create a static dashboard and basic segmentation.	**Collect** • Develop Data Sharing Agreements between practices, acute providers and social care. • Create a shared data repository between providers and commissioners. **Aggregate** • Create an automated dashboard that is standardised between localities. • High level segmentation, impactibility modelling and risk stratification to identify local at-risk cohorts.
Clinical	**Understand** • Basic understanding of population segments. • Process mapping between practices. **Improve** • Introduce Quality Improvement principles to GP practices. **Enable** • Understanding the need and scope of patient involvement. **Manage** • Begin to share data and explore. standardisation and new approaches.	**Understand** • Systematic approach to clinical pathways using latest evidence. • Embed a shared QI methodology across the locality. **Improve** • Continuous monitoring of QI work. **Enable** • Building in a forum for citizen involvement. **Manage** • Development of locality quality circles to share data and approach at scale (including Business Analyst and a Transformation Manager).
System wide working	• Select one key condition to focus on based on biggest local impact. • Develop a sub-locality of practices to start prototyping. • Start by working with groups of practices and community.	• Expand towards a population based approach, covering multiple conditions. • Expand to support approach across whole locality (pan-CCG). • Involve primary care, acute trust, public health, voluntary sector and others.

Capacity and Capability	• Strategic vs tactical. • Commissioners working directly as part of provider locality teams. • Recognition of new workforce requirements and setting accountability governance.	• Capacity building via operational excellence. • Develop commissioners to develop commissioning. • Change management programme to win hearts and minds at locality level. • Integration of new types of workforce into localities. • Programme to support capacity and capability.

8.2. Next steps

With the setup and delivery of a prototyping phase, the next priority of the area is to establish and sustain functioning neighbourhoods. New neighbourhoods should ideally follow the steps outlined in this guide to allow for the best chance of success and learn from the lessons uncovered within the Fareham Three.

Once these neighbourhoods are set up, a sustained coordination effort is necessary. While the Integrator team has started this journey during the Clinical Assembly presentation, it should be brought forward and continued on a wider and deeper scale to include more providers and across further topics.

The setup of neighbourhoods and the coordination of learning between them will require the development of a strong area integrator function whose tasks will also include supporting the incentive alignment and the provision of shared clinical records for neighbourhood teams.

A key result would the sharing of improvement initiatives across localities. Introducing multiple initiatives in a coordinated and integrated way is important because the overall population benefit and impact will be greater than the sum of the individual services.

It is also imperative that relationships are formed and work is done with local specialists and their employers to arrange specialist support for neighbourhoods.

We believe that actions described above build upon the lessons learned from the prototyping. This will allow for the spread and adoption of Integrator based care across the rest of the ICS.

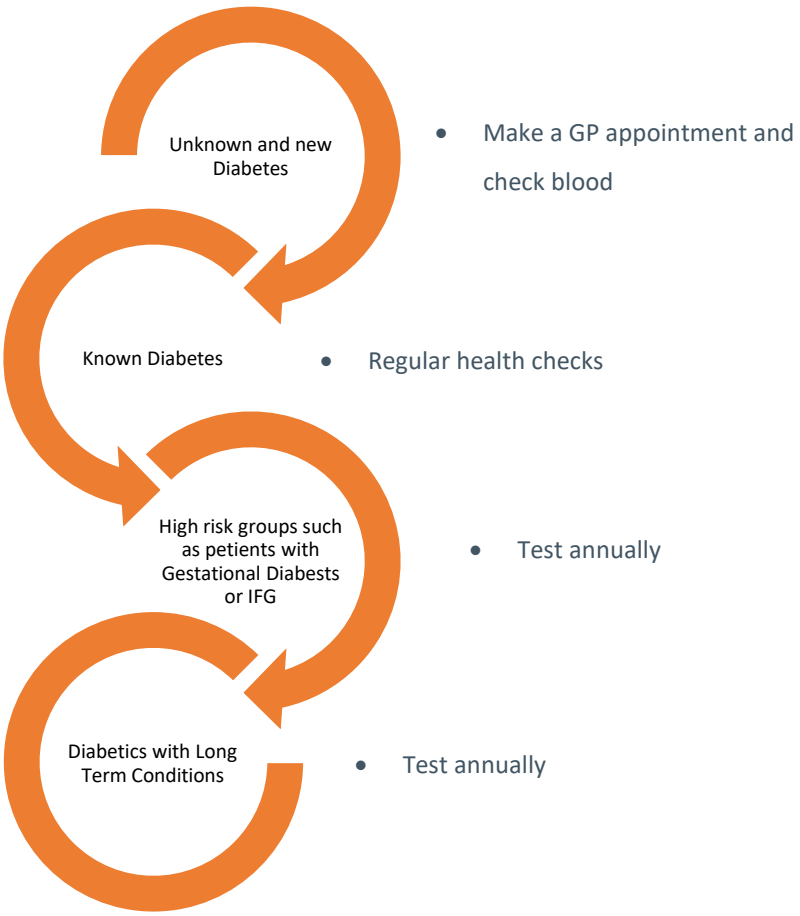
Appendix 1 – Proposed 10 week forward planner

Analytics, Data and Clinical Workstream	System Integrator programme - Prototype **10-week forward planner**
Key outputs	A facilitated change management methodology & a data visualisation tool

	Change Management	**Data Analytics**
Pre-meet	• Stakeholder mapping & convene the locality group [tool] • Define and invite the correct participants to contribute to the conversations	Ensure data analytics skillset for the work
Week 1	• Agree outcomes and governance • Who will facilitate the group? Ensure they have the skillset around quality improvement [tool] & the buy in from stakeholders [tool]	
Week 2	• Sign off a methodology for enabling action on the data e.g. through a quality circle approach [tool] • Introduce the Model for Improvement underpinning this work [tool] • Agreement on the condition or population segment	Agree datasets for the condition or population segment - extract all available data/ benchmarked/primary care flags/other
Week 3	• Introduce the concept of process mapping – focussing on the **current** pathway(s) [tool] • Introduce the idea of patient narratives – to tell the story of "why". Co-design with citizens if possible using either fictional stories, or with appropriate consent, real-life cases of care in the current system [tool] • Preparation for week 4 (see below)	Undertake initial/on-going analysis
Week 4	• Present back the process mapping and any data on the current pathway to allow for a detailed discussed amongst the team around the findings, using the local data visualisation tool/dashboard • Spend time understanding the current local and national guidance for this area of work – does the local data demonstrate that guidelines are followed? Is there warranted or unwarranted variation? Is there under, over or misuse of care? • Also bring to this session evidence on local, national and international projects/programmes in this area, with data/findings focussed on impact on the quadruple aim outcomes if possible. This includes quality improvement programmes and digital innovation e.g. health technology impact assessments. • Develop an overarching aim for this work based on the findings above	Present findings using interactive data visualisation tool and provide training on these to enable self-service access.
Week 5	• Introduce the concept of a driver diagram [tool] and that it can be used to move from an initial aim to change ideas • Work on the driver diagram as a team • Present back the patient narratives to drive collective change • Understand what changes can be driven by the practice alone, and what should involve patient co-design sessions	Review and analyse data/test findings, ensure quality assurance on the dataset

Week 6	• Finalise the driver diagram, including the change ideas and draft metrics and patient reported outcome measures. Ensure alignment with a local outcomes framework • Introduce the PDSA cycle and run charts that use measurement for improvement methodology	Develop ways of capturing the draft metrics/measures, through the use of run charts or statistical process control
Week 7	• Teams start to work on the change ideas and prototyping in selected practices	
Week 8	• Continue to implement change ideas and update at the weekly meeting	Present data from change ideas
Week 9	• Continue implementing change and facilitator to introduce improvement/change methodology tailored to any specific challenges faced	
Week 10+	• Taking what works and implementing across the system • Refine and adapt the driver diagram as required • Apply a similar model across various population segments to improve population health	Measurement of change approach

Appendix 2 – Process mapping outputs



Meet with the Diabetic Nurse within 1 week of diagnosis (10/20 minute appointment)

1) Explain the diagnosis

2) Initiate the template Diabetes management plan

3) CHD assessment

4) Diet and exercise plan

5) Prescribe appopriate medication

6) Consider prescribing Metformin. If sugars are high or patient is symptomatic then start. Ethnicity is also a factor. Do not prescribe Metformin if the patient is motivated to control their blood sugars with diet and excercise.

7) Check height, weight and BP

8) Refer the patient to Weight Watchers

Meet with the Diabetic Nuse 4 weeks after diagnosis (20 minute appointment)

1) Inform the patient about the DESMOND course and book a place.

2) Fill in the forms for the DESMOND course: recording the patients weight, BP, smoker or non smoker and blood test results.

3) Examine feet

4) Check for any reactions or symptoms from prescribed medications

5) Give the patient a glucometer

6) Ensure the patient has been keeping a record of thier blood sugar levels and check for any trends.

7) Give the patient information about relevant vaccinations

GP's must support patients in having recording 2 fasting blood sugar levels prior to the meeting with the Diabetic Nurse

On the DESMOND course

- Check and record the HbA1c & Cholesterol

3 months after DESMOND course

- Discussion on what went on

-If happy then book an appointments for 9 months followed by an annual review.

If patient is Hypertensive then arrange an appointment for 6 months time to re-check Blood Pressure.

Check HbA1c, Cholesterol and refer to retinal screening template.

If rising HbA1c is observed arrange follow up and consider increasing medicines. Follow the Medicines Management Pathway.

3 months after the DESMOND course

-If the patient is taking Gliptins, check the HbA1c after patient has been on the maximum tolerated dose for 3 months or sooner if you feel it would be safer.

-If the patient is taking Glicazide, check the HbA1c after patient has been on the maximum tolerated dose for 1 month or sooner if you feel it would be safer.

-If the patient is taking Dapagliflozin, check the HbA1c after patient has been on the maximum tolerated dose for 1 month or sooner if you feel it would be safer.

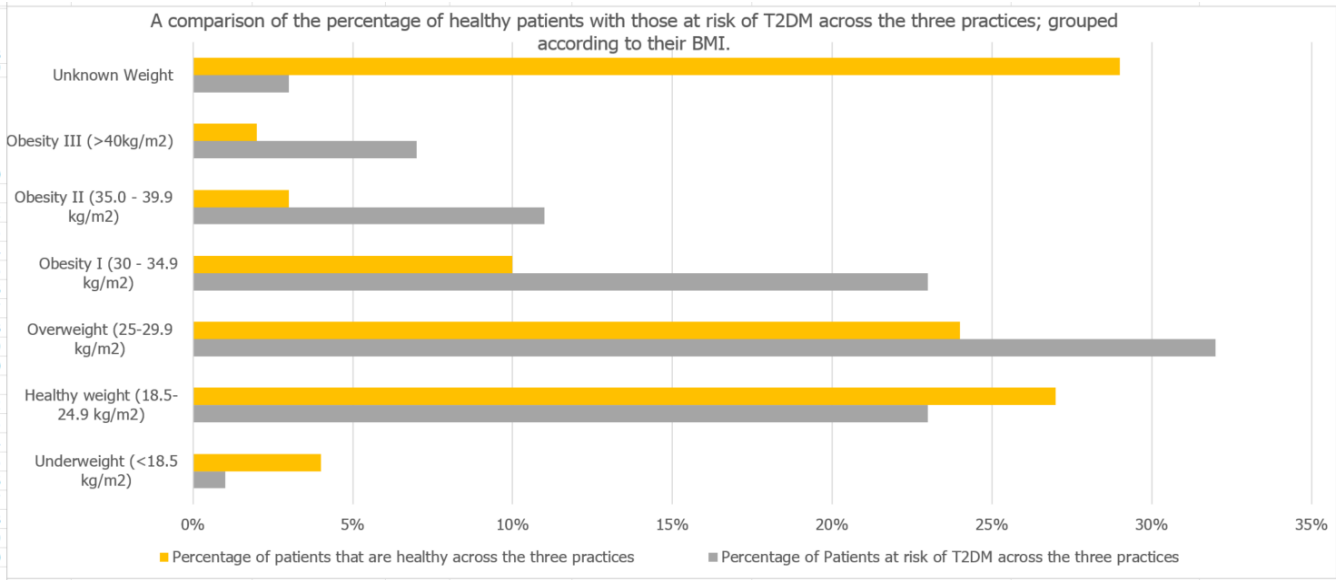
-If the patient is on Insulin, they will require a 1 hour appointment and weekly follow up appointments till their sugars are flat.

-If the patient is prescribed weekly injections of Dulaglutide, see them monthly or and after 3 months check their HbA1c levels or sooner if you feel it would be safer.

Appendix 3 – Data analysis, patients at risk

Patients at risk of Type 2 Diabetes

BMI "at risk of T2DM"	Percentage of Patients at risk across the three practices	Percentage of Patients at risk of T2DM across the three practices	Number of patients that are healthy across the three practices	Percentage of patients that are healthy across the three practices
Underweight (<18.5 kg/m2)	14	1%	1555	4%
Healthy weight (18.5-24.9 kg/m2)	216	23%	9748	27%
Overweight (25-29.9 kg/m2)	307	32%	8587	24%
Obesity I (30 - 34.9 kg/m2)	219	23%	3605	10%
Obesity II (35.0 - 39.9 kg/m2)	110	11%	1150	3%
Obesity III (>40kg/m2)	66	7%	694	2%
Unknown Weight	28	3%	10502	29%
Grand Total	960	100%	35841	100%



"Healthy Population" – Understanding the risk factors

BMI	1. Non-Smoker	2. Smoker (mild)	2b. Smoker (moderate	2c. Smoker (heavy)	2d Smoker (amount unknown)	9) Unknown	Grand Total
1a. Underweight	799	47	58	15	26	610	1555
1b. Healthy Weight	81277	395	417	196	248	365	9748
1c. Overweight	7427	255	319	170	216	200	8587
1d. Obesity I	3097	112	123	80	93	100	3605
1e. Obesity II	992	43	31	28	26	30	1150
1f. Obesity III	608	18	21	7	16	24	694
9. Unknown	2183	165	200	86	109	7759	10502
Grand Total	23233	1035	1169	582	734	9088	35841

Patients identified as being at greatest risk of T2DM	
Patients identified as being at high risk of T2DM	

Appendix 4 – Proposed governing principles

In order to work collaboratively, the partner organisations should aim to:

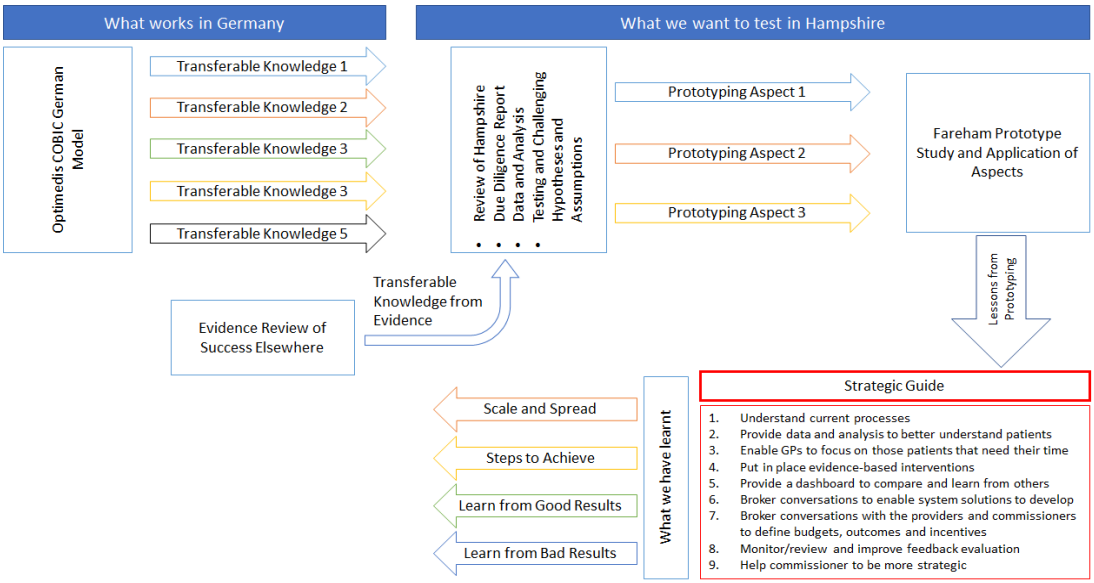
1. Achieve better care for our patients, ensuring that people and patients and their safety come first.
2. Services are delivered across natural patient pathways and that adequate engagement occurs for each service.
3. Collaborate as a single, integrated, high performing team that makes decisions to achieve results that are best for the commissioner, the system as a whole and the patients of Fareham while being responsive to their needs.
4. Maintaining principles of openness, honesty and transparency wherever possible.
5. Deliver the elements of the Quadruple Aim, not just for individual organisations, but across the system.
6. Work together and assume joint responsibility to achieve the outcomes expected of services including Health Visiting Services.
7. Provide timely support and commit the appropriate resources and services in line as required for each service to ensure the workforce have the required skills, knowledge and support to deliver safe and effective services.
8. Embrace a culture of innovation, learning and spreading best practice within and beyond the collaboration and at all levels.
9. Decisions will be informed through the analysis of an open and transparent evidence base.
10. Uphold and promote of each individual organisation and the collaboration as a whole.
11. Facilitate service provision that meets the intended outcomes of each venture within an agreed budget.
12. Maintain the opportunity to scale this collaboration agreement to further services while acknowledging differences in partner activities across Fareham and different CCG areas.
13. Providers will work in conjunction with commissioners to: agree approaches and timescales for establishing single operating models across community providers, ensuring the efficiency of value for running services.
14. All parties, commissioner and providers will maintain their responsibilities to relevant statutory frameworks.

Appendix 5 – Financial principles, how we incentivise collaboration

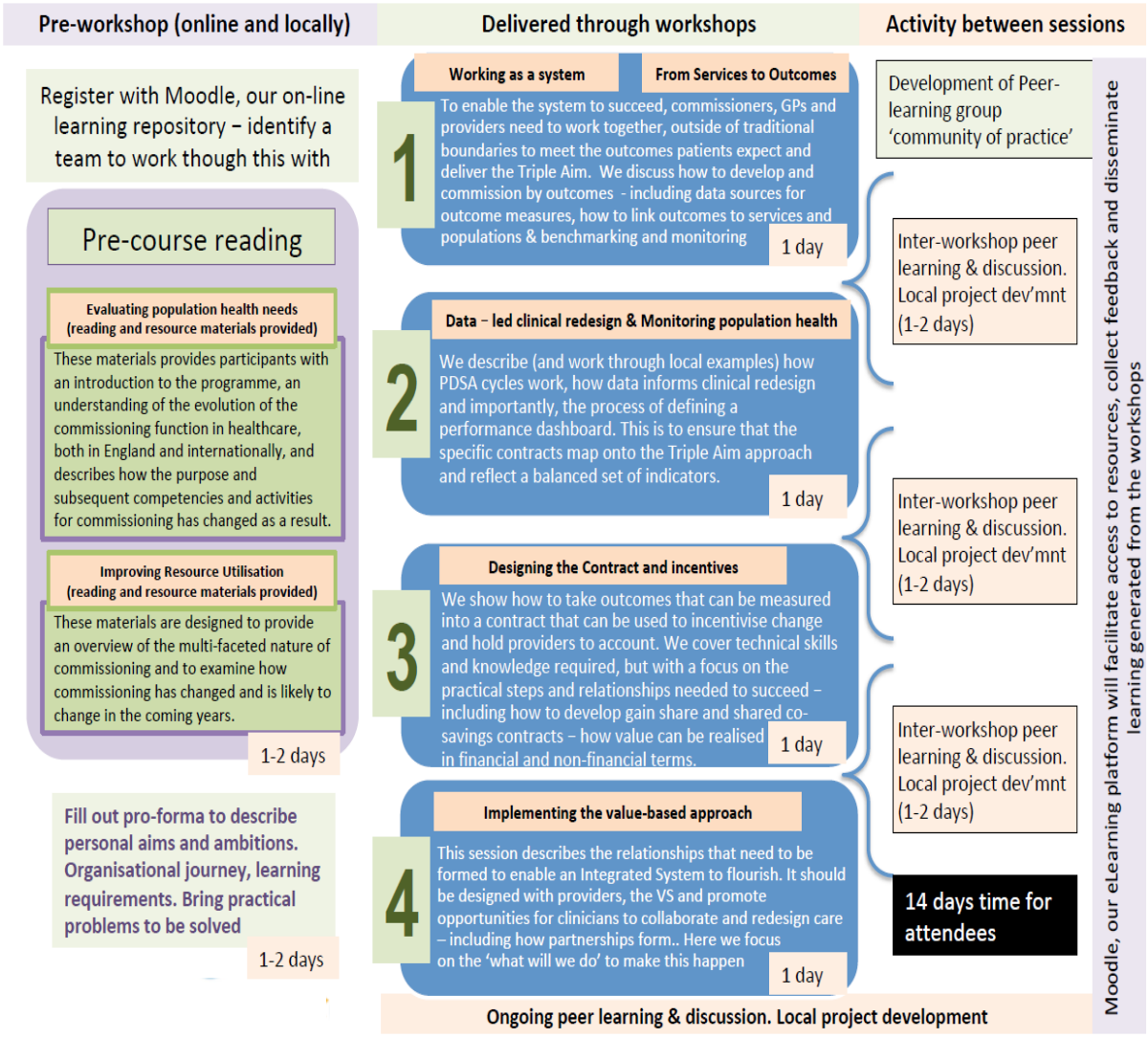
Investment in collaborative ventures will mostly likely be required for operations to be feasible:

1. Investment covers both financial contributions as well as resource delivery.
2. The costs and investment from each collaboration member should be open and transparent to reduce duplications.
3. Wherever necessary, third parties will be used to broker financial discussions between providers while maintaining any required confidentiality.
4. Financial benefits will be distributed across partners in proportion to investments and risk undertaken by each.
5. Financial mechanisms should be developed in a way that incentivises partners to work together to reduce costs and release savings.
6. All partner organisations should work within the defined framework for risk underwriting which should be linked to principles of risk and benefit sharing.
7. For each service, a single organisation will act as 'fund holders' for the collaboration, holding the budget and providing reporting and management support.
8. Fund holders will maintain principles of 'open book accounting', with transparency around investments, financial risks, and benefits arising for each organisation.
9. In addition to having a centralised fund holding organisation, each organisation will retain their own accounting systems and structures, with cost being recharged to the collaboration at agreed times as per service schedules.
10. Through the financial year, overall surpluses will be pooled into a risk contingency. At the end of the financial year, any remaining surplus will be shared across the collaboration.
11. The collaboration will ensure that financial and operational queries are detailed for each opportunity.
12. Providers will work jointly with commissioners to: identify opportunities to further reduce contractual costs, review historical finance lines in existing contracts during reviews, defining activity and finance assumptions for each new service
13. Any future proposals to decommission services will be based on cost-benefit analysis, outcomes, and management of future risks

Appendix 6 – A framework for driving change



Appendix 7 – Development programme



Appendix 8 – Potential list of T2DM outcomes / metrics

	Data sources	Calculation
Mortality rate	SUS and QOF	numbers discharged from acute care as "deceased" divided by the diabetes population (QOF register)
Premature mortality	SUS and QOF	covers patients under 75 only who are discharged as "deceased" in acute care. Summing variation between age of death and life expectancy age. Divide by diabetes population (QOF register)
Health related quality of life	Diab PROM	survey score from questionnaire responses per completed questionnaire
Symptom control (severe)	SUS and QOF	patients admitted with DKA, Hypoglycaemia,coma related to diabetes as % of diabetes population (QOF register)
Symptom control (all)	Diab PROM	survey score from questionnaire responses per completed questionnaire
Symptom recognition	Diab PROM	survey score relating to symptom recognition from questionnaire responses per completed questionnaire
Control of condition	Diab PROM	survey score relating to "feeling in control" of diabetes from questionnaire responses per completed questionnaire
Feeling confident in managing condition	Diab PROM	survey score relating to "feeling confident" of managing diabetes from questionnaire responses per completed questionnaire
Feeling supported	Diab PROM	survey score relating to "feeling supported" in managment diabetes from questionnaire responses per completed questionnaire
Free from fear/anxiety	Diab PROM	survey score relating to "feeling free from fear/anxiety" in relation to diabetes from questionnaire responses per completed questionnaire
In Good mood	Diab PROM	survey score relating to happiness or mood from questionnaire responses per completed questionnaire
Self management (monitoring)	Diab PROM	survey score relating to "being able to monitor" diabetes from questionnaire responses per completed questionnaire
Self management (understanding)	Diab PROM	survey score relating to "understanding how to manage" diabetes from questionnaire responses per completed questionnaire
Self management (managing)	Diab PROM	survey score relating to ability to "self-manage" diabetes from questionnaire responses per completed questionnaire
Complications in acute care: Lower limb amputations (minor)	SUS	number of minor lower limb amputations (defined by list of OPCS codes)
Complications in acute care: Lower limb amputations (major)	SUS	number of major lower limb amputations (defined by list of OPCS codes)
Complications in acute care: Lower limb amputations (minor and major)	SUS	number of minor and major lower limb amputations (defined by list of OPCS codes)
Complications: preventable blindness	Primary Care data	rate per observed population
Complications: Renal failure	SUS	number of admissions for end stage renal failure (ICD10 and OPCS defined using NDA codes)
Complications: Stroke	SUS	number of admissions for stroke (ICD10 defined using NDA codes)
Complications : MI	SUS	number of admissions for myocardial infarctions (ICD10 defined using NDA codes)
Complications : Erectile disfunction	Diab PROM	survey score on "support for erectile disfunction" from questionnaire responses per completed questionnaire
Disruption to life	Diab PROM	survey score relating to "disruption to life" due to diabetes from questionnaire responses per completed questionnaire
Impact on people around me	Diab PROM	survey score relating to whether "family/carers are supported" from questionnaire responses per completed questionnaire
care is co-ordinated	Diab PROM	survey score relating to whether "care is co-ordinated" from questionnaire responses per completed questionnaire

Access to services (timely, organised)	Diab PROM	survey score relating to whether there is "timely and organised" access to services from questionnaire responses per completed questionnaire
Access to services (right person, right time)	Diab PROM	survey score relating to being able to access the "right person at the right time" from questionnaire responses per completed questionnaire
Involvement in care planning	Diab PROM	survey score relating to feeling "involved in care planning" from questionnaire responses per completed questionnaire
Age of onset: major lower limb amputations	SUS	average age of patients admitted for minor lower limb amputations (defined by list of OPCS codes)
Age of onset: minor lower limb amputations	SUS	average age of patients admitted for major lower limb amputations (defined by list of OPCS codes)
Age of onset: minor and major lower limb amputations	SUS	average age of patients admitted for minor and major lower limb amputations (defined by list of OPCS codes)
Age of onset: preventable blindness	SUS	average age of those with new diagnosis of preventable blindness
Age of onset: renal failure	SUS	average age of patients first diagnosed with end stage renal failure (ICD10 and OPCS defined using NDA codes)
Age of onset: stroke	SUS	average age of patients admitted for stroke (ICD10 defined using NDA codes)
Age of onset: MI	SUS	average age of patients admitted for myocardial infarctions (ICD10 defined using NDA codes)
Diabetes: Observed prevalence compared to Estimated prevalence in adults (%)	Rightcare	Rightcare
Reported to Estimated prevalence of Hypertension (%)	Rightcare	Rightcare
Gap in life expectancy between people living in the most and least deprived area	hscic	Indicator Portal, Life expectancy at 75, 2012-2014 by LA Indicator Portal, Life expectancy at Birth, 2012-2014 by LA
Healthy life expectance at age 65	hscic	Indicator Portal, Life expectancy at 65, 2012-2014 by LA
Attainement of the 3 care processes - people with diabetes		National Diabetes Audit
Hypertension treatment outcomes (All dx with hypertension)		Requires refinement / integration with QOF
Services clinically benchmarked and improved (NDA, Intermediate Care Audit, SSNAP, MH services national audit, QOF benchmarking)		Audit reports (benchmarking)
Rate of major and minor amputations for people with diabetes	hscic	Indicator Portal, Hospital procedures: lower limb amputations in diabetic patients, 2011/12 by LA

Appendix 9 – References

1 - https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf

2 - http://www.ihi.org/communities/blogs/the-triple-aim-or-the-quadruple-aim-four-points-to-help-set-your-strategy

3 - https://healthpolicy.duke.edu/sites/default/files/atoms/files/germany_25jan2017.pdf

4 - https://www.health.org.uk/publication/sharing-improve-four-case-studies-data-sharing-general-practice

5 - http://www.wish.org.qa/wp-content/uploads/2018/01/27425_WISH_Accountable_care_Report_AW-Web.pdf