EIU HEALTHCARE

Environmental management

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Chapter 3

Environmental management, a new form of medical innovation

People's lifestyles influence the pattern of disease. Richard O'Sullivan of The Forbes Group of Fairfax, Virginia, US (www.forbesgroup.com), argues that suppliers of healthcare services and products will need to manage environmental issues, such as living conditions, if they are to promote better health. The challenge of such environmental management, as it is known, is extraordinary in its scope.

About the author

Richard O'Sullivan is senior vice president and chief economist for The Forbes Group, a recognised leader in strategic planning for trade associations. He has more than 20 years of experience in economic analysis and market research for associations, corporations and government agencies. Many of The Forbes Group's clients are firms, trade associations, and government agencies participating in the emerging healthcare markets. Working with these clients, The Forbes Group has focused on the drivers and barriers of healthcare delivery and demand with an emphasis on how market and industry structures influence and, in turn, are reshaped by new practices and technologies.

The environment and health

Educational attainment, labour mobility and the characteristics of housing stock used to be well beyond the sphere of influence of healthcare providers and suppliers. Yet increasingly such social and economic factors are intruding into the field of medicine. The patient's environment can, for instance, dictate the type and location of healthcare services. Typically living conditions have not been part of the design considerations in healthcare product development. But increasingly players in the healthcare market are coming to realise that if they are to be effective they must seek to manage the environment in which their customers live.

The more educated patient

One of the key reasons why healthcare markets are set to change is that present-day populations are better educated than their predecessors. The leap in educational achievement seen in the second half of the 20th century is unprecedented. The percentage of children dropping out of US high schools has fallen from 41% for the second world war generation, who are now all over 75, to just under 13% for their "baby boomer" children, who are presently aged 45-55. The percentage of college graduates among baby boomers is more than three times higher than in the "GI generation". US baby boomers had a unique incentive to prolong education. College draft deferments created by the Nixon administration to reduce social unrest on university campuses kept many young people in the classroom and helped to produce an extraordinarily well-educated generation.* As a consequence, those who were of college age in the 1960s can boast a lower college drop-out rate than any of the succeeding generations in the 1970s, 1980s and the highest percentage of advanced degree holders of

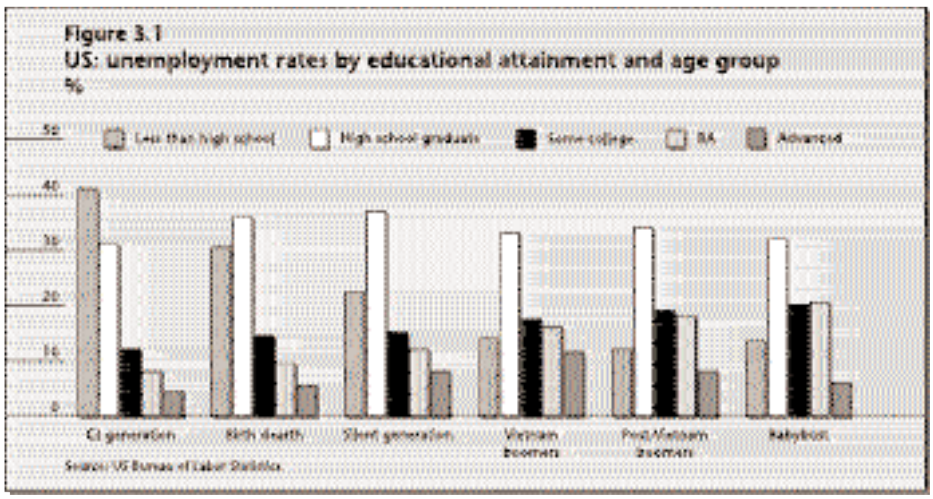
* US Bureau of the Census, *Current Population Reports.*

any generation before or since. But that generation has raised the educational expectations of those who followed. In every age group under 55, over half at least have attended college and 27% claim at least a bachelor's degree. By comparison, only 31% of those now over 65 matriculated and only 14% completed a four-year programme.

An NWDA study highlights the need for change

In the developed world, healthcare is normally one of the most heavily regulated markets, which in turn can influence the pace of innovation. Worried by this, the US National Wholesale Druggists' Association (NWDA) of Reston, Virginia (http://www.nwda.org), undertook a new type of analysis in 1998. The association looked not at the demand for pharmaceuticals or healthcare products, but at the factors that produce good health and the pressures that oppose them. The objective was to determine the role of the healthcare product distributor in the healthcare market of the future. The results of the study, called A Prescription for Change, suggested that radical changes are afoot in healthcare. The NWDA found that many current assumptions about the structure of healthcare markets, which have shaped manufacturers' research and development policies and defined wholesalers' and distributors' services, will probably soon lose their validity. Basic commercial beliefs regarding the degree of patient oversight, the delivery venue and the professional competency of the healthcare provider will accordingly have to be re-examined, and, if necessary, completely overhauled. Otherwise, in the immediate years ahead, suppliers of healthcare products will lack the ability to address the needs of patients and providers.

The rising educational attainment of people in the US and other developed countries, as well as in many developing countries, is having a pronounced impact on both the type and the quality of care. By fostering the intellectual process of "thesis versus antithesis equals synthesis", a good education naturally leads to a tendency among the educated to question any form of information—particularly information about their own healthcare. Patients who are highly educated are likely to be better informed about their care options than the less well educated, or at least be aware that they have options. Fascinated by the subject of health, and frequently able to afford a proper diet, gym subscriptions and private medicine, the educated are often active in their pursuit of healthcare and less dependent on a doctor as the sole source of medical information. The Internet has broadened their already considerable ability to access advice about healthy living and medical treatments. By no means the compliant subjects of physicians of previous generations, educated patients in the latter part of the 20th century prefer to see themselves as equal and active partners in care management.



Many observers also link the rise in education levels with the increased popularity of homeopathy and alternative medicines. According to the Center for Complementary and Alternative Medicine at the National Institutes of Health, a study published in 1993 found that in 1990 30% of Americans were using alternative medicines (including acupuncture, chiropractic treatments and herbal remedies). Of these, 70% chose to do so without either consulting or informing their physicians. Baby

boomers are the most highly educated generation in history, and their scepticism about authority was further advanced by living through the Vietnam war. As they continue to age, issues regarding the competence of healthcare providers, compliance with doctors' instructions and self-medication are expected to complicate the delivery of treatment.

The changing patient: the elderly require new settings for receiving care

Of all the changes set to influence the type of healthcare products required in the near future, and the style of care that will be necessary, the ageing of the population is the most widely recognised. The elderly accounted for 12% of the US population in 1999 but consumed 25% of healthcare products and services. By 2025 people aged over 65 are expected to comprise 20% of the population and, according to the US Health Care Financing Administration (HCFA), be responsible for one-third of all healthcare consumption.

But tomorrow's patients will not necessarily face the problems of those of retirement age in 1999. Already the elderly are facing new challenges that neither the current healthcare delivery system nor their home and care environments are adequately designed to address.

The jump in life expectancy from 68 to 76 years in the period 1973-98 in the US has not simply added another eight years of golf and foreign holidays to the latter part of people's lives. An increase of such magnitude dramatically affects all major decisions that individuals have to make during their lives, from career choices to savings and retirement.

Table 3.1

US: mid-year population estimates and average annual period growth rates, selected years, 1950-2050

Year	Population ('000)	Period	Growth rate (%)
1950	152,271	1950-60	1.7
1960	180,671	1960-70	1.3
1970	205,052	1970-80	1.0
1980	227,726	1980-90	0.9
1990	249,949		
1991	252,636	1990-2000	1.0
1992	255,382		
1993	258,089		
1994	260,602		
1995	263,039		
1996	265,453		
1997	267,901		
1998	270,290		
1999	272,640		
2000	274,943		
2010	298,026	2000-10	0.8
2020	323,052	2010-20	0.8
2030	347,209	2020-30	0.7
2040	370,290	2030-40	0.6
2050	394,241	2040-50	0.6

Source: US Bureau of the Census, International Data Base.

Recent data on retirement practices collected by the US Bureau of Labor Statistics suggests that, after years of steady decline, the average retirement age may be creeping back up. A strong economy and record levels of household wealth do not appear to be persuading members of the public to give up work earlier. The decision to postpone retirement seems to stem from the fear of being unable to afford a protracted illness, from growing concerns over the viability of social security and by the need to fund a reasonable quality of life throughout retirement, the length of which may be measured in decades rather than years.

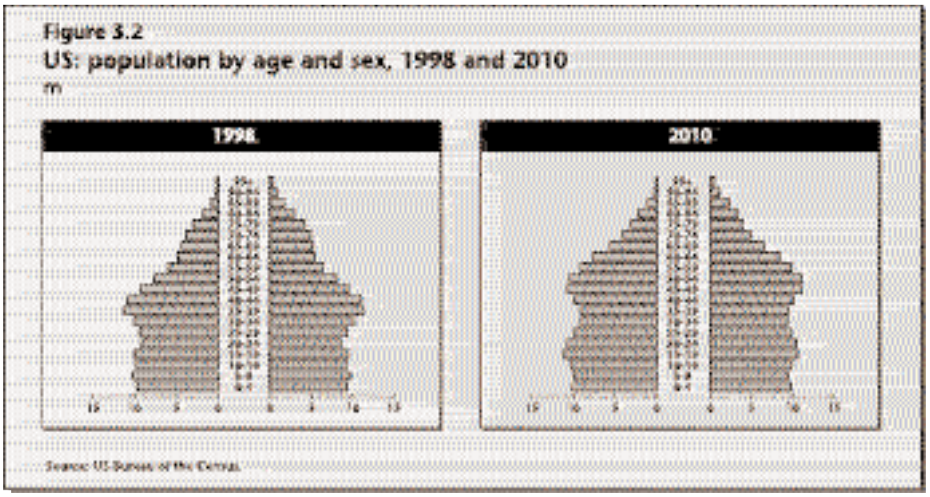


Table 3.2

US: demographic indicators, 1998 and 2010

	1998	2010
Births per 1,000 population	14	14
Deaths per 1,000 population	9	9
Rate of natural increase (%)	0.6	0.5
Annual rate of growth (%)	0.9	0.8
Life expectancy at birth (years)	76.1	77.4
Infant deaths per 1,000 live births	6	5
Total fertility rate (per woman)	2.1	2.1

Source: US Bureau of the Census, International Data Base.

The prospect of growing numbers of elderly people in the workforce, irrespective of whether most function on a full- or part-time basis, should lead healthcare providers and the suppliers of healthcare products to challenge even further their assumptions regarding the delivery of geriatric care.

The changing location of care

Thanks to preventive care, ever more sophisticated pharmaceuticals and surgical treatments that are less invasive, today's common ailments are not always immediately life threatening. Instead they tend to fall under the generic umbrella of "lifestyle management". Examples might include coping with reduced mobility, offsetting the risks of dementia and the control of incurable illnesses such as heart disease. So successful has the medical world proved to be in providing short-term, corrective care that the healthcare system is now obliged to offer, in addition, long-term, preventive management services.

But doctors and patients alike are finding that neither traditional healthcare institutions nor people's own homes are designed to cope with such problems. Hospitals are being forced by cost pressures to send patients home to an often uncertain fate. The life that faces an older housebound patient can be both medically and psychologically unsatisfactory. Large proportions of the elderly almost certainly live in older housing stock, built without consideration for the needs of invalids or the infirm.

As a result, "ageing-in-place" initiatives have proliferated in the US. These insist that, to some degree, the health problems of the aged at home cannot solely be put down to the physical limitations of individuals, but are in fact the consequence of the elderly having to live in properties that are not designed to respond to the gradual deterioration of their occupants' mobility. Bill Clinton underscored this by including in the budget proposal for fiscal 2000 that certain home renovations be recognised as "healthcare services" and should therefore be subsidised by Medicare and Medicaid as a means of reducing more expensive long-term care costs. While the initiative failed to survive congressional muster, this may be an idea whose time has come.

The recognition that the home is a true component of healthcare redefines what a healthcare product can be. No longer will the definition of healthcare products embrace only those things that directly form part of a treatment regime. Manufacturers of healthcare products, and the authorities responsible for funding their use, now need to consider any factor that contributes to a person's health, or may enhance the environment in which healthcare is delivered.

Over the first decade of the new century, interior designers and architects could play as important a role in healthcare delivery as providers of home care did during the last decade of the old century. As homeowners realise that they need flexible environments that can respond to reduced mobility, kitchen designs must be rethought to reduce the need to reach up to high shelves, and bathrooms (currently the smallest room with the narrowest door in the house) must be able to accommodate walkers. After the children leave, a growing number of empty nesters are replacing large side-by-side washers and dryers, usually located in the basement, with smaller stacked units upstairs near the bedroom to eliminate trips up and down stairs with loads of laundry. In more affluent developments in the US, builders are including first floor home offices/dens with contiguous powder rooms that can be inexpensively converted into a first floor master bed and bath at some future date.

Minding granny

Creating a more benign physical environment for the elderly is not in itself going to allow care to migrate from institutional settings. Increased female participation in the workforce and a rapid rise in labour mobility mean that the traditional caregiver for a homebound elderly patient, an adult daughter, is far less likely to be available today than in the past. According to the Bureau of Labor Statistics, in the US the workforce-participation rate of women aged 20 years and above stood at 61% in 1999, up from 43% in 1969. In addition, the US Census Bureau reported that the percentage of Americans who live outside the state in which they were born has increased by half in 50 years, from 21% in 1950 to almost one-third in 1990. The large-scale loss of domestic caregivers has come at a time when national policies of "care in the community" are resulting in the reduction of resources devoted to institutional care.

This situation is aggravated in the US by the state-level licensing systems. At present doctors, nurses and other healthcare providers are only licensed to practice on a state-by-state basis. Because adult children could be scattered across multiple states, elderly patients often spend significant periods of time on extended visits outside their home states, only to find that prescriptions for drugs or orders for nursing services written by a doctor in one state are not recognised by pharmacists or nurses in another. Several professional associations, such as the American College of Nurse Practitioners, are arguing for greater regional co-ordination in professional licensing, backed up by more liberal reciprocity arrangements, to ensure that patients who wish to spend time with family members in another state can receive a continuum of care. Presently, frustrated patients find that even federal benefits may not be extended to pay for drugs and services depending on the state in which the ordering physician is licensed. This has led one medical expert at a leading healthcare firm to observe that "we have less stable patients self-medicating more sophisticated drugs in an unsupervised environment".

And the situation is becoming more complicated. Since the fastest growing section of the population is that aged over 85, healthcare providers will eventually have to face a new phenomenon: substantial numbers of elderly patients whose adult children are themselves retired and on fixed incomes.

The medical profession and the insurance industry are beginning to realise that they can no longer assume that housebound patients will have close family helpers available to run errands and assist in the daily routine. Who, if anyone, will fill the role of caregiver in the absence of members of the nuclear family? The capabilities of any replacement, their responsibilities and the extent of the legal authority behind them will greatly determine the quality of care and the viability of the healthcare products that might be prescribed or recommended.

With these shortcomings in the home environment, the rising popularity of alternative living arrangements, such as assisted-living facilities, is understandable. An assisted-living facility is a multi-unit housing facility that provides personal care services such as laundry, housekeeping, meals and transportation to doctors' offices and hospitals, usually on a graduated basis based on the physical condition of the resident. In the US, however, medical services are intentionally excluded to

avoid expensive and restrictive long-term care licensing and practice regulations. While visiting nurses, physiotherapists and other healthcare providers often provide services on-site, they are not part of the staff. These facilities also offer extensive social programmes for the residents such as field trips, crafts and parties. The assisted-living population of the US, which was practically non-existent in 1994, totalled over 1m in 1997, according to the National Assisted Living Council. J P Morgan Securities estimates, using existing data on reduced mobility patients published by the HCFA, that only current supply restraints are preventing the figure from reaching 4m, or approximately 11% of the elderly population.

The main driving force behind the assisted-living market has not, surprisingly enough, been the nursing-homes sector. If lifestyle care facilities for an ageing or disabled clientele are to be generated, most observers might expect nursing homes to be the obvious commercial instrument to have driven the trend forward. However, all the initiative has come from the hotel industry.

Healthcare product manufacturers or suppliers, by contrast, rarely seem to look outside existing healthcare channels when planning how and where their products may be used. Such companies have failed to consider the possibility that large concentrations of vulnerable patients could influence healthcare delivery and, in turn, product development. Nor, for the most part, have healthcare product manufacturers and distributors taken into account the fact that these new housing arrangements are accelerating the move towards de-institutionalised care.

As already noted, the elderly are far and away the largest consumers of healthcare products and services. Concentrating the most frail and vulnerable of these into the assisted-living environment is already having a profound affect on where healthcare can be delivered. Simple humanity and, in some cases, efficiency, dictate that healthcare providers should go to elderly patients' homes rather than have the elderly seeking treatment elsewhere.

Some healthcare providers, including optometrists and dentists, now arrange services for patients in assisted-living accommodation, at no cost to the facility, in exchange for the exclusive right to practice on the property.

The changing provider: where does medicine end?

The shift towards de-institutionalised chronic care has also profoundly influenced the nature of the primary care provider. The doctor's role in healthcare is, and always has been, to diagnose and prescribe treatment. Non-medical staff deliver the treatment and evaluate the results, functioning as the eyes and ears of the absent doctor. They are not intended to be unqualified doctor substitutes. But as care shifts out of the hospital and the differences between diagnosis and evaluation become less clear, nurses and other non-medical professionals are becoming ever more important.

Nurses, as well as some non-medical healthcare professions, such as physical physiotherapists and pharmacists, have, however, pointed out that doctors have taken on board many delivery and evaluative functions in an institutional setting simply because it is more efficient for physicians, rather than technicians, to perform these tasks under those conditions. In a remote-care environment, the argument continues, the original divisions of labour, centred around the distinction between doctor and carer, should be reapplied. Is a doctor really better qualified to evaluate the effectiveness of a physical therapy regimen than the therapist who devised it? Are a nurse and a pharmacist qualified to evaluate evidence of potential drug interactions and recommend alternative treatments without having to send the patient to the physician for a follow-up visit?

In the past, legislators erred on the side of caution when deciding whether to expand the scope of practice of alternative providers, especially when they are told it is a life-or-death decision. But as healthcare consumes a growing share of state government budgets, legislators are more willing to listen to arguments that foster competition.

The emergence of telemedicine has furthered the debate. While banks of tele-nurses diagnose the medical problems of anxious callers, some online doctors are faced with a situation in which they

find themselves giving out advice more appropriately applied by nurses. Exactly where the line separating medical and non-medical professional care will be drawn is not yet clear. Its positioning will inevitably differ for each profession, since the distinction between the two types of care is demonstrably mobile. Healthcare product manufacturers and distributors would therefore do well, when developing products and support services, to take into account this blurring of the boundaries in training and legal authority.

Checklist for the 21st century pharma executive

✔ Tracking and contacting potential customers in the workplace before retirement

✔ Packaging products so that they are suitable for the elderly

✔ Delivery of pharmaceuticals to the home

✔ Delivery of drugs away from the home setting, eg on vacation.

✔ On-the-spot advice about treatment

✔ Digital tracking and feedback about treatment

✔ Planning complementary and alternative care that ameliorate treatment

✔ Specialised centres with travel services where patients can enjoy a complete physical make-over related to their complaint

✔ Easy-to-understand information about drugs, for example, accessible on a TV monitor complete with holograms describing the physical effects

In an effort to contain costs and restrict access, evaluation and treatment decisions have devolved, rightly or not, outward to the ultimate end-user—the patient. The prospect frightens some doctors even more than the concept of relinquishing control to other healthcare professionals. Doctors fear the confident, misinformed patient more than they do the ignorant one.

As a more highly educated population ages and healthcare costs continue to rise, however, a trend that sees the majority of patients become capable of taking an active role in the management of their own healthcare is desirable. Indeed, the most significant challenge facing healthcare is preparing patients to take responsible control of their own care. Education and outreach unlike anything seen before will be required, comprehensive in both scope and number. And product manufacturers and distributors, for their part, must design products and packaging in such a way as to minimise incorrect application. Good design should encourage the proper use of products by individuals naïve about healthcare matters, who are acting in the absence of any professional oversight. Examples of products being created to address these concerns include:

- telephones with visual cues and printers, intended to update treatment instructions;
- “intelligent” medicine containers with built-in computer chips to record opening patterns; and
- home PCs, backed up by automated healthcare kiosks situated in the lobbies of assisted-living facilities, that measure and transmit vital statistics to a pharmacist, nurse, or doctor.

In conclusion

The time lag between the initiation of a medical research effort and the commercial introduction of the results is measured in years, and in some cases decades. Product manufacturers must therefore constantly challenge any implicit assumptions that they have as to where, when, and by whom healthcare products will be delivered. They must resist dogma. But, unfortunately, the characteristics of the environment in which care is given, rigidly defined as they are by regulation and convention, have been assumed by many to be fixed. Product developers and distributors must reassess those beliefs if they are to anticipate the kinds of services that will be needed to support the future deliverers of healthcare, whoever they may be. In years to come, of course, the user is as likely to be the patient as a healthcare provider. If researchers and manufacturers ignore this, they risk jeopardising their reputations and even the very existence of their companies by developing products that will, regardless of clinical effectiveness, be inappropriate for the care required.