

This strategy will outline the rationale for Telecare Cardiff to manage the risk of falls within the community using proactive methodology.



Falls Prevention

Telecare Cardiff's proposed strategy for falls prevention



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Caerdydd a'r Fro
Cardiff and Vale
University Health Board

Falls are a major cause of disability and death in older people in Wales, with falls the most common cause of injury in people aged 65 years and older.

Ageing Well in Wales - Falls Prevention. (2017).



CONTENTS

Introduction	4
Executive Summary	5
The Impact of Falls	6
National Context	7
Local Context	8
Community Falls Prevention Alliance	11
A Reluctance to Embrace Technology	12
Aims & Objectives	13
Demographic Statistics	14
Fall Statistics	15
Frequent Fall Statistics	15
Frequent Fall Findings	16
Response Service	18
Response Service Statistics 2019	19
Managing all Falls	21
Falls Pathways – Current	22
Falls Pathways – Aspirational	23
ARMED Solution	24
ARMED Pathway	25
Kinesis QTUG	26
Strength & Balance	27
Independent Living Services	28
Conclusion	31

INTRODUCTION

This strategy will look at various approaches and methods Telecare Cardiff will look to implement and adopt over the next 3 years. There will be specific projects launched in order to reduce the total number of falls and maximise our users chances of remaining in their own home. Telecare Cardiff respond to multiple incidents of falls on a daily basis and are in a unique position to effect positive change on the citizens of Cardiff, using Technology Enabled Care (TEC) as an enabler.

Falls are a public health concern in Wales among older people. They are a major cause of disability and death, with falls the most common cause of injury in people aged 65 years and older. Following a fall, 28 % of older people (those aged over 65) die within a year and for those who suffered a hip fracture, half ‘never returned to their previous level of independence,’ and approximately 20 % entered a care home.¹

The Well-Being of Future Generations (Wales) Act 2015, places a duty upon public bodies to consider the impact of actions they are taking now upon people who will be living in Wales in the future.² The population of those aged over 85 in Cardiff is projected to increase by 88 % over the next 20 years.³ By adopting a more proactive model of service delivery we can ensure our citizens are supported throughout their journey with us.

There needs to be a cohesive approach using key stakeholders in health and social care to achieve a successful adoption of proactive services. Telecare Cardiff are active members of the Cardiff and Vale of Glamorgan University Health Board Community Falls Prevention Alliance (CFPA), where work has commenced to adopt a collaborative, regional approach to falls prevention. Telecare Cardiff will seek to become part of the proposed falls pathway, ensuring its service users are supported throughout any instances of falls and are signposted onwards to a single point of access team.

This falls strategy will align itself to Cardiff and Vale of Glamorgan Regional Partnership Board (RPB) ‘Me, My Home, My community’. The RPB is driving forward local change guided by the Parliamentary Review. It is underpinned by 4 key design principles:

What matters to me	Listening and working with people in need of care and support to joint find solutions to their needs
Sustainable and prudent use of resources	Promoting prevention and early intervention, developing quality outcomes and value for money solutions which meet care and support needs
Home first	Enabling people to live at home, in accommodation appropriate to their needs, where they can live well, thrive and remain independent
Avoiding harm, waste and variation	Ensuring high quality care across services

1 Bangor University, Living Well for Longer; The economic argument for investing in the health and well-being of older people in Wales. (2018).
2 Welsh Government (2015). Well-being of Future Generations (Wales) Act <https://gov.wales/topics/people-and-communities/people/future-generations-act/?lang=en>
3 Cardiff and Vale University Health Board Falls Framework: Reducing Risk and Harm. (2018).

EXECUTIVE SUMMARY

This strategy is aimed at those involved in the development of falls prevention initiatives within telecare services, not solely limited to Telecare Cardiff. Telecare services offer assistive technology (AT) devices to ensure supported, independent living at home. Telecare services are reactionary by nature, which has advantages such as minimising the length of time a person remains on the floor following a fall, but the Telecare Services Association (TSA) highlights there is a greater need to explore proactive methodology in tackling issues such as falls A Healthier Wales states it is the Welsh Government’s plan for integrated working and driving transformational change with an emphasis on prevention.⁴

In 2018/19, Telecare Cardiff responded to 2,929 calls whereby a service user had fallen. By having a response service in place, we were able to reach those in need of assistance without placing any added pressure to the Welsh Ambulance Service Trust (WAST). Of the 2,929 calls we attended, only 6 % resulted in an ambulance subsequently being called. Telecare Cardiff responded to 99 % of all service users who had fallen within 1 hour. By responding within 1 hour, ‘long lies’ were prevented. A long lie fall is defined as someone who remains on the floor following a fall for over 1 hour. There is a 50 % chance that someone will die within 6 months if they are subject to a long lie fall.⁵ This highlights the important role telecare services can play by being reactive to emergency situations.

However, the need to become proactive as an industry is becoming more apparent and is now a key priority for telecare commissioners. Assistive technology (AT) and the data gathered from devices, can play a part in the anticipation of falls before they happen. Using a person’s health statistics and artificial intelligence (AI), services can anticipate when a situation is likely to occur.

Within this strategy, there are findings of an independent research exercise that looked to forge a link between those who fell frequently (five or more times in one year) and premature death, or entry into a residential, extra care, supported living complex. The statistics gathered as a result, indicates that this is the case. Although the data specifically looked at residents living in Cardiff, the results can be scaled up across Wales and the UK.

Using this data it is clear that telecare services must do more than just ‘react’ and move towards a more proactive approach to falls management. Reducing the amount of people who frequently fall should be a top priority and underpin any falls prevention initiatives that are created.

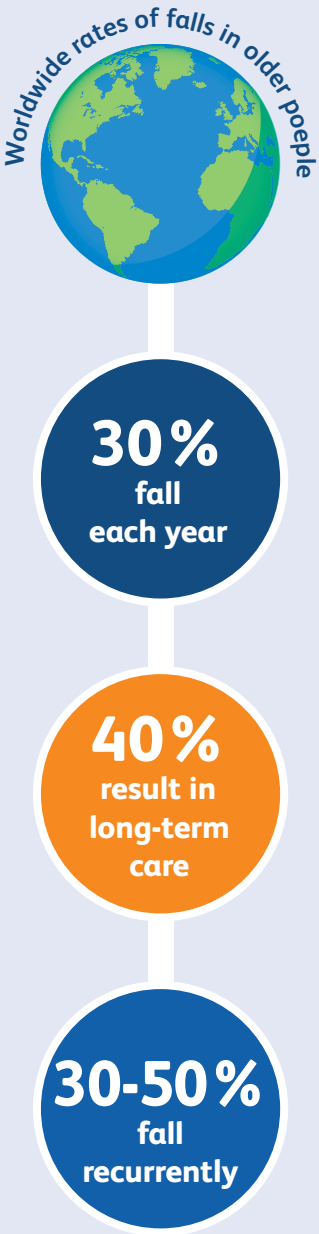
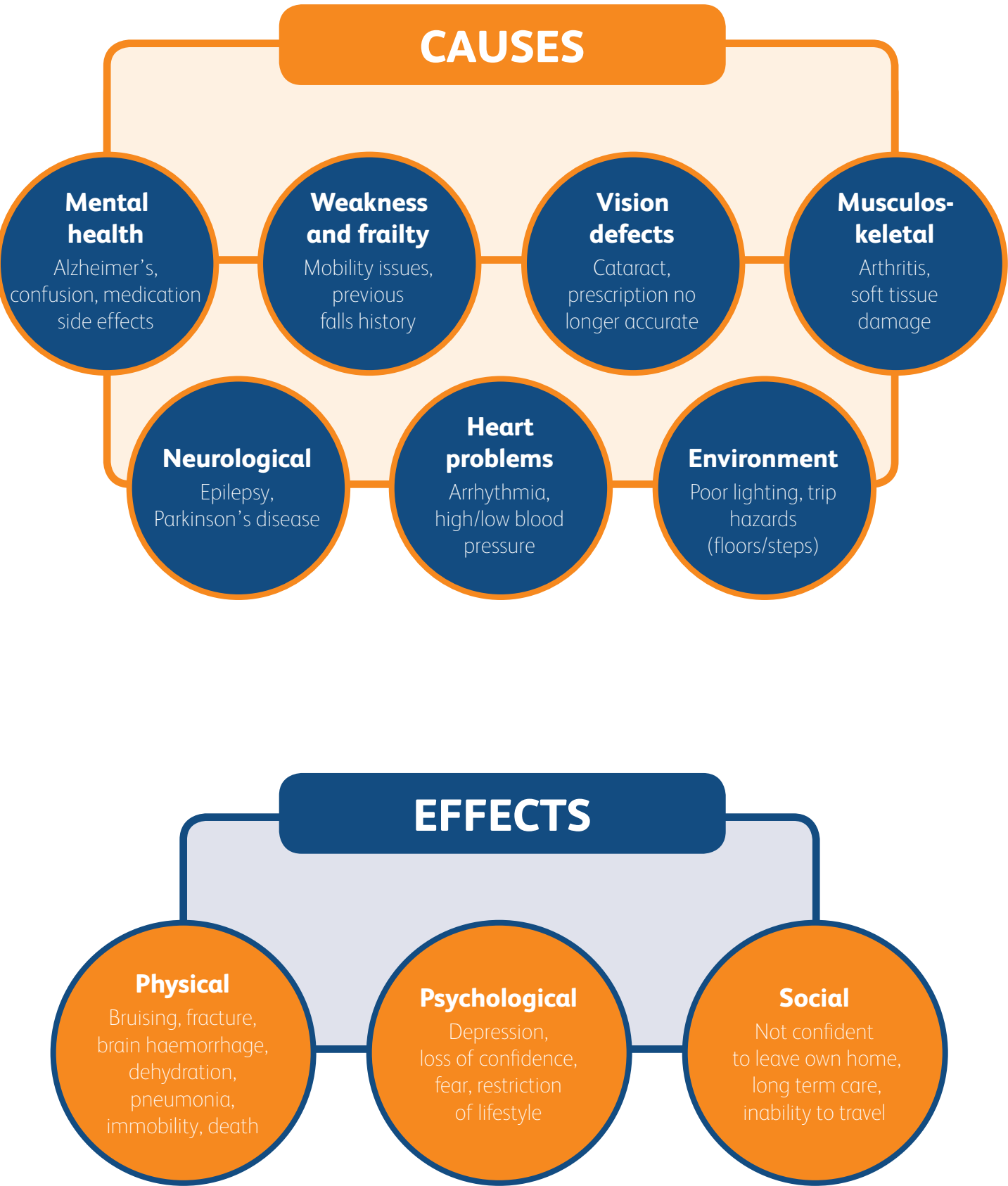


Fig 1.
Worldwide rates of falls
(Source: kinesis.ie)

4 A Healthier Wales: our plan for health and social care. (2018).
5 <https://mangarhealth.com/us/news/6-reasons-an-elderly-resident-should-never-be-left-on-the-floor/>

THE IMPACT OF FALLS



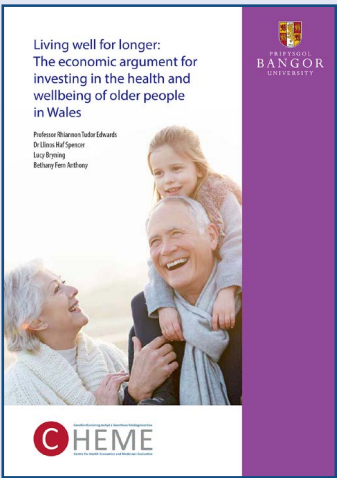
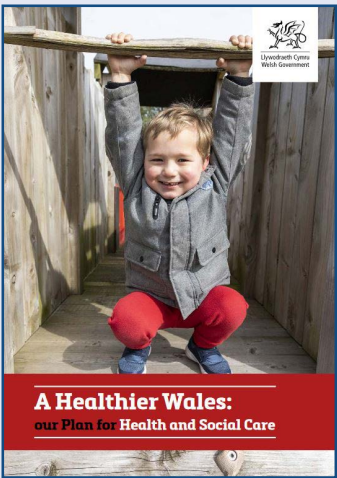
NATIONAL CONTEXT

There are a number of key policy and procedural documents which relate specifically to healthy ageing and the importance of reducing the risks of someone falling. The key themes arising from each document, relate to collaboration across organisations to join up services, focusing on prevention and proactivity, to ultimately ensure people live longer, independent lives in their own homes. Mitigating the risks associated with falls in the community will undoubtedly reduce unnecessary hospital admissions, readmissions and other pressures on NHS Wales such as GP visits and ambulance call outs.

A Healthier Wales sets out the vision for a whole system approach to health and social care, focusing on good health and well-being and the prevention of illness. It is the Welsh Government's plan for integrated working and driving transformational change with an emphasis on prevention. The vision highlights that older people will receive the support from services to live healthily and independently and have services designed for their needs.⁶

Bangor University released two reports looking at the economic argument for investing in people during different times in their life course. The second report, is aimed at older people, and for the purpose of their report and this strategy, older people will be defined as those over the age of 65. The report was commissioned by Public Health Wales to explore the economic evidence relevant to investment in older people living in Wales. There is a section within this report that looks specifically at 'preventing falls and reducing hospital stays'. The report highlights that around 30 % of adults who are over 65 years of age and living at home will experience at least one fall a year. This accounts for more than 4 million hospital bed days. In Wales, it is estimated that between 230,000 and 460,000 people over the age of 65 fall every year and between 115,000 and 230,000 older people fall more than once per year.

Most falls result in no serious injury, but annually approximately 5 % of older people living in the community who fall experience a fracture or need hospitalisation mainly due to arm, leg or shoulder injuries. According to the literature, in Wales, 11,500 to 45,900 people suffer a fracture, head injury or serious cuts from falling, this equates to between 32 and 126 serious injury falls per day in Wales. The report then states that the risk of death or serious injury arising from a fall increases with age. This level of risk may be due to physical, sensory, and cognitive changes associated with ageing, in combination with environments that are not adapted for an ageing population. Providing prevention of falls initiatives may be cost-effective in reducing the risk of falls among older people. However, The National Institute for Health and Clinical Excellence (NICE) highlight a scarcity of UK-based cost-effectiveness studies of falls prevention initiatives and recommend future research is conducted in this area.⁷



6 A Healthier Wales: our plan for health and social care. (2018).

7 Bangor University - Living Well for Longer: The Economic argument for investing in the health and well-being of older people in Wales. (2018).

LOCAL CONTEXT

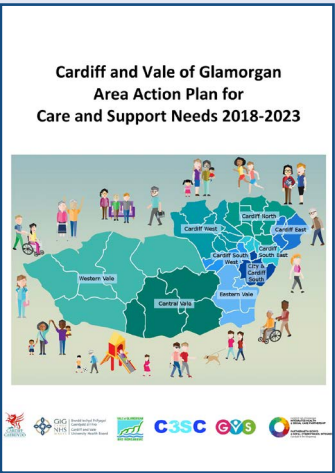
The Cardiff and Vale of Glamorgan integrated Health and Social Care Partnership’s market statement and Commissioning Strategy; Care and Support Services for Older People 2017-2022, sets out how the local health board, social services, third sector and other partners will work together to improve the health and well-being of older people in the region.⁸ The Integrated Care Fund has allowed us to procure equipment ensuring that citizens receive telecare for free, removing one-off cost as a barrier. We have seen a sharp increase in the provision of peripheral, specialist devices such as automatic fall detectors for those with cognitive difficulties or poor dexterity.

The Cardiff and Vale of Glamorgan Area Plan and Action Plan was published in March 2018. It sets out the regional priorities and the detailed actions that will be undertaken over the next 5 years to meet the 12 key care and support needs identified in the region’s Population Needs Assessment.⁹ There are several that relate directly to the proactive management of falls and the overall objectives laid out for Telecare Cardiff within this strategy:

- Supporting people to make healthier lifestyle choices and reduce the prevalence of unhealthy behaviours
- Developing services that prevent the need for more intensive care and support
- Developing services to respond to existing and future care and support needs
- Improving support for people as they transition between services
- Improving organisational working practices, to ensure that services help people to achieve the outcomes they seek

How a society treats people as they get older reflects its values and principles, and sends an important message to future generations. Cardiff’s ambition is for the city to be a great place to grow older, where older people are more empowered, healthy and happy, supported by excellent public and community services and integrated within all areas of community life.¹⁰

The Cardiff and Vale University Health Board Falls Framework: Reducing risk and harm, outlines the approach for falls prevention in Cardiff and the Vale of Glamorgan, highlighting evidence-based interventions, learning from good practice, NICE guidance and will be set within the national and local strategic context.¹¹



8 Cardiff Older Persons Housing Strategy. (2019-2023).

9 Cardiff and Vale of Glamorgan Area Plan for Care and Support Needs. (2018-2023).

10 Cardiff’s Well-being Plan. (2017).

11 Cardiff and Vale University Health Board Falls Framework: Reducing Risk and Harm. (2018).

Within their SWOT analysis, they highlight a gap in service provision, specifically with rapid response services. Telecare Cardiff offer a response service that is 24/7 and covers the entire city of Cardiff. With approximately 1 in 3 citizens over the age of 85 being a customer of Telecare Cardiff, there is scope to strengthen ties with WAST and offer a service to all citizens who fall and hit certain eligibility criteria.

Cardiff and Vale UHB Falls Framework highlights work to reduce falls and their impact cannot be the sole responsibility of one organisation. Key stakeholders make up the Falls Delivery Group which ensures that input, action and a committed response is taken from a range of organisations (public and third sector).

The objectives set out by the Falls Framework are:

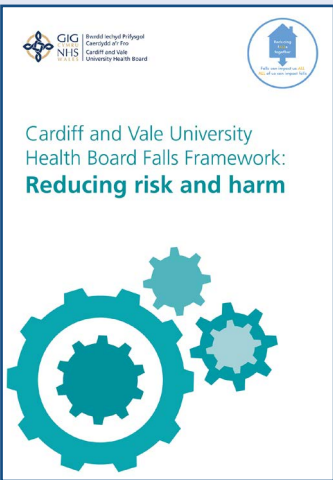
- To reduce the number of; avoidable community falls, avoidable inpatient falls, hospital admissions following a fall and hip fractures due to falls
- To reduce the length of stay of people admitted to hospital following a fall
- To promote activity and independence in hospital and in the community
- To reduce harm, improve outcomes and quality of life for people who sustain a fall
- To increase uptake of strength and balance activities¹²

Ageing Well in Cardiff suggests that falls prevention initiatives can reduce the number of falls by between 15 % and 30 %, and that well organised services, based on national standards and evidence-based guidelines, can prevent falls and reduce death and disability from fractures.¹³

Cardiff and Vale Regional Partnership Board (RPB) – ‘Me, My home, My community’ includes membership from Cardiff and Vale University Health Board, the City of Cardiff Council, Vale of Glamorgan Council and the third sector. It is driving forward local change guided by the Parliamentary Review and working towards the integration of health and social care across the region. The RPB’s vision for delivering seamless care is underpinned by 4 design principles outlined in the Executive Summary on Page 4.

“Falls in people aged over 65 years should be made a priority in their own right and not a sub-section of other ageing-well strategies in order to give the issue sufficient focus.”

Healthcare Inspectorate Wales - Review of Integrated Care: Focus on Falls. (2019).



12 Cardiff and Vale University Health Board Falls Framework: Reducing Risk and Harm. (2018).

13 Ageing Well in Cardiff, The City of Cardiff Council’s Local Delivery Plan. (2015).

COMMUNITY FALLS PREVENTION ALLIANCE (CFPA OR 'ALLIANCE')

The Community Falls Prevention Alliance sets out a commitment to act in good faith to reach consensus decisions on the basis of 'best for patient, best for system'. The alliance was established in February 2019 as a time-limited (2 year) group to enhance and improve falls prevention work in Cardiff and the Vale of Glamorgan. The alliance will focus on delivering outcomes against the falls framework aims, which are:

- Reducing the number of avoidable community falls
- Promote activity and independence in the community
- Reduce harm, improve outcomes and quality of life for people who sustain a fall

There needs to be clearly described local falls pathways in all health board areas, especially in the community, and there is a need to identify all local coordinators (not just health and social care professionals) within these pathways.¹⁴

The initial focus has been on the implementation and delivery of a 'falls pathway', ensuring that all services involved are mapped and aware of their responsibilities. The pathway has been agreed in principle, work has now begun to implement the key areas of the pathway, such as a single point of access service.

Telecare Cardiff will look to utilise the framework, ensuring its users are supported if they fall, or are presented as having a risk of a fall. By effectively signposting those to the appropriate service(s), Telecare Cardiff can look to achieve its own aims of reducing the amount of falls in the community, for its users.

Looking at the Falls Pathway Map (right), we would expect Telecare Cardiff to become involved in the 'Raising of falls awareness' section at the point of when we install equipment. We would also effectively 'Screen for falls risks' when we complete the telephone assessment. Once a citizen becomes a user, we would 'contact 999' if they are injured following a fall, or respond to a 'non-injurious fall' that does not require WAST to attend. We need to ensure that we signpost those most at risk of falls to the 'Single Point of Contact' team (yet to be confirmed) and also seek to establish closer links with Community Resource Teams, the Day Hospital and the Elderly Community Assessment Service, to ensure we are fully ingrained in all aspects of the pathway.

14 Healthcare Inspectorate Wales – Review of Integrated Care: Focus on Falls. (2019).

A RELUCTANCE TO EMBRACE TECHNOLOGY?

The research into falls within Wales and the rest of the UK alludes to technology as a potential enabler in reducing them. However, there is minimal evidence highlighting the important role telecare services can play. Telecare services with a response element prevent long lies and ultimately premature death or early entry into a residential care setting. There is now the potential for response services to use data analytics by feeding correct, relevant data into various Microsoft software packages such as Excel, Azure and Power BI to adopt a proactive approach to falls management. Currently, Telecare Cardiff will look at how the customer has fallen, when and how often, in an effort to identify patterns within a person's falls history. This is a new process, but one we feel will transform the way telecare services treat falls within a community setting.

New technology should be used to enhance care and enable practitioners to do the best job they are capable of doing, and not to replace interactions that should only be done by people.¹⁵

One of the key themes in the Healthcare Inspectorate Wales, Focus on Falls report, is that new technology should be used to enhance care. One of the main fears of citizens is that technology will replace vital interactions with people, so there needs to be a balance, and a correct 'prescription' of technology.

The opportunities and potential benefits for citizens using Internet of Things (IoT) devices within their home are limitless. IoT devices can be used for gathering data on both the person and the environment. Wearable devices such as 'Fitbit' style watches can collate data on a person's vital statistics and movement, prompting them to move when they have been stationary for a while. Environment sensors such as Just Checking can ascertain a person's movement pattern within their own home, informing practitioners on the correct care plan to be prescribed. The financial savings are immeasurable and more work needs to be done to highlight cost savings, cost avoidance and Quality Adjusted Life Year (QALY) figures on projects relative to falls by using assistive technology.

Despite a suite of national initiatives over the last decade, the major 2018 UTOPIA survey concluded that "only a fraction of the potential of care technology has been exploited". A key reason has been limited sound evidence of the benefits of investing in care technology, especially cashable cost savings.¹⁶

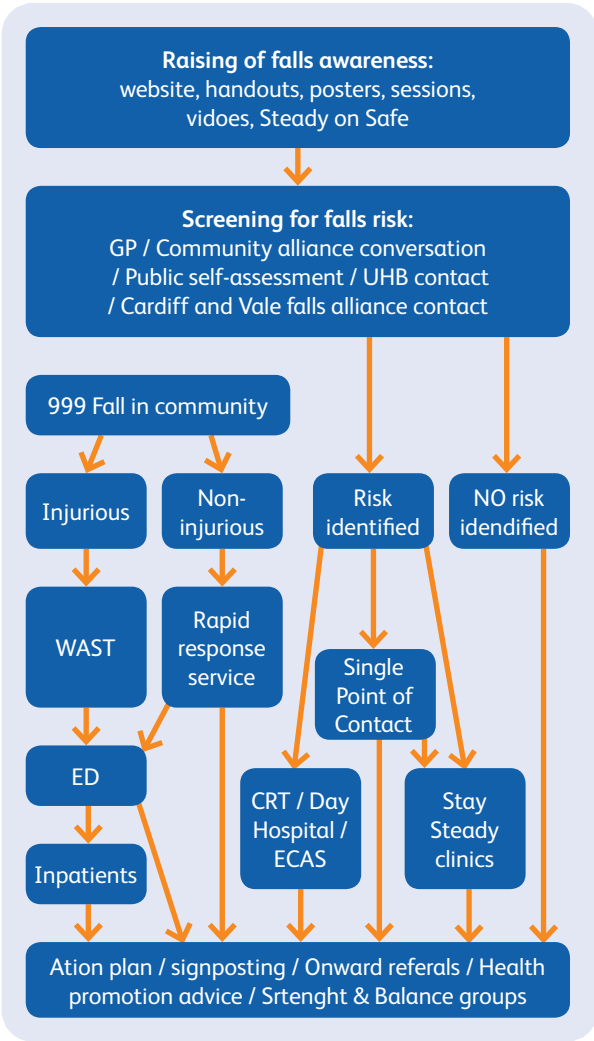
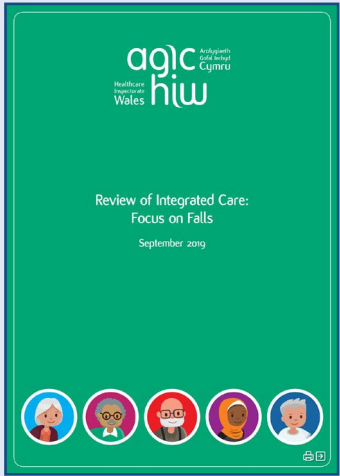


Fig.3: Cardiff and Vale University Health Board, Falls Framework; Proposed Falls Pathway Map



15 Healthcare Inspectorate Wales – Review of Integrated Care: Focus on Falls. (2019).

16 Soctim Ltd, Inform Report, Care technology landscape review. (2019).

AIMS AND OBJECTIVES

This report will highlight specific projects Telecare Cardiff are looking to implement between 2020 & 2023. The projects will focus on falls in a reactive, proactive and predictive sense. By reacting to falls, we continue to avoid long lies and unnecessary pressure to WAST. Also, by assessing a person's falls history, we can adopt proactive measures to ensure the risk of a repeat fall is mitigated.

Finally, by harnessing the power of Artificial Intelligence in the TEC sector, we can predict the likelihood of someone falling before it happens, and also highlight certain acute health conditions that may be noticeable, contacting their GP prior to crisis.



Figures are from
April 1st 2018 to
March 31st 2019



Reduce the total
number of falls
2,929



Increase uptake
of service in
those aged
65-74



Highlight true cost
avoidance figures to
WAST and the **Local
Health Board**



Reduce the amount
of time it takes for our
Response Service to reach
someone who has fallen
to **17 minutes**

DEMOGRAPHIC STATISTICS

Telecare Cardiff caters for all individuals who feel there are risks associated with them living at home. However, the typical demographic most at risk to falls is those over the age of 65. Telecare Cardiff cater for approximately 9 %¹⁷ of the citizens of Cardiff who are over the age of 65.

When the figures are divided into age brackets it is evident that more work is required to ensure those under the age of 75 and who require assistance in the home through the use of technology are supported. The figures could likely indicate that there is an associated stigma with telecare equipment, or that the equipment, and subsequently the services offered are seen as 'reactionary'.

Telecare Cardiff cater for almost 1 in 3 individuals over the age of 85. This lends itself to the theory that telecare is seen as a 'reactive' service, catering for those individuals who would be considered frail, or at significant risk of falling in the home.

More needs to be done to ensure telecare services adopt and implement proactive services, as typically citizens will refer to telecare following their first or second fall. We can then look at those who are yet to fall and can plan accordingly to proactively manage and reduce the risk of them sustaining their first, or next fall.

Falling is not an inevitable part of ageing, as there are many interventions which can substantially reduce the risk of having a fall. Research has shown that interventions can reduce the rate and risk of falls by as much as 30 %, and also provide cost-effectiveness and a return on investment, particularly interventions which focus on physical activity and strength and balance exercise.

As falls are often multifactorial and can be a sign of underlying health issues such as frailty, there is a requirement to consider interventions which are responsive to need, and address key risk factors.¹⁸ This is why the approach Telecare Cardiff will take is not just limited to using TEC, we will look to signpost our users to strength and balance classes that include Tai-Chi, OTAGO and others to ensure they build their muscle mass and be less likely to fall.

17 Population figures are provided by the Office of National Statistics (ONS); (mid-2016).
18 Cardiff and Vale University Health Board Falls Framework: Reducing Risk and Harm. (2018).

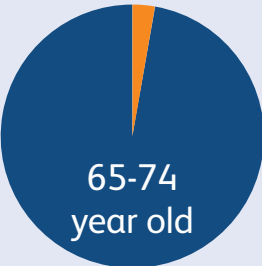
Of the overall
population of
Cardiff,

**Telecare Cardiff
represents:**

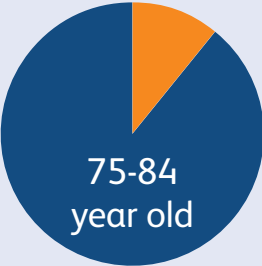
9.30%



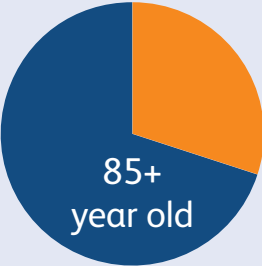
2.85%



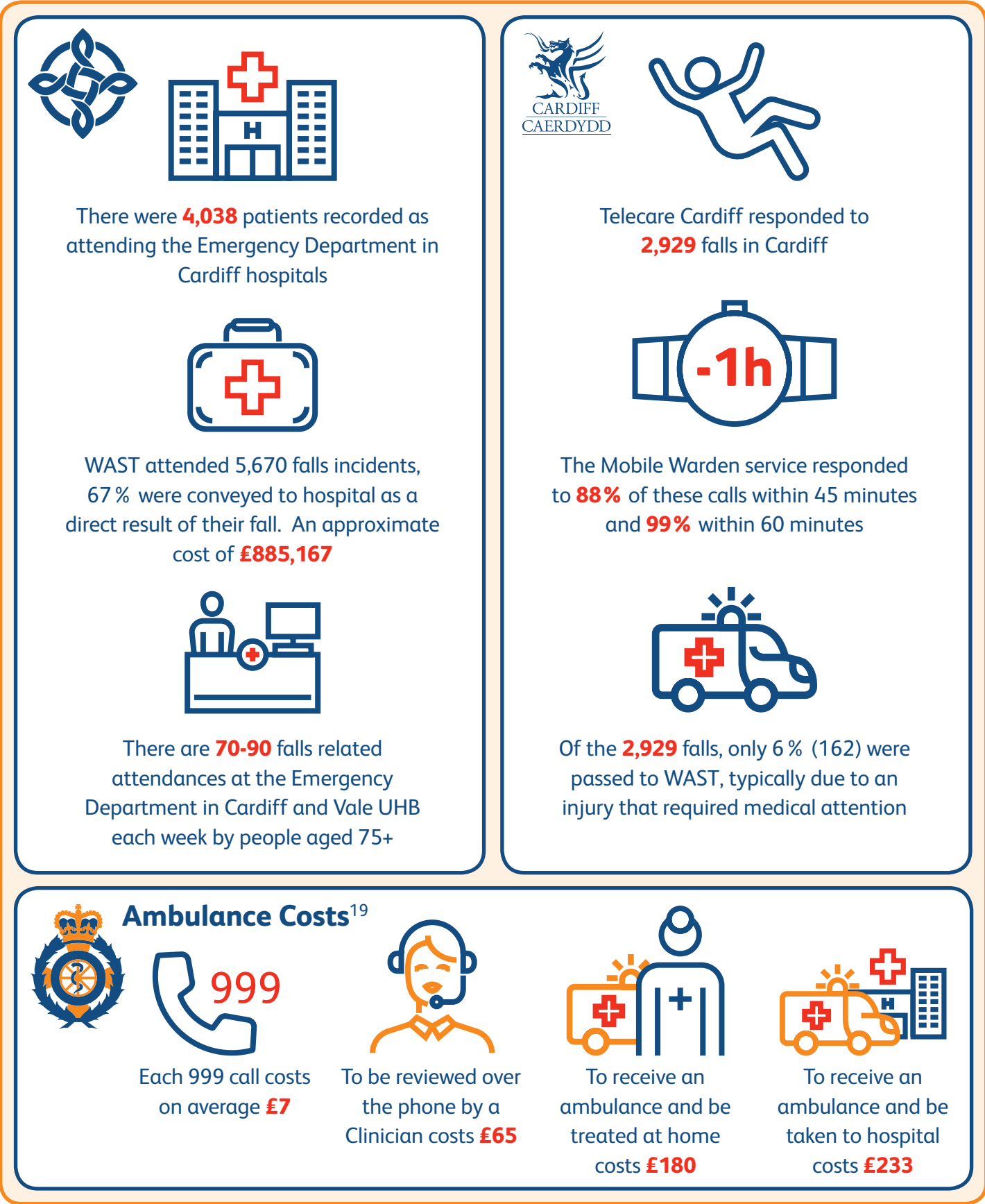
10.69%



31.73%

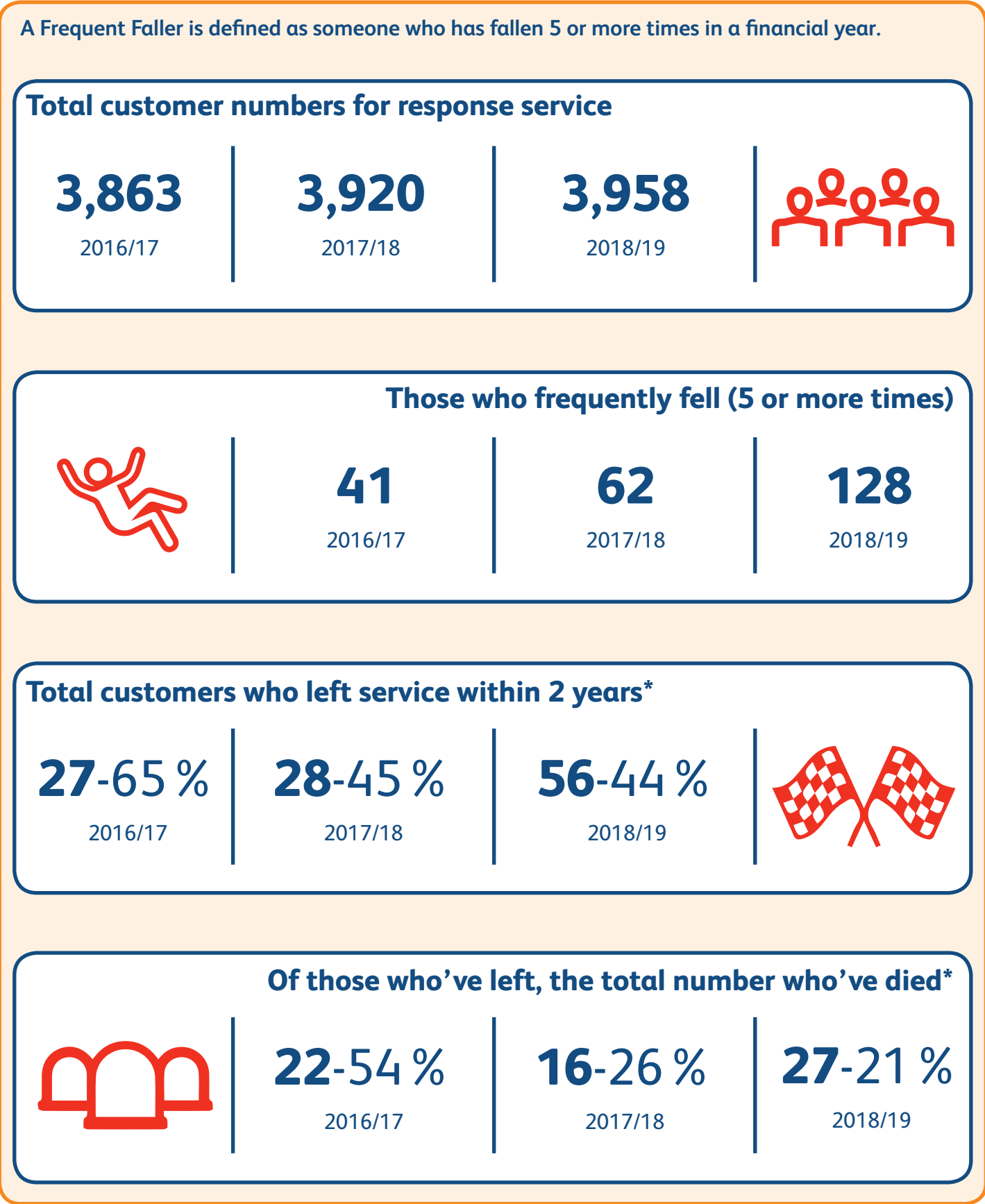


FALLS STATISTICS FOR THE OVER 65s*



19 <https://www.independent.co.uk/life-style/health-and-families/ambulance-call-outs-cost-millions-sore-throats-false-nails-a8299306.html>
*All figures are for the period April 1st 2018 – March 31st 2019

FREQUENT FALLS STATISTICS



*2016/17 & 2017/18 figures only. The 2018/19 figure shows customers who have left the service up to and including 31/01/2020

FREQUENT FALL FINDINGS

The frequent fall data highlights an increase in the number of citizens who ‘frequently fall’ year on year. Using the data we can estimate that there is a direct correlation between those who frequently fall being more at risk of premature death or early entry into a residential scheme or extra care facility.

The average length of stay for a telecare service user is 4 years and 2 months. However, using the 2016/17 and 2017/18 financial year data, we can evidence that if an individual falls 5 or more times over a 12 month period, there is a 53 % chance that they’ll either enter a residential care or extra care facility, or pass away within 2 years.

In 2016/17 there were 41 Telecare Cardiff service users that fell 5 or more times during the financial year. This number increased to 128 during 2018/19. This is an increase of 212 % despite customer numbers only rising 4.5 % during this time.

Currently, Telecare Cardiff will contact those individuals who fall 4 or more times in a calendar month. Conversations will take place with their case worker, family, friends or indeed the citizen themselves to try and identify the underlying reasons associated with their falls history. With the stark increase associated with those falling in 2018/19, it appears this strategy isn’t working and a new radical approach to tackling falls is required.

Falls have an impact on the quality of life of individuals, their family and society. Even ‘minor’ falls can be very debilitating. Individuals can lose confidence and become nervous about falling again. This means they may become unwilling to move about, and as a result become more isolated and more dependent on others. This leads to greater concerns for carers, and an increased likelihood that an individual will need residential care.²⁰ Using Telecare Cardiff’s data for 2016/17 and 2017/18, 18 % of those who fell 5 or more times in that period entered residential care, almost 1 in 5. The average cost per week of residential and nursing care for an older person in 2018 stood at £615 per week, a real-terms increase of 6.6 % since 2015/16.²¹

Looking at the figures for the last financial year (2018/19), we can see that up to 31st January 2020, 44 % of the 128 who frequently fell have since left the service, with 14 entering residential care, 15 with an unknown reason for leaving and 27 passing away. This trend is consistent with the previous financial year with an average of 2.7 people dying per month as a result of frequently falling with an additional 1.4 people per month entering residential care or an extra care facility.

Telecare can provide a range of support including falls prevention and securing home environments. Telecare is reasonably inexpensive (£5.06 per week for Telecare Cardiff Mobile Response level of service) and can be scaled-up. There are potential cost savings of up to £400 per person, per week when using telecare in the home environment compared to the cost of residential care.²²



20 Bangor University - Living Well for Longer: The Economic argument for investing in the health and well-being of older people in Wales. (2018).
21 Kings College London Report with the School for Care Research. (2018).
22 Leng, G. On the Pulse: Housing routes to better health outcomes for older people. (National Housing Federation, 2012)

RESPONSE SERVICE

Telecare Cardiff has a fully accredited mobile response service that serves its citizens within the city of Cardiff. Approximately 79 % of our service users are in receipt of the response service, with the remaining opting for a ‘contact only’ service, where a designated contact who is a key holder will respond in the event of an alarm call. The vast majority of telecare services within Wales do not have a response service. Cardiff and Bridgend Council are the telecare services to have a response service, with Rhondda Cynon Taff and Delta Well-being (Carmarthenshire) due to follow suit in 2020.

There are numerous advantages of having a response service in place for telecare services. From preventing ‘long lies’, to reducing the burdens placed on the Welsh Ambulance Service Trust, more is needed to be done by telecare services to prove just how important a response service can be. More statistical data needs to be collated and distributed through the TSA to demonstrate the effectiveness of response services, building a rationale when creating business cases to support their implementation.

Looking at the statistics for April 1st 2018 to March 31st 2019, the response service within Telecare Cardiff responded to 2,929 instances of service users who had fallen. This is a mixture of people who fell for the first time, and those who were defined as repeat fallers. The response service ensured that 94 % of falls were dealt with in the user’s home, only 6 % (162) required an ambulance as a result of the visit. This presents a significant saving to WAST and the NHS as a whole, but it is difficult to arrive at an exact figure. On average in Cardiff and the Vale of Glamorgan, if an ambulance attends to someone who has fallen, they will convey them to hospital 67 % of the time. We know that Telecare Cardiff dealt with 2,929 falls, and sent 162 to WAST for further action to be taken.

This provides a figure of 2,767 falls which would be dealt with in the citizens’ home. If a response service wasn’t available and WAST needed to attend these calls, conveying 67% to the Emergency Department would incur a total cost of £431,749. If a response service wasn’t in place and the remaining 33% needed to be visited by a Paramedic, then the total cost would be £164,340. Therefore, the total cost over the course of the 2018-19 financial year Telecare Cardiff would save WAST is estimated to be £596,089.

On average, our response service will reach someone who has fallen in 17 minutes. We are fortunate that Cardiff is fairly flat and urban. One could make an educated guess that response times for more rural areas in Wales would likely suffer if they were to implement a response service. However, looking at ambulance response times across the health boards in Wales, Powys has the lowest median response time to red calls (prioritised as high level emergency). In fact Powys scores 30 seconds below the national average across all 7 health boards, averaging 4 minutes 37 seconds to respond.

CHART 6: MEDIAN RESPONSE TIMES - RED CALLS, 2018-10

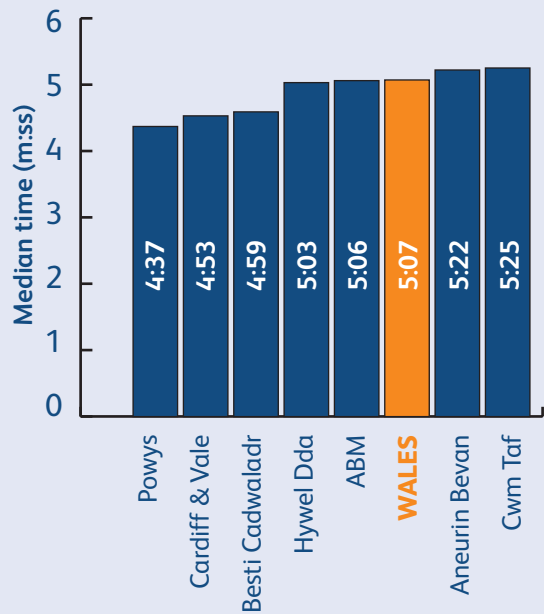
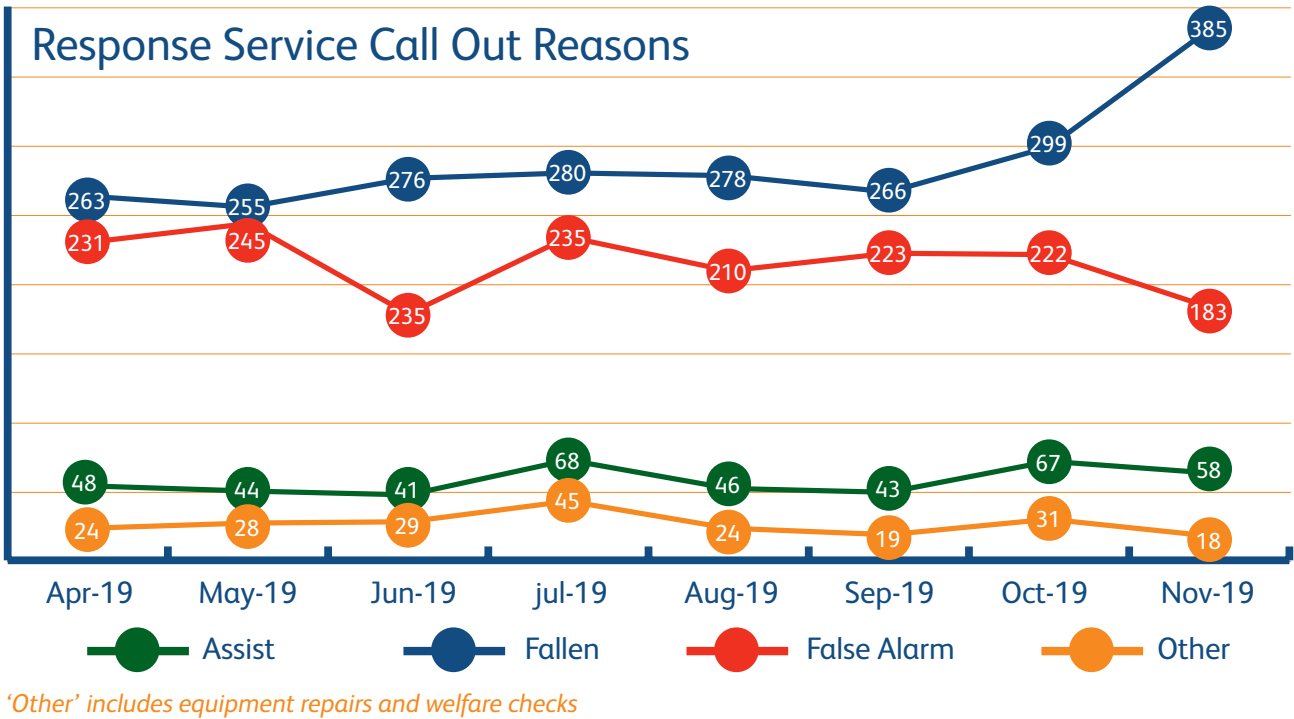


Fig 4. Ambulance response times in Wales. (Source: Statistics for Wales, Welsh Government)

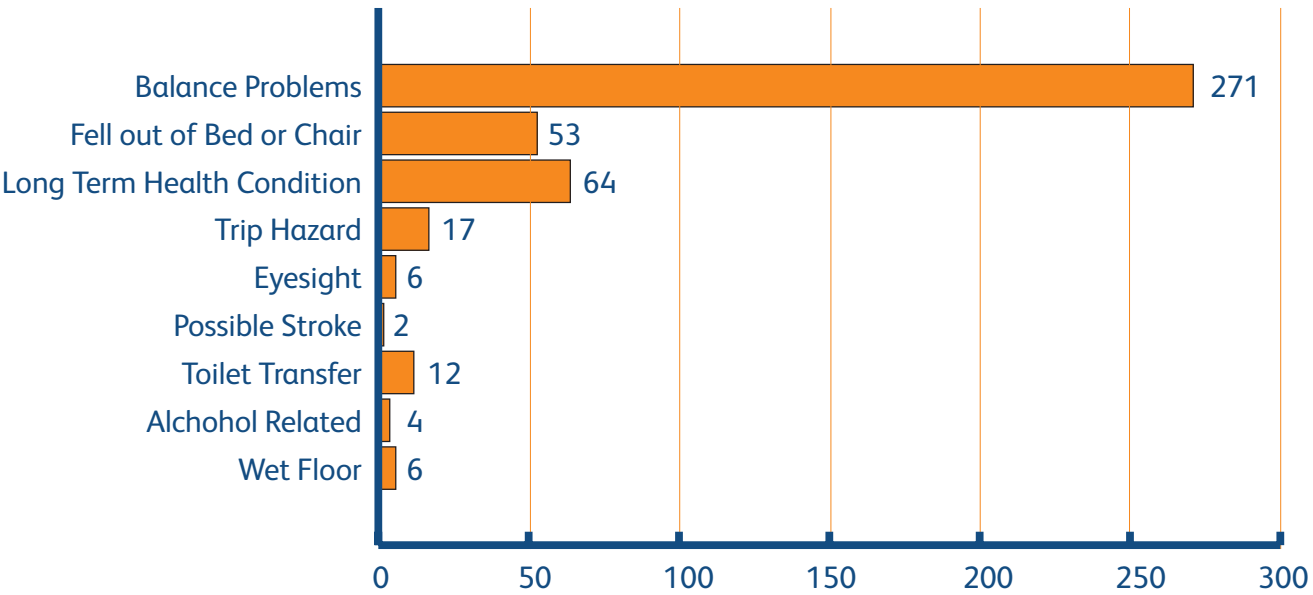
RESPONSE SERVICE STATISTICS 2019

Response Service Call Out Reasons



From April to November 2019, there have been 2,302 total falls, an average of 288 per month. If this trend continues, the projected total figure for April 1st 2019 – 31st March 2020 would be 3,453. An increase of 524 falls from the previous year. The table below shows the reasons for those who fell in November 2019, the first full month of data since Telecare Cardiff began to collect the reasons for falls.

Reason for Fall - November 2019





MANAGING ALL FALLS

The 'Digital Health and Social Care Strategy for Wales' details the Welsh Government's ambitions to transform the health and social care sector in Wales. In order to meet these ambitions we need to question old ways of working, embrace change and look at cost effective, innovative technologies that will ease the strain on services and support the elderly and disabled to live as independently as possible. Therefore, Telecare Cardiff will be changing its process when dealing with falls that are reported to them via the user's lifeline alarm.

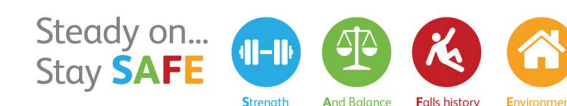
We will concentrate on all falls, in an effort to reduce the 2,929 falls sustained by our users during 2018/19. By managing each instance and identifying the root cause of the fall, we can effectively signpost that individual to the appropriate service, whether ILS, Elderly Community Assessment Service (ECAS) or the Community Resource Team (CRT).

This is a complete reshaping of Telecare Cardiff's approach to falls management, whereby new working processes will need to be created. Reassessments will need to take place with those who frequently fall to ensure that they have the correct AT in their home. For those who fall for the first time, conversations will need to take place to ensure fall 2 is avoided, or delayed for as long as possible. Data analytics, data trends, demographics and other significant and obvious patterns in a person's falls history will be observed on a daily basis.

Avoiding hospital admissions through well-designed community-based interventions targeting falls prevention among older people are highly cost-effective. Most recently in Wales, in line with principles of prudent health care, Aging Well in Wales brings together various initiatives including the 'Steady on Stay Safe' campaign.²³

Following a fall, our service users will be referred onto ILS with a recommendation that a Fitness MOT be carried out. They will also give advice on the Stay Steady Clinics and advise citizens to attend. Here, the individual will be given advice on how to maintain strength and balance as they get older. They will also receive a multi-factorial assessment. This is a vital tool in preventing a person from sustaining further falls. As this report highlights, it's estimated that there is a direct link between multiple falls and premature death or entry into residential care.

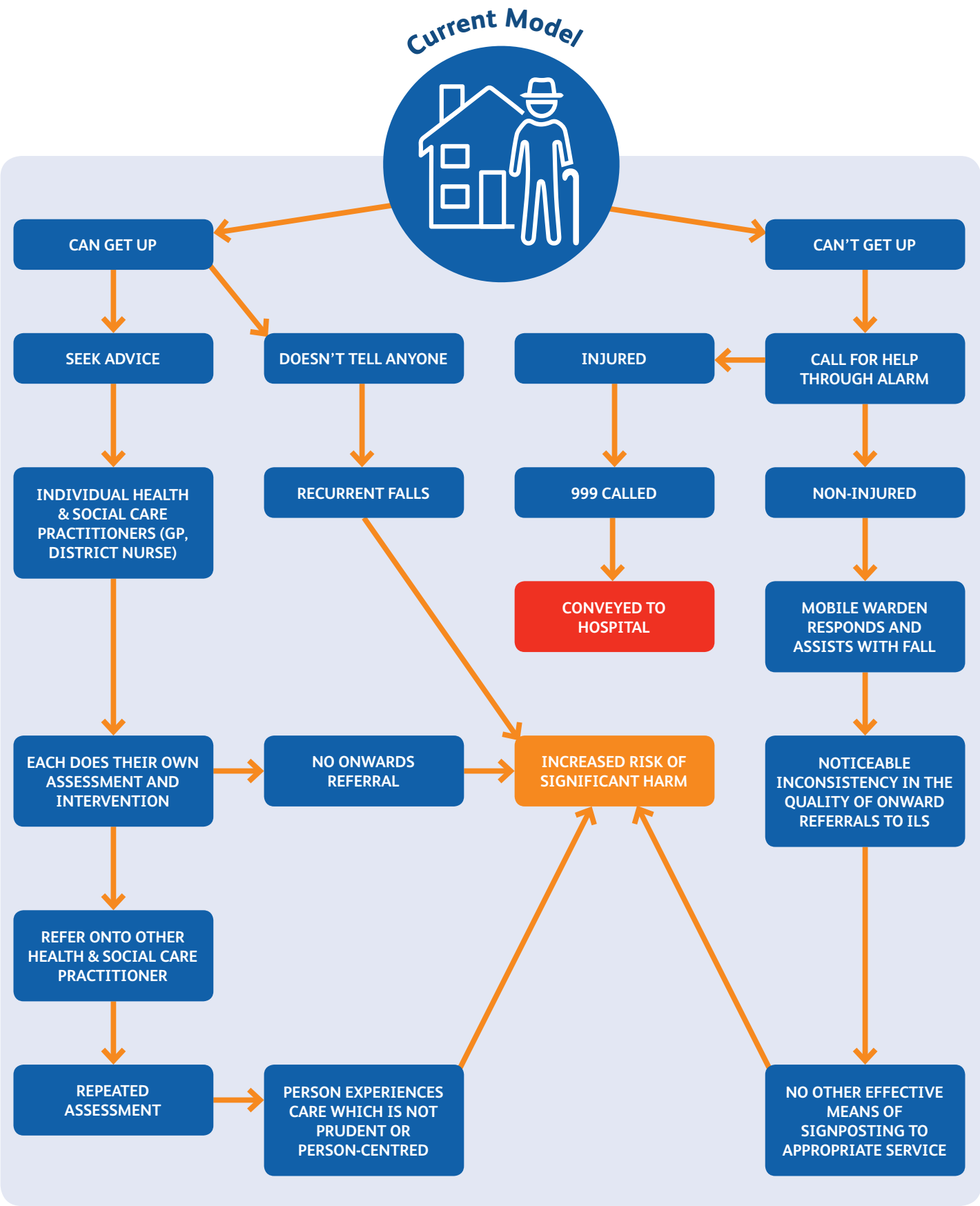
The telecare sector, by its own admission, has tended to focus on the technology rather than desired outcomes for the end user. This has led to services with high numbers of connections, but limited evidence of efficacy.²⁴ Telecare Cardiff has over 4,600 connections, representing 1 in 3 people over the age of 85 in Cardiff, with those who frequently fall on the rise. Outcomes for each customer needs to be at the forefront of our thinking, not just for Telecare Cardiff, but for the industry as a whole. With the digital transition looming on the horizon, we must adopt more person-centred, proactive services.



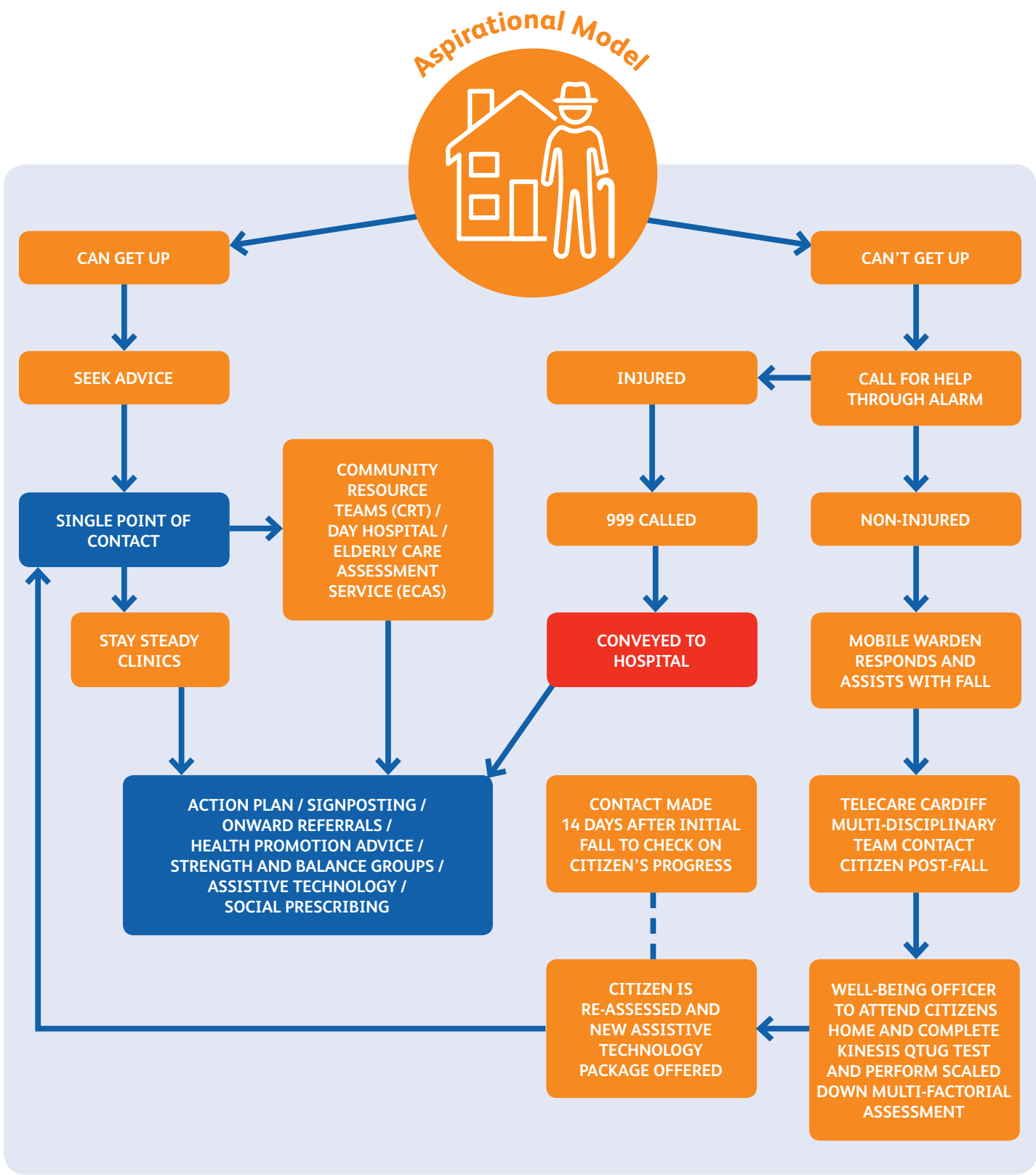
²³ Bangor University - Living Well for Longer: The Economic argument for investing in the health and well-being of older people in Wales. (2018).

²⁴ Soctim Ltd, Inform Report, Care technology landscape review. (2019).

FALLS PATHWAY - CURRENT



FALLS PATHWAY - ASPIRATIONAL



ARMED SOLUTION

ARMED (Advanced Risk Modelling for Early Detection) combines pioneering predictive analytics modelling with innovative wearable technology, and health and social care data, providing a powerful tool to identify risks earlier in the care cycle, including the risk of falling. The wearable device detects early indicators of frailty, such as low grip strength, muscle mass, hydration levels, low heart rate and heart rate variability. Predictive analytics modelling – developed in partnership with Edinburgh Napier University – then uses data to predict the risk of a potential fall and allow intervention.²⁵

Telecare Cardiff will pilot a project with 100 selected customers (across Cardiff and the Vale) who are fitted with a polar loop. When flags are raised that indicate an adverse reading, contact will be made with the participant, or their family, to ensure the necessary steps are taken to prevent a fall from happening.

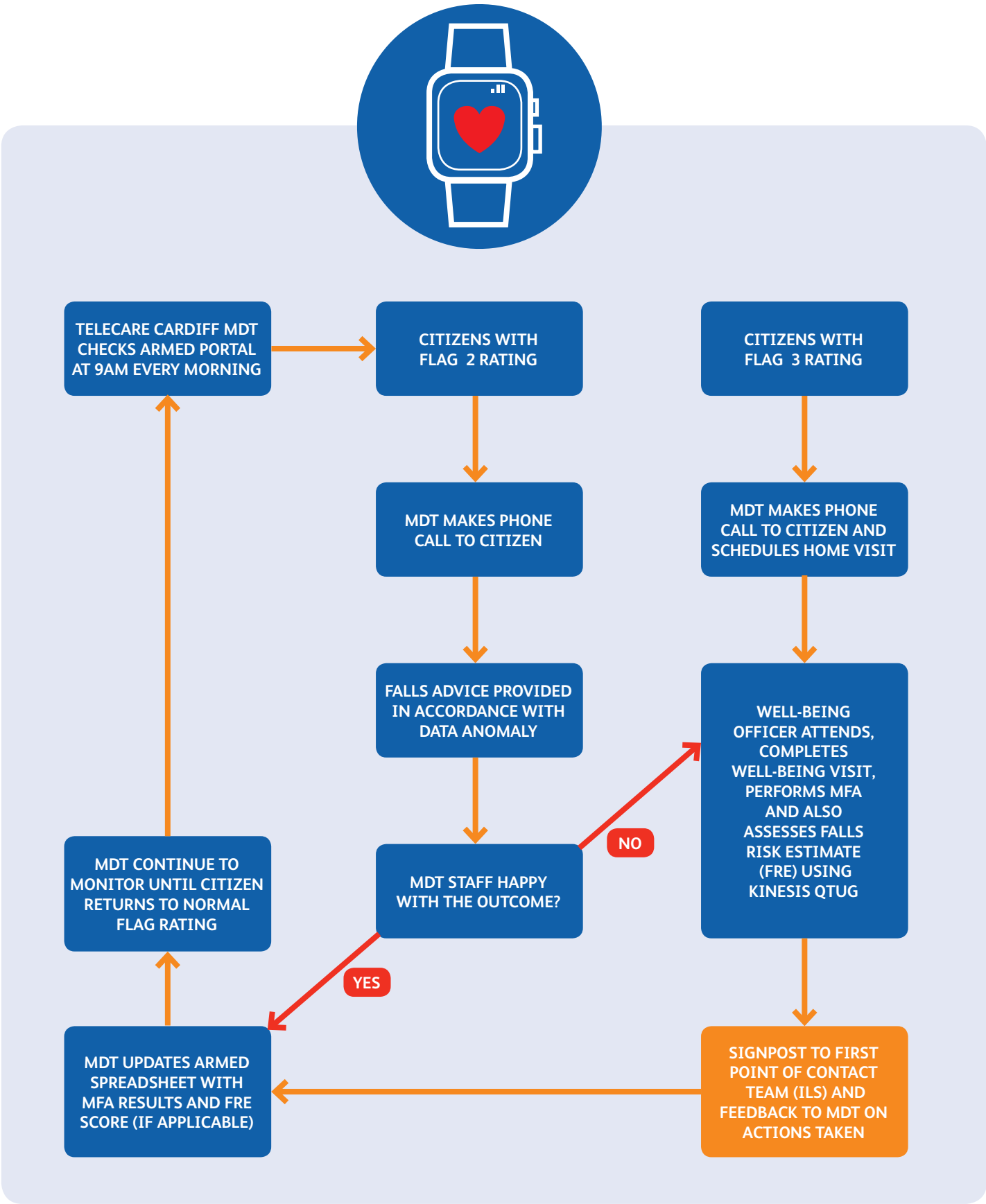
There is an opportunity in using the ARMED solution to prevent and ultimately predict falls. ARMED have completed a pilot exercise for sheltered accommodation residents within a scheme run by Loreburn Housing Association.²⁶ The findings show a 100 % reduction in falls for the participants involved in the trial. A case study has since been published on the successes of the project. Telecare Cardiff will pilot 100 devices for citizens living in their own homes, not in sheltered accommodation or residential care. There will be selection criteria to identify those most suited to the pilot.

Once the participant has the device, their vital statistics will be sent to an app on their mobile phone, which will send information to a cloud platform. Using analytics on the Microsoft Azure platform, reports are created through Microsoft Power BI. Telecare Cardiff will have an app on their desktop that will be checked daily. There are 4 risk levels in which an individual will have assigned in accordance with their health stats.

- Level 0** - the user is okay, no further action is required.
- Level 1** - the risk to the user is low, and requires no further action
- Level 2** - the user's risk is medium, a call will be placed to their contact and the user themselves to discuss the abnormality and provide advice on appropriate next steps
- Level 3** - the risk to the user is high, the user should be contacted immediately and also their named contact(s). A request will be made for a Mobile Warden to attend, their GP may be contacted and a referral will be placed to ILS or CRT



ARMED PATHWAY



25 <https://www.armedprevention.co.uk>
26 <https://www.armedprevention.co.uk/news/whitepaperai>

KINESIS QTUG

The Kinesis QTUG device (Quantitative Timed Up and Go) is based on the Timed Up and Go test and is instrumented with wireless sensors placed on each leg. The technology provides a method for objective assessment of mobility, frailty and falls risk. It provides automatic analysis of patient data against average values for patient's age and gender with colour coding to indicate deviations from normality. QTUG is intended to assist those assessing falls risk, by providing a falls risk score (known as the Falls Risk Estimate (FRE)) along with fast, accurate and objective data. QTUG also incorporates a questionnaire based on the American Geriatric Society (AGS) and British Geriatric Society (BGS) guidelines recording standard falls risk-factors.²⁷

Mobility scores identify mobility impairment by grouping mobility parameters into five functional categories; walking, variability, symmetry, transfers and turning. A high mobility score indicates that the patient may have a problem in the functional area highlighted and may benefit from specific therapy,²⁸ or indeed a tailored exercise plan.

Telecare Cardiff would look to utilise the Kinesis QTUG when a person presents as a flag 2 rating on ARMED, or for someone who is in receipt of a follow up visit post fall. Telecare Cardiff will visit users post fall for a well-being check, they will then signpost them to the relevant service, whereby they will be checked using the QTUG to assess their risk of another fall. If there is cause to follow up with the user to track their improvement then the QTUG can be utilised. This will likely be 14 days after the initial fall sustained. This technology has the potential to drastically reduce the risk of a repeat fall.

Telecare Cardiff will add the user's falls score to their individual falls history record. The record will sync to the Microsoft Power BI falls dashboard to track improvements and will hopefully tie into the wider aim of reducing the overall amount of total falls.

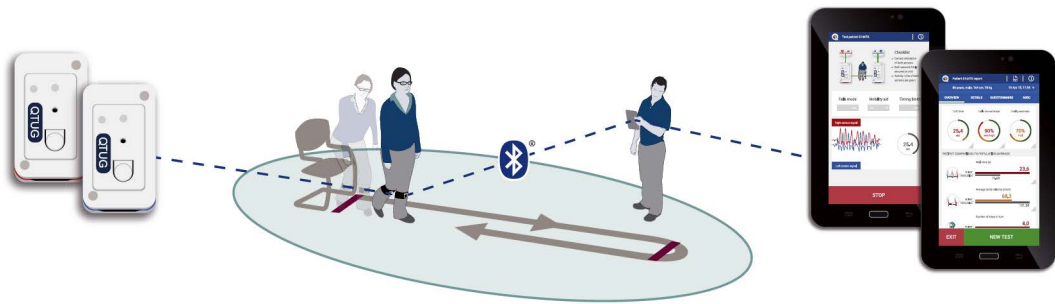


Fig 5. Kinesis QTUG demonstration. (Source: <https://www.kinesis.ie/>).

STRENGTH AND BALANCE

There is potential for those who are at risk of falling, or who have fallen, to be referred onto a community based exercise scheme. In Cardiff we would use the Elderfit programme. Elderfit run a suite of exercise classes specifically aimed at those who are deemed at risk of falling. They are of mixed levels of intensity, ranging from low level gentle sitting and standing exercises through to advanced sessions which use resistance bands and leg weights. A tailored programme for falls prevention can reduce the risk of falls by up to 54 per cent.²⁹

Telecare Cardiff will pilot a project in 2021/22 that signposts 100 users at risk of falling to attend Elderfit classes. We would subsidise the cost for those who need help with paying to attend the classes. We will utilise VEST and other charitable organisations for transport to and from the classes and then gather feedback from participants.

We will select participants who have a history of falls. By using the Markov model³⁰ we can ensure accuracy of results. It's important to note that with falls prevention initiatives, there is not a 'one size fits all' approach. Not all individuals will be able to attend Elderfit classes, even those that specialise in low intensity activities. Therefore it's imperative that the overall approach to our management of falls is centred on the individual. Balance impairment and muscle weakness are the most prevalent risk factors for falls and therapeutic exercise is the most effective component of a multifactorial intervention, so the opportunity to adopt a proactive approach to managing attendees is something we wish to explore.

Of the 100 participants who are selected, each of which must be a service user of Telecare Cardiff, a personal portfolio will be created. The information will contain their tailored exercise schedule, falls history, medical conditions and desired outcomes. We will track attendance records, ensuring there is no pressure being placed on those to attend, merely educating them on the importance of regular attendance. We will look at those who are financially unable to attend, and cover their costs, if cost is a genuine barrier for attendance then we can explore this issue further post-trial.

The main objectives of this pilot, is to determine whether there are any reductions in GP call outs and calls made to WAST. We also want to ascertain if there is a reduction in falls for the participants using data gathered for 6 months prior to the trial.

The main barrier to increasing the scope of this trial is the lack of staffing resource. To truly adopt a proactive approach and evidence that extra staffing is required, this pilot will need to prove that the fall rates of the 100 participants has reduced, the objectives are achieved and they are happier and healthier as a result. We will ensure that each of the participants are contacted once every fortnight to enquire about the classes and gather other pertinent information on their general well-being.

27 <https://www.kinesis.ie/>

28 <https://www.kinesis.ie/qtug/>

29 Age UK; Falls Prevention Exercise – following the evidence. (2013).

30 A stochastic model describing a sequence of possible events in which the probability of each event depends only on the state attained in the previous event.

INDEPENDENT LIVING SERVICES (ILS)

Cardiff Council’s Independent Living Service has a strong focus on falls prevention across all teams. They are responsible for the most direct referrals into Telecare Cardiff for citizens who require an assistive technology package. Following the commencement of this falls strategy, the vast majority of those who fall will be signposted to ILS via their first point of contact team. They will then decide the best outcome for that individual in terms of appropriate signposting. Considerable success has been achieved by ILS, with 75 % of citizens supported to stay at home without the need for Social Services intervention.³¹

ILS purpose is to take a person centred approach with well-being at its core. Preventative Services is about supporting people to live independently at home and connected to their communities, through tailored information, advice and support – enabling people to take control of their own lives.

There are numerous ways in which ILS can assist an individual to facilitate in them living a safe, independent life within their own home. ILS are made up of multiple teams that work together to effectively help and support citizens. This collaborative approach is vital in streamlining services and ensuring timely, appropriate support is offered, reducing the chances of duplication and providing increased reassurance to the individual.

The **First Point of Contact** team will discuss mobility during their well-being assessments. This will include how the citizen is managing both around their property and going out in the community, what aids (if any) are used and if they have a history of slips, trips or falls. Using the information gathered, the contact officers will make recommendations and advise citizens on services to support them to remain independent. These could be attending exercise classes, providing advice on how the telecare service works or promoting and encouraging attendance to the Stay Steady clinics. They work in partnership with Social Services on the provision of signposting. They offer tailored information and advice in finding alternative solutions through outcome focussed conversations. Low level queries and concerns can be resolved over the phone at first contact with more complex, complicated cases being referred for holistic assessments. This ensures that any onward referrals to Social Services are seamless.

The team has a partnership with health colleagues and book all appointments for the Stay Steady clinic which is based on the Canterbury, New Zealand model. This model showed a significant decrease in hip fractures over 10 years as a result of people improving their core strength and balance, and therefore preventing falls. The Stay Steady clinic involves a ‘fitness MOT’ assessment in which various activities and tasks are performed and marked by qualified physiotherapists. The team will also look at diet, nutrition, medication taken as well as current activity levels and ability. Recommendations to attend strength and balance classes such as chair yoga, tai chi or Elderfit are then provided and a review appointment booked for 10 weeks’ time to analyse progress and track improvements.



The ILS First Point of Contact Service has expanded to the University Hospital of Wales. They work closely with patients who have been admitted due to a fall and its officers carry out well-being assessments with patients. In addition to this, ILS also have a presence on board rounds, allowing them to collaboratively work with the ward multidisciplinary team and offer community solutions to enable the safe discharge of patients at high risk to falls. An example of this is the provision of equipment for discharge, to prevent falls once home and also future readmissions.

The **Independent Living** and **Well-being Officers** are a multi-skilled team looking at the holistic needs of the citizen, inclusive of social prescribing, low level adaptations, income maximisation and other factors within their home environment. This ensures that citizens are offered flexible, joined up services with a quick access route to Social Services, if there is a need.

Independent Living and Wellbeing Officers visit service users in their own home and start to risk assess in relation to falls from the moment they leave their car and continue into the service users home. The officers are all trusted assessor trained so are able to identify risks such as fallen leaves on the path, recommending a grab rail by the front door, or an appropriate referral for a community independent living occupational therapist to attend to complete a full functional assessment in relation to any required adaptations. The officers discuss the identified risks with the service user and make appropriate referrals, agreeing any actions that are required to be carried out as a result of their person centred conversation. All officers are trained to pass on significant public health messages such as the impact and benefits of strength and balance exercises, how medication reviews are important and regular eyesight tests. The main objective as a service is to assist people to remain independently living in their own home for as long as appropriately possible. Mitigating any identified risks for the citizen is key to the service ILS deliver.

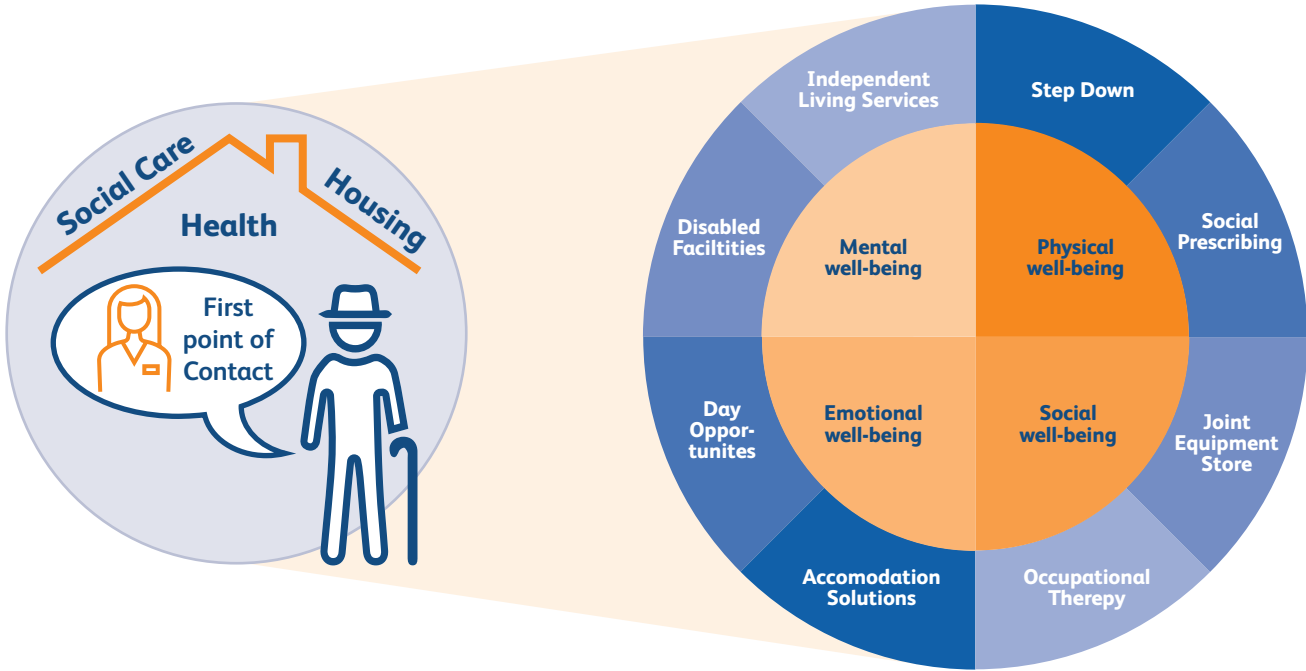


Fig 6. ILS wheel of services offered. (Source: Independent Living Services, Cardiff Council).

31 Cardiff Older Persons Housing Strategy. (2018).

The **Day Opportunities** Team work closely with people to identify their interests, abilities and needs to find suitable community activities with the aim of reducing social isolation. They work in partnership with Social Services to assess citizens abilities to participate in the community, enabling connections and reducing the pressures on social care by offering support. They provide short term intervention supporting people in the community who are isolated. This isolation is often caused from the apprehension felt following a fall or concerns relating to their potential to fall. In their capacity as manual handling assessors, the team will work with individuals in the home and out in the community to build their confidence and to help people eventually move forward on their own.

The **‘Get Me Home’** team provide a hospital based discharge support service and is aimed at providing earlier, more rapid intervention and access to local authority provided services.

The **‘Get Me Home Plus’** team follows a domiciliary discharge-to-assess model, this is seen as an enhancement of the Community Resource Team, which will provide step down care and assessment for long term care to individuals requiring support in their own home.The intention will be to provide more rapid access to community based personal care and therefore reduce length of stay in hospital.³²

Occupational Therapy teams offer practical support and assist in the removal of barriers that prevent people from doing the activities that matter to them. They will undertake reactive and preventative assessments to ensure that care packages are suitable. They can provide a professional assessment for major home adaptations such as stairlifts, level access showers and equipment provided on loan to assist in independent living.

The **Disabled Facilities** team will offer a means tested grant service to provide major adaptations to clients homes. They achieve this by working in partnership with the Occupational Therapy service. The equipment being installed looks to promote improved movement around the home, with works being overseen with strict quality control and to deadline. Low level equipment such as hand and grab rails can also be installed. Preventing a fall leading to a hip fracture saves on average £32,060.43, while the average saving per person of postponing the need for residential care by a year has been estimated to be around £31,406.14.³³

The **Joint Equipment Service (JES)** utilises pooled budgets, staffing and facilities to provide an efficient community equipment loan service to residents of Cardiff and the Vale of Glamorgan. The JES delivers and installs specialist equipment upon receipt of referrals from community and hospital clinicians. It enables timely discharge from hospital by providing equipment required to facilitate it. It also ensures that there is a one stop solution for all equipment queries regardless of whether provision was historically health or social services.



CONCLUSION

As this report has highlighted, telecare services have an important part to play in tackling the issue of falls. If you compare the number of falls in the over 65's in which Telecare Cardiff responded (2,929), to the number of admissions to the Emergency Department at hospitals in Cardiff (4,038), it's evident more is required to reduce the total number. The value of having a telecare service when looking at falls is the rich data sets that are gathered. Knowing where, when and how a user fell is important in understanding future trends and patterns. By knowing a person's falls history, we can effectively signpost them to the correct service(s), this will hopefully ensure they live longer and more independently at home. The data telecare services gather is powerful, and not something readily available to health and social care professionals. However, there are negatives to holding on and retaining this data.

There is an urgent need for an integrated, computerised database, which spans health boards and local authorities. Telecare records will not be updated for months, even years, as the information is usually gathered at source, i.e. when a user signs up to the service. There is not enough resource to update personal records, and we rely on our users, or their contacts, to inform us when their health changes in any way. Knowing this information in real time would ensure that the most vulnerable individuals in our communities can be proactively managed through assistive technologies and tailored, quality conversations can take place between telecare and other preventative services such as ILS. Unfortunately, assistive technology (AT) devices on offer over the last decade or so, can be seen as antiquated and not fit for purpose in terms of preventing falls. Potential service users are reluctant to wear and use the AT devices, mainly due to the aesthetics and associated stigma in wearing them, or having them installed at home. This lends itself to the theory that people will only consider telecare when they are in their late 70's and early 80's, as its primary function is reactionary. By this time, people may already have a perceived higher risk of falls, or have sustained a fall and are interested in telecare as a result. There is a need for TEC manufacturers to diversify their equipment, ensuring that new wearable and environmental devices that come to market are sleek, fashionable and functional.

This would remove the stigma element and likely increase the chance of a lower age demographic becoming users. By lowering the target age demographic, there's opportunity to move further upstream to prevent an individual from suffering their first fall. Some wearables will also offer additional functionality that gathers vital stats data (Telehealth / AI) which can offer a valuable insight into a person's perceived risk of falls, or acute illnesses, which will likely have negative implications if not dealt with early and at source.

The change has to shift from the current reactive model of service delivery when looking at falls. Proactive methodology, supplemented by new technologies and relevant data capture needs to be at the forefront of service leads when deciding future plans. Alarm monitoring platforms need to embrace open protocols as we move towards 2025 and the close down of the Public Switched Telephone Network (landline telephony). Response services need to be implemented across the UK to tackle the demands an ageing population will add to the NHS. Telecare services must start working collaboratively with the ambulance trust in their area, there are multiple partnership opportunities available that could involve a first responder service working alongside telecare, to ensure a speedy response to those who fall, but also that data is being gathered to further help the citizen to maintain independent living. As this report has highlighted, there is a strong need for greater partnership working spanning local authorities, health boards and third sector organisations for falls prevention initiatives to be a success.

32 Cardiff and Vale Health Board Final Integrated Winter Plan. (2018).

33 Croucher, K. & Lowson, K. Handypersons Evaluation Interim key findings. (Department for Communities and Local Government. (2011).

