Unity Insights

BSW ICR

Evaluation Report

Contents

Executive summary

Context

The Bath and North East Somerset, Swindon, and Wiltshire (BSW) Integrated Care Record (ICR) program was established to align with the national shared care record initiative, a key component of the NHS Long Term Plan aimed at enhancing access to patient records and care plans for Health and Care professionals.

The ICR is a system that interfaces with different digital health and social care records, allowing secure access to key information by professionals involved in health and social care.

Unity Insights have been commissioned by BSW Integrated Care Board (ICB) to conduct an evaluation of the benefits of the implementation of the ICR, and support in populating a 'statement of planned benefits'. The aim of this evaluation was to identify and quantify benefits from use of the ICR across ICS partners, understand the user experience of the ICR across ICS partners and identify future developments for the ICR.

Key results

Time savings

The annual hours saved per user is greatest in acute and mental health trusts (110hrs), which is comparable to annual savings found in community care (93hrs) and social care and councils (88hrs) but much greater than in primary care (22hrs). In total, in the most recent 12 months (2022/23 Q3- 2023/24 Q2) 53,471 hours have been saved.

Activity avoided

Users reported the ICR enabling activity to be avoided. This included avoiding sending letters, printing, admitting patients and accepting referrals.

Monetised benefits

All reported benefits have been converted into a monetary value. Over a 12 month period from Q3 2022/23 to Q2 2023/24 this figure is £6.6m and when adjusted for optimism bias £3.4m.

User perceptions

Among the 105 survey respondents, 77% described the ICR as valuable, 80% used positive language to describe their experience and only 7% disagreed with the statement that not having access to the ICR would negatively impact their patients. Users emphasised the ICR's impact on work efficiency, particularly time-saving across various roles.

Users also pointed to the ICR's positive influence on the quality of care. Improved decision-making and increased patient service quality, driven by efficiency gains, were highlighted. The ICR's contribution to both clinical efficiency and enhanced service quality is seen by users as a potential driver for better patient outcomes. Despite this, feedback from a minority of users highlighted a perception of missing data which needs to be explored further as they could cause doubts about the ICR's reliability. A minority also expressed they would like more detailed data.

Uptake and usage

Increase in ICR uptake (unique daily users) is strongly correlated with increased usage (patient records accessed), with acute and mental health trusts being the largest users in both metrics as of October 2023 with 427 daily users. Their uptake and usage growth rates also surpass the other organisation types. Community care saw 97 daily users in October 2023, primary care had 82 on average and social care and councils had 27. Additionally, NHS England's report (Bell, 2023) comparing usages of shared care records ranks the BSW ICS in the middle for usage compared to other ICBs with 49.9 per 1000 population weighted views.

Care plans, including EPaCCS and ReSPECT forms, are expanding features of the ICR. EPaCCS creation rates are rising, although usage varies across organisation types. A rapid increase in ReSPECT form creation, especially in two acute health trusts, is notable.

Enablers and barriers

The majority of survey respondents and interviewees felt positively about the ICR and are 80% of survey respondents felt confident navigating it. They believed formal training was unnecessary, but some raised concerns locating specific information (for example, vaccine information) so training could help.

The perception of inconsistency in data availability had caused frustration among a minority of users, leading to reluctance in regularly checking the ICR for information, as it had proved to be unproductive.

A significant barrier to wider adoption of the ICR is a lack of knowledge and awareness of the system.

Recommendations

- **Enhance Communication and Promotion**

Implement communication strategies to increase awareness of the ICR.

- **Ensure Data Completeness**

Verify that all data is complete and explore why there are areas with missing information or blanks. This could be a result of user error for example.

- **Provide Basic User Training**

Offer basic training for users to maximise system effectiveness and to guide users with navigation. Ensure that users are proficient in utilising the system's features and functions.

- **Expand Internal Advocacy and Knowledge Sharing**

Encourage internal advocates to share insights and tips across services and organisations. Promote interorganisational knowledge sharing to enhance system effectiveness and usage.

- **Explore Usage Growth Potential**

Assess and explore the potential for increased ICR usage within each organisation. Identify opportunities for expanding usage to maximise benefits.

- **Continuous User Monitoring and Surveying**

Establish a system for continuous monitoring of user experience and usage.

Identify changes that can be shared and consider early interventions for improvement.

1. Introduction

1.1. Context and background

The landscape of modern healthcare and social services has undergone a transformative shift, primarily driven by the widespread adoption of electronic records for capturing essential assessments, diagnostics, care plans, and interactions with individuals and their families (Martin, 2019). This integration of electronic records across various agencies remains a crucial challenge that warrants attention and innovation.

An Integrated Care Record (ICR) is a system that interfaces with different digital health and social care records allowing secure access to key information by professionals involved in the delivery of care. These systems are being rolled out across England by local health services (NHS, 2022). This includes GP, hospital and other health and care organisations.

Beginning in the 1990s, several policies have been formulated with the objective of introducing integrated electronic records within NHS secondary care organisations in England (Clarke et al., 2017). Building upon these efforts, a more recent development occurred on July 31, 2020, when the NHS Chief Executive and the Chief Operating Officer jointly communicated with NHS leaders regarding the NHS's response to the Covid-19 pandemic (Stevens & Pritchard, 2020). This communication emphasised the necessity for local Integrated Care Systems (ICS) to establish comprehensive plans for the development and implementation of fully shared care records. This is also particularly important given the current prominence of technology as a solution and availability of further funding initiatives such as the 'ICS £30 million tech fund' (Archer-Williams, 2023a) and NHS England's £300 million procurement framework for digital pathways in primary care (Archer-Williams, 2023b). An integrated digital record also aligns with the NHS's Long Term Plan, which focuses on improving patient care, addressing workforce challenges, investing in technology, and ensuring the sustainability of the healthcare system (NHS, 2019). The NHS England Long Term Plan has also made it a clear priority to ensure that clinicians can access and interact with patient records and care plans wherever they are, which aligns directly with the intended outcome for the ICR.

1.2. The Integrated Care Record system

The Bath and North East Somerset, Swindon and Wiltshire (BSW) Integrated Care Record (ICR) programme was set up to meet the aim of providing a local (BSW) shared care record and uses the Graphnet Carecentric platform. The ICR initially went live in the Bath and North East Swindon (BaNES) locality and was later rolled out with Wiltshire and Swindon partner organisations in 2021 under a separate contract. It has an ongoing estimated cost of £1.4m per annum. In April 2022, the contracts for the ICR were novated following the change from BSW Clinical Commissioning Group

(CCG) to a single contract held by the BSW Integrated Care Board (ICB). Currently, the ICR has approximately 4,000 monthly users, and within the BSW ICR programme, partners include:

- Avon Wiltshire Mental Health Partnership (AWP)
- B&NES Local Authority
- BSW GP practices
- BSW Hospice partners
- BSW ICB
- Great Western Hospital Swindon
- Royal United Hospital Bath
- HCRG for Bath and North East Somerset (BaNES) Community Services
- Wiltshire Local Authority
- Medvivo and Out of Hours Services
- Salisbury Foundation Trust (FT) Hospital
- Swindon Local Authority
- Swindon Community Services
- Wiltshire Health and Care Community Services

The system has a range of intended outcomes such as enabling more collaboration across organisations, supporting the creation of a unified care plan for patients, and improving transfer of care between services (Zhang et al., 2023). By fostering better communication and collaboration, the ICR can also help prevent errors, reduce redundant tests, and avoid unnecessary treatments, all of which contribute to improved patient outcomes. Furthermore, timely access to complete patient information can aid quicker diagnosis and more appropriate treatment decisions as well as bring benefits to social care staff who have improved access to contact information.

1.3. Purpose of the report

Unity Insights have been commissioned by BSW ICB to conduct an evaluation on the implementation of the ICR.

The main purposes of this evaluation can be summarised as follows:

1. Identify and quantify the benefits from use of the ICR across ICS partners, with a recommended methodology for their ongoing measurement.
2. Understand the user experience of the ICR across ICS partners.
3. Identify future developments for the ICR across ICS partners.

1.4. Evaluation questions

The evaluation aims to examine the ICR's performance and effectiveness within health and social care. This evaluation uses a mixed method approach to review the firsthand experiences and

perceptions of health and care professionals, while quantifying the system's impact on efficiency. This section breaks down the key questions that the evaluation aims to explore. It outlines the outcomes and metrics, which will help support answering each question.

Listed below are the evaluation questions, which have been prioritised into two groups (core and exploratory). Evidence gathering and analysis have been designed to answer all the questions identified, however, greater emphasis should be placed on those deemed higher priority for this evaluation.

Core questions

1. How do service users perceive the ICR?

    a. What future developments or changes do they recommend?

2. What has been the impact of implementing the ICR?

    a. From a practitioner perspective

    b. From a patient/citizen outcome perspective

    c. From the patient/citizen experience

3. What are the quantifiable benefits of using the ICR?

4. Are there any enablers and/or barriers to implementation of the ICR across different organisations?

    a. What factors are influencing uptake of the ICR?

Exploratory questions

5. What are the environmental benefits of utilising the ICR?

6. What potential future benefits may be realised based on the wider usage of current functionalities (or new functionalities)?

2. Methodology

2.1. Quantitative Analysis

The quantitative analysis uses data supplied from BSW ICB and Graphnet. In the files provided by BSW ICB, there is time series data for patient records accessed through the ICR per organisation, and published end-of-life care plans (named 'Electronic Palliative Care Coordination Systems', or EPaCCS). In this instance, a 'patient record accessed' data point equates to a user accessing any amount of a patient's health record within the ICR. Both of these datasets captured respective unit count, per month, per organisation. The data sourced from Graphnet directly presents 'Hubtile' usage split by healthcare organisation in October 2023, where a 'Hubtile' describes a clickable link to different types of information within the ICR. This dataset describes total use of each type of Hubtile by each organisation. It should be noted that for some services (social care), access to some of the Hubtile information is limited due to agreed role-based controls.

The logic model (appendix A) highlighted some perceived benefits by users such as improved efficiency, more effective transfer of care, and faster access to information to name a few. These benefits were researched further to assess the feasibility of including them into the analysis. One benefit perceived by users of the ICR (as found in the qualitative research and workshops) is that healthcare professionals should now have greater access to a wider variety of patient information that spans across multiple health and social care records. If more people are choosing to use the system, and usage of different aspects of the ICR are rising over time, it is evident that more patient information is being accessed by a growing population of health and social care professionals. The analysis will provide an overview of ICR uptake and usage, which may collectively signal improvements in efficiency and coordination in health and social care. From analysing possible rates of change in uptake and usage over time, potential enablers and blockers to the system can then be identified. This output will directly support evaluation question 4, but also evaluation questions 2 and 3 since the perceived benefits and impact of the ICR are directly proportional to spread and adoption of the system.

Due to a lack of data describing material benefits of the ICR, along with the variety of external factors that can influence patient outcomes in healthcare settings, the quantitative analysis does not capture changes in patient outcomes and environmental benefits as a result of the ICR in isolation. Additional data would be required in future evaluations to explore the other evaluation questions pertaining to patient outcomes and environmental benefits.

The quantitative analysis can therefore be split into two sections: 'Implementation' defined by the number of unique daily users in the ICR across organisations, and 'Usage' that can be further divided by the volume of patient records being accessed, the volume of care plans being created, and the proportional split of Hubtile usage that describes the proportionate use of different features within the ICR across different organisations.

Unity Insights were also provided with time series data of ICR actions in Midwifery during an RUH pilot scheme, however this data is not used as part of the evaluation. This decision was made ultimately because the dataset was out of scope since most of the data was collected during a single pilot study in RUH and was limited solely to metrics relevant to midwifery, which do not reflect cross-organisational intentions for the ICR.

Self-reported time savings

Time savings are a key benefit of the ICR and were formed from self-reported estimates provided by survey respondents from the staff survey (please see section 0 for further details). 105 members of staff provided estimates of their time savings from the ICR across activities including:

- Asking other services/health and care organisations for patient information

- Looking for patient medical history

- Looking for up-to-date prescriptions

- Checking for patient's test results or recent interactions with health and social care

- Providing patient information to another services/organisations over the phone

- Checking patients' eligibility to be recruited for a clinical trial

- Avoiding duplication of tasks (annual health checks, tests results etc)

Estimates were provided in minutes saved per week and compared with information on each respondent's organisation, their staff role, and their responses to other questions such as the estimated number of patient records that they access per week. All results were eventually aggregated by organisation type.

To extrapolate these benefits to reflect the entire usage of the ICR, given the sample of 105 respondents from the survey, the number of minutes saved per patient record accessed was calculated using other responses provided in the survey. This information was then used to extrapolate the time savings to all ICR activity using the data available on patient records accessed using the system, by organisation type, and then annualised for 2022/23 from the weekly estimates.

2.2. Statement of Planned Benefits

The statement of planned benefits was completed through the development of a model in a standard NHS England Microsoft Excel template provided by the BSW ICB digital team. The model is provided separately alongside this report. The tool is used to estimate the planned and actual benefits realised by a project or intervention in monetary terms.

The analysis draws upon data from the quantitative analysis, literature sources, and (where necessary due to data gaps) additional assumptions to calculate the expected benefits. Benefit calculations are created based on the context of the intervention, the baseline or comparator, and

the nature of the expected benefit. The calculations demonstrate the method used to produce the monetised estimates.

More details on the benefit calculations and assumptions used are presented in the following sub-sections.

Optimism bias

An 'optimism bias' is applied to reduce the benefits in the model in accordance with HM Treasury Green Book (HM Treasury, 2022) principles. Optimism bias is determined by the strength of the underlying evidence. Where uncorroborated assumptions have been used or evidence is obtained from sources that are less applicable (through factors such as the age of the source, relevance to UK healthcare, and relevance to the specific geography, pathway or intervention) a larger optimism bias is applied.

The optimism bias factor is applied for each benefit stream and is applied based on the lowest quality data source used within that stream. An additional overall model optimism bias of 15% is also applied to the final estimates to account for the methodology used.

In the statement of planned benefits model provided alongside this report optimism bias is applied by default as this is the recommended setting, but it can be toggled off for illustrative purposes.

Benefit streams

Time savings

| Number of records accessed in respective setting | x | Cost saved per record accessed (respective staff structure and time savings) | x | Optimism Bias Correction (if included) | x | GDP Deflator (if included) |

Figure 1: Time savings benefit calculation

These benefits are non-cash releasing as it is unlikely that staff numbers and costs would be reduced by the relevant organisations, but these staff members can be re-deployed for other uses. The value of time saved to be re-used elsewhere is the salary cost for that staff member's time.

This benefit was split by organisation type, to account for differences in usage and salary costs between these groups. The method for calculating the cost saved per record accessed is described in the next sub-section.

As the time savings are self-reported, an optimism bias factor was applied to reduce the estimated benefits by 40%.

Reduction in the number of letters sent to the GP

| Number of patient records accessed per month/year | x | Letters sent before ICR between providers | x | Cost of postage | x | Cost of printing |

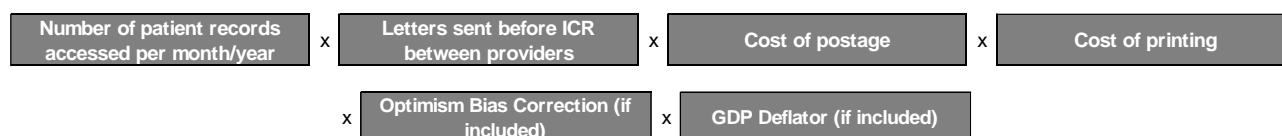| x | Optimism Bias Correction (if included) | x | GDP Deflator (if included) |

Figure 2: Reduction in the number of letters sent to the GP benefit calculation

It is expected that usage of the ICR will reduce the number of letters requesting information from the GP on a patient, thus saving printing and postage costs. Key parameters were sourced from the literature.

An optimism bias factor of 30% was applied to reduce this benefit, due to the age and applicability of the literature used.

Digitisation of patient care plans

Care plans published	x	Proportion of patients using paper-based communication	x	Pages per care plan	x	Cost of postage

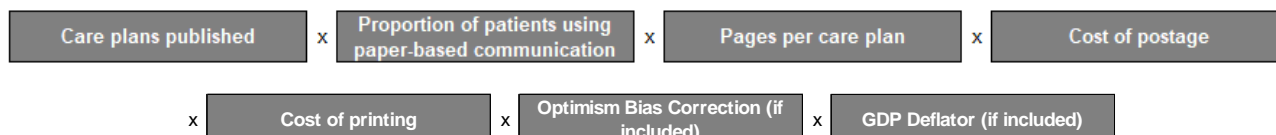|	x	Cost of printing	x	Optimism Bias Correction (if included)	x	GDP Deflator (if included)

Figure 3: Digitisation of patient care plans benefit calculation

The ICR enables digitisation of patient care plans, reducing printing costs. Key parameters were sourced from the literature.

This benefit was reduced by 10% using optimism bias, as the relevance and age of the underlying research was mostly adequate.

Additional forecast benefit streams

Due to challenges with data collection two additional benefit streams, hypothesised following the logic model workshop conducted as part of the project, were estimated using best available literature and some assumptions to estimate their potential impact. These benefits were reported by individuals in the user survey (*n*=24). These benefits are indicative and would be strengthened with further data collection or research.

Estimated emergency admissions avoided

The ICR can potentially prevent emergency admissions by providing better, more actionable information to clinical staff members more quickly.

Number of emergency admissions	x	Percentage of emergency admissions avoided by ICR	x	Implementation scale factor	x	Unit cost of an emergency admission

	x	Optimism Bias Correction (if included)	x	GDP Deflator (if included)		
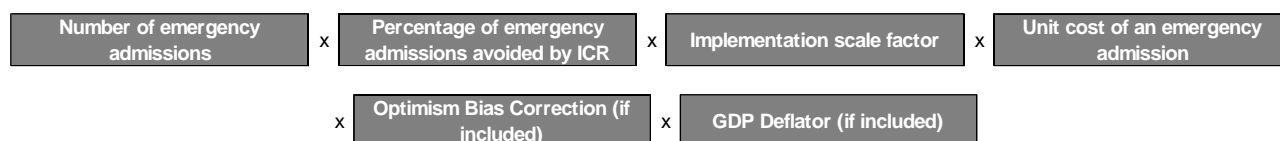
Figure 4: Emergency admissions avoided benefit calculation

The "implementation scale factor" in the above calculation relates to a ratio of records accessed in each year compared with 2022/23. In this way, the unit benefit (percentage of emergency admissions avoided) can scale up or down as ICR usage increases or decreases.

The unit cost of an emergency admission and the number of emergency admissions are measurable in this benefit stream, but the percentage of admissions avoided is not measurable based on current evidence. As a result, a value of 1.14% is assumed for this value as this is based

from eight survey respondents (total *n*=105) indicating they were able to avoid an unplanned admission, and an assumed 1 avoided admission per quarter per user.

Due to this assumption, an optimism bias of 40% is applied. Additionally, the use of this assumption is why this benefit stream has been presented separately and is recommended to be treated as indicative.

Estimated duplicated referrals avoided

Number of referrals	x	Percentage of referrals that are duplicated	x	Percentage of duplicated referrals prevented by the ICR	x	Time cost of duplicated referral (hours)

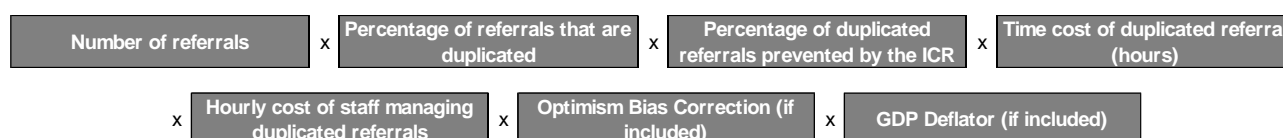| x	Hourly cost of staff managing duplicated referrals	x	Optimism Bias Correction (if included)	x	GDP Deflator (if included)

Figure 5: Duplicated referrals avoided benefit calculation

The above calculation is currently based on outpatient referrals. The percentage of referrals that are duplicated and the time cost of duplicated referrals are based on literature. The percentage of duplicated referrals that can be prevented by the ICR is, however, based on assumption and requires further evidence. This value is currently set to 50%. As a result, similarly to the emergency admissions avoided benefit, this benefit stream should be considered as indicative of the potential of the ICR. The hourly cost of staff is also based on the use of band 8d staff members, but this is partially supported by literature.

Additionally, there is a risk that the time savings associated with this benefit may be partially double-counted with the time savings estimated in the main benefit streams. The level of overlap is unknown.

An optimism bias of 40% was applied to this benefit stream.

Monetisation of time savings

Building upon the quantitative analysis described in section 2.1, the number of minutes saved per patient record accessed were obtained for each respondent to the survey. An estimated hourly salary cost was estimated for each respondent based on their staff role, years of experience, and using NHS salary banding (with on-costs included). The monetary benefit was then calculated by multiplying the hourly salary (and on-costs) cost by the amount of time saved per record accessed, which yielded a monetary benefit per record accessed. The monetary benefit per record accessed was then multiplied by the amount of records accessed across 2022/23 and 2023/24 YTD (up to Q2), in order to extrapolate the survey results to the wider usage of the ICR. An indicative example of this calculation is presented below:

$$£ \, Acute \, \& \, MH \, Trust \, benefit \, of \, time \, saving$$
$$= records \, accessed \, by \, Acute \, \& \, MH$$
$$* \sum \left(\frac{Acute \, \& \, MH \, staff \, self \, reported \, time \, saving \, per \, week * £ \, staff \, salary \, band \, hourly \, rate * 52}{Acute \, \& \, MH \, self \, reported \, records \, accessed} \right)$$
$$* (1 - OB)$$

As a robustness check, the analysis was repeated using the benefits per staff member, rather than per record accessed, and then extrapolating the benefit using the number of unique daily users. This approach was not used as the primary analysis, however, due to the potential inaccuracies of the 'unique daily users' metric reflecting the number of individuals using the system each week This check is described alongside the primary analysis in the results section.

2.3. Qualitative Analysis

Staff surveys

Unity Insights conducted staff surveys across the BSW area to capture the insights, opinions, and experiences of users of the ICR. The survey aimed to gather feedback on core evaluation themes outlined in section 1.4 particularly focusing on the time-saving aspects of the ICR, its impact on patient outcomes and factors influencing uptake.

The survey was disseminated to staff members through a two-pronged approach. Firstly, a survey link hosted on Survey Monkey was emailed directly to staff members' email addresses. This email outreach ensured that the survey was accessible to a wide range of participants within the BSW region. Secondly, to enhance visibility and accessibility, the survey link was posted on the home page of the ICR. This placement allowed users to encounter the survey link when logging into the ICR.

Prior to the full survey launch, a preliminary soft launch was undertaken to ensure the survey's effectiveness and alignment with the evaluation objectives. During this initial phase, users of the ICR that had previously contributed to the logic model workshop (appendix A) were invited to complete the survey. This phase generated 15 responses, which contributed to refining the survey's structure, clarity and relevance, responses to this survey can be found in appendix B.

Comprising a total of 15 questions, the questions were designed to offer a mix of fixed-response options and opportunities for participants to provide free-text responses, the link to the questionnaire can be found in appendix C. The survey took between 7-10 minutes to complete and ran from the 22nd of August to the 19th of September 2023. The survey was therefore open for 28 days and gathered 105 responses. This number was lower than the predicted response rate considering the total of monthly users is in excess of 4,000.

The fixed choice responses were analysed using descriptive statistics to identify trends and patterns from the quantitative data. Thematic analysis was used to analyse the free text responses.

Semi-structured Interviews

Participant selection

Participants for the semi-structured interviews were drawn from the pool of survey respondents who were willing to be interviewed. The survey responses provided a foundational understanding of these participants' experiences and perspectives, which was used to select participants suitable for interview.

Interview structure:

The interviews were guided by overarching themes related to the ICR. While the interviews had a thematic framework, the questions themselves were designed to be open-ended and exploratory, enabling participants to share their perspectives, opinions, and examples in their own words.

Interview Focus:

The interviews explored a range of themes, including perceived time savings, impact on patient outcomes, impact on their roles, barriers to uptake, specific user cases and suggestions for improvement. The interviews were hosted over Microsoft Teams video calls and lasted approximately 30 minutes.

Data analysis:

An analysis grid (appendix D) and the interview transcripts were reviewed to identify key ideas, perspectives and experiences highlighted by respondents. These narratives were then grouped into overarching topics and sub-themes. Selected quotes from participants' responses were integrated into the analysis to illustrate and support the identified themes.

3. Results

3.1. Quantitative Findings

The organisations present within the analysis were grouped by organisation type. There are a range of professions contained within each organisation, but the benefits of the ICR associated with each profession will vary. In order to provide a more accurate perspective for this analysis and mitigate the variation in profession-specific usage of the ICR, the organisations are grouped by the type of healthcare service they provide. The breakdown of organisations, by organisation type, is as follows.

- **Acute & MH Trust:** Avon and Wiltshire Mental Health Partnership, Great Western Hospitals (GWH), Royal United Hospital (RUH) and Salisbury NHS Foundation Trust.

- **Primary Care:** B&NES Enhanced Medical Services (BEMS), GPs, and Medvivo.

- **Community Care:** Dorothy House Hospice, Prospect Hospice, HCRG, Swindon Community and Wiltshire Health and Care.

- **Social Care and Councils:** BaNES Council and Wiltshire Council.

Time savings

The time saved by staff using the ICR varied across different care settings or organisation types. Figure 6 compares the minutes saved per patient record accessed, or the per-unit benefit of ICR activity, against the annual time savings per member of staff using the system. Social care providers and councils observed the greatest unit benefit for their ICR activity, with each patient record their staff members accesses saving 11.3 minutes on average. Acute and mental health providers and community care providers received a smaller unit benefit (7.5 minutes and 7.4 minutes respectively), while primary care saw much smaller unit benefits (3.0 minutes) when compared to other care settings.
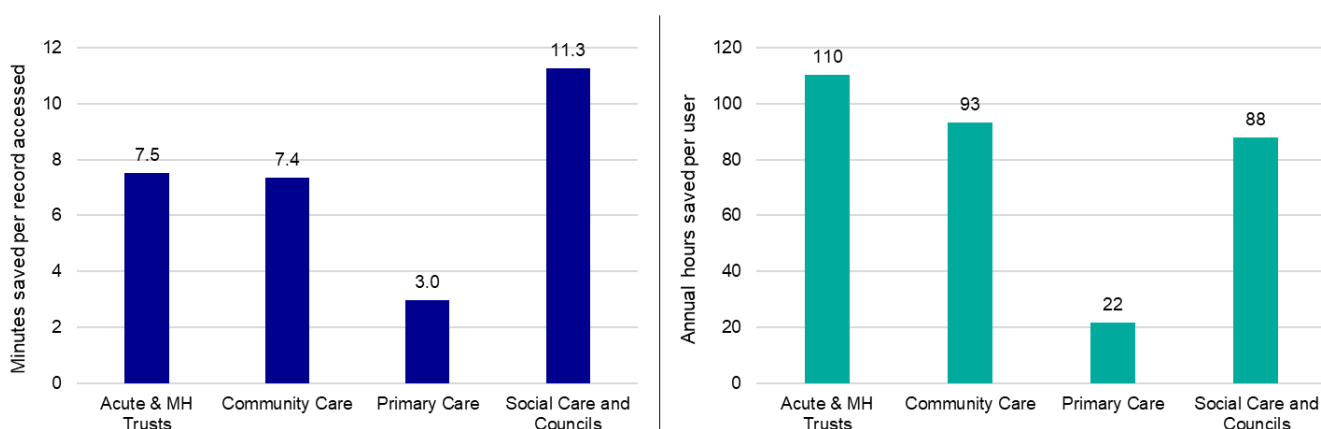

Figure 6:Minutes saved per patient record accessed (left-hand side); Annual hours saved per user (right-hand side)

This contrasts with the annual time savings per staff member using the system (also Figure 6), where the acute and mental health providers receive the benefits of greater activity (Figure 6) to save the most time for each staff member with an estimated 110 hours saved in 2022/23 on average. Social care and councils and community care providers saw a slightly smaller benefit per user of 93 and 88 hours per year respectively, while primary care continues to observe the smallest benefits with 22 hours saved per user per year.

The total number of hours saved in 2022/23 and in the most recent 12 months available (2022/23 Q3 – 2023/24 Q2) are displayed in Table 1.

Table 1:Estimated total hours saved for 2022/23 and the most recent 12 months available (up to 2023/24 Q2)

Care setting	Hours saved in 2022/23 FY	Hours saved in most recent 12 months (2022/23 Q3 - 2023/24 Q2)
Acute & MH Trusts	33,211	41,828
Community Care	3,652	5,832
Primary Care	1,024	1,887
Social Care and Councils	3,698	3,925
Total	**41,585**	**53,471**

Quantitative findings summary

The following sections are a summary of key findings gathered from the quantitative results, which are presented in full, with charts and descriptions, in appendix E.

Implementation

Unique daily users each month per organisation type

- Acute and mental health trusts had 427 daily users of the ICR in October 2023, equalling 67.5% of the total ICR user population.

- A spike in acute and mental health trust users occurs in March 2022 due to sudden uptake in RUH.

- Community care, Primary care, and social care and councils made up 15.4% (n = 97), 12.9% (n = 82), and 4.3% (n = 27) of the total ICR user population, respectively.

- Community and Primary care saw persistent growth in the quantity of unique daily users from May 2022 onwards.

Usage

Patient records accessed each month per organisation type

- Acute and mental health trusts accessed 40,158 records in October 2023, equalling 75.8% of the total.

- Community care, Primary care, and social care and councils made up 11.2% (n = 5,911), 9.2% (n = 4,889), and 3.8% (n = 2,023) of the remaining patient records accessed, respectively.

- Increased ICR usage (patient records accessed) is strongly correlated to the rise in uptake (unique daily users).

Patient records accessed per unique daily user

- There remains a significant difference between the largest quantity of patient data accessed per unique users (n = 94) and the lowest (n = 60) in October 2023, which describes 'Acute and Mental Health Trusts' and 'Primary Care' respectively (which is near equal to the ratio of usage per user in community care)

- The 'drop' in the ratio of uptake-to-usage for acute and mental health trusts in March 2022 occurs because of a sudden increase in the user population for RUH. Explained by an improvement in their data quality of audit data.

Care plans

- Care plans are an expanding feature of the ICR, with EPaCCS being created at a growing rate even though usage of this feature is sporadic across organisation types. There has also been a rapid uptake in the creation of ReSPECT forms, namely within two acute health trusts.

Hubtiles

- There are 69 unique Hubtiles (i.e., clickable links that send users to different types of information within the ICR) that can be selected when using the ICR not including navigation tiles that only allow users to jump across the ICR more efficiently.

- From that list of options, the total number of Hubtiles that were selected in October 2023 by acute and mental health trusts totalled 49,606, which equates to 76.6% of all Hubtiles selected in the ICR that month.

- The next largest user is community care, totalling 7,242 Hubtiles selected and equating 11.2% of total usage.

- Primary care selected 5,206 Hubtiles, equating to 8.0% of total usage.

- Social care and councils make up the rest, selecting 2,739 Hubtiles, which equates to 4.2% of total usage.

3.2. Statement of planned benefits findings

The statement of planned benefits was produced as a tool for the BSW ICR team to support with decision-making and benefit reporting, but also to be updated as more evidence becomes available. As a result, the findings presented in this sub-section are based on a reasonable central scenario based on all data available at the time of writing (up to the end of October 2023).

The benefits outlined in section 2.2 were estimated based on the findings from the quantitative analysis above and supplemented by unit cost estimates. The expected results, adjusted for optimism bias, of the ICR implementation for the 12 months period from 2022/23 Q3 – 2023/24 Q2 are displayed in Figure 7.
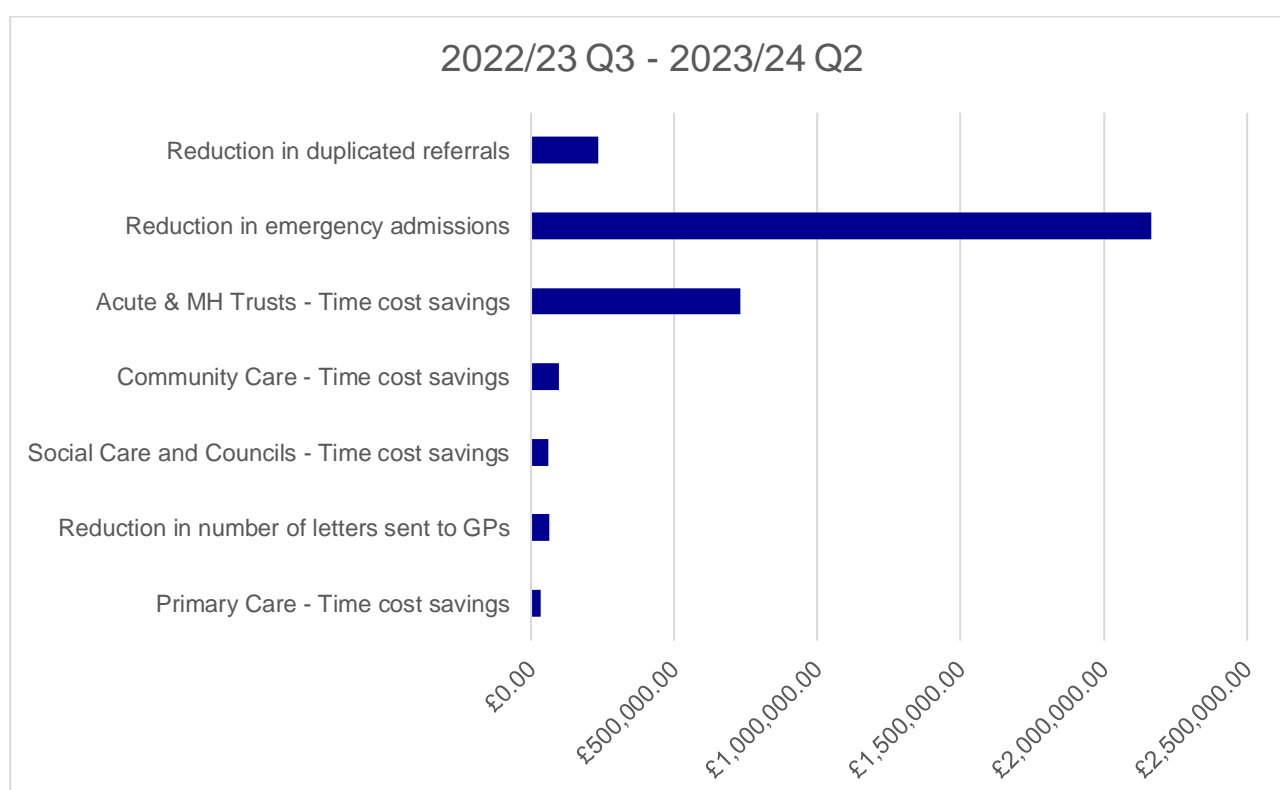
Figure 7: Benefit stream estimates for period of 2022/23 Q3– 2023/24 Q2, with optimism bias applied.

The benefits modelled for the 12-month period to the end of Q2 2023/24 totalled £6.62m (£3.38m with the optimism bias correction applied). For the 18 months of 2022/23 – 2023/24 Q2, benefits were estimated to total £9.45m (£4.83m with optimism bias). This compares with estimated costs of approximately £2.1m in the same period.

If trends from the previous 18 months were to continue, then the forecasted benefit for:

- FY 2023/24 is £7.39m (£3.78m with optimism bias) and

- FY 2024/25, £8.15m (£4.17m with optimism bias).

Figure 8 below shows the actual and forecasted modelled benefits for different time periods, where any figures calculated from Q3 2023/24 onwards were forecasted from the previous 6 quarters actuals.

Figure 8: Demonstration of actual and forecasted modelled benefits

Time period	Actual modelled benefit						Forecast modelled benefit						Nominal	With Optimism Bias
	2022/23				20223/24				2024/25					
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
18 months TD	■	■	■	■	■	■							£9,451.4k	£4,832.5k
12 months TD			■	■	■	■							£6,618.5k	£3,384.5k
6 months TD					■	■							£3,593.4k	£1,838.4k
FY 2022/23	■	■	■	■									£5,858.0k	£2,994.0k
FY 2023/24					■	■	■	■					£7,388.2k	£3,779.6k
FY 2024/25									■	■	■	■	£8,145.6k	£4,170.0k

More granular results from this analysis are available within the statement of planned benefits tool presented alongside this report.

Using the assumptions outlined in section 2.2, the scale of these potential benefits, adjusted for optimism bias, are presented in Table 2 below.

Table 2: Potential benefit totals

Benefits	2022/23	2023/24 YTD (up to Q2)	Total
Primary Care - Time cost savings	**£17.4k**	**£20.6k**	**£38.0k**
Reduction in number of letters sent to GPs	**£44.9k**	**£40.8k**	**£85.7k**
Social Care and Councils - Time cost savings	**£55.7k**	**£28.6k**	**£84.3k**
Community Care - Time cost savings	**£59.1k**	**£58.0k**	**£117.1k**
Acute & MH Trusts - Time cost savings	**£562.6k**	**£419.0k**	**£981.5k**
Emergency admissions avoided*	**£2,069.1k**	**£1,130.2k**	**£3,199.4k**
Duplicated referrals avoided*	**£185.2k**	**£141.3k**	**£326.5k**
Potential benefits	**£2,994.0k**	**£1,838.4k**	**£4,832.5k**

The additional forecasted benefits outlined in section 2.2 are indicative of the potential that the ICR has if further evidence can be collected to corroborate.

If trends from the previous 18 months continue, then the forecasted benefit (including optimism bias correction and potential benefits included) for the full 2023/24 financial year is £3.78m.

Robustness check

Repeating the above analysis based on the number of staff members using the ICR, scaling the benefits using the 'unique daily users' metric, instead of the number of records accessed (used as a proxy for 'usage' activity) yielded a total benefit estimate within 1% of the primary analysis results outlined above.

Time savings

Breaking down the benefits from time savings further, it was noted that different organisation types yielded greater benefits than others for each unit of activity (accessing a patient record). Figure 9 displays the non-optimism bias adjusted figures, showing that social care and councils derive the most value for each unit of activity with the value provided to acute and mental health trusts and community care comparable but slightly lower. Primary care users, however, derived just over a third of the value from their usage of the ICR when compared with the social, community care and councils group.
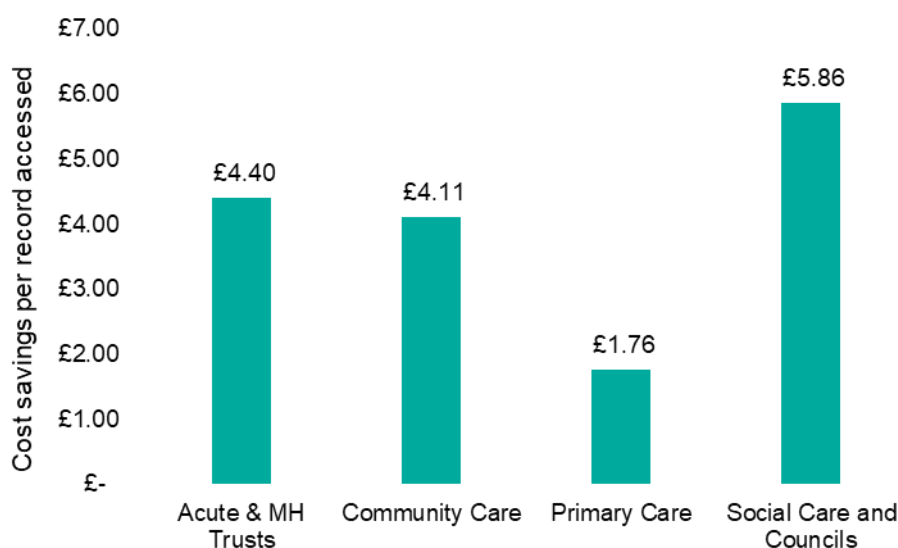
Figure 9: Non-optimism bias adjusted benefits per patient record accessed by organisation type (in 2022/23 prices).

When examining the benefits per user (or staff member) of the ICR (Figure 10), the main difference is that the acute and mental health trusts are seeing 32% more benefit per staff member than the community care, social care and councils organisations. Drivers of this difference include activity being concentrated in fewer staff members (Figure 28) in the acute and mental health trusts, and that acute and mental health trust staff using the ICR typically occupied higher salary bands than staff in community care, social care, and council organisations.
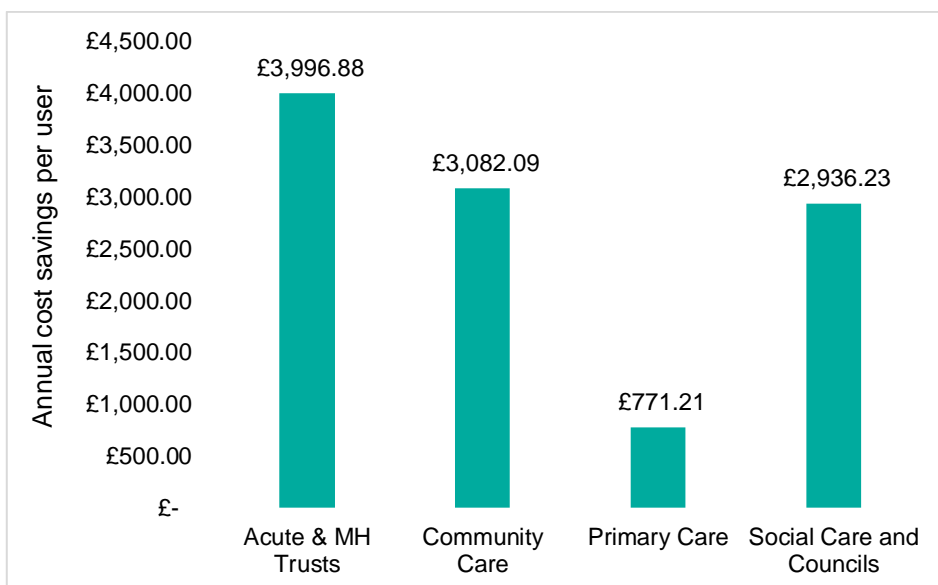
Figure 10:Non-optimism bias adjusted benefits per user by organisation type (2022/23 prices).

Quarterly data from 2022/23 up to 2023/24 Q2 demonstrates that benefits are growing with time, with the greatest benefits realised in more recent quarters (Figure 11). This trend matches general trends with increasing activity over the time period (Figure 25 and Figure 26) and is indicative of greater benefits in 2023/24 and future years if benefits realised in Q4 are sustained or continue to grow.
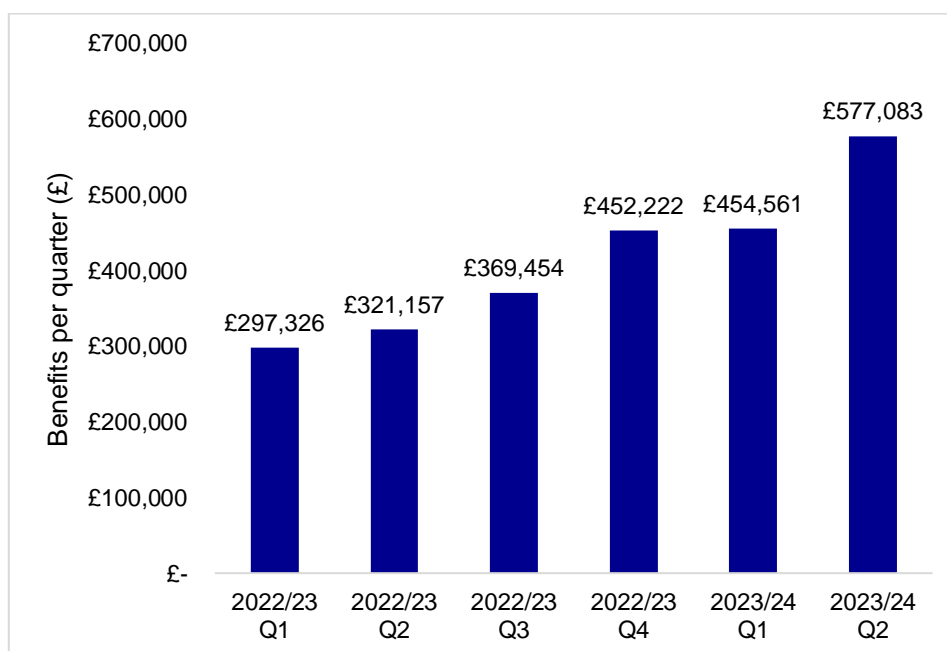
Figure 11: Non-optimism bias adjusted time saving benefits realised per quarter in 2022/23 – 2023/24 Q2 (all represented as 2022.23 prices).

3.3. Qualitative Findings

Staff Survey

The staff survey aimed to gather the opinions and experiences of users of the ICR. These findings are shown below.

Respondent demographics

Figure 12 shows the spread of roles of the 105 respondents that completed the survey. 30% (n=31) of respondents were Nurses, 24% (n=25) were Allied Health Professionals (AHPs), and 22% (n=23) were Medics.
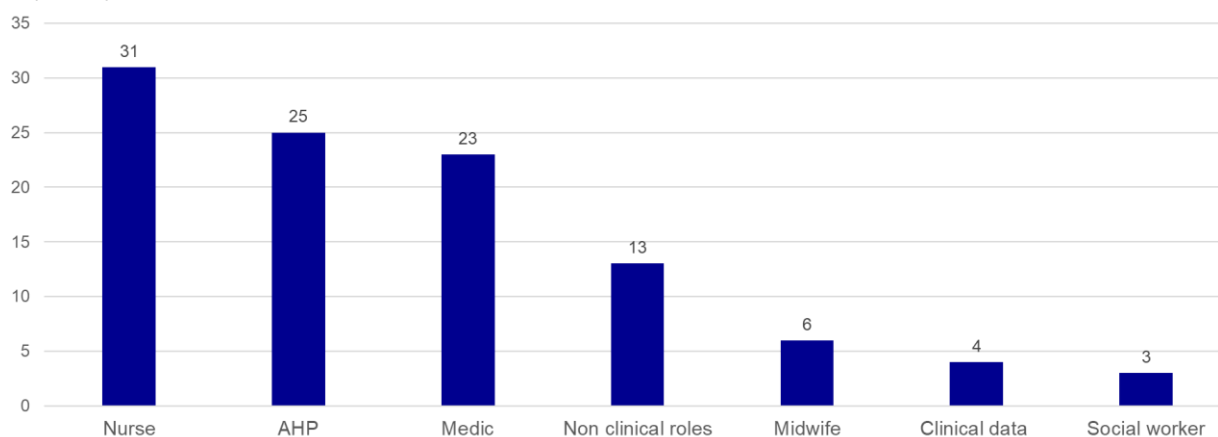
Figure 12: Survey respondent's roles.

Figure 13 shows the spread of the 105 respondents from their respective organisations: 31% (n=33) of respondents work from or within Royal United Hospital Bath (RUH), 23% (n=24) from Great Western Hospital Swindon (GWH), and 10% (n=11) of respondents were from HCRG for Bath and North East Somerset (BaNES) Community Services. The legend illustrates the type of each organisation shown. A majority are from secondary and acute care.
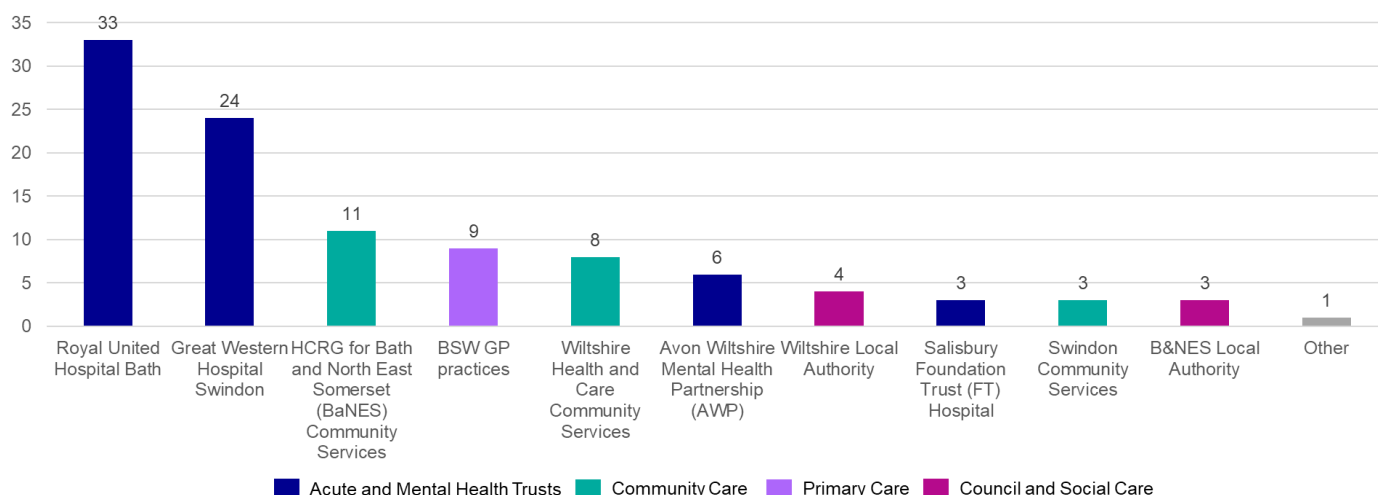
Figure 13: Survey respondents split by respective organisation.

Respondents were asked to estimate how many patient records they accessed on average per week. Figure 14 shows this number split by organisation. Salisbury Foundation Trust hospital staff accessed the most patient records via the ICR with 134 accessed on average per week. Avon Wiltshire Mental Health Partnership access the second most patient records (n=49 avg.) followed by Wiltshire Local Authority (n=26 avg.). It must be noted that highest usages come from organisations with fewest users.
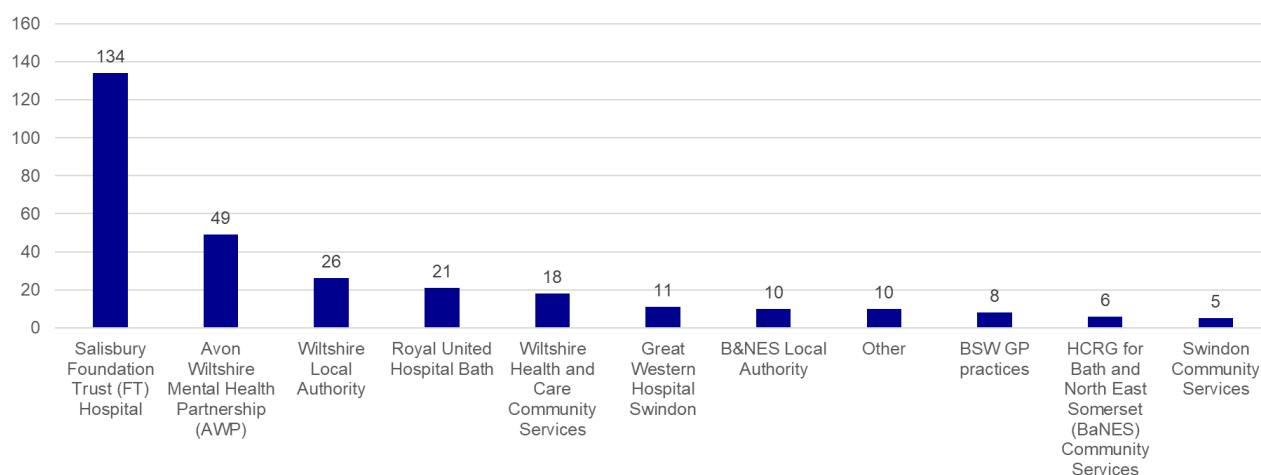
Figure 14:Estimated number of patient records accessed per week on average.

Figure 15 shows the length of time respondents have been in their current role for. Results found 30% (*n*=31) have been in their current role for more than 10 years, 25% (*n*=26) have been in that role for between five and 10 years and 21% (*n*=22) have been in that role for one to three years.

- ■ Less than 6 months
- ■ 6-11 months
- ■ 1-3 years
- ■ Over 3 years -5 years
- ■ Over 5 years-10 years
- ■ More than 10 years
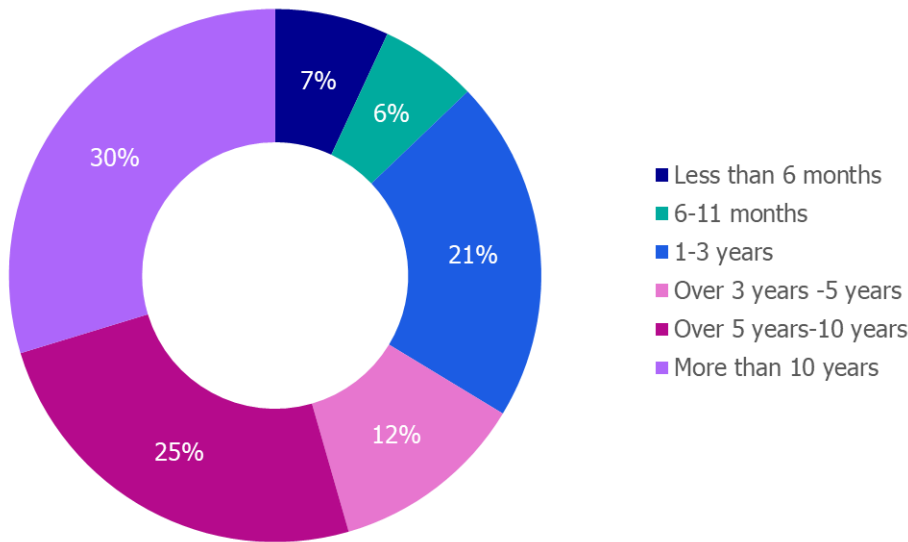
Figure 15:Respondent's time in current role.

How long respondents had been using the ICR (Figure 16) varied, with 22% (*n*=23) using it for less than 6 months, 20% (*n*=21) for between six and 12 months, 30% (*n*=32) for between one and two years, and 28% (*n*=29) using the ICR for more than two years. As the system was only launched in 2020 (three years old at the time of writing), it should be acknowledged that the survey respondents who have been using the ICR for over 2 years are relatively mature users.
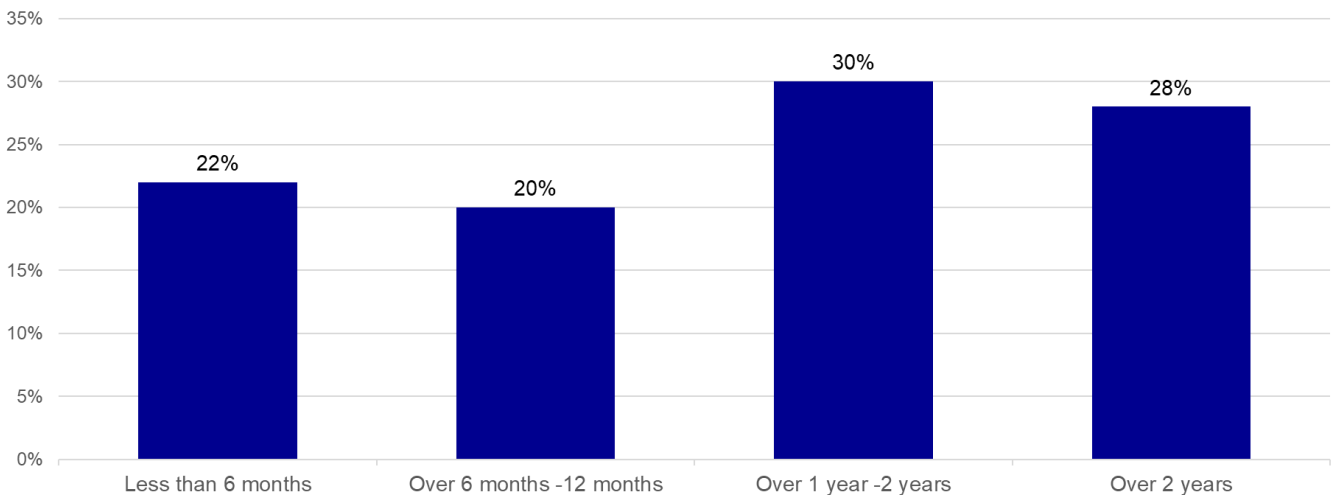
Figure 16:Length of time respondents have been using the ICR.

Perceptions of the ICR

Respondents were asked a series of statements and they had to indicate the extent to which they agreed or disagreed with each, as illustrated in Figure 17. When asked if having no access would negatively impact their patients, the majority agreed, as 32% (n=34) strongly agreed and a further 32% (n=34) agreed. Similarly, when asked if no access to the ICR would negatively impact their work, 74% (n=78) agreed, 18% (n=19) neither agreed or disagreed, 8% (n=8) disagreed.

The survey then asked respondents the extent to which they felt they could easily access the relevant patient information in the ICR. Answers varied with, 16% (n=17) strongly agreeing, 37% (n=38) agreeing and 15% (n=16) neither agreeing or disagreeing. Meanwhile, 21% (n=22) disagreed that they could easily find patient information on the ICR and 11% (n=11) strongly disagreed. Although, when asked if they felt the design of the ICR is user friendly, the majority (62%, n=65) agreed, 19% (n=20) neither agreed or disagreed, while 13% (n=14) disagreed and 5% (n=5) strongly disagreed. It should be noted that for these two questions, one respondent did not provide an answer leaving a sample of 104.

Finally, respondents indicated how confident they felt using the ICR and a large majority agreed. Results show 29% (n=30) said they strongly agreed, 48% (n=50) agreed, 12% (n=13) neither agreed or disagreed, 8% (n=8) disagreed and 4% (n=4) strongly disagreed. Overall, 50% of respondents answered positively to the statements.

Figure 17:Perceptions of the ICR.
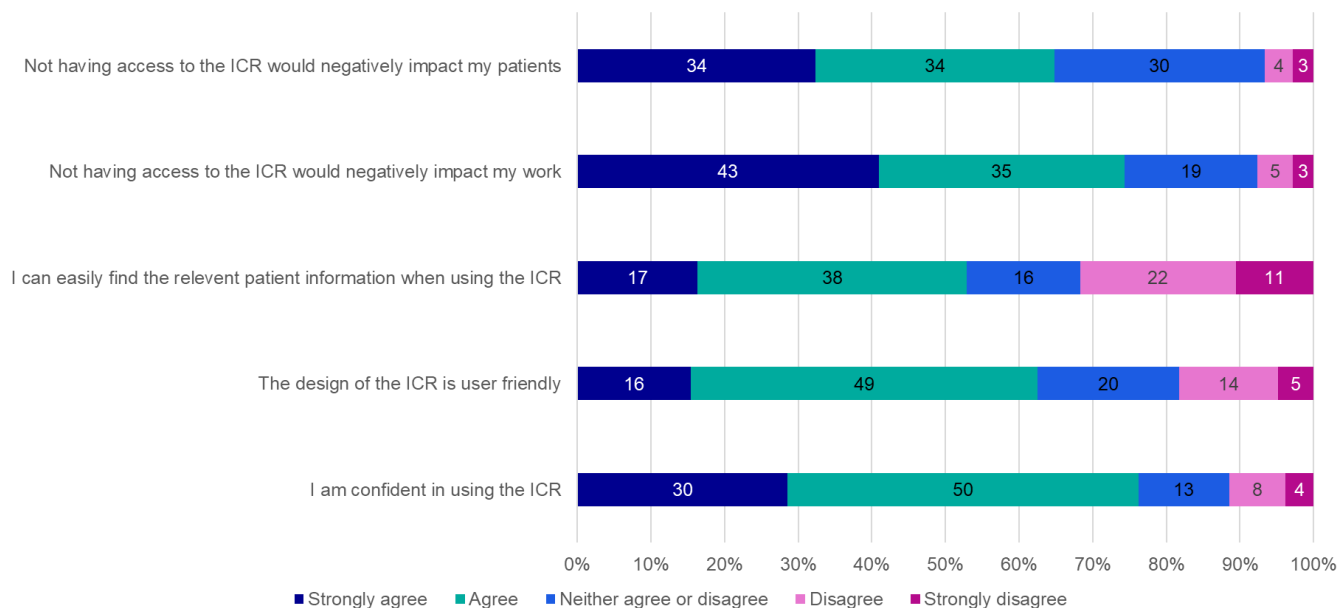
Respondents were presented with a selection of adjectives, six of these were positive and six were negative (Figure 18). Respondents could select all words that they felt described their experience of using the ICR. The top three adjectives selected were all positive, 77% (n=81) said 'Useful', 38% (n=40) said 'Valuable', and 33% (n=35) said 'Easy'. The fourth most popular answer was a

negative adjective, 28% (*n*=29) described their experience using the ICR as 'Unreliable'. The data shows 50% *(n=*53) of respondents selected only positive words, 30% (*n*=31) selected a mix of both positive and negative, while 20% (*n*=21) selected only negative words.
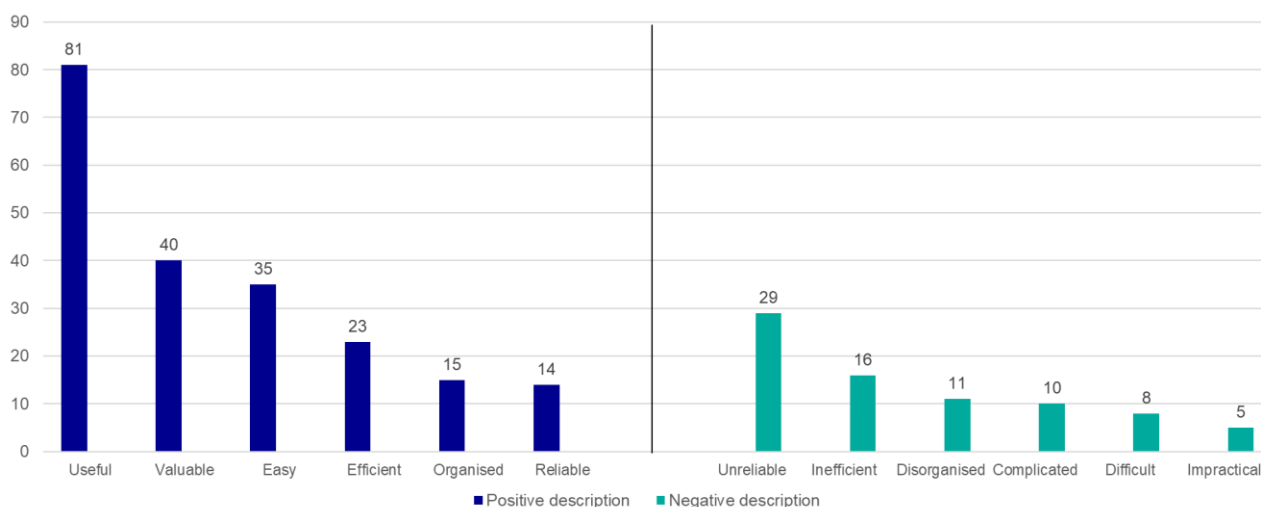
Figure 18:Adjectives selected to describe experiences of using the ICR.

When respondents were asked to explain their previous answer, a variety of factors were raised. A total of 21 individuals expressed positive views about the ICR's impact on their access to information that was previously inaccessible or more challenging to retrieve. These participants highlighted that the ICR provided them with efficient access to vital patient data, such as test results and medication information. Users noted that the ICR reduced the need for multiple inquiries or calls to access patient information and in instances where patients had difficulty recalling medical details due to memory issues, the ICR could provide the necessary information. A further 11 respondents said that the ICR made it easy to find information they need such as looking for test results and that its convenient to have data all in one place.

> ## 'My access enables me to assist prescribers without having to make series of calls or contacts with other organisations.'

While three respondents felt the ICR was user-friendly, 16 felt the platform was not user-friendly and a further 7 said there were occasions where they could not find information they needed. This was due to the perceived lack of organised information, which made it hard to locate specific datapoints within the system, the perception of incomplete patient data or 'blanks', ineffective search filter or function, and unclear medication descriptions. Another 11 respondents reported trouble gaining access to information on the ICR due to technical difficulties, glitches, access limitations and intermittent functionality.

Finally, 27 respondents voiced concerns about the ICR not containing enough detail. Users reported encountering records that were incomplete or lacked comprehensive information. Users also expressed frustration at the system's inability to include the details of other healthcare team's involvement in a patient's care. Additionally, they highlighted that they had often observed gaps in

the documentation of patient notes, which contributed to the overall lack of detail, while 13 respondents voiced concerns that the data was often unreliable or inaccurate.

'When patients have a populated ICR it is very useful. However, frequently patients do not have an active ICR, or they do but it is empty, which is often frustrating. It would be much easier if I knew all patients would have an ICR (or an alert that they have opted out).'

It should be noted that the ICR is a regional record for the BSW area so would only have the records of patients from this region. Additionally, the data presented is limited due to the extent of information shared from the provider.

Impact of the ICR

Figure 19 shows how respondents felt services have been impacted as a result of the implementation of the ICR. Respondents were presented with a selection of answer options related to service impacts and could select all that applied, these options have been grouped by theme in Figure 19, full answer options and results can be seen in the appendix F. A total of 88 respondents (84%) selected options that were related to patient care and safety, 67% (*n*=70) felt data and information management had been impacted and 17% (*n*=18) indicated logistics and efficiency were impacted by the ICR. Finally, 14% felt the ICR had not had an impact on services or suggested impacts specific to their role such as sharing data for research purposes, or clinical trials.
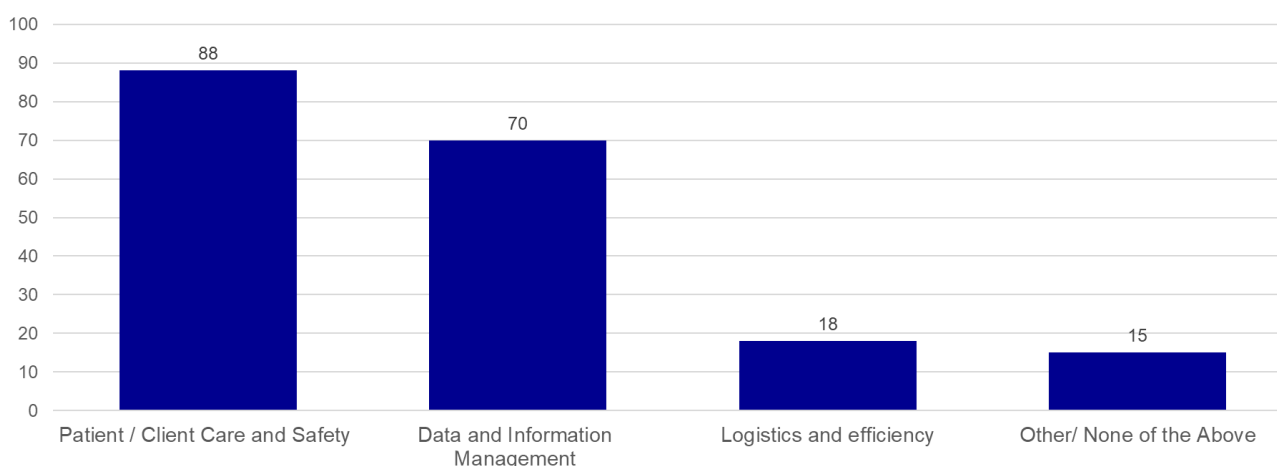
Figure 19:ICR's perceived impact on services.

Similarly, respondents were asked what aspects of their role they felt were impacted by the implementation of the ICR, and could select all the options that applied (Figure 20). These have been grouped by theme, full answer options can be found in appendix G. Results show 74%

(n=78) of respondents indicated that the ICR improved efficiency in their role. Another 60% (n=63) said time was saved and 43% (n=45) felt it enhanced decision making and improved data integrity. Finally, 16% (n=17) felt there was no impact on their role or suggested another impact. 'Other' answers included: '*Reduced costs*', '*I now train staff how to use the ICR*', and answers suggesting they are unable to answer because they do not have full access.
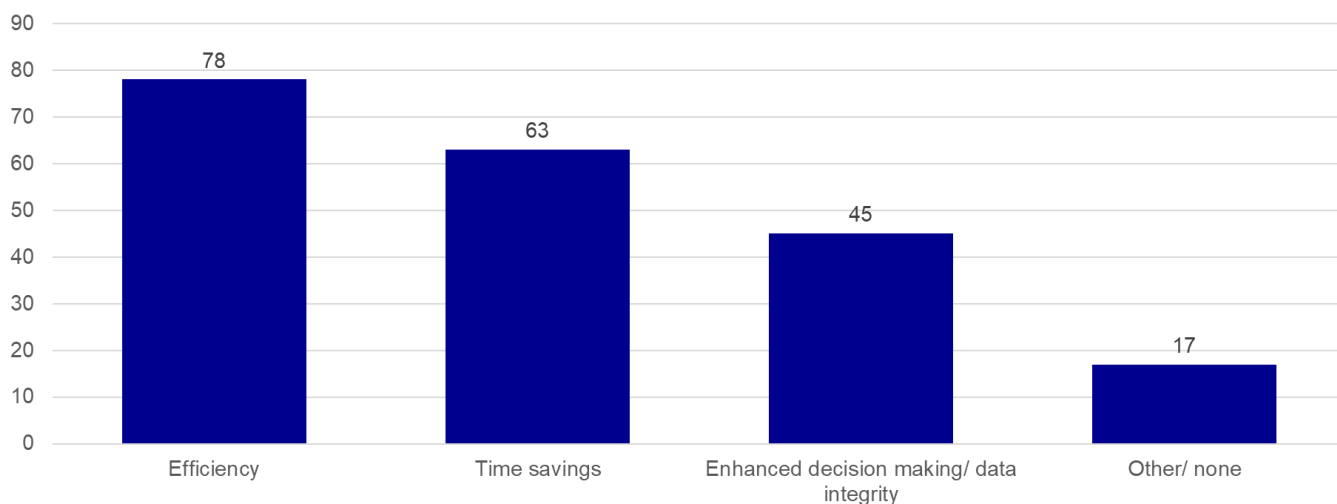
Figure 20: ICR's perceived impact on role.

Figure 21 shows activities respondents felt the ICR had enabled them to avoid or reduce. It shows 57% (n=60) indicated that the implementation of the ICR had enabled them to reduce communications and /or correspondence with other services and teams. A further 31% (n=33) felt the ICR had helped them to reduce or avoid patient or service user phone calls. Additionally, 21% (n=22) felt the ICR had not enabled them to reduce any of the activities shown and that there had

been no change since its implementation. 'Other' answer options included repeating tests and time spent walking between wards.
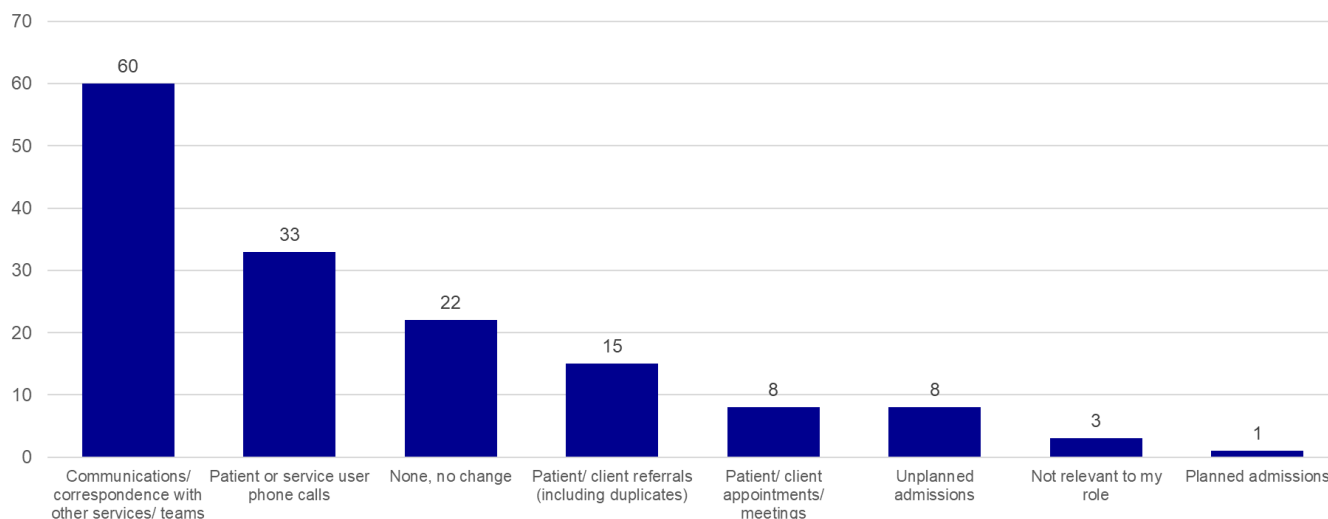
Figure 21: Activities that were perceived to be avoided or reduced as a result of the implementation of the ICR.

Respondents were asked to estimate how much time (minutes) they save per week thanks to the ICR in the categories shown in Figure 22. The top three time saving areas were looking for up to date prescriptions (61 minutes on average), looking for patient medical history (53 minutes on average) and asking other services/health and care organisations for patient information (49 minutes on average). It should be noted that these are averages of the respondents that indicated that the ICR had saved them time. Those that said this task was not relevant to their role were not included in the averages.
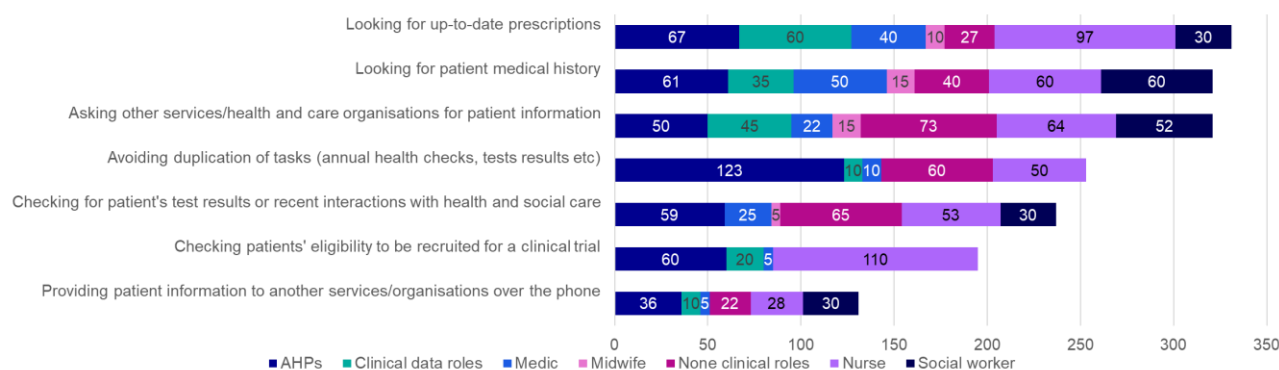
Figure 22: Perceived time saved (minutes) per week due to the ICR by role.

Respondents were then asked to indicate which of the following options (Figure 23) they believed to be the biggest improvement the ICR has made to their role, they could only select one response, which was a mandatory part of the survey. Results show 28% (*n*=29) said easier access to patient information and records through the ICR and 24% (*n*=25) said the opportunity to access information that they could not access without the ICR. The third most popular response was 'None of the above', 13% (*n*=14) felt the ICR had brought no improvement to their role. 'Other' answers

included: *'Ability to train staff on how to access information from other providers', 'Prioritising referrals', 'Not relevant to my role'.*
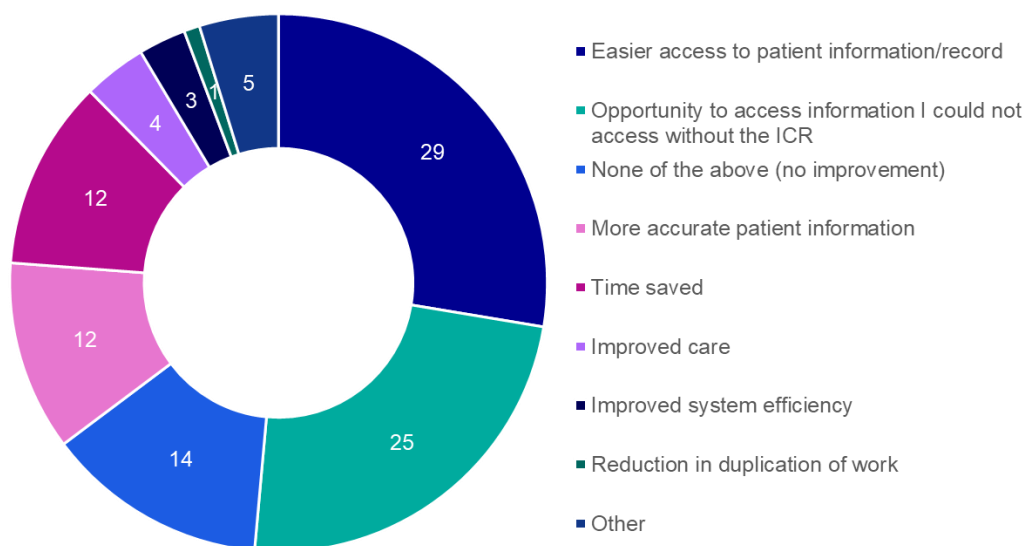
Figure 23: Biggest improvement the ICR has brought to their role.

Suggestions for improvements

Suggestions for improvements from the survey respondents can be grouped under three main themes. Users wanted more detailed information (n=33), the design to be more user friendly (n=22), and more services and organisations to be included under the ICR so they could access information for more patients (n=14).

Respondents recommended increasing the availability of test results within the system and suggested more detailed and comprehensive patient notes to improve their understanding of patient's medical history. Users wanted the ability to access and integrate notes from other organisations involved with a patient's care, such as social services and mental health services. Additionally, some respondents highlighted a need for more comprehensive medication information, including medication history, allergy details, and administration dates.

'Improved detail in outcomes from interaction with Hospital admissions, involvement with other teams like Reablement & Mental Health services'

Suggestions for enhancing the platform's design focused around wanting a more intuitive layout that simplifies navigation and information retrieval. To make navigating the ICR easier, staff recommended improved search functions; one respondent suggested a search box within test

results. Staff members also felt that the current platform appeared cluttered and recommended streamlining the interface.

Respondents expressed a desire for broader service and organisational inclusion within the platform, along with greater engagement efforts. Users suggested adding more services and organisations to the platform, as they recognised that a broader network could enhance information sharing and care coordination. Staff also mentioned expanding the ICR across other counties to include more patients.

Semi-structured interviews

Interviewee details:

Interviews were conducted with a range of users working in various roles and different organisations. In total, 11 users attended, their roles were: Consultant Psychiatrist, Advanced Clinical Practitioner, Associate Director of Clinical Services, Consultant Practitioner, Lead Pharmacist, Midwife, Adult Nurse, Rheumatology trainee, Pharmacist, Occupational Therapist, GP Trainee Doctor, and Occupational Therapist's Aid. Their organisations varied, two were from Avon and Wiltshire Mental Health Partnership, one from BSW ICB, one from Medvivo and a further one from Great Western Hospital Swindon. Another two users were from HCRG (BaNES) and four were from Royal United Hospital Bath. Their experience using the ICR ranged from 2 months to 3 years.

Perceptions of the ICR

During the interviews, users were asked about their general perceptions of the ICR. Generally, they were positive about the ICR either because they had benefited from it, or they could recognise the benefits it had the potential to bring to their role or colleagues.

When asked about their perceptions of the ICR, the majority (*n*=7) noted that the ICR has made a positive impact on their ability to work effectively. They highlighted the value of being able to access results for blood tests and physical health tests, and how sharing this information has improved care coordination. Users (*n*=7) highlighted that the ICR often saves time by allowing them to access information without opening multiple systems and allowing them to access patient information out of hours or without requesting it from other services.

> **'[It is] brilliant, most positive change to my job, being able to access results, blood tests, diagnosis, which has previously been a barrier to care, [the ICR] helps me do my job.'**

While some respondents expressed a positive view of the ICR, they also raised concerns about its functionality. The absence of respect forms and care plans on the ICR was mentioned as a limitation (*n*=7), and discrepancies between the ICR and SystmOne were noted. It should be acknowledged that this data issue could be caused by user error, possibly due to users incorrectly inputting data or not knowing where to input the forms, suggesting further exploration into this issue is needed.

Overall, there was a consensus among respondents that the ICR has the potential to be a time-saving tool if it is working as it is intended to, although concerns were raised about addressing data completeness issues.

> **'It could be much better because respect forms and care plans are not on there. The hospital letters are good but sometimes they don't update onto the ICR when they can be found on SystmOne, which means there is no parity between the two systems.'**

For context, it should be noted that not all organisations shared letters at the time of writing (autumn 2023), and this is something that not all users were aware of.

Benefits of the ICR

Time savings / efficiency

During the interview, users were then asked if the ICR brought any benefits to their role. An overarching theme was that eight felt the ICR saves them time. These time savings manifested in two key domains: administrative and clinical. Administratively, respondents reported efficiency gains, as they no longer needed to engage in the time-consuming process of requesting information and awaiting responses. Clinically, the ICR facilitated immediate access to patient health records and medication information, removing the need to contact secondary care providers for supplementary details.

One interviewee mentioned that the ICR's unique feature of not requiring patient consent for access was a time-saving advantage, this respondent also noted the ICR's role in determining a patient's hospitalisation status, further contributing to time efficiency.

It is important to note that a few interviewees (*n*=3) expressed frustration regarding missing data within the ICR. One respondent highlighted a specific case involving a pregnant patient where the data shown in the ICR did not reflect the patient's history of alcohol abuse. The staff member only became aware of this information when they happened to access the patient's complete GP notes. Another respondent said they had a patient whose ICR showed an incorrect diagnosis of arthritis. Consequently, this experience led to a loss of trust in the ICR's comprehensiveness. Both interviewees now find it necessary to cross-reference both the ICR and GP notes for each patient to ensure no critical information is missing or wrong. While this additional step adds time to their tasks, it was acknowledged that if the ICR contained complete information, it could ultimately save time, but currently fails for these users.

Another interviewee had similar views that, currently, the ICR might not always save time because it does not consistently contain complete or up-to-date data that is available on the patient's full record. They gave the example of when patient data is missing, such as recent blood pressure results, healthcare providers may need to follow a time-consuming process to contact the GP for this data. The interviewee emphasised that if up-to-date information, such as blood pressure data,

were consistently updated into the ICR, it could offer time-saving potential. In this example, healthcare providers would have immediate access to information and not be second guessing whether the data is missing because it hasn't been uploaded to the ICR or that the data hasn't been recorded at all.

Quality of care

Interviewees generally acknowledged that the ICR has brought improvements to the quality of care. Users (*n*=9) discussed the advantages of knowing the most recent information around comorbidities and medications, allowing for more informed decision-making in patient care. Additionally, the ICR was recognised (*n*=1) as beneficial for patients who have advanced care plans, such as Treatment Escalation Plan (TEP) or Respect forms because it facilitates the provision of care in line with the patient's preferences, especially for those in end-of-life care. They (*n*=8 changes) noted that there are still instances where the ICR is not consistently filled out, particularly regarding blood results, in-patient stays, and patient/ clinical letters. For context, it should be acknowledged that there may be some discrepancies between what information the ICR is designed to display and user perceptions of what is included, which may have led to users believing information is missing in some cases.

One user clarified that the quality of patient care remains consistent but when utilising the ICR, healthcare providers can deliver care more efficiently, enabling them to attend to a larger number of patients within the same timeframe.

Protection of sensitive data/ reduction in data loss:

When asked, interviewees (*n*=11) did not perceive a significant impact of the ICR on the protection of sensitive patient data or data loss, as they believed that the existing methods were already secure.

Empowering patients/ care management:

One user implied that the ICR supports improved communication and collaboration between healthcare providers and the patients' support networks such as their family.

> ## 'It's empowering for a patient's family to better understand all necessary information about their family member in care.'

Another user mentioned that for patients in virtual wards, care plans are in place and accessible through the ICR. This feature removed the need to question patients in real-time to understand their care plans, enhancing care management efficiency. Two individuals explained that appointment times are limited, so if they can access the basic information needed on the ICR (e.g., blood pressure, medications) they are able to spend more time in that appointment slot talking with the patient/client about why they have come in.

Two users emphasised that patients often have the expectation that healthcare workers have their complete medical records, leading to surprise when they are asked about their medical history. One user explained that having the ICR has improved this and is helpful particularly for elderly

patients who may have difficulty recalling their extensive medical histories. The other user felt that patients feel reassured when their doctor is fully informed.

'It's reassuring for the patients when we are in the loop'

Ease of access:

Users (*n*=7) noted that accessing information through the ICR has been more straightforward and effective compared to the old system. In the past, they faced difficulties accessing information, particularly when dealing with GPs who sometimes did not forward results upon request. One user described the ICR as a safety net, which has helped to address these access challenges.

'GPs often wouldn't forward results when asked directly, there's a safety net in place now.'

Interviewees found the ICR easy to use and considered it self-explanatory due to its intuitive design (*n*=8), although suggestions were made to enhance the system's usefulness further, such as having it alert when a patient has a respect form to save searching for it in time-sensitive situations, or a more complete summary page.

Future benefits

When asked about the future of the ICR, answers reflected a mix of optimism about the potential of the ICR to enhance care coordination and concerns about data completeness and trust.

Interviewees foresee the ICR being used more routinely in the future, with broader access granted to healthcare providers and more organisations (*n*=3). There is a desire for streamlining information across various healthcare platforms and two interviewees suggested that having one comprehensive set of notes accessible through the ICR would be ideal, potentially reducing the need for multiple systems.

There is an expectation that the ICR will continue to evolve and improve as it is used more extensively (*n*=4). Users believe that ongoing improvement will encourage more staff and services to use it, and therefore, enhance patient service quality. Conversely, some interviewees (*n*=2) expressed concerns about the ICR's trustworthiness and completeness of information. They indicated that if the ICR's data remains incomplete or if there is a lack of trust in its accuracy, they (or their colleagues) may not continue to use it as extensively, or at all.

Impact of implementing the ICR

When interviewees were asked to provide specific use cases where the ICR had a noticeable impact on their roles, patient outcomes, or patient experiences, many (*n*=7) interviewees could not pinpoint specific cases. Their feedback highlighted that the care they provide to patients largely remained consistent and the ICR's impact lay in its ability to save them time and enhance efficiency in their daily workflows as an enabling tool.

One user gave an example for patient outcomes and experience being impacted. They explained that in the case of patients on virtual wards with slightly unusual blood test results, the conventional

approach would have been to wait until Monday to send them to their GP. Healthcare providers could instead contact the nurse responsible for their daily care, as shown in the virtual ward data, accessible on the ICR. This allowed the patient to receive a check-up from the nurse while receiving IV fluid, ensuring a more immediate response to their healthcare needs.

Two users noted scenarios involving unconscious or unresponsive patients. In such situations, the ICR offers patient information, including their medication history, which is useful for healthcare providers when determining the most appropriate medications to administer. Additionally, for patients unable to mobilise, the ICR provides accessible weight and height readings, eliminating the need to disturb the patient by requiring them to get out of bed.

Finally, one user said the ICR enables them to review patient information before scheduling home visits meaning they can reduce unnecessary trips/visits. They described that this is important in ensuring the safety of healthcare workers when assessing a patient who may be violent. Having access to information, such as their mental health record, allows them to better prepare for their visits. It was noted that the platform often lacks an adequate amount of mental health information.

Further examples of user cases were discussed in the workshop and are shown in the logical model (appendix A).

Enablers and Barriers to uptake (and other influences on uptake)

Three individuals mentioned seeking guidance from colleagues to enhance their proficiency with the ICR. One user described screen sharing during video calls, where they explored useful tips and tricks to get the most out of the system. Additionally, one user highlighted that they asked their IT representative for assistance in finding information when necessary and another said screenshots were circulated around for tips. Despite this, the majority (*n*=10) expressed that the ICR's design was sufficiently intuitive, enabling them to navigate the system independently.

Nine users said they feel confident in their ability to effectively utilise the ICR, describing it as intuitive and straightforward. Consequently, they felt that formal training was unnecessary. Four individuals pointed out the potential value of basic training in locating specific information within the ICR. They noted that they frequently discovered new, previously unknown data, suggesting that some guidance could be beneficial. One user recommended providing staff with a 'crib sheet' or incorporating ICR guidance into the induction materials for junior doctors.

While access to the ICR was generally perceived as straightforward, three users raised a concern regarding the accessibility of the ICR button on their computer dashboards. They felt that the button's small size and visibility made it easy to overlook. One user suggested enlarging or enhancing the button's visibility, while another suggested labelling it with the full name 'Integrated Care Records' to help new users recognise it.

Four individuals said there is a general lack of awareness and promotion surrounding the ICR. They emphasised that many colleagues remained uninformed about its existence and were not encouraged to utilise it. In light of this, two individuals recommended increasing comms to raise awareness and promote the use of the ICR.

Lastly, three users conveyed their frustration with the ICR, citing its frequent incompleteness and data gaps. They shared that this inconsistency had caused frustration among their colleagues, leading to reluctance in regularly checking the ICR for information, as it often proved to be unproductive. These users felt that a more reliable ICR, with the assurance of complete information, would significantly encourage them to use it more.

> **'[I] can only see established diagnosis, cannot see any more detail than this, I'd like to see the GP pr consultation notes'**

> **'After a few times of not finding information [on the ICR] you might not default to using [it] because you don't have confidence in it being there meaning you'll call other organisations directly.'**

Again, this could be due to user error or a discrepancy between information the ICR is designed to display and user perceptions of what they think is included. Either way, this perceived lack of data should be explored further.

4. Discussion

4.1. Summary

This evaluation provides a review of the BSW ICR, reflecting potential benefits to health and social care professionals, patients, and the broader NHS ecosystem. A number of key findings, areas for improvement, and recommendations have been distilled despite a number of practical limitations surrounding user platform access and IT factors affecting the evaluation approach.

4.2. Service user's perceptions of the ICR

The findings from the staff survey and interviews shed light on user's perceptions and experiences within the ICR. Generally, users displayed a positive attitude towards the ICR, recognising its potential to improve their work and positively impact patient care. Over three quarters (77%) of survey respondents described the ICR as useful and 80% chose a positive adjective to describe their experience with it (Figure 18), additionally, 7% disagreed with the statement that not having access to the ICR would negatively impact their patients (Figure 17).

Many respondents highlighted the positive impact of the ICR on their ability to work effectively. They emphasised the value of accessing results for blood tests, physical health tests, and the improved coordination of care through information sharing. Additionally, the ICR was seen as a time-saving tool, efficiently providing essential patient information, especially outside regular hours, reducing the need for information requests. This time efficiency, along with improved coordination,

can yield cost savings by minimising duplicate tests, expediting decision-making, and reducing administrative burdens. Beyond time savings, the ICR mitigates risks of errors in patient information transfer, enabling timely interventions and the ability to view adjustments to treatment plans, ultimately enhancing overall healthcare management, and improving patient health and quality of life.

While overall perceptions of the ICR were generally positive, it is important to acknowledge the concerns voiced by a minority of users regarding the system's perceived missing data. These concerns could be significant as they have the potential to hinder the ICR's intended functions, such as improving efficiency and saving time. Further exploration of these concerns would be beneficial as the cause may not be the fault of the ICR. User error during information input or retrieval may be impacting data availability, and in some cases the data may not be shown because the ICR is not designed to display it, suggesting more clarity on the ICR's intended use could be needed. Nevertheless, the perception of missing or inaccurate data not only frustrates staff but also poses challenges to their ability to rely on the ICR as a comprehensive source of patient information.

Regarding the future of the ICR, users had mixed expectations. Some envisioned its routine use with broader access, and streamlining of information across healthcare platforms, making it a comprehensive tool. Others explained that their concerns and frustrations about data completeness cast doubt on whether the platform would gain widespread adoption among their colleagues and be their preferred choice over alternative systems. Again, this emphasises the importance of exploring areas where staff highlighted blank or missing data to reassure users.

If the ICR is to remain the primary shared care record system for the ICS in the future, it is important to address the concerns highlighted. Efforts to understand why users perceive data within the ICR to be incomplete or inaccurate should be prioritised. This could mean improving comms around what should and what is included on the system as well as implementing robust data quality assurance processes to regularly validate and update information from multiple sources.

While the evaluation findings have highlighted a minority of users with concerns regarding the completeness of patient data within the ICR, it is worth considering the broader context of the ICR in the healthcare space. The ICR is still relatively new, and its adoption is an ongoing process that involves multiple organisations and providers. The complexities within this process can have a significant impact on the success of an enabling tool like the ICR. In fact, these broader factors, including transformation, political considerations, and legacy systems, may have the potential to hinder even the most effective solutions. Consequently, the findings should not only recognise these wider nuances but also endeavour to build upon the opportunity they present for further adaptation and improvement.

4.3. The impact of implementing the ICR

The benefits of time savings and efficiency are a key theme throughout the evaluation. The quantitative analysis revealed that different healthcare sectors have experienced varying degrees

of time-saving benefits. These differences may be due to, particularly in the case of primary care, small sample sizes or a sample that may have been biased. If the estimates are accurate, however, variation could be driven by unavoidable differences in operating practices specific to each care setting or organisation (example factors could include the case mix of patients, the nature of the care provided, and the amount of external information required to treat patients), but there may be some differences that could be mitigated from sharing of learnings between organisations or different usage patterns. A similar level of variation is observed for annual staff savings.

These findings underscore the impact of the ICR but imply that different organisations may realise different benefits. Acute and mental health trusts currently realise the greatest overall benefit, according to the SoPB analysis (section 3.2), but their benefits per usage and per staff member are comparable to social care, community and councils. This implies that there are significant future benefits available in the latter organisations if uptake and usage could be increased. Primary care providers are a different case. Improvement may be possible on their lower reported time savings, but there may also be less value generated from the ICR for the purposes of primary care. Moreover, these are still benefits that would be maximised through greater uptake.

Maximising implementation and usage in all organisations will generate greater impacts, but further review should be undertaken to maximise the efficient use of the system in primary care in particular. In October 2023, an NHS England shared care record progress report compared ICR usage between ICSs in England (Bell, 2023). Therefore, while the growth potential of ICR usage is unclear across these different organisation types, comparing the BSW ICR activity against other regions shown in the NHS' report (also not a like-for-like comparison due to different approaches, systems and users in each region) potentially signals that activity could reach up to four or five times greater than current levels.

Administratively, users appreciated the ICR's ability to streamline administrative processes, making the retrieval of patient information much more efficient. In the past, healthcare professionals would need to undergo time-consuming procedures when they needed specific patient data. This typically involved requesting information from patients or other services and then waiting for responses, which could take a while to be returned, if at all. The ICR has the potential to provide access to this information directly, reducing the need for this correspondence. Survey results support this as the most reduced activity was communication and correspondence between services (Figure 21) and additionally, the Clinical Correspondence Hubtile was the most accessed Hubtile by Primary Care staff.

Furthermore, the surveys and interviews revealed that many users feel the ICR influences clinical efficiency, as staff can access patient information faster and see more information than they would have been able to see previously. Healthcare providers can now access this critical information promptly, leading to more informed and timely decisions about patient care. This has the potential to significantly impact patient outcomes, particularly in situations where swift interventions are required.

For some, the ICR was also perceived as positively influencing the quality of care. Users highlighted how it enhanced decision-making by providing the most recent information on comorbidities and medication changes. This is supported by the Hubtile usage data that shows GP repeat medications are the most accessed Hubtile by Acute and Mental Health trusts and the Additional GP Information is the most accessed Hubtile from Social and Community trusts. This access ensures that healthcare professionals are well-informed and well-prepared when they interact with patients. As a result, they can dedicate their limited time during patient appointments to more productive and impactful activities (Dugdale et al., 1999). They can focus on the specific reason for the patient's visit, explore treatment options, discuss potential interventions, and do so in a less time restricted, compassionate way. The ICR's role in streamlining access to patient information aligns with a patient-centred approach to healthcare (Currie & Finnegan, 2018) and users feel that being fully informed ahead of appointments reassures their patients.

Furthermore, the efficiency gains enabled by the ICR translate into improved patient service quality. Healthcare providers can see more patients within the same timeframe, reducing wait times and ensuring that more individuals receive timely care. This increased efficiency not only benefits individual patients but also contributes to the overall effectiveness of healthcare delivery.

Despite these positive perceptions, there were concerns expressed by a minority of users regarding missing, incomplete, or incorrect data in the ICR. These concerns are exemplified by a case involving a pregnant patient whose history of alcohol abuse was absent from the ICR, and a case where a patient's information incorrectly labelled them with arthritis. This experience eroded trust in the ICR's comprehensiveness, possibly providing insight into why 28% of survey respondents described the ICR as 'Unreliable' (Figure 18). Again, more information is needed to understand how this error could have occurred or whether this information was deliberately excluded from the ICR record. It is essential to explore whether there is a technical problem with information transfer to the ICR or whether these issues are due to user error to reassure users. Misinformation poses risks, as it can lead to incorrect diagnoses, medical errors, patient safety issues, and treatment delays so addressing these issues and strengthening trust from users in the ICR should be considered a priority.

4.4. Quantifiable benefits of using the ICR

The quantitative analysis provides an overview of ICR usage and can be used to infer the benefits of the system for improving efficiency and coordination in health and social care, as well as the factors influencing uptake. Figure 24 displays how the acute and mental health trusts are the dominant users of the ICR by far, namely RUH and GWH from October 2021 to October 2023. It's not surprising therefore, that the largest population of service users are also responsible for 75.8% of patient records accessed in October 2023 (as shown in Figure 26). This could imply that the ICR is most beneficial in acute healthcare settings. Since the rise in user population and patient records accessed is very strongly proportional, it suggests that new users to the ICR are picking up the service quickly and using it for a purpose rather than signing up to it and forgetting about it. This could imply that the onboarding system for new users is currently effective in these organisations, or that new users are more aware of the benefits of using the ICR from their colleagues

The findings presented in Figure 26 show that the rate of increased usage of patient data through the ICR is greater for acute and mental health trusts than the other organisation types. This suggests an increasing reliance on the system for acute and mental health trusts, as well as the existence of notable benefits to using the ICR since this is a likely cause for consistent growth. This assumption cannot be drawn for all acute trusts since Salisbury Foundation Trust have comparatively low usage figures (albeit growing steadily since June 2023) and Oxford Health Trust are not currently an active provider. It is possible that RUH and GWH could act as case studies for these other acute trusts to boost engagement. The methods used to encourage ICR uptake in RUH and GWH have evidently been successful, which may include a new communication strategy and/or staff training. In RUH especially, the implementation plan appeared to have an immediate positive impact and lead to rapid uptake of the system in just two months. From inspection of the Hubtile data, it becomes clear that the ICR has created a direct line for data sharing between Primary and Acute care that is being used. The majority of Hubtiles used in acute and mental health trusts relate to GP information, and vice versa in primary care which also shows similar usage patterns to community care. Trusts are also using the ICR to share information more effectively within its own walls, since acute pathology results ranks relatively highly.

The usage numbers in primary care, community health and social care are small compared to acute and mental health trusts but are nonetheless consistent. It is evident from Figure 27 that staff in community care and primary care are choosing to adopt the ICR increasingly over time. The enablers involved in promoting ICR uptake in both of these organisation types clearly had a positive impact, especially from May 2022 onwards where the number of new ICR users begins to spike and leads to a continuous increase in patient records accessed in both cases. Coincidentally, whereas primary care made up 9.2% of patient data accessed in October 2023, they also made up 12.9% of unique daily users. The quantity of patient data accessed per unique user in primary care is the lowest of the four organisation types defined in the quantitative analysis, but near identical to the ratio of usage to users seen in community care. As for social care and councils, there is little change in the number of unique daily users of the ICR across this time period, but a gradual increase in the amount of patient data being accessed (bar a notable dip in usage between March 2023 and August 2023). This could suggest that the uptake proportion within this organisation type is reaching a maximum, or that there are barriers in place that are preventing more social care and council users from adopting the ICR more regularly.

Using current data to forecast future usage of the ICR across the BSW region would not be suitable because the appropriate level of implementation or usage of the ICR within each geographic region is unknown. In the October NHS commissioner's report (Bell, 2023) which compared ICR usage between ICSs in England, usage was defined in 'weighted views' which was calculated by taking the total views for the month and adjusting to a rate per 1,000 population. The output of this analysis finds that BSW ICS ranks in the middle for usage compared to other ICBs with 49.9 per 1000 pop weighted views. In comparison, Lancashire and South Cumbria ICB recorded the highest usage nationally with a total of 247.9 weighted views. These two figures are not directly comparable, as need and service models may differ substantially in different regions, but the BSW ICR's ranking in usage compared to other regions and the scale of the difference to

the most active ICRs nationally suggests that there is room for ample growth in the future but the limit to this is unclear.

The quantitative analysis also assessed the use of the ICR to create care plans. Usage of the EPaCCS feature is inconsistent and varies across organisation types. Following the results of the regression analysis and correlation testing, it is evident that EPaCCS are being created at an increased rate over time. This suggests the feature might be considered of value to these organisations. In May 2023, GPs in total created more EPaCCS than either RUH or GWH individually, which shows that creation of EPaCCS is important in primary care like it is in acute care. Hospices have used this function most frequently compared to the other organisations up until July 2023 when RUH stepped up its use, which may be understandable given the end-of-life care plans contained within EPaCCS. The rapid uptake of the creation of ReSPECT plans since May 2023 also shows that care plans are a highly valued feature within the ICR, and the communication strategy or training used to encourage uptake of this feature within RUH and GWH especially has been effective to this extent.

The evaluation did briefly explore the environmental impact of the ICR's implementation within the BSW ICB. Quantitative results showed an annual reduction of 7,000 pages of paper within the BSW ICB, highlighting a small environmental benefit of reduced printing, paper and postage. Despite this, it is important to note that the exact environmental implications of the ICR's server costs and operation remain unknown, making it challenging to provide a complete and precise evaluation of its overall environmental impact.

During the workshops, one attendee described how they had been able to, in some cases, reduce unnecessary referrals for genetic testing for Familial Hypercholesterolemia as they had access to the required information through the ICR. While preliminary estimates have been derived for the benefit streams associated with the reduction in admissions and referrals, it is important to note that these calculations are based on limited data evidence. This evaluation serves as a starting point for the ICB team, providing them with preliminary calculations for these specific benefit streams, and indicates the potential benefits of the ICR. Moving forward, the team can leverage this foundation to collect more robust data in the future, enabling them to refine and recalibrate the numbers when more comprehensive data becomes available. A practical way to capture the impact of the ICR on referral and admission decisions could be to integrate a targeted question into the access point on the patient's record within the ICR. This question should prompt health and care professionals to indicate whether, as a result of accessing the patient's data through the ICR, they chose not to refer the patient or if an admission was avoided. Importantly, the system should facilitate a comparison by asking professionals to assess whether this impact differs from what might be expected using traditional methods. Nevertheless, it should be acknowledged that such self-reported data may still carry inherent biases and subjectivity.

4.5. Enablers and barriers to implementation

The majority of users participating in the survey and interviews expressed confidence in their ability to effectively navigate the ICR, describing it as intuitive and straightforward. They believed that

formal training was unnecessary for basic usage, but a subset of users did mention some difficulty finding specific information within the ICR. For example, the absence of vaccines in the medications section and the occasional difficulty in finding allergy-related information were highlighted. These users suggested that providing staff with a basic orientation or training sessions could be beneficial. This could familiarise them with the system's layout and ensure they know where to locate critical data. Additionally, several staff members acknowledged that they might not be utilising the ICR to its fullest potential, or there might be features that they are unaware of, and a brief training session could empower them to use the system more effectively and may increase overall usage.

Despite the fact that many users found the ICR design user friendly, it is important to continuously gather user feedback to enhance the ICR's usability. User-centred design principles should guide interface improvements to ensure that healthcare providers find the system intuitive and efficient. A future update could be to enable users to customise their ICR experience to some extent. Tailoring the interface to individual preferences can increase user satisfaction and adoption (Liang et al., 2006).

One barrier to the wider adoption of the ICR is the lack of effective communication and awareness efforts. Staff highlighted that many potential users remain unaware of the platform's existence due to inadequate or insufficient communication strategies. Consequently, they are unable to access its benefits or consider it as a viable option for their daily healthcare workflows.

A further recommendation for increasing adoption and uptake could be to encourage internal advocates for the ICR within their organisations and departments. The interviews and workshops revealed some services are already doing this, calling these 'champions'. These advocates can play an important role in promoting the ICR's benefits and helping users become proficient at using the platform. They can provide guidance, answer questions, and offer practical tips for maximising the ICR's capabilities. If users express concerns or frustrations about the platform, internal advocates can act as a bridge between users and the platform administrators. Additionally, colleagues are more likely to trust and adopt a new system when recommended by a peer they respect and trust (Cox, 2012). Internal advocates can leverage their relationships to build confidence in the platform's capabilities and reliability, therefore increasing uptake.

Finally, a further barrier to the widespread adoption of the ICR is the restricted accessibility of the system. Not all services and organisations, for example ambulance services, currently have the capability to access the ICR and are using their own separate systems. Suggestions from surveys and interviews highlighted that having more services with access would provide a holistic view of a patient's interactions, reducing the need to navigate between multiple systems. For context, the ICR has been created with the intention of including records of patients within just the BSW region so is limited in this way by its design. Therefore, while this proposition signifies a possible forward-looking expansion, its potential value has already been demonstrated.

4.6. Conclusion

In conclusion, this evaluation of the ICR has revealed the enabling of significant benefits, particularly in terms of time savings and efficiency. Health and Care providers acknowledge its positive impact on administrative and clinical tasks, streamlining information retrieval and enhancing decision-making processes. The ICR's role in facilitating better informed patient interactions and improving service quality is apparent, aligning with a patient-centred approach to healthcare and the NHS's Long-Term Plan.

All care settings reported time savings. Social care, community care, and councils in particular are experiencing greater time-saving advantages per access, while acute and mental health providers witness greater annual time savings per staff member due to increased activity. These findings emphasise the influence of the ICR, suggesting that its impact varies among different organisations. The greatest impact at present is realised from time savings in acute and mental health trusts (representing 80% of total benefits in 2022/23). Further growth may be possible in these organisations, but further increasing the impact of the ICR should focus on maximising uptake across all organisations and engaging with primary care organisations reporting lower time savings to explore improvement opportunities.

Further benefits are realised by maximising uptake. Strong growth rates in usage are observed in acute and mental health trusts, community care, and primary care, but little growth has currently been seen in social care and councils. This could be indicative of numerous enablers and fewer barriers in those organisations with more growth, but it may also indicate that an upper limit in usage is being reached. To continue enabling growth, effective communication strategies should be utilised to promote the adoption of the ICR. The adoption of care plans, as exemplified by the creation of ReSPECT plans, reflects the system's value in enhancing patient care and demonstrates the success of training and communication strategies in fostering adoption.

When considering further enablers and barriers to uptake, results found that users generally find the system intuitive, but basic orientation could further enhance their proficiency and knowledge. Effective communication strategies are essential for increasing awareness and usage of the ICR, and internal advocates or 'champions' can play a crucial role in promoting the system's benefits within healthcare organisations. Addressing these recommendations can empower them to utilise the ICR to its fullest potential, ultimately improving overall system usage.

Finally, it should be considered a priority to address concerns raised by a minority of users related to missing, incomplete, or incorrect data within the ICR, as these issues have led to questions about its reliability. This may be addressed by exploring how these issues are manifesting, by ensuring data accuracy, and promoting internal advocacy within healthcare organisations. In summary, the ICR shows promise in enabling improved healthcare delivery, provided that user concerns are addressed, and effective strategies for uptake are implemented.

5. Limitations

5.1. Data collection

Qualitative

Low Survey Response Rate and Follow-Up Efforts: One of the limitations encountered during the evaluation was the relatively low response rate to the surveys distributed via email. Despite initial efforts to reach out to a wide audience, it was necessary to implement follow-up procedures to encourage more participation. The challenges in collecting a sufficient number of responses may have resulted in potential response bias, impacting the overall representativeness of the data.

Uneven Distribution of Responses Across Organisation Types: Another limitation was the uneven distribution of survey responses among different organisation types within the healthcare sector. This unevenness could introduce bias, as certain organisational perspectives may be over- or underrepresented in the evaluation results, affecting the generalisability of the findings.

Semi-Structured Interviews Conducted by the UI Team: The semi-structured interviews, while informative, had their own limitations. As these interviews were conducted by the Unity Insights team, there was a possibility of unintentional bias or leading questions, which could influence the responses provided by interviewees. This could affect the objectivity and neutrality of the data collected.

Time Constraints in Interviews: The interviews also faced constraints due to the clinical time commitments of the interviewees. Some interviews may have been rushed, potentially limiting the depth and detail of responses from these individuals. This time constraint could have impacted the quality of information gathered during the interviews.

Quantitative

Patient outcomes and environmental impacts: There is currently a lack of quantitative data describing the material benefits of the ICR and the impact this system may have had on patient outcomes. The environmental benefits of this system as well as the benefits to patients could not be assessed but could be inferred from the perceived benefits of improved staff efficiency and data sharing capabilities using Hubtile data in particular.

Forecasting uptake: The opportunity for increasing benefits as a result of increased uptake and usage of the ICR over time is not equal across the organisation types. The workforce population across community care, primary care, and social care and councils, is not easily accessible meaning the relative proportion of current users to potential users within these organisation types is unknown. The total potential user population in acute and mental health trusts is accessible, but the potential forecasted benefits are limited. This is because the uptake data used in this evaluation is only available as unique daily users, which cannot be compared to a total proportion of acute and mental health trust employees using the ICR. Furthermore, uptake rates cannot be

compared directly across the organisation types because the relative uptake proportion within each organisation is unknown without workforce populations.

5.2. Sample size

Qualitative

The survey included a sample size of 105 respondents, drawn from a pool of approximately 4,000 monthly users. While this sample size is reasonable for a survey, it's important to acknowledge that it may not provide a comprehensive representation of the entire user base's opinions. Given the relatively small proportion of users surveyed, the potential for selection bias should be recognised and the findings should be interpreted within the context of this limitation.

Additionally, the interviews featured a sample size of 11 participants, and it should be acknowledged that this sample size is relatively small, and findings may not be entirely generalisable. The insights gained from this interview sample should be considered exploratory and qualitative, rather than statistically representative of the entire user population.

Quantitative

This evaluation was limited to the organisations contained within the BSW health and social care system, meaning there were few relatable organisations that could be compared against one another. This would otherwise allow better conclusions to be drawn regarding uptake and usage in organisations providing specific types of care. Although acute and mental health trusts dominate usage and uptake data, even this information is largely dominated by the presence of just two organisations: RUH and GWH.

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7. Appendix

7.1. Appendix A: Logic Model

Impacts — To achieve these long-term

- Improved ease of access to information
- Reduction in patient data loss
- Improved protection of patient sensitive data
- Improvement in quality of care provided
- Empowering patients
- Support the reduction of health inequalities
- Improved efficiency in healthcare settings

Outcomes — With the following

- ICR enables better access to patient medical history, leading to better clinical decisions
- Encourage provision of integrated care between primary, community, acute and mental health providers and local authorities
- Patient information accessible at a single location (embedded into local EPR system)
- Reduced risk of losing patient information (due to paper-based forms being used)
- Reduce the risk of data breach as patient information is not shared over the phone
- Time savings for clinical and admin staff across health and social care providers
- Less time spent contacting other services to get patient information (patient history, medications, etc.)
- More effective transfer of care for patients referred from other services
- Reduced unnecessary referrals to Lipid clinics by enabling patient triage
- Reduced the duplication of work such as tests or annual health checks (through patient history and medications review)
- Released staff capacity used to engage with "hard-to-reach" patients or patients with more complex needs
- Reduced unnecessary referrals for genetic testing for Familial Hypercholesterolemia
- Faster access to information allows for wider patient recruitment process in clinical trials
- Faster time for referrals/treatment
- Improved knowledge of prior and existing care received/appointments with other health services
- Timely access to more clinical information (without having to request it from another service), and Respect and End-of-life care forms (in a digital format)
- Support better management of chronic conditions (due to more longitudinal patient information being available)
- Access to more information than would usually be enclosed in standard clinic letters (i.e. Radiology reports)
- Enabling improved clinical decisions in time pressured situations
- Timely access to prescriptions for patients with chronic conditions since validation can be found in the ICR
- Patients can be informed of the progress of a referral or an upcoming appointment by their GP
- Better management of end-of-life care as practitioners have improved access to care plans, enabling better transparency for patients
- Better care for patients/people who are unable to provide accurate account of their medications or the services they previously have accessed

Activities — Utilising these

- Consistency of access to the ICR features across a given team
- Prevent system from defaulting to blank cells when awaiting patient information to avoid misinterpretation of blank records with a clear medical history.
- Provide resources to enable users to learn how to use the system independently
- Expert users introduced or created within teams to aid collaborative learning
- Make more information accessible for non-NHS users
- Allow users to personalise their view point on the start-up screen
- Communicate the key benefits of the ICR across organisations and users
- Increase real-time integration (more data and more organisations included)
- Encourage users to share their knowledge and discovered benefits of the ICR with colleagues to increase user engagement and uptake
- Encourage patients to consent for their personal information to get used for the ICR

Metrics — And recording these

- Time saved checking the ICR compared to writing letters to GP practices, finding patient notes, conducting medication reviews, and accessing patient information to check eligibility for clinical trials
- Measured improvement in clinical decision making, patient experience, patient outcomes, user experience with ease of access, and protection of patient sensitive data
- Number of;
  - incidence of adverse events due to polypharmacy
  - patients in maternity services requiring a summary of medical record
  - prescriptions per patient baseline compared to post implementation
  - patients whose EoL care is documented in the ICR
  - ReSPECT forms captured in the ICR
  - referrals to Lipid clinic baseline compared to post implementation
  - patients unable to share their medications/care received
- Interaction data within each page of the ICR
- Costs accrued by printing documents

Barriers

- Some staff have limited or partial access to patient records, e.g. child protective services can only access system at the point of safeguarding concerns
- Clinic letters can sometimes arrive faster than SystmOne is updated
- Finding information, like vaccination histories, is not always easy
- AWP letters to GPs are not placed on the system
- Some staff lack confidence using the ICR as a result of poor /no training
- Older generations of care staff are reluctant to adopt new digital systems due to unfamiliarity

NB. Only four box colours feature in the activity section due to the other impacts occurring as a result of the ICR simply existing, and not because of a specific action.

7.2. Appendix B: Soft launch survey results

	Length of time using the ICR (n=15)
Less than 6 months	0
Over 6 months -12 months	2
Over 1 year -2 years	6
Over 2 years	7

	I am confident in using the ICR	The design of the ICR is user friendly	I can easily find the relevant patient information when using the ICR	Not having access to the ICR would negatively impact my work	Not having access to the ICR would negatively impact my patients
Strongly agree	7	N/A	6	9	6
Agree	5	N/A	5	5	4
Neither agree or disagree	2	N/A	2	1	3
Disagree	1	N/A	2	0	1
Strongly disagree	0	N/A	0	0	1

Description of user experience	
Useful	11
Valuable	7

Description of user experience	
Easy	4
Efficient	3
Organised	4
Reliable	3
Unreliable	6
Inefficient	4
Disorganised	1
Complicated	1
Difficult	0
Impractical	0

	Perceived impact of ICR on services
Patient / client safety	7
Better care for patients/ clients who are unable to provide accurate accounts of previous medical history	7
Quality of care / care coordination and management	8
Patient/ client record management	N/A
Ability to share or review upcoming appointment information or results from other services (including viewing other services' involvement)	6
Better opportunity for early intervention	5

	Perceived impact of ICR on services
Respect of confidentiality	3
None of the above	2
Time needed to transfer patients/ clients between services	1
Patient/ client engagement and empowerment	2
Other	5

	Perceived impact of ICR on role
Ease of accessing patient/ client information	6
Ability to access more patient/ client information	11
Improved efficiency	10
Time saved doing admin tasks	6
Time saved doing clinical work or with patients/ clients	4
Better decision making	6
Reduced duplication of tasks/ tests/ procedures	5
Reduction in data loss (e.g- ReSPECT forms for instance)	3
None	1
Other	0
Faster patient/ client recruitment (eligibility check, clinical trials etc)	N/A

	Perceived tasks reduced due to ICR
Communications/ correspondence with other services/ teams	N/A
Patient or service user phone calls	6
None, no change	1
Patient/ client referrals (including duplicates)	4
Patient/ client appointments/ meetings	3
Unplanned admissions	3
Not relevant to my role	0
Planned admissions	1
Other	7

	Perceived time saved (minutes)
Providing patient information to another services/organisations over the phone	31.3
Checking patients' eligibility to be recruited for a clinical trial	45.8
Checking for patient's test results or recent interactions with health and social care	96.3
Avoiding duplication of tasks (annual health checks, tests results etc)	92.5
Asking other services/health and care organisations for patient information	80
Looking for patient medical history	N/A
Looking for up-to-date prescriptions	48.8

	Perceived biggest improvement
Easier access to patient information/record	2
Opportunity to access information I could not access without the ICR	5
None of the above (no improvement)	0
More accurate patient information	3
Time saved	3
Improved care	0
Improved system efficiency	0
Reduction in duplication of work	1
Other	1

7.3. Appendix C: Survey questions

Questionnaire can be found through this survey link: https://www.surveymonkey.co.uk/r/9CDJF3Y

Thank you for taking part in this "ICR opinions and experiences" survey.

Unity Insights is an independent evaluator and has been commissioned by BSW Integrated Care Board to evaluate the impact of the implementation of the Integrated Care Record (ICR), also known as the CareCentric Graphnet platform. As part of the activities, Unity Insights is looking to understand your perception and experience regarding using the ICR.

By answering this survey you understand that you consent to the answers being utilised for the purpose of the evaluation.

Thank you for taking part.

* 1. What is your current role?

Other (please specify)

* 2. Where do you work?

Other (please specify)

* 3. How long have you worked in that role?

* 4. How long have you been using the ICR?

5. How many patient records do you access through the ICR per week on average?

* 6. Please indicate if you agree/disagree with the following statements

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
I am confident in using the ICR	○	○	○	○	○
The design of the ICR is user-friendly	○	○	○	○	○
I can easily find the relevant patient information when using the ICR	○	○	○	○	○
Not having access to the ICR would negatively impact my work	○	○	○	○	○
Not having access to the ICR would negatively impact my patients	○	○	○	○	○

* 7. Please select which of the following best describes your experience of using the ICR?
Please select all words that apply

- [ ] Useful
- [ ] Disorganised
- [ ] Easy
- [ ] Complicated
- [ ] Unreliable
- [ ] Efficient
- [ ] Impractical
- [ ] Reliable
- [ ] Organised
- [ ] Inefficient
- [ ] Difficult
- [ ] Valuable

* 8. Can you please explain your answer to the previous question

* 9. In your opinion, how are services impacted as a result of the implementation of the ICR? Please select all that apply.

- [ ] Patient / client safety
- [ ] Respect of confidentiality
- [ ] Quality of care / care coordination and management
- [ ] Patient/ client record management
- [ ] Time needed to transfer patients/ clients between services
- [ ] Patient/ client engagement and empowerment
- [ ] Better care for patients/ clients who are unable to provide accurate accounts of previous medical history
- [ ] Ability to share or review upcoming appointment information or results from other services (including viewing other services' involvement)
- [ ] Better opportunity for early intervention
- [ ] Other
- [ ] None of the above

Other (please specify)

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* 10. What aspects of your role do you believe are impacted as a result of the implementation of the ICR? Please select all that apply.

- [ ] Improved efficiency
- [ ] Time saved doing clinical work or with patients/ clients
- [ ] Time saved doing admin tasks
- [ ] Better decision making
- [ ] Ease of accessing patient/ client information
- [ ] Ability to access more patient/ client information
- [ ] Reduced duplication of tasks/ tests/ procedures
- [ ] Reduction in data loss (e.g- ReSPECT forms for instance)
- [ ] Faster patient/ client recruitment (eligibility check, clinical trials etc)
- [ ] Other
- [ ] None

Other (please specify)

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* 11. Do you think using the ICR has enabled you to avoid or reduce any of the following activities? Please select all that apply

☐ Patient/ client referrals (including duplicates)

☐ Patient/ client appointments/ meetings

☐ Unplanned admissions

☐ Planned admissions

☐ Patient or service user phone calls

☐ Communications/ correspondence with other services/ teams

☐ Other

Other (please specify)

[   ]

* 12. Please estimate how much time you save per week (in minutes) thanks to the ICR using the proposed categories. If you don't feel any time is saved using the ICR please mark as 0 (zero). Additionally, if the activity isn't relevant to your role, please mark as 0

Asking other
services/health and
care organisations for
patient information
[   ]

Looking for patient
medical history
[   ]

Looking for up-to-date
prescriptions
[   ]

Checking for patient's
test results or recent
interactions with
health and social care
[   ]

Providing patient
information to another
services/organisations
over the phone
[   ]

Checking patients'
eligibility to be
recruited for a clinical
trial
[   ]

Avoiding duplication of
tasks (annual health
checks, tests results
etc)
[   ]

No time saved
(indicate with '0')
[   ]

* 13. Please select which of the following you consider to be the biggest improvement the ICR has made to your role. Please select one.

- ○ Time saved
- ○ Easier access to patient information/record
- ○ More accurate patient information
- ○ Opportunity to access information I could not access without the ICR
- ○ Reduction in duplication of work
- ○ Improved system efficiency
- ○ Improved care
- ○ Other please specify
- ○ None of the above (no improvement)

Other (please specify)

[   ]

14. What improvement would you like to see within the ICR?

[   ]

15. Do you have any further feedback or comments you would like to share about your experience using the ICR?

[   ]

16. Thank you for completing this survey. Your responses are very helpful to our evaluation. Unity Insights will be conducting interviews to follow up on some of the responses to this survey to discuss answers in more detail. These interviews will take approximately 30 minutes and can be completed over teams video calls. Please leave your email address below if you consent to be contacted for an interview

[   ]

Staff role answer options included:

Medic, Acute and General Internal Medicine

Medic, Paediatrics and Paediatric Cardiology

Medic, Infectious Diseases, Medical Microbiology, Medical Virology and Tropical Medicine

Medic, Respiratory Medicine

Medic, Dermatology

Medic, Neurology

Medic, Cardiology

Medic, Rheumatology

Medic, Genitourinary Medicine

Medic, Clinical Pharmacology and Therapeutics

Medic, Geriatric Medicine

Medic, Medical Oncology

Medic, Clinical Neurophysiology

Medic, Renal Medicine

Medic, Nuclear Medicine

Medic, Endocrinology and Diabetes Mellitus

Medic, Gastroenterology

Medic, Audio Vestibular Medicine

Medic, Clinical Genetics

Medic, General and Vascular Surgery

Medic, Paediatric Surgery

Medic, Otolaryngology

Medic, Trauma and Orthopaedic Surgery

Medic, Opthalmology and Medical Opthalmology

Medic, Clinical Oncology

Medic, Urology

Medic, Plastic Surgery

Medic, Cardio-thoracic Surgery

Medic, Emergency Medicine

Medic, Neurosurgery

Medic, Allergy

Medic, Intensive Care Medicine

Medic, Obstetrics and Gynaecology

Medic, Community and Sexual Reproductive Health

Dental, Dental and Maxillofacial Radiology

Dental, Oral Microbiology

Dental, Oral Medicine

Medic, Psychiatry of Learning Disability

Medic, General and Adult Psychiatry

Medic, Child and Adolescent Psychiatry

Medic, Forensic Psychiatry

Medic, Medical Psychotherapy

Medic, Old Age Psychiatry

Medic, Oral and Maxillo-facial Surgery

Dental, Orthodontics

Dental, Restorative dentistry

Dental, Paediatric dentistry

Dental, Additional dental specialties

Dental, Oral Surgery

Dental, Special Care Dentistry

Medic, General Pathology (closed)

Medic, Chemical Pathology

Medic, Haematology

Medic, Histopathology

Medic, Immunology

Medic, Clinical Cytogenetics and Molecular Genetics (closed)

Medic, Clinical Radiology

Medic, Rehabilitation Medicine

Medic, Sport and Exercise Medicine

Medic, Diagnostic Neuropathology

Medic, Paediatric and Perinatal Pathology

Medic, Anaesthetics

Medic, Occupational Medicine

Medic, Palliative Medicine

Medic, Other Specialties

Medic, Community Health Services (closed)

Medic, General Practice

Medic, Public Health Medicine

Dental, Community Health Service Dental

Dental, Dental Public Health

Medic, General Surgery

Dental, General Dental Practitioner

Dental, Placeholder

Medic, Medical Research Council

Medic, Aviation and Space Medicine

Dental, Oral and Maxillofacial Pathology

Dental, Paediatric neurology

Dental, Oral and Maxillofacial Surgery

Dental, Endodontics

Dental, Periodontics

Dental, Prosthodontics

Medic, Forensic Histopathology

Medic, Public Health

Paramedic

Clinical Support to Qualified Ambulance Staff

Ambulance Technician

Non Clinical, Managers and Senior Managers

Non Clinical, Admin

Clinical Support to Qualified Nursing and Midwifery Staff

Clinical Support to Allied Health Professionals

Adult Nurse

Paediatric Nurse

Mental Health Nurse

Learning Disability Nurse

School Nurse

Neonatal Nurse

Midwife

Health Visitor

District Nurse

Nurse Associate

Trainee Nurse Associate

Practice Nurse

Chiropodists / Podiatrist

Dietetician

Occupational Therapist

Orthoptics / Optics

Physiotherapist

Diagnostic Radiographer

Therapeutic Radiographer

Art/ Music/ Drama Therapist

Prosthetics and Orthotics

Speech and Language Therapist

Multi-therapies

Applied Psychology

Psychological Therapy

Pharmacist

Health Care Science, Blood sciences - qualified

Operating Theatres (Operating Department Practitioners)

Social Services (Social Worker)

Dental Therapist

Orthoptics / Optics Scientist

Healthcare Science, Clinical Bioinformatics - qualified

Healthcare Science, Neurosensory sciences - qualified

Chiropody / Podiatry Technician

Occupational Therapy Technician

Orthoptics / Optics Technician

Healthcare Science, Medical Physics - qualified

Pharmacy Technicians

Dental Nurse

Dental Technician

Pharmacy Technician

Pharmacy Assistants

Healthcare Science, Cellular sciences - qualified

Healthcare Science, Genetics - qualified

Healthcare Science, Infection sciences - qualified

Healthcare Science, Cardiovascular, Respiratory and Sleep Sciences - qualified

Healthcare Science, Clinical engineering - qualified

Healthcare Science, Other - qualified

Healthcare Science, Blood sciences - support to qualified

Healthcare Science, Cellular sciences - support to qualified

Healthcare Science, Genetics - support to qualified

Healthcare Science, Infection sciences - support to qualified

Healthcare Science, Neurosensory sciences - support to qualified

Healthcare Science, Cardiovascular, Respiratory and Sleep Sciences - support to qualified

Healthcare Science, Clinical engineering - support to qualified

Healthcare Science, Other - support to qualified

Healthcare Science, Medical physics - support to qualified

Healthcare Science, Gastrointestinal and Urodynamic Sciences - qualified

Healthcare Science, Social sciences - qualified

Healthcare Science, Gastrointestinal and Urodynamic Sciences - support to qualified

Healthcare Science, Clinical Bioinformatics - support to qualified

Healthcare Science, Environmental sciences - support to qualified

Healthcare Science, Social sciences - support to qualified

Area of work answer options included:

Acute and General Internal Medicine

Allergy

Anaesthetics

Audio Vestibular Medicine

Aviation and Space Medicine

Cardiology

Cardio-thoracic Surgery

Chemical Pathology

Child and Adolescent Psychiatry

Clinical Cytogenetics and Molecular Genetics (closed)

Clinical Genetics

Clinical Neurophysiology

Clinical Oncology

Clinical Pharmacology and Therapeutics

Clinical Radiology

Community and Sexual Reproductive Health

Community Health Services (closed)

Dental

Dermatology

Diagnostic Neuropathology

Emergency Medicine

Endocrinology and Diabetes Mellitus

Forensic Histopathology

Forensic Psychiatry

Gastroenterology

General and Adult Psychiatry

General and Vascular Surgery

General Pathology (closed)

General Practice

General Surgery

Genitourinary Medicine

Geriatric Medicine

Haematology

Histopathology

Immunology

Infectious Diseases, Medical Microbiology, Medical Virology and Tropical Medicine

Intensive Care Medicine

Medical Oncology

Medical Psychotherapy

Medical Research Council

Neurology

Neurosurgery

Nuclear Medicine

Obstetrics and Gynaecology

Occupational Medicine

Old Age Psychiatry

Opthalmology and Medical Opthalmology

Oral and Maxillo-facial Surgery

Other Specialties

Otolaryngology

Paediatric and Perinatal Pathology

Paediatric Surgery

Paediatrics and Paediatric Cardiology

Palliative Medicine

Physiotherapy

Plastic Surgery

Psychiatry of Learning Disability

Public Health (closed)

Public Health Medicine

Rehabilitation Medicine

Renal Medicine

Respiratory Medicine

Rheumatology

Sport and Exercise Medicine

Trauma and Orthopaedic Surgery

Urology

7.4. Appendix D: Interview analysis grid

Analysis grid for the interviews: The following themes were entered into an analysis grid.

- Demographics: Name, Role, Length of time using ICR, Organisation

- Perceptions of the ICR

- Perceived benefits since the implementation of the ICR.
  - Prompt if needed: Admin time saved, Clinical time saved, Ease of access, Protection of sensitive data, Reduce patient data loss, Efficiency, Quality of care, Empowering patients/ care management

- Forecast benefits over the next five years
  - Prompt if needed: Has any other service become obsolete/ would become since using ICR? How do you see the ICR being used over the next 5 years?

- What has been the impact of implementing the ICR?
  - Tell us about a time when…
  - Prompt: Practitioner, Patient outcomes, Patient experiences

- Enablers/ Barriers to the ICR
  - Prompt if needed: Tips/ other team members helping, Webpage layout, Intuitive placement, Training, Access, Spare time, Building confidence

- Suggestions for Improvements

- Final comments

7.5. Appendix E: Full quantitative results

Implementation

The total number of unique daily users of the ICR, averaged over the course of each month from October 2021 to October 2023, has seen a steady increase over time across all BSW organisations. As of October 2023, the majority of users of the ICR are Royal United Hospital and Great Western Hospital with 188 and 162 daily users respectively. General practice is the next largest group of users, with an average of 71 daily users.

It should be noted that the appropriate level of implementation or usage of the ICR for each organisation, and organisation type, is unknown. As such, caution must be applied to comparisons of implementation between organisations. For the purposes of discussing the enablers and

barriers, some light comparisons are made in order to provide context and to demonstrate where the main benefits are currently being realised (3.2).

Figure 24 presents the volume of unique daily users each month per organisation type. As previously mentioned, the acute and mental health trusts are the largest user population of the ICR. Acute and mental health trusts had 427 daily users of the ICR in October 2023, equalling 67.5% of the total ICR user population. The notable spike in users for acute and mental health trusts between February and April of 2022 comes about as a result of RUH moving from 2 to 100 daily users in this time period. Within this group, RUH and GWH currently have 188 and 162 unique daily users respectively. Other consistent users include Avon and Wiltshire Mental Health Partnership who most recently recorded 58 daily users. Contrastingly, Oxford Health NHS Foundation Trust have only recently implemented the ICR in September 2023 and had 1 daily ICR user as of October 2023. Salisbury NHS Foundation Trust also had similarly low user count but is now seeing an average daily user count of 15 of more as of August 2023. As seen in Figure 24, the total population of ICR users in acute and mental health trusts is significantly larger than the other organisation types combined. It can also be seen that each organisation type saw a drop in unique daily users between February 2023 and April 2023, only to steadily rise again in the months that followed. This observation is more notable in the primary care, community health and social care organisation type given it is a uniform positive trend otherwise.
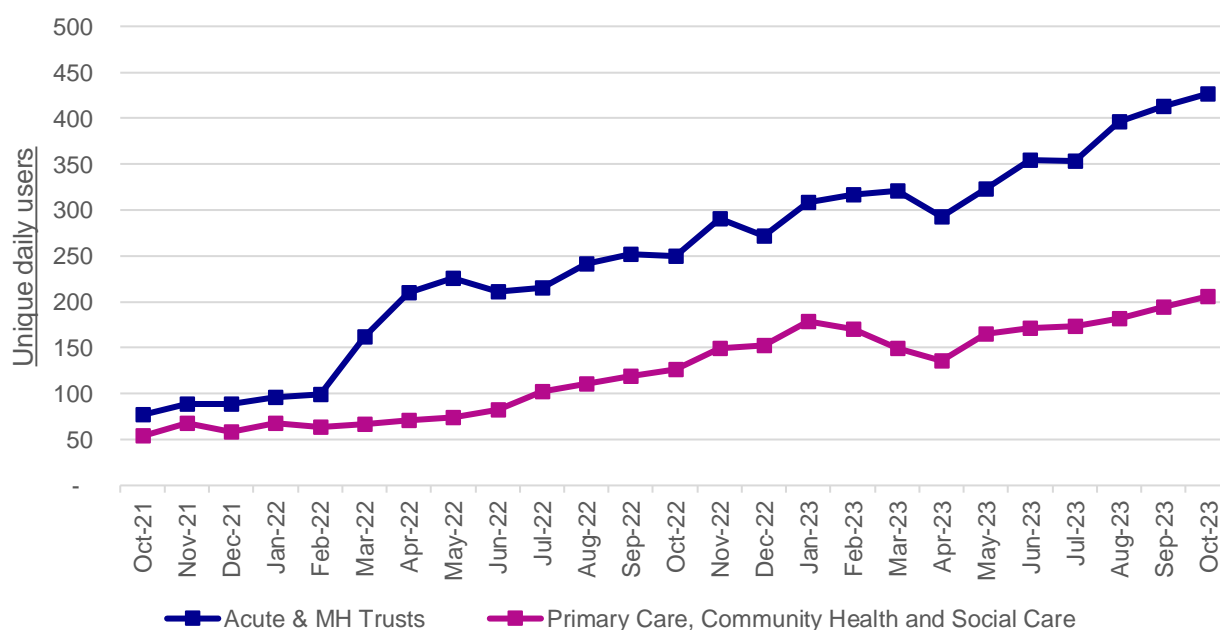
Figure 24: Unique daily users each month per organisation type.

Figure 25 presents the daily user count for organisation types excluding acute and mental health trusts, to provide a better visual comparison of change in daily user count over time between these comparatively smaller groups. The number of daily users in primary care averages out at 82 as of October 2023, making up 12.9% of the total unique user population and is predominately users from general practice (*n*=71). Figure 25 depicts a rapid rise in the daily user population in primary care since May 2022, the reason being that new practices from Swindon and Wiltshire were added

to the ICR user population at this time. The population of unique daily users in community care has consistently stood as the second largest of the four organisation types, following a similar trend over time to primary care from May 2022 onwards. Community care made up 15.4% (n=97) of the total healthcare user population in October 2023. Wiltshire Health and Care make up a majority of the community care population, with 55 daily users on average in October 2023. Both primary care and community care see a fall in the unique daily user count in April 2023, which rebounds in the months that follow in a very similar trend. Social care and councils make up the remaining 4.3% (n=27) of the unique user population, presenting a slow rise in usage over time until it jumps relatively in August 2023.
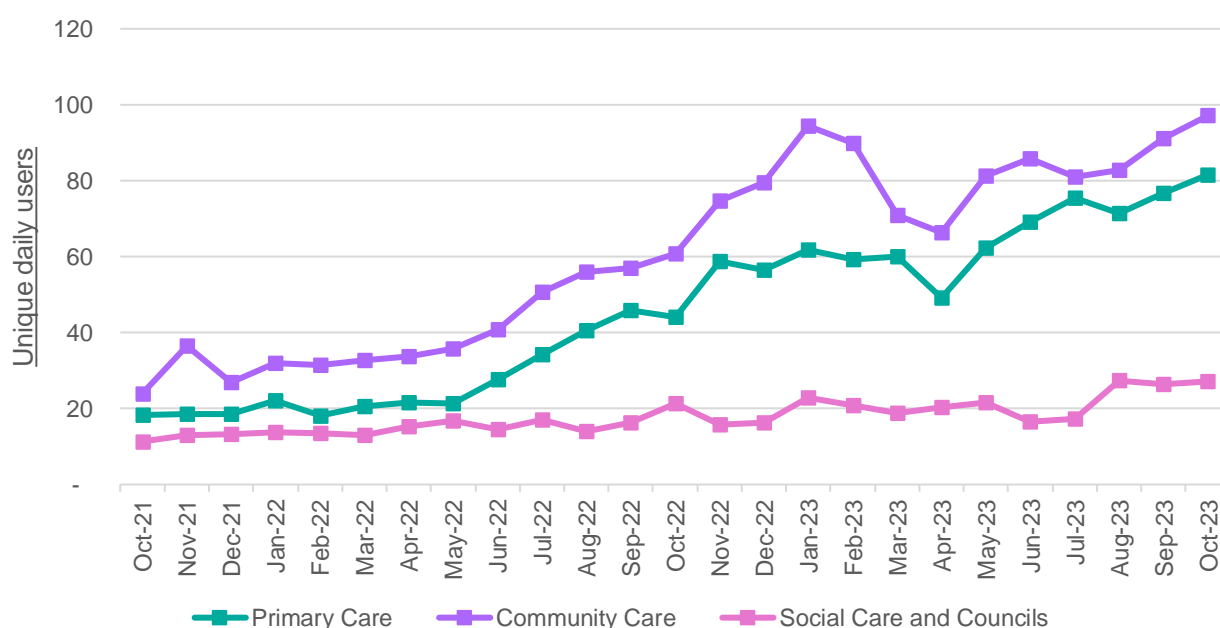
Figure 25: Unique daily users each month per organisation type (excluding Acute & MH Trusts).

Usage

Patient records accessed

As per the findings from the assessment of the volume of unique daily users over time, the acute and mental health trusts are responsible for the greatest number of records accessed by a factor often greater than 3 over the other organisation types combined (Figure 26). Acute and mental health trusts made up 75.8% of patient records accessed in October 2023, and 78.6% of all patient records accessed since October 2021. From that total 75.8% of usage from trusts combined, RUH and GWH combined made up 60.9% of all patient data accessed through the ICR. In comparison, community care made up 11.2% of data accessed in October 2023, primary care made up 9.2%, and social care and councils made up the remaining 3.8%.
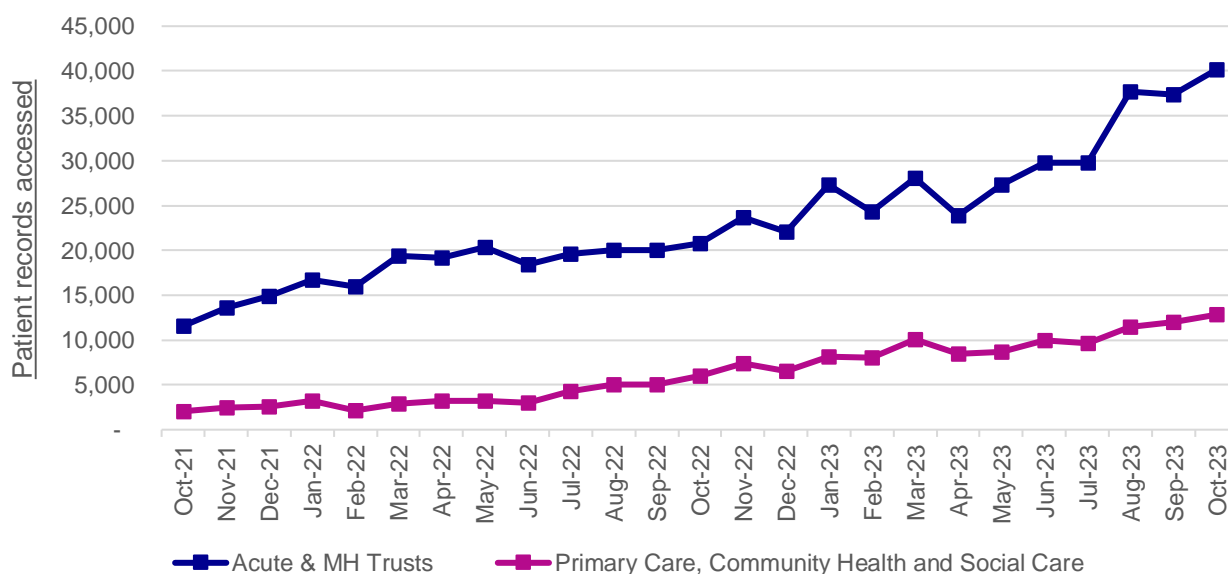
Figure 26: Patient records accessed each month per organisation type.

The total number of patient records accessed across the ICR has steadily increased over time at a rate that is comparable with the data presented in Figure 24. Regression analysis between the time series datasets for total 'unique daily users' and total 'patient records accessed' presents a correlation coefficient value of 0.95, suggesting a very strong positive correlation between the datasets (i.e., the number of users is strongly linked to the quantity of patient data accessed). A notable outlier to this analysis is RUH who show a consistent rise in patient records accessed over the full timeline, which is also comparable to GWH, yet their unique daily user population jumped exponentially after February 2022 (as seen in Figure 24). It is also apparent that the relative rate of increase in usage for acute and mental health trusts exceeds the rate witnessed in other organisation types, where a notable spike in usage is seen in August 2023. Figure 27 also presents the total number of patient records accessed like in Figure 26, but excludes acute and mental health trusts and expands on the other two organisation types.
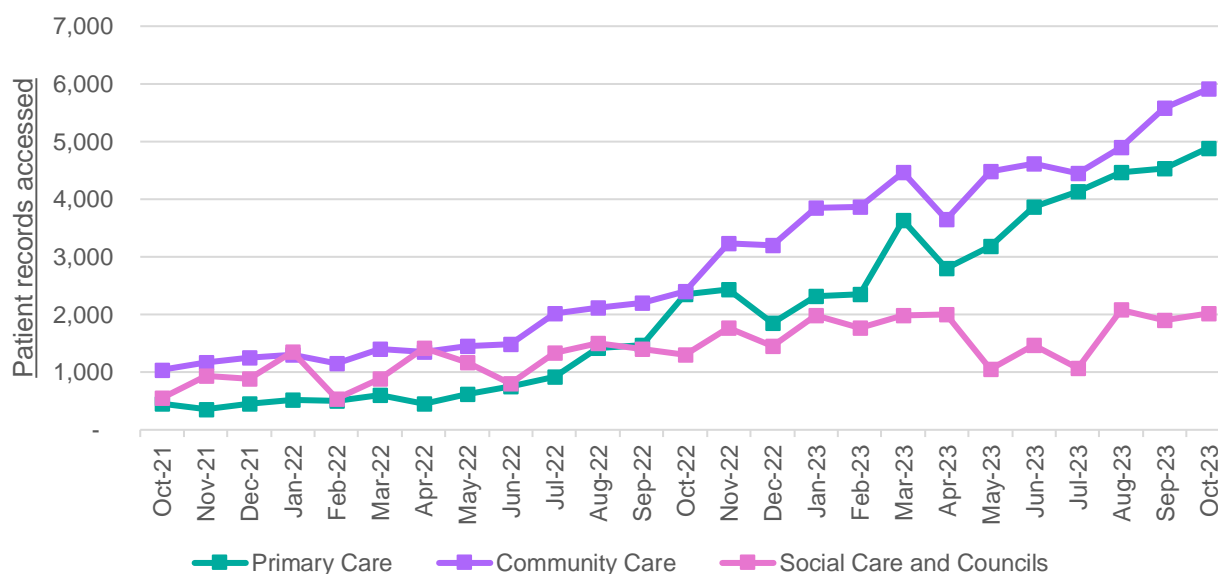
Figure 27: Patient records accessed each month per organisation type (excluding Acute & MH Trusts).

Figure 28 depicts a gradual increase in usage of patient records within the ICR over time for each organisation type, most notably in community and primary care who show similar growth patterns. Usage across social care and councils shows limited increase across this time series but dips temporarily between April 2023 and August 2023. Whereas acute and mental health trusts recorded a total volume of patient records accessed in excess of 40,000 in October 2023 (Figure 26), the volume of patient records accessed in primary care, community care, social care and councils only just surpassed 12,800.

Patient records accessed per unique daily user

Expanding on the results presented from Figure 24 up to and including Figure 27, a direct comparison of uptake versus usage levels between organisation types is presented in Figure 28. Acute and mental health trusts initially had a much larger ratio of usage per user than the other organisation types, but when the user population in acute and mental health trusts suddenly grows (due to rapid uptake of the system by RUH in February 2022) the curves on the graph start to slowly converge somewhat. In October 2023, there remains a significant difference between the largest ratio of patient data accessed by unique users (94) and the lowest (60), which describes 'Acute and Mental Health Trusts' and 'Primary Care' respectively. Social care and councils present the only trendline that oscillates consistently over time, likely due to it having the lowest population of unique daily users which results in a large susceptibility to variation.
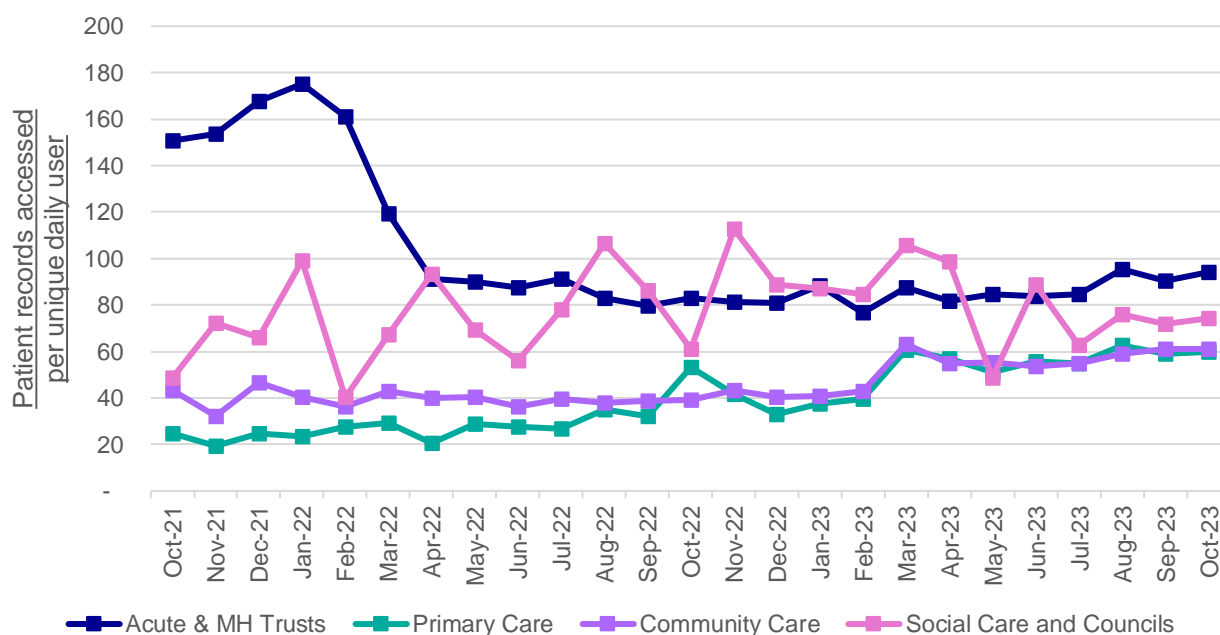
Figure 28: Patient records accessed, per unique daily user, each month per organisation type.

The ratios of patient data accessed per unique user in acute and mental health trusts appears largely consistent from August 2022 onwards but shows a shallow rise after July 2023 along with the other organisation types. Social care and councils have seen varied usage over time per unique user, but the trend over time remains generally positive. Primary care and community care have seen a steady increase over the full time series, reaching near identical ratios of usage per user from November 2022 onwards. There is also a notable spike in patient records accessed per unique daily user in March 2023 across all organisation types, which levels out in the months that follow with exception to primary care and community care who retained some of this additional usage in comparison to their previous growth. Overall, Figure 28 shows that unique daily users of the ICR are accessing more patient records each month over time.

Care plans

The ICR has been used to create and then publish 917 EPaCCS (Electronic Palliative Care Coordinating Systems) across RUH, GWH, Prospect Hospice, Swindon council and GP practices since first being used in March 2022. Usage has varied greatly during this period, and this feature is now predominantly used by RUH having only recently started using the feature in June 2023 as depicted in Figure 29. RUH produced 55 EPaCCS in August 2023, making up 46.6% of the total number of EPaCCS created that month through the ICR.

Figure 29: EPaCCS created and published each month per organisation.

Irrespective of the sporadic use of this feature across different organisations, correlation testing of this dataset (including all organisation types) presents a correlation coefficient value of 0.72. A regression analysis of the overall dataset proves this assessment to be statistically significant, and also suggests that for each month that passes they are producing between 4 and 5 more EPaCCS per month on average. This suggests a positive correlation between an increasing number EPaCCS being created and published, and time. This analysis is however limited by the exponential increase in usage by RUH and GPs in June 2023 and March 2023 respectively, and how little engagement this feature saw from RUH, GPs and Swindon council for most of this time series.

The ICR is also being used increasingly to create ReSPECT (Recommended Summary Plan for Emergency Care and Treatment) plans, as demonstrated in Figure 30. Although the timeline for this dataset is short, the rapid upward trend of usage within acute care settings is clearly visible with 615 and 209 ReSPECT plans being created in March 2023 in RUH and GWH respectively. GP usage over this time period has remained consistent with 21 ReSPECT plans being created each month during this period, whereas Prospect Hospice appears to create less than 10 ReSPECT plans per month. A majority of the ReSPECT plans have been created and finalised, and 86 have been published, but both document statuses are considered to mean the plan is accessible to others through the ICR. In total, the ICR has been used to produce 2,235 ReSPECT forms in BSW since the introduction of the feature in May 2023 to August 2023.
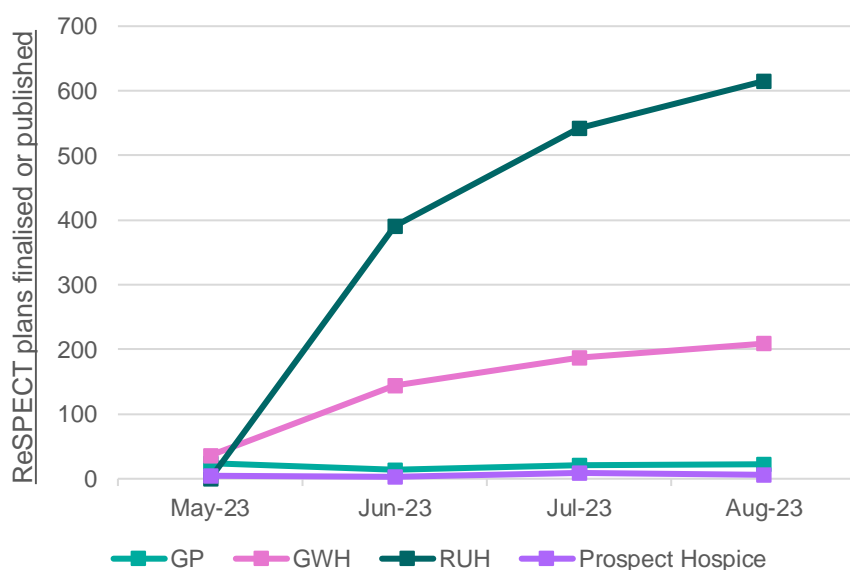
Figure 30: ReSPECT forms created each month per organisation.

Hubtiles

There are 56 unique Hubtiles (i.e., clickable links that send users to different types of information within the ICR) that can be selected when using the ICR. Hubtile usage data was assessed by firstly removing the 'navigation tiles' from the datasets, since these Hubtiles have the highest usage by far, but their only purpose is to act as page headers to aid users in finding the patient data they are interested in. From that list of options, the total number of Hubtiles that were selected in October 2023 by acute and mental health trusts totalled 49,606, which equates to 76.6% of all Hubtiles selected in the ICR that month. The second largest user is community care, totalling 7,242 Hubtiles selected and equating 11.2% of total usage. The next largest user is primary care, selecting 5,206 Hubtiles equalling 8.0% of total usage. Social care and councils make up the rest, selecting 2,739 Hubtiles, which equates to 4.2% of total usage. The usage of the system within acute trusts appears to be especially high, given the combined usage of RUH and GWH equates to 61.6% of total Hubtiles selected across the BSW system.

Figure 31 presents the top ten most used Hubtiles within acute and mental health trusts, described as a percentage of the total Hubtile usage for this organisation type. It appears evident that information logged into the ICR by GPs is heavily sought after in acute and mental health trusts, with 'GP repeat medications' leading the way by a considerable margin. Digital ReSPECT forms are also a very popular aspect of the ICR, making up 16.8% of total usage.
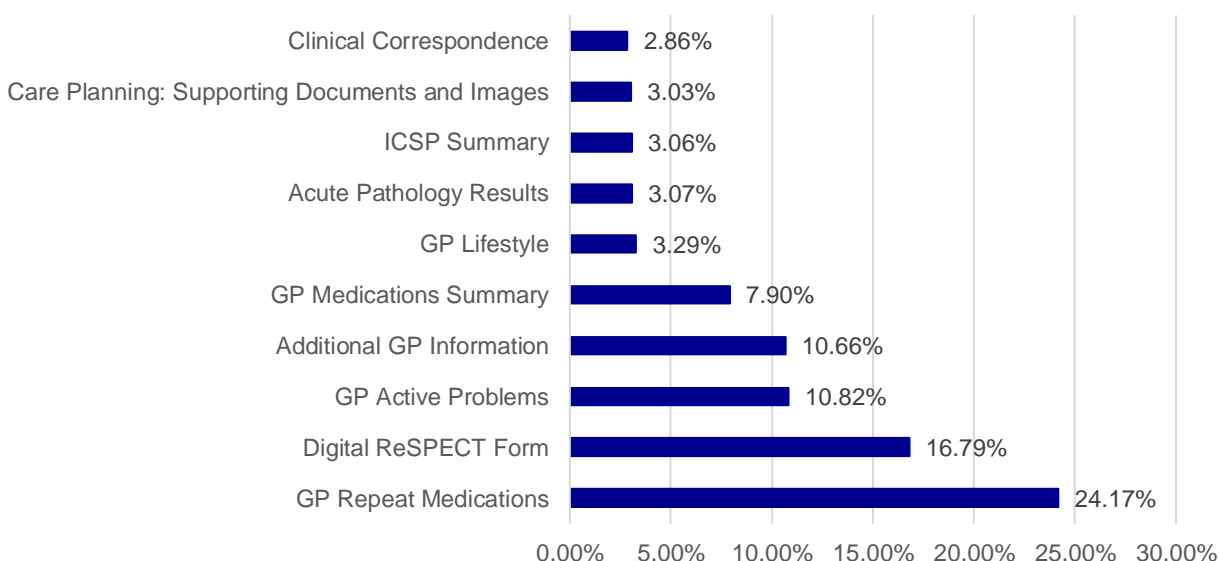
Figure 31: Proportion of Hubtile usage for Acute & MH Trusts in October 2023.

Figure 32 presents the top ten most used Hubtiles within primary care, described as a percentage of the total Hubtile usage for this organisation type. The data suggests that the key reason for GPs to use the ICR is the assess clinical correspondence and hospital activity, which mirrors the high usage of GP related Hubtiles seen in Figure 32.
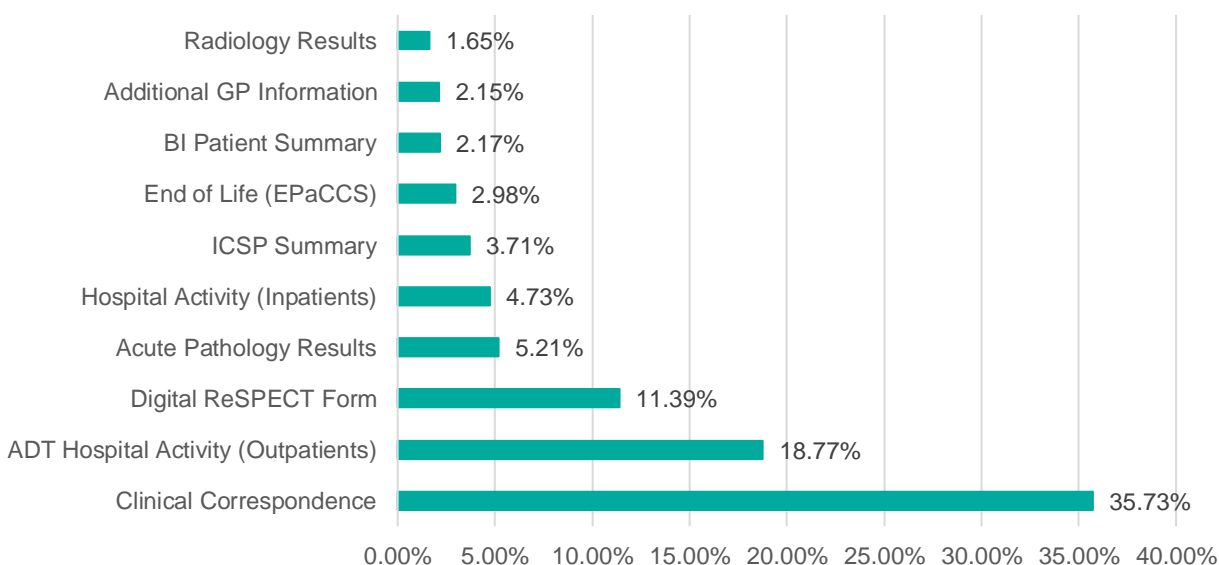

Figure 32: Proportion of Hubtile usage for Primary Care in October 2023.

Figure 33 presents the top ten most used Hubtiles within community care, described as a percentage of the total Hubtile usage for this organisation type. These organisations appear to use the ICR to understand clinical correspondence and hospital activity like users in primary care, but most notably to access acute pathology results. They also access digital ReSPECT forms and emergency hospital activity when using the ICR more often than users in primary care. The Hubtile

distribution presented aligns with what could typically be used for transferring people from hospitals to care homes since hospital discharge data, and information otherwise linked to transferring care, feature heavily.
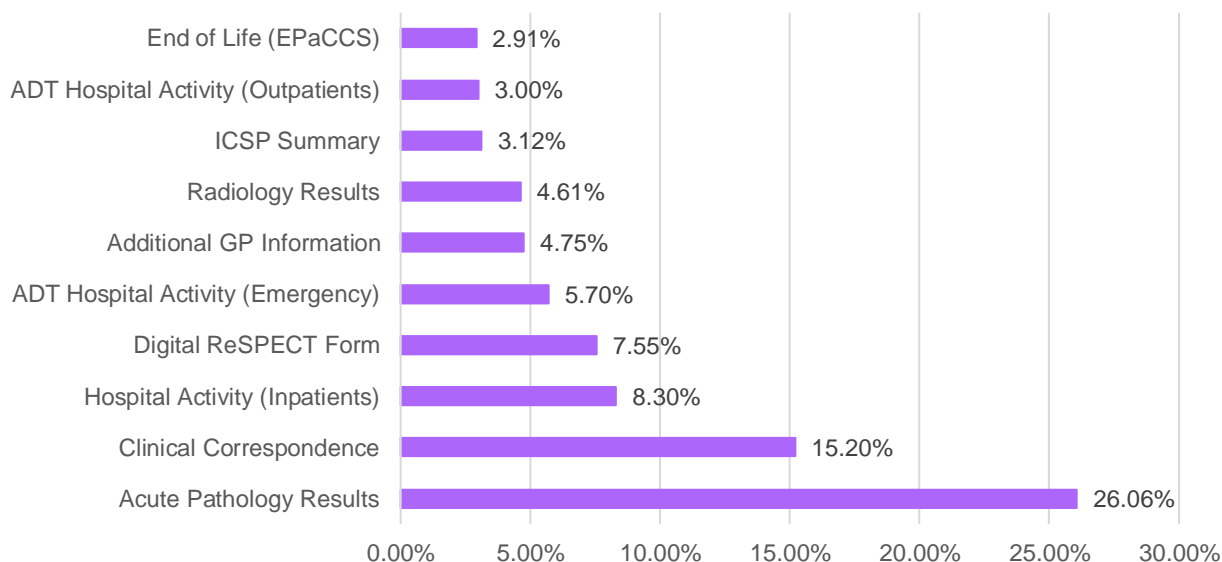

Figure 33: Proportion of Hubtile usage for Community Care in October 2023.

Figure 34 presents the top ten most used Hubtiles within social care and councils, described as a percentage of the total Hubtile usage for this organisation type. These organisations evidently use the ICR predominantly to understand patient history in community care and elsewhere, as well as clinical correspondence. They also access community care notes and patient summary data when using the ICR more often than other organisation types.
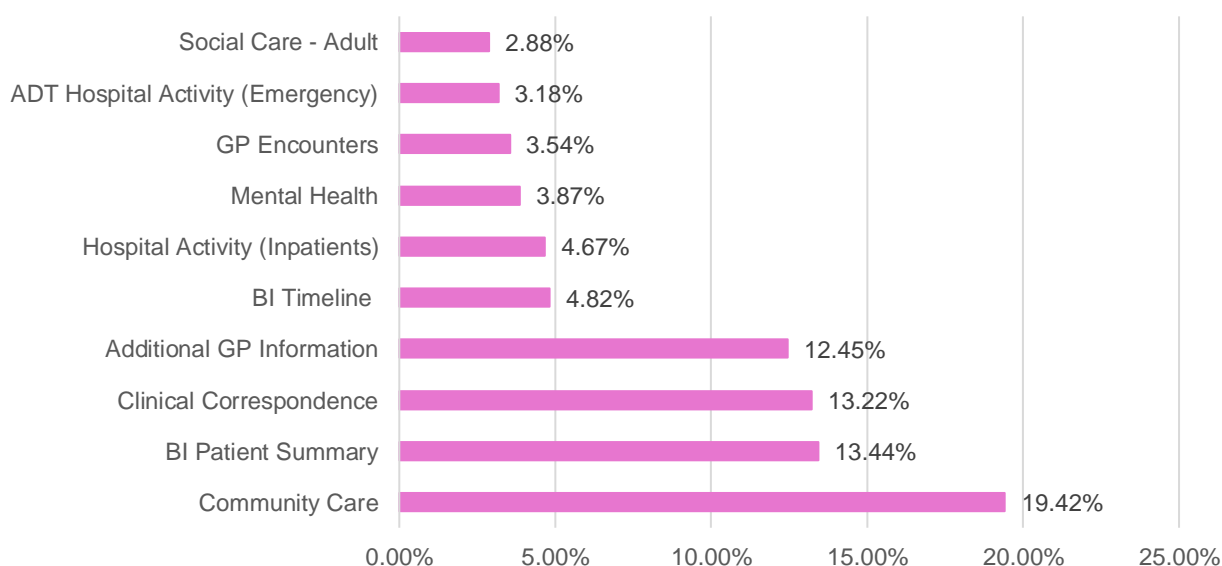

Figure 34: Proportion of Hubtile usage for Social Care and Councils in October 2023.

7.6. Appendix F: Full answer options

	ICR perceived impact on services	%
Patient / client safety	61	58%
Better care for patients/ clients who are unable to provide accurate accounts of previous medical history	60	57%
Quality of care / care coordination and management	57	54%
Patient/ client record management	49	47%
Ability to share or review upcoming appointment information or results from other services (including viewing other services' involvement)	33	31%
Better opportunity for early intervention	25	24%
Respect of confidentiality	20	19%
None of the above	10	10%
Time needed to transfer patients/ clients between services	9	9%
Patient/ client engagement and empowerment	9	9%
Other	7	7%

7.7. Appendix G: Full answer options

	ICR perceived impact on role	%
Ease of accessing patient/ client information	69	66%
Ability to access more patient/ client information	59	56%
Improved efficiency	58	55%
Time saved doing admin tasks	48	46%
Time saved doing clinical work or with patients/ clients	39	37%
Better decision making	38	36%
Reduced duplication of tasks/ tests/ procedures	22	21%
Reduction in data loss (e.g- ReSPECT forms for instance)	16	15%
None	11	10%
Other	4	4%
Faster patient/ client recruitment (eligibility check, clinical trials etc)	3	3%

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