STRATA PATHWAYS

Project Evaluation Report

IJB 25th September 2019

Contents:

The Challenge

Every year, the staff within our Borders health and social care system undertake over a million patient and client referral requests that involve a transfer of care between the different parts of our Health and Social Care services. The exact number of referrals is not known as currently there is no single system or integrated suite of systems that can be accessed by all partner organisations to record, manage and review outcome of these referrals.

Referrals can be relatively simple (e.g. from a GP to an OT) or complex (e.g. transferring a patient from one care setting to another). They can be made by telephone, in writing or by email; can be within an organisation between departments or services; or can be across multiple organisations. Referral records might be kept on paper, email trails and in individual computer systems. Sometimes a referral won't be recorded. Often the same referral will be recorded in duplicate in different systems and in slightly different ways, which wastes time, increases the likelihood of error and security failure and prevents a single trusted view of the person.

At present, staff making these referrals do not have visibility of capacity across the range of services and therefore time is often wasted trying to match referrals with unknown capacity and resources. Without a tool that provides staff with "real-time" transparency and visibility of both capacity and utilization across all parts of our integrated service, it is difficult to know whether a referral has been directed and completed effectively. It is also not possible to ensure that we are fully optimising our scarce resources. Sometimes referrals with personal information are distributed "blind" to a range potential of suppliers by post or to unsecured mailboxes which creates known security risks.

The Proposed Solution

Each referral forms part of a person's experience of their pathway across our complex health & social care system. Being able to make referrals electronically (an e-referral), attach the appropriate information, track progress and ensure that they are completed enables us to ensure that there is a better experience and outcome for the person and their family. Strata, the proposed e-referral tool achieves this in a standardised manner that is more efficient, cost effective, and reliable than our current systems and processes.

Additionally, by adopting this approach, there is significant scope for efficiency gains and savings through streamlining and automating processes with e-referrals. With an estimated million referrals each year, if we could reduce the time it takes to complete each of them (by even half-an-hour), this would represent a major opportunity for improved service quality, increased efficiency and significant cost-releasing opportunities.

1. Purpose of Report

In May of this year, an initial evaluation report was presented to the IJB seeking ICF funding to extend and expand the project over the current financial year. The Board agreed to extend the project for 12 months but that a break clause be agreed after 6 months should it be required. A more detailed evaluation of the system and project was requested to be brought to the September IJB to consider whether the break clause should be required.

This report sets out an evaluation of the Strata Health e referral and pathways system as:

- A system that enables the management of referrals, tracking people's journey, the sharing of records and data securely and which has the proven ability to integrate with other core IT systems **across multiple organisations**
- An effective tool to enable process improvements and achieve efficiency gains in terms of both productivity and hard savings
- A source of effective real-time management and performance information which provides insight and oversight of how processes are operating in terms of volumes flow, capacity and compliance
- Part of a wider suite of projects (Matching Unit, Transitional Care, Garden View and Hospital to Home) aimed at enabling efficiencies and savings in the Discharge Process.

It is intended that this report will provide the necessary information to enable the IJB to decide as to whether or not the project is continued.

2. Background

2.1 What is Strata?

Strata Pathways is an automated and web-based system that enables more efficient and secure processes which match individual patient's and client's needs to the available resources across multiple organisations, including third-party suppliers. It is an evidence-based system that can be applied across all health and social care pathways and therefore has the potential to be a critical tool for the Partnership in enabling the redesign, optimisation, performance improvement and the cost effectiveness of all integrated services.

As a web-based system, Strata stands alone from both our NHS and SBC systems and IT architecture but can be securely integrated with both to ensure and enable the automation of processes and improved information sharing.

Strata is not a "quick fix" to address the challenge outlined above. Instead, the deployment of the Strata tool needs to be seen in a longer-term (multi-year) context, as an enabler in managing change, supporting the integration and improvement of service processes and helping management to bring about compliance and the behavioural changes needed to deliver on our strategic objectives. This system has been successfully deployed across publicly funded health and social care systems, in Scotland, across the UK, in Canada, Australia and New Zealand.

2.2 Scope of the Evaluation

This evaluation is based around 5 main sections:

1) **Strategic ICT Context**
   How Strata addresses identified IT needs and provides a foundational platform to allow us to fulfil key elements of our joint IT approach and roadmap.

2) **Operational Process Improvements and Associated Benefits**
   Based on the first phase of the project and data from January 2019 and referrals to:
   - **Residential Care (including Garden View and Transitional Care)** from the hospital-based START team and from SW Community Teams
   - **Care at Home providers** from the Matching Unit

3) **In-development and Future Processes and Associated Anticipated Benefits**
   An outline of the processes where we are currently applying Strata and potential additional processes that we can use Strata in a further phase(s) of implementation.

4) **Management Information**
   The role that Strata plays in providing strategic and operational management information to enable compliance, improvement and progress against strategic objectives

5) **The Wider Discharge Programme**
   How Strata contributes to the wider Discharge Programme and supports the other related and complementary ICF-funded initiatives.

3. Strategic ICT Context

3.1 The Role of Technology in Transforming Services

Technology offers the single biggest opportunity to transform health and social care services and to deliver the kind of step change and efficiency gains that will be needed to contain the additional costs of meeting anticipated future demand for services. In particular, technology enables improved:

- access to services and information
- patient pathways – making them simpler, more joined-up, automated and reducing the scope for duplication and error
- reduction in variation of practice
- communication and collaboration across partner organisations
- data quality and data sharing – ensuring that the right information is available in the right place at the right time
- enabling people to assume greater responsibility in managing their own health

The adoption of proven and evidence-based technology is seen as the key enabler to the delivery of the required service redesign and improvement on the scale needed over the foreseeable future.

3.2 Staff and Practitioner Views

Staff and practitioners across the wider health and social care partnership have consistently identified the lack of joined-up IT systems as the single biggest obstacle to integrated working.

This view permeates the whole IT landscape from accessing networks to communication. Some of the key issues raised by social care staff and practitioners over a number of engagement sessions included:

- **Basic telephony, emails and calendars** – difficulty in accessing each other's directories/ address books and viewing calendars
- **Sharing files** – being able to share files in terms of both collaborating on documents as well as storing and accessing files (e.g. shared drives)
- **Accessing care records** – being able to access a person's medical and care records which may be held on a number of different systems (Mosaic for Social Care, TrakCare and EMIS for Health), on different networks, having all necessary information to be able to offer an effective and appropriate service. There are also difficulties in ensuring that the record on one system refers to the same person as the record on the other system. Ultimately, staff need a single trusted record or a single view of the patient and the ability to update records once rather than multiple times in different systems and networks
- **Accessing networks remotely** – particularly when operating from each other's buildings
- **Tracking people's journey** – being able to track people's progress through the system including anticipating – and preparing for – transition from one care setting to another
- **Matching people's needs to available resources** – seeing, in real time, where there is capacity in health and social care services that can meet the person's needs

3.3 Joint ICT Framework

Based on the above views, in December 2016 EMT broadly agreed a joint ICT framework to guide the development and delivery of ICF-funded IT projects. The framework also identified how the existing IT Roadmaps of both NHSB and SBC could address the issues identified by staff. The framework was based around 4 key principles to guide:

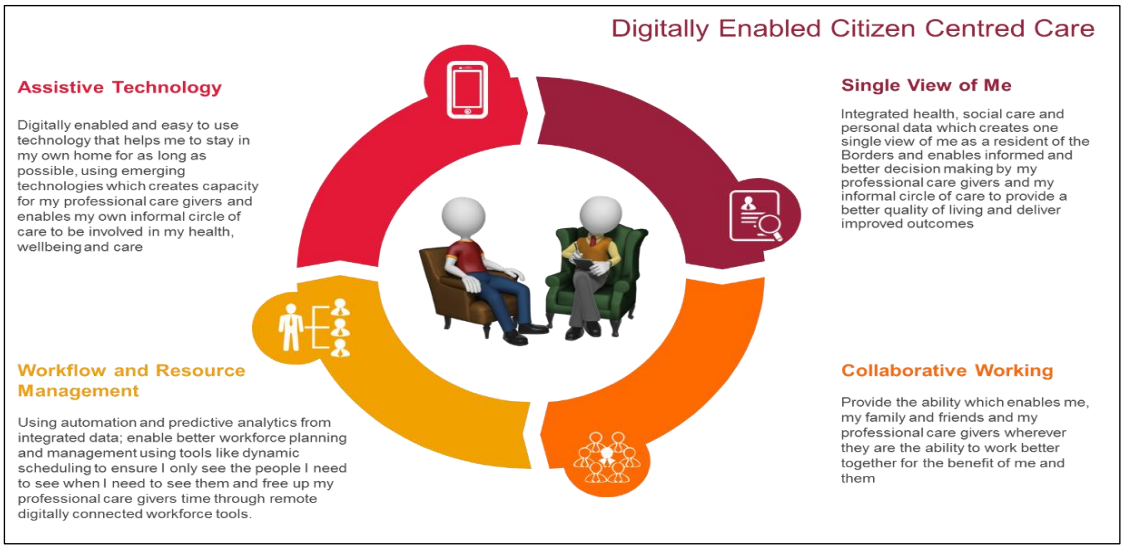
- **Collaborative Technologies**: shared outlook functionality (calendars, emails, collaboration tools), access to files, policies, etc.

- **Single view of the patient / person:** single view of information from TrakCare, EmisWeb and Mosaic and other key IT systems

- **Workflow**: referrals and information across multiple organisations and matching people's needs with available resources

- **Assistive Technologies:** how technology can enable people to live and manage their conditions at home in a safe and sustainable setting, and interact with services

Figure 1: Joint ICT Framework



This framework has guided specific ICF-funded projects and parallel streams of IT work to date through the coordination of the Joint IT Project Board.

3.4 System Requirements

To be able to address many of the issues raised by staff and fulfil the principles of the Joint IT framework, the Partnership need a system that:

- Is organisationally agnostic – i.e. it covers all partnership organisations and their staff, not just NHSB and SBC staff but also 3rd sector partners and private sector suppliers
- Manages referrals across organisational boundaries – including the transfer of patients from one care setting to another
- Matches people's needs to available resources
- Tracks people's progress through the system
- Shares information, records and data securely and ensures that information is captured once, follows the patient and is accessible to practitioners across multiple organisations
- Improves and enhances the quality and reliability of data
- Contributes to a single view of the patient
- Can be technically integrated with partner systems – particularly with TrakCare, EMIS-Web and Mosaic and contribute to a wider ICT Architecture
- Reduces duplication and the scope for error

None of the Partnership's pre-existing systems have this capability or have this functionality. Table 1 below outlines how Strata meets these requirements.

3.5 Best Value

Strata was procured via G-Cat (an approved Government Procurement Catalogue) and was the only solution that met our requirements. The G-Cat route avoids the need for us to go through a more detailed and lengthy procurement process involving specifying, selecting, building and testing a solution before implementing and proving its ability to meet our needs.

Strata offers a solution that meets our needs and is proven to work effectively in other Health & Social Care partnerships – such as Cumbria and Tayside – enabling us to learn from their experiences. Appendix 1 sets out a list of Strata clients and the processes where Strata has been deployed.

Table 1 – How Strata Meets Partnership ICT Requirements

System Requirements	How Strata Addresses These
Multi-Organisation System	As a cloud based system, Strata stands alone from both our NHS and SBC systems and IT architectures and can be accessed securely by ***any*** of our partner organisations (including 3rd sector and private sector) who can only see and update information appropriate to their needs/functions. The system is commissioned and governed by the Partnership and isn't owned by any single partner organisation.
Managing referrals within and across organisational boundaries	Strata enables electronic referrals between practitioners within organisations and from one organisation to another e.g. e-referrals from GP to Allied Health Professional; from Occupational Therapist to Borders Care & Repair; from Social Worker to Borders Carer Centre; from hospital ward to discharge hub; from discharge hub to residential / care at home providers; from residential care provider to OT etc.
Matching People's Needs to Resources	Service providers use Strata to identify individual patient and client needs and to match these needs with available capacity and resource in real time, along with any appropriate details (e.g. hospital or care beds, transport, appointment slots etc.) that referrers can view and make an immediate and appropriate referral.
Tracking People's Journey	Strata creates an audit trail and date stamps when referrals are made and accepted – e.g. GP could see that a patient e-referral to a specialist had been accepted and that the patient had attended or that a transfer from hospital to care home had been accepted and completed. This builds patient accountability and responsibility to attend/adhere to their care plan.
Sharing Information/Accessing Care Records	Strata enables appropriate records to be appended with an e-referral – e.g. an assessment, medication, personal details, next of kin contact details etc. – so that information is shared and follows or precedes the patient from one care setting to another to enable a successful outcome. With technical integration, the appropriate data from NHS and SBC systems can be added to the e-referral as required allowing information to be shared.
Integrates with core IT systems	Strata will be able to integrate with MOSAIC, TrakCare and EMIS-Web and other partners systems.
Data Quality and reducing duplication and error.	Technical integrations will enable e-referrals to be populated automatically from systems. This will reduce the scope for duplication and error that currently exists by having multiple paper, email and system records. By enforcing the completion of mandatory fields and actions such as attaching required documents the system ensures that all necessary information is collected so that downstream services have all the information needed to make the correct decision for the patient. Improving the data flow between systems will greatly improve data quality which can then be used for management and planning decisions.
Single view of the patient	Through technical integration and interoperability with other IT systems, Strata can contribute toward a single view of the person by automatically drawing the appropriate information to enable an effective e-referral.

4. Evaluation – Referrals to Residential and Care Home Providers

4.1 Background

Work on the original Strata project started in late 2018 and focussed on process improvements to referrals to residential care and care at home providers from the hospital-

based START team and the Matching Unit respectively. Through engagement with all stakeholders, existing processes were mapped and validated and redesigned, improved and automated processes were developed. These processes are summarised in Figures 2, 3 and 4 below.

Implementation

In May of this year, the project was extended to include referrals made from Locality Social Work Teams to Residential Care and Care at Home providers.

In this phase of the project, residential care and care at home providers use Strata to enable a live and dynamic directory of capacity, vacant rooms and services. The Matching Unit, START team and Locality Social Work Teams can view the directory in real time and place the patient or client, quickly, into an appropriate care setting. Once a place is identified, Strata securely sends the personal and medical details to the provider so that the necessary information precedes the patient's arrival.

Implementation involved each of the care homes and care at home providers setting up business broadband arrangements (a Static IP Address) which enables Strata to authenticate the provider and allow secure transfer of appropriate data. This has been one of the more challenging parts of the implementation.

Overall there are 16 providers covering 29 Residential Care Homes (including Garden View) and 9 Care at Home providers. Staff from all providers have been provided with the necessary training to operate the system, and the Strata implementation team has visited all establishments and providers to set up the system. Locality Social Work teams also received training in the use of Strata.

Challenges during implementation

There were two main challenges during implementation.

As mentioned above, providers are required to have a static IP address. In some instances, the provider did not have a static IP address, and was required to request this from their internet provider. This delayed the "on-boarding" of some providers.

Compliance is the other main challenge. It is essential that all stakeholders play their part and use Strata to send or receive referrals, and post capacity and bed vacancies.

Whilst there is still a compliance issue with some users, new reports and dashboard charts are available to quickly identify non-compliance and take remedial action. The reporting dashboard in STRATA IQ has been redesigned at no cost to SBC to better meet our needs and is now capable of being a valuable management information tool.

4.2 Process Improvements

a) Referrals to Residential Care

Figure 2 below shows the process relating to referrals to residential care from the hospital-based START team and locality (or community) social work teams. The process is shown in terms of its original form (before Strata) and the current form (using Strata).

Prior to Strata, the original manual process had no consistent method for making referrals to care homes. With no directory of care home bed vacancies, the only way to establish where

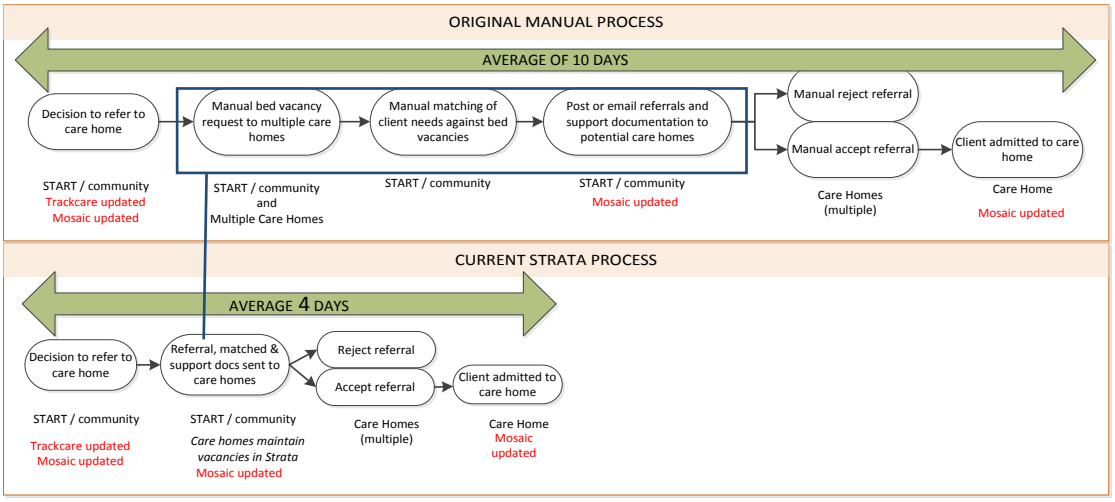
a patient/client could potentially be placed, was to make many phone calls or send email to multiple care homes. This often meant that patients remained unnecessarily in hospital, occupying scarce and expensive acute care bed capacity, often for long periods of time.

Once a suitable care home was identified, care plans and other associated support documents were posted or emailed to them. These processes – telephone, post and email – often created delays of up to 6 days in the provider's ability to act upon the referral, ultimately impacting on the person's needs. There were various reasons for the delays including:

- Missing key information or documentation
- Delivery of posted referrals can take up to 6 days longer
- Emails required referral forms to be password protected; emails are then blocked by NHS and SBC IT security and need to be 'released' by NHS/SBC IT provider
- Follow-up phone calls to receivers to let them know the password

Without a safe, secure and consistent process in place to send personal data, there was no way to ensure data was sent safely and securely to the provider, resulting in **known** data protection risks.

Figure 2: Referral to Residential Care – Original and Current Processes



*Original manual process: One client = **multiple phone calls/emails/postings** to many providers*
*Current Strata process: One client = **one e-referral form** to appropriate providers*

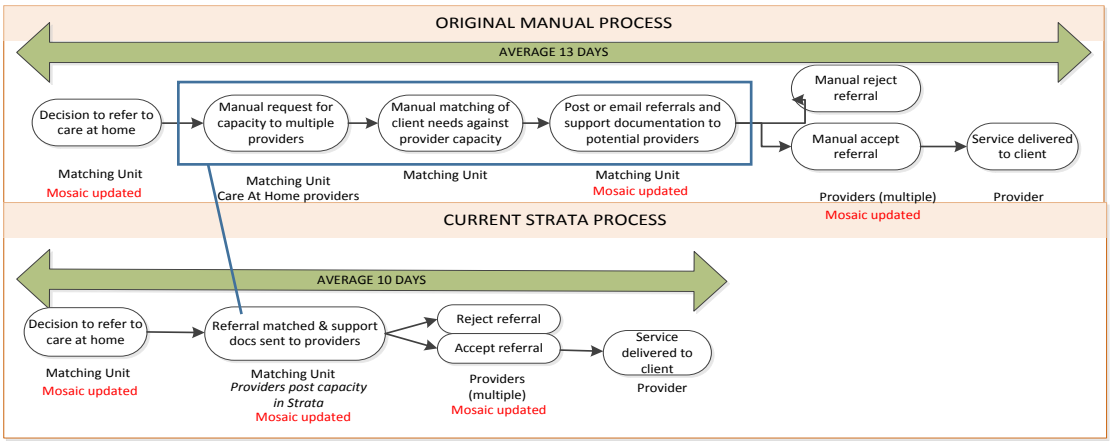
The current operational Strata process delivers a real-time directory of bed vacancies across all care homes. As patients transition in and out of care homes, the bed vacancy list is automatically maintained. This removes the need to phone/email multiple care homes. Once the e-referral is created, it is then sent to multiple providers based upon the client match and preference.

Strata imposes mandatory fields, allows uploading of files – for example assessments - and securely delivers real-time e-referrals to providers. Strata also provides an audit trail and visibility of the patient's e-referrals across multiple pathways. This not only addresses the delays mentioned above, it also addresses any concerns surrounding data security.

b) Referrals to Care at Home

The Care at Home referral process (see figure 3 below) is similar to the Residential Care process – with visibility of bed vacancies being replaced with care at home provider capacity. As with figure 2, multiple phone calls, emails and posted documents are replaced by one e-referral.

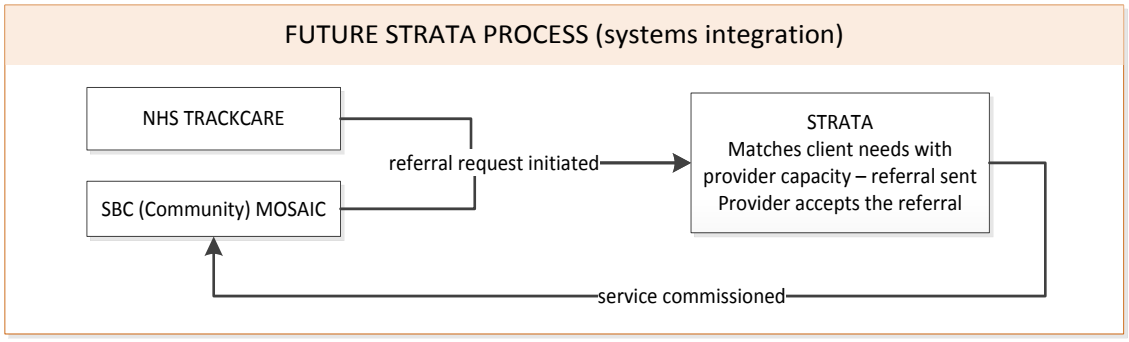
Figure 3: Referral to Care at Home – Original and Current Processes



c) Future Process – With Technical Integration

Technical integrations between Strata, Mosaic (SBC, Social Care), TrakCare and EMIS Web (NHSB, Health) will provide a further step-change in terms of process improvement. Essentially, this allows data to flow between core systems, allowing greater automation, reducing time and effort, and eliminating the need for double keying and the associated scope for error. It is expected that following the integration referred to above, the referral process for both residential care and care at home streams will be reduced to a period of 1-3 days.

Figure 4: Future Referral Process (with Integration) – Residential & Care at Home Providers



Appendix 2 provides a detailed summary of the benefits that have been achieved to date by adopting Strata, and to be achieved by integrating Strata tools and pathways with core IT systems across health and social care.

4.3 Cost Benefits (January 2019- July 2019)

The benefits described in this section relate to the data from Strata and comparative data from Mosaic relating to the application of the current state process in figures 2 and 3 above – i.e. the application of Strata to enable e-referrals to Residential Care and Care at Home providers from January 2019 – July 2019 inclusive.

Table 2: Volume of Placements and Average Number of Days

Referral Type	Year	Process	No of placements	Average no of days	**No. of days service delivery improved by (average no of days)**
Care Home	2018	Pre-Strata	83	10	
	2019	Strata	52	4	**6**
Care At Home	2018	Pre-Strata	860	13	
	2019	Strata	475	10	**3**

Work has been ongoing since the last board meeting to quantify the savings associated with the introduction of Strata. The system will reduce administrative effort and inefficiencies in current processes and will make savings in two areas:

I. Administrative and Social Worker savings – through reduced administrative time and reduced requirement for Social Worker input into the placement process. Figure 2 above highlights a 60% (6 day) time saving in the process of completing a Residential Care placement using Strata. Figure 3, shows a corresponding 23% (3 day) time saving in the completion of a Care at Home Placement. At present, there are 68 staff involved in these processes of which 46% are social workers and 17% employed on an agency basis. The total cost of these staff is £314,366 and therefore it is reasonable to conclude that savings can be made through reduced agency, duplication, postage and telephony costs which will fund the costs of Strata.

II. Occupied Bed Day (OBD) savings – it is estimated that the deployment of this system could enable some 3,060 NHS occupied bed days to be saved each year (see table 3 below). It has been difficult to calculate and agree the actual cost and resource savings that would be obtained from the closure of beds due to the variable release costs related to closure or one bed, one bay or an entire ward. Estimates therefore range from £131-£500 per occupied bed day*. Having said that, this <u>indicative</u> cost-benefit analysis has assumed the lower and more conservative number which indicates that a full and ongoing Strata deployment could enabler projected recurring annual savings in excess of £400,860.

Table 3: Indicative Occupied Hospital Bed Days savings

Referral Type	**No. of days service delivery improved by (average no of days)**	Estimated number of placements	Occupied Bed Days	Cost per OBD £	**Saving £**
Care Home	6	85	510	131	66,810
Care At Home	3	850	2,550	131	334,050
			3,060		**400,860**

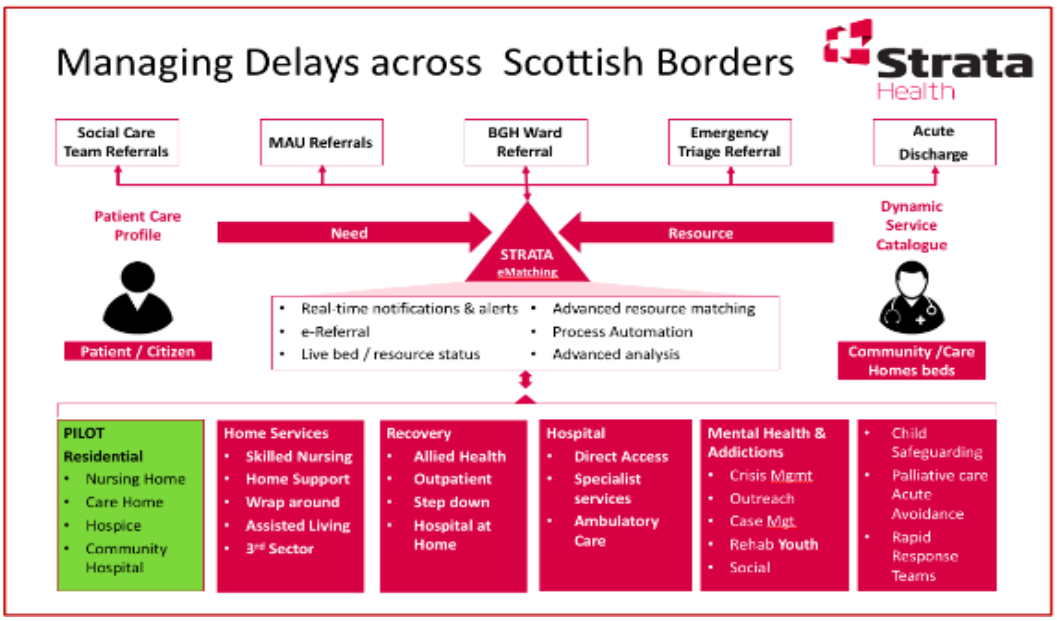
To date, the potential of the system has only been assessed against two processes – referrals to Residential Care and referrals to Care at Home providers. The system provides the opportunities to reassess <u>all</u> Health and Social Care processes and deliver significant, as yet unquantified, savings and efficiency gains.

*This figure has been calculated using publicly reported ISD "blue book" acute care cost data of circa £500 per bed day, and discounted to reflect the estimated <u>net</u> marginal cost savings at a rate of £131 per day.

4.4 Future Cost Benefit Opportunities

As figure 5 below shows, there are a large range of opportunities to be achieved by a fuller deployment of Strata. The cost of Strata (£115,000/year) is a fixed cost based upon £1/head of population. It will only increase (or decrease) with changes in population size – but remains fixed regardless of how many processes or pathways we apply it to. As a result, the cost benefit set out above will improve with each added efficiency we make across all our pathways.

Figure 5



Looking at the capabilities illustrated in the above diagram, Strata has the ability to offer significantly more savings in term of admin and Social Worker time as well as other potential hospital services resulting in additional potential bed day savings. Through comparison with other data internal data sources, we estimate that to date Strata is handling only about 50% of the care home placements and domiciliary care packages currently being placed by SBC, reinforcing the potential additional system benefits to be gained from a full and consistent adoption and deployment.

Section 5 below sets out the additional first wave of processes where we are currently working towards rolling-out Strata, and also identifies further potential areas for future deployment. Wherever possible, data from other Strata clients is shown to illustrate the quantum of benefit that can be achieved from applying Strata to these additional areas of service.

4.5 Other Benefits

Additional and non-financial benefits achieved from the first phase of the Strata project include:

- **Quicker Referrals** – Figure 2 and 3, also Table 1 above, apart from showing the financial benefits to be achieved, also illustrate a significant reduction (60%) in the number of days taken to process a referral from acute to residential care.

- **Quality and Patient Safety** – In future, as a result of a shorter length of stay in an acute hospital bed, patients will have a significantly reduced risk of morbidity and mortality as a result of falls or contracting a hospital acquired (HAI) or wound infection, with resultant significant personal risk and overall system costs.

- **Improved Management Information** – Strata provides management with real-time visibility of capacity within the system across both Residential Care and Care at Home Providers and enables a greater insight into the flow of referrals to providers and any actual or potential blockages or non-compliances. Data from the system will enabling improved business intelligence and contract management capability (see Section 6).

- **Data Quality** – Mandatory fields and workflow will help to ensure that the right information is included with all e-referrals. A drop in the number of RFIs (requests for further information) and declined referrals (see Appendix 4) over the 7-month period is evidence that this data quality is beginning to improve.

- **Improved Data Security** – Prior to Strata, many referrals were sent to multiple providers via post or through block-lists of patients on the waiting list via zipped files. These pre-existing processes carried known security risks that are being addressed through Strata. E-referrals are sent securely to appropriate providers with capacity matching the person's needs. The provider sees only details of patients that relate to potential and actual referrals for their service and their vacancies – rather than everyone on the waiting list.

- **Compliance** - Strata provides the opportunity to have mutually agreed and manageable process around which to build and enforce compliance. Mandatory fields within the system are already ensuring that referrals can only be made if the necessary information (e.g. assessment, medication, and next of kin contacts) are included with the referral. The audit trail and time-stamping of transactions enables the ability to identify and rectify areas of non-compliance.

- **A live and dynamic directory of services** – Strata provides our providers with a management tool that will allow them to broker their services directly to the council and hospital and ensure that the information they receive allows them to quickly accept a patient. It also provides them with a facility to allow them to catalogue the services and resources that they provide right down to the characteristics of the service, resource and staff skills. Furthermore, it will provide them with access to information around the quality of service that they provide and the referral activity and placement activity that happens over given time periods which will prove useful when interacting with the social care teams at council.

4.6 Data Analysis

An analysis of data from the Strata system over the 7 month period is set out in Appendix 4. The data not only shows the richness of the information that is available via the Strata reporting tool, Strata IQ, but also shows:

- The growing volume of e-referrals over the period, currently running at a monthly average of 97 Care at Home and 36 Residential Care referrals
- The source and destination of referrals
- The number of referrals by age range
- A drop in the number of requests for information (RFIs) and analysis of the RFI reasons
- A drop in declinations and associated reasons

5. New Pathways

5.1 Rolling-Out Strata to Other Health and Social Care Pathways

As described at figure 5 above, the work undertaken to date shows that we are barely scratching the surface of what can be achieved with a fuller deployment of the Strata system. This section sets out those processes that we are currently working on with a view to applying Strata, through a Phase 2 deployment as well as a number of other potential priority areas for applying Strata in a future phase(s).

5.2 Processes In-Development (Phase 2)

Phase 2 has focussed on three referral processes from Health and Social Care to specific third party organisations, and also discharge referrals from Hospital Ward to START team. These referrals are made on **a daily basis**. There is currently no consistent method used by NHS or SBC to make these referrals.

Table 4: E-referrals in development

Type	Purpose of referral	Stakeholders			Estimated Annual No. of referrals	Estimated Cost per referral	Potential cost saving
		NHS	SBC	3rd party			
Encompass	for support to individuals organise their own care staff to enable them to live independently	Y	Y	Y	192	£14	£ 2,688
Borders Carers Centre	for assessment of carer's needs	Y	Y	Y	540	£14	£ 7,560
Borders Care & Repair	Minor adaptations	Y	Y	Y	1250	£14	£ 17,500
Hospital Discharge	Assessment from hospital ward to discharge hub (START team)	Y	Y		unknown*	£14	£ unknown

Note: *no current method in place to capture volume of referrals

Working with the organisations, NHS and SBC colleagues and Strata, existing paper referral forms have been reviewed. The e-referral processes have been developed and tested in Strata. Stakeholder engagement is still to take place, to ensure that relevant staff are aware of the change in process and trained appropriately. A number of similar processes have been undertaken and successfully deployed in Cumbria. In the event of IJB board approval for further use and adoption of the Strata system, we have been invited to collaborate with the Cumbria partnership and leverage their work to date and so be able to definitively calculate the hard and soft costs to be saved as well as other system benefits.

Figure 6: Generic e-referral process will replace the current processes in phase 2

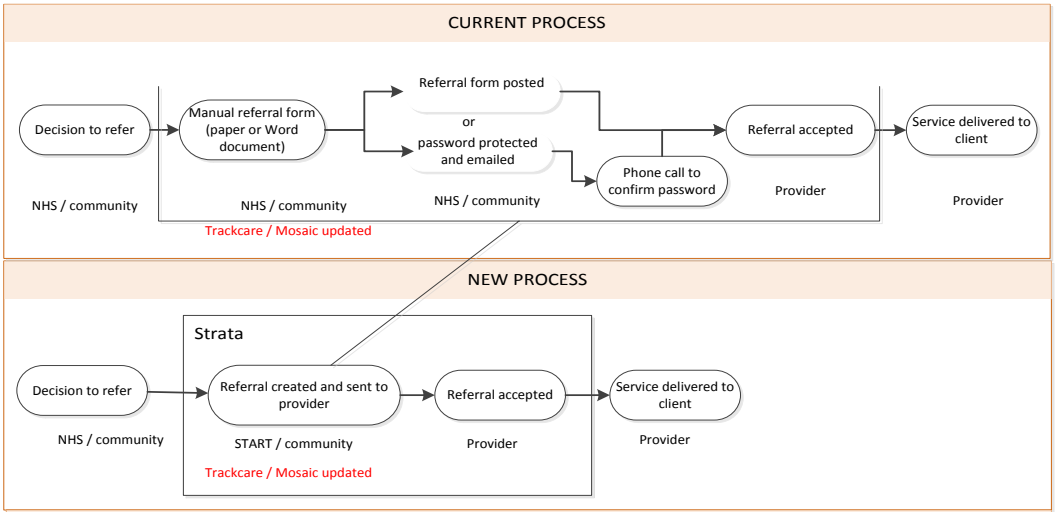
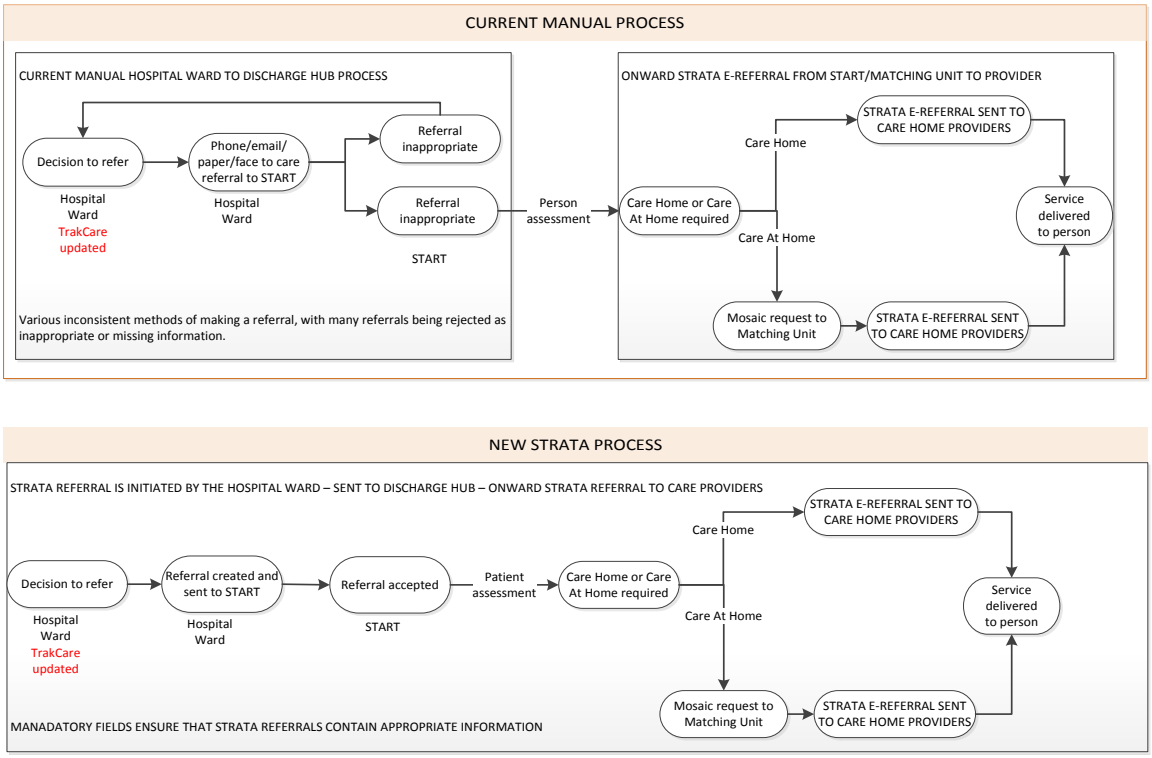


Figure 7: Hospital Ward to Discharge Hub (START team)



5.2 Further Potential Pathways

As stated earlier in this report, a number of additional pathways have been deployed by Strata Health in a number of other client settings (refer to Appendix 1). These pathways will be considered jointly by NHS and SBC.

Table 5: Further Potential Pathways to be assessed and prioritised

Placement	Assisted Living
	Mental Health (residential)
	Palliative / Hospice
	Personal Care Homes / Supported Living
eReferral	Central Intake and Triage (acute)
	Community Services (medical, professional)
	Community Services (general assistance, volunteer)
	Discharge Coordination
	Mental Health
	Rehab / Complex Continuing Care / Intermediate Care
	Safeguarding
	Social Services
	Specialty pathways (e.g., Frailty, Falls prevention)
Scheduled Care	Paediatrics
	Physiotherapy / Occupational Therapy
	Specialist / Diagnostics
Funding approvals	Services
	Equipment
Other products	Strata Connect
	Self / Public Referral
	Strata Kiosk(TM)

Consideration will also be given to how Strata can support existing and planned service redesign work including:

- Service Reviews and Outpatient Redesign Programme
- Older People's Pathway Redesign Programme
- Mental Health Transformation Programme
- Primary Care Improvement Programme

Impact analyses will be carried out on each pathway to determine the priority of pathways to be taken forward over the next six months and beyond.

6. Management Information

As stated at the beginning of this report, one of our major challenges is that currently we have no single system, or suite of systems that enable us to record, manage and review the outcomes of referrals across organisations. Referral records may be kept in many different ways including paper, email-trails and individual computer systems. Until now this has significantly limited the ability to capture and provide effective and accurate management information

One of the major benefits from the Strata system is its ability to capture real-time data across referral processes and provide strategic and operational management information. Data relating to all transactions over the system are illustrated in the figures below and in Appendix 4. Over time, this information is providing an insight into:

- Capacity across the range of providers (see fig 10 below)
  - The rooms available in each residential care establishment
  - The discharges out of residential care establishments and reasons
  - The capacity of care at home providers

- The volumes of referrals (see figs 8 and 9 below)
    - From each sender (Matching Unit, START team, Community Team)
    - To the care provider (organisations and individual facilities)
- The status of referrals:
    - The number of completed cases
    - The number of requests for further information (RFIs) and the reason
    - The number of declined referrals and reasons
- Audit trail – Compliance and Performance
    - The usage of the system by senders and providers including frequency of logging in and updating the system – e.g. making referrals or updating vacancies
    - Response times between the e-referral being generated to the placing of a person in the appropriate care setting
    - The audit history information could play a valuable role in the event of a potential data breach as the audit trail can show who has viewed a person's record, how often and when.

The above can be used to:

- Monitor actual trends
- Model future capacity requirements
- Monitor compliance in terms of use of the system
- Monitor contractual performance of providers
- Manage improvement – e.g. reducing the number of RFIs and declinations by using the information from the system to address the root cause of these.

The above information can be extracted from the strata and can be tailored to the needs of individual stakeholders including:

- Health & Social Care management/EMT/SPG
- Matching Unit
- Locality Teams
- Providers
- Contract Management

Again, this is not a "quick-fix"; the above information is, of course, dependent on compliance with the system and the quality and the completeness of management information is continuing to improve as compliance improves. It is important to see this as a capability that will take time to fully develop and exploit.

However, this information has not been available to us prior to Strata and, as is already enabling a better insight into the discharge management process. The cost of trying to gather comparable management information on a manual basis from multiple sources on a one-off, let alone on recurring, basis would be significant.

Thinking about how Strata will be applied to other pathways, the depth, breadth and quality of strategic and operational management information that will, over time, be available from the application of strata across multiple health and social care pathways will be potentially transformational.

Figure 8: Number of referrals to Residential Care Providers

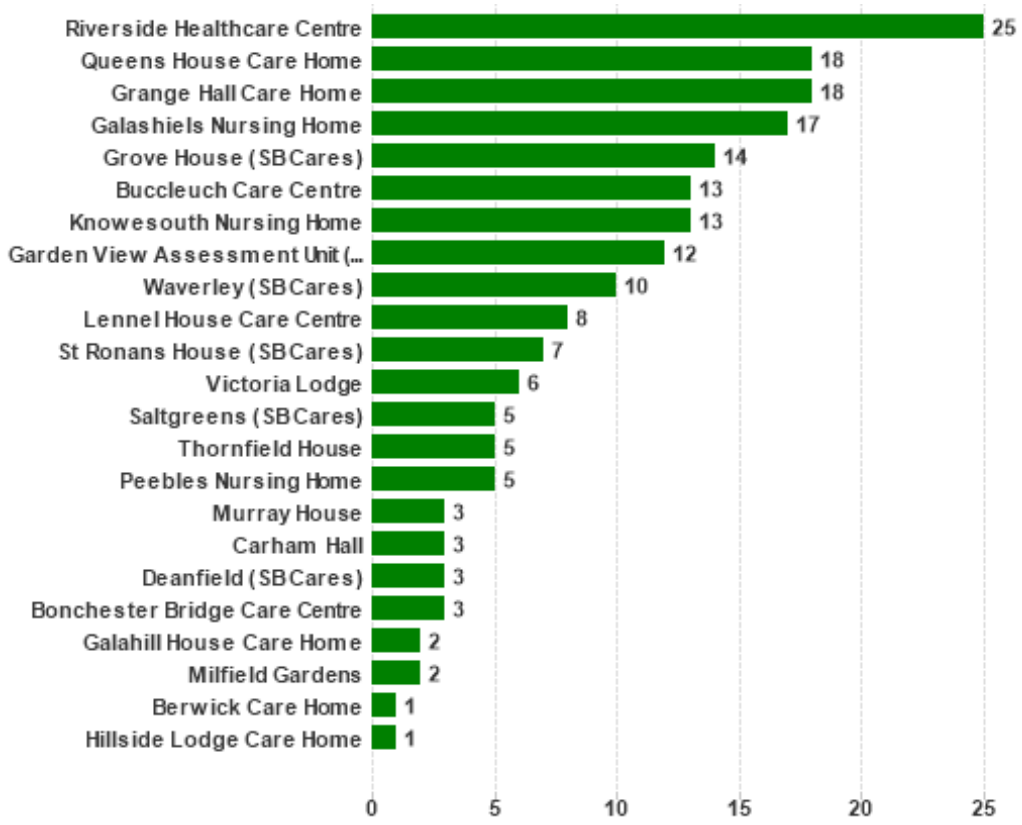
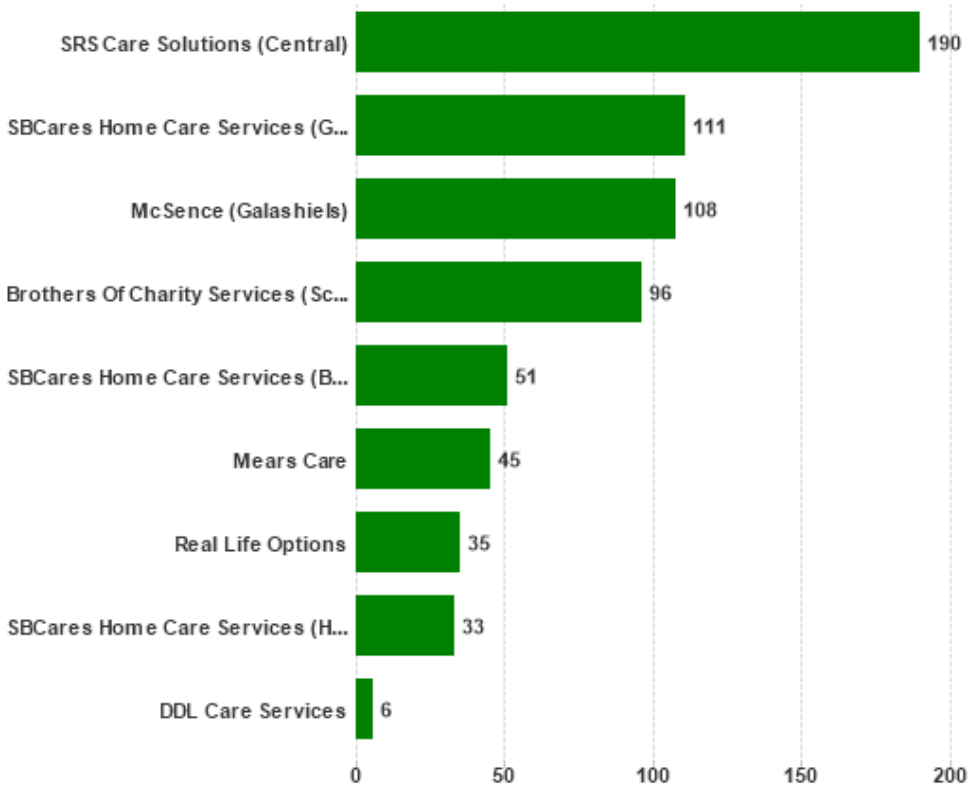
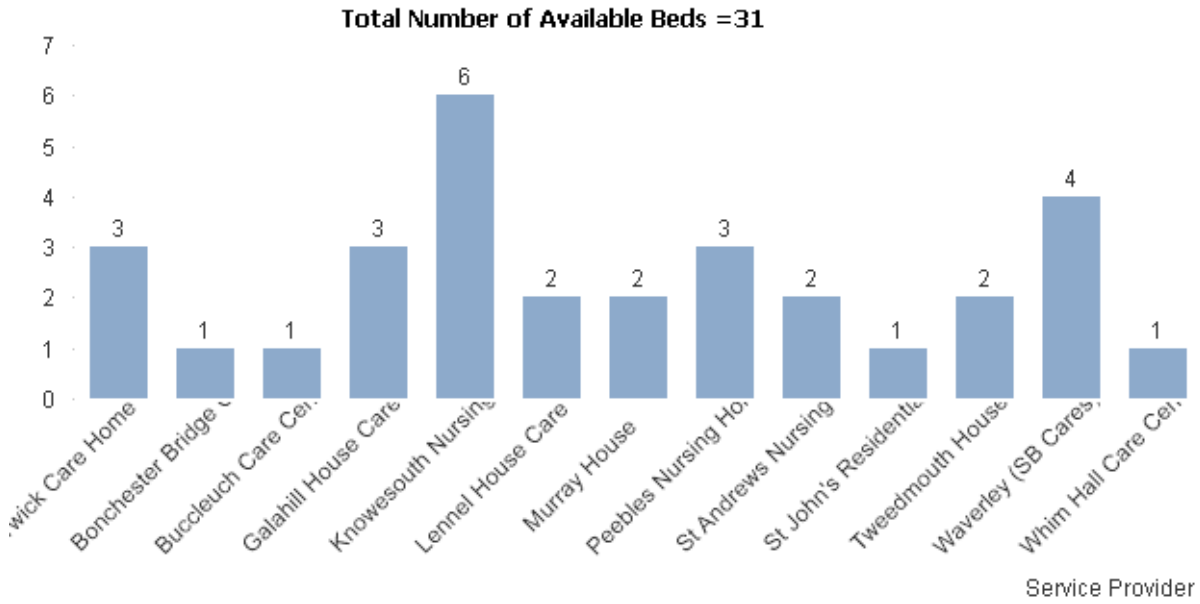


Figure 9: Number of referrals to Care at Home Providers



Strata is able to provide a live snapshot of care home vacancies based on responses from the suppliers as can be seen in the chart below.

Figure 10: Snapshot capacity of Residential Care Providers



7. Discharge Process Evaluation

Strata is one of five ICF-funded projects relating to the improving the discharge management process (the others being the Matching Unit, Discharge to Assess, Garden View and Hospital to Home). A wider review of these projects is included elsewhere on this agenda. The relationship between Strata and the other discharge-related projects is summarised below.

The five projects, to some extent, operate in isolation but need to be joined together and seen as complementary as they all interact and impact to a greater or lesser extent on each other. It should be noted that the Strata tool is seen as being the key and foundational platform and the central enabler going forward to ensure maximum beneficial impact.

- **Matching Unit**
  Currently 165 referrals per month, mainly going through Strata, however, if more services were able to send e-referrals to the Matching Unit (such as locality teams, Community Hospital / Acute Discharge Teams) this would support a wider range of patients/service users. Additional improvements could be realised by Matching Unit being able to send e-referrals to equipment suppliers, 3rd Sector Support Groups and GPs.

- **Discharge to Assess – Waverley**
  Waverley handles on average 18 admissions/month, but this could increase to 20+ if occupancy rates increased from better use of Strata. Currently, Waverley does not regularly post vacancies on Strata nor does it use it for onward referrals for discharged patients. If it did so it could save time and also reduce average length of stay by 1-2 days.

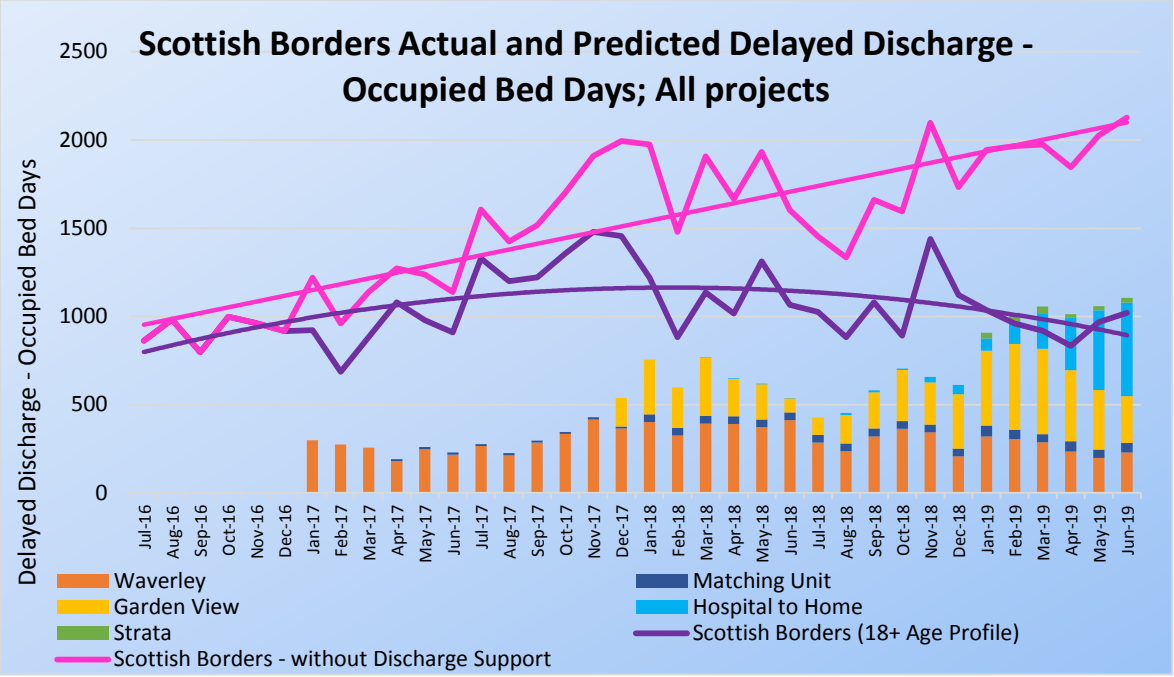
- **Garden View**
  Garden View does post vacancies regularly on Strata but does not always use Strata for onward referrals when discharging a patient, this has resulted in some discharge delays previously. There is scope for increasing occupancy and also reducing average length of stay

from better use of Strata and achieve better throughput of patients from the hospitals and enhance the overall view of the patient care pathway, providing a coherent single source of activity for all the agencies involved in support the service user.

- **Hospital to Home**
  H2H on average accommodates 15 new service users per week, Currently H2H does not really use Strata to manage referrals to care providers, if it did so it would result in an additional 21-25,000 referral per year being managed by Strata and could result in additional OBD savings and time savings for the nurses involved. It would also assist others involved in the service user's care in being able to identify the full packages of care in place for the service user.

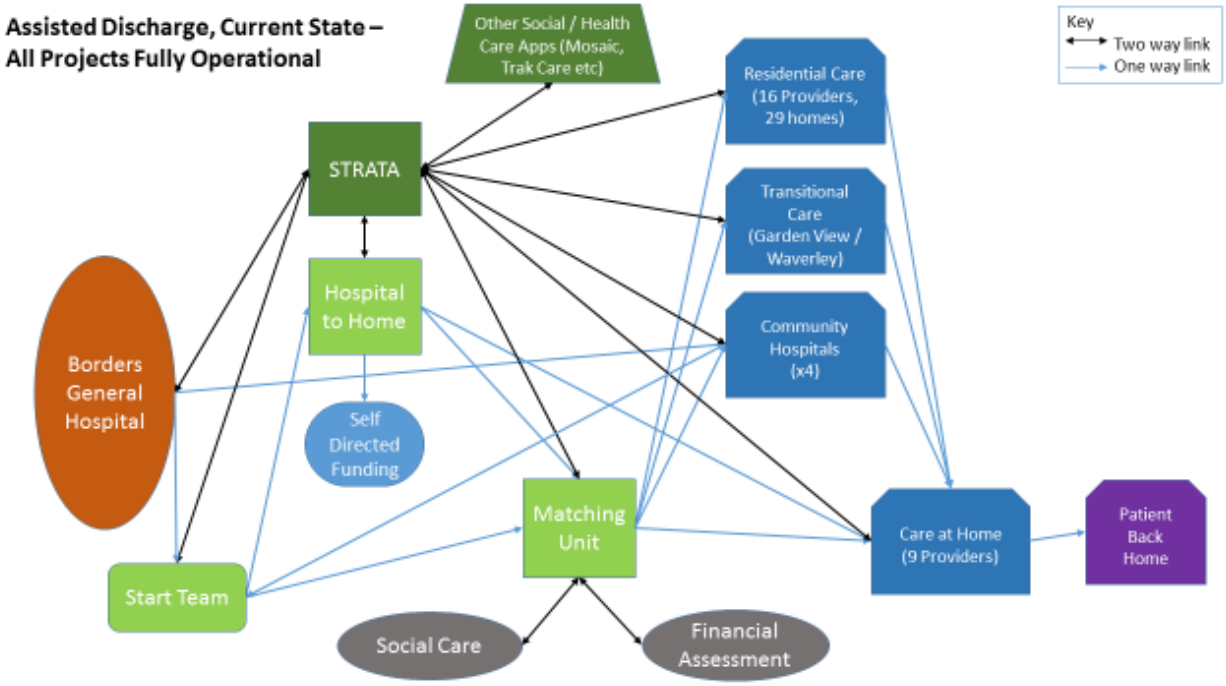
Whilst the effect of each of these projects can be evaluated in comparison, the true impact can only be seen when all projects are reviewed as a single entity, and a standardised e-referral process and capacity posting process with full compliance was used by all stakeholders.

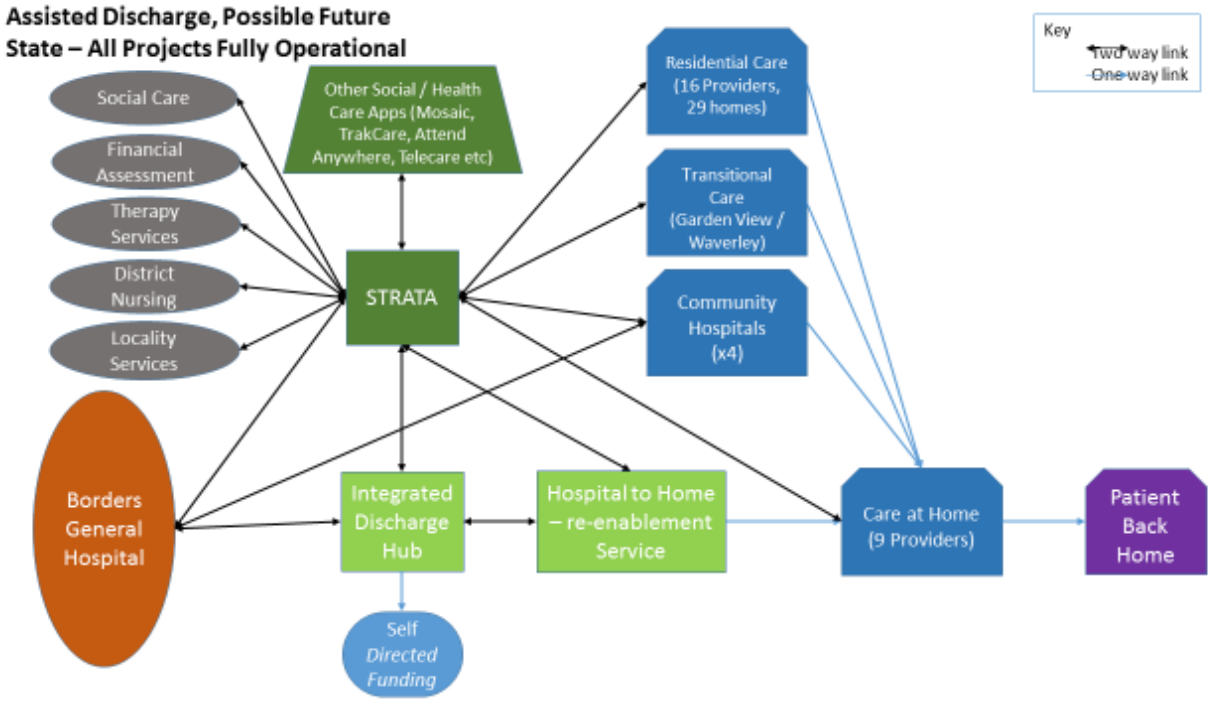
Figure 11



By looking at where the Delayed Discharge bed days that would have been incurred without intervention, compared to what has been achieved up until end June 2019, the chart above clearly shows the combined effects of these projects has almost halved the OBD due to delayed discharge. This is equivalent to being able to shut an entire ward and still retain some spare capacity in times of need.

To fully demonstrate the capability of Strata, a simple view of the "As Is" and potential "To Be" data flows can be illustrated as follows:





8. Conclusion and Recommendations

As experience with Strata grows, it is now possible to demonstrate real time savings in operational performance and better service for the end clients. The deployment of Strata now needs to be seen in a longer-term (multi-year) context, as an enabler in managing change, supporting the integration and improvement of service processes and helping management to bring about compliance and the behavioural changes needed to deliver on our strategic objectives.

This evaluation has shown that the Strata project:

- Is aligned with the Joint IT framework, addresses key IT issues raised by staff and practitioners, meets system requirements for an e-referrals process and addresses known data security risks.
- Delivers significant time savings in terms of referrals to residential care providers and care at home providers and enables the opportunity to make associated savings in terms of savings in administrative costs of the processes and occupied bed day savings.
- Has the potential to enable significant additional efficiency gains through extending Strata to other Health and Social Care processes – all without increasing the annual cost of Strata at £1/head of population of £115k/year.
- Provides unprecedented levels of real time management information which, in itself, provides the opportunity to help drive continuing improvements to service.
- Is the key and foundation platform and the central enabler going forward to ensure maximum benefits and efficiency gains from the other ICF-funded, discharge-related projects (Matching Unit, Transitional Care, Garden View and Hospital to Home) and other projects to deliver efficiencies, reduce occupied beds and prevention of admissions to hospital.

It is recommended that IJB approves the continuation of the Strata project until the end of the financial year. A further project evaluation will be produced for IJB in March 2020, with the potential recommendation to seek ICF funding to continue with the deployment of the Strata tool in a longer-term (multi-year) context.

Next Steps:

- Deployment of e-referrals to Encompass, Borders Carer Centre, Borders Care & Repair and Hospital Ward to Discharge Hub

- Impact analysis and Prioritisation of next pathways to be implemented following joint discussions with NHS and SBC professionals

- Expand the use of Strata based on the prioritised pathways

APPENDICES

Appendix 1 – List of Strata clients and the processes where Strata has been deployed

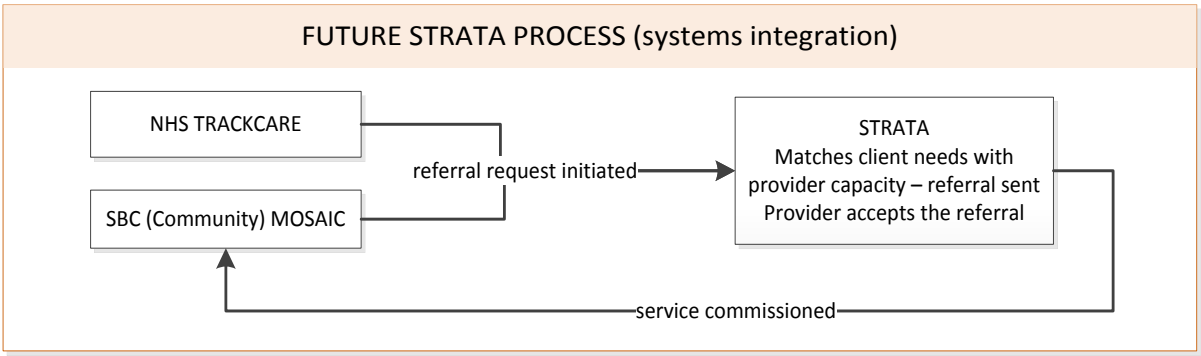
	Year installed	2005	2006	2006	2002	2001	2010	2007	2011	2016	2018	2015		2013	2014	2015	2018	2019	2019	2019	2019	2018	2020
		Canada											US	United Kingdom									NZ
	Type	VIHA	FHA	IHA	AHS - EDM	AHS - CAL	NW LHIN	TC LHIN	C LHIN	TSH	AOM	CIUSS C-S-MTL	GCACH	Cumbria	Tayside	LWH	Liverpool	Southport	Blackpool	NHS Medway	Torbay	Borders	CDHB
Placement	Assisted Living	✓	✓	✓	✓	✓																	
	Convalescence / Short Stay / Respite / Step up down		✓	✓		✓		✓						✓	o	✓	✓	o				✓	
	Long Term Care	✓	✓	✓	✓	✓		✓						✓			o				✓	✓	
	Mental Health (residential)	✓			✓	✓						✓		o									
	Palliative / Hospice				✓	✓		✓		✓				✓		o	o						
	Personal Care Homes / Supported Living	✓			✓	✓								✓		o							
eReferral	Central Intake and Triage (acute)											✓		✓			o		o				
	Community Services (medical, professional)							✓	✓		o		✓	✓	✓	o	o		o				o
	Community Services (general assistance, volunteer)							✓						✓	✓				o		o		o
	Discharge Coordination				✓									✓	✓				o				
	Mental Health	✓			✓	✓						✓	✓	✓									
	Personal Care Homes / Supported Living	✓																				✓	
	Rehab / Complex Continuing Care / Intermediate Care						✓	✓	✓	✓				✓	✓			o	o		o		
	Safeguarding													✓									
	Social Services													✓	✓				o		o		
	Specialty pathways (e.g., Frailty, Falls prevention)													✓			o			o			
Scheduled Care	Pediatrics											✓		✓									
	Physiotherapy / Occupational Therapy					✓								✓									
	Specialist / Diagnostics		o									✓		✓		o		o					
Funding approvals	Services				✓	✓								✓									
	Equipment				o	o																	
Other products	Strata IQ	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓	o	✓	o	o	o	o	✓	
	Strata Connect		o	✓	o	o	✓	✓	✓	✓		✓	✓	✓	✓	o	o	o	o	o	o		o
	Self / Public Referral										o			o									
	Strata Kiosk(TM)																✓	✓					

Live = ✓ upcoming = o

Table 6: Current and Future Benefits of Strata

Current Strata Process	Future Strata (with systems integration)
Reduction in manual processes and effort • No need to make multiple phone calls to providers, as capacity can be viewed within Strata • Strata matches client needs against capacity, taking into account client preference	**Further reduction in manual processes** - Data flows between systems, no need to re-key information - Automated referrals – for hospital discharge, the process starts in the hospital ward
Improvements to data security and quality • Referrals and support documents transferred securely between referrer sender and receiver • Improved data quality as Strata imposes mandatory fields – reducing requests for further information	**Further improvements to data quality** - Removes the risk of errors when rekeying information - Two way integration would allow data to flow automatically between systems allowing for streamlining of other internal processes
Positive impact on client/patient • Speedier outcomes delivered by removing protracted manual processes	**Positive impact on client/patient** - Speedier referrals – process can start earlier in the client journey, for example the hospital ward
Improved management information • Volumes of referrals, outcomes • Trends • Client journey	**Improved management information** - Integration brings unique identifiers, creating opportunities to report across Health & Social Care

Figure 4: Future Referral Process (with systems Integration)



Appendix 3 – Data Analysis

Based on period 1st Jan – 31st July 2019

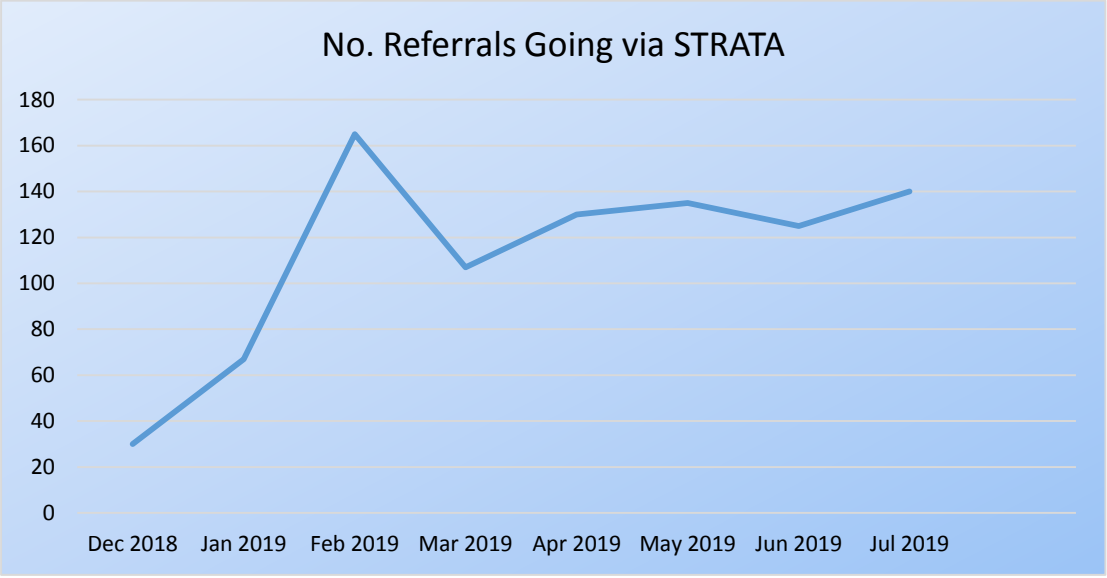
Information contained in the charts below come directly from either Strata system data or from ISD publicly reported data. In the case of Borders, the data shows that it took a couple of months for the Strata system to become adopted, and the use of the system is still growing. Given some local staff compliance issues, not all users are as efficient in recording their data as would be liked.

This data is comparable with similar data provided by NHS Tayside and NHS Cumbria where similar improvements have been observed. Tayside has seen a drop of about 50% in time taken for care at home referrals to be processed, most being actioned within 1-5 days. Thus it is possible Scottish Borders could see further efficiency savings as care providers become more familiar with Strata and other core services start to use Strata within Scottish Borders to send out referrals.

In one large health authority in Canada reported an 800% increase in referrals to care at home providers over a 6-year period of using Strata, whilst observing a 72% reduction in response time. This resulted in a significant reduction in delayed discharges from hospital saving many thousands of bed days.

In Cumbria, Strata is used across a wide variety of care settings and applications one of which is referrals to Palliative Care where the response time is now down to just 28hours.

Fig 8: Referrals being made via Strata (Jan – Jul 19)



In the 7 months, 1st Jan to 31st July 2019, a total of 869 referrals for 306 patients have been actioned.

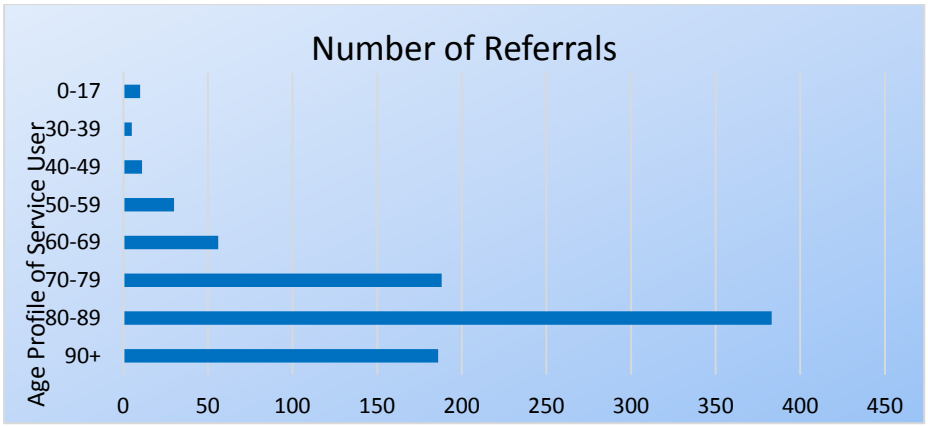
The referrals are from:

Source	No. Referrals	Monthly average
Care At Home: Matching Unit	675	97
Care Home:	194	36
Care Home Referrers:		
BGH Ward 14	*6*	
Locality Teams	*13*	
START Team	*175*	

This is reflects the destination of the referrals, Matching Unit looking at mainly domiciliary care and Start Team mainly concerned with 24hr residential care.

As would be expected, the bulk of the referral relate to patients in the 75+ age bracket, as can be seen from the attached age profile in figure 4 below

Fig 4: Referrals by age range



As users have become more familiar with the system, there has been a fall in both the requests for further information (RFI) and the number of referrals that have been declined (see figs 9-12). This suggests that the quality of information has improved – providers are receiving the information they need first time (Strata) has mandatory fields that require the necessary details to be included with the referral). However, as figure 10 shows, there is still scope to improve this with 43% of RFIs being due to info/forms not being provided with the e-referral.

Fig 9: Requests for further information (RFI)

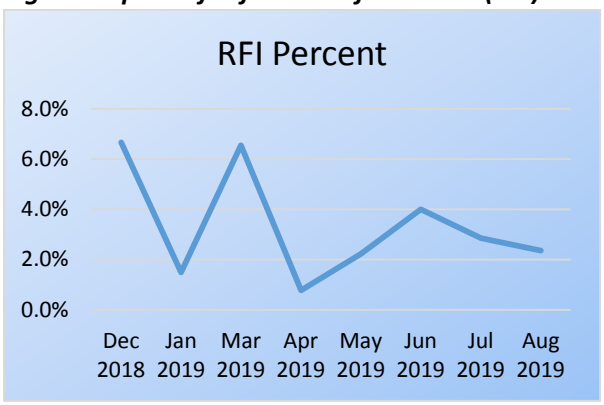
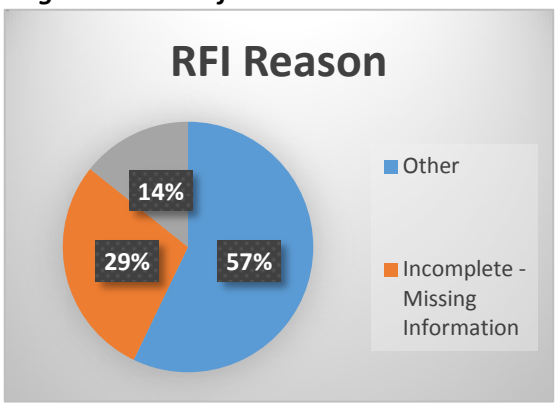


Fig 10: Reasons for RFI



The drop in the number of declined e-referrals is further evidence that Strata is improving performance. Referrers have visibility of provider capacity and while this likely to account for the 2% fall in declinations there is still scope to further improve this as can be seen in figure 8 which still shows that 80% of declinations are due to lack of capacity and e-referrals not meeting the acceptance criteria of the home.

Fig 11: Percentage Fall in Declined e-Referrals

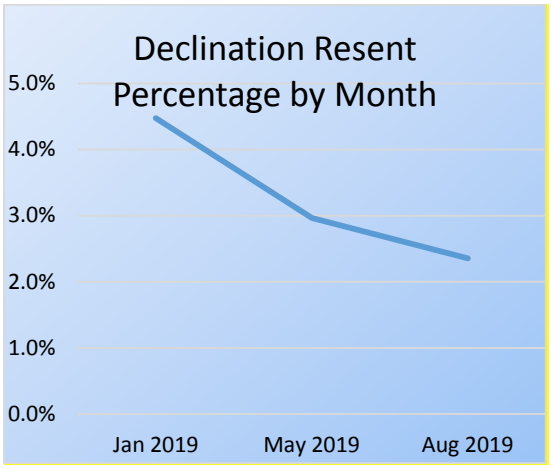
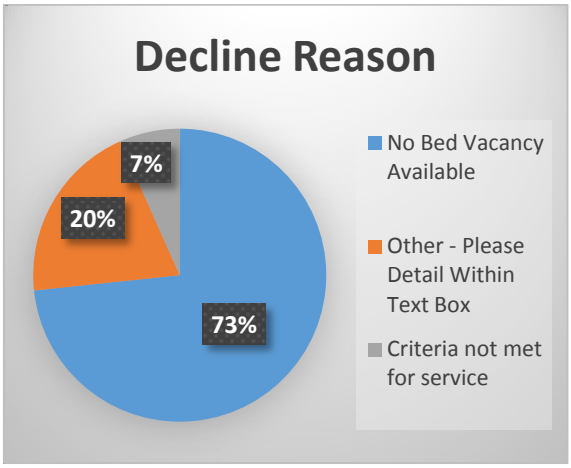


Fig 12: Reasons for Declined e-Referrals



Median respose times are also improving each month, but due to compliance issues with a few users the data is skewed and not fully representative of the more general picture. Most care homes respond to a referral within 48hrs, domicilliary care providers tend to take 2-5 days on average.