# Amber

## Home Healthcare and Telemedicine

**Visonic**

*For a smart and secure lifestyle*

# Executive Summary

Currently it is estimated that there are about 600 million people aged 60+ worldwide. In Europe alone, almost 36 million people will reach age 80 and above by the year 2020. This has generated a growing interest in telemedicine since governments wish to alleviate the disproportionately high bed occupancy of seniors in hospitals (and resulting costs), in favour of home care.

Significant resources are increasingly being allotted by governments worldwide to the care of senior citizens in their homes. In the UK, local governments are the largest customers of home healthcare (Dispersed Alarms) and account for 80% of the market. Other interested parties who are stakeholders in this growing market include service providers, such as medical monitoring companies, physicians and clinics.

The market for Dispersed Alarms is growing at an annual rate of 10-15% and is worth, in the UK alone, $250M per annum at installed prices in 2004.

End-users themselves, be they the elderly, infirm or other patients in need of medical care, are a key audience for the advantages of telemedicine. Telemedicine offers them quality of life, through at-home or mobile medical testing with real-time professional consultation.

# World Population Ageing

Population ageing is unprecedented, without parallel in the history of humanity. Increases in the proportions of older persons (60 years or older) are being accompanied by declines in the proportions of the young (under age 15). By 2050, the number of older persons in the world will exceed the number of young for the first time in history.

Population ageing is enduring. During the twentieth century the proportion of older persons continued to rise, and this trend is expected to continue during the twenty-first century. For example, the proportion of older persons was 8 per cent in 1950 and 10 per cent in 2000, and is projected to reach 21 per cent in 2050

The trend towards older populations is largely irreversible, with the young populations of the past unlikely to occur again. As the twenty-first century began, the world population included approximately 600 million older persons, triple the number recorded fifty years earlier. By mid-century, there will be some 2 billion older persons - once again, a tripling of this age group in a span of 50 years.

The older population is itself ageing. The fastest growing age group in the world is the oldest-old, those aged 80 years or older. They are currently increasing at 3.8 per cent per year and comprise more than one tenth of the total number of older persons. By the middle of the century, one fifth of older persons will be 80 years or older.

The majority of older persons are women, as female life expectancy is higher than that for men. In 2000, there were 63 million more women than men aged 60 or older, and at the oldest ages, there are two to five times as many women as men.

# The world is ageing
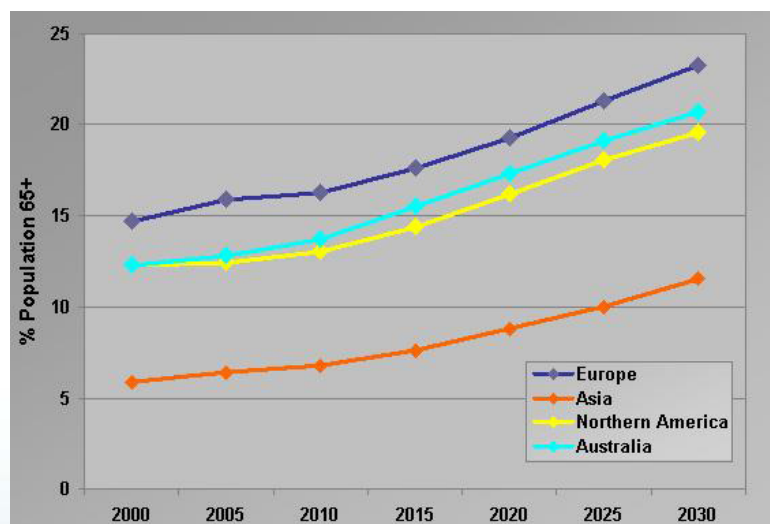
Source: United Nations population division

# Addressing the Needs of a
# Rapidly Ageing Population

The health of older persons typically deteriorates with increasing age, inducing greater demand for long-term care as the numbers of the oldest-old grow. The parent support ratio, the ratio of the population 85 or older to those aged 50 to 64, provides an indication of the support families may need to provide to their oldest members. Globally, there were fewer than 2 persons aged 85 or older for every 100 persons aged 50-64 in 1950. By 2000, the ratio had increased to 4 per 100, and it is projected to reach 11 by 2050.

Population ageing is characteristically accompanied by an increase in the burden of chronic noncommunicable diseases (NCDs) such as cardiovascular diseases, diabetes, Alzheimer's and other ageing-associated mental health conditions, cancer, chronic obstructive pulmonary disease and musculoskeletal problems. As a consequence, pressure on health systems worldwide will increase.

Supporting the health of older people and ensuring a good quality of life in their later years is one of the greatest challenges for the health sector in all countries.

People with disabilities and older people are constantly faced with the choice of remaining at home, with a care package to meet their requirements, or being institutionalised.  However, the decision to move from the familiar surroundings of their home to the alien environment doesn't have to be as drastic and disorientating as they may fear.

Due to the ageing trend, together with the constant need for effective monitoring in care homes, the integration of assistive technology is now becoming more commonplace in today's caring society.  Many people with disabilities can now lead more independent lives in their communities and in their homes by taking advantage of the systems and technologies now being offered. However, in order to reduce the non-use of assistive technology, a common problem, it is essential to successfully match the product with the individual needs and expectations of the user.

The market for home healthcare and telemedicine, through Dispersed Alarms, is covered by three primary channels. These are:

- Local Government
- Pressure Groups
- Security Installers
- Related Businesses

In the UK, the prime channels are dominated by Local Government which accounts for approximately 80% of the market demand.

The UK Governments 'Working in the Community' policy directive ensure that local government departments provide these services to the elderly living on their own or with disabilities.

# The Advantages of Home Healthcare and Telemedicine

Telemedicine and home healthcare offers solutions to a host of issues raised by current population trends - predominantly the ageing of populations and the increased medical implications of this trend.

Assistive technologies come in varying degrees of sophistication. Relatively simple and easy to use systems are Personal Emergency Response Systems. Their features include 24/7 emergency response capabilities, fall detection, medical reminders and compliance monitoring, inactivity monitoring, wellness verification and two-way voice communication. More advanced versions of these systems include home safety, home control and ultimately telemedicine.

Telemedicine systems transfer medical data from remote locations to a clinician, via a fixed line or wireless communications, allowing monitoring, diagnosis and consultation. Telemedicine enables advanced disease management in fields such as cardiology, pulmonology and diabetes. In Europe alone there are about 215 million patients with diseases in cardiology (77m) asthma/COPD (35m), diabetes (40m) and hypertension (63m). Telemedicine applications include testing blood pressure, spyrometer, glucose, ECG, oxygen saturation, weight scale and drug dispenser. The data is then transmitted in encrypted form and easily accessed by the physician from any web access point accessible from any handheld device or PC. The patient's data is immediate brought to the attention of the physician via SMS/email notification.

The three major groups who can reap huge benefits from this kind of technology are local governments, service providers and the patients themselves.

Local governments are increasingly enthusiastic supporters and customers of telemedicine because of the reduction in medical costs which this technology offers. Telemedicine enables patients to receive a significant part of the medical attention they need outside hospitals and thus reduce bed occupancy, reduce waiting lists and enable local government to better manage chronic illness and the ageing population in general.

Telemedicine service providers are tapping into a growth market for which there will be increasing demand. The sustainable business model in this case will be by capturing incremental revenue from subscriptions to their service. Physicians and clinics also stand to increase their efficiency and revenues by catering more effectively to a larger number of patients, as well as improved medical data collection of a patient's personal health record.

Patients and their caregivers stand to increase their quality of life by being able to perform the tests their condition requires in the comfort of their home or any place their lifestyle warrants, and then receive diagnosis, consultation and even a second opinion, immediately or within a short span of time. Telemonitoring can also benefit isolated patients living in rural areas, remote countryside, islands or areas lacking convenient public transport. Although much of these applications are tailormade for the senior population, it can be expanded to high-risk pregnancy and other medical conditions.
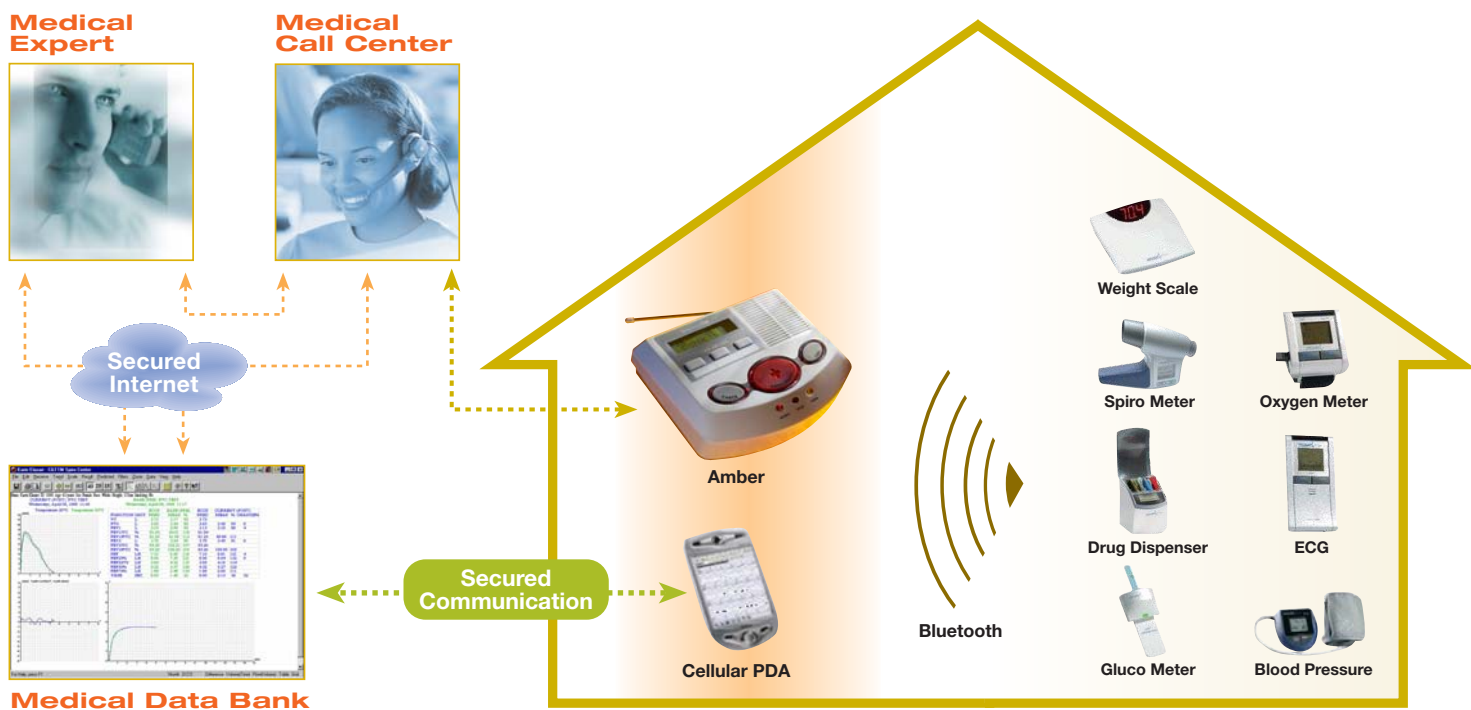
# The Amber and TMT Telemedicine Solution

Visonic's Amber Health & Safety Support Solution is much more than an emergency response system. The Amber product features medical reminders, fall and inactivity detection and telemedicine capabilities - offering a 24/7 virtual safety net.

Visonic has tailored the Amber product design for the senior population. With large LCD and buttons and backlight, speed dial up to 3 numbers, powerful speaker and sensitive microphone, adjustable volume, 24 hour backup, rechargeable battery, reporting to private numbers as well as monitoring service, it is the most comprehensive solution for seniors and those who care about them.

Amber is an excellent way for community service providers to protect and care for seniors while maximizing their patient's dignity and independence. Ambers telemedicine capabilities include compatibility with remote diagnostic devices for testing blood, sugar, weight, ECG, lung capacity and more. Features include advanced home control and even video verification. The wide range of peripherals include wrist pendants and detectors such as fall detectors, smoke detectors, gas detectors, food detector, inactivity detector (PIR).



**Medical Expert**

**Medical Call Center**

**Secured Internet**

**Medical Data Bank**

**Amber**

**Secured Communication**

**Cellular PDA**

**Bluetooth**

**Weight Scale**

**Spiro Meter**

**Oxygen Meter**

**Drug Dispenser**

**ECG**

**Gluco Meter**

**Blood Pressure**

Amber's ease-of-use and adaptability make it a perfect adjunct for providers of health care and safety services to seniors in a variety of settings. Amber is the ideal social care extension. It maintains independence even in the presence of disability, reduces burden on family members and delays hospitalization, minimizes hospitalization due to missed or incorrect medications, supports hybrid formal and community based care models, and reduces aging related pressure on public spending.

Having recently established an alliance with TMT Telemedicine SA France and founded a joint company called Visonic-TMT, Visonic is now in a position to offer even more comprehensive solutions in the area of home healthcare and telemedicine.

The system which will be used in Visonic—TMT's telemedicine product offering is an adaptation of Visonic's already highly successful and field proven Amber system and will be a significant advancement into the telemedicine market. In addition to the Amber, Visonic-TMT solution includes an option of direct communication (via a PDA with GPRS), between the general physician visiting the patient at home and remote medical experts. This system enables the visiting doctor to transmit the results of medical tests taken at home to a medical data bank or expert, and receive immediate feedback as to patient care.

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