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Wireless eHealth and the Elderly Consumer

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1. Introduction

The market for wireless healthcare devices is perceived as being driven by two interlinked requirements; the need to reduce the cost of delivering care and the need to build healthcare IT infrastructure that will cope with the growth in the number of ageing baby boomers who will require care in the near future. Even so, many vendors are struggling to find a route into what should be a potentially large and rapidly growing market for new medical devices and healthcare software.

Resistance to healthcare reforms and the deployment of online patient records, as well as scepticism towards Health 2.0 style services on the part of incumbent healthcare providers, are creating barriers to entry for the developers and suppliers of mobile healthcare devices and associated online services.

This report examines an alternative route into the wireless healthcare market that may offer less resistance and avoid some of the current barriers to entry. By using technology to empower existing, but often overlooked, providers of care it should be possible for wireless ehealth vendors to exploit the growing convergence between professional and consumer electronics in the healthcare space. The target user in this case is the 'alpha mom', a demographic group identified by Constance Van Flandern as technology aware females who have a significance influence over purchasing decisions in households containing children. The alpha mom is also a major provider of healthcare to her children and other members of her household - care that would otherwise have to be provided by a GP.

The alpha mom can also be seen a prototype for another, overlapping, demographic group: the 'alpha daughter'. The alpha daughter is a female who is providing care for her ageing parents. She uses technology to assist her in the role of care provider and if ehealth vendors can define both her role and technology requirements accurately, the alpha daughter will become an important user of medical devices and online healthcare services.

When considering the importance of the alpha daughter to the mobile health market, it is necessary to understand exactly how demographic trends will impact on the healthcare and social care sectors. It is widely accepted that ageing baby boomers will cause capacity shortages in the healthcare sector and force healthcare providers to automate substantial parts of the care delivered to the elderly. However, innovation in the healthcare IT market will be driven by the sharp leading edge of the next wave of baby boomers (the 1947 birth cohort) the members of which will soon be reaching an age at which they need increasing amounts of health and social support.
2. The Alpha Mom as a Healthcare Provider

2.1 What is an Alpha Mom?

Constance Van Flandern thought up the term ‘alpha mom’ when looking for a name for a cable TV station dedicated to working mothers. Since the rise of consumerism as an economic driver, adult female members of households have become an important target group for marketing managers. Sometimes they are targeted indirectly – although toys and sweets are manufactured for children, they are purchased by the mother and they are advertised in such a way that the child's mother will be pestered by the child to make a purchase. As well, while a majority of automobiles are purchased by adult males, 70% of automobile purchasing decisions are influenced by females.

Alpha moms are a subset of adult females who are leading busy working lives while raising children. They are type A moms who spend up to 87 minutes per day using the internet. Alpha mom TV was set up to reach 11.5 million of these females via the US cable TV network. As alpha moms are regarded not only as consumers in their own right but also influencers on social websites and other websites – such as Alpha-mom.com – they have attracted the attention of companies as diverse as Proctor & Gamble and General Motors.

2.2 Alpha Moms and Healthcare

The online alpha moms are also important in the healthcare market. Not only do they provide care for their own children but they also provide advice for other moms. Alpha moms have taken on the role of household medical experts because of their attitude towards healthcare.

Males and females have markedly different attitudes towards healthcare, which have been shaped by the interplay between natural and sexual selection during thousands of years of human evolution.

Natural selection has favoured the genes of females who chose males that remained fit and healthy and so could offer long term protection for their children. The long term survival of the male's genes depended on the ability of the male to mate with as many females as possible. Males who were attractive to females were more successful than those that were not. However, attractive (fit and strong) males were often drawn into conflicts and here the advantage often went to the risk taker rather than the cautious male.

Social groups have exploited the male's attitude to risk and the acquisitive, combative male has played an important role in armies - enabling tribes, then countries and eventually empires, to overcome rivals.
The most successful of these armies were ones whose members ignored the risk combat represented to their health and personal wellbeing. Not only are the genes of the risk taking male likely to dominate the gene pool of any dominant social group but that social group will also have a culture that propagates the image of the heroic male who is invincible and virtually immune from injury or disease. What is more, the more the male is exposed to danger the more attractive he becomes to females and the more he is lionised by society.

As an illustration of the above it is worth looking at a problem that was first addressed in an earlier Wireless Healthcare report on ehealth and the consumer electronics industry. While there is a strong take up of fitness and exercise aids such as the Garmin Forerunner and Polar Heart Rate Monitor Watch amongst young single men, the devices tend to be shelved once the user marries and has children. The users are keen to reach peak fitness and attract a mate and the devices are used as part of a program to achieve this end. The Garmin Forerunner in particular has a virtual running partner that appeals to the competitive tendencies of young males.

If, in middle age, a male takes up a fitness program it is most likely he has been persuaded to by a female partner. Here there are conflicting motivations at work, with the female wanting her partner to remain fit and healthy so that he can provide her, and her offspring, with an increased level of security, and the male wanting to increase his fitness to increase his chances of attracting a new mate.

Many of the physical activities the male takes up to remain fit also present something of a paradox. While contact sports such as rugby and American football provide the opportunity for the male to exercise, they also carry the risk of injury. Often the male will wear the scars of these injuries rather like a badge of honour.

Often the female member of a family unit is the only one interested either in her own or other family member’s health for its own sake. Even then the female only become seriously interested in healthcare when her children are born. Then there is the need to protect the offspring that are carrying the parents’ genes while they mature and to ensure they remain healthy beyond maturity so that they in turn can reproduce.

The mother’s role as the main, and possibly sole, guardian of healthcare within the family means she becomes a target both for companies marketing healthcare products, devices and services as well as government health departments wishing to disseminate information on family healthcare. This is why so much of the content which finds its way onto alpha mom related websites is healthcare related.
2.3 Alpha Moms Become Alpha Daughters

Given that most alpha moms take responsibility for nearly all healthcare related issues within the family, they could have the role of 'alpha wives' added to job description. However, given the growing number of elderly people who will soon require care and support, it is the potential for the role of alpha mom to be extended to that of alpha daughter that is of interest to both the healthcare industry and government health and social care departments.

3. Alpha Daughters

3.1 Extending the Role of the Alpha Mom

Caring for elderly parents offers no natural benefits for the female and it would be more efficient, in terms of guaranteeing the survival of her genes, to direct resources towards her children first and partner second. However, as the sole provider of care within the family unit, the female comes under a great deal of social pressure to direct some of that care towards her own and her partner's parents. In Japan it is a cultural norm for a wife to care for her elderly in-laws.

Demographic trends will see a growing number of elderly parents needing care at a time when the number of people of working age falls. This will place additional demands on middle aged female members, who will be expected to provide some level of care for ageing parents at a time when they are under pressure to continue in full time employment. These conflicting pressures on the females' time will see the alpha daughter seeking out products and services that will help them support elderly members of their families.

3.2 Demographic Trends and the Alpha Daughter

Throughout the last century two birth cohorts, or baby booms, have been working their way through the demographic profiles of countries in the developed world. The first boom was caused by a jump in fertility rates following the 1914-18 war, and the second by a jump in fertility rates following the 1939-45 war. These two baby booms have shaped government planning and policy making, and the marketing strategies of companies.

School building programs were accelerated in the 1950s and early 1960s as the second wave of baby boomers reached school age. In the 1990s when the first wave of baby boomers reached the age at which they needed additional care, private and government healthcare providers had to reposition hospitals to deal with an influx of elderly patients and provide more places in nursing homes.
However, a significant amount of the care and support the first wave of ageing baby boomers have received since the 1990s has been provided by what we are now defining as alpha daughters. These alpha daughters are actually part of the second wave of baby boomers.

Many of the first wave of baby boomers are now reaching the end of their lives and their impact on the health sector is diminishing. The focus is now on the second wave, who will start entering the health and social care system during the coming decade. Some of the support for second wave baby boomers will fall on their alpha daughters, who were born during the 1960s and 70s.

3.3 The Front of the Wave

Abrupt changes in fertility rates, such as the one that occurred in 1947, are important drivers in the economies of the developed world. These spikes in birth rates result in surges in demand for products and services and also force consensus onto otherwise fragmented markets. The second wave of baby boomers was responsible for the success of the Volkswagen Beetle, Elvis Presley and Levi Jeans. The boomers provided markets with the scale they needed to become viable and, in many cases, highly profitable.

As baby boomers became the dominant force within the economy, other age groups conformed to what they perceived as the norm. This was particularly true in the 1960s when everyone wanted to be young and part of the 'sixties movement'. The large following 'Mad Men' (a TV series set in an advertising agency during the 1960s) has received amongst people who were born in the decades since the 1960s, illustrates the strength of the sixties image in popular culture and the desire of even today's youth to conform to this image.

The most important feature of the second baby boom is its sharp leaving edge. In the US the fertility rate leapt dramatically in 1947 and at the front of the boom the population increased from 2.75 million to 3.7 million. So in 2007 there were almost 1 million more 60 year olds than there were in 2006. Assuming most of this million are married with two children, the number of alpha daughters who will be providing some level support for their parents will be drawn from a pool that increases in size by 250,000 in one year.

Just as they did not all decide to purchase a Volkswagen Beetle in the same year, the additional million consumers at the leading edge of the baby boom will not all walk into their GP’s surgery seeking healthcare at the same time. However, they do represent a step change in the number of potential consumers and will impact on the healthcare market. The effect will be to disrupt the normal pattern of health and social care consumption, rather as if a switch had been thrown in an electrical circuit.
The formulae that describes the behaviour of a system after it receives a signal that switches on at a specified time and stays switched on indefinitely, is the Heaviside Step Function (a Laplace Transform), which is used in the mathematics of control theory and signal processing.

3.4 Next Generation Alpha Daughters

Most people in the first wave of baby boomers had very little exposure to IT during their working lives and had little appreciation of how they could use technology to improve their personal lives. For the alpha daughters, who are caring for the remaining first wave baby boomers, high technology has arrived late in their working lives. However, these alpha daughters had gained an appreciation of how personal computers and mobile phones can be used as organisational tools both in the workplace and the home, and some of this technology – particularly web search software – has been used as part of the care process.

The 30-40 year old alpha daughters who will be providing care and support for the second wave of baby boomers will have grown up with IT and regard it as an indispensable tool for organising both their working and personal lives. They will, therefore, expect the services they use to support the care they are providing to be available online and, in most cases, accessible via a mobile device.

3.4 Marketing to Alpha Daughters

As the leading edge of the second wave of baby boomers starts to consume healthcare and social care services, a market will emerge for ehealth tools that alpha daughters can use to organise and deliver those services.

Although vendors will be marketing services to support the 65-85 age group, those services will be used and purchased by the alpha daughter. The marketing strategy the vendor adopts will be similar to the one used by the toy and confectionary industries in the 1950s whose marketing message was aimed at the second wave of baby boomers to influence purchasing decisions made by the baby boomers’ parents.
4 Circles of Care

4.1 The Project

In 2004 the Helen Hamlyn Research Centre, the mobile phone company Orange, and product design company Pearson Matthews, jointly developed a project called Circles of Care. The project was based on the idea that a social network of friends, family, work colleagues and neighbourhood facilities such as health food shops and fitness centres could operate alongside the GP or hospital professionals to help people maintain their health.

While the project did not progress beyond the research stage, there are important lessons within it for companies who intend to address the alpha mom or alpha daughter segment of the telecare and mobile health market.

Indri Tulusan, who has a background in the use of mobile communications in healthcare, was a key driver within the project which aimed to use a variety of networks, some social and some technology based, to retain medical knowledge that is traditionally passed down from parents to children or retained within social groups. This medical knowledge would be used to support the elderly, assist with childcare and in some cases provide early diagnosis of diseases.

The medical services offered as part of this project were seen as complementary to, rather than replacing or competing with, those offered by established healthcare providers.

The Helen Hamlyn Research Centre was set up in 1999 by the Royal College of Art in London, UK

Indri Tulusan is now working in Service Innovation and Interaction Design at the T-Mobile Creation Centre in Berlin.

Orange Mobile is currently in merger talks with T-Mobile.

Pearson Matthews has since ceased trading.
It was envisaged that community members would stay in contact with each other using mobile voice and SMS communications and be empowered with a range of medical devices – many of them wireless based – such as blood pressure monitors, digital thermometers and glucose meters.

4.2 Aims of Project Participants

Orange saw the project as providing an important example of the use of mobile technology in the public health market space and a way to raise the company’s profile in the healthcare sector at a time when providers, such as the UK’s NHS, were embarking on major upgrades of their IT infrastructure.

The company was meeting resistance to the deployment of its own 3G infrastructure, with local communities attempting to block the building of new base stations on the grounds that radio signals emitted by the masts represented a health risk. Demonstrating that mobile phone technology could be used as part of an innovative new public health initiative would illustrate some of the positive aspects of mobile technology.

Pearson Matthews used the project as a showcase for their product design skills. The company had already worked with a number of vendors in the medical device sector and was also seeking to attract the attention of pharmaceutical companies, in particular producers of insulin who were moving into the blood glucose monitoring market.

The Royal College of Art used the project to demonstrate to designers and industry the far-reaching implications of a rapidly changing society; these changes being due to growing numbers of older and disabled people, radical shifts in working patterns, and mounting pressure on mobility and other public services. It was hoped the project would demonstrate the broader relevance of the work the college was doing and make it easier to attract both government and private funding.

4.3 Project Outcomes

There were no stated deliverables for this project and in this respect Circles of Care differed from most research work carried out in the ehealth and healthcare IT sectors. However, the project was essentially a demonstrator and the resources to scale it to full scale deployment did not exist, and were not sought by any of the participants.

The main shortcoming of the project was the lack of focus on any particular demographic group within the community. Care would be provided not only by alpha moms and alpha daughters but also by other community members, whose ability to provide that care was an unknown. Despite this, the Circles of Care project provides an interesting start point for anyone considering an alpha daughter centric approach to telecare or ehealth deployment.
5 Alpha Daughters and Healthcare Reform

5.1 Resistance to Change

There is a growing awareness in the developing world that healthcare systems must be reformed to enable them to cope with the increasing cost of delivering healthcare to an ageing population. The step input in the number of patients who will need some form of treatment or care during the next decade will break the business model of most healthcare providers. However, despite this, there is strong resistant to change from incumbent healthcare providers both in the UK and the US.

In the UK, where the state healthcare provider has been attempting to implement new working practices in parallel with the deployment of electronic health records, healthcare workers and GPs have strongly defended legacy working practices. The healthcare reforms Barack Obama and Joe Biden are attempting to implement in the US are far more wide ranging than those being put in place in the UK, and are meeting resistance from a range of interest groups, including the insurance and pharmaceutical industry, healthcare providers and members of the public.

5.2 An Alternative to Confrontation

GPs and consultants already feel that their profession is under threat from empowered patients. In the UK the NHS IT program started rolling out at the same time as Google and Microsoft began heavily promoting healthcare orientated search technology. However, for many years healthcare professionals have been working alongside alpha moms and alpha daughters. Frontline healthcare workers depend on alpha moms to communicate with children and to ensure compliance. A similar level of co-operation exists between professional healthcare workers and alpha daughters.

As the healthcare sector faces up to the strain ageing baby boomers places on the business models of healthcare providers – whether they are insurance or state funded – GPs should become less resistant to adopting new working practices. Already some GPs are quite happy for alpha daughters to carry out some of the monitoring and diagnostic procedures that would once have been carried out by a nurse within the practise itself. The co-operation between professional healthcare workers and healthcare aware members of the community was one of the features of the Circles of Care project (see chapter 4).

Basing some elements of healthcare reform around an empowered alpha daughter will provide a less confrontational approach to healthcare reform in general. Providing support for alpha daughters will also increase the efficiency and effectiveness of a large army of healthcare and social care workers.
It is well known from experience in other sectors of the economy that giving existing workers more efficient tools is more cost effective than recruiting additional workers.

5.3 The Alpha Daughter as a Willing Partner

While there are a large number of willing alpha daughters there are also those who feel that their parents’ health and social care is something that has already been paid for through taxes or insurance premiums and that they should not be expected to provide additional care themselves.

Those alpha daughters who are eager to support their parents will provide an ideal customer base for ehealth and telecare vendors seeking a route into the healthcare IT market that is free from regulation and complex political issues. However, even willing alpha daughters will need to feel that they are being offered additional support and that services, both those provided by government agencies and private companies, are making the tasks they are undertaking easier rather than merely being used to force them to undertake additional work.

5.4 Demographics and Macroeconomics

Throughout their working lives baby boomers have saved so that can live in relative comfort during their non productive years. Some of these savings are in the form of pensions or insurance policies – however, they are also held as cash or fixed assets, such as property. As ageing baby boomers retire, the amount of funds held by people who are no longer economically active grows. In the past these savings would have been released to children who were still economically active when the parent died. However, as life expectancies increase, savings are inherited by children who have themselves reached retirement age and are also economically inactive. This has implications for the wider economy.

While the savings of elderly are invested, either directly or via pension funds, the glut of funds has caused asset inflation without stimulating consumption. This has been a feature of a number of developed economies during the last two decades as ageing baby boomers approached retirement and attempted to boost their savings and pension funds.

Government health departments have suggested that when an elderly person is taken into care some of their savings should be used to pay for that care. Attempts to put such a scheme into place have been abandoned in the face of campaigning from the children of elderly people who would see significant reductions in the assets they would inherit on their parents’ death.
As an increasing number of ageing baby boomers become economically inactive governments will be forced to revisit schemes that would force the elderly to pay for their own care.

The potential loss of inherited wealth will provide alpha daughters, who are already under social pressure to care for ageing parents, with a financial incentive to delay or avoid altogether their parent's admission into a care home.

If governments introduce schemes that in effect force the elderly to sell assets to pay for care this could lead to a large number of homes being disposed of, which in turn would depress house prices. This may provide an additional financial incentive for the alpha daughter who would rather not see her parent's home sold in a depressed market.

6 mHealth for Alpha Moms and Daughters

A key service for both alpha moms and alpha daughters is the Internet, and the most important device is the mobile phone, which the current generation of alpha daughters use mainly for voice communication. This puts both alphas at the forefront of the convergence between mobile technology and healthcare.

6.1 For the Alpha Mom

As the alpha mom already has access to a number of online services from her home or workplace, mobility is currently not a pressing issue. Alpha mom orientated services will migrate to mobile devices at the same rate as applications in other sectors – for example, online shopping and banking. For the alpha mom, one of the main advantages of using a mobile device is to keep all the services and data relating to the care and support of her children private and accessible from one device.

6.2 For the Alpha Daughter

The alpha daughter will spend a considerable amount of the time she dedicates to supporting her elderly parents acting as a domiciliary care worker. This means that a mobile device will be essential. While she could access a service from her parent's computer, this will not always be practical – especially in cases where she is accessing information that may cause unnecessary alarm to her parents. It may also be necessary for the alpha daughter (?) to access services while taking her parents to a GP's surgery or to an outpatient's clinic.

Perhaps the strongest argument for using a mobile device is the time required to access services. It will take time to turn on a parent's PC, load an application and connect to a service – and time is an important commodity for both alpha moms and alpha daughters.
Connection via a mobile device will, in most cases, be more convenient if data is being uploaded to an online service from a vital signs monitor. Many vital signs monitors and diagnostic devices are available with Bluetooth connectivity and software that enables a mobile device to be used as a connection hub. Such hubs will enable an alpha daughter to carry one device that acts as a common interface for a range of devices. Several members of the Continua Alliance, which is a key advocate for this approach to wireless and mobile healthcare, have used the concept of the alpha daughter in case studies and demonstrator programs.

6.3 What Alpha Moms and Alpha Daughters do

A range of typical alpha mom tasks can be seen by visiting alphamom website (see page 23). These activities are grouped into:

- Wellbeing of children
- Consumer activism
- Childcare logistics, childminding, school runs etc
- Dietary issues
- Healthcare issues
- Childcare product reviews, selection and evaluations

Alpha daughter tasks are similar to the alpha mom’s, although there are no mainstream sites as comprehensive as alphamom. Typical tasks are as follows:

- Monitoring vital signs
- Arranging hospital and GP visits
- Shopping and financial management
- Monitoring drug compliance
- Drug dispenser packing
- Product evaluation and selection
- Resolving mobility issues (wheelchairs etc)
- Counselling
- Crisis response
- Basic welfare (nail clipping, bathing)

6.4 Case Study - The Alpha Daughter and COPD

In this case study we will look at the tasks performed by an alpha daughter caring for a male parent who has been diagnosed as suffering from Chronic Obstructive Pulmonary Disease (COPD). The parent also has chronic heart failure. He had his first heart bypass operation in the mid 1990s and was hospitalised with a lung condition in the late 1980s.

Although it has not been diagnosed, it is suspected the parent is suffering from the early stages of vascular dementia.

The parent is no longer receiving treatment for his condition but does visit a GP surgery and the outpatient’s department of a local hospital for tests.
The daughter trained as a nurse but left the profession after qualifying in the late 1970s. She is in full time employment and, as the local healthcare provider feels that there is no further treatment they can offer her parent, has become involved in the management of his condition. A second daughter also assists with the social care and support for the parent and his partner.

The parent's exposure to high technology is limited to consumer electronics items – chiefly entertainment systems. He has no experience of online services at a user level and no interest in using technology to manage his condition.

The alpha daughters have experience of high technology and knowledge of how it could be used to manage their parent’s care – although doing so is frustrated by the parent’s non-compliance. They have hands-on experience of online services but are not conversant enough with advanced online services to use them to support their parent's care.

The following are elements of the care process carried out by the alpha daughters, with descriptions of how the next generation of online healthcare services and wireless devices could be used to carry out these tasks more efficiently. The tasks are divided into two groups; the first being healthcare related and the second coming under the heading of social care.

6.4.1 Healthcare Related Activities

- Checking the parent's blood pressure so that a balance can be struck between the quantity of drugs dispensed to manage the symptoms of COPD and those of chronic heart failure.

- Posing simple questions to monitor the parent's cognitive functions.

- Restocking the medicine dispenser containing the drugs the parent will take during the coming week.

- Checking that the drugs dispensed at the beginning of the previous week have been taken.

- Reporting the parent's condition to the GP either by telephone or face to face when accompanying the parent on his visit to the GP surgery or hospital outpatient's clinic.

- Explaining to the parent complex medical issues and also options that are open to the parent in respect of future care, in language the parent can understand.

Depending on their level of medical experience, the alpha daughter can carry out many of the tasks that would usually be carried out by a nurse, and by managing their parent's condition can avoid their parent being transferred to residential care.
6.4.2 Social Care Related Activities

- Either taking the parent to outpatient clinics or organising transport to appointments. Selecting and purchasing mobility aids and basic medical equipment.
- Explaining to the parent’s partner complex medical issues relating to care and providing or organising respite care when required.
- Taking over responsibility for household finance and banking. Paying bills and dealing with issues such as pensions and insurance.
- Escorting parents on shopping trips and organising deliveries or managing online shopping for goods and services.

6.4.3 Areas Where Technology Will Help Alpha Daughters

A fully integrated mobile telecare or ehealth system with access to the parent’s healthcare record would eliminate the need for the alpha daughter to report back to the GP in person. It would also simplify the restocking of the drug dispenser, which could be re-programmed from the GP’s surgery using data collected from a wireless linked blood pressure monitor. Compliance could also be monitored remotely if a drug reminder device was integrated into the drug dispenser and configured to send alerts to the alpha daughter's mobile device.

In the example above the alpha daughter has a medical background which helps with drug dispensing and vital signs monitoring. Online assistance with these processes would enable alpha daughters with a lower level of medical knowledge to carry out these tasks.

Although it is not relevant in this case, sometimes oxygen therapy is used in the management of COPD. Care has to be taken when applying this therapy and monitoring with a pulse oximeter is required. An integrated mobile telecare or ehealth system would enable oxygen therapy to be managed by an alpha daughter.

Many of the social care related services, such as shopping and organising the parent’s financial affairs can be conducted online. However, grouping these services together or offering them via a portal would save the alpha daughter time and effort.

Two companies, Cardionet in the US and Broomwell Healthwatch in the UK, are supplying equipment that can be used to support the remote management of patients with heart conditions. Broomwell Healthwatch sees the management of patients with COPD as one of its key markets.
While the potential market for these two company's products is likely to grow rapidly over the next decade, the products themselves will need to be made easier to use before they can fully exploit the alpha daughter market.

6.4.4 COPD and Demographics

The parent being cared for in his case history was born in 1923 and at the age of 86 is at the end of the first wave of baby boomers currently working their way through the care system. The alpha daughter referred to was born in 1954 and at the age of 55 is in the middle of the second wave of baby boomers.

People who make up the birth cohort of 1947 and form the leading edge of the second wave will reach the age of 85 in 2032. At first sight this implies that the healthcare sector will not have to address capacity shortage issues for two decades. However, the parent in this case history is particularly robust and male life expectancy in the US is 75 years, with COPD sufferers living, on average, 10 years less than non sufferers. If the average COPD sufferer requires care at some point between the age of 65 and 75 then healthcare and social care providers will need to start finding extra capacity to deal with COPD sufferers as early as 2012, with the sufferers from within the 1947 birth cohort impacting on providers until 2022.

The proportion of the adult population who smoke, and are therefore susceptible to COPD, has declined over the past 50 years. However, people who are at the leading edge of the second wave of baby boomers were not made aware of the risk cigarettes posed to their health until after they had started smoking. In addition, many of the people born in the early part of the baby boom grew up to work in industries that had environments that, combined with smoking, increased the risk of contracting COPD. These industries were not only in decline when people born five to ten years into the boom started work but also adopted stricter safety procedures to protect workers, such as welders, who were exposed to agents that caused lung disease. There will, therefore, be a concentration of COPD cases at the leading edge of the wave of ageing baby boomers entering the care process. This will heighten the impact on the healthcare sector of elderly patients suffering from COPD during the coming decade.
7 Health 2.0 and Alpha Daughters

Health 2.0 is a broad and as yet poorly designed concept. There are next generation advocates who see empowerment of patients using Google Health and Microsoft HealthVault as a route to an alternative healthcare framework that replaces the one within which GPs and hospital consultants currently work. At the other end of the spectrum are those who see Health 2.0 services as a means of empowering incumbent healthcare providers – enabling them to employ the type of online service model used in other sectors, such as finance and retailing. A similar debate ranged in the early days of the worldwide web, with next generation advocates seeing the complete destruction of industries. The end result, however, was something of a compromise, with incumbents using the web to defend their business models against new online companies, leading to a slow but relatively measured migration of services online.

Many alpha mom sites take the next generation, Health 2.0 approach and articles posted on these sites often express exasperation with GPs and incumbent health providers. This leaves the sites and the services relatively isolated within the healthcare sector, with few links to the back office services that are required to fully support any alpha mom operating as a family domiciliary or healthcare auxiliary worker.

Obviously Health 2.0 services such as Google Health and Microsoft HealthVault will eventually fill this void. However, when they do it is likely they will be deployed in co-operation with incumbent healthcare providers. Unfortunately, the next generation approach is tending to alienate the incumbents and while it does so the wide-scale deployment of mobile health devices used as part of the Health 2.0 package or service has been put on hold.

8 Market Drivers and Inhibitors

8.1 Drivers

The rapid growth of the number of elderly people who required care during the 1990s was dealt with by incumbent healthcare providers and government health departments, with the providers expanding facilities dedicated to treating conditions such a dementia, COPD and chronic heart disease. However, as the magnitude of the next wave of ageing baby boomers is far greater and the population bulge has a sharper leading edge its impact will be felt over a shorter period.

Some alpha daughters will care for their parents to avoid the proportion of their parents wealth they are hoping to inherit being used as a contribution towards state funded care.
Expectations of the elderly with respect to what technology can do to improve their quality of life will be far higher amongst the second wave of baby boomers than it was with the first, leading to a higher take-up of mobile and wireless based healthcare devices and healthcare orientated online services.

Familiarity with mobile and online technology amongst the working population from which the next generation of alpha daughters will be drawn is far greater than with previous generations.

While reforms being enacted in most developed countries and most importantly in the US claim not to reduce the funds allocated to healthcare, resources allocated to caring for the aged are unlikely to grow in line with the number of additional consumers. Fiscal tightening following the credit crunch will see spending on social care reduced in 3 to 5 years time, just as the leading edge of the coming ageing population bulge starts to require care. If the quality of care per patient is to be maintained, the efficiency of alpha daughters will need to be significantly improved; this can only be achieved through the deployment of more advanced online services and devices.

Some alpha daughters will care for their parents themselves to avoid the proportion of their parents’ wealth they hope to inherit being used as a contribution towards state funded care. These alpha daughters will regard the amount spent on services and devices to support their parents’ care as an investment to keep the family’s accumulated wealth intact. This financial motivation should be considered when developing a marketing strategy for mobile health and telecare services designed to support the care of the second wave of ageing baby boomers.

Network operators and medical device manufacturers reacting to an increase in the number of elderly people seeking to use technology to improve their standard of life will, themselves, start targeting the alpha daughter and designing services aimed at supporting ageing users.

The alpha daughter will be regarded as the soft under-belly of the healthcare IT market with some applications, especially those that support social care rather than medical applications, remaining relatively free from regulatory procedures that slow the take-up of ehealth and telecare applications.

**8.2 Inhibitors**

Some online services which offer medical advice may face problems with regard to litigation and may also be prevented from offering the level of advice or diagnostic services that are required to increase the efficiency of the alpha daughter.

It is unlikely that healthcare IT infrastructure will be in place to support the alpha daughter before the next wave of ageing baby boomers start to require support.
As with the Circles of Care project, it is difficult to quantify the level of medical knowledge of any particular alpha mom or alpha daughter and therefore it may be difficult or impossible to deploy a service that can be widely used without designing it for the lowest common denominator of medical experience.

Resistance from GPs and incumbent healthcare providers will remain a feature of the healthcare sector – in the main because the role of the alpha daughter will challenge the incumbent healthcare provider's business model and in some cases will overlap with the role of the GP or practice nurse.

It is unlikely that healthcare IT infrastructure will be in place to support the alpha daughter before the next wave of ageing baby boomers require support. The most advanced initiatives such as the NHS Connecting for Health Programme is still three years away from completion. While Google Health and Microsoft HealthVault could bridge the gap, they are not universally available, do not connect to the incumbent healthcare provider's back office infrastructure, and their deployment raises regulatory issues both in the US and Europe.
9 Market Predictions

It is estimated that there are 11 million alpha moms in the US who either already do or could provide basic healthcare for their children. The number of potential alpha daughters is more difficult to estimate, as the obligation for a daughter to care for their parents is not as clear cut as the obligation on the mother to care for their child.

According to the AARP, over 30 million people in the US provide unpaid care to elderly relatives spending an average of 21 hours carrying out a variety of tasks that would otherwise be undertaken by social workers or healthcare providers. This figure should rise rapidly as the second wave of baby boomers reach the age at which they become dependent on family members for care. However, the relatively lower fertility rates in the wake of the baby boom generation means there will be fewer alpha daughters to care for ageing parents. As a result, alpha daughters will either need to allocate more time to delivering care or deliver that care more efficiently. Mobile health will play a key role in providing that additional efficiency.

There are 76 million people in the US baby boom generation born between 1946 and 1960 (representing approximately 38 million couples). However, the most interesting feature of this population bulge is the step change in the population profile as its leading edge. The 500,000 people or approximately 250,000 couples who were born in 1947 will hit the care sector over a relatively short period; arguably, after the initial shock, the healthcare provider and the social care sector will adjust as it did in the 1990s after the 1920 birth cohort briefly overwhelmed the healthcare sector.

The leading edge of the ageing baby boom wave is what the marketing manager of any medical technology company should be watching as this will drive innovation and vendors’ products need to be market ready for the period when this increase in elderly people impacts on the care sector.

In the UK the step input at the front of the baby boom wave is caused by a jump in births from 388,770 in 1946 to 489,364 in 1947, representing approximately 50,000 couples against the background of a relatively stable birth rate. In the UK the birth cohort is much more compact than in the US and fits the European population trend. However, even this cohort will be sufficient to drive a market that is quick to amplify trends that emerge in the US healthcare IT market.
10 Marketing Strategies

There are already websites and services used by alpha moms and alpha daughters that promote technology and healthcare related services. Vendors should note that although they are selling to alpha daughters, they are reaching this market by marketing services to ageing parents.

Vendors will be targeting the second baby boom generation with advertisements for web services and devices, hoping that the elderly will encourage their children to start using devices and services that will maintain or improve the quality of their lives. Here both websites and magazines aimed at the elderly will provide marketing opportunities as well as scope for possible joint ventures.

For most vendors entering a battle with incumbent healthcare providers with only the Health 2.0 concept as a weapon will prove counterproductive in the short term. For the small to medium sized vendor who is looking for rapid results targeting social care and support rather than diagnosis and drug dispensing may prove to be a better route into the market. Those social care services would be relatively simple to deploy and could be built on off-the-shelf online patient record platforms such as Google Health or Microsoft HealthVault. These social care services could then be expanded at a later date to support more elaborate ehealth and telecare services.

Some vendors may be fortunate enough to find a healthcare provider open to the idea of working with alpha moms or alpha daughters and who see this more as a long term business opportunity than a threat. In this case the vendor and the healthcare provider may wish to use Health 2.0 style tools to provide alpha daughters with access to medical records of their parents.

Both Google and Microsoft are likely to reposition components of their online healthcare service to appeal to alpha daughters when ageing baby boomers begin to make their presence felt in the healthcare and social care sectors. Mobile health and telecare vendors should be aware of the opportunities these two major players create, and the threat they represent, when they enter the alpha daughter market.
11 Existing and Potential Services

These either offer a subscribed to service or are publicly accessible and supported by advertising. Although none of these sites provide exactly what is required by an alpha daughter, each has elements that could be used to build comprehensive services to assist someone caring for an elderly relative.

11.1 Alpha Mom

This site has taken the alpha mom concept defined by Constance Van Flandern and applied it to issues relevant to childcare, and while some articles posted on this site relate to healthcare, others deal with topics ranging from food additives to product reviews.

Analysis

While this site provides promotional opportunities for a wide range of products, which are reviewed on the site, Alphamom.com is primarily a marketing tool to increase awareness of the Alpha Mom cable TV channel.

For the alpha mom herself the site provides a convenient access point for a range of information related to childcare – saving time that would otherwise be spent using a search engine.

An alpha daughter site built on the same model would provide an ideal promotional vehicle for either a television channel dedicated to care of the elderly or possibly a retailer that is targeting the alpha daughter. Such a site could see the eventual deployment of next generation healthcare and social care providers.
11.2 Sixuntilme

Sixuntilme is a high profile personal diabetes management site that is held up as an example of a Health 2.0 type service. It is operated by Kerri Morrone Sparling, who is herself a diabetes sufferer. This site is of interest in the context of the alpha mom and alpha daughter as Sparling has taken her healthcare into her own hands. The experience she has gained while managing her own condition and dealing with issues related to diabetes has proven of interest to other diabetes sufferers and the site is used by vendors to promote sugar monitoring equipment and insulin pumps.

Analysis

Medical device vendors have been quick to pick up the promotional opportunities offered by sites such as Sixuntilme. Products are either reviewed by the contributors to the blog or they are advertised on the site.

The Health 2.0 label tends to put such social networking sites beyond the domain of incumbent healthcare providers. In some cases sites are set up by people who feel they have been let down by their healthcare providers.

However, as the alpha daughter concept is developed, a Health 2.0 style social networking will be an important component of any site used to support care for the elderly. It will, therefore, be necessary for a high level of cooperation between the operators of such sites and incumbent healthcare providers.

www.sixuntilme.com

Kerri Morrone Sparling, the founder and operator of the sixuntilme site was diagnosed with type 1 diabetes on September 11, 1986 when she was six years old (hence the name of the site). The site has been operating since May 2005.

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11.3 Epocrates

Epocrates is a web mobile based clinical information and decision support tool aimed at healthcare professionals. The company was founded in 1998 and claims that its product is used by a third of all US based physicians and a total of 750,000 healthcare professionals. The deluxe version of Epocrates Essentials product is claimed to be a complete clinical practice suite. It provides free mobile add-ons for its products, including a Med-Maths Calculator, asthma, cardiology and diabetes management tools and an adult ADHD patient screening questionnaire.

Analysis

These tools and services sit firmly in the incumbent healthcare providers’ domain of the healthcare market. However, such tools and services would be of great help to any alpha daughter restocking a pill dispenser for their elderly parent or monitoring conditions such as diabetes and asthma.

There are barriers to broadening the market for tools such as Epocrates to include the alpha daughter. However, the inability of healthcare providers to provide care to all elderly patients may force a rethink by regulators and government healthcare departments on issues such as liability and litigation.

For the mobile health vendor, tools such as Epocrates could add value to disease monitoring solutions.
11.4 WebMD

A mobile version of WebMD is aimed at the public as well as the professional healthcare worker and has a symptom checker, treatment information and first aid essentials. It resembles a Health 2.0 version of Epocrates, but for legal reasons WebMD points out that their service is not a replacement for conventional medical advice but, instead, a complementary service to the one provided by the incumbent healthcare provider.

**Analysis**

One of the interesting features of WebMD is its personal health record system which would enable an alpha daughter to create an online patient record for their parent. This record would provide a centralised store for all aspects of the parent’s health, whether collected from monitoring devices or entered as observations. The record would also keep track of medications prescribed.

In many respects, WebMD is an example of a service which crosses the barrier between incumbent healthcare providers and the Health 2.0 approach to providing healthcare. For this reason it will be of particular interest to both the mobile health vendor and the alpha daughter.

The site accepts advertising which, along with forums, could help mobile health vendors promote their products and services to the alpha daughter community.

**www.webmd.com**

The site acts as a source for medical knowledge and host for supportive communities.

The company was founded in 1998, incorporated in May 2005 and went public on September 29, 2005. It is based in Georgia, USA.

In 1999 Microsoft invested $250 million in WebMD, although in 2001 the companies stopped working together on joint projects.
This website addresses the needs of the ageing baby boomer, and tends to focus on issues, such as the selection of adequate care homes and social care, that are likely to be of interest to the elderly. There is little focus on telecare or ehealth and the style of the site is very similar to alpha mom.com.

### Analysis

For the mobile health and telecare vendor this type of site offers promotional opportunities as well as a possible source of content to be delivered to the alpha daughter. Any vendor looking to develop a service aimed at the alpha daughter could use ParentCare as a template and possibly enhance it with a blog or other social networking features.

There is no obvious way monitoring devices or other mobile equipment can be integrated with ParentCare and the subscription based funding may make it difficult to integrate the site with other alpha daughter services.

For the alpha daughter ParentCare offers an important reference source and its use would reduce the amount of time using Google and other search engines to resolve issues that arise while caring for elderly parents.
11.6 Online Services for Alpha Daughters

It should be possible to use key elements of the five websites described above to build a service that would support alpha daughters. The user would have many of the requirements that matched those of Kerri Sparling, although their site may not operate in the same way as Sixuntilme.

With respect to healthcare, the combined service would probably operate in much the same way as Epocrates.com but would, like WebMD, be aimed at the private user rather than the health professional. This would raise a number of issues such as security and liability which would need to be resolved. The assumption that the user of Epocrates has a known level of medical knowledge would not hold true in the case of an alpha daughter site built on the WebMD model.

An online patient record system would be required to store information such as vital signs data, prescriptions and appointments. While Microsoft HealthVault, Google Health or WebMD services could be used, this is not a given and it would be possible for the creator of an alpha daughter service to build their own database. A component that would need to be added to any off-the-shelf online patient record system would be tools that dealt with social care issues. These tools would provide links to social care services that alpha daughters communicate with when organising visits to hospital, night time care and allocation of mobility aids. This additional functionality would give the vendor a distinct marketing advantage over competitors who only offered pure healthcare services.

As with WebMD and Epocrates, the alpha daughter's online service would need strong wireless components as much of the time the alpha daughter would be operating away from her PC.
12 Conclusions

Alpha moms are already an important target group for a wide range of companies and should prove to be evangelists for mobile health products. This target market can be extended to include alpha daughters, women who are managing the health and social care of their ageing parents and who will purchase services and products that make that care easier to deliver.

The first wave of ageing baby boomers caused capacity shortages in the healthcare sector when they started needing care in the 1990s. The second wave of ageing baby boomers is made up of 76 million people, many of whom will need some level of health or social care in the next two decades and are regarded as an important driver within the telecare sector. However, it is not always appreciated that it will be the leading edge of the next wave, made up of people born in 1947, which will shape the market for telecare products, and vendors who correctly judge the timing of the impact on the healthcare market of these ageing consumers will dominate the market for the coming decade.

Unlike the first wave of baby boomers, the next generation of elderly will be familiar with mobile technology and will expect mobile devices to be used to support their care. Likewise, the next generation of alpha daughters will be drawn from a demographic group that are heavy users of mobile and online services and will use mobile health as a tool in the care process.

Planned healthcare reforms will eventually see some cuts in services – mainly due to the repairs needed to government finances following the credit crunch of 2008. These cuts will lead to a reduction in the amount spent on social care for the elderly. It is important, therefore, that healthcare reforms take into account the amount of health and social care alpha daughters provide for their parents and that resources and services are provided by governments to assist alpha daughters in the provision of that care.

Healthcare reforms that emphasise the role of the alpha daughter may be less confrontational than those aimed purely at changing the roles that the medical profession and insurance companies play within the healthcare sector.

With the appropriate support and resources alpha daughters could provide COPD sufferers with the level of care required to delay a transfer of the patient to residential care. Alpha daughters could also carry out some of the management of medical conditions that is currently undertaken by GP practice staff.

It will be important to develop telecare services that are flexible enough to be used by alpha moms and alpha daughters with differing levels of medical knowledge and hands-on healthcare experience.

The need to provide healthcare and social care for a growing number of ageing baby boomers will stimulate the market for products and services alpha daughters can use to support their parents.

Success in the market for mobile health services for the alpha daughter will go to vendors who can time the release of products to coincide with the peak demand for healthcare services. This peak demand will arise when the leading edge of the wave of ageing baby boomers start requiring long term care.
While Health 2.0 style services add functionality to online alpha mom services and have the potential to do the same for alpha daughter services, the concept of Health 2.0 itself is seen as confrontational by incumbent healthcare providers. As was illustrated by the Circles of Care community driven healthcare project it is important that mechanisms are put in place that enable alpha moms and daughters to co-operate with healthcare professionals.

Some ehealth providers are already marketing services and equipment for the remote management of patients with COPD. If these could be made more user friendly and accessible they could significantly cut the cost of managing the health of COPD patients.

Vendors will find that services that help alpha daughters provide their parents with social care will face fewer regulatory hurdles and may, therefore, provide a simple route into the telecare market. This could see non healthcare providers such as online stores and online financial services providers gaining access to the telecare market.
Appendix A

The following urls can be accessed from:

www.wirelesshealthcare.co.uk/wh/resources/wh_alphadaughter.htm

Population Statistics

USA

www.census.gov/population/pop-profile/dynamic/AgeSex.pdf

UK


Heaviside Unit Step Function

en.wikipedia.org/wiki/Heaviside_step_function

Circles of Care Project

www.hhc.rca.ac.uk/archive/hhrc/programmes/ra/2004/ra04p2.html#

Alphamom Article

www.usatoday.com/money/advertising/2007-03-26-alpha-mom_N.htm

Appendix B

About the author

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Peter is Principle Analyst with Wireless Healthcare and has been tracking the mobile and wireless healthcare market since 2002; prior to this he was involved in the medical IT market, principally in the development of medical imaging technology.

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