

North Wales Regional Collaborative Approach To Telecare

Feasibility Study

Work Package 3

**Investigation of the potential for the
joint procurement of telecare
equipment and maintenance**

Telecare Think Tank 

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1. Introduction

The United Kingdom has more people connected to a community alarm system than any other country in the world. It is the success of this infrastructure which has enabled first generation telecare services to be established relatively quickly and, prior to 2006, without significant support from central government.

The original infrastructure consisted of equipment within a sheltered housing scheme which allowed tenants to contact their warden at any time of day or night. The equipment consisted of speech boxes (i.e. intercom units) activated by pull-cords, linked through a hard-wired communications bus to a control box in the warden's office. As wardens became more mobile (and when their responsibilities were necessarily restricted to the working week), the equipment switched over to connect to a 24 hour manned contact centre through the Public Switched Telephone Network. The development of these contact centres enabled other people in the community to access support on a 24 hour basis using a care phone, a telephone capable of autodialing the contact centre when activated using a radio trigger device.

The number of people with a community alarm system in the UK had increased to 1.5 million by 2000, roughly half of whom were in some form of sheltered housing. The origins of community alarms clearly lie in housing and it is therefore not surprising that the contact centres themselves, and the community alarm services that they operate, are generally under the control of local authority housing departments (or of the housing associations which inherited the housing stock when voluntary stock transfers took place). Historically, the community alarm services have had sole responsibility for the procurement of the equipment for the contact centre, and also for the equipment which connects to it i.e. the warden call systems for sheltered housing and the care phones for dispersed housing.

This was originally a sensible situation because of the need for compatibility between the communication systems at the contact centre and the equipment in the field where a number of different proprietary protocols started to appear. Subsequently, the establishment of a British Standard for these equipment implied that a greater degree of mixing and matching would be possible. This allowed the introduction of a number of new companies into the community alarm market place, many of them having their origins in the security industry.

However, the poor level of functionality covered by the British Standard increased the use of more sophisticated protocols of which TT92 has become the most prominent. Similarly, a number of different radio frequencies (173 MHz, 433 MHz, 869 MHz and, very recently, 169 MHz) have been used for alarm communication with the system inside the home. It is the use of these proprietary protocols and the use of different radio frequencies that have prevented a greater level of interoperability from being introduced. Perversely, it is these extended protocols that have facilitated the use of community alarm systems for the delivery of telecare alarm services because they offer the possibility of multiple alarm options with a location for each device.

Procurement of equipment and services must therefore take into account issues of compatibility and the likely levels of interoperability in the short and medium term. These factors may have a significant influence on the products to be procured.

2. Telecare Equipment and Services

There are five elements of telecare which are relevant to procurement. These elements form the basis of the NHS Purchasing and Supply Agency's telecare framework agreement which is discussed in *Section 3.3*. Not all of these are relevant to the local authorities of North Wales in the short term if they are planning to develop their telecare services using their in-house teams or through partnerships with other local organisations from the voluntary and independent sectors:

- Equipment
- Installation
- Maintenance
- Monitoring, and
- Response

The main focus of this report will be on the selection and purchase of telecare equipment and associated hardware and software. They will be considered under three main headings:

1. Software tools & mobile equipment to support a telecare service.
2. Hardware and software in a monitoring and contact centre, and
3. Devices in the home.

2.1 Software Tools & Mobile Equipment To Support Telecare Services

It is generally accepted that an holistic assessment of an individual's needs and risks to independence and inclusion are prerequisites for the provision of an appropriate care and support package. The Unified Assessment Process (UAP) offers Welsh local authorities a means of recording excellent data for assessment purposes through an overview assessment and a series of specialist assessments where appropriate. However, existing UAP versions (as well as commercial versions of the Single Assessment Process in England) are deficient in their methods of identifying problems and risks associated with the home environment, and with the individual's interaction with the home environment and the appliances therein. It follows that there may be a need for a home hazards survey (tailored for telecare) to prompt the assessor into identifying some types of risk. If this survey were electronic in nature, it could then import any relevant data from the UAP in order to avoid repetition.

The process of matching telecare technology to the identified unmet needs and risks is of particular concern to groups who are new to this approach. It demands fine knowledge of the technologies, their applications and limitations, and a degree of clinical reasoning to decide between different items of equipment, its price, availability and compatibility with any existing systems. To help perform these functions, a bespoke software tool could be employed to assist the professional in matching technology to identified needs, greatly speeding up the process. However, such a tool would need to be specified and the software written and trialled as currently there is no commercial product on the market – but this situation could change quickly. Such software would need to operate on a suitable platform – such as a laptop, Tablet-PC, handheld-PC or Palm-type device. Such devices could also be the communication method for checking the availability of a proposed solution, and even for ordering the equipment if time was of the essence.

It follows that each local authority in Wales might need software of the above type, and each could commission its own development. In this case, joint procurement would mean jointly commissioning a piece of work, with obvious cost sharing possibilities, potential improvements in service standardisation, and a reduction in the time and resources involved in helping to specify and trial such a solution.

Other telecare staff to visit the home would include the installation team and, in the event of an emergency, the response team. These might also need mobile

computing systems and communication devices to enable them to share data with the monitoring centre and other colleagues. Relatively small numbers of devices would be needed by each local authority, so each one might either use their own preferred suppliers (and risk incompatibilities) or they will purchase their equipment individually, ensuring that they pay the highest prices.

Equipment needed by mobile response teams might include mobile phones (with the facility to take photographs and record speech for audit purposes), inflatable lifting equipment (such as the Mangar Elk/CAMEL) for helping to raise a service user from the floor following a non-injurious collapse or fall, and automatic external defibrillators. In each case, the required numbers would be small but there may be some potential for savings through joint procurement with regards to staff training and maintenance issues.

2.2 Hardware and Software in a Monitoring and Contact Centre

The monitoring centre provides the location for four main functions. Firstly, it is the manned centre where emergency alerts are received, processed, decoded, and actions taken to respond to emergency situations. Secondly, it is the information centre where the service user database is kept, on which are stored client details, response protocols and other personal information relevant to the individual. Thirdly, it is the review centre for all records relating to the calls history of any client or client group. Finally, it is where other software programs may be run to provide additional services to any special client group.

By today, a modern telecare monitoring centre consists of a number of workstations (or desks) which are connected to a server which itself connects to a telecommunications system, allowing communications with the outside world. These systems are primarily differentiated by:

- their software – in particular the user interfaces and the detailed reporting and analysis that they offer,
- their ability to electronically decode alarms from the field,
- the method by which they store and sort data in their database, and
- their ability to remotely re-program field equipment.

There has been considerable consolidation in the supply sector in recent years with some providers moving out of the field and others merging. The remaining UK players are:

- **Tunstall Telecom** - their PNC3 and PNC4 systems are employed in about three-quarters of monitoring centres including 18 of the 21 in Wales. Their systems use the TT92 communications protocol which is proprietary to the company. The company also manufactures and provides telecare equipment for homes and for sheltered housing in the UK, Europe, North America and Australasia.
- **Initial-Attendo** - their Saturn system has been developed to provide improved telecare functionality through an enhanced British Standard. Initial also manufactures telecare equipment for home and for sheltered housing schemes.
- **Jontek** - an independent company specialising in monitoring centres for community alarms, telecare and homecare applications.

Some degree of interoperability has been required from the industry over the past two years. It is likely to lead to the acceptance of a new British Standard within 18 months which all three manufacturers will meet. However, the TT92 protocol remains the most powerful protocol in use at present and Tunstall are likely to continue to promote and employ its own proprietary systems rather than accept the new British standard as the only one of significance in this field. Furthermore, Tunstall has worked with Jontek to produce an add-on arrangement which will enable Tunstall home equipment to operate through to a Jontek centre. This arrangement is employed in a number of centres including Hanover, Newham (London) and Bield Housing Association (Scotland). However, it does not produce 100% compatibility. This is not a technical failure but, rather, a consequence of their inherently different approaches to database management. Similarly, the Initial Saturn system will decode most TT92 codes but will struggle to identify some alarms, especially when the number of users of different packages increases in the future. These incompatibilities could be reduced if the various companies worked together to this end. Other than the Jontek/Tunstall arrangement, this is unlikely to happen because there would be no commercial benefit to Tunstall in helping to introduce new competition. Monitoring centre technologies from the USA and from mainland Europe are therefore unlikely to achieve the required level of performance with Tunstall home products in the short term.

The result is that local authorities tend to reduce their supply chains and procurement options by using the same provider for community alarm and telecare equipment in the home, and for the monitoring centre equipment.

This is demonstrated in Table 1 for the North Wales counties where the only exception is Wrexham who have a Jontek monitoring centre. This accepts basic alarm calls from all field equipment but its main focus has been to receive calls from dispersed units manufactured by the security company, Scantronic.

Table 1. Telecare equipment suppliers used across the counties of North Wales.

County	Control Centre Equipment	Home Equipment Supplier
Anglesey	Tunstall	Tunstall
Conwy	Tunstall	Tunstall
Denbighshire	n/a	Tunstall
Flintshire	Initial	Initial (with some TeleAlarm)
Gwynedd	n/a	Tunstall
Wrexham	Jontek	Scantronic (with some Tynetec)

In the absence of a centre which is 100% compatible with all field equipment, it may be the case that two sets of monitoring-centre equipment may be needed to ensure that all alarm calls can be accurately decoded. In the longer term, a strategy may be developed to overcome this problem.

2.3 Devices in the Home

Telecare equipment in the home can be considered to belong to one of four groups:

- Stand-alone telecare (also known as Electronic Assistive Technology).
- Linked alarm systems (also known as 1st Generation Telecare).
- Systems that monitor activities or vital signs (2nd Generation Telecare).
- Information/Advice and Advanced Communication systems (3rd Generation Telecare)

The vast majority of successful telecare implementations to date involve the use of 1st generation telecare systems with or without stand-alone equipment. Inevitably, the focus of telecare in North Wales will be on linked alarm systems, using an extended range of “smart” sensors. These sensors will cover a range of applications from environmental and security alerts (such as fire and intruder alarms) through problems of a social nature (including falls and incidences of poor nutrition or coping) to medical or physiological emergencies (such as hypoglycaemic incidents and epileptic seizures). The infra-structure for this form of telecare is precisely that offered through a modern social alarm system as shown below in Figure 1.

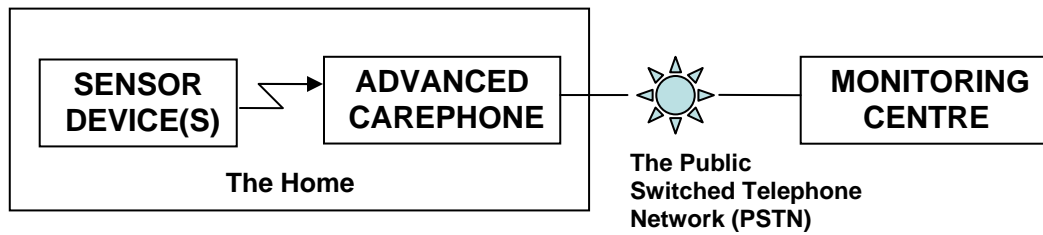


Figure 1. First generation telecare system.

Each telecare system of this type will consist of a care phone and a number of sensors selected for each service user according to an assessed need or risk. As detailed above, the sensors need to be purchased specifically to match the care phone – sensors supplied by one company may not function with the care phone from another company. There are a number of basic sensors that are available for all care phones – these include movement detectors, panic pendants, door contacts, and pressure mats. More specialist sensors (outside the environmental and security applications) will be available from only 2 or 3 manufacturers though, it should be noted, that the manufacturers and vendors of care phones and telecare infrastructure are not necessarily expert in sensor design and production. Thus, the strategy will be increasingly to source or commission novel and niche application sensors from third party manufacturers either in the UK or from abroad.

Ideally, sensors that originate with a third party provider organisation would be available, with different transmitters, for use with all makes of care phone. Unfortunately, this is not the case and many new telecare peripheral devices are the subject of a sole distributor agreement. This will inevitably open up an applications gap between the rival care phone providers. Two of the most recent examples of products for this market are:

- The Condiggi Cookerguard from Denmark – an intelligent sensing device which detects abnormal cooking behaviour and automatically switches off an electric cooker when it appears that the user has forgotten to switch off the hob or the oven.
- The Columba-band tracking device from Canada – a method of detecting people moving outside a safe area, enabling them to be located quickly.

Both devices are currently in field trials in the UK and are likely to be introduced within a single dealer arrangement. The speed with which new sensors will appear within telecare systems will depend on the way that the market evolves and, in particular, the acceptance of new working practices by health trusts and boards with an increased focus on 24-hour support services. No government agency has

published guidelines on these applications though the examples offered in various documents demonstrate an official acceptance of the evolving nature of the technology and how new sensors may be used to reduce the need for unscheduled care in hospitals.

Table 2 shows a list of possible risks that can be managed using alarm sensors. These include a number of medical applications where a major investment in sensors and in their testing may be required prior to implementation. The cost of such developments, and the need to comply with Medical Devices design and manufacturing standards may result in many of the smaller providers of telecare equipment getting squeezed out of the market or being relegated to providing equipment only for environmental telecare markets. In Table 2, only those risk situations described in red are related to safety and security issues. Only some applications are currently available (green background) with relatively few in the development phase (blue background).

Table 2. Risks and applications for reactive telecare sensors.

Abuse	Catheter blockage or removal	Forgetting doors are open	Instability & giddiness	Orientation failure
Adverse drug reaction	Cooking accidents	Floods and leaks	Isolation & depression	Poor hygiene
Agitation	Explosion due to gas	Frozen pipes in kitchen	Lack of nutrition	Sequencing problems
Air quality and smells	Falls	Heat stress	Lack of hydration	Severe pain
Asthma attack	Faulty heating appliances	Hypoglycaemic incident	Medication non-compliance	Slip/illness in bath/shower
Blocked flues	Fever	Hypothermia	Mental health crisis	Sleep apnoea
Breathlessness	Fire	Immobility	Nocturnal epileptic seizure	Slump in chair/stroke
Cardiac arrhythmia	Forgetting cooker is on	Infection	Nocturnal enuresis	Stomach pain/blockage
Carer absence	Forgetting taps are on	Insecurity/fear of crime	Noise	Wandering

It follows that options for full telecare applications may be significantly limited by the number of sensors that are available for the care phone selected. The two possible solutions will be to standardise using only the supplier of the most comprehensive range of sensors or, introduce flexibility so that the sensor need determines the make of care phone to be selected. The former offers advantages regarding training and assessment as well as financial benefits through procurement (see below). The latter helps to maintain choice and competition.

3. Equipment Procurement

3.1 Welsh Telecare Capital Grant

The topic of procurement needs to be considered within the context of the Welsh Telecare Capital Grant (WTCG) – the details of which are summarised here for convenience.

The grant provides a total of £8.92 million for the purchase of telecare sensors and equipment across Wales. The purpose of the grant is to support an extra 10,000 people in Wales to remain at home through the use of telecare. Unfortunately, the grant does not contain any associated revenue support and must be used for equipment and other capital costs only. The total grant allocation for North Wales is £2,129,316 and is broken down for each authority in Table 3. Based on an average amount of £892 per telecare package, this allocation corresponds to approximately 2300 new telecare packages across North Wales by April 2008 – although this is only an approximation, as the price per package might vary considerably as might the actual amount of the grant used on purchasing telecare equipment specifically for the home. Indeed, if councils focused on the provision of standard packages of telecare to manage specific risks such as home security or fire, alongside more holistic packages based on full assessment, then the number of people who might benefit could exceed 3000 by April 2008.

Table 3. Distribution of WTCG across the authorities of North Wales.

Authority	Grant Allocation	Approx. % Allocation (N. Wales)	(Minimum) No. of packages
Conwy	£431,969	20.3%	484
Gwynedd	£383,064	17.9%	429
Flintshire	£377,181	17.7%	422
Wrexham	£374,189	17.6%	419
Denbighshire	£344,048	16.2%	385
Anglesey	£218,856	10.3%	245
North Wales	£2,129,307	100%	2384

The terms of the capital grant specify that it can be used to purchase telecare and telehealth equipment which are now considered to include associated and stand-alone Electronic Assistive Technology devices. The grant may also be used to support the development and operation of telecare and/or telehealth service delivery. It is, however, likely that the majority of the grant will be spent on traditional telecare support packages i.e. care phones and an appropriate mix of

peripherals and sensors that help manage the risks involved with supporting people to live independently in their own homes.

It should be noted that the terms and conditions of the WTCG recommend following the NHS PASA National Framework Agreement (NFA) for Telecare, which is discussed in *Section 3.3*.

3.2 Procurement Options

A number of procurement options exist for the local authorities of North Wales:

1. **The status-quo:** each authority would have to undertake its own OJEU compliant procurement process in order to obtain the necessary telecare equipment to meet its own needs. The procurement process is long (estimated to last anything between 9 and 18 months), complex, resource intensive and therefore costly – with estimated costs of up to £50,000 per authority (resulting in a combined cost upwards of £300,000 across North Wales before a single item of telecare equipment is purchased – more than 10% of the regional WTCG budget!). The advantage of such an approach would be that each local authority would retain control over the procurement requirements and process and select the solution most appropriate to their individual requirements (although at a not insignificant cost!). However, it should be noted that these procedures are relatively new to the existing community alarm organisations in North Wales and would involve establishing major tendering contracts. Indeed, the timeframe involved in following this route is far from ideal when considered against the limited time operation of the WTCG. Furthermore, this option is clearly not in the spirit of the joint working aims of the regionalisation project and is particularly wasteful due to the fact that four of the six local authorities happen to use equipment from the same supplier and could therefore obtain a discount by combining their orders.
2. **Purchasing Consortium:** the local authorities of North Wales could pool their resources and form a purchasing consortium capable of obtaining significant discounts due to the increased volume of equipment purchased. Naturally, outside any multi-supplier cooperative procurement framework, this arrangement is only really worthwhile if each of the authorities use the same equipment suppliers. This is not the case across the region, with four authorities using Tunstall equipment, one using the expanded Initial group and one using the security equipment manufacturer, Scantronic. It would be possible for the four Tunstall authorities to form an arrangement,

but this would not provide any benefit to the other two authorities, and would also limit the benefit to the four authorities. Adopting a single supplier might then seem the obvious solution, but may be possible only if the other two authorities (Flintshire and Wrexham) could be convinced that the business case was sufficiently strong. However, this consortium approach might be worthwhile for items of equipment that are not currently available using any alternative framework (such as PASA – discussed below). This is certainly the case for stand-alone assistive technologies (e.g. medication reminders, lost-object finders, etc.) and for ‘accessory’ type devices such as X-10 remote control equipment (used for example to automatically switch lights on and off within the home), which can be sourced from Internet suppliers at a considerably lower price than from traditional telecare equipment manufacturers.

3. **Purchasing Consortium within NHS PASA:** a North Wales consortium could be set up to take advantage of the discounts available by using the PASA NFA for Telecare. This option would allow 5 of the 6 local authorities to obtain their existing preferred equipment at a competitive rate without having to undergo a procurement process. Unfortunately, the manufacturer used by Wrexham, Scantronic, is not a member of the PASA framework and therefore its equipment is not available using this approach. Scantronic equipment also operates at a frequency reserved for licence-free operation of radio security systems rather than social alarms – which could lead to reliability and acceptance problems. Wrexham have also used some Tynetec equipment in the past. Whilst Tynetec has not been accepted onto the PASA framework in its own right, it is possible to source their equipment via RSL Steeper (although at a higher cost than list price!). Because of the multi-manufacturer nature of this arrangement and because it is recommended by the WAG, the PASA route seems an attractive option, and is discussed in greater detail in the next section.

3.3 NHS PASA National Framework Agreement for Telecare

The NHS PASA National Framework Agreement (NFA) for Telecare (Part A) is a purchasing framework that enables eligible organisations to procure telecare equipment and services, from a range of pre-approved manufacturers and suppliers, at a competitive price without having to undertake their own OJEU public procurement tendering exercise. This offers organisations the potential of obtaining significant savings and is possible because each of the approved

suppliers' services and products have already been subject to a competitive OJEU tendering exercise.

The following equipment types are included in the NFA (Part A):

- Equipment to assist in reducing accidents and incidents in the home;
- Integrated systems for telecare and healthcare;
- Blood pressure monitoring;
- Cardiac arrhythmia monitors;
- Home personal medical assistant units;
- Medication reminder systems;
- Home activity, lifestyle and environmental monitoring;
- Community (social) alarms;
- Blood glucose monitoring;
- Asthma monitors;
- Integrated health monitors;

The following service elements are also included within the scope of NFA (Part A):

- **Installation Services** – installation of equipment, training, battery replacement and de-installation;
- **Maintenance Services** – including standard repair, preventative and planned maintenance;
- **Response Services** – including monitoring and response services;

The national framework agreement lasts for 4 years – commencing on 30th June 2006 and ending on 31st May 2010. Access to the national framework agreement is free of charge. The national framework agreement will not restrict the choice and flexibility for its users, allowing them the flexibility to procure equipment/services from any of the suppliers on the agreement, at any time they wish. Importantly, users also retain the flexibility to procure telecare equipment/services from suppliers outside of the national framework agreement if they so wish, provided that they satisfy all local requirements and EU public procurement regulations.

3.4 Standard Telecare Equipment

3.4.1 Telecare Equipment Requirements

In order to analyse the options available regarding procurement, it is first necessary to have an idea of the telecare equipment that will be required across the region. It is only possible to develop an approximation of the requirements of the region with regards to telecare equipment as it will ultimately depend on the needs of the individuals assessed over time. The approximation can be based on

baseline information as well as considering how other telecare services across the UK such as Cheshire and West Lothian have deployed telecare equipment.

The logistical requirements for implementing an effective telecare strategy are considerable. In some of the London Boroughs, two levels of service have been required in order to target the required number of users based on their existing capacity. One of these is based on a full social services assessment, and is offered according to standard eligibility thresholds. The other is for those whose level of need lies at the moderate or low levels and who might benefit from telecare as a means of prevention. The latter service requires a far lower level of equipment, and may not be subject to the full Unified Assessment Process. Consequently, it may be quicker to implement and will involve far lower costs. Thus, to illustrate a potential package for the North Wales region, we take a twin track approach. Table 4 considers the possible (but not exhaustive) equipment needs of those people with critical or substantive assessed needs based, in part, on actual data from Cheshire but incorporating the views of our panel of experts.

Table 4. Estimate of advanced telecare equipment needs across the region.

Device	Estimated % of Packages	Estimated Qty. per package	Estimated Number required
Care phone & pendant	100%	1	1000
Smoke detector	100%	2	2000
Bed occupancy monitor	50%	1	500
Flood detector	40%	2	800
Smart fall detector	20%	1	200
Low temperature alarm	20%	1	200
High temperature alarm	20%	1	200
PIR motion detector	20%	2	400
Gas management (sensor + valve)	10%	1	100
Bogus caller button	10%	1	100
Medication/Pill dispenser	5%	1	50
Wandering alarm	5%	1	50
Epilepsy sensor	5%	1	50

Table 5 considers the potential for introducing a smaller package of telecare to people who require a basic level of reassurance. This can be introduced without a

full UAP and can involve a charging policy similar to that adopted by most authorities for community alarm services.

Table 5. Estimate of basic safety telecare equipment needs across the region.

Device	Estimated % of Packages	Estimated Qty. per package	Estimated Number required
Care phone & wireless pendant	100%	1	3000
Smoke detector	100%	2	6000
High temperature alarm	100%	1	3000

3.4.2 Single Supplier Option – Tunstall

Under the PASA NFA scheme, Tunstall offer some discounts based on volume for some of its product range, whilst some are at a fixed price (according to the data provided). Price breaks for sensors for our prediction can be determined accurately because the price breaks are based on the *volume of care phones purchased* and **not** on the numbers of sensors purchased. Tunstall have also confirmed that it is the **total** volume of care phones purchased that determines the price break used. So, for example, if there were a need for 3000 Lifeline 400's, 700 English Lifeline 4000+ and 300 Welsh language Lifeline 4000+, then the price band for *each* care phone and sensors with a volume discount would be set at the '2501 – 5000' price band (i.e. total volume of care phones = 4000).

Based on these figures, the total cost of obtaining the telecare packages as described in Tables 4 and 5 would be approximately £813,000 and £557,350 respectively, giving a total cost in the region of £1,370,350. The assumption should be made that the Lifeline 4000+ is used for the complex packages while the Lifeline 400 is used in other cases.

3.4.3 Single Supplier Option – Initial

According to the data supplied, Initial does not offer price breaks within the PASA framework according to purchase volume. This implies that they may not be geared up to the sales volumes enjoyed by their competitors. The current range of Initial equipment does not allow a direct comparison to be made with the Tunstall price for Table 4 products as they don't have access to a smart (i.e. multi-sensor and intelligent) fall detector¹, nor do they have an epilepsy alarm.

¹ Initial's fall detector is integrated into a radio pendant and raises an alarm immediately when it lies horizontally. This single sensor approach is crude and prone to a high number of false alarms (e.g. if service user lies down on couch/bed or removes device and places it on a table) – which often results in increased service user non-compliance. Discussions with Flintshire Carelink staff confirmed these

However, this situation might change during 2007 if suitable contracts can be put into place with third party sensor providers. Based on historic data, it is likely that Initial products will, when available, offer a saving compared with Tunstall. For reference, the cost of the advanced package without the fall detector or epilepsy option is approximately £469,700. However, it is difficult to estimate the price advantage that would be needed to persuade Anglesey, Conwy, Denbighshire and Gwynedd to change supplier in the absence of convincing evidence for the quality and reliability of their new telecare products.

It may be easier to compare the relative Initial prices with those of Tunstall for the products shown in Table 5. In this case, based on the predicted volumes, the Initial package would cost approximately £873,000 (giving a total of £1,333,700). The difference in price with Tunstall is primarily due to the discount obtained from the volume pricing deal on the Lifeline 400 based on the total number of home units required (the overall costs for the sensors that are available are similar from each supplier).

In theory, combining the two tables gives the greatest savings as it maximises the benefits of using a single supplier. It may be apparent that using Initial as this supplier may not currently be viable – but should be reconsidered at the end of the grant period, and when the actual sensor needs are established.

3.4.4 Multiple Supplier Option

Perhaps the simplest solution, and one which requires least changes in buying habits, would involve the use of both Tunstall and Initial as providers of telecare equipment. The advantages are that it would allow all counties to mix and match their provision. Effectively, the most likely splits would be:

- Tunstall - Anglesey, Gwynedd, Conwy & Denbighshire (~ 2600 packages)
- Initial - Flintshire & Wrexham (~ 1400 packages)

or:

- Tunstall - Anglesey, Gwynedd, Conwy, Denbighshire & Wrexham (~ 3300)
- Flintshire only (~ 700 packages)

limitations and concerns. Whilst Tunstall's fall detector is also prone to some false alarms, its twin sensor approach (which includes impact detection) helps to reduce such events.

The disadvantage of both these approaches would be to the four confirmed “Tunstall” counties, which would potentially lose some benefit of discount. It would also be a major blow to regionalisation as it would be an act of dividing the counties not only by provider but also by geography. Such a split could be supported on the grounds of acute care provision except for the fact that some areas of Flintshire are served by the Conwy and Denbighshire NHS Healthcare Trust, while the North East Wales Trust provides some services for residents of Gwynedd and South Denbighshire.

For completeness, the estimated costs involved with a twin supplier approach results in a total package cost of approximately £1,357,523 for the first hybrid arrangement and approximately £1,363,936 for the second.

3.4.5 Summary

Table 6 summarises the estimated costs for the telecare packages of Tables 4 and 5 for each single supplier option and the two example hybrid (i.e. twin supplier) options.

Table 6. Summary of estimated costs for example telecare packages.

Package	<u>Single Supplier</u> Tunstall	<u>Single Supplier</u> Initial	<u>Hybrid 1</u> 65% Tunstall 35% Initial	<u>Hybrid 2</u> 82.5% Tunstall 17.5% Initial
Basic safety package (Total qty. 3000):	£813,000	£873,000	£834,000	£823,500
Advanced Package (Total qty. 1000):	£557,350	£460,700²	£523,523	£540,436
TOTAL:	£1,370,350	£1,333,700	£1,357,523	£1,363,936

From Table 6, it can be seen that there is little financial difference as far as procurement costs are concerned between each of the options considered. Furthermore, there is in the region of £760,000 left over to fund installation, training package development, software assessment tools, mobile IT equipment, demonstration facilities, stock control arrangements, stand-alone equipment and medical telecare.

3.5 Stand-Alone Equipment

Due to the relatively low-cost of many stand-alone telecare equipment, the percentage of the grant committed to the purchase of these devices may be relatively low. Yet, their potential for improving Quality of Life and supporting

² Does not include fall detector or epilepsy detector.

independence is known to be great. There is no consensus on the efficacy of many of the devices on the market including those used in published reports. However, the Trent region of the NHS has received government funding to establish a web-site to promote these devices. It was due to be operational in October 2006 but has been delayed by a few months by problems associated with the selection of devices for display.

Appendix 1 gives examples of some devices which have proved popular in a number of pilot projects. In particular, the Pivotell (or Careousel) medication dispenser and alarm has been used in a trial published in Nursing Times and over 5000 of them have been sold in the UK during the past 2 years. The door camera has proved to be the most popular device used in County Durham trials and is welcomed by the police to help deal with the problem of bogus callers. These devices can be purchased over the Internet on an individual basis. However, carriage costs can be considerable. Bulk buying could be used to obtain a discount and to reduce the handling and carriage costs. The same principles could be applied to a wide range of products if agreement could be reached on the items of the stand-alone inventory. This requires cooperation and, ultimately, agreement on the eligibility and assessments employed by staff across the region.

3.6 Analysis

The telecare market is not the simplest one to introduce price reductions through large procurement contracts. The reason for this is that one of the providers, Tunstall, has such a dominant market position that competitors see a need to compete on price rather than on quality, innovation, service or range of peripheral products. It follows that the selection of an alternative provider to Tunstall must become a gamble. Any problems need to be considered alongside the duty of care to vulnerable people if a telecare service is delivered which is sub-optimal. This would especially be the case if the service was limited by the performance or capability of the equipment.

There are some clear financial advantages of joint procurement through the PASA framework, and these are maximised when a single supplier is selected. However, actual savings are relatively small when compared with the overall spending on the equipment. Under these circumstances, it may be difficult to recommend a single supplier arrangement over a dual supplier arrangement involving Tunstall and Initial. Of course, the benefits may be greatly amplified when training, storage, assessment, maintenance and installation issues are also factored in. These will be discussed in Work Package 4.

To conclude, it may be relevant to compare the current situation in North Wales with the telecare environment in Cheshire in mid 2004 when the Social Services Department started planning its telecare strategy. At that time, the 6 districts in Cheshire – Crewe & Nantwich, Congleton, Ellesmere Port, Chester, Vale Royal and Macclesfield, each had their own monitoring centre and community alarm service most through a housing trust formed by voluntary transfer of the council's housing stock. 3 of these districts used Tunstall equipment, 2 used Initial and one used Attendo. They were invited by Cheshire Social Services to a meeting to discuss telecare services at which they were told of the intention to establish a standard and uniform telecare service across the county. Ultimately, they were told that equipment procurement would be through the Northern Housing Consortium's framework and would involve supply by Tunstall or Initial. Each was loaned equipment and then asked to help select the equipment provider for the Cheshire Telecare Service. There was unanimous agreement to select Tunstall but for the first year only. The Cheshire telecare service is now ahead of schedule in rolling out services to older people. It is generally considered to be the best example of provision in England. The individual districts acknowledge that the Social Services decision to impose a standard solution on them was an important factor in ensuring the success of Cheshire Telecare.

4. Maintenance Issues

Maintenance and service have been an important source of income for organisations supporting community alarm systems. This is because of the need to provide rapid restoration of service if a fault occurs in the hard-wired warden call system. Failures in dispersed telecare equipment are far less likely and the maintenance needs are therefore very different. The PASA framework requires manufacturers to give pricing which is inclusive of 3 years return to manufacturer warranty. The ease with which a faulty care phone may be replaced with an alternative unit is also an important factor in determining the level of maintenance contract required.

Currently, service contracts are provided through monitoring centres as these provided the first port of call for service engineers, especially as they are historically closely related to sheltered housing. The existing contracts can therefore be allowed to continue but will eventually be phased out, especially if local authorities discontinue their practice of replacing old hard-wired warden-call system with wireless care phone arrangements. This will yield significant savings in maintenance contracts.


Although most modern telecare peripherals have automatic alert options for batteries that are running low, a more cost-effective approach involves the use of proactive (or planned) battery maintenance. This service may be provided by an external agency (usually the manufacturer) and will be more cost-effective if the service is shared across all the counties of North Wales.

5. Recommendations

The following recommendations can be made:

- It is clear that the use of PASA'S National Framework Agreement for telecare is essential in order to ensure that procurement is efficient and appropriately evaluated. Devices that can be procured through PASA should ONLY be procured in this way.
- Procurement of some popular items of stand-alone telecare (i.e. Electronic Assistive Technologies) and other related technologies, such as X-10 devices, should be through a North Wales purchasing consortium direct from the appropriate distributor/manufacturer.
- The project group should recommend the adoption of either a single supplier for the whole region or a two supplier arrangement. There is little financial difference between the two possibilities as far as procurement costs are concerned.
- The decision on the above recommendation should be informed by the implications for stock control, training, assessment, installation and compatibility to be discussed in more detail in Work Package 4.
- Local Health Boards planning to use telecare for vital signs monitoring of vulnerable groups (with COPD and CHF for example) should also use the PASA framework, and should be made aware of the procurement arrangements being considered by the local authorities.

6. Appendix 1 – Example Stand-Alone Equipment

Product	Features	Manufacturer / Supplier Price (1 off)
<p>Automatic Pill Dispenser</p> 	<ul style="list-style-type: none"> • Ideal for those on a regular pill regime who have difficulty remembering when and what pills to take. • Can easily be loaded by the user, a carer or relative. • Simply programmed and will dispense pills up to 28 times a day. • At the pre-programmed times, the internal pill cassette rotates, the alarm signal sounds, and the correct dosage comes into view through the opening in the lid. • There are four different alarm sounds which can be easily selected according to preference. • The dispenser is battery operated (4 x AA type alkaline batteries supplied) which will last 12 months under normal circumstances. • There is an in built test function, which includes a low charge battery warning indicator. 	<p>www.pivotell.co.uk</p> <p>£95.00 + VAT (£111.63)</p>
<p>PIR Camera System</p> 	<ul style="list-style-type: none"> • Lets you see and hear when visitors are approaching. • Auto switch facility or can sound a buzzer if visitor/intruder is detected. 	<p>e.g. Micromark system</p> <p>www.bridisco.co.uk</p> <p>£34 +VAT</p> <p>£40 +VAT for version with two-way intercom</p>
<p>Big button picture phone</p> 	<ul style="list-style-type: none"> • Empowers people with memory problems • Big Button Telephone • 9 Fast Dial Buttons with photographs • 50% speech amplification • Light flashes when phone rings • Easy to programme fast dials • Connects to a standard BT socket 	<p>www.tekability.co.uk</p> <p>£39.99 + postage</p>

<p>Calendar Clock / Night and Day Electronic Calendar</p> 	<ul style="list-style-type: none"> FORGET-ME-NOT™ is an electronic calendar where day and date are shown clearly on a display. At midnight, day and date shifts automatically. FORGET-ME-NOT can be personalised by using own photographs, for instance of family members, or pictures suitable for the season. Disruption of day/night rhythm can be a problem for some people with dementia. Getting up, leaving the house or making phone calls at night may lead to unrest, anxiety and even serious incidents. NIGHT and DAY is an electronic calendar where day, date and time of the day displayed as "Morning", "Afternoon", "Evening" or "Night" shifts automatically. 	<p>www.forget-me-not.no</p> <p><i>FORGET-ME-NOT:</i> £65, Postage £4</p> <p><i>NIGHT and DAY:</i> £115, Postage £8</p>
<p>Loc8or Lost-item finder</p> 	<p><u>Locate Mode:</u></p> <ul style="list-style-type: none"> Locate mode finds tagged items up to 183 metres (600 feet) away Audio and visual directional technology guides to within 2.5cm (1") of lost items Miniaturised tags can be quickly and easily attached to almost anything with the key ring loop or adhesive strips Homing tags gives off audio beep and flashing LED to help locate Up to 24 Tags / items can be registered Easy to use – set up in seconds <p><u>Alert Mode:</u></p> <ul style="list-style-type: none"> As above, but with additional functionality which enables an invisible boundary to be set around the Loc8tor – near, medium or far, and warns the moment any tagged item goes out of your preset safety zone with an audio alarm, on screen display detailing the item/s missing and a vibration alert. In Alert mode both the Homing or Panic Tag can be attached to a dependant and will warn if they move out of your preset safety zone. The Additional button on the Panic Tag enables a dependant to set off a distress alarm on the Loc8tor Handheld advising that help is needed. 	<p>www.loc8tor.co.uk</p> <p><u>Loc8or Pack:</u> 1 x Loc8tor Handheld (Locate mode only) and 2 x mini homing tags £59.99</p> <p><u>Loc8or Plus Pack:</u> As above but with Alert Mode £99.99</p>