social care
institute for excellence

YORK Consulting

Improving social care through digital care planning

An evaluation of the PASSsystem led by the Social Care Institute for Excellence

PASS system

everyLIFE TECHNOLOGIES

First published in Great Britain in March 2019
by the Social Care Institute for Excellence and everyLIFE Technologies Ltd.

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The **Social Care Institute for Excellence** (SCIE) improves the lives of people who use care services by sharing knowledge about what works. We are a leading improvement support agency and an independent charity working with adults', families' and children's care and support services across the UK. We also work closely with related services such as health care and housing. We improve the quality of care and support services for adults and children by:

- identifying and sharing knowledge about what works and what's new
- supporting people who plan, commission, deliver and use services to put that knowledge into practice
- informing, influencing and inspiring the direction of future practice and policy.

everyLIFE Technologies Ltd created the PASSsystem to reduce the risk associated with delayed detection of medications administration errors in care businesses. Released in 2015, the PASSsystem is now used by over 700 quality care services across every commissioning region in the country. The PASSsystem is used by care providers across health and social care. It enables the monitoring and sharing of up-to-date, real-time information. This ranges from personal preferences, medication details and outcome objectives of individual service users, to care plan instructions for care workers. Its sister product, openPASS, allows specified parties to access information on the PASSsystem.

York Consulting LLP is a socio-economic research and evaluation consultancy. Formed in 1989 and based in Leeds, York Consulting's clients include central government departments, local authorities, charities and private sector businesses. Over the past five years, the company has undertaken a growing number of studies that involve calculating the savings to the state of new or innovative approaches to social care. This has involved the development of a series of bespoke tools and cost-benefit models that have been applied on both local and national programmes.

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Acknowledgements

everyLIFE Technologies wishes to thank our customers and users of the PASSsystem for participating in this evaluation. This work would not have been possible without their feedback, involvement and contribution. The research team also wishes to thank Robin Batchelor, who was the executive sponsor of this project and other everyLIFE colleagues, not directly involved with the evaluation, for their support and encouragement throughout this project.

Research Team

The evaluation of the PASSsystem was a collaboration between everyLIFE Technologies Ltd, the Social Care Institute for Excellence (SCIE) and York Consulting. The research team was made up of the following:

Taffy Gatawa, Chief Information & Compliance Officer, everyLIFE Technologies
Taffy was the internal lead for the evaluation, providing project board support to the research team and communication to senior managers within the organisation, and project governance.

Nicola Swift, Compliance Programme Manager, everyLIFE Technologies
Nicola coordinated all project operations, including managing communications of the cohort of participants that were involved in the study, data collection and analysis and project administration.

Dr Susanne Gibson, Senior Research Analyst and Evaluation Manager, SCIE
Susanne was the primary project lead, providing research expertise to the team, governance support and end to end project quality assurance.

Florence Lindsay-Walters, Research Analyst, SCIE
Florence provided research and evaluation support, research instrument development, data analysis and quality assurance.

Deanne Mitchell, Information Specialist, SCIE
Deanne lead on literature search and synthesis, as well as providing quality assurance.

Yee Mai Koo-Pandya, Project Coordinator, SCIE
Yee Mai led on project management duties.

Tim Allan, Senior Cost Benefit Analyst, York Consulting
Tim led and oversaw the economic evaluation work. He developed the data analysis algorithm and conducted all the data analysis for the economic benefits evaluation.

Executive Summary

Introduction and methodology

everyLIFE Technologies is a Software as a Service (SaaS) company, founded in 2014, which provides digital care management software and systems across health and social care. everyLIFE's technological solutions help care providers to manage risk and increase efficiency in their business operations, thereby improving the quality of care. The PASSsystem, a digital care management platform, is everyLIFE's premier product and has been adopted by approximately 700 care providers across the UK.

An evaluation of the PASSsystem was commissioned in 2017. The evaluation was conducted by members of the everyLIFE team, with direction and supervision from SCIE and York Consulting, and was conducted in two parts. Part 1 was completed between May 2018 and February 2019. Part 2 will be reported in early 2020.

Evaluation methodology

- Surveys to gather feedback from care managers, care workers and business owners
- Interviews with care managers, business owners, care workers and a commissioner of adult social care
- Literature review
- Economic Assessment

In total, 57 care managers and 95 care workers provided feedback through interviews and/or surveys, both of which form the basis of this evaluation's findings. The literature search did not find any other published work of this type. **Therefore, this report is the first evaluation in building an evidence base around effective use of technology in social care.**

Aim

The aim of the evaluation was to assess the extent to which the PASSsystem is helping social care providers to demonstrate and deliver safe, efficient, high quality care, and accountability. Five key evaluation questions were formulated to achieve this aim.

Evaluation Part 1 - Key findings

Care providers can better **manage risk** by using the PASSsystem

Care providers can realise **business efficiencies** by using the PASSsystem

The PASSsystem helps care providers to deliver **high quality care**

The PASSsystem enables care providers to demonstrate **accountability** to services users, families and regulators

Evaluation questions

Part 1:

1. How and to what extent does the PASSsystem help to reduce the **risk** of: (a) avoidable harm to service users? (b) compliance actions from regulators?

2. How and to what extent does the PASSsystem improve **efficiency** in the delivery of care?

3. How and to what extent does the PASSsystem enable improvements to the **quality of care?**

4. How and to what extent does the PASSsystem improve **accountability** in care businesses?

Part 2:

5. How and to what extent does the PASSsystem help to create **financial savings** to the State? (See p.8)

In Part 1 of the project, participants - including care managers, care business owners and care workers - reported benefits of the PASSsystem across each of the four questions in Part 1 of the evaluation. Part 2 of the project will be reported in early 2020.

Risk management

The PASSsystem was considered to help reduce and manage risk for all participants.

Care managers reported benefits in terms of:

- **Information security** - Felt confident that the PASSsystem held service user information securely.
- **Responsiveness of care** - Suggested that the PASSsystem enabled them to monitor and respond to service user needs more quickly, particularly noting the alert system as an effective tool.
- **Reducing mistakes** - Both care managers and business owners reported that the PASSsystem had reduced medication errors, attributing this to the better quality of digital care record notes, eliminating the risks of avoidable harm associated with paper-based care records and delayed detection of errors.
- **Regulatory compliance** - Reported that the PASSsystem helps improve regulatory compliance, offers standardisation across the business and the ability to evidence care delivery, and has a real-time auditable trail of activity.

Care workers reported benefits in terms of:

- **Keeping track of care interventions and other tasks** - Found it helpful that the system prompted them to complete all care interventions and other tasks for service users.
- **Information security** - Reported that the PASSsystem was considered more effective than paper in keeping personal care records secure.
- **Information sharing** - Reported that the PASSsystem supported accurate information sharing with their colleagues and managers and helped improve communication.

Efficiency

The PASSsystem was considered to improve efficiency in the delivery of care. In particular, the PASSsystem was thought to help with:

- **Better preparation prior to delivering care** - For care workers and care managers, having access to service user information supported delivering better care and enabled greater organisation to optimise time with the service user.
- **Cost savings associated with a paperless system** - All commented positively on operating a paperless system which they reported saved time as well as costs associated with printing and photocopier machine hire. Business owners indicated that care plans were implemented more quickly after an assessment has been conducted.
- **Supporting communication across health and social care workforce** - There was recognition that the PASSsystem improves visibility for other professionals. However, this improvement varied due to digital maturity across health and social care.

Although care managers and care workers reported being able to work in a more organised and efficient way, not all gained time was spent in direct care provision.

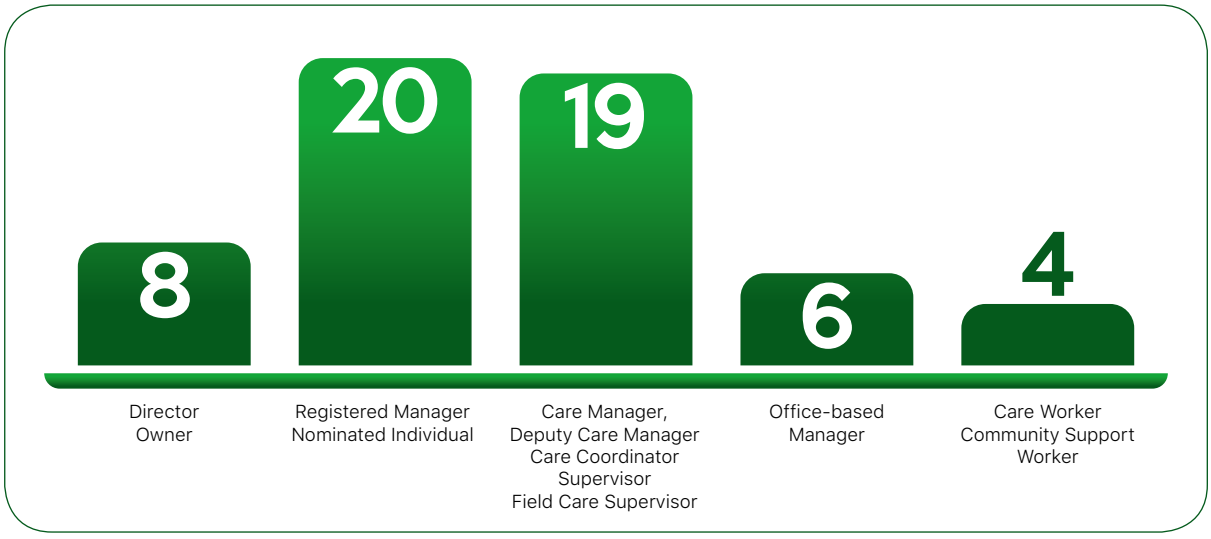

Figure 1 - Care manager survey respondents by job role

Quality of care

Participants reported that the PASSsystem enabled improvements to the quality of care delivered to service users by:

- **Assisting with preparation** - Understanding the needs of service users by accessing accurate care records ahead of care interventions.
- **Promoting service user and family involvement** - Particularly having a family version of the app - openPASS - in which families can see what care is being given and are able to contribute to the care planning for their loved ones.
- **Promoting improved continuity of care** - The ability to have an accessible care record for everyone involved in the care.

Care managers suggested they were able to monitor staff more effectively, indicating that they felt confident in the quality of care that had been delivered, particularly supporting care workers to adopt a person-centred, outcome-based approach.

Some care workers suggested that the PASSsystem had a lower impact in enabling service users to be directly involved in their own care. Some care workers also reported no impact to job satisfaction.

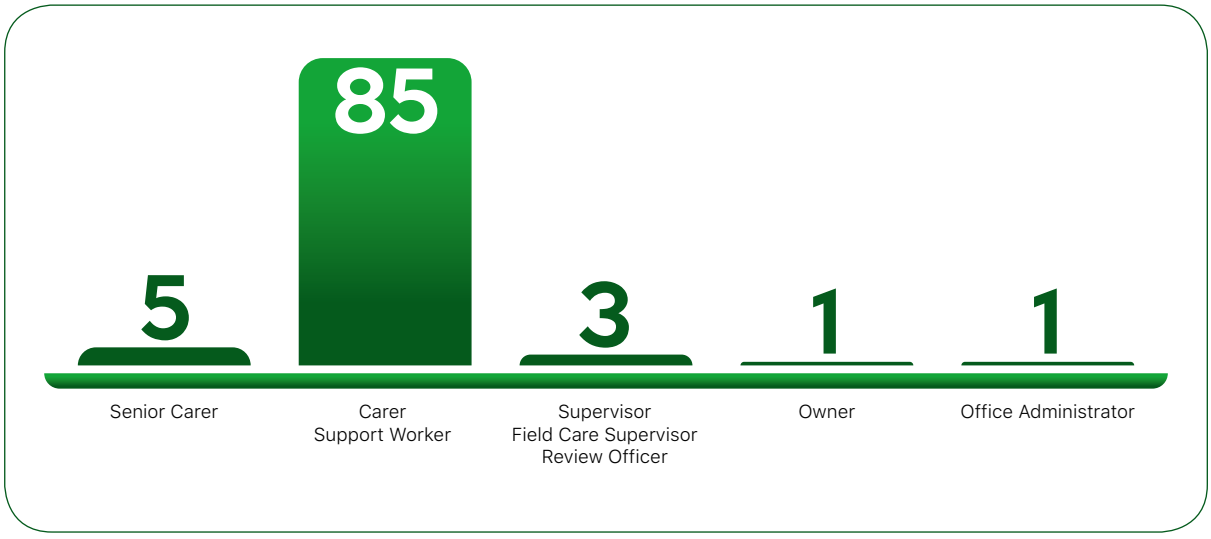

Figure 2 - Care worker survey respondents by job role

Accountability

The PASSsystem was considered to improve overall accountability in care businesses. Family involvement was explored as an area of strength for the PASSsystem across all participants indicating that the PASSsystem promoted openness and transparency between staff delivering care, service users and their families. Care workers and care managers suggested that the PASSsystem made it easier to keep accurate records in the care they deliver to service users.

Care managers and business owners suggested that this was particularly true in relation to:

- **Supporting regulatory compliance** - In relation to medication management, proactive preparation for inspections and auditing and evidencing the care given.
- **Better integration with families** - Using the PASSsystem helped to promote transparency and enabling involvement of family members / carers.

Care workers reported benefits across all the survey areas in relation to accountability with high numbers agreeing that benefits included:

- **Involving service users in their care** - Were able to show service users what they are doing and involve them in their care more.
- **Demonstrating care standards** - Felt they were able to demonstrate to their employer and families that they had delivered the care to the expected standards.
- **Promoting openness between people delivering care and service users** - Felt there was greater openness between people delivering care and servicer users and families due to the visibility that the PASSsystem enabled.

Economic Assessment - baseline data

As part of this evaluation, a method has been developed to assess the use of other services (for example, ambulance callouts, GP visits) by service users. The use of services will be recorded and assigned a financial value. This system will be used to compare costs to the State before and after engaging with a care provider using the PASSsystem. The first results of the impact of the PASSsystem on costs to the State will be reported in early 2020.

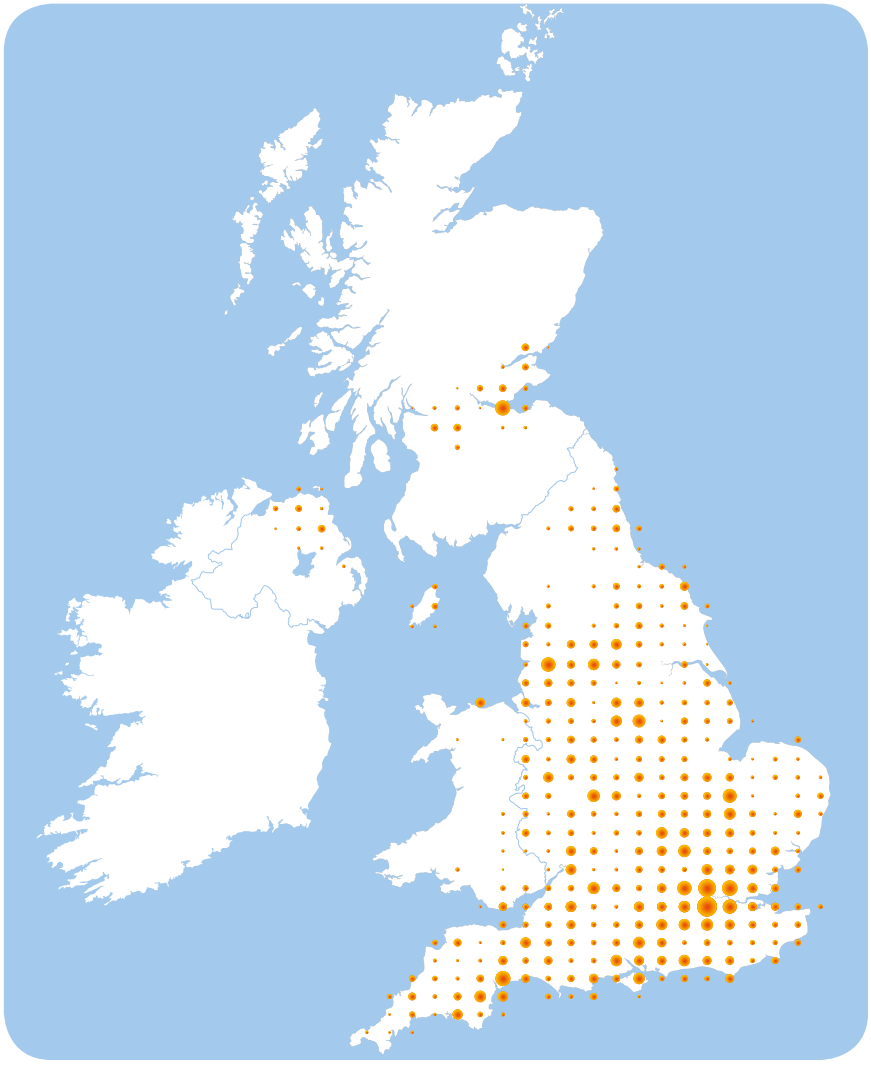

Figure 3 - Heat Map showing where the PASSsystem is used across the UK, January 2019

Suggested areas for improvement

Suggested areas for continued improvement to the PASSsystem based on participant feedback were as follows:

Care workers and care managers who did offer insight into areas of improvement to the PASSsystem spoke about this in the context of system performance and functionality. Some care workers reported experiencing issues with logging into the system, or slowness on occasion during the feedback window between October and December 2018. In some instances, it was reported that users found the PASSsystem frustrating if they were timed-out of the system and suggested a longer time-out window. **At the time of completing this evaluation, works to address logging in and time-out period had been completed and improvements deployed.**

In terms of functionality, there was some feedback relating to the presentation of observation data and to exploring fingerprint scanning as a login option. For the care managers who gave feedback on areas of improvement, the majority commented on the reporting functionality of the PASSsystem, with many observing that the current reporting capability needed to be extended. **Work to improve reporting capability has been completed and the 'Insights Dashboard' improvements already deployed.**

The PASSsystem could be improved by having more outcome templates and the ability to pre-populate data fields as this would help speed up the process of formulating care plans with relevant ones being included. It was suggested that body maps could be improved by being interactive and available for use across all care intervention as required. **Work to address both of these points is underway.**

Recommendations and conclusions

Recommendations

everyLIFE Technologies has committed to implementing the recommendations highlighted in the evaluation.

- everyLIFE should continue to evaluate and contribute to the knowledge base of digital solutions across social care.
- The everyLIFE Senior Management Team should consider how to build on the knowledge gained from the evaluation to align future developments with digital priorities in social care. Future work should include the views of people receiving care and their families.
- The everyLIFE Senior Management Team should consider how the learnings from this process can be shared across the business to inform future customer engagement.
- Where the PASSsystem integrates with another solution, both parties should ensure that the integration is optimised. This has wider implications for interoperability across the health and care sector as more technology is deployed by care providers.

Conclusions

This evaluation has demonstrated a well-planned digital solution that continues to be refined and developed. We found evidence of early successes where the digital solution elements are performing effectively, as well as some further areas for improvement for everyLIFE to consider. **This evaluation has provided evidence from business owners, care managers and care workers that the PASSsystem – a digital care management platform – has benefits in terms of managing risk, efficiency, accountability and quality of care.**

The evaluation has established a range of tangible benefits in terms of supporting care managers and workers and enabling them to provide high quality care to people who use services and their families in a caring, transparent and accountable way.

Full Report

1. Introduction

everyLIFE Technologies is a Software as a Service (SaaS[1]) company that provides a digital care management platform known as the PASSsystem. The company was founded in 2014 and since then, the PASSsystem has been adopted by approximately 700 care providers across the UK (see Appendix 1). The type of care provided by those adopting the PASSsystem broadly ranges from domiciliary care, residential and nursing care, supported living and live-in care, with a number of sub-specialties covered within those categories, for example learning disabilities or dementia. Whilst the care management platform can be deployed in any care situation, the majority of these providers work in the adult social care sector[2].

The PASSsystem is intended to help improve the quality of care by making care information available in real time, providing a standardised approach to care planning and evidencing outcomes, potentially making it easier to compare the quality of care across similar organisations.

This document presents the findings of an evaluation of the PASSsystem. The evaluation seeks to explore the effect of the PASSsystem on risk management, efficiency, quality of care and accountability, including any financial savings to the State. Part 1 of the evaluation was conducted between May 2018 and February 2019. This focused on answering four key evaluation questions (see Methodology section) and establishing baseline data for Economic Assessment. Part 2 of the evaluation will focus on the findings of the Economic Assessment and will be reported early 2020. The evaluation was conducted by members of the everyLIFE team, with direction and supervision from the Social Care Institute for Excellence (SCIE) and York Consulting.

This report will be the first evaluation in building an evidence base around effective use of technology in social care. The literature search did not find any other published work of this type.

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1 Specific application that is designed for end-users to do useful work, delivered over the web. R. Michon. (2017)

2 Care and support for adults who need extra help to manage their lives and be independent - including older people, people with a disability or long-term illness, people with mental health problems, and carers. It includes residential care, home care, personal assistants, day services, the provision of aids and adaptations and personal budgets. (TLAP Care and Support Jargon Buster)

2. Methodology

2.1 Evaluation aims

The aim of the evaluation was to assess the extent to which the PASSsystem is helping social care providers to demonstrate and deliver safe, efficient, high quality care and accountability. The research team sought to answer the following evaluation questions which were formulated by the everyLIFE Technologies Senior Management Team during a workshop facilitated by SCIE:

1. How and to what extent does the PASSsystem help to reduce risk of:
   a. Avoidable harm to service users?
   b. Compliance actions from regulators?
2. How and to what extent does the PASSsystem improve workforce efficiency?
3. How and to what extent does the PASSsystem enable improvements to the quality of care?
4. To what extent does the PASSsystem help to increase overall trust in care businesses?
5. How and to what extent can the PASSsystem help to create financial savings to the State?

2.2 Research design

The evaluation took a theory-based approach (Chen and Rossi, 1981). A logic model was developed to articulate the anticipated outcomes of the PASSsystem. The logic model was then used to guide collection of both outcome and qualitative data. This approach was deemed to be the most appropriate way to investigate the impact of the model, given that there were not sufficient resources to use an experimental design (for example, comparing the performance of care providers using the PASSsystem to those not using a digital platform, or using an alternative digital platform). Theory-based evaluations can provide an indication impact in the absence of a compactor by pre-specifying hypothesised impacts and mechanisms of impact.

Part 1 of the evaluation utilised an observational design, in which survey and interview data were collected at a single time point from a sample of stakeholders.

Part 2 utilises a before and after design in which service use prior to the PASSsystem is compared to service use after PASSsystem has been implemented with an individual.

The evaluation was conducted using an action research and engagement model of working, in which members of the everyLIFE team worked closely with evaluators at SCIE and York Consulting. Action research is defined as a collaborative approach towards problem solving which involves both the researcher as well as the participants (Patton, 1990). Engagement, involvement, and sustainability of evaluation approaches into 'business as usual' are fundamental in this evaluation.

2.3 Research ethics

Ethical approval was not required for the study as the study is evaluation rather than primary research. The decision not to apply for Research Ethics Committee approval was validated by cross reference to the National Institute of Health Research (NIHR) guidance for ethical approval (2018).

However, ethical considerations were taken into account in the evaluation, including:

- **Informed consent** - Research participants were provided with information about the evaluation aims and signed a consent form to take part (see Appendix 2).
- **Safeguarding** - It was made clear to participants that any indication that they or someone else was at risk of harm would be followed up.
- **Confidentiality and data security** - Confidentiality of respondent information and secure storage of data were ensured.

2.4 Logic model development

A logic model was developed by SCIE in collaboration with everyLIFE. A summary is shown below. The logic model guided the development of the evaluation questions and sub-questions.

Context

- Insufficient funding for adult social care
- Increase in social care providers going out of business or handing back contracts to local councils
- Growing pressure on providers and care workers which ultimately impacts quality of care provision
- PASSsystem is designed to support high quality care by providing a single contemporaneous care record which can be readily shared with relevant stakeholders involved in the provision of the care

Resources/Inputs

- Care manager and care worker buy-in
- Open, honest and transparent care providers
- High quality care plans
- Process-led culture
- Connectivity
- Care workers (stable workforce)
- Mobile devices that meet minimum spec; tablets and smartphones
- Ongoing investment in product development (everyLIFE)
- Learning culture (maintaining sector knowledge and industry best practice) (everyLIFE)
- Change management and project management capability (everyLIFE)
- Dedicated time to implement new system, supported by leadership commitment and staff engagement
- Regular system upgrades to maintain system working optimally (everyLIFE)
- Client-driven enhancement (everyLIFE)
- Data entry (everyLIFE)
- Training frontline staff and managers for successful implementation (everyLIFE)
- Pricing quote based on size of business; drafting and issuing of contract (everyLIFE)
- Setting up subscription payment plan (everyLIFE)
- Assigning account relationship manager
- Care plan transcribing (everyLIFE)
- Marketing assistance to care provider (everyLIFE)
- Other provider agnostic - roster provider, meds management etc. (everyLIFE)

Outputs

- Shareable care records between care professionals, families and care receivers
- Provision of real-time notification of safety critical information
- Instantaneous communication between care providers and family/carers
- Legible care records with audit trail for care plan changes
- Reliable monitoring of time spent delivering care through time and attendance records
- Optimised solution
- Accurate recording of task and visit activity
- Optimised system, reduced support burden
- Real-time exchange of data

Outcomes and Impact

Service users

- Less fragmentation and better handover and continuity of care
- Clear audit trail of activities
- Faster response to incidents
- Fewer errors and omissions
- Better quality of care through standardisation
- Better data security

Families

- Increased input into care of loved ones
- Peace of mind regarding care delivery through instant visibility

Care Managers

- Reduction in staff turnover
- Motivated workforce, through better sense of connectedness
- More efficient inspection preparations
- Visualisation of data leading to better issue and risk identification (and management?)
- Greater staff accountability
- Better coordination of care and better patient experience

Care Providers

- Reduced managerial headcount
- Visibility of 'rogue' nefarious behaviour
- Greater transparency
- Challenge of poor practices
- Eases regulatory burden (less work for staff in preparing for inspection e.g. CQC, PIR)
- Reduced insurance premiums
- Improved ability to evidence care achievement of care quality standards
- Reduced costs (mileage)

State

- Fewer hospital admissions
- Safer care environment
- Regulators - more and better data to support assessments
- Reduction of fraud
- Greater availability of digital care data to support public health studies / population data to inform policy and decision makers

Commissioners

- Qualitative provider comparison
- Corporate obligations evidenced
- Risk management

2.5 Literature review

As part of scoping and designing the evaluation, the literature review sought to establish answers to the following:

- Are there any other evaluations of other care management software systems in use in the UK and internationally?
- Are there any new developments in government policy that impact the digital care management market?
- What are the main opportunities and challenges for technology providers in the social care market?

SCIE carried out a search of research databases (see Appendix 3 for further information on the methodology and search strategy):

- Applied Social Sciences Index & Abstracts (ASSIA)
- Social Policy and Practice (SPP)
- Social Care Online (SCIE)
- King's Fund online library database
- Google searches (Scholar) to identify any relevant research or evaluations

Following title and abstract and full text screening, 25 of the initial 604 documents were included in this brief review.

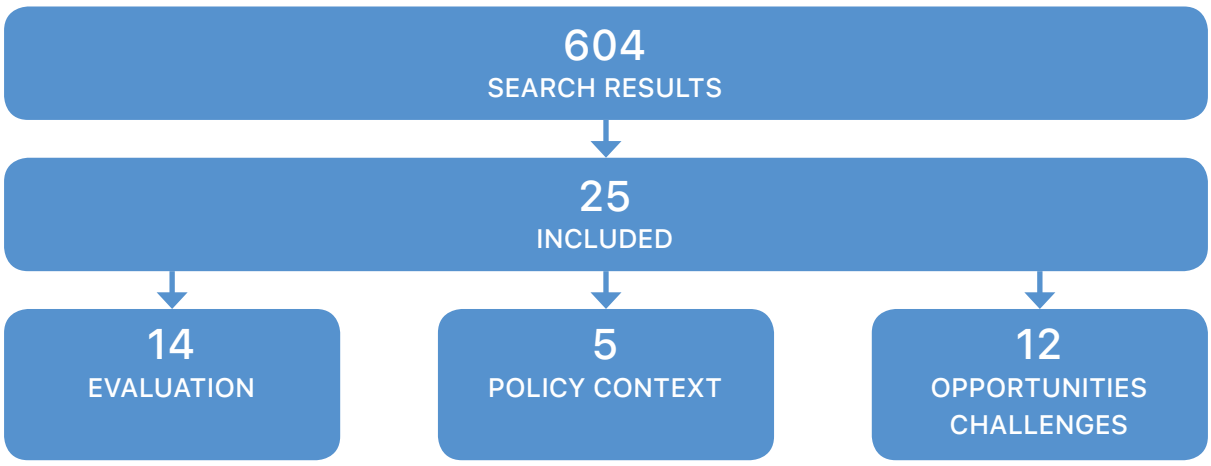


Figure 1 - Literature review search results

2.6 Data collection

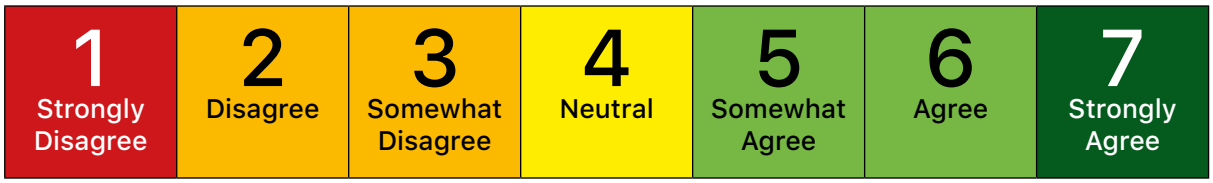
There were two main data collection strategies in Part 1 of the evaluation:

- An online survey of care managers and care workers, business owners and commissioners
- Individual interviews with care managers and care workers

2.6.1 Survey design

The purpose of the survey was to establish the views of care workers, business owners, directors and care managers using the PASSsystem and to find out about the benefits and areas for improvement of the PASSsystem based on their experience. The survey questions were based on the evaluation questions and logic model domains (see Appendices 4 and 5 for care managers and care workers survey).

The survey questions asked respondents to rank their feedback using a 7-point Likert scale ranging from strongly disagree to strongly agree as shown below:



2.6.2 Sampling

A purposive sample of 101 providers who were part of everyLIFE Technologies' customer base were selected to take part in the survey. The sample sought to include a range of providers, with variation in:

- The size of the organisation
- Type of care provision
- Those with pre-existing positive and negative views of the PASSsystem as shown by their NPS scores
- Level of engagement with everyLIFE Technologies

Both survey links were then distributed to business owners by email with participant information (see Appendix 6, 7 and 8 business owners, care managers and care workers survey participant information form). The business owners were responsible for distributing the links for the surveys to their staff. Surveys were stored on the 'Get Feedback'[3] platform.

Taking part was completely voluntary for all participants and each participant could elect to be entered in a prize draw to potentially win 1 of 40 vouchers in recognition of participants giving up their time[4]. This was in line with Market Research Society guidelines. Contact details were only requested if they chose to enter the prize draw, where these would be used in the event that they won a prize or had indicated that they wished to participate in an interview.

2.6.3 Survey respondents

A total of 152 responses to the online survey were received, 57 from care managers and 95 from care workers. It is not possible to calculate the overall response rate as distribution to individuals was carried out by business owners rather than the evaluation team.

Figure 2 and Figure 3 give a breakdown of the number of survey respondents by job role, who participated in the care manager and care worker surveys. It was noted that four of the participants who responded to the care manager survey described their job roles as care workers. It did not appear that these were duplicates from the care worker survey.

3 Get Feedback - a survey creation application

4 Market Research Society guidelines - www.mrs.org.uk/standards/code-of-conduct

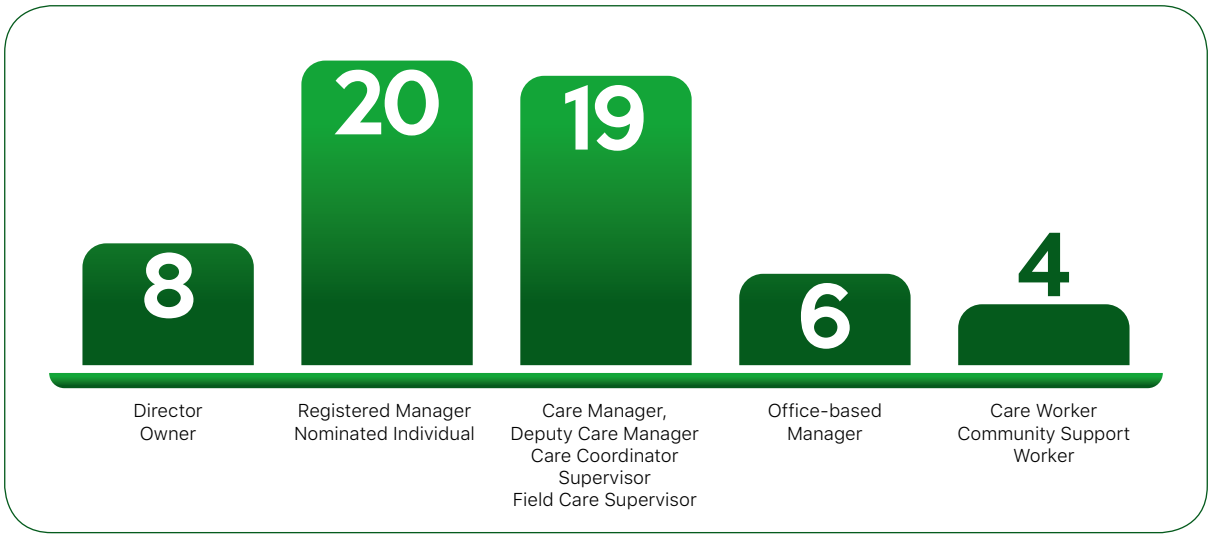


Figure 2 - Care manager survey respondents by job role

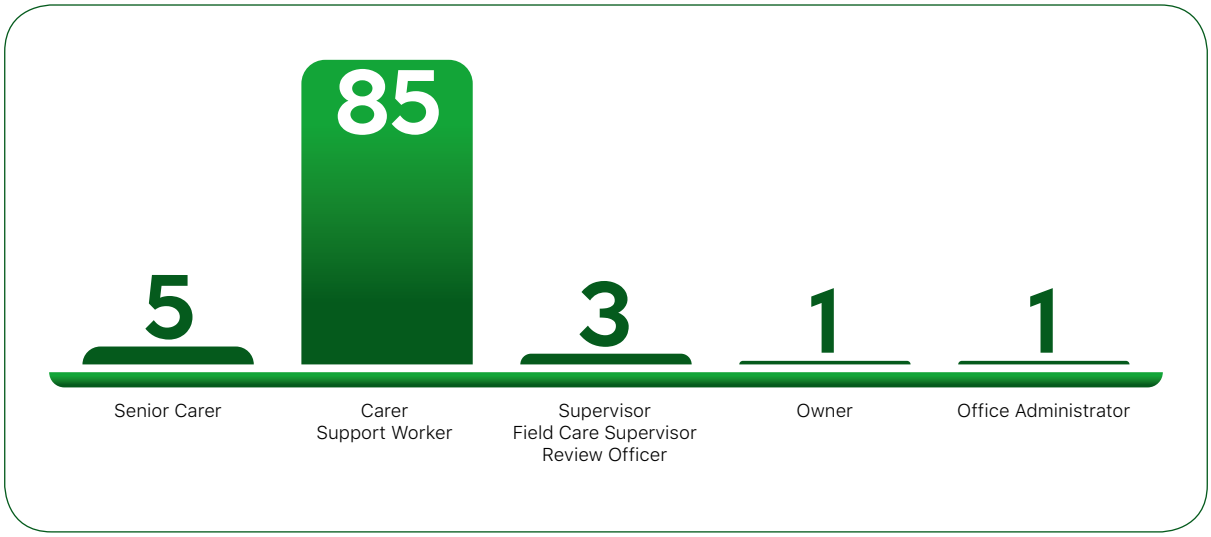


Figure 3 - Care worker survey respondents by job role

2.6.4 Stakeholder interviews

Those participating in the survey were given an option to express interest in participating in an interview (see Appendix 9 for interview participant information form). A sample of survey respondents who indicated interest in being interviewed were selected. A purposive sampling approach was taken, balancing individuals who had given particularly negative or positive answers, as well as those whose responses were more representative of responses as a whole. In choosing the interviewees, researchers considered people's feedback and how this could further help answer the evaluation questions. Interviewees were selected from

providers across the UK. As with the survey, interview participants were offered a voucher as compensation for their time.

Interview topic guides were developed for the different participant groups (business owners, care managers, care workers, and commissioners - See Appendices 10, 11 and 12 for interview topic guides). Table 1 details the number of interviews conducted. A relatively small number of interviews with care workers were conducted, as these stakeholders proved to be more difficult to contact.

Interview participant type	Total number
Business owner	6
Care manager	6
Care worker	2
Local authority commissioner of adult social care	1
Total	**15**

Table 1 - Numbers of interview participants

Stakeholder interviews were provided with information about our research and completed the consent form. Interviews were conducted by a member of the research team. Some interviews were conducted in person however. The majority of the interviews were conducted via telephone due to convenience. The structured interview questions were designed to help explore the primary evaluation questions, with exploratory questions to allow interview participants to give additional feedback that they deemed relevant.

Background information was obtained from all interviewees. This included a description of their role and the length of time they had held the role; and motivation for working in the care sector.

2.7 Data analysis

2.7.1 Analysis of survey and interview data

Data was analysed in Excel and the survey toolkit. Where the data was recorded from open questions, the research team coded themes using a thematic framework. The 7-point Likert scale was analysed by grouping the ratings into five categories as follows:

a. Strongly agree
b. Agree and somewhat agree
c. Neutral
d. Disagree and somewhat disagree
e. Strongly disagree.

The above groupings were used to analyse the ratings for the individual statements within each of the evaluation questions which are presented in the tables under key findings. When interpreting and reporting data, the research team elected to present findings as an 'overall agreed' and include both calculations in the table and charts respectively. Below is how the research team interpreted ratings from stakeholders to suggest overall areas of excellence, strength and improvement when making conclusions:

>80%	Overall area of excellence
>60%	Overall area of strength
<60%	Overall area for improvement

2.7.2 Coding and identification of themes

All qualitative data was coded by the research team as part of the data analysis. The research team identified themes deductively and created a thematic framework to code all data. This was quality assured by SCIE to ensure accuracy. The data was cross-tabulated which enabled comparing the experiences of the different groups, for example length of time using the PASSsystem, role and reported benefits. Using the coding process, the researchers were able to group the data into key themes which emerged from the evaluation questions.

2.8 Economic Assessment

2.8.1 Scope and variables

The economic assessment part of the evaluation was designed to answer the question: **"How and to what extent does the PASSsystem help to create financial savings to the State?"** To do this, it was agreed that the following six variables would be in scope:

- Number of unplanned hospital admissions and number of days
- Number of ambulance call-outs
- Number of GP visits
- Use of respite care
- Use of/transfer into residential care
- Avoidance of delayed discharge from hospital.

These variables were chosen for three main reasons:

a. Each is quantifiable and objective
b. Data against each can be collected by care providers with relative ease
c. The national average unit cost of each variable is available in the public domain, i.e. it would not be necessary to calculate any of the unit costs specifically for the purposes of this exercise (this would have required a far larger and more complex research study).

2.8.2 Approach

Following agreement on the variables, the economic assessment methodology consisted of the following 6 steps:

a. **Creating a data collection tool** - A new document was added to PASSsystem to allow care providers to enter data against each of the 6 variables.

b. **Recruiting care providers** - everyLIFE recruited 6 care providers (referred to below as 'pilot providers') to take part in the Economic Assessment. Like other aspects of the evaluation, care providers were provided with a tablet to help with data collection.

c. **Entering baseline data** - Starting in November 2018, as new service providers were enlisted at the pilot providers, data was recorded against the 6 variables for the preceding 12 months, i.e. the year before the new service providers began receiving packages of care involving the PASSsystem. This is subsequently referred to in the report as 'baseline data'.

d. **Developing an economic assessment tool** - York Consulting developed an Excel-based tool (essentially a series of linked spreadsheets) to compare the baseline data with the intervention data (see 'Next steps', below) and, from that, to calculate estimated savings to the state. The tool includes user-controlled settings for attribution and prevention, both of which are explained under the 'Interpretation' sub-heading.

e. **Baseline data review and cleansing** - At regular intervals between December 2018 and February 2019, everyLIFE shared the baseline data entered by the pilot providers with York Consulting. Analysts at York Consulting fed back on the format and consistency of the data, and used it for the purposes of testing the Excel-based economic assessment tool.

f. **Care provider input** - York Consulting spoke with representatives from 3 of the 6 pilot providers to obtain views on the extent to which the PASSsystem might have a positive impact on the 6 variables covered by the economic assessment. These conversations informed the assumptions that the economic assessment tool applies for attribution and prevention.

2.8.3 Next steps

The economic assessment tool has been constructed to compare the baseline data (which covers a 12-month period) with 12 months of 'intervention data', i.e. data covering the first year of each new service user's support through the PASSsystem. The tool looks for differences between the two sets of data and, based on the additionality and prevention adjustments, assigns savings based on national average unit costs (New Economy, 2014)[5].

The pilot providers began collecting baseline data in November 2018. Therefore, the economic assessment tool will generate 'real' results from November 2019 onwards. In the meantime, the next steps are as follows:

5 The primary source for this is the New Economy Unit Cost Database which is being updated and will be reflected in the economic assessment tool when available

- **Handover** - York Consulting (in partnership with SCIE) will meet with everyLIFE to explain and demonstrate the economic assessment tool.
- **Ongoing baseline data collection and population** - New baseline data can be entered into the tool at any time.
- **Intervention data collection and population (where appropriate)** - As with the baseline data, there is nothing to prevent everyLIFE from populating the tool with intervention data at any time. However, the tool will only process the intervention data (i.e. use it to calculate savings to the State) when the most recent intervention record for a service user is dated one year later than that service user's baseline record, plus or minus 30 days. The 30-day window in each direction has been included as it is unrealistic to expect the pilot providers to undertake service user reviews exactly one year after the collection of each baseline record.

2.8.4 Interpretation

In the context of this study, it is important that the results from the Economic Assessment are seen as one piece of the evaluation story and not something which, in isolation, offers a definitive assessment of the PASSsystem. This is for the following reasons:

- **No counterfactual** -Ideally, an exercise of this kind would involve a cohort of providers that are using the PASSsystem and a matched cohort of providers that are not. Data from the two would be compared to give some indication of the 'net impact' or 'additionality' of the PASSsystem. In other words, it would provide a counterfactual position. For various and valid reasons, this has not been possible, thereby limiting the extent to which any cost savings can conclusively be attributed to the PASSsystem. To account for this, qualitative consultations were undertaken with 3 of the pilot providers (see above) and adjustments included in the tool for attribution and prevention. This was the most pragmatic approach in the circumstances, but it does mean that the tool draws upon assumptions to generate results. As with any assumptions, there will likely be some variance between these and the final results.
- **Attribution settings** - The economic assessment tool includes 3 user-controlled settings (low, medium and high) for attribution. 'Low' assumes

that 25% of any savings to the State calculated by the tool can be attributed to the PASSsystem. 'Medium' assumes 37.5% and 'high' assumes 50%. Whilst none of the 3 pilot providers consulted on this topic took particular issue with these percentages, neither were they able to give a definitive view on how accurately they are likely to reflect reality.

- **Prevention settings** - Prevention is covered in more detail in the sub-section below.

2.8.5 Prevention

If a client does not have any unplanned hospital admissions in their baseline data period, nor any in the following year, then the economic assessment tool, in its simplest form, will not assign any cost savings against that variable for that client. This is because there has been no change in the data: hospital admissions were zero in the baseline data and zero in the intervention data. The same also applies to the other 5 variables, not just hospital admissions.

However, to assign no cost savings at all where the baseline and intervention figures are both zero is deemed unfair. This is because, in some cases at least, using the PASSsystem will *prevent* a service user from needing a GP appointment or having an unplanned hospital admission in the intervention period, despite neither of those things having occurred in the baseline period. This is termed the 'preventative effect' of the PASSsystem.

The economic assessment tool therefore includes adjustments - low, medium and high - for prevention. Unlike with attribution, where it is justified to apply the same percentage adjustment to each variable, the adjustments for prevention differ across the variables. This simply reflects the fact that certain variables or outcomes will occur more often than others and, all other things being equal, will therefore be prevented more often than others. For example:

- Service users will, on average, visit their GP more regularly than they will require respite care
- Service users will not have a delayed discharge each time they are admitted to hospital.

The Economic Assessment tool therefore assumes that the variables/outcomes that occur more regularly will be prevented more regularly, and vice versa.

The prevention adjustments that have been included in the tool are shown in the table below. Taking GP appointments as an example, the tool assumes that, in a 'low' prevention setting, the PASSsystem has prevented one GP appointment for 10% of all the clients that had no GP appointments in their baseline data and none in their intervention data. For respite care (and again in a 'low' prevention scenario), the tool assumes that a 2-week period of respite care has been avoided for 2% of clients whose baseline and intervention data was zero.

Variable	Low prevention	Medium prevention	High prevention
GP visits	10%	25%	40%
Ambulance call-outs	10%	25%	40%
Unplanned hospital admissions	10%	25%	40%
Respite care	2%	4%	6%
Delayed discharge from hospital	1%	2%	3%
Residential care	2%	4%	6%

Table 2 - Prevention adjustments in the economic assessment tool

As with the attribution adjustments, the 3 care providers consulted on this topic did not suggest that the prevention settings shown above were unrealistic, but neither were they able to comment with conviction on the likely accuracy of them.

2.9 Limitations of the research design

This evaluation was time limited and had intended to run for a 12-month period from January 2018. There were multiple factors which impacted on the project not commencing until April 2018. For this reason, some fieldwork capacity was impacted. For example, it was planned to hold some focus groups with care staff, service users and their families. We will be making a recommendation for further exploration of how to reach service users and families for an understanding of their valuable views and experiences more directly.

The ideal evaluation design to be able to attribute impact to the PASSsystem would have been an experimental or quasi-experimental design involving comparison providers where the PASSsystem was not being used. This was not possible for a range of reasons. We have aimed to mitigate the problem of attribution by using a theory-based design, in which hypothesised impacts and mechanisms are set out in advance. The economic aspect of the evaluation has been able to utilise a pre and post-design, as retrospective service use data were available.

There were no established direct communication channels with care workers. This meant the researchers had limited control and influence over the dissemination of surveys to care workers. We were also unable to calculate the total number of people receiving the surveys and response rate. The Likert scale used for the survey had a broad neutral category and therefore results were grouped as shown earlier in section 2.6.2. to account for this.

Interviewers received formal training from SCIE prior to any interviews taking place. The training included being aware of the role of an interviewer rather than a business operator. We sought to address and minimise interview bias. There was potential for evaluation participants to be biased either negatively or positively based on their interactions with everyLIFE Technologies as a customer. Apart from selecting a cross section of care providers to take part, no other controls were put in place to account for this. The Hawthorne effect was also considered when reviewing and analysing interviews and that perhaps some of those that put themselves forward to be interviewed, had either had a very positive or negative experience of using The PASSsystem (Oswald, Sherratt and Smith, 2014).

2.10 Reporting

This is a final evaluation report intended for the everyLIFE Technologies' Senior Management Team. It brings together all strands of evaluation activity to draw conclusions against the evaluation aims. This report will be accompanied by a series of dissemination events to present the learnings to wider stakeholders and facilitate discussion within the wider sector.

3. Literature review and context

As background to the evaluation, a review of the available literature on digital care management systems was conducted. The literature review aimed to explore:

- Are there any new developments in Government policy that impact the digital care management market?
- Are there any other evaluations of other care management software systems in use in the UK and internationally?
- What are the main opportunities and challenges for technology providers in the social care market?

The key findings from the literature review are presented below.

3.1 Introduction

> *"Now you may know that I am passionate about the opportunities that new technology – used intelligently – present to us".*
> *(Matt Hancock, Health and Social Care Secretary, July 2018)*

The importance of technology in the social care sector is growing. On his appointment as Secretary of State for Health and Social Care in July 2018, Matt Hancock highlighted technology as one of three early priorities for the health and social care system (Hancock, 2018). In addition, recent reviews by the Local Government Association (LGA, 2015; LGA & IPC, 2016) provide examples of innovative practice which highlight the emerging role of technology in transforming social care services. The reviews demonstrate that social care professionals are aware of, and can appreciate, the benefits that digital technology brings in enabling better care for service users and enabling professionals to work and deliver care more efficiently and effectively. South East Health Technologies Alliance's (2017: p.15, 17) needs analysis has revealed increasing interest in technology amongst care home owners, particularly once the relevance of the technology to their business interest is clear.

3.2 Wider social care context

The adult social care system is large and complex. There are around 21,000 organisations and 41,000 locations (establishments) delivering or offering adult social care in England, comprising approximately 12,000 care homes, 5,000 nursing homes and 9,000 home care services. The adult social care workforce comprises approximately 100,000 staff working in social care for local authorities, and with the vast majority of staff working in the independent sector c1.2million (Skills for Care, 2018b).

Adult social care is considered to be at 'breaking point' (LGA, 2018), impacted by a period of economic and political instability, coupled with rapidly changing demographics and an ageing population. Across the UK, some local authorities are seeing a reduction in their contracts with care providers as contract values are not sufficient to cover business costs and a trend for care providers to take on more private care. The increased pressure to providers and the care workforce is ultimately impacting on the quality of care provision. The declining number of care workers has resulted in workforce recruitment and retention challenges, which can impact on working conditions such as staff shortages, increased workload and a drive to improve quality and productivity.

The Office of National Statistics (ONS, 2018) has projected that the population aged 65 years and more will grow over the coming years both in real terms and as a proportion of the total population. Furthermore, it is estimated that 1 in 3 children born in the UK today can expect to live up to the age of 100 years (ONS, 2016).

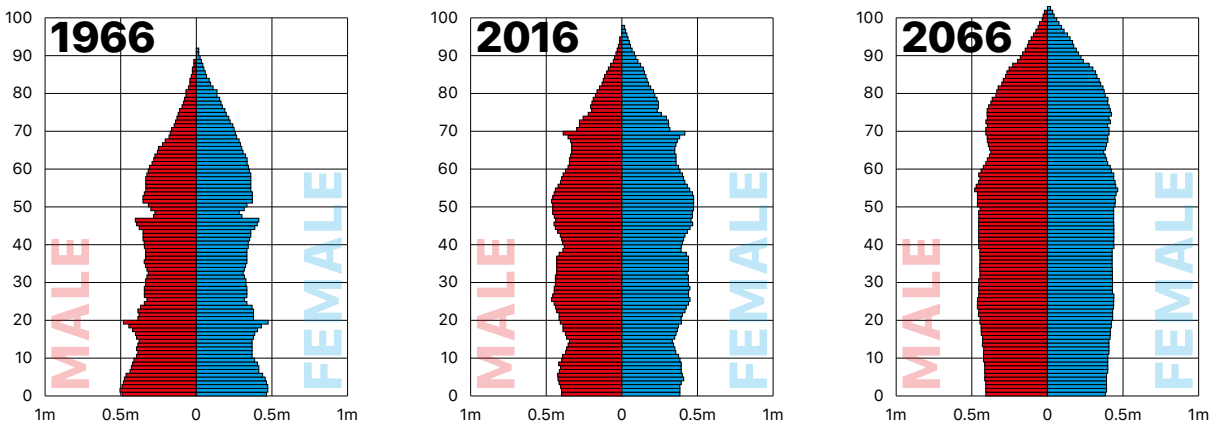


Figure 4 - Population pyramids, 1966, 2016 and 2066 (principal projection) in the UK, published by the ONS, 2018

The Ageing Society has been identified as one of the four 'Grand Challenges' in the government's Industrial Strategy with technology and innovation highlighted as some of the enablers for addressing this national challenge. Local authorities with social care responsibilities are required, under the Care Act (2014), to ensure the provision or arrangement of services, and or facilities, to help prevent, delay or reduce the development of needs for care and support. It is estimated that the total cost of adult social care paid for by local authorities makes up a small proportion of the total adult social care provision with a significant proportion managed by informal carers.

The total value of care arranged by local authorities in 2016-17 was £20.4 billion. Comparatively, the replacement cost for informal care for the same period was £100 billion. This spend equates to 43% of the total local authority expenditure with the rest of the 57% spent across seven other main services, including children's social care at 21% of the total spend. In the same year, around 75% of people who received either short - or long - term social care services received support in their own home. This amounted to 48% of total expenditure on short- and long-term care services arranged by local authorities. The spend on local authority arranged care home services was around £8.1 billion. Most of the spending on care home services (61%) was for people aged 65 and over, who made up around 83% of those supported in care homes. (NAO, 2018)

3.3 Care sector use of technology

> *"Sector remains keen to use digital tools as an enabler in supporting care." (LGA, 2017)*

There is a wide variation in digital maturity within the adult social care sector. The care sector has adopted systems which enable delivery of care in both domiciliary and residential care which include digital care management platforms and systems, medication management and administration, record keeping, rostering and back-office functions such as accounting and pay-roll.

3.3.1 Evidence base for digital care management systems in social care

There is a paucity of empirical evidence which evaluates the impact of adopting a digital care management system in health or social care. Nevertheless, brief case study information and anecdotal evidence from software providers suggest improvements to:

- Record keeping
- Accuracy of information received in real time
- Evidencing care at the point of delivery.

3.4 Opportunities and challenges for the digital care management systems

3.4.1 Opportunities

Aside from the key opportunities for digital care management systems cited above, the use of technology is considered to facilitate self-care and support people to remain in their home for longer - this includes telecare, telehealth and assistive living technologies, to enable people to live independently and safely at home and to support the remote delivery of care (LGA, 2015). LGA, 2015 identified five main opportunities that allow care sector staff to provide better care, these include:

- Integrating services and information for service users so that care delivery will be better co-ordinated, interventions will take place early, and service users will need to tell their story only once rather than multiple times
- Enabling people to interact with care services through digital channels so that service users will feel more in control of their own care and carers will have the information they need to support them in their caring role
- Promoting independence and wellbeing through the use of digital services and technology so that service users will feel more independent and escalation of crises will be prevented
- Integrating commissioning through the improved use of information and analysis so that commissioners will be able to make better decisions that deliver value for money, including improved outcomes for service users
- Enabling care staff to work from any base at any time so that care workers will be able to deliver care more efficiently and effectively, working collaboratively across organisations.

There are also opportunities for technology providers to help ensure domiciliary care and care home providers achieve good ratings with health regulators. Of the current regulators in the UK; The Regulation and Quality Improvement Authority (Northern Ireland); Care Inspectorate (Scotland); Care Inspectorate Wales and Care Quality Commissioner (CQC), the CQC is the regulator that has tried to make a clear link for how technology can help providers get a good rating.

When the CQC inspect and monitor health and social care services, there are five key areas of enquiry (CQC, 2018a), that the innovative use of technology used by services could help the service get a good rating. These include:

- Helping ensure key information is accurate and easy to share with caring professionals in real time
- Supporting effective communication and more efficient use of resources, including finances
- Supporting person-centred care and helping staff to spend more time on the things that really matter
- Supporting providers to be more proactive and responsive to changing needs by helping to identify developing risks or needs more quickly
- Supporting more effective quality assurance through more effective communication, information sharing and improved data analysis.

3.4.2 Challenges

Some of the key challenges for the social care technology market identified in the documents reviewed (Maguire et al. 2018; LGA 2015, 2016; South East Health Technologies Alliance, 2017; SCIE, GfK, & NHS Digital, 2017; Mountain, 2016; NHS Confederation 2017) include:

- There is a lack of evidence evaluating the effectiveness of technology in social care
- The financial challenge and limited resources within adult social care to invest in digital technology
- While there is an expanding market for health technology supported by Government, social care can be seen as a lesser priority and harder to generate returns from
- There is little or no integration with other health or social care systems which results in duplication and fragmentation. For example, currently where care and support plans are digital, they tend to be held on a single system with little or no integration with other health or social care systems
- Lack of interoperability and open technology standards within the provider market.

3.5 Workforce

> *"But only when the whole workforce has the chance to fulfil their potential can the health and care system operate at its best."*
> *(Health and Social Care Secretary, July 2018)*

A King's Fund review of digital change in health and social care (Maguire et al. 2018) notes that there are wide variations in attitudes towards digital change. This suggests that the constraints that health and care organisations face in terms of their workforce's differing attitudes to digital change, can be a key barrier to success when it comes to implementing new technologies.

NHS England announced their Long-Term Plan in January 2019 (NHS England, 2019) which has stipulated that in the next three years, they would like to see their workforce "working in the community to have access to mobile digital services, including the patient's care record and plan that will help them to perform their role." The Plan highlighted some of the main challenges of effective mobile working identified for community nurses, which could equally apply to care staff, as:

- Poor connectivity when in patient's home (85.1%)
- Cannot access GP electronic record (56.8%)
- Limited or no training to use devices (20.8%)
- Mobile device not compatible with other software (21.1%)
- Uploading onto systems that do not talk to each other leading to multiple data entry (32.7%).

A SCIE, GfK & NHS Digital (2017) analysis of how social workers use digital technology states that there is anecdotal evidence that many social workers are keen to embrace the opportunities afforded by digital technology and the review found that there was a definite appetite amongst some to be involved in new developments and products to ensure they meet the needs of social workers. The review also found that:

- There was a positive outlook relating to impacts of technology in work; most commonly the ability to work flexibly (92%), webinars (75%) and access for clients to technology (68%)
- Digital technology was seen as vital to a social worker's day-to-day job. 'Couldn't do the job without it'

There were no studies found which evaluated care workers' experience of using technology to carry out their social care duties. To our knowledge, this report will be the first evaluation to measure care worker and care managers' experience of digital tools to support the day-to-day practice of their role in adult social care.

4. Findings

The following section reports on the findings from data collected across the surveys, interviews and the Economic Assessment. The surveys are reported using the statements linked to each evaluation question that participants were asked to rate. This will be followed by an analysis of the findings from the interviews. The section concludes with the findings from the Economic Assessment benchmark data. Results of the evaluation data will be reported in early 2020.

The findings are thematically grouped in response to the four areas identified in the evaluation questions of how the PASSsystem impacts on:

- Risk management
- Efficiency
- Quality of care
- Accountability

Generally, findings are interwoven under the four areas, however emerging findings are detailed in section 4.3 which summarises the areas of strength and areas of improvement asked in the survey to care workers and care managers.

Key for survey question responses

>80%	Overall area of excellence
>60%	Overall area of strength
<60%	Overall area for improvement

4.1 Care manager survey

In total, 57 people completed the survey and the majority (93%) responded to the open questions identifying the main areas of strength and improvement for the PASSsystem. Analysis of the care manager survey showed that 83 surveys were started, however only 57 of these were completed within the allotted time frame to be included in the findings of this evaluation. This represents a 69% completion rate. The care manager survey consisted of 28 questions grouped under the categories of risk management, efficiency, quality of care, and accountability. The term care manger is used to incorporate all respondents to the survey. For full job role breakdown see section 2.6.3.

Table 3 demonstrates that the care managers had been using the PASSsystem for different time periods, with the majority of respondents using the PASSsystem for over a year (38 care managers).

Length of time	Total number
Less than 3 months	8
4-6 months	3
7-12 months	8
More than 12 months	38

Table 3 - Length of time care managers have been using the PASSsystem

4.1.1 Risk management

This question was intended to get feedback about how the PASSsystem can impact on risk management. Table 4 demonstrates the care managers' responses to statements about risk management.

Survey Question	Strongly agree or agree
Using the PASSsystem means that I can make updates to service user care needs quickly	89 %
The PASSsystem helps me to ensure that personal information about service users is held securely	88 %
The PASSsystem helps me to respond to medication issues/errors	79 %
By using the PASSsystem I can quickly identify risk to service users	68 %
Using the PASSsystem helps me to identify and respond to risks to staff	65 %

Table 4 - Care manager response to statements about risk management

Emerging findings from care managers' responses to the open questions suggested that the PASSsystem supports:

- Record keeping
  - This theme relates to keeping secure accurate legible records in one place, timely updates and the ability to respond to concerns. It also relates to the elimination of paper and having a real-time auditable trail of activity.

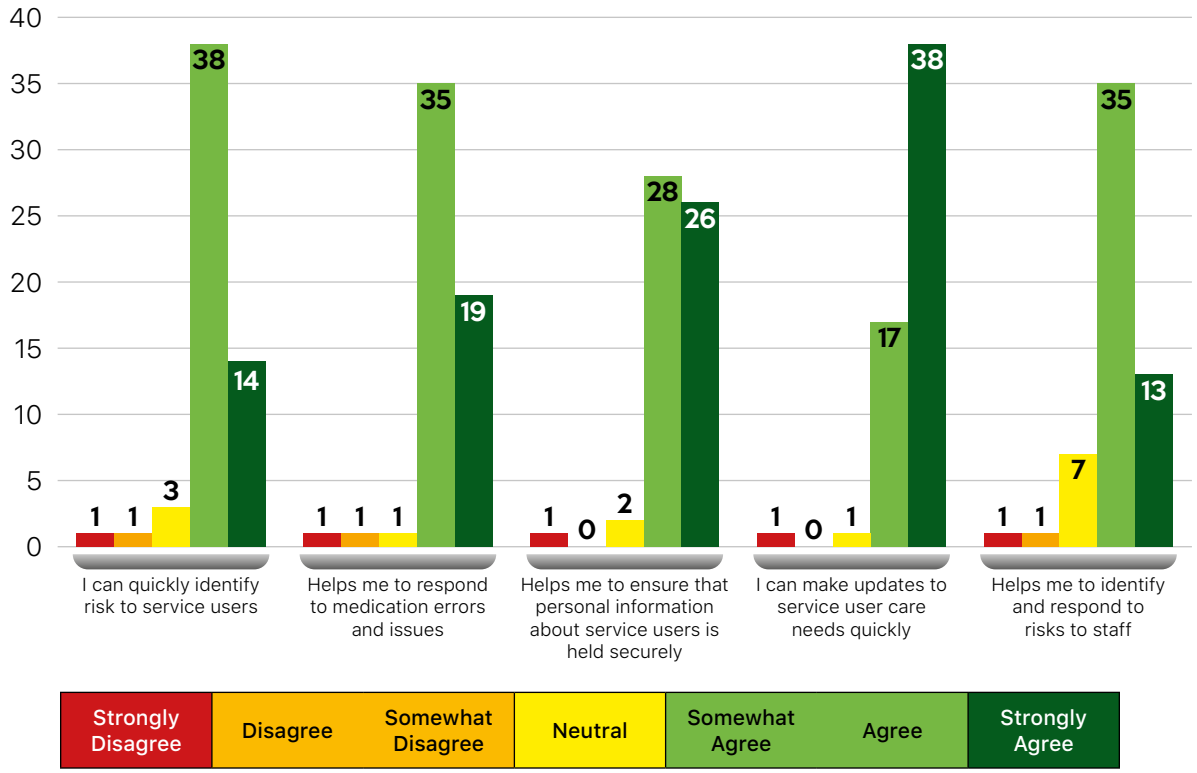


Figure 5 - Care managers' responses to each of the risk statements from strongly agree to strongly disagree

Identifying risk, responding to and updating service user needs quickly

Figure 5 demonstrates that fifty-two care managers (91%) agree[6] that the PASSsystem does quickly identify risks to service users. Fifty-five care managers (96%) agree that the PASSsystem facilitates in making updates to service user needs quickly.

When quickly identifying risk to service users, one care manager reported the PASSsystem highlights risk but also can protect and safeguard their service users:

> *"It ensures that the care plan is referenced in each task and safeguards clients by highlighting risk and incorporating safeguarding perimeters into every visit with alerts sent to me and also to the care assistant regarding tasks such as fluids not given, or medication missed." (CM3)*

6 For the purposes of reporting, 'agree' combines strongly agree, agree and somewhat agree.

The majority of care managers reported that the PASSsystem supports their ability to quickly make updates to the service user needs. This was often linked to changes in care plans, which needed to be quickly communicated to care workers who were delivering care. One care manager who has been using the PASSsystem for a year made the following comment:

> *"Fabulous system. Has saved the life of one of my clients. The managers on call can go to bed knowing that all our clients have received their visits at night. Don't know how we managed before without PASS. Saves us time and money. Less paperwork." (CM47)*

Personal information about service users is held securely

Care managers highlighted that service users' personal information can be held securely on the PASSsystem, indicating that this was the second priority area for them. Fifty-four care managers (95%) agree to this statement. For example, one care manager reported that the PASSsystem is:

> *"... the way forward; it's more secure and client information is held in a much more confidential way." (CM19)*

Medication management

Medication management was the third most positively rated question with nine care managers also highlighting this as a key benefit of the PASSsystem in the open comment section. In answering this question, fifty-four care managers (95%) agree that the PASSsystem helped them to respond to medication issues and errors.

Comments from care managers relating to the PASSsystem improving medication management:

> *"The PASSsystem is very efficient in terms of auditing MAR[7]... Receiving alerts is very helpful to chase up what needs changing or chasing up." (CM18)*

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7 MAR – Medication Administration Record which is the formal record of administration of medicine within the care setting. A MAR chart may be required to be used as evidence in clinical investigations and court cases so it is important that they are clear, accurate and up to date.

> *"Medication can be updated in an instant, ready for the next care shift." (CM19)*

> *"I can monitor medication administration and pick up on medication errors immediately." (CM17)*

One manager who strongly disagreed with all of the risk statements gave positive feedback in their response to the open question about other benefits derived from the system. Specifically, they made the following comments:

> *"It helps in knowing and monitoring what has happened during each visit and any concerns can easily be dealt with. It helps in controlling and monitoring medications, by checking if MAR charts are completed. It keeps a record of activities or diary for every service user and carer, including communications. It keeps a record of training, supervisions and appraisal of every care worker. It keeps records of risk assessment and every other assessment completed about service users, including every record about their care needs and information about GP and their next of kin." (CM53)*

Care managers identified areas for improvement that could be made to the PASSsystem relating to medicine management. The following comments represent improvements to the PASSsystem, specifically noting changes to PRN[8]:

> *"Changes to how PRN tasks are recorded on the app. Ideally it would be a green tick for YES (administered), and an amber/yellow line for NO (not administered) with an explanation." (CM16)*

> *"To change how PRN tasks appear after completing... The drawback of the system is that the way PRN tasks appear after completing is quite misleading for care workers. They would like to see the colour not to be green if they have chosen 'No' to the task." (CM18)*

8 Pro re nata - As necessary, for an occasion that has arisen, as circumstances require, as needed for example, taking a pain medication only when having pain.

> *"Ability for carers to add an additional task during a visit especially for a medication so that new medications can be signed for if a carer visits a client and finds new medication has been delivered." (CM50)*

Identify risk to staff

Forty-eight care managers (84%) agreed that the PASSsystem can identify risk to staff more quickly. Care managers suggested that they felt more comfortable in knowing their staff were safe. One care manager said:

> *"We are also able to ensure that our lone workers are safe due to the bookings page." (CM43)*

> *Another care manager suggested: "It ensures accuracy in care planning and alerts to any issues or training requirements." (CM51)*

On the other hand, one care manager reported areas for improvements to the PASSsystem:

> *"More risk assessment type forms to be available... Accident Form - one that can be flagged up to managers when a member of staff has logged it to enable manager to sign off and make actions." (CM35)*

Record keeping

An emerging theme from the open questions was the PASSsystem's functionality in enabling care managers to feel more confident that care records were accurate and up to date. Twenty-two (39%) care managers suggested an area of strength of the PASSsystem provided evidence that quality care had been delivered and recorded. Examples of care managers' comments:

> *"Quick to update, can word tasks and tweak to help staff with tasks. Can police how long visits are taking and punctuality. Can separate tasks into smaller tasks to ensure nothing gets missed. Can really personalise the care plan. Can audit if tasks are no longer needed. Can update meds quickly. Can reword and add our own documents." (CM49)*

"Live care notes mean we are on top of everything and the ability to make instant changes to care plans is what we love." (CM18)

"Eliminates issues with illegibility of handwritten notes." (CM13)

4.1.2 Workforce efficiency

This question was intended to get a better understanding of the impact that the PASSsystem had on business efficiency. Table 5 demonstrates how care managers rated each statement.

Survey Question	Strongly agree or agree
Quicker to get care notes made by colleagues in my organisation	89 %
Simplifies preparation for inspection and auditing through easy access to information	67 %
Reduces the time spent on administration tasks	63 %
Provides other care professional better visibility	60 %
Frees up time for staff to spend on delivering care	53 %

Table 5 - Care manager efficiency questions

In the open questions, care managers also suggested that the PASSsystem supports:

- Efficiency
  - This theme relates to time savings, resulting from ease of use, improved office operations, more time to care and better staff monitoring and auditing.
- Access to information
  - This theme relates to the ability for the right people to have detailed secure access to information anywhere and anytime.

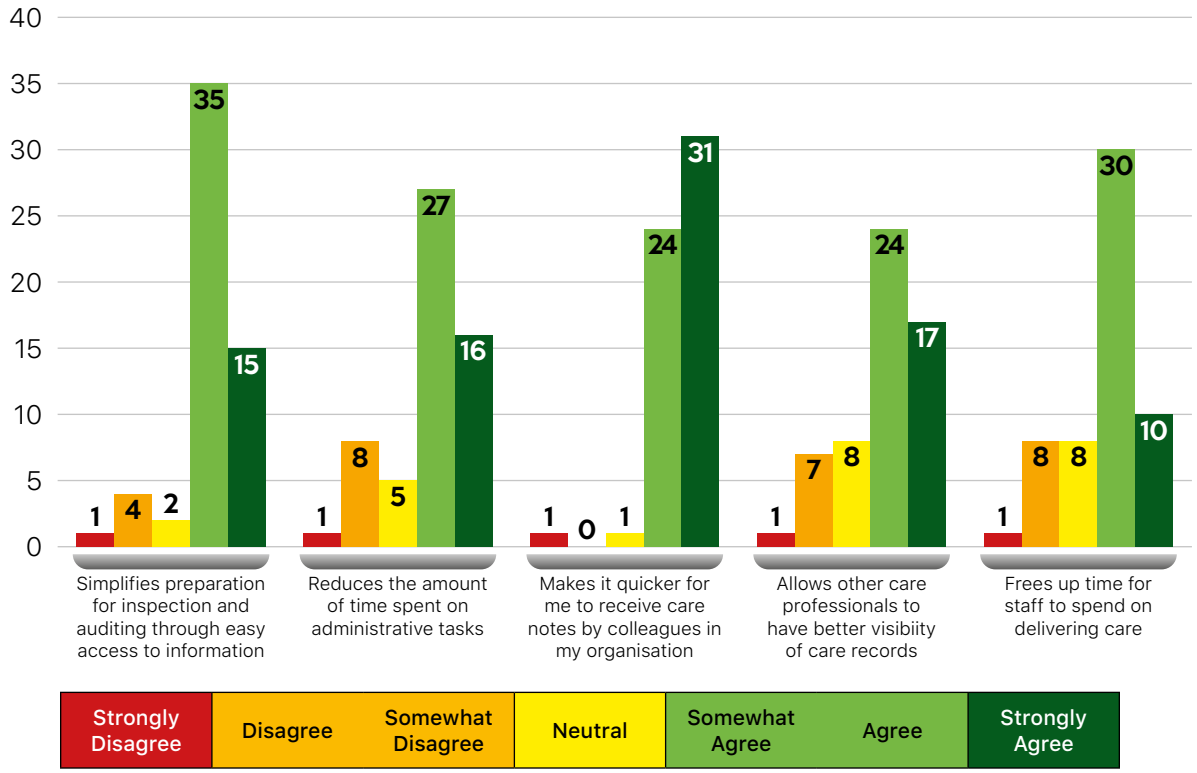

Figure 6 - Care manager responses to each of the efficiency questions determining whether they agree or disagree

Receiving care notes from internal colleagues more quickly

As seen in Figure 6, fifty-five care managers (96%) gave a positive rating to the question about receiving care notes from colleagues more quickly. Access to information was an emerging theme identified in the strengths of the PASSsystem. Twenty-three (40%) care managers suggested that the PASSsystem enables service user information (e.g. care plans) to be shared accurately and efficiently, creating overall operational efficiency. One care operations director stated:

> *"As an Operations Director, PASS enables me to obtain full insight to a customer's visit which in turn enables us to provide a comprehensive response to any customer question or concern." (CM27)*

Other care managers suggested that the PASSsystem has the following benefits for their staff:

- Care workers can prepare for visits to service users by reading detailed, up-to-date care plans, particularly useful when visiting a service user for the first time.
- Care workers can access service user information anywhere and update accordingly. For example, one care manager suggested that care workers *"don't have to be in the building to update changes." (CM35)*
- *"The real-time uploading of information means that the right care is being delivered and staff are kept informed." (CM4)*

Simplifies the preparation of records for governance and auditing

In total, fifty care managers (88%) agreed that use of the PASSsystem helped to simplify the process of preparing for inspection as a result of easy access to information. These findings are congruent with comments from care managers suggesting the PASSsystem improves regulatory compliance. Describing this particular benefit, one care manager suggested:

> *"We are able to keep all documents in one place and it is easy to find the information when looking for it. Assessments are easy to update and there is a history, so we are able to find where and when the changes took place." (CM2)*

This benefit was referenced by another care manager:

> *"In my view, PASSsystem helps me to demonstrate that staff have delivered care to the required regulatory standards." (CM57)*

A small proportion of care managers suggested areas for improvement of the PASSsystem's functionality, as detailed by two care managers:

"The system should allow running of reports regardless of interface with the rostering systems or not. Allow scope to review/audit care notes/care plans. This will enable a manager to check notes and comment or sign to show an audit on the file." (CM32)

"It's not easy to go back a page. When I'm auditing the assessments and come out of one, it takes me back to the top of the assessments and I have to scroll down to find the next one to audit. We keep accidentally coming out of customer's or carer's profiles and have to search for them again." (CM49)

Reduces the time spent on administration tasks

Forty-one care managers (72%) suggested that the PASSsystem has reduced the time spent on administration-intensive tasks, in particular it was reported by eighteen (32%) care mangers that that the 'paperless' system saved time on tasks such as printing and reviewing records. The ability to update staff records and observations digitally was reported as improving overall business efficiency. Care managers suggested benefits of the PASSsystem:

"... saves me hours as I am able to review daily notes immediately and monitor any clients who may be feeling unwell." (CM3)

"... has minimised the time I spend on administrative tasks and printing. It has also given us a much better overview of our client base which is easily accessible wherever we happen to be. I'm really impressed with the way [the PASSsystem] enables instant access to client records and the ability to share them if required." (CM28)

"... easier to audit care notes and respond to concerns." (CM31)

Care managers reported that saving time through adopting a paperless approach was considered beneficial. Two care managers summarised:

> *"[The PASSsystem] is forward-thinking, less-paper based and streamlined. It can be accessed anywhere and at any time by anyone who is authorised to use the app. All our staff have access to their clients and can read all the care notes prior to their visits. It saves so much paper." (CM19)*

> *"The PASSsystem has enabled me to have real-time monitoring of the service delivery. It has made it easier to undertake assessments, monitor service delivery and review and update information. It is definitely a brilliant system for the management of day-to-day service delivery. I have eliminated the unnecessary waste of paper and toner. It enables speedy capture and documentation of information which is shared in real time. The reports from the system are good although they can be improved." (CM32)*

Provides other care professionals better visibility

Forty-one care managers (72%) reported that the PASSsystem enables other care professionals to see what has been done previously by their own care workers (i.e. information sharing). Two care managers highlighted a strength of the PASSsystem in supporting better information sharing between the professional network around the service user:

> *"The quick access to care notes if speaking to family or other health professionals, and the easy viewing of attendance times." (CM24)*

> *"It keeps records of risk assessment and every other assessment completed about service users, including every record about their care needs and information about GP and their next of kin." (CM53)*

> *"If a family member or social worker contacts the office for an update on a client, we can quickly access the latest care notes and give them a summary of the last few days." (CM50)*

As reported in the literature review, digital maturity and access to technology is a key challenge across health and social care. Some care managers reported that one of the key challenges in their digital transformation journey was the resistance

that was sometimes met from other professionals who were unwilling to engage with the new technology. One care manager reported:

> *"The professionals we deal with are very anti tech and the nurses give us fluid charts and stool charts and that creates two lots of paperwork. I am feeling very unhappy with paying out what I do for a system and then doing extra charts." (CM45)*

One care manager suggested issues with accessing the PASSsystem in more rural areas was proving a challenge.

Frees up time for staff to spend on delivering care

Forty out of fifty-seven care managers suggested that the PASSsystem frees up time for staff to spend on delivering care. Areas of strength for the PASSsystem suggested that care workers could:

- Prepare for care visits prior to attending the service user's home
- Access information quickly through the easy-to-use interface.

Eight care managers somewhat disagreed or disagreed, and one person strongly disagreed with this statement. Indicating a potential area of improvement, one care manager suggested:

> *"The PASSsystem is great for logging basic and quick information, it can be very time-consuming with a deadline for completing specific tasks. Some areas could be added to and improved, for instance the risk assessments." (CM34)*

4.1.3 Quality of care

This question was intended to assess the impact of the PASSsystem on enhancing the quality of care to service users. Table 6 demonstrates how care managers rated each statement.

Survey Question	Strongly agree or agree
Using the PASSsystem allows staff to deliver a more person-centred care plan	88 %
By using the PASSsystem, staff are better able to understand the service users' care needs	82 %
Using the PASSsystem improves the ability of staff to deliver outcome-based care	75 %
Using the PASSsystem, staff can support service users to be involved in their care	63 %
Using the PASSsystem has helped to improve job satisfaction for staff	42 %

Table 6 - Care manager quality of care questions

Emerging findings from care managers' responses to the open questions suggested that the PASSsystem supports:

- Quality of care
  - This theme relates to examples of high quality care based on accurate care planning, person-centred care and handover of key information to ensure best customer experience.

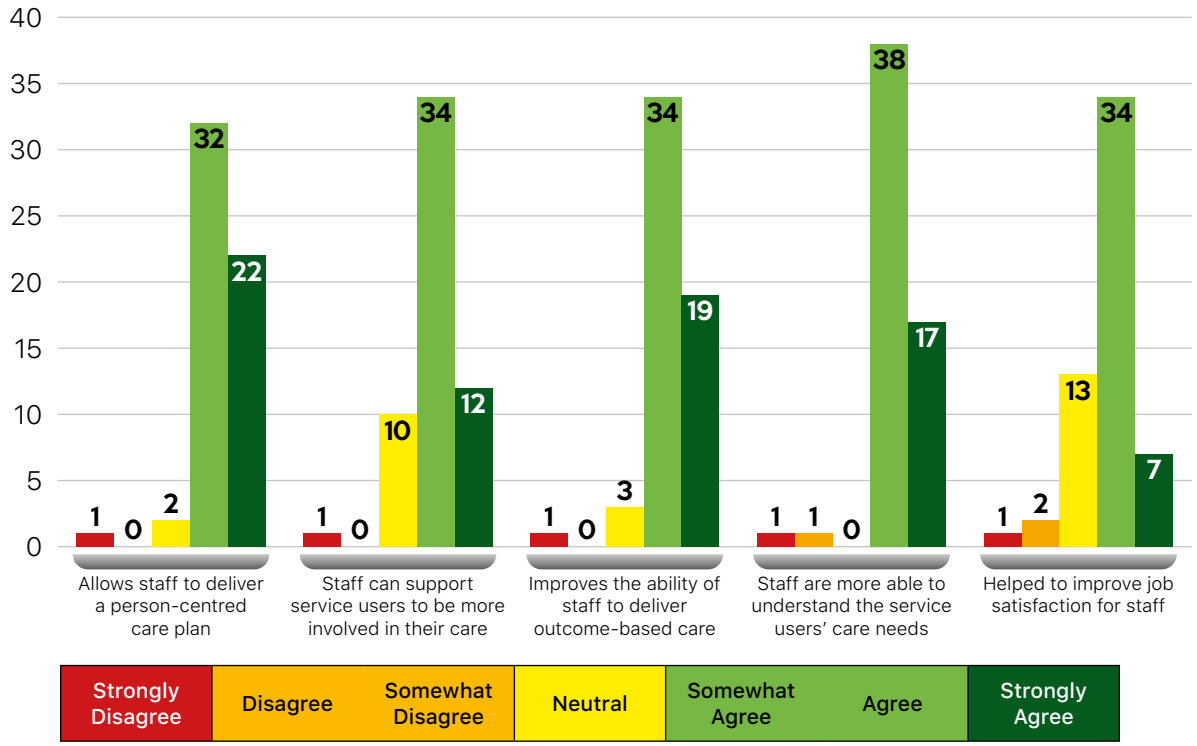

Figure 7 - Care manager responses to each of the quality of care questions determining whether they agree or disagree

Allows staff to deliver a more person-centred care plan

As indicated in Figure 7, fifty-four care managers (94%) overall agreed that using the PASSsystem allowed their staff to deliver a more person–centred care plan. One care manager who highlighted many areas of strength with care staff using the PASSsystem indicated:

> *"It has changed the way care is delivered and our staff find it very easy to use and enjoy working with it. I can completely customise our care plans and also monitor staff and feedback on supervision which I can now do in the field through observation. It is a brilliant, brilliant system and I would recommend to any registered manager." (CM3)*

One care manager reported that they felt more confidence that their service user needs were being met:

> *"It allows me to monitor the client's visit and amend their care plan as needed so they receive person-centred care that meets their needs." (CM17)*

Two care managers suggested areas for improvement, particularly around the risk assessments. One care manager reported:

> *"Some areas could be added to and improved, for instance the risk assessments could be improved; they are tick boxes with nowhere to add an individual's needs. The questions are not person-centred." (CM34)*

Staff can better understand the service user's care needs

Figure 7 shows that fifty-five care managers (96%) reported that the PASSsystem helps their staff better understand service user needs. This area is linked to efficiency findings, suggesting that staff can access service user care records ahead of the scheduled visit to the service user's home. One care manager suggested that the PASSsystem:

> *"... enables carers to have detailed information about the needs of the service user ahead of duties: particularly useful when visiting a service user for the first time." (CM13)*

Staff to deliver more outcomes-based care

Fifty-three care managers (93%) suggested that the PASSsystem has prompted care workers to be more service user outcomes-focused. This was reported by some care managers:

> *"Since joining the PASSsystem, we immediately found that our approach and perspective of person-centred care changed. [The PASSsystem] allowed us to evaluate what we were actually providing for our clients in real time as opposed to our previous*

system of paper based evidenced care, sadly along with the delays the process had. The PASS is precise, open and transparent to all that have access to it including families, care professional and most importantly the client themselves. For all staff a tremendous professional platform to evidence quality based care being actioned each visit, with immediate follow on actions as required." (CM7)

"Within our company we use PASSsystem for ensuring that our customers receive person-centred care. By using the outcomes and tasks, this allows us to make sure care assistants know what they need to achieve before even entering the property. We are able to get information back to the office in real time about customers who are unwell and need extra medical attention and we are able to change things quickly and accordingly to ensure care standards are met at all times." (CM21)

However, a couple of care managers suggested areas of improvement in how outcomes, tasks and episodes of care are saved.

Support service users to be involved in their care

The PASSsystem was considered effective in supporting staff to involve service users in their care. Forty-six care managers (81%) overall agreed as shown in Figure 7. There were no observations noted in the open-comment section for this area. However, as demonstrated in section 4.1.4, the PASSsystem was reported to support communication between families and care providers.

One care manager suggested the PASSsystem enabled service users to access their own care notes:

"The PASSsystem is precise, open and transparent to all that have access to it, including families, care professionals and most importantly the client themselves. For all staff, a tremendous, professional platform to evidence quality based care being actioned each visit, with immediate follow-on actions as required." (CM7)

Improve job satisfaction for staff

The PASSsystem was considered to improve job satisfaction, with forty-one care managers (72%) overall agreeing with this area. However, this was considerably lower than other areas, with some care workers disagreeing with this. The research team were unable to investigate this area further because care managers did not directly report in the open question section.

4.1.4 Accountability and overall trust in care businesses

This question was designed to get a better understanding of the extent to which the PASSsystem helps with accountability to increase trust in care. The questions which care managers prioritised are reported in Table 7.

Survey Question	Strongly agree or agree
Using the PASSsystem makes it easier to keep accurate records of the care the staff deliver	81 %
Using the PASSsystem means that I am able to demonstrate that staff have delivered care to the required regulatory standards	79 %
Using the PASSsystem helps me to demonstrate to service users and their families that staff are delivering a good standard of care	74 %
The PASSsystem promotes openness between people delivering care, service users and their families	72 %

Table 7 - Care manager accountability questions

Emerging findings from care managers' responses to the open questions suggested that the PASSsystem supports:

- Increasing trust in care (10 care managers mentions)
  - This theme relates to openness and transparency between families, care providers, other health professionals and the client.
- Compliance with regulations (23 care managers mentions)
  - This theme relates to achieving and maintaining business, regulatory, quality and safety standards through medication management, picking up errors and safeguarding and lone worker safety

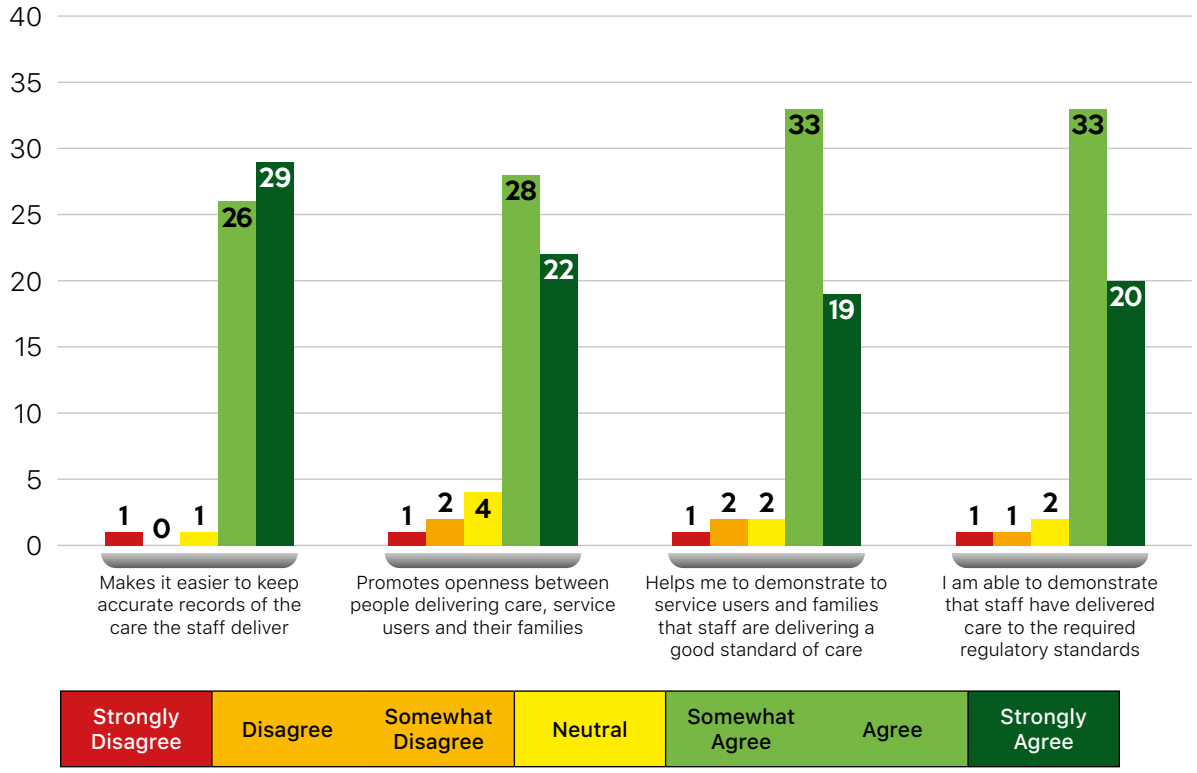

Figure 8 - Care manager responses to each of the accountability questions determining whether they agree or disagree

Makes it easier to keep accurate records of the care delivered by staff

As demonstrated in Figure 8, fifty-five care managers (96%) agreed overall that the PASSsystem facilitates accurate records of the care that staff deliver. Findings from Section 4.1.1 and 4.1.2 suggest that the PASSsystem improves care staff record keeping and workforce requirements (e.g. training). One care manager reported:

> *"The real-time uploading of information means that the right care is being delivered and staff are kept informed. The information captured on the customer file is very thorough and there can be no doubt about the care and support required for each service user." (CM4)*

Care managers able to demonstrate that staff have delivered care to the required regulatory standards

As demonstrated in Figure 8, fifty-three care managers (93%) agreed overall that the PASSsystem enables regulatory compliance. Twenty-three care managers highlighted regulation compliance as a key area of strength for the PASSsystem in the open questions. One care manager reported the PASSsystem was good for their business because they could have:

> *"...an audit trail of all the care visits carried out. Having medication online and in real time has been a benefit to us, as has the supervision and monitoring of staff performance." (CM11).*

Another care manager described implementing the PASSsystem as responsible for meeting CQC regulations:

> *"This is a great programme and got us through [our] CQC inspection. It has all the clients details and staff details at a click of a button. It is user-friendly and secure to keep all client and staff information on file. This is a must for training provision and all staff can keep an accurate record of care given and also inform us at the time of any changes or concerns with the clients which we can then amend at the exact time the staff report it." (CM6)*

Conversely, one care manager indicated that the PASSsystem was:

> *"... slow during inspection to gain information inspectors are looking for." (CM35)*

Family involvement

Overall, care managers agreed that using the PASSsystem increased trust in care provided to service users:

- The PASSsystem helps me to demonstrate to service users and their families that staff are delivering a good standard of care (n=52, 91%).
- The PASSsystem promotes openness between people delivering care, service users and their families (n=50, 88%).

The ability for the PASSsystem to connect families and provide them with real-time information about the care delivery, without needing to go via the care provider for updates, was a benefit reported by the care managers. The PASSsystem has given families ready access to the system to get updates at a time that suits them, which consequently reduces time for care managers responding to routine queries about care. One care manager summarised this as follows:

> *"openPASS has made a big difference to our integration with families and we feel that it has minimised misunderstandings and the chances of relationship breakdown. Staff like the PASSsystem as they are young and have nimble thumbs. They find it much easier than writing long-winded handwritten notes." (CM28)*

One care manager described the benefits of providing trust in care when families are not living close to their family member:

> *"openPASS for relatives is amazing and helps families who don't live nearby to access records." (CM29)*

Similarly, another care manager reported that 'through the PASSsystem' families could be more involved in the care of their family member:

> *"This system ensures accuracy in delivering person-centred care and ensures that staff arrive on time and stay the length of the visit. Also, it is a benefit that families can be an active part of the care being provided and are included." (CM51)*

Of the people responding to the survey, four people gave a neutral rating about the digital care management platform helping to promote openness between people delivering care, service users and their families. Two gave a neutral rating for the ability to demonstrate to families that staff were delivering a good standard of care. One care manager reported an area for improvement could be to make the PASSsystem:

> *"... more accessible to clients and their families, even if they don't have tablets or Android phones." (CM57)*

4.2 Care worker survey

Similar to the care manager survey, the survey questions for care workers were based on the main evaluation questions. We adapted statements under each question to take account of the difference in role and working practices between care workers and care managers. Care workers were asked, like care managers, to rate statements. Only one of the care workers that responded to the survey reported that they had used a digital care management solution prior to using the PASSsystem.

Analysis of the response rate to this survey showed that 146 surveys were started, of which 95 (65%) were completed within the allotted time frame for inclusion in the findings of the evaluation. The term 'care worker' is used to incorporate all respondents to the survey. For full job role breakdown see section 2.6.3.

Table 8 demonstrates that the care workers had been using the PASSsystem for different time periods, with the majority of respondents using the PASSsystem for over a year (33 care workers). Twenty-one care workers had just started using the PASSsystem within 3 months of completing the survey. One person did not respond.

Length of time	Total number
Less than 3 months	21
4-6 months	22
7-12 months	18
More than 12 months	33

Table 8 - Length of time care workers have been using the PASSsystem

4.2.1 Risk management

This question was intended to get care workers' feedback about how the PASSsystem can impact risk management. Table 9 demonstrates how care workers rated each of the survey statements.

Survey Question	Strongly agree or agree
Using the PASSsystem prompts me to complete all tasks for each service user	94 %
The PASSsystem helps me to ensure that personal information about service users is held securely	87 %
Using the PASSsystem means that when there are updates about service user care needs, I am informed about them quickly	75 %
By using the PASSsystem, I can quickly alert care managers of risks to service users	61 %

Table 9 - Care worker response to statements about risk management

Emerging findings from care workers' responses to the open questions suggested that the PASSsystem supports[9]:

- Record Keeping
- Compliance with regulations.

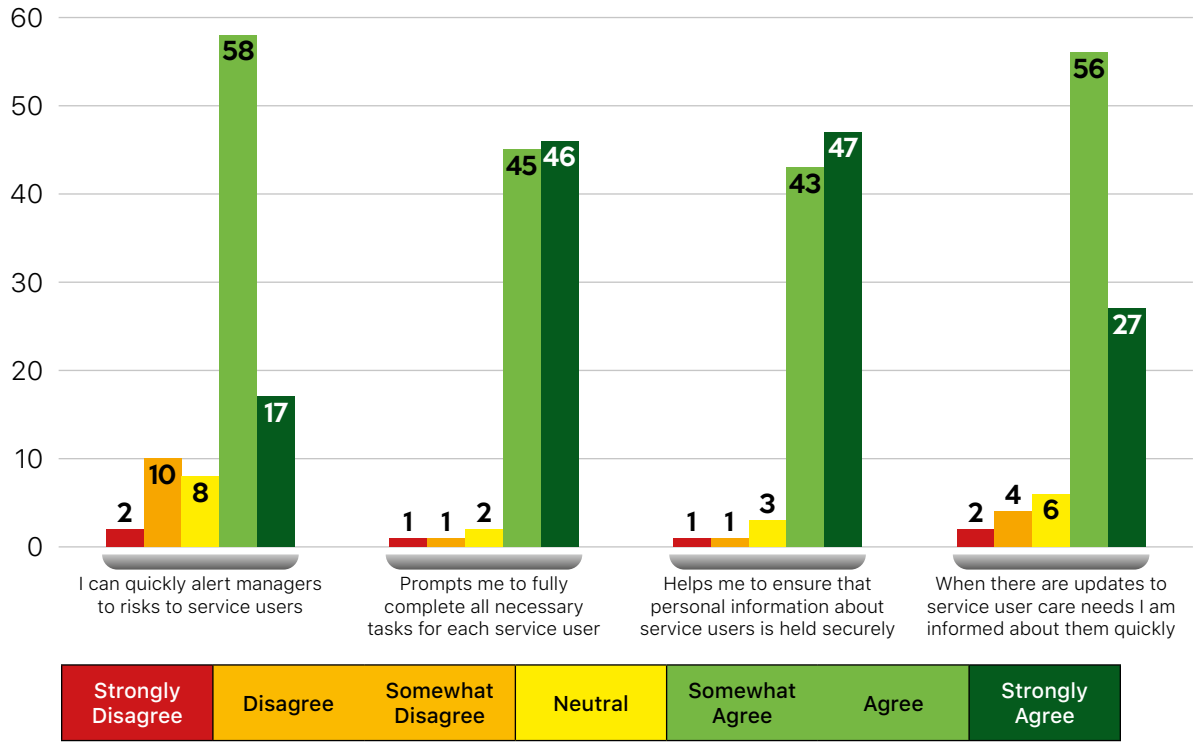

Figure 9 - Care worker responses to each of the risk management questions

9 *Themes from open questions are the same across both care manager and care worker*

Using the PASSsystem prompts me to complete all tasks for each service user

Ninety-one care workers (96%) agreed that the PASSsystem was helpful in ensuring that they were able to fully complete all care tasks. However, 2% (N=2) of them either disagreed or strongly disagreed with this statement and the remaining 2% of care workers gave a neutral rating in their response to this statement. Many care workers commented that the PASSsystem was helpful in providing prompts for all care interventions and tasks that needed to be completed. One care worker reported:

> *"The PASSsystem makes it clear to me what tasks I have to complete and the care needs of individuals. It is also good as I can see what other colleagues have written regarding the service user." (CW3)*

Using the PASSsystem means that when there are updates about service user care needs, I am informed about them quickly

Communication between care workers was considered a key area of strength of the PASSsystem, with eighty-three care workers (87%) overall agreeing to this area. The benefits are being able to view what had happened previously with a service user and then adapting their care, including providing a reliable method of communicating service user needs with other care workers. Two care workers commented:

> *"I can keep an eye on what has been going on with my client, perhaps think of ways to adapt my care if there has been a problem. Nice to know you can leave a message on there to other carers to say if any shopping needs to be done before next visit." (CW19)*

> *"I like how you can see exactly what tasks are completed and the communication is brilliant to update and pass a message on to the next carer and that the family can see what is going on." (CW35)*

The PASSsystem helps me to ensure that personal information about service users is held securely

Ninety care workers (95%) overall agreeing the PASSsystem ensured personal information about service users was held securely. One care worker commented:

> *"I think using the PASSsystem is good for a company as everything is logged and information is held correctly for records/checks." (CW12)*

Quickly alert managers to service user risk

As demonstrated in figure 9, seventy-five care workers (79%) indicated that the PASSsystem did quickly alert managers to service user risk. Conversely, twelve care workers (13%) disagreed to some extent that using the PASSsystem helped them to quickly alert care managers of risks to service users.

Care workers suggested that the PASSsystem facilitated information sharing, highlighting that a benefit of this was in providing assurance to their care managers and peace of mind for the care workers that they could readily evidence their work. One care worker described:

> *"I also like that if you click 'no' on the tasks, it flags up straight away on the system in the office, gaining attention from the care managers if there is a concern." (CW16)*

4.2.2 Efficiency

This question measures the impact of the PASSsystem on care workers' perception of workforce efficiency. Table 10 shows the efficiency statements care workers measured.

Survey Question	Strongly agree or agree
Using the PASSsystem makes it quicker for me to find the service user information I need to provide care	83 %
Using the PASSsystem frees up more time to spend with service users	53 %
By using the PASSsystem, I am able to spend less time on administrative tasks	49 %

Table 10 - Care worker efficiency statements

In the open questions, care worker suggested that the PASSsystem supports:

- Efficiency
- Access to information.

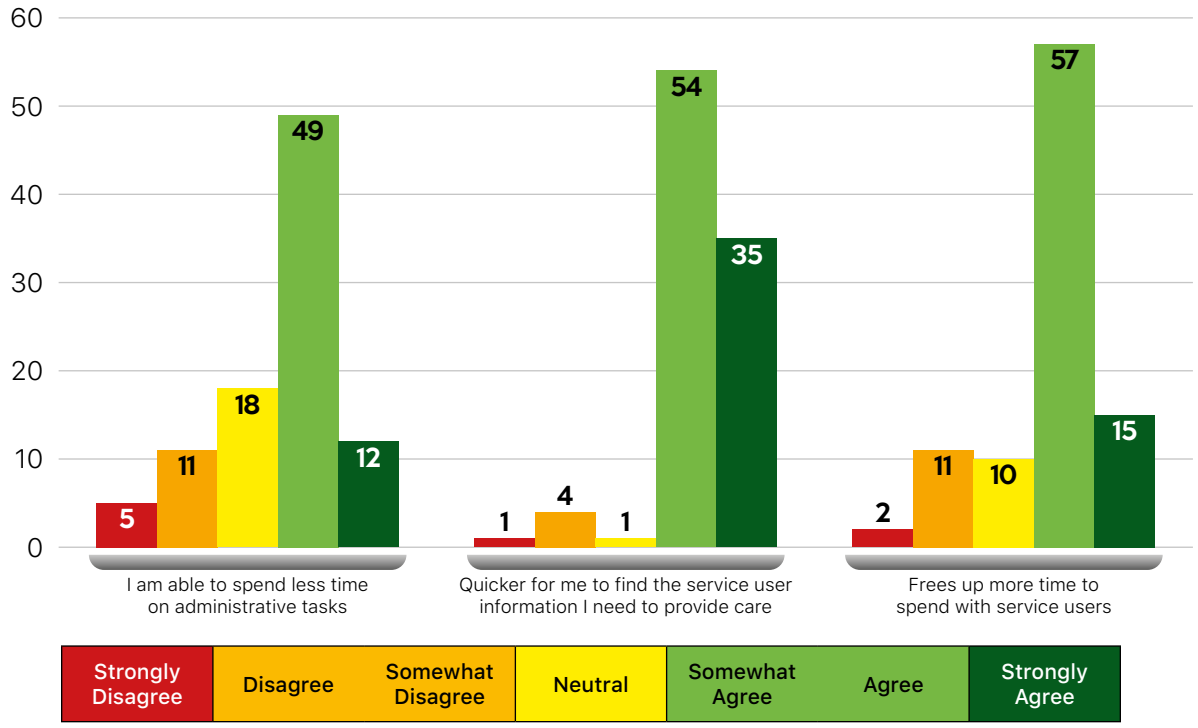

Figure 10 - Care worker responses to each of the efficiency questions

Quicker access to service user information

As demonstrated in Figure 10, eighty-nine care workers (94%) overall agreed that in terms of efficiency, the area the PASSsystem had the greatest impact on was having quicker access to information about service users than without the PASSsystem. A few care workers commented:

> *"Benefits, quicker and more accessible for finding records etc. I can look at previous care notes before I start a call." (CW2)*

> *"I can get updates regarding the client's care and needs; also see past visits and check how they have been previously if covering a call [where I have] not previously been. It helps me to see what a client likes or dislikes and what their preferences are regarding care etc." (CW5)*

One care worker suggested accessing a paperless system was useful:

> *"It's a great thing to have all the tasks in front of you where you can look over them while doing them. Instead of looking through loads of bits of paper in a folder." (CW75)*

Another care worker observed that the requirement to contact the care office for information was reduced as a result of using the PASSsystem:

> *"I can access all information required immediately without having to ring the office. I can also see previous days notes and establish how the clients have been or any changes to their wellbeing or health." (CW27)*

Spending more time with service user, less time on administration

There was more variation in opinion and perspective for the two efficiency statements where the PASSsystem increased time spent with service users and less time spent on administration, as indicated in Figure 10.

Over three quarters of care workers (at 72 across all 'agree' categories) did agree that using the PASSsystem freed up time to spend with service users. One care worker suggested:

> *"The PASSsystem is efficient and easy to use, everything is easy to find and also easy to follow making it a quick process." (CW54)*

Some care workers reported the following about spending more time with service users:

> *"Gives me more time with the service user and my line manager knows exactly what I am doing and where I am." (CW6)*

> *"In my opinion, using the PASSsystem helps us to keep accurate and precise information about all our service users' needs. Saves more time so we can spend that time with our service users. Handy to find any information you need about our service users and it is easy to use." (CW61)*

However, 10 care workers (11%) gave a neutral rating and 13 care workers (14%) disagreed that using the PASSsystem freed up more time to spend with service users. It would have been helpful to further explore this with these care workers to get a better understanding of this. However, none of them elected to have an interview, so their details were not available to the research team to investigate further.

Care workers indicated that the PASSsystem had, to some extent, reduced administrative tasks, with 61 care workers (64%) overall agreeing with this statement. However, some care workers suggested the PASSsystem had not reduced administrative tasks. Suggestions made about improving the PASSsystem were about care records not timing-out after fifteen minutes: however, it was acknowledged this was a security function. One care worker made the following suggestions:

> *"The PASSsystem could be improved by information you have completed but not saved remaining longer before you are timed-out and have to re-enter the information. There are times when you have to assist a service user and then return to the PASSsystem." (CW25)*

Another care worker suggested reducing the amount of information they have to record, for example:

> *"Record in the system about type of fluids, for example, if one of the service users drinks a glass of water with his morning tablets and after that he has a cup of tea, you have to do separate logins and put the drinks. The idea is if we could log all the drinks together e.g. a glass of water + cup of tea = 350ml." (CW61)*

4.2.3 Quality of care

This question was intended to understand the impact that the PASSsystem is having on improving the quality of care from a care worker's point of view. A total of six statements were included in the survey to answer this question. Table 11 lists the statements in priority order based on the positive ratings assigned by care workers responding to the survey.

Survey Question	Strongly agree or agree
Using the PASSsystem allows me to deliver a person-centred care plan	82 %
By using the PASSsystem I am more able to meet the service users' care needs	81 %
Using the PASSsystem promotes better continuity of care for service users	78 %
Using the PASSsystem means I am more focused on service user outcomes	74 %
Using the PASSsystem, I can support service users to be more involved in their care	64 %
Using the PASSsystem has helped to improve my job satisfaction	59 %

Table 11 - Care worker quality of care statements

Emerging findings from care workers' responses to the open questions suggested that the PASSsystem supports:

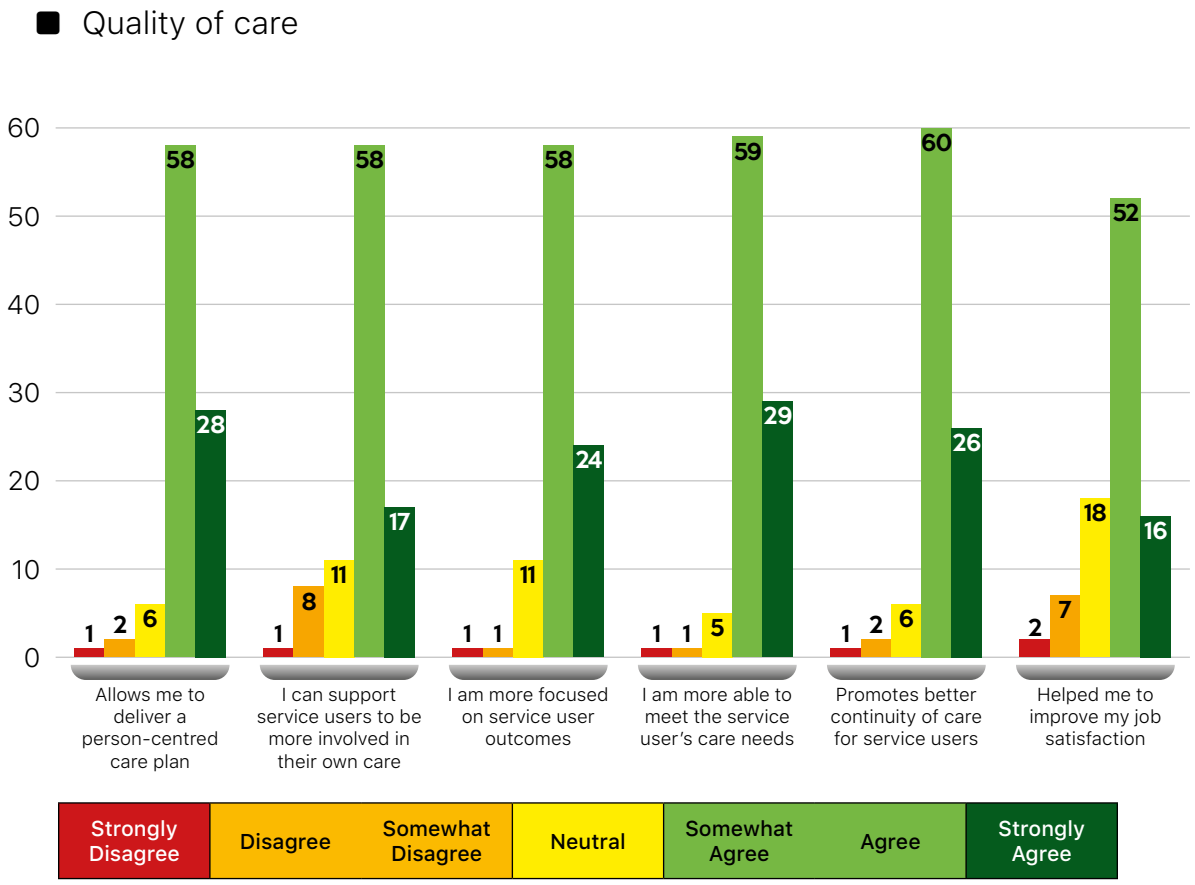

Figure 11 - Care worker responses to each of the quality of care questions determining whether they agree or disagree

Delivering better quality of care which is person-centred care plan and outcome-based to meet the service user needs

Figure 11 demonstrates that eighty-eight care workers (93%) overall agreed that the PASSsystem helped care workers to be more able to meet service user care needs. Care workers suggested that one of the key benefits of the PASSsystem was being able to get a better understanding of the service user and that this enabled them to give good quality of care. One care worker suggested the PASSsystem:

> *"... gives an insight into knowing a bit about a service user if it is the first time in visiting the service user i.e. character, what kind of day they're having and their likes and dislikes. The PASSsystem helps us to have a better understanding of the service user so we can fulfil and exceed their care to the highest standard it should be." (CW17)*

Care workers reported that they felt that having family involvement was important and that this was important for giving person–centred care. The comment below summarised this from the perspective of one care worker.

> *"It enables the customer and family to specify particular tasks and goals." (CW89)*

Care workers suggested that they could spend more time with service users, delivering care. One care worker reported:

> *"Less paperwork to fill out, which means more time supporting service users." (CW34)*

Whilst most care workers were keen to engage and involve service users in their care, they also acknowledged that this can often present challenges in finding the right balance as one care worker commented:

> *"The PASSsystem has greatly improved the accuracy of my notes and enables clients and families to keep track of every detail of their loved ones' continued care. However, due to the clash of old and young generations, it can sometimes be awkward trying to fill out notes and also chat to a client. I often feel rude being on my phone, and am constantly justifying the use of the app. Yet, overall, this app allows me to include much more detail and reminds me of anything that I may have missed during the visit." (CW41)*

In relation to continuity of care, a clear theme that emerged during the analysis was the importance of handover of key information, including changes to ensure the best service user experience and high-quality care. One care worker commented:

> *"Using the PASSsystem for our customers ensures we keep to the care plan drawn up for them by our manager. It means that even if a carer is attending the customer for the first time, they have all the information they require to carry out the tasks in the care plan." (CW87)*

Service user involvement

Service user involvement had a variation in ratings, eleven care workers (12%) selected neutral and nine care workers (9%) disagreed about the extent to which the PASSsystem helped to support service users to become more involved in their care. Seventy-five care workers (79%) did agree service users were better involved in their care. Some observations that were made included:

> *"The main benefit is that it allows my notes to be spelt correctly and for family to be able to check up on the care their loved ones are receiving." (CW38)*

There were no areas for improvement reported by care workers in this area.

Improve job satisfaction

Care workers indicated that the PASSsystem had not greatly changed their job satisfaction. Figure 11 indicates the variation in responses, sixty-eight care workers (72%) overall agreeing, twenty-seven care workers scoring neutral and disagree (28%). There were no areas for improvement reported by care workers in this area.

4.2.4 Accountability

Care workers were asked to what extent the PASSsystem promoted accountability and therefore increasing overall trust in care. Four statements were formulated for this part of the survey. Table 9 shows them ranked in priority order as rated by care workers. Figure 12 demonstrates the care workers survey responses under each of the accountability statements.

Survey Question	Strongly agree or agree
Using the PASSsystem makes it easier to keep accurate records of the care I deliver	93 %
Using the PASSsystem means that I am able to demonstrate to my employer that I have delivered care to the standards expected of me	88 %
The PASSsystem promotes openness between people delivering care, service users and their families	82 %
Using the PASSsystem helps me to demonstrate to services users and families that I am delivering a good standard of care	81 %

Table 12 - Care worker accountability questions

Emerging findings from care workers' responses to the open questions suggested that the PASSsystem supports:

- Increasing trust in care

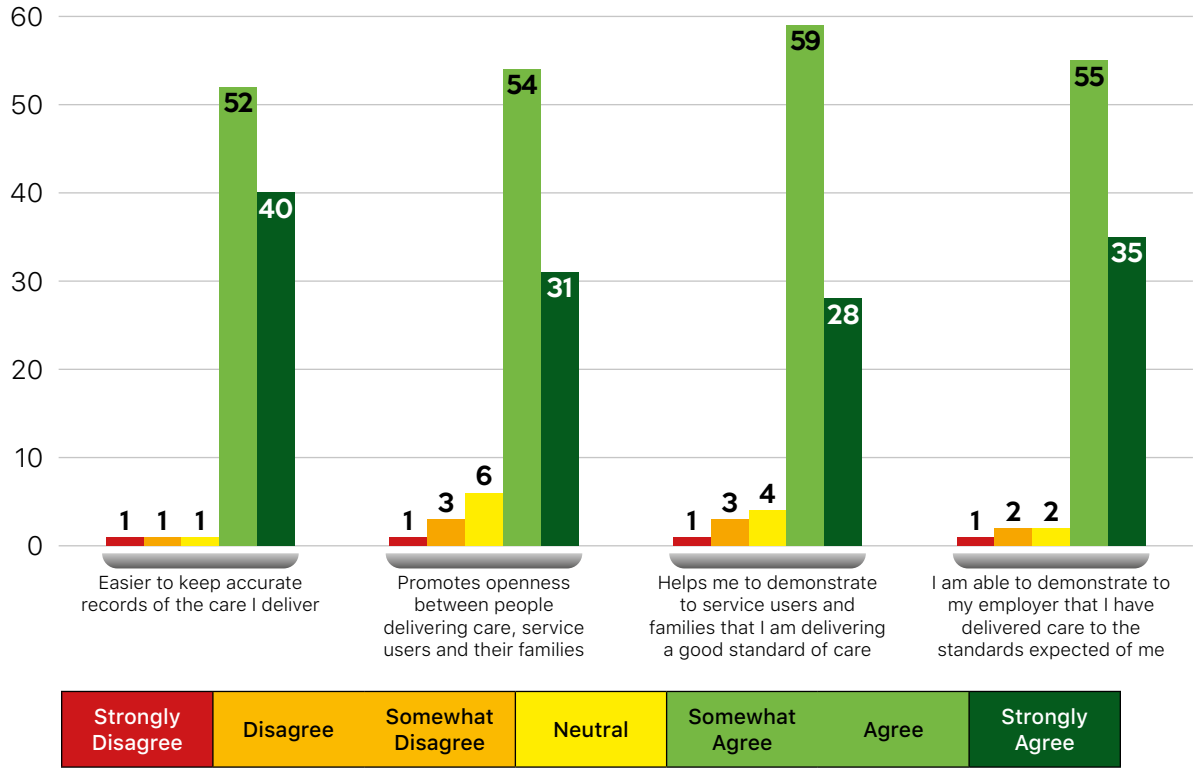

Figure 12 - Care worker responses to each of the accountability questions determining whether they agree or disagree

Keeping accurate care records

As demonstrated in Figure 12, ninety-two care workers (97%) overall agreed that the PASSsystem made it easier to keep accurate records of the care they deliver. The care workers appeared to value the accessibility and transparency that the system provided to all those involved in the care delivery. The majority of comments have been presented in section 4.2.1 and 4.2.2.

One care worker summarises the general consensus of the PASSsystem's effectiveness at improving accuracy:

> *"Allows accurate recording of when and what medication is given. Lets other carers have access to notes before visiting customer. Enables the family to be involved." (CW95)*

Delivery of care

Eighty-seven care workers (92%), suggested their ability to demonstrate the delivery of care to both service users and their families as well as to their employers (n=90, 95%). A couple of care workers summarise the overall perception of the PASSsystem:

> *"The PASSsystem has greatly improved the accuracy of my notes and enables clients' families to keep track on every detail of their loved ones' continued care. However, due to the clash of old and young generations, it can sometimes be awkward trying to fill out notes and also chat to a client. I often feel rude being on my phone, and am constantly justifying the use of the app. Yet overall, this app allows me to include much more detail and reminds me of anything that I may have missed during the visit." (CW41)*

> *"I've had to use paper records before and it takes up too much of the time whilst in a call, whereas with the PASS app I have so much more time to spend with my customers and it's easier for families to look up their loved ones' care and how they're doing from day to day." (CW79)*

Promoting openness between people delivering care and service users

Eighty-five care workers (87%) reported transparency benefits for the families as well as amongst other care workers in delivering continuity of care. One care worker commented:

> *"No requirements that a service user needs are missed. Families can see all tasks that we've performed and additional care and social needs we may have given on each visit. As a team we can see what things have been done on previous care visits and we can carry out things that may need to be done to make things easier for the service user as well as their families. The PASSsystem has added ease and importance to make our jobs easy towards service users and families." (CW81)*

Commenting on accountability and building trust between people that deliver care, service users and their families, care workers suggested:

> *"The PASSsystem makes it clear to me what tasks I have to complete and the care needs of individuals. It is also good as I can see what other colleagues have written regarding the service user. The PASSsystem also makes it easier to find information for each service user. I find the PASSsystem useful." (CW3)*

> *"The PASSsystem is a great way to keep service users' information confidential. I like that their family can access the app to see what has been happening. I also like that if you click 'no' on the tasks it flags up straight away on the system in the office gaining attention from the care managers if there is a concern." (CW16)*

There were no areas for improvement around delivering better accountability of care for the PASSsystem, suggesting an area we could explore further with care workers.

4.3 Key benefits and areas for improvement from survey findings

The section below summarises the strengths and areas for improvement as described/experienced by the survey participants. It was of importance for the researchers to get feedback from participants about the areas for further improvement so these could be considered for the further development of the PASSsystem to optimise its use and benefits for users. To that end, in addition to the survey questions, evaluation participants were also asked open questions to understand what other key benefits and areas for improvement of the PASSsystem care managers and care workers wished to report. The response rate for these questions was high, with the majority of participants (86%) completing one or both questions.

4.3.1 Areas of strength

The responses indicated that areas of strength are that the PASSsystem:

- Increases trust and quality in care
- Supports care managers with risk management through accurate record keeping and compliance with key regulatory bodies
- Provides efficient and real-time access to service user information for care managers and care workers
- Is easy to use and provides transparency to families and carers, therefore promoting greater involvement in the care.

As highlighted in section 4.2, care managers and care workers reported benefits in terms of care quality and transparency between care providers, those in receipt of care and their families.

4.3.2 Areas for improvement

Where participants commented on areas for further improvement, it is important to consider the numbers which indicate areas where participants felt the PASSsystem could improve. In total, twenty-four care workers and care managers specifically stated that they did not have any issues. A further twenty-one did not respond to

this section. Appendix 13 is an overview of what areas of improvement are being addressed by everyLIFE Technologies.

The emerging findings have been categorised by improvements:

- Performance and enhancement of the PASSsystem
- PASSsystem functionality
- Digital maturity across health and social care.

Performance and enhancements

This theme relates to document improvement suggestions, integration issues and system performance and slowness, including failure to deliver.

Care managers:

- Change how PRNs are recorded
- Ability to assign tasks to a particular day rather than a visit
- Alert a carer if there has been a change to the care plan. For example, one care manager suggested:
  "Notify users when care plan tasks are updated/changed by utilising the red badge icons that the majority of phone apps use when there are new notifications." (CM31)
- Improve the formatting of documents to improve printing.

Care workers:

- Improve the time-out functionality, as suggested by one care worker who commented:
  "User time should be longer." (CW65)
- Alert a carer if there has been a care plan change

System functionality

This theme relates to product feature requests and UX improvements to the system.

Care managers:

- Be able to log care given via the desktop and not just the app
- If staff log into the incorrect visit, to be able to go back
- Add gender preference
- Client files to be visible on app
- Template outcomes and tasks
- More levels of access
- More body map functionality
- Show DNAR more clearly
- Add pictures of activities or injuries
- Have roster functionality
- Finger recognition

Care workers:

- Take pictures using the PASSsystem. For example, one care worker suggested:
  "To be able to take a picture of a new medication via PASS instead of having to leave PASS and send a separate email." (CW23)
- Be able to record care delivered to two service users at the same time, for example a husband and wife. One care worker suggested:
  "If working for a couple on a duty, to be able to go back and forth between the two individuals." (CW23)

Digital maturity

This theme relates to dissemination of information and challenges associated with other healthcare professionals who are resistant to technology and making the technology accessible to those without smartphones. Additionally, this theme relates to perceived restrictive cost for new businesses.

Care managers:

- Other health professionals not keen to engage with technology
- Additional costs should be explained better, for example cost of NFC tags and roster integration costs levied by external parties

- Expensive for a new business if the client base is small
- Less app updates
- Linking of MAR chart to chemist has not happened. One care manager reported:
  "The linking up between the MAR system and the chemist has not happened." (CM33)

Care workers:

There were more care workers who commented on the challenges across health and social care in digital maturity. Suggestions from care workers:

- Faster reception or a new phone
- Update system on Android phones should be improved
- Better voice recognition
- Less battery consuming.

4.4 Stakeholder interviews

Findings from fifteen interviews with key stakeholders are presented below, as with section 4.1 and 4.2, findings have been thematically analysed under the four evaluation questions (risk management, efficiency, quality of care and accountability). In addition, we wanted to understand why stakeholders had procured the PASSsystem.

4.4.1 Reasons for procuring the PASSsystem

This question centred around asking interview participants what their reason for procuring the PASSsystem was. There were a range of responses and the most frequently reported responses:

Recommendation from another PASSsystem user was cited as a reason by three interview participants, who had recommended and advised that the PASSsystem would improve their business. Interview participants reported that they would not be able to scale the business without adopting the PASSsystem as they would not be able to maintain safety standards and business efficiency. One business owner commented:

> *"Wherever I happen to be, I can oversee the running of our company more authentically than I ever could using paper." (Interview BO1i)*

Desire to go paperless was cited as a reason by two interview participants, as this would be easier to manage service user information and make records more secure. This business owner had also talked about the ease of auditing via the PASSsystem compared to when they used paper and used to collect paper files to update and then return to the home again. The efficient auditing capability and data security was a reason that was cited by other interviewees in the context of additional benefits of the PASSsystem. One Business Owner commented:

> *"I needed to know that my clients were receiving a visit and that I would be alerted if things were going wrong." (Interview BO6i)*

4.4.2 Risk management

Risk management was cited as important for business owners who commented on having better medication management, improvements to workforce and overall delivery of care.

Medication management

Management of medication was better using the PASSsystem, in particular the ability to detect and respond to errors and issues relating to medication (three interview participants):

> *"Less medication errors and the ones we have had have been more accurately and swiftly recorded." (Interview BO1i)*

> *"Definitely cuts risks and medication mistakes. Even food. If diabetic, for example, they will know not to give jelly and custard whereas in a 30 page care plan, it could be difficult to find that small bit of information." (Interview BO2i)*

> *"We have had a lot of medication errors, but if we had not had the PASSsystem, we would not have seen these for four weeks." (Interview CMO2i)*

Workforce

The other risk management benefit that came up frequently during the interviews was linked to staff behaviour and the ability for managers to have greater visibility on the quality of care that the staff are providing. Two business owners suggested:

> *"When using paper, issues do not always get reported. By the time a manager does discover an issue, it could be too late. That does not happen with the PASSsystem." (Interview BO4i)*

> *"Paper can easily be manipulated or changed. If you have a digital footprint, it is there." (Interview BO4i)*

Another interviewee made the comment below in relation to how the PASSsystem enabled staff to feel more confident about the care they are delivering:

> *"There are a lot of unknowns and the PASSsystem helps with that – it reduces fear. Like an extra safety net." (Interview BO5i)*

Delivery of care

All business owners that were interviewed talked about having peace of mind as a result of having total visibility of their care business through the PASSsystem:

> *"I can go to bed at night, log on to PASSsystem knowing that all my clients have been visited and I can wake up in the morning and see that everybody is out (doing the visits) just by clicking on my phone. It helped to save one of my client's life." (Interview BO6i)*

4.4.3 Efficiency

In relation to efficiency, interview participants commented on how the PASSsystem improved communication through the transmission of information in real time. Through this ready access to information, business owners, care managers and care workers reported benefits in their working practices. Business owners also spoke about the ability to restructure their business which they attributed to the flexibility that the PASSsystem allowed to them and their employees. It was considered beneficial for 'working on the go,' meaning that care companies were now able to be more responsive to service user needs than ever before.

One business owner suggested:

> *"When you've got a business like this where you're not actually physically with the people you're caring for and your employees that you're managing, it becomes very difficult to really get a full appreciation for what's going on. It's been a massive step forward for us having that ability with the PASSsystem to be able to actually sit still in our offices but see what's going on with care notes, and with medication with everyone but from our seat so it was a big improvement." (Interview BO5i)*

One care manger described the efficiency gains in terms of the time saved with care workers going to-and-from the office and service users' homes to make a change in the care plan. The care manager stated that there was no comparison between the PASSsystem and when they were using paper records for delivering care.

Similarly, a care manager reflected on the change they had noticed with the speed of implementation of the care plan, i.e. in terms of the ability to start delivering care and following assessments being completed.

> *"What is speeded up is the implementation of the care plan. Once the assessments have been done, things can be implemented quickly." (CMO3i)*

On efficiency benefits, a care worker commented:

> *"It does help a lot to organise my time. When I am in the home, I know what to do and can see easily my jobs. It saves me time. Knowing what I have to do before I get through the door saves me lots of time. It is quick to write my notes." (CW01i).*

4.4.4 Quality of care

Interview participants were asked about the impact of the PASSsystem on the quality of care they deliver. This question was very similar to that asked within the survey with sub- questions about person-centred care and service user involvement.

Although not a frequent finding in the interviews, one care manager reported that whilst they believed that the PASSsystem did play a part in improving the quality of care, the people using the system had a lot of influence on how this manifested, i.e. engaging with the technology and using it well.

> *"The PASSsystem is a good device for the manager to implement and provide good quality care. They need to utilise the capacity of the PASSsystem. I don't think the PASSsystem by itself will increase quality. It's how we use the PASSsystem that increases good quality care." (CMO1i)*

Service user and family involvement

This sentiment links into literature that references the importance of ensuring good engagement with people when looking to implement any new technology and ensuring that the benefits that people using the technology will realise over prioritising the technology itself (Maguire et al. 2018; TEC Services Association, 2016). This engagement was also considered to be important for service users to eliminate any potential barriers to adoption of the technology for both parties.

In delivering a high quality of care, the importance of family involvement and transparency were apparent. It was evident during one interview that care delivery had become increasingly open and transparent with the introduction of the PASSsystem and openPASS. One business owner commented:

> *"openPASS has revolutionised the way we are with clients. A brilliant tool in terms of dealing with potentially challenging families. Families can have access and see exactly what care is being given, they can get involved and ask questions." (Interview BO1i)*

Another business owner reflected on how they were able to engage family members in developing the care and the value this added to people's experience of care:

> *"With the PASSsystem, they are able to show him the care plan and he's involved in tailoring it, making it more person-centred. It's also in a format that's easier for them to understand. The care plan isn't a list of conditions, it's about seeing the person." (Interview BO5i)*

One registered manager said that:

> *"... in terms of outsiders looking in, it gives greater transparency for us and greater peace of mind for them." (Interview CMO4i)*

4.4.5 Accountability

The notion of accountability was a common theme explored by the interview participants. Participants referred to auditing as one of the main benefits in relation to accountability. Care managers and business owners spoke of this in relation to medication management, particularly as this is one of the routine administration tasks that every care business completes. Of significance was that people stated that, prior to using the PASSsystem, the audits were done retrospectively and that now this was done prospectively which enabled more timely detection of, and intervention on, any safety concerns. One business owner commented:

> *"Always faster to act on feedback from family members and care receivers as the care plan can be changed quickly and then received by the care worker. [The PASSsystem] Gives family members confidence that issues will be dealt with quickly. I think it helps service users to become more involved in their own care – depending on their level of understanding and ability." (Interview BO3i)*

The value of the digital care management system was highlighted by interview participants. Business owners and care managers alike felt that it was easier to demonstrate the integrity of the care records as each change could be assigned to a user and was time stamped. A couple of participants reported that where families might have previously installed CCTV to monitor care provision, this was considered no longer necessary. One business owner reflected:

> *"I was worried at the start of openPASS, but it has changed the way we do things. Since becoming more open it has made us less defensive of our visit times and families less suspicious. We have not had a single complaint since we started using openPASS." (Interview BO1i)*

Some participants commented that real-time information created positive behaviour (i.e. taking responsibility for quality of care notes) among team members. Participants talked about the importance of recording accurate and contemporaneous care notes which served two primary purposes:

a. To evidence the care that they had delivered.

b. To ensure that colleagues taking over the care were aware of any new critical information that would impact the care plan.

One business owner summarised:

> *"We look more professional to our clients. We have had people accusing us of short-timing them. With the PASSsystem, we have been able to print off and show visit times." (Interview BO2i)*

The availability of the real-time information enabled transparency and building trust in care as service users and family members also had visibility of what was recorded about the care given. As reported:

> *"openPASS has revolutionised the way we are with clients. Brilliant tool in terms of dealing with potentially challenging families. We give them access and let them get on with it. They can see what we are doing, they can get involved, ask us questions." (Interview BO1i)*

> *"Notes are accurate and transparent. Families love openPASS. We have families in Australia and USA and they find it very useful to see what care has been delivered. They can email us and we can reply quickly and easily." (Interview CMO1i)*

Some participants commented that increased transparency enabled them to provide person-centred care and for service users to determine the outcomes they wished to achieve. One Business owner stated:

> *"Service users know that if they say something, it will go back to the office and be changed on the system -they like that. Allows service users to lead the care plan." (Interview BO3i)*

Regulatory compliance

Some interview participants commented on the positive outcomes at inspection attributed to the PASSsystem, sharing useful insights on the aspects they felt had been most transformational. Comments were that the PASSsystem had:

- Supported improvements in the quality of care notes
- Provided the ability to better evidence achievement of care and service user outcomes
- Greater responsiveness as a care provider which had been reported by one business owner and local authority commissioner seeing an improvement in inspection ratings since implementation of the PASSsystem
- Paperless system was improving overall business efficiency.

Since adopting the PASSsystem and experiencing the impact it was having on their business, one business owner made the following observations:

> *"I like the nutrition and hydration tasks. We have introduced these for all customers as standard. We use this for training staff so they understand why it is important and that it is not just about personal care: it is the whole picture. It enhances quality of care. Carers have access to tasks and prompts that direct care tasks that they might forget to do. Sounds like task managing, but over time this has become custom and practice. It is like we are going into 'preventative mode'." (Interview BO4i)*

Standardisation to providing care was cited by participants as an issue in delivering a high quality of care. An example was given that when care staff used paper, the service user's care plan was subject to interpretation. The PASSsystem was viewed as changing this, ensuring that all the care interventions and tasks are always completed. One business owner commented:

> *"No tasks are missed now. With paper, the care plan had to be interpreted and things could be missed. The training helps back up that standardisation." (BO3i)*

One care manager described their experience of undergoing an inspection following the implementation of the PASSsystem, and how they had used this to demonstrate transparency to their inspectors:

> *"When we had our care inspection this year, the Care Inspectorate was blown away by it and thought it was really good. In relation to transparency they love it, they absolutely love it, they've commented on it in our recent report... I think also with our service users, because staff go out and they're updating their care notes with them in the support plan, they contribute to the support plan so there's absolute transparency there. And then when we go to reviews with social workers and health care providers we take the review notes for them to see and they're generated from the PASSsystem so the transparency is all there, they can see what it looks like and how we operate it." (Interview CMO5i)*

The cost of the PASSsystem was considered prohibitive by one care provider, whose feedback was that for them as a new business, the cost would not be sustainable until their customer base had increased as they had only one customer.

4.5 Economic Assessment

As explained in the methodology section earlier in this report, the first results from the Economic Assessment strand of the evaluation will be reported in early 2020.

At the time of writing, the most recent baseline data shared with York Consulting (on 5th February 2019) included records for 324 clients. Table 13 provides the results of headline analysis undertaken on that data. Key points include:

- GP visits are, unsurprisingly, the most prevalent of the 6 variables. Almost two-thirds of the cohort had visited their GP at least once in the baseline period. The national average unit cost of a GP visit is £39[10].
- An ambulance had been called out at least once for almost half the cohort (national average unit cost = £223), whilst a similar proportion had been admitted to hospital at least once on an unplanned basis (national average unit cost = £1,590).
- Respite care (£1,216), delayed discharges from hospital (£1,110) and periods of residential care (£10,296) appear with less regularity in the data.

10 *The source for all the unit costs quoted here is the New Economy Unit Cost Database v1.4: http://www.neweconomymanchester.com/our-work/research-evaluation-cost-benefit-analysis/cost-benefit-analysis/unit-cost-database. Explained in more detail in the economic assessment Excel tool, assumptions have then been applied regarding the duration of episodes of respite care, delayed discharge and residential care.*

Variable	Frequency, i.e. no. clients with 1 or more baseline episode	Maximum no. baseline episodes per client	Average (mean) baseline episodes per client - only those clients with 1 or more episodes	Average (mean) baseline episodes per client - full cohort of all 324 clients
GP visits	191 (59% of the baseline's cohort)	15	3.1	1.8
Ambulance call-outs	154 (59% of the baseline's cohort)	15	2.2	1.0
Unplanned hospital admissions	148 (46% of the baseline's cohort)	15	1.9	0.9
Respite care	31 (10% of the baseline's cohort)	15*	1.4**	0.1**
Delayed discharge from hospital	21 (6% of the baseline's cohort)	6	3.5	0.06
Residential care	6 (2% of the baseline's cohort)	3	1.3	0.02

Table 13 - Analysis of baseline data supplied on 5th February 2019

** It seems likely that this is a data entry error. No other client had more than 4 recorded episodes of respite care.*

*** The client with 15 recorded episodes of respite care has been removed from this calculation.*

5. Discussion

The evaluation sought to establish the impact of the PASSsystem on five key areas. Namely these were risk management, efficiency, quality of care, accountability and savings to the State. The first four questions are addressed in this report with the fifth to be reported in 2020.

Key findings of this stage of the evaluation are as follows.

Stakeholders reported benefits of the PASSsystem across each of the four areas explored in this stage of the evaluation.

5.1 Risk management

The PASSsystem was considered to help reduce and manage risk for all participants.

Care managers reported benefits in terms of:

- **Information security** - Felt confident that the PASSsystem held service user information securely.
- **Responsiveness of care** - Suggested that the PASSsystem enabled them to monitor and respond to service user needs more quickly, particularly noting the alert system as an effective tool.
- **Reducing mistakes** - Both care managers and business owners reported that the PASSsystem had reduced medication errors, attributing this to the better quality of digital care record notes, eliminating the risks of avoidable harm associated with paper-based care records and delayed detection of errors.
- **Regulatory compliance** - Reported that the PASSsystem helps improve regulatory compliance, offers standardisation across the business and the ability to evidence care delivery, and has a real-time auditable trail of activity.

Care workers reported benefits in terms of:

- **Keeping track of care interventions and other tasks** - Found it helpful that the system prompted them to complete all care interventions and other tasks for service users.
- **Information security** - Reported that the PASSsystem was considered more effective than paper in keeping personal care records secure.
- **Information sharing** - Reported that the PASSsystem supported accurate information sharing with their colleagues and managers and helped improve communication.

5.2 Efficiency

The PASSsystem was considered to improve efficiency in the delivery of care. In particular, the PASSsystem was thought to help with:

- **Better preparation prior to delivering care** - For care workers and care managers, having access to service user information supported delivering better care and enabled greater organisation to optimise time with the service user.
- **Cost savings associated with a paperless system** - All commented positively on operating a paperless system which they reported saved time as well as costs associated with printing and photocopier machine hire. Business owners indicated that care plans were implemented more quickly after an assessment has been conducted.
- **Supporting communication across health and social care workforce** - There was recognition that the PASSsystem improves visibility for other professionals. However, this improvement varied due to digital maturity across health and social care.

Although care managers and care workers reported being able to work in a more organised and efficient way, not all gained time was spent in direct care provision.

5.3 Quality of care

Participants reported that the PASSsystem enabled improvements to the quality of care delivered to service users by:

- **Assisting with preparation** - Understanding the needs of service users by accessing accurate care records ahead of care interventions.
- **Promoting service user and family involvement** - Particularly having a family version of the app - openPASS - in which families can see what care is being given and are able to contribute to the care planning for their loved ones.
- **Promoting improved continuity of care** - The ability to have an accessible care record for everyone involved in the care.

Care managers suggested they were able to monitor staff more effectively, indicating that they felt confident in the quality of care that had been delivered, particularly supporting care workers to adopt a person-centred, outcome-based approach.

Some care workers suggested that the PASSsystem had a lower impact in enabling service users to be directly involved in their own care. Some care workers also reported no impact to job satisfaction.

5.4 Accountability

The PASSsystem was considered to improve overall accountability in care businesses. Family involvement was explored as an area of strength for the PASSsystem across all participants indicating that the PASSsystem promoted openness and transparency between staff delivering care, service users and their families. Care workers and care managers suggested that the PASSsystem made it easier to keep accurate records in the care they deliver to service users.

Care managers and business owners suggested that this was particularly true in relation to:

- **Supporting regulatory compliance** - In relation to medication management, proactive preparation for inspections and auditing and evidencing the care given.
- **Better integration with families** - Using the PASSsystem helped to promote transparency and enabling involvement of family members / carers.

Care workers reported benefits across all the survey areas in relation to accountability with high numbers agreeing that benefits included:

- **Involving service users in their care** - Were able to show service users what they are doing and involve them in their care more.
- **Demonstrating care standards** - Felt they were able to demonstrate to their employer and families that they had delivered the care to the expected standards.
- **Promoting openness between people delivering care and service users** - Felt there was greater openness between people delivering care and servicer users and families due to the visibility that the PASSsystem enabled.

5.5 Economic Assessment - baseline data

As part of this evaluation, a method has been developed to assess the use of other services (for example, ambulance callouts, GP visits) by service users. The use of services will be recorded and assigned a financial value. This system will be used to compare costs to the State before and after engaging with a care provider using the PASSsystem. The first results of the impact of the PASSsystem on costs to the State will be reported in early 2020.

5.6 Suggested areas for improvement

Suggested areas for continued improvement to the PASSsystem based on participant feedback were as follows:

Care workers and care managers who did offer insight into areas of improvement to the PASSsystem spoke about this in the context of system performance and functionality. Some care workers reported experiencing issues with logging into the system, or slowness on occasion during the feedback window between October and December 2018. In some instances, it was reported that users found the PASSsystem frustrating if they were timed-out of the system and suggested a longer time-out window. **At the time of completing this evaluation, works to address logging in and time-out period had been completed and improvements deployed.**

In terms of functionality, there was some feedback relating to the presentation of observation data and to exploring fingerprint scanning as a login option. For the care managers who gave feedback on areas of improvement, the majority commented on the reporting functionality of the PASSsystem, with many observing that the current reporting capability needed to be extended. **Work to improve reporting capability has been completed and the 'Insights Dashboard' improvements already deployed.**

The PASSsystem could be improved by having more outcome templates and the ability to pre-populate data fields as this would help speed up the process of formulating care plans with relevant ones being included. It was suggested that body maps could be improved by being interactive and available for use across all care intervention as required. **Work to address both of these points is underway.**

6. Recommendations

The evaluation offers some recommendations for everyLIFE Technologies as the providers of the PASSsystem:

Recommendation 1

everyLIFE should continue to evaluate and contribute to the knowledge base of digital solutions across social care.

Recommendation 2

The everyLIFE Senior Management Team should consider how to build on the knowledge gained from the evaluation to align future developments with digital priorities in social care. Future work should include the views of people receiving care and their families.

Recommendation 3

The everyLIFE Senior Management Team should consider how the learnings from this process can be shared across the business to inform future customer engagement.

Recommendation 4

Where the PASSsystem integrates with another solution, both parties should ensure that the integration is optimised. This has wider implications for interoperability within the health and care sector as more technology is deployed by care providers.

Stakeholders suggested areas for improvement of the PASSsystem, the detail of which can be seen in Appendix 13.

7. Conclusions

This evaluation has demonstrated a well-planned digital solution that continues to be refined and developed. We found evidence of early successes where the digital solution elements are performing effectively, as well as some further areas for improvement for everyLIFE to consider. **This evaluation has provided evidence from business owners, care managers and care workers that the PASSsystem – a digital care management platform – has benefits in terms of managing risk, efficiency, accountability and quality of care.**

The evaluation has established a range of tangible benefits in terms of supporting care managers and workers and enabling them to provide high quality care to people who use services and their families in a caring, transparent and accountable way.

Appendices

Appendix 1 - Heat map showing where the PASSsystem is used across the UK

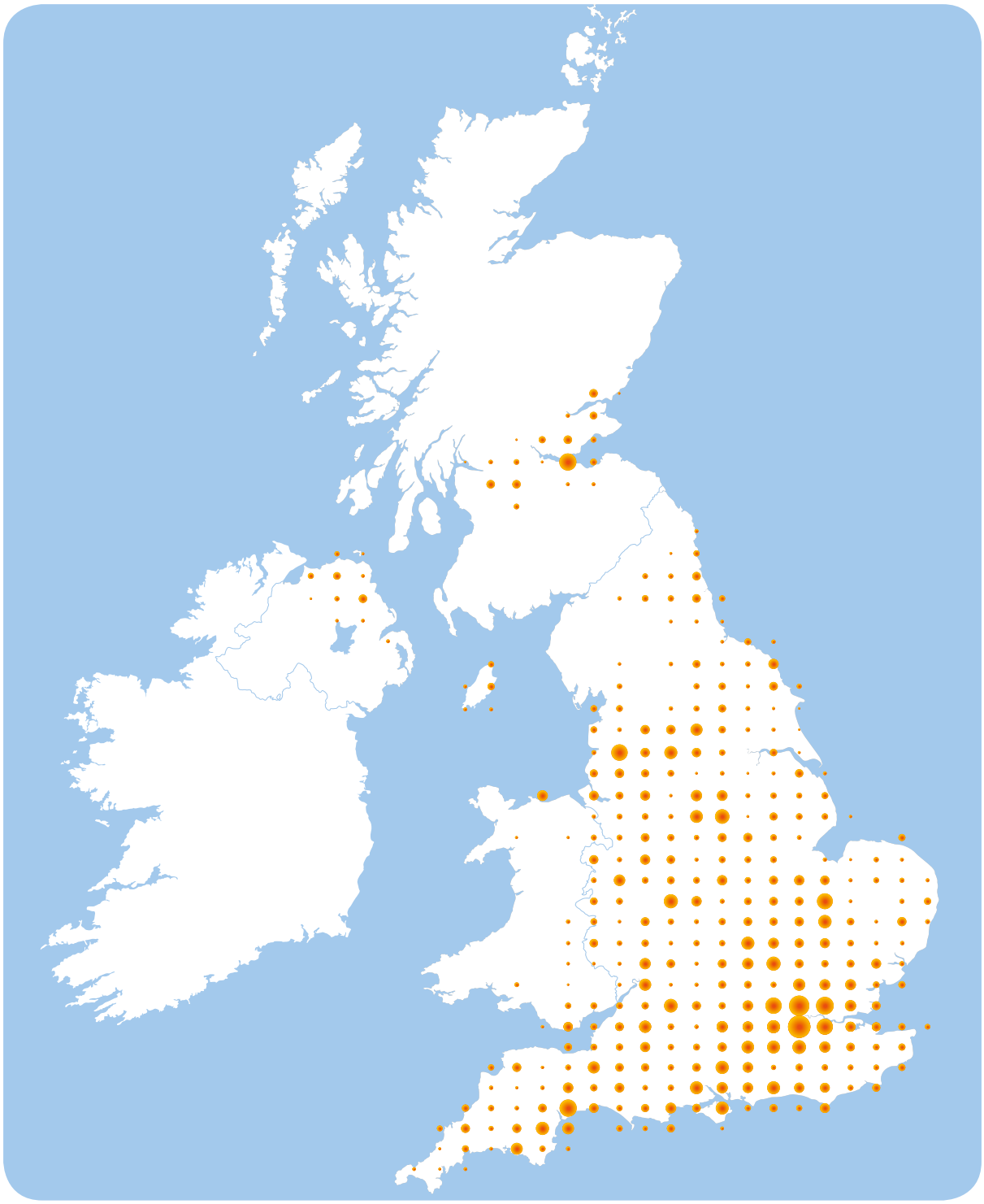

Figure 13 – Heat Map showing where the PASSsystem is used across the UK, January 2019

Appendix 2 - Consent form

everyLIFE PASSsystem Evaluation Study

Interview and Focus Group Participant Consent Form

Please tick the boxes to show that you agree with the following statements:

I have read and understood the information sheet. I have had the chance to ask questions about the interview and know whom to contact if I have any more questions.	☐ Yes ☐ No
I understand that my personal details will not be passed on to anyone outside the evaluation team and any information identifying me will be stored securely.	☐ Yes ☐ No
I understand that I am free to withdraw from the interview at any point if I request it.	☐ Yes ☐ No
I understand how the information will be used.	☐ Yes ☐ No
I understand that the information I give is confidential, unless I reveal something that suggests that I or someone else is at risk of serious physical or emotional harm.	☐ Yes ☐ No
I agree to my interview or focus group being audio-recorded.	☐ Yes ☐ No

Print name:

Email:

Telephone:

Signature:

Date:

Appendix 3 - Literature review search strategy

Literature searches – Social care online database searches undertaken: September 2018, January 2019

Material published since: 2012, in the English language

Types of care/Population

older people
dementia
mental health
learning disabilities
cancer, stroke and other long-term conditions
end of life
multiple carer roles (e.g. care worker, care workforce)

Digital

digital, technology
mobile, remote
care management, care planning, care record, care monitoring
paperless
social care and medication management

Support and interventions

preventative approaches in social care
identifying and recognising
needs and assessment
direct payments, personalisation
commissioning and cost-effectiveness
health and care services, primary care, hospital care, reablement mental health services
community support – e.g. dementia communities
voluntary sector support
transitions – e.g. cared for child to adult, end of life/palliative caring
training for carers
workforce

Appendix 4 - Care managers survey

1. What role do you hold in your organisation?
2. How long have you been using the PASSsystem?
3. Have you used any other digital care planning system before using the PASSsystem?
4. What training have you received to use the PASSsystem?

The next set of questions address whether you think using the PASSsystem helps to reduce risk in the delivery of care. Please indicate the extent to which you agree or disagree with the following statements.

5. By using the PASSsystem I can quickly identify risks to service users.
6. The PASSsystem helps me to respond to medication issues/errors.
7. The PASSsystem helps me to ensure that personal information about service users is held securely.
8. Using the PASSsystem means that I can make updates to service user care needs quickly.
9. Using the PASSsystem helps me to identify and respond to risks to staff.

The next set of questions address whether you think using the PASSsystem helps to improve efficiency in the delivery of care. Please indicate the extent to which you agree or disagree with the following statements.

10. Using the PASSsystem simplifies preparation for inspection and auditing through easy access to information.
11. Using the PASSsystem reduces the amount of time spent on administrative tasks.
12. Using the PASSsystem makes it quicker for me to receive care notes made by colleagues in my organisation.
13. Using the PASSsystem allows other care professionals to have better visibility of care records.
14. Using the PASSsystem frees up time for staff to spend on delivering care.

The next set of questions address whether you think using the PASSsystem helps to improve the quality of care that you or your organisation's staff deliver. Please indicate the extent to which you agree or disagree with the following statements.

15. Using the PASSsystem allows staff to deliver a person-centred care plan.
16. By using the PASSsystem staff can support service users to be more involved in their own care.
17. Using the PASSsystem improves the ability of staff to deliver outcomes-based care.
18. By using the PASSsystem, staff are more able to understand the service user's care needs.
19. Using the PASSsystem has helped to improve job satisfaction for staff.

These questions address whether you think using the PASSsystem helps to improve accountability in the delivery of care. Please indicate the extent to which you agree or disagree with the following statements.

20. Using the PASSsystem makes it easier to keep accurate records of the care the staff deliver.
21. The PASSsystem promotes openness between people delivering care, service users and their families.
22. Using the PASSsystem helps me to demonstrate to service users and families that staff are delivering a good standard of care.
23. Using the PASSsystem means that I am able to demonstrate that staff have delivered care to the required regulatory standards.

The following two questions ask you to tell us about your experiences of using the PASSsystem in your own words (max 300 words).

24. Please use the box below to say what, in your view, are the main benefits of using the PASSsystem (max 300 words).
25. Please use the box to say how, in your view, the PASSsystem could be improved (max 300 words).

If you would like to be entered into the prize draw for a chance to win 1 of 40 prizes, please enter your name and email address below.

26. Which vouchers would you prefer to receive if you were to be successful in the prize draw?

We would like to talk to some care managers to find out more about their experiences and views of using the PASSsystem. If you are willing for a member of the everyLIFE Evaluation team to contact you about taking part in an interview or focus group, please enter your telephone number below. People taking part in an interview or focus group will receive a £30 voucher.

Thank you for taking the time to complete this survey.

If you have any questions about the evaluation, please contact:
pass.evaluation@everylifetechnologies.com

Appendix 5 - Care worker survey

1. Please indicate what area of care you currently work in?
2. What role do you hold in your organisation?
3. How long have you been using the PASSsystem?
4. Have you used a digital care planning system before using the PASSsystem?
5. What training have you received to use the PASSsystem?

The following questions address whether you think using the PASSsystem helps to reduce risk in the delivery of care. Please indicate how much you agree or disagree with the following statements.

6. By using the PASSsystem I can quickly alert managers of risks to service users.
7. Using the PASSsystem prompts me to fully complete all necessary tasks for each service user.
8. The PASSsystem helps me to ensure that personal information about service users is held securely.
9. Using the PASSsystem means that when there are updates to service user care needs, I am informed about them quickly.

The following questions address whether you think using the PASSsystem helps to improve efficiency of care delivery. Please indicate how much you agree or disagree with the following statements.

10. By using the PASSsystem I am able to spend less time on administrative tasks.
11. Using the PASSsystem makes it quicker for me to find the service user information I need to provide care.
12. Using the PASSsystem frees up more time to spend with service users.

The following questions address whether you think using the PASSsystem helps to improve the quality of care that you deliver. Please indicate how much you agree or disagree with the following statements.

13. Using the PASSsystem allows me to deliver a person-centred care plan.
14. Using the PASSsystem I can support service users to be more involved in their own care.
15. Using the PASSsystem means that I am more focused on service user outcomes.
16. By using the PASSsystem I am more able to meet the service user's care needs.
17. Using the PASSsystem promotes better continuity of care for service users.
18. Using the PASSsystem has helped to improve my job satisfaction.

The following questions address whether you think using the PASSsystem helps to improve accountability in the delivery of care.

19. Please indicate how much you agree or disagree with the following statements.
20. Using the PASSsystem makes it easier to keep accurate records of the care I deliver.
21. The PASSsystem promotes openness between people delivering care, service users and their families.
22. Using the PASSsystem helps me to demonstrate to service users and families that I am delivering a good standard of care.
23. Using the PASSsystem means that I am able to demonstrate to my employer that I have delivered care to the standards expected of me.

The following two questions ask you to tell us about your experience of using the PASSsystem in your own words.

24. Please use this box to say what, in your view, are the main benefits of using the PASSsystem (max 300 words).
25. Please use this box to say how, in your view, the PASSsystem could be improved (max 300 words).

If you would like to be entered into the prize draw, please enter your name and email address below.

26. Please select which voucher you would like if you are successful in the prize draw.

We would like to talk to some care workers to find out more about their experiences and views of using the PASSsystem. If you are willing for a member of the everyLIFE evaluation team to contact you about taking part in an interview or focus group, please enter your first name and telephone number below. People taking part in an interview or focus group will receive a £30 voucher.

Appendix 6 - Survey participant information - business owners

Have your say!

everyLIFE Technologies is conducting an evaluation of the PASSsystem to find out about the impact it is having on the delivery of care. The evaluation is being supported by the Social Care Institute for Excellence (SCIE) and York Consulting (YCL), who have helped to design the evaluation and will provide independent quality assurance. SCIE is an independent improvement support agency working with adults', families' and children's care and support services across the UK. YCL is an economic and social management consultancy organisation with expertise in economic evaluation.

What is the evaluation aim?

The aim of the evaluation is to assess the extent to which the PASSsystem is helping social care providers to deliver safer, efficient, cost effective care to guarantee sustainable social care for the next generation.

Why am I being asked to get involved?

As a user of the PASSsystem, this is an opportunity for you and your employees to give honest feedback about the impact the PASSsystem has had on your business and the delivery of care.

What's in it for me?

We know that there are more technology solutions being adopted within social care. By taking part in this evaluation you will be helping to build an understanding of the benefits that can be realised by use of digital care planning in social care. There has been very little evaluation in this industry so far, meaning your contribution will help build a much-needed evidence base.

For some parts of the evaluation we are offering incentives such as entry into a prize draw for participating in a survey or vouchers for time taken to participate in interviews or focus groups. Please see the attached document.

What will I actually have to do?

You will be asked to take part in an interview to help us understand your experiences of using the PASSsystem and its impact on your business.

We would also like you to help us involve your care mangers and care workers in the evaluation. They will be asked to complete a short survey and we will also ask some managers and care workers to attend a focus group or give a face-to-face interview based on their experience of the PASSsystem. It is their choice whether or not they accept the invitation to be involved in any part of the evaluation. If you or your employees decide not to take part in the evaluation it will not affect your relationship with everyLIFE in any way.

If possible, we would also like to speak to some of your service users and/or their families. We will discuss with you whether this is something that you are able to help with and how we would approach this to ensure that we respect the informed consent and confidentiality of participants.

How do I get involved?

Please contact your everyLIFE Engagement Partner.

You can also email: **pass.evaluation@everylifetechnologies.com**

Or call **0800 689 3068** and ask for the SCIE project team.

	Activity	Estimated time commitment	Rewards
1	Manager survey	Approx. 5-10 minutes	Entry into a prize draw. 40 prizes of £30 vouchers*
2	Care worker survey	Approx. 5-10 minutes	Entry into a prize draw. 40 prizes of £30 vouchers*
3	Service provider interview	Approx. 30-60 minutes	£30 voucher*
4	Manager interview	Approx. 30-60 minutes	£30 voucher*
5	Care worker interview	Approx. 30-60 minutes	£30 voucher*
6	Service user interview	Approx. 30-60 minutes	£20 voucher*
7	Family member interview	Approx. 30-60 minutes	£30 voucher*
8	Manager focus group (10 participants)	Approx. 60 minutes	£30 voucher*
9	Care worker focus group (10 participants)	Approx. 60 minutes	£30 voucher*

* Choice of Amazon, Marks and Spencer or Tesco vouchers

Appendix 7 - Survey participant information - care managers

Have your say!

everyLIFE Technologies is conducting an evaluation of the PASSsystem to find out about the impact it is having on the delivery of care. The evaluation is being supported by the Social Care Institute for Excellence (SCIE) and York Consulting (YCL), who have helped to design the evaluation and will provide independent quality assurance. SCIE is an independent improvement support agency working with adults', families' and children's care and support services across the UK. YCL is an economic and social management consultancy organisation with expertise in economic evaluation.

What is the evaluation aim?

The aim of the evaluation is to assess the extent to which the PASSsystem is helping social care providers to deliver safer, efficient, cost effective care to guarantee sustainable social care for the next generation.

Why am I being asked to get involved?

As a user of the PASSsystem, this is an opportunity for you to give honest feedback about the impact the PASSsystem has had on you as a care manager.

What's in it for me and what will I have to do?

There are a number of ways you might get involved. You will be invited to complete a short survey. We will also be inviting some managers to a focus group or give an interview all based on your experience of The PASSsystem. Your participation could be a one-off event which may last a few minutes if you complete a survey or between 30-60 minutes if you give an interview. Taking part in a focus group may take a little longer.

Your employer will talk to you about this evaluation, but it is your choice whether you accept the invitation to be involved in any or all parts. If you decide not to take part it will not affect your relationship with your employer or with everyLIFE in any way.

We are offering incentives such as entry into a prize draw for participating in a survey or vouchers for time taken to participate in interviews or focus groups.

Activity	Time commitment	Reward
Survey	Approx. 5-10 minutes	Entry into a prize draw. 40 prizes of £30 vouchers*
Interview	Approx. 30-60 minutes	£30 voucher*
Focus group (10 participants)	Up to 60 minutes	£30 voucher* per participant

* Choice of Amazon, Marks and Spencer or Tesco vouchers.

How do I get involved?

You will be contacted shortly with details of the survey. If you have any questions, please contact your employer. If you prefer, you can contact your everyLIFE Engagement Partner or email: **pass.evaluation@everylifetechnologies.com**

Appendix 8 - Survey participant information - care workers

Have your say!

everyLIFE Technologies is conducting an evaluation of the PASSsystem to find out about the impact it is having on the delivery of care. The evaluation is being supported by the Social Care Institute for Excellence (SCIE) and York Consulting (YCL), who have helped to design the evaluation and will provide independent quality assurance. SCIE is an independent improvement support agency working with adults', families' and children's care and support services across the UK. YCL is an economic and social management consultancy organisation with expertise in economic evaluation.

What is the evaluation aim?

The aim of the evaluation is to assess the extent to which the PASSsystem is helping social care providers to deliver safer, efficient, cost effective care to guarantee sustainable social care for the next generation.

Why am I being asked to get involved?

As a user of the PASSsystem, this is an opportunity for you to give honest feedback about the impact the PASSsystem has had on you as a care worker.

What's in it for me and what will I have to do?

There are a number of ways you might get involved. You will be invited to complete a short survey. We will also be inviting some care workers to a focus group or give a face-to-face interview all based on your experience of the PASSsystem. Your employer will talk to you about this evaluation, but it is your choice whether you accept the invitation to be involved in any or all parts. If you decide not to take part, it will not affect your relationship with your employer or with everyLIFE in any way.

We are offering incentives such as entry into a prize draw for participating in a survey or vouchers for time taken to participate in interviews or focus groups.

Activity	Time commitment	Reward
Survey	Approx. 5-10 minutes	Entry into a prize draw. 40 prizes of £30 vouchers*
Interview	Approx. 30-60 minutes	£30 voucher*
Focus group (10 participants)	Up to 60 minutes	£30 voucher* per participant

* Choice of Amazon, Marks and Spencer or Tesco vouchers.

How do I get involved?

If your employer has agreed to take part in this evaluation you will shortly be receiving an email asking you to complete the survey. You can also contact your everyLIFE Engagement Partner or email:
pass.evaluation@everylifetechnologies.com

Appendix 9 - Participant information sheet

everyLIFE Technologies is conducting an evaluation of the PASSsystem to find out about the impact it is having on the delivery of care. The evaluation is being supported by the Social Care Institute for Excellence (SCIE) and York Consulting (YCL), who have helped to design the evaluation and will provide independent quality assurance. SCIE is an independent improvement support agency working with adults', families' and children's care and support services across the UK. YCL is an economic and social management consultancy organisation with expertise in economic evaluation.

What am I being asked to do?

You are invited to take part in an interview/focus group. The interviewer will ask you about your experiences of and views on using the PASSsystem.

Is taking part voluntary?

Taking part is voluntary. We will ask you to give your consent by signing a form at the meeting with the Project Lead. You will have time to ask questions. You can change your mind about participation at any time and your involvement would immediately cease. If you decide not to take part, it will not affect your relationship with your employer or with everyLIFE in any way.

How will information be recorded?

All interviews and focus groups will be audio recorded.

How will anonymity and confidentiality be protected?

All information you give will be treated confidentially in accordance with current legislation. Information recorded as part of an interview will also be anonymised so that individuals cannot be identified by their feedback. However, should you say something that leads the interviewer to believe that you or someone else is at risk of serious physical and/or emotional harm, the discussion would be stopped and the researcher would let you know that they need to share the information with the appropriate person.

How much time will it take?

Participating in an interview should take between 30 and 60 minutes. Taking part in a focus group may take a little longer.

What will you do with the information provided?

The information will be used to help us understand the benefits of adopting the PASSsystem. The results of the evaluation will be disseminated via a range of communication methods, including promotional material for the PASSsystem.

Who should you contact if you have any questions?

If you have any questions or comments, including making a complaint about the evaluation, please contact:
pass.evaluation@everylifetechnologies.com

Appendix 10 - Interview topic guide - business owners

Introduction

*My name is **[name]** and I work for everyLIFE Technologies. Thank you for agreeing to the interview. For recognition of your time, we will be giving you/sending you a £30 voucher.*

The purpose of this interview is to find out about your views and experiences of using the PASSsystem. The interview will start with a few questions about you and your company and then we will move on to some questions about your use of the PASSsystem, then finish with anything else you might like to tell me about your experience of PASS. There are no right or wrong answers, we would just like honest feedback in order to understand more about our service.

Information sheet

Can I just check, have you read the information sheet? If not, please outline in a few bullet points what the information sheet says here:

- Taking part is voluntary
- You can change your mind at anytime about participating
- interviews will be audio recorded
- Information that is recorded will be confidential and anonymised, so participants cannot be identified by their answers.

Ask for informed consent by completing the consent form.

Questions - Introduction

1. Can you start by telling me briefly about your present role?
2. How long have you had your business?
3. What are your main responsibilities?

4. Are you involved in the direct delivery of care?
5. What were your reasons for going into the care sector?
6. What were your reasons for deciding to use the PASSsystem?
7. What do you think are the benefits of technology for businesses like yours?
8. What were your expectations of the PASSsystem?
9. Do you use a roster and is it integrated with PASS?
10. Have you had feedback from your staff about the PASSsystem? If so, what would you say they like about PASSsystem? And what have been their main concerns or difficulties with it?

PASSsystem

I would like to move on to talk about the main differences the PASSsystem has made to your business.

11. Can you tell me about any ways that the PASSsystem has helped you to manage risk?

Ask for specific examples where appropriate.

Prompts

12. Are there any ways that PASS has helped to identify and manage risks to service users [e.g. being able to see medication issues in real time; the ability to update care plans in real time]?
13. To what extent has The PASSsystem helped you to manage data governance and security, compared to before you were using it?
14. Are there any ways that using The PASSsystem has helped you to meet the requirements of regulators [e.g. meeting standards and demonstrating that they have been met]?

15. Are there any ways that using the PASSsystem has helped you to meet the requirements of commissioners [e.g. informing their decision making]?
16. Are there any ways that you think using the PASSsystem has helped contribute to workforce stability [e.g. improving job satisfaction; improving staff motivation; improving staff experience]?

Thank you. And now can you tell me about any ways that using the PASSsystem has helped you to improve the quality of care that you and your staff deliver?

Ask for specific examples where appropriate.

Prompts

17. Are there any ways that the PASSsystem helps you and your staff provide care that is more person-centred?
18. Are there any ways that the PASSsystem helps you and your staff to support the delivery of safer care?
19. Are there any ways that the PASSsystem helps your service users to become more involved in their own care?
20. Are there any ways that the PASSsystem helps you and your staff in the delivery of outcomes-based care?

Efficiency – effectiveness of the PASSsystem

This is useful feedback, thank you. There are just two more areas I would like to focus on: efficiency and accountability.

21. To what extent do you think the PASSsystem helps you and your staff improve efficiency in the delivery of care?

Ask for specific examples where appropriate.

Prompts

22. Are there any ways that PASSsystem has helped to save you time [e.g. when trying to find information about your customers]?
23. Are there any ways that PASSsystem has helped to save your care managers' time [e.g. spending less time on admin; more efficient record keeping]?
24. Are there any ways that PASSsystem has helped to save your care workers' time [e.g. spending less time on admin; more efficient record keeping]?
25. [If care managers/workers time has been saved] Can you tell me how your care managers/workers use the time that is saved?
26. Can you tell me about any other ways the PASSsystem has helped you to make savings or improve efficiency for your business [e.g. reducing number of office staff, more care workers and less admin staff]?
27. Have you had any feedback from other health care professionals about having digital care notes? Are you aware of any examples of the PASSsystem improving efficiency for other health care professionals?

Accountability

It really is useful to hear your feedback. Thank you.

So, thinking about accountability now, I'd like to ask about any ways in which the PASSsystem helps to improve accountability.

Ask for specific examples where appropriate.

Prompts

28. To what extent, if any, does the PASSsystem contribute to improve monitoring and auditing of care records for you or your staff?
29. Are there any ways that using the PASSsystem has helped to make your or your staff's record keeping more accurate?

30. Are there any ways that using the PASSsystem has helped with openness and transparency [e.g. with service provider, inspectors, other health care professionals, service users, families]?

openPASS

Does your business use openPASS? If yes, what impact has openPASS had on your business?

31. Any other comments.

Thank you for answering my main questions. I would like to provide you with an opportunity to add any other areas we might have missed.

32. In your own words, what do you see as the main benefits of using The PASSsystem.

33. What do see as the main areas that could be improved upon?

Thank you for your time. We will send your voucher shortly.

Service users

We are keen to speak to as many people as possible about their experience of the PASSsystem, whether it be directly or indirectly. Do you think any of your service users and family members might be interested in speaking to us about their experiences of using an agency that has moved to digital technology?

Appendix 11 - Interview topic guide - care managers

Introduction

Thank you for agreeing to the interview. My name is ***[name]*** *and I work for everyLIFE. As you know, for taking part, we will give you a £30 voucher. Please confirm if you would like Amazon or Marks and Spencer.*

The purpose of this interview is to find out about your views and experiences of using the PASSsystem. The interview will start with a few questions about you and then we will move on to some questions about your use of the PASSsystem, then finish with anything else you might like to tell me about your experience of PASS. There are no right or wrong answers, we would just like honest feedback.

Information sheet

Can I just check: have you read the information sheet and signed the consent form? And just to confirm:

- Taking part is voluntary
- You can change your mind at any time about participating
- Interviews will be audio recorded
- Information that is recorded will be confidential and anonymised, so participants cannot be identified by their answers.

Can you start by telling me briefly about your present role?

Example questions:

1. What are your main responsibilities?
2. How long have you been in this role?
3. How long have you worked in the care sector?

4. What were your reasons for going into this sector?
5. Were you involved in the decision-making process of buying the PASSsystem?
   a. If 'yes', what helped you to make that decision?
6. What other technology do you use [e.g. roster, time and attendance]? If so, is it integrated with PASS?

I would like to move on to talk about the main changes you have seen in your and your care workers' working day now that the PASSsystem has been implemented.

Can you tell me about any ways that the PASSsystem has helped you to manage risk?

For example:

7. Are there any ways that PASS has helped to identify and manage risks to service users [e.g. being able to see medication issues in real time; the ability to update care plans in real time]?
8. To what extent has the PASSsystem helped you to manage data governance and security?
9. Are there any ways that using the PASSsystem has helped contribute to workforce stability?

Thank you. And now I'd like to ask about any ways that using the PASSsystem has helped you to improve the quality of care that you deliver.

For example:

10. Are there any ways that the PASSsystem helps you provide care that is more person-centred?

11. Are there any ways that the PASSsystem helps to support the delivery of safer care?
12. Are there any ways that the PASSsystem helps your service users to become more involved in their own care?
13. Are there any ways that the PASSsystem helps you in the delivery of outcomes-based care?

This is useful feedback, thank you. There are just two more areas I would like to focus on: efficiency and accountability.

So, to what extent, if any, do you think the PASSsystem helps to improve the efficiency in the delivery of care?

For example:

14. Are there any ways that PASSsystem has helped to save you time [e.g. not having to retype care plans and assessments back at the office or getting signatures at time of assessment]?
15. Are there any ways that PASSsystem has helped to save your care workers time [e.g. spending less time on admin]?
16. [If care workers time has been saved] Can you tell me how your care workers use the time that is saved?
17. To what extent can a care package be started quicker because of using PASS?
18. What effect has seeing care notes in real time back at the office had on the rest of the staff?
19. In your experience, has having everything stored in the PASSsystem saved you time when trying to find information about your customers?
20. Are you aware of any examples of the PASSsystem improving efficiency for other healthcare professionals?

It really is useful to hear your feedback. Thank you.

So, thinking about accountability now, I'd like to ask about any ways in which The PASSsystem helps to improve accountability.

For example:

21. To what extent, if any, does the PASSsystem contribute to improved monitoring and auditing of care records?
22. Are there any ways that using the PASSsystem has helped to make your record keeping more accurate?
23. Are there any ways that using the PASSsystem has helped with openness and transparency [e.g. with service provider, inspectors, other health care professionals, service users, families]?

openPASS

24. What feedback do you get from other care professionals regarding openPASS?
25. Do any of your families use openPASS? What do you think about openPASS?

So, we have focussed on the main areas I wanted to know about, but could you also tell me about any challenges you may have experienced whilst using the PASSsystem. For example, during implementation or everyday use?

And lastly, would you be able to summarise your three top benefits of the PASSsystem please?

Thank you for your time today and I hope you can buy something nice with your voucher.

Appendix 12 - Interview topic guide - care workers

Introduction

*Thank you for agreeing to the interview. My name is **[name]** and I work for everyLIFE. As you know, for taking part we will give you a £30 voucher which I will be sending shortly.*

The purpose of this interview is to find out about your views and experiences of using the PASSsystem. The interview will start with a few questions about you and then we will move on to some questions about your use of the PASSsystem then finishing with anything else you might like to tell me about your experience of PASS. There are no right or wrong answers, we would just like honest feedback.

Can I just check, have you read the information sheet? Are there any questions you would like to ask before we start and are you happy for me to audio-record the interview?

Can you tell me what your job role is and what it entails?

Prompts

1. What are your main responsibilities?
2. How long have you been in this role?
3. How long have you worked in the care sector?
4. What were your reasons for going into this sector?
5. What are your feelings towards technology in care?
6. Have you used similar technology before?
7. What other technology do you use [e.g. roster, time and attendance]?
8. What support have you received to use the PASSsystem?

I would like to move on to talk about the main changes that using the PASSsystem makes to your working day.

Can you tell me about any ways that the PASSsystem helps you to manage risks to your service users when you are delivering care?

Prompts

9. Are there any ways that the PASSsystem has helped to reduce risks to service users [e.g. making it easier to reading previous care notes; ensuring all tasks are completed at a visit; making care notes and other personal information more secure]?
10. Are there any ways that the PASSsystem has helped to reduce risks to you [e.g. feeling safer now that your manager knows when you have started/ completed a visit]?
11. To what extent does PASS help to ensure that all tasks are completed at a visit?

Thank you. And now can you tell me about any ways that using the PASSsystem has helped you to improve the quality of care that you deliver.

For example:

12. In your experience do you think The PASSsystem helps to support the delivery of safer care?
13. And to what extent are your service users able to become more involved in their own care?
14. Would you say that the care you provide is more person-centred since introducing PASS?
15. To what extent is PASS useful in the delivery of outcomes-based care?
16. Is it, or would it be, useful having an integration with a roster?

This is useful feedback, thank you. There are just two more areas I would like to focus on; efficiency and accountability.

So, to what extent, if any, do you think the PASSsystem helps to improve efficiency in the delivery of care?

For example:

17. Are there any ways that PASSsystem helps to you save time [e.g. being able to view a customer's records before you arrive; spending less time on admin; quicker access to information about your customers]?
18. Are there any ways that PASSsystem takes up more of your time [e.g. additional admin tasks; connectivity]?
19. If less time, what do you do with this time [e.g. direct delivery of care; more time for training; more time for meeting with colleagues to discuss clients]?
20. What feedback do you get back from service users about having digital care notes?

This really is useful to hear your feedback. Thank you.

So, thinking about Accountability now:

21. To what extent do you feel safer knowing that everything you do in PASS is recorded [e.g. knowing that if anyone else makes a mistake you cannot be blamed for it]?
22. Do any of your families use openPASS? What are your feelings about openPASS?

So, we have focussed on the main areas I wanted to know about but are there any areas we haven't spoken about that you would like to discuss?

For example:

23. Any challenges you face in using the PASSsystem?
24. What would you say your three main benefits of using the PASSsystem are?

Thank you for your time today.

Appendix 13 - Areas for improvement

Stakeholders suggested areas for improvement of the PASSsystem, explored in section 4. We have captured our responses to recommendations:

Improvement 1

The reporting capability within the PASSsystem could be improved to better serve the care managers and owners in the management of their businesses

> **everyLIFE Response** *At the time of writing this report, work has been completed to deliver better business intelligence through customisable reports and dashboards which have now been deployed to customers.*

Improvement 2

The PRN medication workflow should be improved to make clear when medication has been offered but refused.

> **everyLIFE Response** *The product team has considered this feedback and the work has been added to the product development roadmap.*

Improvement 3

The logging in time should be improved.

> **everyLIFE Response** *The engineering team has completed work to improve App logging in speeds and this has deployed to customers. On average the logging in speed is now 8 times faster than before the work was undertaken. Our engineering team will continue to monitor and improve on this.*

Improvement 4

The App time out should be increased so that care workers do not have to log in repeatedly during a visit.

> **everyLIFE Response** *The time- out window for care workers has been adjusted to align with the care visit time.*

Improvement 5

Body maps should be made interactive so they are editable by care workers.

> **everyLIFE Response** *The product team has considered this feedback and work to improve body maps has been refined for development*

Appendix 14 - Terms

- **Baseline data** - Data that was recorded by the pilot providers against the 6 variables for the preceding 12 months of receiving care from a provider using the PASSsystem.
- **Care co-ordinator** - To efficiently and effectively schedule the delivery of quality care to clients who receive support from care workers in their own home.
- **Care home** - There are two types of care home – residential and nursing homes. Some care homes offer both residential and nursing care places. Care homes may be run by private companies, voluntary or charity organisations or by local councils.
  - **Residential care homes** - These homes provide accommodation and personal care, such as help with washing, dressing, taking medicines and going to the toilet. Some care homes also offer activities such as day trips.
  - **Nursing homes** - These also provide personal care but there will always be 1 or more qualified nurses on duty to provide nursing care. These are sometimes called care homes with nursing. Some nursing homes offer services for people that may need more care and support. For example, people with severe learning disabilities, severe physical disabilities or both or a complex medical condition that needs help from a qualified nurse – such as someone who has a colostomy or who is fed through a tube. (www.nhs.uk/conditions/social-care-and-support-guide/care-services-equipment-and-care-homes/care-homes/)
- **Care worker** - Care workers support people with all aspects of their day to day living, including social and physical activities, personal care, mobility and meal times. Care workers can work in a care home, in people's own homes or in the community. (www.skillsforcare.org.uk)
- **Community support worker** - Support people with aspects of day to day care but with no personal care or moving or handling.

- **Domiciliary care** - Care that is provided to people who still live in their own homes but who require additional support with household tasks, personal care or any other activity that allows them to maintain their independence and quality of life. Anyone at any stage of life could require domiciliary care including those with learning disabilities, mental health problems, sensory impairment or physical disabilities. (www.socialcare.co.uk)
- **Field care supervisor** - Responsible for looking after a group of Service Users and Care Workers within the local community.
- **Intervention data** - Data that is collected by the pilot providers once the service user has started receiving care. The intervention data will be collected for one year.
- **Likert Scale** - A psychometric scale used in questionnaires allowing respondents to specify their level of agreement or disagreement on a symmetric scale. The scale is named after its inventor, psychologist Rensis Likert.
- **Live-in care** - Live-in care is for clients who need 24/7 assistance from a care giver. Assistance is generally non-medical and includes tasks such as medication management, shopping and help with activities of daily living.
- **openPASS** - Created by everyLIFE Technologies, the web portal and app that allows family members and other pre-approved individuals and care professionals to access real-time care notes and communications that are recorded on the PASSsystem.
- **Other manager roles referenced in the report** - Deputy Care Manager, Office Manager, Director, HR and Training Manager, Operations Manager, Business Manager, Managing Director, Compliance Director.
- **PASSsystem** - The digital care management and monitoring web and application created by everyLIFE Technologies.
- **Person-centred care** - Care that is focused on the needs of the individual, ensuring that people's preferences, needs and values guide clinical decisions, and provides care that is respectful of and responsive to them.

- **Pilot provider** - Refers to the 6 providers recording the data for the cost benefit analysis.
- **Registered manager** - The CQC registers managers of regulated activities. The registered manager, along with the registered provider, is legally responsible and accountable for compliance with the requirements of the Health and Social Care Act 2008 and associated regulations, including the Health and Social Care Act 2008 (Regulated Activities) Regulations 2010 and the Care Quality Commission (Registration) Regulations 2009. (www.cqc.org.uk)
- **Respite care** - Is short term care that is provided for old or sick people so that the person who usually cares for them can have a break.
- **RGN** - The term RGN stands for Registered General Nurse and can broadly mean any nurse that has completed their degree or diploma and is then accredited by the Royal College of Nursing. (www.nurses.co.uk)
- **Senior carer** - Responsible for leading, developing and co-ordinating a team of care workers to provide care to the highest standards.
- **Supported living** - Defined as persons with disabilities living where and with whom they want, for as long as they want, with the ongoing support needed to sustain that choice.
- **Unplanned hospital admission** - Unplanned admissions to hospital are those which are not planned or not from a waiting list.

Appendix 15 - Abbreviations

- **ASSIA** - Applied Social Sciences Index and Abstracts
- **BO** - Business owner
- **CBA** - Cost benefit analysis
- **CCG** - Clinical commissioning group
- **CLG** - (Department of) Communities and Local Government
- **CM** - Care Manager
- **CQC** - Care Quality Commission. An executive non-departmental public body of the Department of Health and Social Care of the United Kingdom. It was established in 2009 to regulate and inspect health and social care services in England
- **CW** - Care worker
- **DN** - District nurse
- **DNAR** - Do not attempt resuscitation
- **DNACPR** - Do not attempt cardio pulmonary resuscitation
- **DNR** - Do not resuscitate. This is a specific order not to revive a patient artificially if they succumb to illness. If a patient is given a DNR order, they are not resuscitated if they are near death and no code blue is called.
- **DPA** - Data Protection Act
- **DoLS** - Deprivation of Liberty Safeguards
- **eLT** - everyLIFE Technologies Ltd, creators of the PASSsystem
- **EoLC** - End of Life Care
- **GDPR** - General Data Protection Regulation
- **GfK** - Growth from knowledge
- **GP** - General practitioner

- **HCA** - Health care assistant
- **HCW** - Health Commission Wales
- **HIW** - Health Inspectorate Wales
- **KLOEs** - 5 Key lines of enquiry that form part of a CQC inspection which seek to answer whether businesses are safe, effective, caring, responsive to people's needs and well-led
- **LA** - local authority
- **LGA** - Local Government Association
- **MAR** - The formal record of administration of medicine within the care setting. A MAR chart may be required to be used as evidence in clinical investigations and court cases so it is important that they are clear, accurate and up to date.
- **MCA** - Mental Capacity Act
- **NAO** - National Audit Office
- **NIHR** - National Institute of Health Research
- **ONS** - Office for National Statistics
- **PASS** - Originally known as PASS, meaning Patient Assisted Safety System. As PASS has grown to cater for multiple care planning issues and solutions (not just medication) it is now recognised as the PASSsystem.
- **PCP** - Person-centred plan
- **PD** - Progressive disease.
- **PRN** - Pro Re Nata - as needed. So that it is not always done, but done only when the situation calls for it (for example, taking a pain medication only when having pain and not without pain).
- **RCN** - Royal College of Nursing
- **RGN** - Registered Nurse

- **SaaS** - Software as a Service
- **SEHTA** - South East Health Technologies Alliance
- **SCIE** - Social Care Institute for Excellence. An independent improvement support agency working with adults', families' and children's care and support services across the UK
- **SMT** - everyLIFE's Senior Management Team
- **SPP** - Social Policy and Practice
- **YCL** - York Consulting Ltd. An economic and social management consultancy organisation with expertise in economic evaluation.

Appendix 16 - References

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