Transforming Health in Turkey

21st Century Opportunities

Modern Turkey has achieved rapid success in areas such as reducing infant and child mortality and protecting women in childbirth. As the burdens of infectious disease have fallen, important opportunities have emerged for early action against the chronic, mainly non-communicable, conditions which cause death and disability in middle and later life. Effective intervention in this field will permit the Turkish population to continue enjoying swift health improvement in the next stage of the country’s progress, and to build on its growing reputation for leadership in the health sector.

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Summary

• Turkey has undergone rapid demographic, epidemiological, economic and social development in the last 40 years. Since 1970 the population has more than doubled and life expectancy has risen by 25 years. Infant mortality fell from almost 150 per 1000 to 10 per 1000 live births in the same period. The fertility rate is today only slightly over the replacement level. Access to health care and pharmaceutical and other services, such as childhood immunisation, has significantly improved in the last decade.

• The Health Transformation Programme, dating back to 2002/03, has pro-actively underpinned health progress in modern Turkey. Its most immediate priorities have been improving maternal and child health and establishing family practitioner led primary care. Longer term objectives include further strengthening the Ministry of Health to enable it to address the challenges created by the increasing prevalence of long term conditions and narrowing the gap between the quality of health care available in Turkey as compared to other European and OECD countries.

• Despite positive progress the country continues to face problems in areas ranging from shortages of nurses and doctors to assuring the appropriate, rational, use of medicines such as antibiotics and statins. There are also marked regional variations in wealth and health.

• Declines in the burden of acute infectious disease have revealed high age specific non-communicable disease (NCD) morbidity and mortality rates. NCDs already account for over 70 per cent of all mortality in Turkey. The most commonly recorded causes of death are ischaemic/coronary heart disease, cerebrovascular disease (including strokes) and COPD. Reported mortality from coronary heart disease (CHD) amongst Turkish women is the highest in Europe.

• There is recent evidence that the prevalence of type 2 diabetes has doubled in little more than a decade. Chronic Hepatitis B infection also remains a significant threat to health in later life, notwithstanding the introduction of child immunisation in the late 1990s.

• It is estimated that around 6.5 million DALYs a year (disability adjusted life years) are currently being lost by men and women in Turkey due to NCDs, excluding neuro-psychiatric conditions. Attributing a DALY value of $US 10,000 (the approximate Turkish per capita GDP) implies a current gross total value of life and ability foregone of $US 65 billion, rising to $US 80 billion if the burden of neuro-psychiatric disease is included. This represents a lost welfare value comparable to 8-10 per cent of the current GDP.

• Despite the public health programmes already in place, risk factor levels for NCDs are high in Turkey. At the start of this century over half the male population and a fifth of the female population smoked. There is evidence that smoking rates have now started to decline, but obesity is becoming more prevalent. It is particularly common amongst older less advantaged women, although there is an underlying upward trend throughout the population. There is also evidence that around a quarter of adult Turks have ‘clinically
significant’ (that is, conservatively defined) raised cholesterol levels. Clinically significant hypertension exists in at least a third of the adult Turkish population.

- The majority of people with conditions such as raised blood pressure are not receiving pharmaceutical treatment. Similarly, the available research shows that approaching a half of all Turks with type 2 diabetes are unaware of their condition. Such findings warn of greatly increased future levels of not only premature mortality but also potentially avoidable disability.

- Public health in Turkey could benefit from a further emphasis on non-communicable disease prevention and primary care development, in part aimed at the promotion of effective medicines use as an aspect of professionally supported self-care. The management of vascular disease, for example, remains in large part the responsibility of specialist cardiologists and internists working in hospitals. Yet there is international evidence that primary and secondary prevention using low cost, effective, medicines such as anti-hypertensives, statins and anti-diabetes therapies are, along with the support of individual life style changes, best managed in primary care.

- Barriers to health improvement such as the imposition of charges for cost effective pharmaceutical and other treatments should wherever possible be removed. Given shortages of medical and nursing labour, the further development of community pharmacies as clinical resources and ‘healthy living centres’ should be considered as a potential health improvement strategy which might lower the future costs of extending access to enhanced primary care. This could be supported by policies designed to foster electronic patient record sharing and protect against medicines counterfeiting and other forms of improper practice.

- Maintaining Turkey’s economic success is critical for the nation’s progress in all fields, from improving education to providing better housing and transport systems. Some advances in health care, although inherently desirable, might reasonably be judged unaffordable if their costs were to threaten economic success. However, increased health spending at this stage of Turkey’s demographic and epidemiological development could help keep future public outlays on expensive, late-stage, disease treatments down to lower levels than will otherwise be incurred. There is therefore a case for investing an increased proportion of national wealth on health to bring total expenditure up from 6 per cent closer to the OECD average of 9 per cent, in order to allow the improved prevention and treatment of non-communicable conditions.

- On occasions the use of pharmaceuticals is seen as an alternative to, or even as opposing, life style change and environmentally focused population health protection. But in modern societies the economically and pharmacologically rational use of drugs and allied products should augment the impacts of public health programmes, and increase the immediate and long term cost effectiveness of health (and social) care as a whole.
Introduction

Turkey has undergone very rapid demographic, epidemiological, economic and social development in the last few decades. The population rose from 35 million at the start of the 1970s to almost 75 million at the beginning of 2012. In the same period infant mortality fell from just under 150 per 1000 live births (the level experienced in North Western Europe at around the start of the twentieth century) to 10 per 1000 today, while life expectancy at birth for men and women combined has risen from 50 years to about 75 years. The birth rate has also declined dramatically. In much of the country it is now little more than the replacement rate.

Alongside this, the Turkish GDP – expressed in exchange rate terms – increased from about $5,000 (US) to $10,000 per capita during the last decade (see Figure 1). Economic development and health improvement are normally closely associated. In Turkey national success in extending life expectancy has also been supported by an exceptionally pro-active Health Transformation Programme, dating back to 2002/03. Its objectives have included creating a more integrated health system funding infrastructure; establishing universally accessible family practitioner based primary care; involving private health care providers in publicly funded service delivery while rationalising approaches to personal private practice within the public sector; extending preventive medicine and public health services; reducing shortages in the availability of health care personnel; and developing better computer based information and record systems (Akdag, 2007; Tatar et al, 2011).

Figure 1: Life expectancy at birth (years) and GDP (US dollar nominal per capita, 100s), Turkey 1980–2009

Source: World Bank and WHO

Access to health care and pharmaceutical and other treatments and services, including, for instance, childhood immunisation has, as described later in this analysis, significantly improved in the last decade. Examples of relevant innovations range from the establishment (in advance of planned EU measures) of a medicines pack serialisation number based ‘track and trace’ system for protecting against falsified medicines and allied crimes through to the recent creation within the Ministry of Health of departmental structures for taking forward policies on preventing and treating the chronic diseases of later life. These are also referred to here as non-communicable diseases or NCDs.

The scale and significance of Turkey’s health and wider economic achievements deserve international recognition. This brief report (produced by a partnership of researchers from the University College London School of Pharmacy, Hacettepe University and LSE–Health) in part offers an independent acknowledgement of the positive achievements already made. The reality that, with the single exception of China, Turkey’s economy has grown faster than that of any other nation during the last decade and that even at age 65 reported life expectancy in Turkey is now approaching the OECD average (OECD, 2011–see Figure 2) demands informed appreciation in Europe and globally.

Figure 2: Life expectancy at age 65, OECD

Source: OECD, 2011 (data relates principally to 2009)

However, no country can expect to progress without encountering challenges. Despite the positive policies of the last decade, Turkey continues to face problems in areas ranging from shortages of nurses and doctors to ensuring the appropriate and rational use of medicines. There are also (notwithstanding Government programmes aimed at their correction) regional variations in both health and wealth, which may in part be linked to the situations of the wide range of Turkish and non-Turkish speaking ethnic minorities living in the country. There have in addition been controversies associated with, for instance, the social status of women, access to abortion in early pregnancy, and concerns about the future impacts of population ageing on the capacity of the country to sustain international competitiveness and local growth.
Such issues may in future impinge on the ongoing improvement of welfare services and/or community wellbeing. Rapid population increases, coupled with trends such as large scale movements of people from rural to urban and peri-urban areas, inevitably create discontinuities and tensions that require equitable resolution. Approaching 20 per cent of the Turkish population now lives in greater Istanbul, and another 10–15 per cent in the Ankara and Izmir areas. Maintaining and extending health care provision in order to meet changing public expectations is relevant to assuring social stability, and ensuring that continuing economic progress is accompanied by a community wide sense of growing security and justice.

Despite recent public health interventions such as banning smoking in public places, Turkey still also has high rates of tobacco use, especially amongst men, and increasing obesity rates, particularly amongst women (Ministry of Health, 2010). Against this background the primary objective of this study is to quantify the growing burden of long term disease in Turkey and, in the light of national and international public interests in areas such as the rational and effective use of medicines and the promotion of medical and pharmaceutical innovation, to consider the degree to which investment in fields like the primary and secondary prevention of vascular diseases and the early and effective treatment of conditions like diabetes should be seen as an increasingly vital national priority.

The first main section below places Turkish experience of demographic and epidemiological transition in the global context. It in part highlights the importance of accepting population ageing – and alongside it the extension of healthy, disability free, life expectancy – as a desirable aspect of the continuing world-wide human development process.

Some commentators believe that population ageing is a problem to be overcome rather than a beneficial advance to be celebrated. I could even be argued that it would be advantageous for countries such as Turkey seek to delay it, either via measures aimed at maintaining relatively high birth rates or by slowing access to improved life extending treatment for middle aged and older people. However, the evidence presented here challenges such views.

Early intervention to reduce disease risks and minimise the harm caused by NCDs is more likely to add life to years by reducing costly complication and disability rates than it is to promote extended periods of poor quality survival (WHO, 2012). Increasing the proportion of people in their 60s, 70s and above can, provided the right welfare and industrial and allied employment policies are in place, enhance social and economic performance and increase the stability and resilience of communities as they continue to evolve.

Box 1. Mental health care in Turkey

There is a tradition of mental health care in Turkey stretching back over 1,000 years. It has involved both ‘asylum villages’ in Anatolia and small Mosque-attached asylums in, for instance, cities such as Istanbul (Samanci and Erkmen, 1994). Yet over the course of the twentieth century there were a series of scandals linked to poor quality care and a chronic lack of capacity in the field of psychiatry. Community based mental health services have since the establishment of the Turkish Republic almost a century ago been virtually non-existent, and hospital resources very limited. Recent data indicate a total of about 6,000 specialised beds for the country as a whole, approaching 4,000 of which are located in the nation’s eight psychiatric hospitals. The remaining hospital capacity exists in general hospital psychiatric wards (Knapp et al, 2007).

The results of such limited levels of provision have included considerable levels of avoidable personal distress and financial cost carried at the family level, coupled with economic and other burdens for Turkish society whole. But in 2011 the Minister of Health announced plans for the establishment of 240 Community Mental Health Centres (TRSMs) by 2015. It is hoped that these will improve standards of mental health care throughout the country, and contribute to goals like de-stigmatising both severe and more common forms of mental illness.

There are currently two such centres operating in Istanbul, each serving a population of around 300,000. Developments like these are unquestionably welcome from a mental health care viewpoint. Yet the extent to which they can both relieve hospital workloads and improve the community support available to the 10 per cent or more of the population expected to experience significant psychiatric morbidity in any one year should not be overstated. Increased primary care capacity is also needed, together with public health oriented approaches to promoting informed self help and community wide understanding of and social as well as medical support for people with mental health problems.

Subsequent sections offer further data about the current and possible future occurrence and costs of chronic physical illnesses in Turkey (see Box 1 with regard to mental ill-health). A number of policy options are explored, and some suggestions offered for further consideration by stakeholders.

However, before turning to this, three more introductory points should be made. First, the data available on health and health care in Turkey is, despite current investments in improving statistical and information services, not always as robust as it is many other OECD nations. This to a degree reflects capacity limitations dating back to well before the start of the present century, and also the fast rate of health improvement now being achieved. Understanding the speed and dimensions of the health and related social changes now affecting the Turkish population is a central challenge for not only policy makers, but in the development of analyses such as this report.

Second, successful national health improvement strategies must by definition be consistent with the
particular circumstances, beliefs and traditions of the communities served. Approaches that may be effective and appropriate in, say, Germany, Japan, the US or Sweden might not be viable or desirable in countries with different heritages and infrastructures. It should go without saying, but is even so worth stressing, that international observers and academic ‘experts’ with limited knowledge of and insight into local conditions should be careful not to seek inappropriately to impose ‘solutions’ developed in one environment upon people living in other complex cultural and material contexts.

Third, attempts to quantify the economic and social burdens of disease and the benefits of health interventions are subject to a number of inherent methodological difficulties. Projections based on the future health care costs likely to be incurred or avoided can, for instance, be of value in circumstances where treatment pathways are well established, and expenditures predictable. But in other cases they may be of little but rhetorical substance. Likewise, estimates based on production related indicators like, say, days lost from work due to illness may be meaningful at the individual employer or employee level. But they can be misleading when aggregated to regional or national levels. Macro-economic and politically determined variables such as the availability or otherwise of unemployed labour to take the place of people who become disabled, and of transfer payments to compensate for lost earnings, provide examples of complicating factors.

Burden of disease calculations based on measures of the value a community attaches (or can afford to attach) to disability or quality adjusted life years (DALYs/ QALYs) foregone or regained as a result of ill-health and its prevention or treatment can have greater meaning. Information evaluated later in this report draws on ‘burden of disease’ research undertaken in Turkey and elsewhere in the world, using methods initially pioneered by the WHO in the late 1980s.1 (See, for example, WHO, 2008). However, even in this context there are significant uncertainties relating to not only findings becoming rapidly outdated, but also to how degrees of disability and other aspects of lost life quality should be valued for the purposes of appraising public investment decisions.

QALY based cost effectiveness/utility studies, for instance, typically only relate to health sector resource allocation, and may fail to reflect overall public interests. Additional questions include whether or not the economic impacts of disease and disability should be adjusted to reflect local GDP levels, and when the monetary value of a lost life year (adjusted or not for its quality as judged by third parties) should properly be taken to be the same between and/or within communities.

In the final analysis ‘correct’ spending levels on items like medicines and activities such as nursing people in distress cannot be determined by any one formula. In some instances, like those of cardiovascular risk reduction and type 2 diabetes management, investment policies based on estimates of disability and costs avoided may be justifiable. Yet it would be wrong to suggest that this can be ‘scientifically proven’. In reality the appropriate financing of better health care can only be decided via balanced political debate, guided by ethically committed stakeholders with genuine insight into the evolving values and requirements of those for whom services exist and an informed understanding of the potential of current and developing pharmaceutical and other health technologies to deliver better future health outcomes.

Turkey and global human development

The terms demographic and epidemiological transition relate to the changes in mortality and morbidity characteristic of the shift from traditional to modern population structures and social values and systems. Even in the early 1800s – some 11,000 years after the establishment of the first known temple at Gobekli Tepe in South Eastern Turkey marked the start of humanity’s transition from nomadic to settled (and in recent decades relatively inactive) life styles – average life expectancy at birth was no more than 40 years in every geographical location and in every social group. In most instances it was less. High stable birth rates were balanced by high infant, child and young adult death rates, fluctuating with epidemics of disease. Unless women who survived until the end of their reproductive years had an average of around seven babies there was a significant danger of their family lines or local communities dying out.

However, as the countries of (initially) northwestern Europe increased their agricultural and industrial productivity survival rates began to improve. This happened first in younger adults, later in children and then subsequently amongst infants. The typical development pattern is that as parents become more confident that their children will live into adulthood birth rates (following a period of swift population increase) start to fall. As Figures 3a and 3b illustrate, this means that (after around a century or so in the case of nations such as France and the UK) populations re-stabilise, with low mortality balanced by low fertility rates. It is the latter that in modern societies fluctuate, with changes in economic conditions and the influence of factors such as immigration.

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1 The first major burden of disease study in Turkey was published in 2004 by the Ministry of Health and the Baskent University. This research is to be updated and extended as part of the Turkish Ministry of Health’s ongoing work on matters relating to public health improvement (Gursoz 2012). But despite the changes of the last decade, in which the Turkish population has grown by over 10 per cent and the absolute number of people in their 60s and 70s has increased even more rapidly, it presently remains the single most important published information source on this topic.
Demographic transition is accompanied by systematic changes in disease patterns. The latter process is often referred to as epidemiological transition. It may be argued that as infectious diseases are contained or eliminated and communities grow richer, this gives people the opportunity to live on and acquire habits such as smoking, eating processed foods and sweetened drinks and failing to take exercise. This in turn leads to non-communicable conditions (NCDs) such as atherosclerosis/coronary heart disease and type 2 diabetes.

There is a degree of truth in this view. However, as data like those in Figure 4 illustrate in the case of people aged over 60, poorer, less advanced, societies often have higher age specific death (and disability) rates from conditions like heart disease than richer ones. In such cases declines in the burden of acute infectious disease serve to reveal high pre-existing NCD morbidity and mortality rates rather than to establish them. Awareness of such disease burdens is amplified by population ageing. This adds to the absolute prevalence of NCDs (Box 2).
It is important to stress that as people live longer they tend to be healthier at any given age. The same factors that reduce premature mortality also tend to protect against severely disabling illness (Gill & Taylor, 2012). Seen from this perspective, attempts to reduce the burden of chronic/long-term diseases should be made at the same time as problems such as the occurrence of avoidable maternal deaths or the over-treatment of viral infections with antibiotics are being eradicated, rather than subsequently. Otherwise populations that have undergone the initial stages of demographic and epidemiological transition will be deprived of its full potential health benefits, in ways that will in future decades increase rather than limit overall health spending.

Box 2. The benefits of healthy and active ageing

There is robust evidence from the US and various parts of Europe that as societies become able to offer protective physical environments and life expectancies amongst older adults increase, people become fitter at any given age. Age specific disability rates fall as longevity rises – see, for example, Manton 2008. But this does not necessarily mean that population ageing will be accompanied by a decreased overall prevalence of severe disability (Lafortune and Balestat, 2007).

In the case of illnesses like Alzheimer’s Disease prevalence and condition specific disability rates appear (at least until new preventive and ameliorative treatments become available) set to rise in line with increases in the relative numbers of older people. Yet in other contexts the extent to which investments in high quality health and appropriate social care can contribute to not only increased longevity but, perhaps even more importantly, increased healthy life expectancy (and hence to what is known as morbidity or disability compression) is more controversial (Fries et al, 2011).

Relevant trends vary between differing social and cultural settings. However, it is beyond dispute that the Turkish population will in time age. It is presently projected that the percentage aged over 65 will rise from about 7 per cent today to almost double this figure in 2050. Such trends result from not only better survival later in life but also, in some statistical respects more importantly, from the fertility declines that follow reduced infant and child mortality. Seen from this perspective (and data such as those presented later in this report on the doubling of type 2 diabetes rates in Turkey in the last ten to fifteen years) health policy makers should seek to ensure that healthy life expectancy rises in parallel with, and ideally faster than, overall survival if they wish to minimise the future burden of disease carried by the community.

Achieving this may well require increased short term outlays on medicines. But the longer term economic gains associated with the promotion of ‘active ageing’ are likely to be considerably greater. Observable benefits range from increased social stability and wellbeing (in part derived from healthy older persons’ inputs to areas such as child care) through to enhanced workforce performance at all ages. As societies continue to develop and the nature of work typically shifts away from heavy manual and repetitive production line tasks towards service provision and more sophisticated forms of mental activity the benefits of enabling older people to remain employed for longer rise, as also do the costs of training and supporting younger individuals entering the workforce (Gill and Taylor, 2012).

Transforming health and health care

The changes in population structure and illness experience outlined above have far reaching social effects in the communities in which they occur. The resultant shifts in values and public service structures can be collectively referred to as care transition (Taylor and Bury, 2007). As family sizes fall and people and communities become more secure many forms of relationship change, perhaps most vitally those between men and women and parents and their children. So too do moral judgements and values in spheres ranging from sexuality to perceived human rights relating to access to health care. As communities continue to develop more attention is often paid to ensuring there are opportunities for normal living for people with conditions such as learning difficulties or mental health problems like schizophrenia, or physical problems such as blindness or being confined to a wheelchair.

It is important not to over-generalise. But as societies move through demographic transition women’s roles and rights tend to become more equal to those of men. Attitudes to phenomena ranging from carrying weapons on the one hand to the legalisation of homosexual partnerships on the other also shift in characteristic ways. In pre-transitional communities it is, for example, frequently considered normal for men to carry weapons. Homosexual behaviour, by contrast, is often seen as a crime. Yet in post-transitional societies carrying knives or guns in public tends to be regarded as deviant, while homosexuality is decriminalised and in time may become widely accepted as a legitimate choice. Similar trends occur in relation to phenomena such racism.

As described in Box 2, age specific mortality and disability rates fall as life expectancies increase. Yet health services and products behave, the experience of the twentieth century suggests, as ‘luxury’ items. One explanation of this is that as people and communities grow more affluent they expect and value ongoing life more highly, and hence spend more of their greater wealth on health care. They also become more likely to expect others in their communities to have good access to treatment and care of all types. Such shifts illustrate the point that the values attached to given burdens of disease are socially determined, and change over time.

Turkey’s health transition programme reflects the nation’s successful development. Yet health spending currently remains relatively low in OECD terms, at 6 per cent of GDP (Figure 5). It would be beyond the scope of this brief analysis to attempt to describe the evolution of health care in Turkey in detail. But some key points relating to the emergence of the current system are outlined below.

The 1920s to the 1940s – the early years of the Republic

The Turkish Ministry of Health was founded in 1920, shortly after the Grand National Assembly came into being – see Box 3. Immediate health sector tasks following Atatürk’s successful leadership of the War of
Independence included increasing health personnel numbers, extending basic services to rural areas and introducing preventive services. For example, the Public Hygiene Institute was formed in 1928 and a national vaccination schedule established, along with initial programmes to combat communicable diseases such as malaria and TB.

Progress was achieved. However, it was more limited than reformers had hoped for. The number of qualified doctors working in Turkey rose from 1182 in 1930 to 2387 in 1940, and a system of compulsory medical service was introduced in an attempt to correct geographical inequalities in their availability.

The 1950s to the 1990s

Even at the start of the 1960s two thirds of the Turkish population lived in rural areas and did not have assured regular access to basic health services. There was during this period an increasingly centralised focus on improving health care facilities. All public hospitals and healthcare facilities transferred to the control of Ministry of Health and in 1963 a new law required the establishment of health centres with mandatory numbers of staff, linked to local population sizes. In the early 1980s a new constitution guaranteed health care provision as a State responsibility. By 1983 the health centre system covered the whole country and new approaches to funding health and social support were emerging.

During the 1970s and 1980s initial attempts were also made to establish better governance at the interface between privately and publicly funded medical practice. The experience of countries such as, for instance, Greece has demonstrated that without effective controls in this and allied areas serious distortions in care delivery and costs are likely to emerge (Economou and Giorno, 2009). In 1990 the then Turkish Health Sector Master Plan recommended the introduction of a purchaser-provider split, general health insurance and a new family practitioner based primary care scheme. The Ministry of Health put forward reform proposals in 1993. The Ministry of Health put forward reform proposals in 1993. The significance of the health plans originally developed in the 1990s should not be underestimated (Akalin, 2012). However, the economic position of the country was not strong at that time and in the event progress was delayed. The twentieth century ended in a period of political and economic turmoil in Turkey.

The twenty first century

In 2002 the Adaletve Kalkınma Party (AKP) assumed power with the support of about a third of the overall electorate. Almost 50 per cent of the Turkish electorate supported the AKP in the most recent elections held in 2011. This record, which may well be linked to health policy related successes and the high levels of recorded public satisfaction with recent health care improvements, is impressive, albeit that it falls short of the two-thirds Parliamentary ‘super-majority’ required to make unilateral changes to the Turkish constitution.

Following his initial appointment in 2002 as Turkish Health Minister, Dr Recep Akdağ led the introduction of the Turkish Health Transformation Programme (HTP) in 2003. Its goals included further strengthening and restructuring of the Ministry of Health and narrowing the gap between the quality of health care in Turkey as compared to European and other OECD countries. As noted earlier, the most immediate priorities have been centred on improving maternal and child health and further establishing family practitioner led primary care. There are today some 22,000 doctors working as family practitioners in Turkey.

New emphasis has been given to disease prevention and the collection of computerised information, and the Akdağ led health administration has also taken forward reforms related to regulating privately and publicly funded medical practice in order to eliminate perverse incentives and to combating corruption in the wider health sector. With regard to health service funding, the (since superseded) Green Card Scheme for the least advantaged sections of the Turkish community was in 2005 extended to cover all health care expenditures. A unified health insurance fund, the General Health Insurance Scheme, has now been established (Box 3).
Box 3. Health sector governance and funding in modern Turkey

The Turkish Republic originally built on the governance traditions from the Ottoman Empire, which had developed approaches aimed at permitting people of different faiths and customs to live and work together harmoniously. Following the disruption associated with the closing stages of the First World War the founders of the new Republic introduced a secular approach to the exercise of political authority. The administration formally established by Mustafa Kemal Atatürk and his followers in October 1923 was in this respect widely regarded as supporting the ‘westernisation’ of Turkey.

Arguments for and against the separation of religious authority and that of the State have been pursued in many nations. Some observers may believe that the exclusion of religious influence from Turkish society’s political leadership weakened civil society in contexts like, for instance, fostering pressure groups committed to improving the care available to vulnerable people. However, this is a debatable interpretation. What is clear is that there was significant social change in the second half of the 20th century. For example, in 1961 a revised Constitution expanded freedom of expression and civil liberties, and allowed for the development of a wider range of political thought and social action.

The establishment of the AKP Government (see main text) in 2002 and the subsequent introduction of the Health Transformation Programme (HTP) should be seen in this context and that of other trends, such as population movements from rural areas to urban and peri-urban settings. An important aspect of the reforms introduced during the last decade relates to the consolidation of the previously fragmented health funding arrangements into a more integrated system. The Social Insurance and General Health Insurance Law, which was technically effective from 2007, combined five separate social and health insurance schemes (including the Social Insurance Institution – SSK; the Government Employee Retirement Fund – GERF; and the Social Insurance Agency of Merchants, Artisans and the Self-Employed – the Bag-Kur) into a single entity.

The reformed funding system covers all population groups, including people who are not formally employed. No payment is required for primary health care and all individuals under 18 years of age are now comprehensively covered free of charge. Via the new Social Security Agency the poorest sections of the adult community have (subject to means testing) full coverage for hospital inpatient care, although outpatient care and prescriptions are subject to a 20 per cent co-payment. No payment is required for primary health care and all individuals under 18 years of age are now comprehensively covered free of charge. Via the new Social Security Agency the poorest sections of the adult community have (subject to means testing) full coverage for hospital inpatient care, although outpatient care and prescriptions are subject to a 20 per cent co-payment. No payment is required for primary health care.

In overview, the recent strengthening of the Turkish health sector has been built on deeply rooted, centrally located, strategic and regulatory competencies, while being executed in ways which are permitting increased local provider enterprise and greater day to day plurality. This should over time further decentralise responsibility for, and community wide commitment to, protecting public health interests and improving health outcomes.

Present and Future Burdens of Non-Communicable Disease

Figure 6 is taken from the first comprehensive burden of disease study conducted in Turkey (MoH, 2004). The data it contains relate to the situation in about 2000. The relatively low crude death rate recorded in all regions (in circa 2000) reflects the young age structure of the population. Currently only 7 per cent of the Turkish population is aged over 65. However, as populations age the proportion of health and allied service resources spent on the treatment of non-communicable diseases (NCDs) rises – see Figure 7. The latter already account for the great majority of all Turkish deaths, and the prevalence of conditions like type 2 diabetes is rising rapidly. So too in future will its disabling and costly consequences, unless effective prevention and treatment checks such trends (see Akalin et al), 2012.

Figure 6: Crude death rates (per 1000 population) in Turkey, by region and disease group

Group I: Communicable disease, maternal causes of death, perinatal causes, and nutritional deficiencies

Group II: Non-communicable diseases: cardiovascular system diseases; respiratory system diseases; digestive system diseases; endocrine, nutritional and metabolic diseases; sense organ disorders; genitourinary system diseases; malign neoplasms; musculoskeletal diseases and neurologic disorders; neuropsychiatric disorders; and mouth and dental health disorders.

Group III: Intentional and unintentional injuries.

Source: MoH and the Baskent University, 2004

Figure 7: The burden of disease by main cause, low-and middle-income countries by age

Communicable diseases, maternal and perinatal conditions and nutritional deficiencies
Non-communicable diseases
Injuries

Source: WHO, 1999

2 Present projections indicate that even by 2050 only 12 per cent of the Turkish population will be aged over 65, compared with about a third of the EU’s population. But such calculations are very sensitive to the rate of decline in the birth rate. If this is faster than anticipated then the structural ageing of the population will also be more rapid than is presently expected. Unless timely effort is put into improving middle and later life health in Turkey age specific rates of disability will remain significantly higher than in the ‘older’ European nations, and will almost certainly impose relatively heavy costs.
Group I causes of death, which include communicable diseases and maternal and perinatal causes of mortality, accounted for between 1 in 6 and 1 in 7 deaths in Turkey at the time this Baskent University work was undertaken. Only in the case of the Eastern region was the communicable and allied disease burden higher. By contrast Group II mortality – that relating to NCDs – already accounted for over 80 per cent of deaths in 2000. The most commonly recorded causes of death in Turkey are ischaemic/coronary heart disease, cerebrovascular disease (including strokes) and COPD. Reported mortality from coronary heart disease (CHD) amongst Turkish women is the highest in Europe, and at the start of the current century the age standardised rate CHD death recorded for men was only surpassed by that for Russia and the Baltic countries (Onat, 2001).

The 2004 Burden of Disease study also reported the proportion of Disability Adjusted Life Years (DALYs: life years lost or gained due to premature mortality and disability combined into an aggregate measure) foregone by major disease group (Figure 8). The burdens attributed to injuries (shown in Figure 6 as Group III disorders, which impact upon younger men in particular) and maternal mortality and infections are high. Nevertheless, even excluding the burdens imposed by neuropsychiatric disorders like the dementias and schizophrenias, in the order of 50 per cent of the approaching 11 million DALYs lost annually by men and women in Turkey at the start of this century were due to NCDs.

It can be estimated on the basis of this information that in 2000 a little under 6 million DALYs per annum were lost in Turkey due to conditions such as the vascular diseases, diabetes, cancers, COPD and musculo-skeletal disorders like rheumatoid arthritis, osteo arthritis and osteoporosis. Since that time the disability burden due to infections and factors such as maternal mortality has fallen. Yet in the NCD context the Turkish population has increased by over 10 per cent. The relative number and proportion of people aged over 60 has also increased, even though Turkey is ageing more slowly than East Asian countries like China. In addition the prevalence of conditions like type 2 diabetes is probably rising faster than population growth and ageing data would imply. But this is not accounted for here.

Despite the fact that increased longevity per se has relatively little impact on the overall number of lost healthy life years imposed by most NCDs other than Alzheimer's Disease (because as life expectancy rises the average age at which people become significantly disables also increases) such trends mean that today the projected total burden of chronic disease incurred in Turkey is likely to equate to approximately 6.5 million lost DALYs per annum. If the consequences of neuropsychiatric disease are added, the estimated total rises to 8 million lost DALYs per annum.

Attributing economic values to these data is inevitably uncertain, for reasons already touched on in this report. One approach might be to seek to map in detail the public and private health care and other costs associated with the treatment of the conditions involved and their effects on individuals’ contributions to society. However, this methodology is not used here. Another is to attach an affordability based value to each healthy/disability free life year foregone. For instance, in the UK various studies have employed the implicit NICE (National Institute for Health and Clinical Excellence) Quality Adjusted Life Year (QALY) threshold value of £UK 20–30,000 to estimate the economic burdens of disease and/or the affordability of new therapies. This equates to 50–100 per cent of the annual UK per capita GDP.

Less parsimoniously, the World Health Organisation's standard approach posits that any intervention which generates a DALY for less than 100 per cent of the annual per capita GDP should be regarded as highly cost effective. Interventions that generate DALYs for
up to three times the average per capita GDP are, according to the WHO, potentially cost effective. Applying a conservative DALY value of $US 10,000 (the approximate Turkish per capita GDP) to each DALY lost due to (broadly defined) NCDs suggests an indicative value for the life and ability foregone of $US 65 billion, excluding the neuropsychiatric disorders. This figure rises to $US 80 billion if the latter are included.

Given a total Turkish GDP of approaching $800 billion in current exchange rate terms, these sums represent a lost value estimate equivalent to 8–10 per cent of GDP. Higher and lower assumed DALY costs, using the 50 per cent and 200 per cent of per capita GDP thresholds respectively, give estimates ranging between 4 and 16 per cent of potential national welfare lost due to the burden of non-communicable diseases in Turkey, excluding the morbidity and mortality caused by neuropsychiatric conditions.

These are welfare economics based order-of-magnitude estimates of the value of lost human existence and wellbeing, rather than financial estimates of the cash sums that could be released via the provision of better pharmaceutical or other treatments. Yet they are of sufficient scale and robustness to raise questions as to whether or not the Turkish government should in future consider investing a greater proportion of the nation’s wealth on health and allied care, provided that (cost) effective interventions can be identified (Box 4).  

**Risk factors**

Questions relating to investing more in health care and interventions against disease which offer good value for money in countries like Turkey are discussed later in this report. However, the remainder of this section examines further data relating to risk factors for NCDs. It also looks at some specific aspects of the burdens imposed by selected problems and conditions, ranging from inadequately controlled blood pressure to the late stage costs of chronic Hepatitis B infection.

Chronic disease risk factors may be classified as behaviourally linked, such as tobacco smoking and high alcohol and calorific and/or saturated fat containing food consumption, or ‘biologically defined’. Examples of the latter include blood pressure and lipid (cholesterol) levels. In some traditions ‘public health’ interventions are seen as being concerned with influencing behavioural choices and administering vaccines to populations, while mainstream medical care is concerned with providing individually tailored treatments for diagnosed states like, say, hyperglycaemia indicative of pre-diabetes. However, in reality constant interactions between socially and psychologically influenced behavioural traits and genetic and acquired epigenetic characteristics define individual phenotypes. This understanding highlights the need for integrated population and patient focused care paradigms in post-transitional societies.

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**Box 4. Public health, national wealth and spending on health care**

During the 20th Century the health status of populations has been consistently associated with the Gross Domestic Products (GDPs) of the countries they inhabit. The available data indicate that health is also influenced by factors such as the severity of income gradients within communities (that is, the degree of material inequality between richer and poorer groups) and in some instances by the presence of particular conditions, such as endemic malaria or HIV. Nevertheless, the absolute wealth of nations is often taken to be one of the most important determinants of the longevity of their people.

Since the beginning of the 1950s GDP levels have also been correlated with the amounts allocated to health. The better off communities are, the more they tend to spend of their total resources on health (and social) care. It is sometimes assumed that this relationship is primarily driven by population ageing, and the growing cost of caring for people with non-communicable conditions as life expectancies increase. It is also on occasions argued that it is appropriate for less affluent countries to spend a relatively low proportion of GNP on health, because this allows greater investment in areas such as establishing productive industry and improving transport and other forms of infrastructure.

However, when the records of countries like, for instance, Japan and the US are compared in detail, a more complex picture emerges. Japan has an older and healthier population than that of America, yet spends significantly less of its wealth on health care. Observations such as these have led some commentators to question the nature of the links between health and wealth and to ask whether or not policy makers in ‘mature’ post transitional economies such as those of the Member States of the European Union should go on accepting high health services costs relative to GDP, or ought instead seek to moderate them even if economic growth in such settings were to continue.

Conversely, it may also be the case that in the past the long term potential of health care improvements to facilitate economic development in countries with relatively low per capita GDPs has been under-estimated. Spending proportionately more on health services while populations are still relatively young but at high future risk of developing NCDs could confer important health and financial dividends in later decades. There is reason for believing that this is currently the situation in Turkey.

Figure 9 presents estimates (applying to around the year 2000) of the numbers of DALYs that might be saved in Turkey through the elimination – were it possible – of given NCD risk factors. About half the male Turkish population and a fifth of the female population still smoke tobacco (WHO, 2012). These rates are high compared to those presently observed in ‘high HDI’ countries such as, for instance, Sweden.

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3 The Human Development Index. The HDI is a summary composite statistic created by the South Asian economists Mahbubul Haq and Amartya Sen at the start of the 1990s. Turkey’s 2011 HDI value was 0.699. This puts the country in the high human development category but only about midway in the overall human development national league. Analysis of the individual components of Turkey’s overall HDI data set indicates particular weakness in equitable access to education.
Government policies to cut smoking have included cigarette advertising restrictions, prohibiting smoking in public places, and increased tax on tobacco. Yet despite some encouraging reports relating to, for instance, reduced rates of parental smoking (see Agirbasli et al, 2007) and the 40 per cent drop in smoking recently reported by the TURDEP 2 study (see page 15) their implementation does not appear to have been notably successful until the passing of the 2008 Law on Tobacco and Tobacco Products. This prohibited smoking in all closed public and private areas, including restaurants, all transport vehicles and other places open to the public. It took full effect in July 2009 (Tatar et al, 2011).

Risk factors for CHD include, as already noted, high cholesterol (more specifically low HDL, high LDL⁴ levels, raised blood pressure and abdominal obesity. The latter is an independent risk factor for type 2 diabetes, which is a driver of much cardiovascular disease – see below. Longitudinal data suggest that most Turks enter adulthood with low lipid levels and overall NCD risks, but that they rise steeply during their 20s and 30s (Onat, 2001). However, even amongst Turkish children there is now evidence of a secular trend towards increased risks for metabolic and vascular disease (Agirbasli et al, 2011).

To be accurately understood such risk factors should, because of synergistic interactions between them, be expressed as aggregated rather than discrete phenomena. However, even at the less robust non-combined level (which may understate total risk) there is evidence that around a quarter of the adult Turkish population has clinically significant hypercholesterolemia, and that clinically significant hypertension exists in a third of the adult Turkish population. For men aged between 40 and 70 this proportion rises to over 40 per cent, and for women it is over 50 per cent.

WHO and other sources have repeatedly shown that high levels of smoking and untreated, or inadequately treated, hypercholesterolaemia and hypertension are serious problems in all emergent economies – see, for example, Figure 10. In this respect Turkey should not, therefore, be seen as an exception. But neither, arguably, should the current unsatisfactory situation be ignored. There is evidence, for instance, that more could affordably be done to reduce the harm caused by factors such as exposures to indoor smoke and inactive life styles.

⁴ High and Low Density Lipoprotein cholesterol. ‘High density cholesterol’ is protective in that HDLs transport cholesterol back to the liver, while LDLs (and other lipids) transport them to tissues and potentially through the inner arterial walls where they are the primary cause of atherosclerosis.
inactive or have low activity levels. Further, recorded average fruit and vegetable consumption in Turkey is seemingly low as compared with neighbouring countries such as Greece (less than two portions of each per day) and the population's intake of sugar and fast food is increasing (MoH, 2010).

Findings on the prevalence of obesity in Turkey vary between studies, and unless due corrections are made may be influenced by factors such as the age structures of the populations under scrutiny. But it has been reported as being as high as 15 per cent or over in female and male children. For adults, reported obesity rates range from about 13 per cent prevalence in males (very probably an under-estimate for today) to approaching 40 per cent in women (MoH, 2010). In the TURDEP 2 study (see below) Satman et al reported an aggregated (male and female) obesity rate of over 30 per cent in 2010, some 50 per cent above the figure reported for the late 1990s TURDEP 1 study (Satman et al, 2002).

Likewise, Hatami et al (2003) noted a near 20 per cent increase in obesity in a cohort followed between 1990 and 2000. In the female population the available data indicate that 50 per cent of women aged over 50 may be classed as obese. This helps to explain the prevalence of hypertension and the high mortality from CHD and allied disorders in middle aged and older Turkish women.

There is evidence from other Mediterranean countries that obesity and related disease burdens in women impact particularly heavily on less economically and socially advantaged groups and individuals. Problems such as illiteracy are known to be concentrated in the poorer Turkish female community, who may have special difficulties in access to health related advice and care in both rural and peri-urban settings. The Turkish government’s obesity prevention and control programme (MoH, 2010) includes objectives such as increasing public awareness of the health consequences of obesity and encouraging healthier lifestyles through media campaigns, school and workplace initiatives.

The establishment of a monitoring and assessment process for this strategy was identified as an objective to be met by 2011, and the first full progress report is due in 2015. However, in the short term effectively reducing the cardiovascular and allied harm stemming from high rates of obesity is most likely to depend on increasing the availability and use in practice of pharmacologically based interventions, alongside interventions aimed at reducing tobacco use.

**Preventable conditions, avoidable costs**

Further research may within the next few years provide fuller, more up-to-date, information on the scale of avoidable NCD related disability and distress in Turkey. This should serve to support an additional refocusing of the country’s health strategies and – perhaps more importantly – service delivery programmes away from acute illness treatment in institutions towards prevention and helping people to live as well as possible with long term conditions in community settings (Figure 11). However, there is already a considerable volume of nationally and internationally available information about what most needs to be achieved, and how most cost effectively it can be provided.

For example, the management of vascular disease in Turkey remains in large part the responsibility of specialist cardiologists and internists working in hospitals. This is appropriate in circumstances where acute life threatening events are being treated, and/or problems associated with late stage disease are being addressed and expensive and risky interventions like heart surgery considered. Yet the world evidence base clearly indicates that primary and secondary prevention using effective, low cost, medicines such as antihypertensives and statins cannot normally be efficiently offered by hospital based specialists. Timely action is clearly needed to continue shifting the locus of service control more towards primary care, and where possible that of assuring effective medicines use towards lower cost support for health service users themselves.

Some global authorities advocate ‘de-medicalising’ activities such as risk factor testing and early stage cardiovascular disease treatment (Wald & Misselbrook, 2011). Even if at present such strategies may not be viable in Turkey because of prevailing social and professional attitudes, reforms aimed at assuring a more pro-active family doctor approach to vascular disease prevention and management and the further removal of inappropriate restrictions in areas such as statin prescribing are worth pro-active exploration. For example, avoiding unnecessary hospital testing of lipid levels in individuals whose overall age and phenotypical profile indicates a need for intervention is an example of where efficiency savings may be possible.

One systemic barrier to be overcome throughout the world’s emergent economies is that an undue dominance of specialists in the vascular disease therapy context can provoke a reactive lack of interest in this vital area amongst primary health care providers (Turkay et al, 2007). This might in turn perpetuate excessive activity levels in contexts such as treating minor self-limiting infections with antibiotics, alongside delays in the introduction of rational and affordable NCD focused preventive measures in the community.

**Figure 11: Changing health care goals and delivery settings**

*Source: The authors*
Diabetes prevalence

Two large scale TURDEP (Turkish Diabetes Epidemiological) studies undertaken in 1997–1998 and again in 2010 provide important evidence of the rapidly growing burden of type 2 diabetes in Turkey (Satman et al, 2002; Satman et al, 2010; Tatar, 2012). Both involved about 25,000 people, and although the mean age of participants in the TURDEP 2 sample was older than that reported for TURDEP 1 (46 years as opposed to 41) their findings appear comparable. They show that the national prevalence of diabetes almost doubled, from a little over 7 per cent to nearly 14 per cent, in the thirteen years between the two studies.

The Turkish type 2 diabetes prevalence figure of 7–8 per cent recorded in 1997–98 was at that time higher than that for the UK, Japan and Sweden. International analysts well placed to predict global trends originally projected it to rise to almost 10 per cent by 2030 (Shaw et al, 2010). The anticipated US diabetes prevalence for 2030 was 14 per cent, compared with 12 per cent in 2010. But these recent estimates indicate that the prevalence of diabetes in Turkey is already greater than it is in America. The scale of the threat that such trends present to the future health of the Turkish people should not be under-estimated.

Additional initial TURDEP 2 observations included an increase in average female weight of 8 kg as compared with the 97/98 figure, and of 6 kg for males. Similar increases were also observed in waist measurements (6 cm for males, 7 cm for females). According to the 2010 study, the average age of onset of diabetes was five years earlier than reported in the 1998 study. Further, 45 per cent of the TURDEP 2 study population were not aware of having diabetes. Within Turkey there is also evidence of significant regional variations in the incidence and prevalence of the condition, which is positively associated with economic and allied development.

TURDEP 1, for instance, found diabetes to be significantly more common in urban than rural populations. The Eastern region had the lowest prevalence of both the diagnosed condition (6 per cent) and impaired glucose tolerance (6 per cent). The highest rates (9 per cent and 8 per cent respectively) were in the Southern region (Satman et al, 2002). Such data offered a clear warning of continuing increases in the burden of disease associated with diabetes, which in other national settings is known to be a major driver of rising health care costs and avoidable human distress (Thorpe, 2011; Thorpe, 2012; Zhuo et al, 2012; Narayan et al, 2012).

One recent study suggests that unless more effective approaches to the prevention and early control of diabetes are taken the cost of its treatment, including that of later stage complications, could rise to around $US 10 billion at today’s costs (Malhan et al, 2011). This would be equivalent to approaching 20 per cent of the total current Turkish health spending. Although detailed aspects of this and similar research may be questioned, it highlights the importance of approaching this and related chronic disease challenges as rationally and effectively as possible.

Logically considered, there is good reason to believe that avoiding short term costs like those of, for instance, supplying good quality treatment to people with type 2 diabetes (including as and when necessary appropriate insulins, in circumstances in which medicines are no longer able to adequately control the condition) could in time lead on to much greater expenses. An illustration of a distortion to avoid is the danger of curbing population level use of early stage anti-diabetes treatments in the community because of factors such as patients being unwilling to pay prescription charges, while fully funding the subsequent provision of expensive hospital inpatient care for potentially preventable complications.

In the face of this and related challenges the Turkish Ministry of Health’s diabetes prevention and control action plan for 2011–2014 (MoH, 2011) cites the following objectives:

- preventing diabetes through education, healthy lifestyle, public awareness and early detection;
- providing effective treatment of diabetes and its complications;
- elevating the quality of life of patients with diabetes through improved quality of care, and access to relevant and timely healthcare;
- controlling childhood diabetes, through prevention, early diagnosis and improving treatment; and
- reinforcing activities that support the management of diabetes, such as maintaining a registry of cases and providing high quality occurrence data, undertaking research, and implementing healthcare workforce training initiatives.

These are clearly desirable ends. However, the central test facing not only the Turkish health sector but care funders and providers across the world relates to how rapidly in practice good intentions are translated into effective reductions in the age specific incidence of type 2 diabetes, and the provision in primary (and when they are needed secondary) care facilities of services capable of reducing the occurrence of diabetes related complications. Taken together, the Turkish and other research findings summarised in this report suggest an urgent need for enhanced action.

Smoking and health

Additional examples of chronic diseases that should be preventable or could have their onsets delayed and impacts reduced by early and effective care range from disorders like asthma and (more significantly in the current Turkish environment) Chronic Obstructive Pulmonary Disease (COPD) to lung cancer. Avoiding the long term effects of infections like Hepatitis B and C can also be considered in this context (Box 5). As noted earlier, even though reductions may now be being achieved (particularly amongst younger and better educated sections of the population), smoking remains a common and damaging habit in Turkey.
This is particularly so in the male population, albeit that in communities in which women are expected in public to behave differently from men there is likely to be significant under-reporting of tobacco use in females. One in every two long term smokers will die from a condition caused by their tobacco use. Many of the remainder will be disabled because of their addiction to nicotine, despite the fact that relatively safe pharmaceutical presentations of this drug and other medicines that can improve cessation rates are available.

The incidence of trachea, bronchus and lung cancer (which is presently the seventh most common cause of death in Turkey) has increased rapidly since the mid-1980s, when it was around 5 per 100,000 population. It is today the order of 20 per 100,000. Other examples of smoking related cancers range from those of the mouth and oesophagus to cancer of the bladder.

Estimates of the prevalence of COPD across Turkey stand at around 7 per cent. Cases occur predominantly in males (see Gunen et al, 2008). However, the number of people likely to develop COPD in the future is probably in the order of 2.5 times higher than the number already diagnosed. Increasing COPD rates offer another warning of the scale of the increased future prevalence of chronic illnesses in the Turkish population which will occur unless more effective preventive strategies can be implemented.

The WHO’s Framework Convention on Tobacco Control now emphasises the importance of supporting smokers who wish to quit via the supply of smoking cessation support medicines. Nations from Sweden and Denmark to China are also considering long term strategies aimed at substituting tobacco smoking and allied habits like tobacco chewing with safer forms of nicotine use. As Turkey continues its progress towards better population health further exploration of such radical policy options for reducing smoking and other tobacco use related harm deserve exploration. Conventional public health measures alone may never be sufficient to eliminate tobacco related harm.

**HBV in the Turkish community**

Another health challenge facing middle income communities in particular is that of hepatic infections. Hepatitis B is prevalent in Turkey. It can be transmitted ‘vertically’ from mothers to children during or after birth, or (more commonly) ‘horizontally’ from person to person via contaminated injections, sexual contact, skin lesions or cuts. Over 3 million people in Turkey are at any one time infected with the causal agent, HBV. This represents around 4.5 per cent of the total population (Toy et al, 2011). About 10 per cent of acute cases lead on to chronic infection and third of those affected by the latter will at some point experience severe morbidity such as liver cirrhosis, liver failure or liver cancer (Hepatitis B Working Group, 2010).

There is an association within Turkey between HBV infection and economic disadvantage – higher than average infection rates have been recorded in the Eastern and Northern regions. Its incidence is also raised in young adults who have not had the benefit of childhood immunisation. Amongst 25–35 year olds about one in fifteen has an HVB infection. Horizontal transmission still appears to be occurring. This suggests that adult vaccination rates could usefully be further improved, particularly in high risk groups.

**Box 5. The costs and benefits of hepatitis and its treatments**

Hepatitis is a general term for inflammation of the liver, which can be due to infections or to non-transmissible causes such as alcohol ingestion. The most commonly recognised viral causes of hepatitis are Hepatitis A (sometimes called infectious jaundice, because it can easily be transmitted by, for example, contaminated food) and Hepatitis B and C. But a variety of other viral agents can also affect the liver. Hepatitis A and B can now be prevented by vaccination. In addition, increasingly effective combination drug treatments for Hepatitis C are becoming available.

Hepatitis B is, as described in the main text, a significant concern in Turkey. As an acute infection it may last for several months before its eventual elimination. In many instances it is asymptomatic and causes no immediate distress or lasting harm. However, in a minority of cases a chronic infection develops, which may in turn lead to liver damage. Although mortality from HBV has decreased morbidity associated with it seems to be increasing, despite the Turkish childhood immunisation programme (Hepatitis B Working Group, 2010).

Chronic Hepatitis C infection is caused by a markedly different type of virus (HCV). But it has similar long term consequences to those of chronic HBV. There is currently no vaccination available, and the world-wide prevalence stands at approximately 3 per cent of all adults. The recorded prevalence in Turkey is (based on the presence of serum HCV antibody) lower, at around 0.6 per cent (Dursan et al, 2004). However, this may be an underestimate. The region in which this research was conducted has a low rate of intravenous drug use, the most common cause of HCV infection.

Modern pharmaceutical treatments involving antiviral medicines combinations can now eliminate most Hepatitis C viral subtypes and consequently cure in the order of 80 per cent of patients. Many of the drugs involved are relatively new and enjoy intellectual property protection. They are therefore significantly more costly than generic treatments. However, investment in the effective management of all forms of Hepatitis should prove cost effective.

Pharmaceutical treatments for chronic Hepatitis B may delay or completely prevent complications like liver damage and cirrhosis. Increasingly effective antiviral medicines are becoming available for this and other forms of hepatitis, such as Hepatitis C. The latter is not as prevalent as HBV in Turkey (Dursun et al, 2004). However, recently introduced pharmaceutical innovations are relatively expensive – see Box 5. Such observations raise a number of important policy issues that are further considered in the next section of this report.
Improving Health in the Twenty First Century

All governments have to balance competing, sometimes conflicting, policy objectives. Maintaining Turkey’s economic success is critical for its continuing development and for sustaining the nation’s progress in all fields, from enhancing education to improving housing and employment. Hence stakeholders in the health sector might have to accept that some forms of care advance may, although inherently desirable, be judged unaffordable if they cannot deliver as much value for money as is obtainable elsewhere in the economy. Medicine and pharmacy per se deserve no special privilege, and welfare spending as a whole will need to be limited if it threatens to drive up costs in ways that will undermine the competitiveness of Turkish made goods in world markets.

Seen from this perspective, some domestic interests will almost certainly oppose Turkish health spending rising significantly above the current 6 per cent of GDP, especially as in recent years the proportion of total health costs met from the public purse has increased (Tatar et al, 2011). Those who (albeit mistakenly) believe that increasing health investment would merely increase the number of older people living with disabilities and a poor quality of life might also oppose increased health spending, regarding it as a luxury to be funded only when much higher levels of GDP have been attained.

However, the analysis presented here challenges such views. It suggests that increased health spending at this stage of Turkey’s demographic and epidemiological development will, if well directed, have little adverse effect on dependency ratios and disability rates. Rather, it would reduce future needs for what may otherwise become politically unavoidable public spending on high unit cost, late stage, crisis and allied treatments in tertiary hospitals and similar settings.

As such, there is a logical case for recommending that Turkish policy makers should consider investing an increased proportion of national wealth on health. Bringing national expenditure up more closely to the current OECD average of 9 per cent of GDP could minimise the burden of long term ill-health otherwise likely to be associated with rising non-communicable disease rates and treatment costs.

Cost effective interventions

Locally appropriate decision making requires, in addition to strategically informed political leadership, robust information as to which interventions will provide the Turkish community with health gain in an optimally cost effective manner. Fortunately, there is today a growing body of evidence relating to the opportunities available for reducing the burden of non-communicable diseases. For example, Salomon et al (2012), using WHO pioneered methods, recently analysed the prevention, treatment and alleviation of conditions like depression, tobacco smoking, various cancers, the cardiovascular disorders, COPD and diabetes in Mexico. This State has a per capita GDP similar to that of Turkey and is in a number of other respects in a like situation. The resultant publication explored costs per DALY generated via a total of over 100 health care interventions.

The authors found (in line with previous studies) that non-personal public health based programmes in fields such as alcohol and tobacco use and reducing cardiovascular disease risks tend to offer better value for money than medical treatments provided in hospital settings. However, the pattern revealed was complex. Some specialist treatment modalities, most notably cataract surgery, were shown to have particularly good cost effectiveness ratios. The primary and secondary (mainly pharmaceutically based) prevention of cardiovascular disease also stood out as highly cost effective.

Activities and treatments aimed at reducing blood pressure (by curbing salt intake as well as via the use of anti-hypertensive medicines) had the lowest costs per DALY gained. The available epidemiological evidence confirms that such interventions are also likely to offer good value for money in the Turkish community setting. Salomon et al in addition found that treating established conditions like heart failure is cost effective. Enhanced glycaemic control was identified as being potentially cost effective, although not to the degree enjoyed by blood pressure reduction. This in part implies that wherever possible earlier stage action to prevent or delay the development of frank diabetes should be taken.

A valid criticism of this and similar studies undertaken elsewhere in the world is that they are static, and may not take into account the dynamic temporal effects referred to in the previous section of this report. That is, such evaluations do not look forward to the increased health spending and other social and economic costs

5 Normally defined, cost effectiveness analysis relates to determining the distribution of allocated health resources as efficiently as possible within the health sector. Cost benefit analysis is concerned with the overall use of societal resources, and may hence question the allocative efficiency of existing balances between health care funding and spending in other sectors of the economy. In countries such as the UK political decision makers have encouraged cost effectiveness analyses in health care, but have in the main declined to invest in wider cost benefit analyses.

6 Likewise, some forms of low technology public health intervention may offer poor returns. For instance, investing in isolated information provision in the form of, for example, explanatory written materials and information leaflets is, even though relatively cheap, unlikely to significantly influence health behaviours.
that might in future be averted by timely present action. They may also fail to fully appreciate synergies between conventional non-personal public health programmes involving, for instance, smoking bans in public places, and the additional utility provided by public health oriented personal care such as the provision of smoking cessation support to individual service users.

But even so, such data support the view that Turkey could gain significantly from further strengthening its relative and absolute spending on primary medical and (rationally used) pharmaceutical care, and from investing more in public health improvement in contexts like, say, curbing obesity and the related management of cardiovascular risks. They also confirm that preventing and/or slowing the onset of type 2 diabetes would provide high levels of population benefit.

This reinforces the recommendation offered previously that it would be logical for Turkish policy makers to consider increasing health spending absolutely and as a proportion of GDP, and allocating more resources to not only health related behaviour change oriented programmes but also to extending the appropriate use of pharmaceuticals. If this analysis is accepted it will become increasingly important to understand barriers to progress in such fields, and how they can be overcome.

**Extending rational and cost effective medicines use**

Medicine, vaccine and other pharmaceutical product costs (including pharmacists’ fees and private medicine costs) typically account for 15–20 per cent of total health spending in the OECD nations, and about 1.5 per cent of GDP. In countries like Turkey (and, for instance, Denmark and the UK) these proportions, which reflect the fact that medicine costs are a significant but not dominant component of health care spending as a whole, are today lower than the OECD average levels. Yet drug prices and the overall scale of pharmaceutical outlays are often controversial topics within public debate on health and health care.

One possible reason for this is that it may be politically easier to call for economies in drug spending than, say, reductions in doctors’ remuneration. Anxieties about pharmaceutical prices and overall costs may also relate to well intended concerns about the apparently unduly high prices of patented pharmaceuticals as opposed to those of generic medicines supplied by low cost manufacturers located in countries such as India and China. In public debate it is often very difficult, if not impossible, to communicate dispassionately about issues such as the high fixed costs of pharmaceutical research and development and the need for premium returns to justify investment in high risk (as opposed to imitative) innovation – see Box 6.

In Turkey it has, despite the use by the Government of international comparison based price reference schemes which have kept innovative medicines’ prices low in European terms, sometimes been argued that medicines spending is excessive. Critics have in the past alleged that pharmaceutical outlays account for over 30 per cent of all health spending, or 2 per cent of GDP. However, such estimates may have failed to account properly for the levels of discount enjoyed by purchasers, along with various other factors. It is clear that today Turkish health service spending on medicines is in fact equivalent to 1 per cent of GDP. This is significantly below the OECD average of 1.5 per cent (Gursoz, 2012).

**Box 6. Evolving pharmaceutical sectors**

In the period between the late 1940s and the start of the twenty first century many new pharmaceutical treatments for common conditions were developed and marketed. They have, alongside factors like improved water and better food supply, contributed to reducing mortality and morbidity in all parts of the world. Most are now available as low cost generic medicines. The global shift from intellectual property (IPR) protected and/or originator brand name dominated pharmaceutical markets to ones that in volume terms are predominately populated by non-original products created conditions in which generic pharmaceutical companies could prosper alongside those focused more on fundamental innovation.

However, since the late 1990s the rate of pharmaceutical innovation has tended to slow. This trend may now be at an end. But at the same time the average market size for new, more targeted, medicines has reduced. Companies involved in primary therapeutic innovation are more likely than in the past to be serving ‘orphan’ or near orphan (i.e. small) patient groups as opposed to the general population. Such developments are in some ways desirable. But they are also creating wider gaps between the prices of IPR protected medicines and unbranded generic products, and in some instances increasing the tensions between generic (and emergent innovative) pharmaceutical producers and the nations which host them, as opposed to established research based companies and their traditional hosts.

This situation was largely unavoidable, and must play itself out as part of the overall process of early twenty first century human development. But it may nevertheless leave public and private industrial and health policy makers with some difficult choices to make. For example, some will need to balance the advantages of buying ‘true’ (unbranded) generic medicines at the lowest possible world prices as against those of permitting a higher domestic price base and making local manufacturing more viable. Similarly, the advantages of attracting inward fundamental research investment and at the same time affording patients early access to new and more effective treatments may have to be weighed against other public interests in curbing spending and being relatively slow to adopt new pharmaceutical technologies.

It would be inappropriate here to comment on what policies Turkish decision makers should favour. But research based and other pharmaceutical companies providing live saving and other beneficial medicines should whatever the environment they are required to work in do all they can to partner Governments constructively, and to ensure their products are used as effectively and rationally as possible in the pursuit of better individual and public health.
This comparatively low proportionate spending has been achieved despite the fact that in international exchange rate terms the Turkish per capita GDP is below that recorded in most other OECD States. (Typically, the unit costs of innovative pharmaceuticals tend to be high relative to other outlays in countries with below average domestic labour costs.) Alongside this, it in addition appears that the prices of locally made generic (off-patent) medicines in Turkey have been above those offered by minimal cost world market suppliers.

The Turkish pharmaceutical market is presently in volume terms divided into two approximately equal halves. Generic and non-original brand medicines represented 52 per cent of the drugs used in 2011, and original producers’ products 48 per cent. Their shares by value were 38 per cent and 62 per cent respectively, with the generic industry reportedly gaining almost 4 percentage points of the total market value since 2005 without any substantial gains in relative volume share (IMS/IEIS data).

Such trends may to a degree be accounted for by factors such as a rapid overall increase in absolute volume (the gross number of units supplied grew by over 40 per cent between 2005 and 2011) coupled with differential falls in some product group prices. (Expressed in Euros, the overall value of the Turkish pharmaceutical market only grew by 20 per cent in that period.) Yet if the above figures are compared with, for example, those for the UK, in the latter instance the generic market share is 67 per cent by volume and 30 per cent by value (BGMA, 2012). That is, a higher proportion of drugs are supplied generically at a lower relative cost.

The two markets are not fully comparable. This is in part because in exchange rate adjusted terms per capita pharmaceutical spending in the UK is approaching three times that recorded in Turkey, even though British medicine and allied outlays are themselves only about half those recorded in markets such as Canada and France. Even so, such data may be taken to be indicative of either further potential savings with regard to Turkish generic medicines supply, or of exceptionally low pricing in relation to innovative products. From a public health improvement and burden of disease perspective the most important point to stress is that there is little reason to question the financial affordability in Turkey of further improving access to medicines in order to enhance the population wide control of problems such as hypertension, hypercholesterolaemia and diabetes.

There are informed concerns about the rational use and costs of prescribed medicines like antibiotics (Gursoz, 2012) and about issues like the private sale of treatments from pharmacies7. The latter on occasions takes place without properly obtained prescriptions – some sources suggest that purchases of this nature account for around 15 per cent of the total value of antibiotics medicines supplied to the Turkish population. Inappropriate use of antibiotics promotes avoidable drug resistance, as well as unnecessary expenditure. It is therefore right that the relevant authorities should wish to curb it, and all other forms of irrational prescribing and medicines consumption. But action in this field need not, and arguably should not, retard efforts to increase appropriate drug use in other areas. Indeed, there is some evidence to suggest that unless the attention of health professionals such as family doctors and community pharmacists is refocused towards the enhanced prevention and treatment of NCDs they may be relatively slow to reduce rates of minor acute illness treatment with medicines like antibiotics.

The information presented in Figure 12 shows that antibiotic use has, when expressed as a share of the total Turkish pharmaceutical market's value, declined significantly in the last six years. Yet so too has the supply of medicines for cardiovascular indications. The latter trend appears to be disappointing, even if it in the main reflects the increasing relative affordability of treatments in this category.

Overcoming shortages of health workers and the need for new models of care

Recent figures indicate that there are about 160 physicians per 100,000 population, compared to an ‘EU 15’ (Western European) average figure of about 340 (Tatar, 2011). In addition, only about a fifth of the doctors working in Turkey specialise in primary/generalist family care. There are now just over 20,000 of the latter. This distribution almost certainly limits community wide access to medically prescribed treatments for NCD linked risk management and care.

One possible future option for improving the productivity of the existing health care infrastructure could be to expand the professional roles of pharmacists in the context of clinical care. There are already as many community pharmacies per capita in Turkey as there are in northern European countries such as the UK and The Netherlands.

Figure 12. Pharmaceutical consumption by selected therapeutic class as a share of total market value (%), Turkey 2005–11

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Source: IMS/IEIS

[7] There have also been concerns about medicines counterfeiting in Turkey, and problems associated with the diversion of stocks paid for via public funds. Police action has led to arrests of health professionals and others, and such concerns may now have been substantially reduced. However, a recent case involving the supply of fake Avastin (an anti-cancer drug) in the US has been linked to illicit activity in Turkey. Examples of police interventions which led to arrests have included “operation Elber” (fear) in 2007, “Dermann 33” in 2008 and operation ‘Aci Recete’ (Bitter Prescription) in 2009.
At present the capacity of the circa 20,000 pharmacists and other staff working in Turkish pharmacies to take on extended responsibilities in relation to, for instance, the prevention, detection and treatment of hypertension may be questioned. Yet there is evidence that pharmacy across the world is moving in this direction. Improving pharmacy based care is a task in which Turkey, should policy makers and other stakeholders wish it to, could in future offer global leadership, and support the evolution of primary care models to address the health care needs of transitional and new post-transitional societies more cost effectively than is presently possible. To ensure sustainability and appropriateness the latter need to be prudent in their use of scarce and expensive medical labour, and give increasingly educated and internet informed populations as much freedom as possible to take direct responsibility for health care improvement.

Turkey has the lowest number of qualified nurses per capita in the WHO European Region, at 140 per 100,000 population (Figure 13), over 80 per cent of whom work in the public sector. This compares with reported totals in the range of 900–1500 qualified nurses per 100,000 for countries like the UK, Germany, Sweden, Denmark and Ireland. Nurses are arguably essential for expanding chronic disease management capacity, and providing high quality and cost effective care in both hospitals and the community.

This situation may relate to the identification of nursing as a ‘female profession’, and to the historic position of women in Turkish society. But whatever the reason for it, resolving such a key labour shortage is likely to emerge as an increasingly urgent national priority. The most important point to emphasise is that without fresh approaches to the organisation and delivery of health care, which is at present across the world modelled on attitudes and values that arguably stem from past eras, it may prove very difficult for emergent economies to maintain growth in ways consistent with their people’s changing health related needs and personal aspirations.

**Figure 13: Healthcare personnel numbers in Turkey, 2001 and 2010**

![Graph showing healthcare personnel numbers](image)

**Source:** Based on Tatar et al, 2011

At present Turkey is attracting health sector labour from other economies with less rapidly expanding opportunities for medical and other employment. This is in itself not unproblematic. In the medium to long term the further development of local educational capacity should help to ease staffing shortfalls. But more flexible attitudes to professional roles and the use of computer technology to provide better access to treatment and support for self care may also prove essential.

### Conclusions

Modern Turkey has successfully reduced disease burdens associated with infectious disorders and allied threats to mother and child health. Infant mortality is now down to 10 per 1000 live births as compared with 145 per 1000 as recently as 1970. Adult life expectancy is now close to that enjoyed in Europe as a whole. The Ministry of Health and the wider community of health professionals has also worked in an informed way to prepare for the chronic, in the main non-communicable, disease related challenges ahead.

The country’s population is not in structural terms ageing as fast as, for example, that of China. Yet despite this the rate at which risk factors such as obesity and the prevalence of conditions like type 2 diabetes is rising is surprisingly rapid. The analysis offered in this report indicates that welfare costs imposed by non-communicable diseases already exist on a scale comparable to the nation’s overall financial spending on health care, and are likely to rise well beyond the latter in the years to come.

Alarmist interpretations are rarely helpful. Yet unless swift and effective action can be taken, Turkey will soon be faced with a ‘second wave’ disease burden that could undermine the positive achievements of recent decades and disadvantage its future economy in ways that the ‘older’ industrialised nations have never had to experience. In this respect the Turkish health sector can now be said to be entering what are at best poorly chartered and potentially dangerous waters.

Given this reality, there is no simple, ready proven ‘magic-bullet’, answer as to how policy makers can best respond. But it is reasonable to argue that they should seek to counter the hazards outlined in this report via targeted action on all possible fronts. This will involve investment in both ‘conventional’ (non-personal) and ‘new model’ (personal support and individual and family therapy linked) public health programmes against not only tobacco smoking – where some success already seems to be being achieved – but also the more complex, multi-dimensional, challenges associated with increasing obesity and more sedentary lifestyles.

It will also demand the effective use of medicines and existing and new vaccines in the community, alongside the co-ordinated development of hospital, family doctor, pharmacy and nursing services designed to stop conditions like CHD developing where possible and manage them as cost effectively as is safely achievable whenever necessary.

On occasions the use of pharmaceuticals is seen as an alternative to, or even as a factor opposing, lifestyle change and environmentally focused population
health protection. Medicine costs may also, often understandably, be regarded as a health service problem rather than as an indicator of health care solutions being put into practice. But the evidence presented here is that neither of these perceptions should be uncritically accepted.

In modern societies the economically, pharmacologically and epidemiologically rational use of drugs and allied products ought to augment the impacts of public health programmes, and serve to increase the immediate and – more vitally – long term cost effectiveness of health (and social) care as a whole. Investing in new bio-medical technologies and their application could also generate industrial development related economic and social benefits, which in time will extend well beyond health care’s boundaries. In this sense spending on medicines can, if well thought, be a means by which the ongoing affordability of welfare programmes is assured rather than negated.

Such a balance has in the past often been hard, if not impossible, to achieve. Globally, a lack of vision and poor understanding of the fundamental challenges facing modern populations, coupled with distrust between stakeholders in health care and conflicts between their sectional interests, has fostered fragmentation and slowed progress. But examples such as that of Turkey’s development over the last decade give reason to hope that in future such problems will be overcome. In the final analysis both the wealth and the stability of tomorrow’s communities is likely to depend on better integrated and more efficient approaches to maintaining life-long health being achieved in practice.