

# Universal health coverage in Turkey: enhancement of equity



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Turkey has successfully introduced health system changes and provided its citizens with the right to health to achieve universal health coverage, which helped to address inequities in financing, health service access, and health outcomes. We trace the trajectory of health system reforms in Turkey, with a particular emphasis on 2003–13, which coincides with the Health Transformation Program (HTP). The HTP rapidly expanded health insurance coverage and access to health-care services for all citizens, especially the poorest population groups, to achieve universal health coverage. We analyse the contextual drivers that shaped the transformations in the health system, explore the design and implementation of the HTP, identify the factors that enabled its success, and investigate its effects. Our findings suggest that the HTP was instrumental in achieving universal health coverage to enhance equity substantially, and led to quantifiable and beneficial effects on all health system goals, with an improved level and distribution of health, greater fairness in financing with better financial protection, and notably increased user satisfaction. After the HTP, five health insurance schemes were consolidated to create a unified General Health Insurance scheme with harmonised and expanded benefits. Insurance coverage for the poorest population groups in Turkey increased from 2·4 million people in 2003, to 10·2 million in 2011. Health service access increased across the country—in particular, access and use of key maternal and child health services improved to help to greatly reduce the maternal mortality ratio, and under-5, infant, and neonatal mortality, especially in socioeconomically disadvantaged groups. Several factors helped to achieve universal health coverage and improve outcomes. These factors include economic growth, political stability, a comprehensive transformation strategy led by a transformation team, rapid policy translation, flexible implementation with continuous learning, and simultaneous improvements in the health system, on both the demand side (increased health insurance coverage, expanded benefits, and reduced cost-sharing) and the supply side (expansion of infrastructure, health human resources, and health services).

*Lancet* 2013; 382: 65–99

Published Online

June 27, 2013

[http://dx.doi.org/10.1016/S0140-6736\(13\)61051-X](http://dx.doi.org/10.1016/S0140-6736(13)61051-X)

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## Introduction

Universal health coverage (UHC) is an important way to expand access to effective health-care services, reduce financial hardship during illness, and improve health outcomes.<sup>1</sup> In addition to appropriate legal provisions, which mandate access to necessary health services,<sup>2</sup> UHC needs to be underpinned by a well-functioning health system that provides high quality, affordable, accessible, and efficient health services.

Recent experience from middle-income countries, including China,<sup>3</sup> Mexico,<sup>4</sup> and Thailand,<sup>5,6</sup> shows that expanded pre-pooled financing mechanisms, such as health insurance or social insurance, help to improve access to health-care services, while providing financial protection. Cross-country analyses suggest that, in general, broader health coverage and pooled financing lead to expanded access to necessary care, with improvements in population health, particularly for poor people.<sup>7</sup>

Additionally, many other middle-income countries, such as Brazil, Indonesia, the Philippines, Turkey, and South Africa, have sought to address inequalities in access to health care and in health outcomes through UHC by introducing pre-pooled health insurance schemes and health system-strengthening programmes. 22 low-income and middle-income countries are actively pursuing policies to achieve UHC.<sup>1</sup> Hence, experience from different settings is crucially important to address the evidence gap<sup>7</sup> on introduction of UHC and its effects on health service access, financial risk protection, health outcomes, and user satisfaction. Evidence from Turkey is especially timely for countries pursuing reforms to

achieve UHC because, after 30 years of slow progress, since 2003 Turkey has been able to design and implement wide-ranging health system reforms<sup>8</sup> to achieve UHC that substantially reduced inequities in health financing, health service access, and outcomes.

## Key messages

- The Health Transformation Program in Turkey has introduced major changes to health system functions of stewardship and organisation, financing, resource management, and service delivery to achieve universal health coverage (UHC).
- UHC led to rapid expansion of health insurance coverage and access to health-care services for all citizens, especially for the poorest population groups. In particular, access and use of key maternal and child health services improved to help substantially reduce under-5, infant, and neonatal mortality, especially for socioeconomically disadvantaged households.
- Turkey shows the effectiveness of UHC as a platform to achieve health system goals and improve equity, with an enhanced level and distribution of health, fairness in financing with reduced catastrophic health expenditures, and substantially improved population satisfaction with the health system.
- Simultaneous improvements in the health system, on both the demand side (increased health insurance coverage, expanded benefits, and reduced cost sharing) and the supply side (expansion of infrastructure, health human resources, and health services), were crucial to accomplish improvements in use and outcomes.
- Economic growth provided the fiscal space for increased health expenditures to achieve UHC. Political stability, sustained leadership, a committed transformation team, positioning of health as a fundamental right, creation of a receptive context, a comprehensive transformation strategy, rapid policy translation, a flexible implementation approach with ongoing learning, and the combination of demand-side and supply-side changes were crucial factors that enabled the introduction of UHC.

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See Online for appendix

We traced the trajectory of changes in Turkey in the journey towards UHC. We used a proprietary analytic framework (figure 1 and appendix p 1) that draws on previous studies<sup>9,10</sup> to provide a systems view<sup>11–13</sup> of the contextual drivers of changes in the Turkish health system, transformations introduced in health system functions, and their effects on health system goals. We used qualitative and quantitative research methods, including documentary and policy analysis, and interviews with key stakeholders (appendix pp 2–13) to analyse transformations in key health system functions aimed at addressing inefficiencies and inequities in the Turkish health system and at achieving UHC. In particular, we analysed the transformations in governance and organisation, financing, resource management, and service delivery functions from 2003 onwards—the period coinciding with the Health Transformation Program (HTP) that rapidly intensified efforts towards UHC.

We used quantitative analysis, including econometric methods (appendix pp 2–13), to explore how the HTP and UHC helped to address three major health system problems in Turkey: inadequate and inequitable health financing with a fragmented health insurance system, low insurance coverage for the poorest populations, and high out-of-pocket expenditures; inequitable distribution of health infrastructure and human resources that led to inequalities in health service access; and inequities in health outcomes, with east–west, poor–rich, and rural–urban divides. We used maternal and child health services (antenatal care by trained staff, births in a facility, births attended by trained staff, and immunisation uptake) and health outcomes for children (under-5 mortality, infant mortality, and neonatal mortality) as tracers for health system performance because these areas were a priority

for the HTP and for which reliable cross-sectional population data over time are available. We could not study changes in chronic illnesses, despite their importance, since reliable cross-sectional or trend data are scarce.

This report is organised into six sections. After this introduction, we provide a historical overview of key health system changes in Turkey and an analysis of the context preceding the HTP. In the third section, we explore the design and implementation of the HTP. In the fourth section, we present key findings for the achievements of the HTP in relation to health system organisation and governance, health financing (health insurance coverage and targeting poorer segments of the population, out-of-pocket expenditures, and financial protection), human resource management, and service delivery. In the fifth section, we present an analysis of the equity effects of the HTP and UHC on health service use and health outcomes, including an assessment of user satisfaction with the health system. Finally, we summarise the key findings and achievements of the HTP, placing them within the broader UHC literature, and discuss the sustainability of UHC in Turkey, identifying the key risks, challenges, and opportunities that lie ahead. We discuss the lessons learned from the UHC experience and explore how Turkey could be positioned in global health as we approach the 100th anniversary of the Turkish Republic in 2023.

## Turkey: analysis of the context

### Turkey: key facts

The Republic of Turkey was created in 1923, after the end of the Ottoman Empire, the roots of which date back to 1299. At its largest, the Ottoman Empire covered parts of Europe, Asia, the Middle East, and Africa. Turkey is now an upper-middle-income country of 75·6 million people in 81 provinces, at different stages of socioeconomic development (figure 2), and straddles Asia and Europe. Turkey has undergone rapid economic growth in the last decade, and has the demographic benefit of a young and growing population, although socioeconomic differences exist within the country (appendix p 14).

Despite economic and political challenges in the 1980s and 1990s, population health indicators in Turkey continued on a positive trajectory through the 1990s. The average life expectancy at birth in Turkey increased by 15·4%, from 65 years in 1990, to 75 years in 2009, which is higher than the percentage increase achieved in other emerging economies with a similar level of socioeconomic development (E7 countries): India (+12·1%, from 58 to 65 years), Brazil (+9·0%, from 67 to 73 years), China (+8·8%, from 68 to 74 years), Mexico (+7·0%, from 71 to 76 years), Indonesia (+4·6%, from 65 to 68 years), and Russia (–1·4%, from 69 to 68 years; figure 3).<sup>14</sup> In recent studies of the Global Burden of Disease 2010, estimated life expectancy (healthy life expectancy) in Turkey increased from 63·7 years (55·3 years) for men and 70·9 years (60·1 years) for

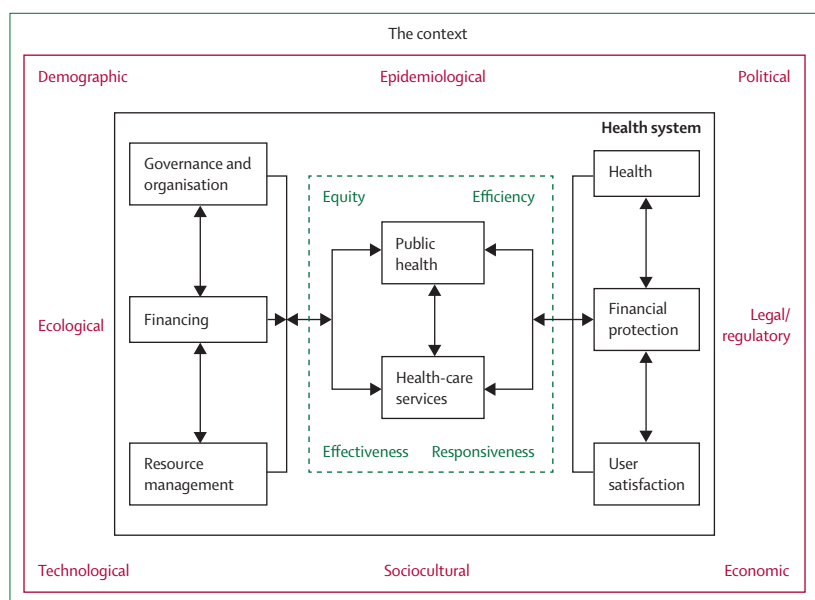
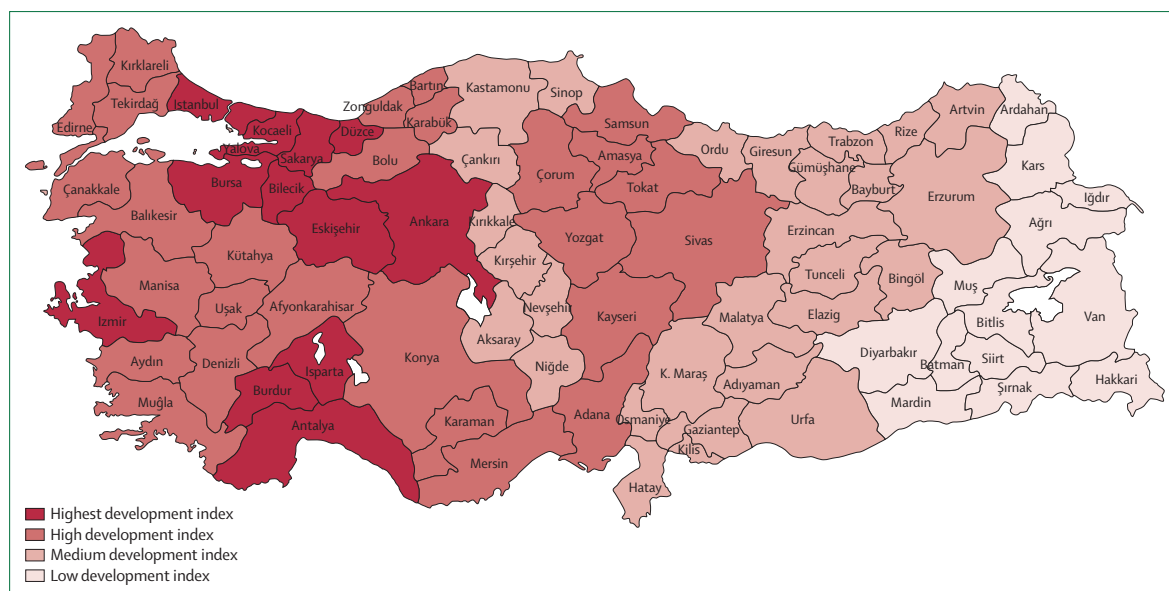


Figure 1: Framework for analysis



**Figure 2: Provinces in Turkey grouped according to socioeconomic development index**

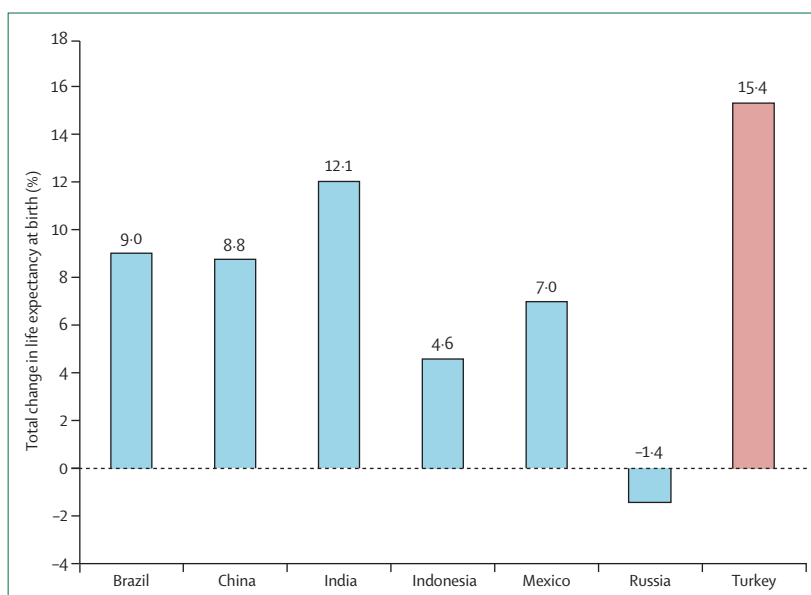
The socioeconomic development index uses ingredients analysis to develop a composite index by bringing together population-based representative survey data from 2009 and 2010 on 61 parameters grouped into eight categories, namely: demographic (five parameters); education (six); health (five); employment (eight); competitiveness and innovation capacity (15); fiscal capacity (seven); access (six); and life satisfaction (nine). Provinces are ranked into four categories according to the socioeconomic development index score: highest, high, medium, and low development index. Data are from The Republic of Turkey, Ministry of Development, Directorate General of Regional Development and Structural Adjustment; Monitoring, Evaluation, and Analysis Department, Level 2 zones, socioeconomic development ranking, May 1, 2013.

women in 1990, to 71.2 years (61.8 years) for men and 77.7 years (66.0 years) for women in 2010.<sup>15</sup>

According to interagency estimates from WHO, the World Bank, the United Nations Children's Fund, and the United Nations Population Fund,<sup>16</sup> the maternal mortality rate in Turkey decreased from 67.0 per 100 000 livebirths in 1990, to 51.0 in 1995, 39.0 in 2000, 28.0 in 2005, and 20.0 in 2010. These values are broadly similar to those from the Turkish Ministry of Health,<sup>17</sup> which estimates a decrease in maternal mortality from 61.0 per 100 000 livebirths in 2003 to 15.5 per 100 000 livebirths in 2011. Figure 4 shows that the percentage decrease in maternal mortality in Turkey between 1990 and 2010 was greater than that reported in other E7 countries in the same period, including China (69.2%, from 120 to 37), India (66.7%, from 600 to 200), Indonesia (63.3%, from 600 to 220), Russia (54.1%, from 74 to 34), Brazil (53.3%, from 120 to 56), and Mexico (45.7%, from 92 to 50).<sup>16</sup>

In 1990, immunisation coverage for the combined diphtheria, tetanus, and pertussis vaccine; oral polio vaccine; and measles vaccine was 74%, 74%, and 67%, respectively, and decreased in 1995 to 66%, 65%, and 67%, respectively. Coverage increased in 2000 to 85%, 85%, and 86% respectively, and again in 2005 to 90%, 90%, and 91%, respectively. By 2010, coverage had reached 97% for all three vaccines.<sup>18</sup>

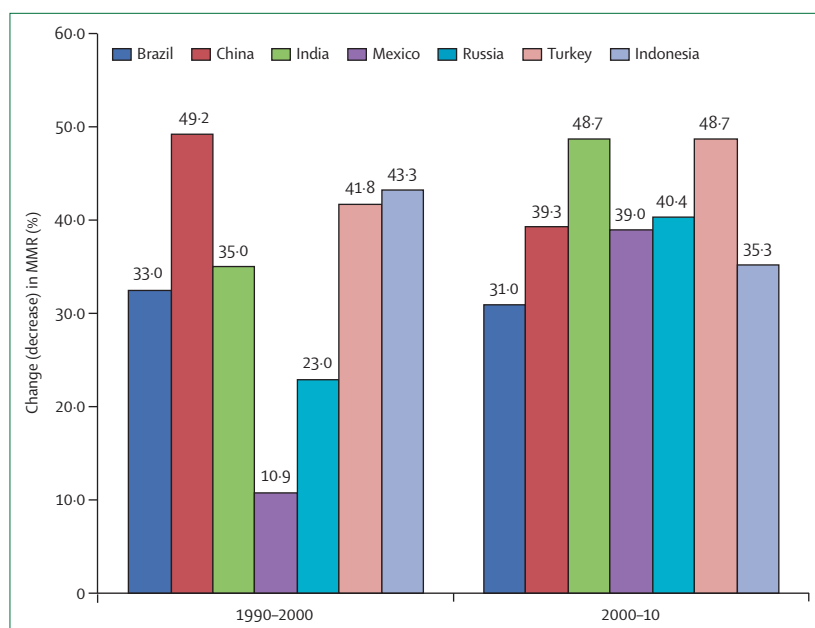
According to the United Nations Children's Fund, under-5 mortality in Turkey fell sharply from 72 per 1000 livebirths in 1990, to 15 in 2011, and infant mortality fell from 60 per 1000 livebirths in 1990, to 12 in 2011.<sup>19</sup>



**Figure 3: Percentage change in life expectancy at birth (years) in Brazil, China, India, Indonesia, Mexico, Russia, and Turkey, 1990–2009**

Data are from reference 14.

The reductions in under-5 and infant mortality achieved by Turkey in 1990–2010 were greater than those achieved by other E7 countries (figure 5).<sup>20</sup> Interagency estimates of infant mortality are broadly similar to the Turkish Ministry of Health data (with the exception of the most recent estimates), which suggest that infant mortality in



**Figure 4: Percentage change in maternal mortality ratio in E7 countries, 1990–2010**  
MMR=maternal mortality ratio. Data are from reference 16.

Turkey fell from 29.0 per 1000 livebirths in 2003, to 7.7 per 1000 livebirths in 2011.<sup>18</sup>

Between 1990 and 2010, the burden of disease in Turkey from all causes decreased steadily from around 40 000 disability-adjusted life-years per 100 000 population in 1990, to 36 000 in 1995, 30 000 in 2000, 28 000 in 2005, and 27 000 in 2010. The burden of communicable, maternal, neonatal, and nutritional disorders decreased rapidly from about 15 000 disability-adjusted life-years per 100 000 population in 1990 to roughly 4000 in 2010. The

reduction for non-communicable diseases was more modest, with a fall from around 22 000 disability-adjusted life-years per 100 000 in 1990, to 20 000 in 2010.<sup>21</sup>

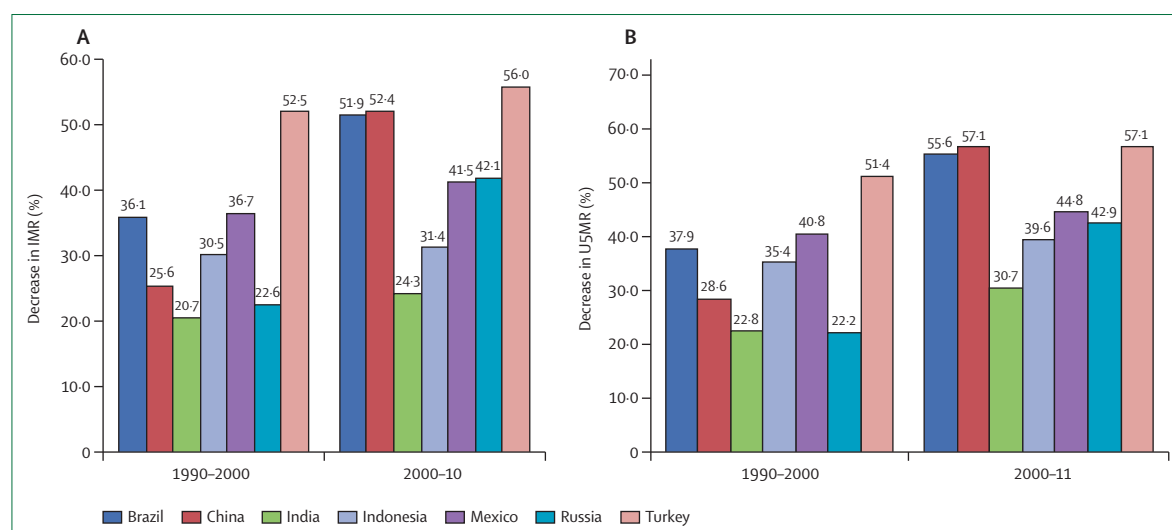
### Historical overview of key changes in the Turkish health system

In Turkey, the journey towards UHC began in 1945 with the establishment of the Social Insurance Organisation for blue collar workers, followed in 1949 by the creation of the General Employees Retirement Fund for retired civil servants and their dependants. From 1946 onwards, the Ministry of Health and Social Affairs adopted an active role in the provision of preventive and curative health services, and in 1954 undertook administrative responsibility for hospitals and primary health-care centres (panel 1).

From 1960 onwards, UHC was a state objective in 5-year state plans. The 1961 Law on the Socialization of Health promoted the establishment of an integrated health service scheme with a three-tiered health system managed by the Ministry of Health and Social Affairs. In 1971, Bağ-Kur (the social health insurance scheme for self-employed people, artisans, and organised groups) was established, which extended insurance coverage further to groups who were not covered previously. In 1982, the new constitution provided state guarantee for citizens' rights to health insurance and health services—aimed at accelerating initiatives to achieve UHC—and was followed in 1987 by the Basic Law on Health to operationalise these rights; however the law was only partially implemented (panel 1).

### Political and socioeconomic context preceding the HTP

The 1990s in Turkey were characterised by a series of weak and indecisive coalition governments. Consequently, in



**Figure 5: Percentage change in infant mortality and under-5 mortality rates in E7 countries, 1990–2010**

(A) Percentage change in infant mortality rate. (B) Percentage change in under-5 mortality rate. IMR=infant mortality rate. U5MR=under-5 mortality rate. Data are from reference 20.

**Panel 1: Key developments in the Turkish health system—a historical overview****1920–29**

- 1920: The Turkish Ministry of Health and Social Affairs (MOHSA) is established after the inauguration of the Turkish Grand National Assembly in 1920 (law no. 3) with a focus on public health

**1930–49**

- 1945: Social health insurance (Social Insurance Organisation) is established for blue collar workers
- 1946: The first national 10-year health plan is developed
- 1949: Social health insurance for retired civil servants

**1950–59**

- 1952: Mother and child health division established in the Ministry of Health
- 1953: Mother and child health development centre established, with support from WHO and the United Nations Children's Fund
- 1953: The Turkish Medical Association is established
- 1954: MOHSA assumes a role in the provision of curative services, initially with MOHSA-established model hospitals, and begins training of health workforce
- 1954: Health facilities belonging to provincial and municipal administration are placed under MOHSA administration, managed by provinces
- 1954: The first national 10-year health programme is declared (which is the cornerstone for planning and organisation of the Turkish national health service)

**1960–79**

- 1961: The Law on the Socialization of Health is adopted, promoting an integrated health service scheme, and establishing a three-tiered health system (health house, health centre, and district hospital), managed by MOHSA

- 1965: The Law of Population Planning is adopted, with pro-natalist policies
- 1971: Bağ-Kur (social health insurance for self-employed people, artisans, and organised groups) is established

**1980–89**

- 1982: The new constitution reconfirms the importance of the state in protecting the health of the population and in ensuring universal health coverage, including through a unified social health insurance system
- 1987: Basic Health Law is enacted, prescribing a narrower role for the Ministry of Health in service provision and a focus on regulation, but is not fully implemented because of partial rejection of the law by the Constitutional Court

**1990–99**

- 1992: National Policy Forum is held, with broad stakeholder involvement
- 1992: The Green Card scheme (health insurance for households outside the formal health insurance schemes) is introduced as an interim measure until the creation of a unified health insurance scheme
- 1993: the Law of Health Law, Ministry of Health structure and responsibilities, Provincial Health Administration, General Health Insurance is developed
- 1996: The laws on health financing institution establishment and process, primary care health services, and family medicine, hospitals, and health entities are developed
- 1998: The law of personal health insurance system and health insurance administrative presidency is developed
- 1999: The draft law of health fund institution is developed
- However, the above laws are not enacted because of a political stalemate in the Turkish Grand National Assembly

the 1990s, economic development, as measured by real gross domestic product (GDP) growth, was not stable or sustained, with economic cycles of boom and bust. For example, between 1990 and 2002, the real GDP contracted substantially in 3 years, with declines of 5·5%, 3·4%, and 5·7% in 1994, 1999, and 2001, respectively. Between 1990 and 2002, GDP income per person increased slowly, but stagnated between 1997 and 2002, when Turkey experienced rampant inflation, with annual inflation rates ranging from 20% to 70%. Unemployment increased from 1995 onwards, and grew especially rapidly after 1999 when the rate rose from 6·5% in 1999, to 10·5% in 2002. Between 1995 and 2002, the proportion of employed people in the age group 25–54 years decreased from 60·5% to 54·6% (table 1).<sup>22</sup>

In the early 2000s, Turkey had an average Gini coefficient of 0·43, which indicates wide income inequalities, and ranked 29th out of the 30 Organisation for Economic Co-operation and Development countries, ahead of only Mexico. In 1998, about 60% of women in the lowest wealth

quintile had incomplete or no primary education, which is almost five times higher than the rate reported in women from the wealthiest quintile. The employment rates for women fell steadily from 32·9% in 1990, to 26·6% in 2002, which reinforced inequalities further (table 1).<sup>22</sup>

In the 1990s, for successive governments grappling with political instability, economic shocks, runaway inflation, rising unemployment, and social discord, the health sector was not a priority. Hence, few major health policies could be implemented. In 1993, the Council of Ministers approved five separate laws on universal health insurance, family medicine, hospital autonomy, and institutional reforms aimed at transitioning the Ministry of Health to become an effective steward of the health sector. However, these laws could not be enforced because of political differences in the Turkish Grand National Assembly (panel 1).

In 1992, the government introduced the Green Card scheme for poor households with incomes below the national minimum and for families on social assistance,

	Real GDP growth (%)	GDP per person (present US\$ prices)	Consumer price index (all items)	Un-employment rate (%)	Employment rate (%) for age group 25–54 years	Employment rate (%) in women
1990	9.3%	5744	0.3	8.2%	61.6%	32.9%
1991	0.9%	5885	0.6	8.5%	61.6%	33.7%
1992	6.0%	6261	1.0	9.0%	61.0%	31.9%
1993	8.0%	6793	1.6	8.6%	58.0%	25.8%
1994	–5.5%	6440	3.3	7.6%	59.8%	30.4%
1995	7.2%	6922	6.3	6.6%	60.5%	30.2%
1996	7.0%	7441	11.4	6.8%	60.1%	30.3%
1997	7.5%	8181	21.2	6.9%	59.0%	28.0%
1998	3.1%	8439	39.2	7.7%	59.2%	28.5%
1999	–3.4%	8046	64.6	6.5%	58.2%	28.9%
2000	6.8%	8724	100.0	8.4%	56.7%	26.2%
2001	–5.7%	8178	154.4	10.3%	55.5%	26.3%
2002	6.2%	8217	223.8	10.5%	54.6%	26.6%

Data are from reference 22. GDP=gross domestic product.

**Table 1: Key economic indicators in Turkey, 1990–2002**

financed from general budget revenues. The scheme was not integrated with other health insurance schemes such as the Social Insurance Organisation (covering active and retired workers from the formal sector), the Government Employees Retirement Fund (covering retired civil servants), Bağ-Kur (covering self-employed people), and the Active Civil Servants Insurance Fund (covering civil servants in work and their dependants). The Green Card scheme provided some coverage for inpatient hospital care, but not for outpatient-based consultations, diagnostic tests, or drugs. Unlike the other four insurance schemes, the Green Card scheme was administered by the Ministry of Health, but without a system for means testing or for the identification of people entitled to health insurance. Rather than a population-based insurance system, the Green Card scheme functioned as a means of providing funding for uninsured poor individuals who could not meet hospital inpatient costs. However, the absence of an organised insurance system meant that many families did not have access to the scheme. Hence, many poor families had low access to health services and endured the high cost of outpatient drugs, whereas a mixed system of insurance coverage and insurance entitlements developed for those covered by one of the schemes.

In 1999, a major earthquake in the Marmara region of western Turkey, which resulted in an estimated 17 000 deaths and left 500 000 people homeless,<sup>23</sup> exposed the government's inability to manage natural and man-made disasters and led to widespread societal discontent. Turkey entered the new millennium with growing public expectations of the government. The population demanded decisive policies that would advance citizens' democratic rights; improve health and education services; and address social unrest, high inflation, and

rising unemployment. The population discord with the socioeconomic situation was apparent in the dissatisfaction with the health system. A population life satisfaction survey undertaken by the Turkish Statistical Institute in 2003 showed that only 39.5% of the population were satisfied with health services—lower than that for social insurance (40.2%), legal and judiciary (45.7%), and public security and order services (57.9%).<sup>24</sup>

In the late 1990s and early 2000s, the Turkish health system faced major problems, especially in three areas. The first related to inadequate and inequitable financing of the health system. In Turkey, for most of the 1990s, health expenditures averaged 3.8% of the GDP, which is well below the levels attained by Organisation for Economic Co-operation and Development countries (7.4% of GDP) and by countries with similar incomes.<sup>25</sup> Low health expenditures were compounded by an inequitable and fragmented health insurance system. The five insurance schemes had different benefit packages and disparate contractual arrangements with health-care provider organisations, leading to substantial inefficiency and inequity. Additionally, a small private sector existed, with its own system of private insurers and health-care providers. However, even for people with insurance, access to health services was difficult because of an absolute shortage of health human resources. Furthermore, dual practice by hospital specialists reduced the capacity of public services for insured people, with many patients diverted to private practice—even for interventions for which they were entitled. Unsurprisingly, in the 1990s, out-of-pocket expenditures accounted for 28–30% of total health expenditures.<sup>26</sup> In 2003, only 66.3% of the population was covered by health insurance. Just 12% of the poorest expenditure decile benefited from the Green Card scheme, which in 2003 covered 2.5 million people.<sup>27</sup>

The second problem in the Turkish health system related to an absolute shortage and inequitable distribution of physical infrastructure and health human resources. In the 1990s and early 2000s, Turkey had the lowest number of doctors and nurses per 100 000 population, and one of the lowest nurse to doctor ratios in Europe.<sup>28</sup> In 1990, there were 0.9 physicians per 1000 population, which increased to 1.3 per 1000 population in 2000. This ratio was lower than the numbers in the E7 countries of Brazil, China, Mexico, and Russia, but higher than those in India and Indonesia.<sup>29</sup> The human resource shortages led to inequalities in health service delivery and access, with east–west, rural–urban, and poor–rich divides. Absolute staff shortages, low salaries, and few incentives created difficulties in attracting and retaining health workers in the poorer eastern regions of the country. Ineffective performance management led to low productivity and ineffective use of available capacity. Prevailing dual practice by physicians meant that in 2002, in addition to their public duties, about 89% of hospital specialists engaged in private practice to boost their incomes.<sup>30</sup>

The third and the most serious problem related to inequities in health outcomes, especially between the deprived eastern areas and the more developed western regions of the country (figure 2), among the richer and poorer segments of the population, and across rural and urban areas. For example, in 1998, under-5 mortality rates were 75·9 per 1000 livebirths in the east and 38·3 in the west of Turkey; these inequities still persisted in 2003.<sup>31,32</sup> Economic instability and underperformance of the health sector created expectations for major changes in the health system. However, arguably, the most important driver of change in the health system was the dysfunctional political environment, which no longer catered for the needs of the rapidly evolving country. The general elections in 2002 returned a parliamentary majority for the Justice and Development Party, which ended a decade of poorly functioning coalition governments. The new government, which had inherited an economy in crisis, created an urgent action plan to introduce a structural transition programme in the economy, with health as a priority sector. In 2003, the Ministry of Health designed and introduced the HTP, which sought to establish the right to good health and UHC as an integral part of citizenship.<sup>33</sup>

### Acceleration of the journey to UHC in Turkey: implementation of the HTP

To build on and accelerate efforts that began in the 1960s, the HTP articulated a comprehensive strategy to achieve UHC by strengthening key health system functions of governance, financing, and service delivery. The HTP adopted a rights-based philosophy and set out to improve public health, expand access to health insurance for all citizens, ensure provision of high-quality health services, and develop a patient-centred health system to rectify the inequalities in access to health services and in health outcomes, especially for women and children. We now discuss the approach adopted by the Turkish Government in the design, implementation, and monitoring of the HTP.

#### Leadership and political commitment

From the outset, a transformation leadership team, comprising the Minister of Health, undersecretary, deputy undersecretaries of health, and departmental directors, was involved in the planning, design, implementation, monitoring, and refinement of the HTP. The team, which benefited from support of the Prime Minister and the cabinet, remained with the HTP for almost 10 years, providing continuity and institutional memory for the changes. An operational change team based at the Ministry of Health supported the leadership team. The leadership team provided sustained engagement in the HTP, with the minister visiting 81 provinces at the start to meet provincial governors and health directors to discuss and agree HTP implementation plans. These initial visits were followed by regular attendances at provincial meetings that included field

coordinators and local stakeholders and at which HTP implementation was discussed in detail. In about 340 visits to provinces, the minister and the senior transformation team could witness the implementation challenges directly and listen to local concerns about implementation bottlenecks and the support provided by the Ministry of Health teams.

The direct communication channels established with the provincial directors enabled two-way sharing of information between the implementation groups and the transformation leadership. The information received was rapidly actioned by relevant Ministry of Health teams, which created an environment of trust. Rapid response to problems provided incentives for information sharing, fostered ongoing learning with continuous improvement, and helped rapid implementation of the HTP.

#### A comprehensive strategy informed by evidence

A system-wide approach underpinned the design and implementation of the HTP. From the outset, the HTP leadership sought to identify problems in health system functions and in health outcomes. Comprehensive and carefully sequenced changes were then designed to improve governance and organisation, financing, resource management, and service delivery. The changes in health system functions were implemented systematically during a 10-year period (panel 2), with a flexible approach to implementation regulated by regular intelligence on the receptivity of the context to the changes introduced.

The design of the HTP was informed by evidence and global experience from countries such as Belgium, Cuba, Denmark, Estonia, Finland, Mexico, Thailand, and the UK. The Ministry of Health successfully established ongoing collaboration with international agencies and a cadre of national and international experts. In addition to international evidence, the HTP invested in generation of new local evidence—for example, studies of access and efficiency of the Turkish health sector were used to identify health system bottlenecks.<sup>34</sup> The National Health Accounts Study (2002–03)<sup>35</sup> provided a new and comprehensive picture of health financing and expenditures in Turkey, including out-of-pocket expenditures. The evolving disease burden was mapped through the 2004 Turkey Burden of Disease Study.<sup>36</sup>

In addition to the studies undertaken at the start of the HTP to establish baselines, the transformation leadership invested in studies to regularly appraise HTP implementation and health systems performance. For example, in 2008 a joint Organisation for Economic Co-operation and Development–World Bank study,<sup>37</sup> and in 2011 a study assessing primary health-care level,<sup>38</sup> were used to assess HTP progress. In line with the Tallinn Charter recommendations,<sup>39</sup> the performance of the Turkish health system was systematically assessed by WHO and the Ministry of Health,<sup>40</sup> using a set of WHO-specified indicators related to health system functions, intermediate health outcomes, and health system goals.<sup>41</sup>

**Panel 2: Towards universal health coverage: key developments in the HTP, 2002–12**

- 2002: Justice and Development Party includes “improving access to health services” (urgent action plan) in its election platform.
- 2002: Justice and Development Party is elected with a strong parliamentary majority in the Grand National Assembly.
- 2002: Ministry of Health Decree (on the first day of the new government) to eliminate involuntary incarceration in hospitals of patients who cannot meet health-care expenses. The decree forbids hospitals from withholding the bodies of deceased patients when families are unable to meet hospital expenses.
- 2003: The Health Transformation Program (HTP) is designed, building on work done in the previous decade, including elements of the Basic Health Law. Implementation of the HTP begins.
- 2003: Introduction of higher salaries and performance incentives for hospital clinicians to encourage voluntary transition from dual practice to full-time working. Major expansion of the voluntary transition in 2005.
- 2003–04: Active and retired civil servants are allowed to use private hospitals. Ambulance services declared free.
- 2003–04: Green Card benefits expanded to include outpatient benefits and pharmaceuticals. Conditional cash transfers were introduced, covering 6% of the population (for pregnant women and children from the most disadvantaged households), to encourage use of maternal, neonatal, and child health services.
- 2004: Contract-based employment introduced for health-care personnel in rural and less developed regions. Performance-based payments piloted in ten Ministry of Health hospitals.
- 2004: Major changes in pharmaceutical policy, including changes to pricing and to value-added tax. International reference price system introduced, replacing the cost-plus model to reduce the price of drugs.
- 2004: Patient Rights Directive introduced in 2003 is implemented. Patient Rights Units established in hospitals. Electronic systems for patient complaints and suggestions introduced.
- 2004: User choice of health-care providers (hospitals, primary care centres, and physicians) introduced.
- 2005: Hospitals belonging to the Social Insurance Organisation (146 hospitals) integrated with Ministry of Health hospitals. The total number of hospitals managed by the Ministry of Health reached 840 in 2011.
- 2005: Contract-based family medicine with performance-based contracting piloted in Düzce province.
- 2006: Universal health insurance is legally adopted as a part of broader social security reforms. Health expenditures start to grow and global budgets (budget ceilings) are introduced for Ministry of Health facilities to moderate growth in services to address unmet need.
- 2006–10: Contract-based family medicine scaled up in all 81 provinces of Turkey.
- 2007: Cost-sharing for primary health-care services abolished. Primary health care available for all citizens free at the point of delivery.
- 2008: Social Security Institution established as a single organisation for financial pooling and purchasing. The Social Insurance Organisation, Bağ-Kur, and the General Employees Retirement Fund join the Social Security Institution.
- 2008: Free availability of emergency services and intensive care services (including neonatal intensive care) for the whole population extended from public hospitals to all hospitals, including private hospitals with and without Social Security Institution contracts.
- 2008: National air ambulance service introduced and is available to the whole population free of charge. Major expansion in 2010.
- 2008: Cost-sharing in private hospitals for complex conditions (eg, burns, renal dialysis, congenital anomalies, cancer, cardiovascular surgery, and transplant surgery) abolished.
- 2009: Mobile pharmacy services introduced to improve access in rural areas.
- 2009: Tracking system for drugs introduced.
- 2009: Central hospital patient appointment system introduced. Major expansion in 2011.
- 2010: Active civil servants join the Social Security Institution.
- 2010: The Ministry of Health strategic plan for 2010–14 developed.
- 2010–11: Taxes for cigarettes and alcohol raised.
- 2010–12: Laws on Hospital Autonomy and Restructuring the Ministry of Health for a stronger stewardship function are adopted. Public Hospital Authority and Public Health Institution established; Law on Full-Time Practice of University and Health Personnel and Amendments is adopted, paving the way for full-time practice in legal terms.
- 2012: The Green Card scheme joins the Social Security Institution and unified social health insurance is fully implemented.
- 2013: The Ministry of Health strategic plan for 2013–17 is developed.

**Continuous monitoring and learning**

The assessments undertaken jointly with the Organisation for Economic Co-operation and Development, the World Bank, WHO, and academic institutions enabled

objective assessment of HTP progress and helped to identify emerging challenges. These studies were complemented by continuous monitoring of HTP implementation through the field coordinator model—

a multisectoral approach that emphasised inclusive assessment locally, collaborative deliberation, problem solving, and lesson learning.

In the field coordinator model a team of physicians were deployed rapidly in implementation sites across the country. With primary goals of improved health outcomes and equity, the field coordinators had two major roles: to perform internal audit function in provinces, and to contribute to institutional capacity building throughout Turkey for the implementation of the HTP. These physicians collaborated with provincial governments, professional associations, and local health management staff to gather information about emerging issues and benchmark progress at different implementation sites. Visits by the field coordinators included assessment of primary health-care facilities (health posts, tuberculosis control dispensaries, mother and child health-care centres, family medicine centres, and community health centres), hospitals, and dental care centres. A patient-centred approach, expanded access to care, and improvement of primary health-care service quality were the foci of assessments. Regular meetings were held in every province to discuss assessment findings, review progress, provide learning from experience of other provinces, and generate local solutions to solve implementation bottlenecks.

The field coordinator model was effective in rapid identification of implementation challenges and in provision of suitable solutions. For example, at the early stages of HTP implementation, constraints emerged in the capacity of line agencies to interpret the elaborate content of the HTP and to adhere to tight implementation schedules. Close collaboration with provincial governments and local professional associations helped to mobilise additional capacity beyond the health sector to meet implementation targets.

Findings from field monitoring were used to provide monthly reports to the transformation leadership on the challenges identified and lessons learned from the implementation sites so that the leadership could modify the speed and scope of HTP rollout in provinces.<sup>42</sup>

#### **Flexible implementation: strategic and tactical actions**

An important feature of the HTP was its emphasis on flexible implementation that balanced strategic and tactical actions. A two-pronged implementation approach characterised the HTP: the first prong emphasised incremental and tactical changes that were aimed at rapid and visible health sector improvements, and the second focused on strategic activities aimed at major structural reforms that needed legislation by the Grand National Assembly. This approach ensured so-called quick wins through tactical moves, enabling citizens to benefit immediately from changes, and thereby gaining essential public support from the stakeholders. In parallel, institutional changes and structural reforms were pursued strategically in a sequenced way, to take

advantage of political and legal windows of opportunity. For example, on the first day of the new government, the Minister of Health issued a decree to eliminate involuntary incarceration in hospitals of patients who were unable to meet health-care expenses. The same decree also abolished the practice of withholding the bodies of deceased patients when families were unable to meet hospital expenses—a tactical change welcomed by the general population.

In 2004, Green Card benefits were expanded to include access to outpatient services and drugs and aligned with benefits offered by other health insurance schemes, with rapid expansion of coverage in the uninsured poor population. In 2005, hospitals managed by the Social Insurance Organisation were brought under the stewardship of the Ministry of Health—an essential step for major structural reforms that sought to establish a purchaser-provider split by separating the financing and provision functions of the Social Insurance Organisation. This transition in managerial control was achieved, despite strong opposition from the Social Insurance Organisation and labour unions.

The increased population approval for the HTP gained by these tactical moves helped to legitimise the HTP, increased support from the Prime Minister and Cabinet of Ministers for the programme, and strengthened the negotiating position of the Ministry of Health within the government.

#### **Focus on user satisfaction and the receptivity of context for change**

The transformation leadership commissioned regular focus group research and stakeholder analyses to assess the acceptability of the changes introduced by the HTP to various population segments and their receptivity to change. The results of focus groups and stakeholder analyses were used to refine the scope of the HTP, public communications, and the speed of implementation.

Focus group research and stakeholder analyses were augmented by annual household surveys undertaken by the Turkish Statistical Institute based on statistically representative samples for the country. These surveys assessed household living conditions, individual happiness, life satisfaction, and expectations of public services (health services, social services, social insurance, education, legal and judiciary, and public security and order). The surveys provided an indication of general levels of satisfaction in the country and population responses to reforms introduced by various ministries.<sup>43</sup> The Ministry of Health also asked the Turkish Statistical Institute to undertake detailed health satisfaction surveys to assess population satisfaction with the health system and their views on health service quality, health service access, and system responsiveness. The health satisfaction survey also elicited user perceptions about bottlenecks in health services, challenges, and consumer expectations.<sup>44</sup> The Ministry of Health and the cabinet discussed these

findings regularly to fine-tune implementation of the HTP, to improve responsiveness of health services, and to meet user expectations.

### The HTP: health system changes and achievements

#### Health system governance and stewardship

##### *Defining of citizens' rights to health and enhancement of provider accountability*

The Directive on Patient Rights<sup>45</sup> was introduced in 2003, with effective implementation in 2005, and helped to operationalise the Patient Rights Legislation<sup>46</sup> that was enacted in 1998, but not implemented. The directive defined patient rights to health insurance and health services, and specified provider obligations in relation to patient rights, information provision, confidentiality, and patient consent for health interventions, and also provided citizens with the right to choose health-care institutions, hospital doctors, and family physicians.

Several new mechanisms established through the directive enabled service users and citizens to directly express their views on the quality, responsiveness, and availability of health services, including the challenges encountered, their degree of satisfaction, and their expectations. These new mechanisms included direct communication through a telephone hotline (expanded in 2010 to include social media) of complaints and suggestions to the Ministry of Health Communications Centre (SABIM), the Prime Ministry Communication Centre (BIMER), patient rights units in public hospitals, and patient rights communication units in primary health care. The complaints made to BIMER and SABIM are communicated to patient rights units to be resolved locally at the hospital involved or are taken to patient rights boards established in every province for advice on course of action—for example, to pursue administrative or legal avenues to resolve the complaint if there is a breach of directive provisions. These changes were combined with awareness-raising activities and training of citizens in health rights, with almost 2 million citizens trained in 2010 and a further 3·6 million in 2011. These new mechanisms have enhanced provider accountability to citizens—accountability that was all but absent before the HTP.

The new mechanisms, which enabled direct communication between users and the Ministry of Health, provided much-needed intelligence about user satisfaction and expectations. However, some health staff perceived these governance changes to be an impingement on professional freedoms, with complaints that the authority of doctors with patients had been compromised. Health workers also complained of reduced respect from patients. In response, the Ministry of Health introduced a web-based system for health staff to raise concerns directly with the Minister of Health, inquire about new policies, suggest solutions, and share experiences. However, despite these efforts, discontent remains among some health staff, which the Ministry of Health needs to address.

#### *Redefinition of the role of the Ministry of Health*

A key objective of the HTP was to redefine the role of the Ministry of Health, by strengthening its stewardship functions and by delegating operational responsibilities to new agencies. Between 1987 and 2002, attempts at streamlining the role faltered, as the Ministry of Health continued on its trajectory of expansion that started in 1954 (panel 1). Although a framework for restructuring of the Ministry of Health was approved at an early stage in the HTP by the Grand National Assembly, implementation could not proceed because the president vetoed the Law on Public Administration, which underpinned the framework.

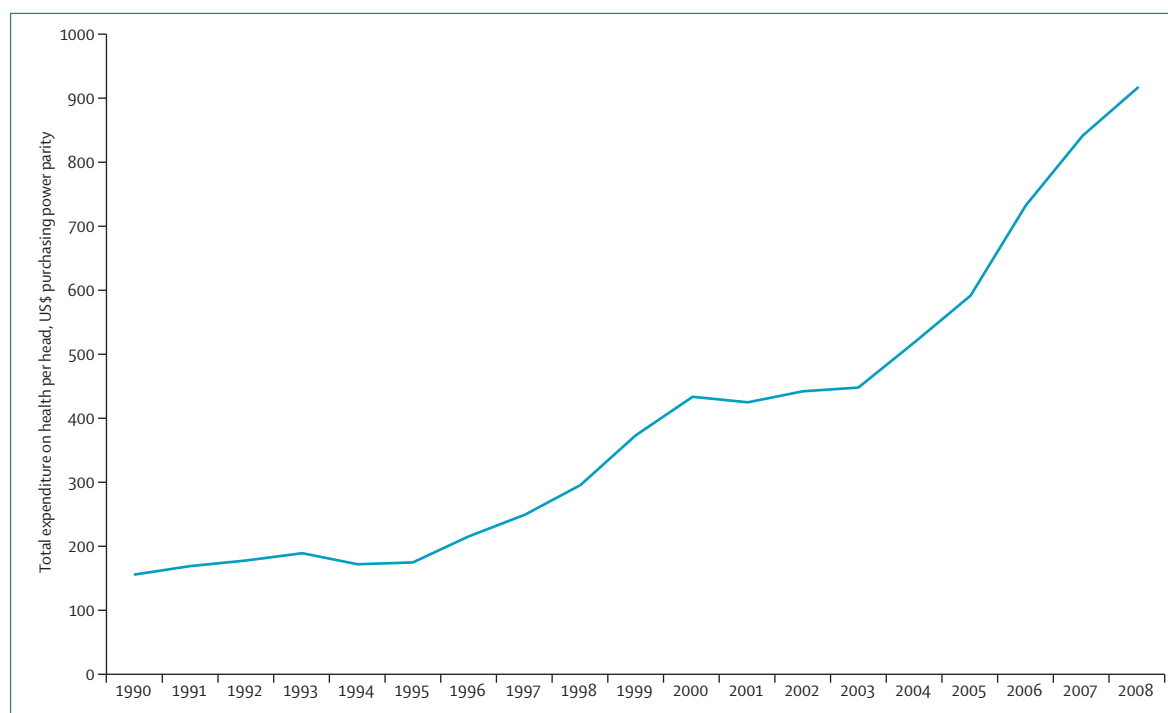
Between 2003 and 2010, the Ministry of Health's role expanded further when it assumed management responsibility for Social Security Institution hospitals and for the Green Card scheme. However, in 2010, with the introduction of the Ministry of Health Restructuring Law and the Law on Autonomous Hospitals, the ministry's role was streamlined to focus on policy and strategy development, intelligence, health system performance assessment, oversight of accountability, and intersectoral coordination. Operational responsibilities related to public health, contracting, health service delivery, and technology assessment were delegated to new autonomous quasi-public agencies, operating at an arm's length from the ministry (appendix p 15). With the introduction of the unified General Health Insurance scheme, the newly established Social Security Institution undertook the management of the Green Card scheme (panel 2).

#### Health system financing

The HTP sought to address two major financial shortcomings. The first related to low health expenditures and the second to the inequitable and fragmented health insurance system, with low coverage of the poorest populations and high out-of-pocket costs that led to catastrophic expenditures.

##### *Increasing health expenditures*

In 1990, total health expenditure in Turkey was 2·7% of GDP (US\$155 in purchasing power parity terms), but by 2008 it had increased to 6·1% of GDP (\$913), similar to that achieved by E7 countries for which average health expenditures were 5·2% of GDP (figure 6).<sup>47</sup> Health expenditures increased especially in 2003–08 (figure 6), coinciding with the introduction of the HTP and a period of sustained economic growth, which provided the fiscal space<sup>48</sup> for increased public sector investment (panel 3). In 2003–08, annual growth rates for health expenditures were 10% in fiscal years 2003–04 and 2004–05, 14% in 2005–06, 8·7% in 2006–07, and 1·3% in 2007–08. During 2000–08, the growth in health expenditures was largely driven by increasing public sector funding, which rose from 63% of total health expenditures in 2000, to 73% in 2008. In 2000–08, public sector funding for health increased at an average annual growth rate of 9·1% (range 4·7–14·8%). In



**Figure 6: Total expenditure on health per person, 1990–2008 (US\$ purchasing power parity)**  
Data are from reference 25.

2010, of the E7 countries, Turkey had the greatest proportion (75.2%) of the total health expenditures coming from public sources compared with 47.0% in Brazil, 53.6% in China, 29.2% in India, 49.1% in Indonesia, 48.9% in Mexico, and 62.1% in Russia.<sup>47</sup> Public investments in health infrastructure increased ninefold in nominal terms from 603 million Turkish lira (TL) in 2003 to more than TL5.4 billion in 2008. Similarly, private sector investments in health infrastructure increased almost 13-fold from around TL100 million in 2003 in nominal terms to almost TL1.3 billion in 2008.<sup>49</sup>

#### *Consolidation of the health insurance schemes into unified general health insurance*

Before the introduction of the HTP, five health insurance schemes existed in Turkey (the Social Insurance Organisation, the Government Employees Retirement Fund, Bağ-Kur, the Active Civil Servants Insurance Fund, and the Green Card scheme). Each of these schemes had developed separately over time, with different contribution amounts and varying benefits packages (appendix p 16). The Green Card scheme had low coverage rates, both because it functioned not as a proper insurance scheme, but rather as a financial rescue operation for poor patients who could not meet inpatient hospital costs, and because no system existed to identify potential beneficiaries to actively encourage them to join the scheme. Inadequate benefits offered by the Green Card meant the scheme was not attractive to citizens. To

achieve UHC, from 2004, the HTP established mechanisms to identify citizens entitled to the scheme, to increase insurance coverage among the poorest deciles, and to expand the scheme's benefits.

In 2006, the Grand Assembly ratified the Social Insurance and the General Health Insurance Law (panel 2) to bring together the five health insurance schemes within a unified General Health Insurance scheme integrated within the Social Insurance Organisation with synchronised benefits. The law was opposed by the Turkish Medical Association and the unions representing medical professionals, and was challenged in the constitutional court. The law was amended three times before implementation could begin in 2008, with the Social Insurance Organisation, Bağ-Kur, and the Government Employees Retirement Fund transferred to the newly established Social Security Institution. In January 2010, the Active Civil Servants Health Insurance Scheme was also transferred to the Social Security Institution, followed by the Green Card scheme in 2012, with shared benefits, to establish the unified General Health Insurance scheme (appendix p 16).

The expansion in Green Card coverage and benefits was underpinned by increased health expenditures, contributions from general government revenues (to the Social Insurance Organisation, then to the Social Security Institution) to cover the premiums of beneficiaries, and expansion of public and private health-care providers. The creation of the Social Security Institution

### Panel 3: Key elements of the benefits package covered by the unified General Health Insurance

The benefits package includes:

- Personal preventive health care (free of charge and financed from the general government budget)
- Inpatient and outpatient services, including for medical examinations, diagnostic tests, and procedures; all medical interventions and treatments after diagnosis; follow-up and rehabilitative services; organ, tissue, and stem cell transplantation; emergency care; and medical care
- Inpatient and outpatient maternal health care (antenatal care, delivery, neonatal care, and postnatal care with all medical examinations, diagnostic tests, and procedures)
- All medical interventions and treatments after diagnosis of women's disorders, follow-up services, abortion, surgical sterilisation, emergency care, and medical care
- Inpatient and outpatient oral health care, including oral and dental examinations, diagnostic tests and procedures, all medical interventions and treatments after diagnosis, tooth extraction, conservative dental treatment and endodontic treatment, follow-up services, oral prostheses, emergency services, and orthodontic treatment
- In-vitro fertilisation services, for up to two treatment cycles
- Blood and blood products, bone marrow, vaccines, medicines, prostheses, medical goods, and medical equipment, including their installation, maintenance, repair, and renewal services
- Diseases that need treatment abroad
- Free (at point of delivery) health care and dental care provision for children less than 18 years of age, irrespective of their insurance status
- Pharmaceuticals and medical devices

The benefits package excludes:

- Aesthetic interventions not related to work accidents or congenital anomalies
- All interventions not classified as medical services by the Ministry of Health
- Treatment of foreigners with pre-existing chronic diseases

brought clarity to purchaser and provider roles, with the institution established as the purchaser of health services from public and private providers. The consolidation of the five insurance schemes created a unified risk pool to more effectively share, across all income groups, the risks associated with health-care costs and catastrophic payments.

The unified General Health Insurance now provides a comprehensive benefits package with reimbursement for a range of preventive, diagnostic, and curative services (panel 3 and appendix p 16). Preventive health services and contract-based family medicine services, which are freely available to users, are not insurance based, and their costs are met by the general government budget (panel 3). In addition to the benefits under the unified

### Panel 4: New targeted health programmes for women and children introduced by the Health Transformation Program

- Accelerated efforts to improve immunisation uptake among children younger than 5 years through the family medicine-centred primary health-care model that began in 2005 and expanded to all 81 provinces of Turkey by the end of 2010, which introduced a performance-based payment for achievement of high immunisation rates among children
- Implementation of an expanded programme of immunisation by increasing the number of antigens from seven in 2002 (BCG, combined diphtheria-pertussis-tetanus, oral polio, measles, and hepatitis B) to 13 in 2012 with the addition of *Haemophilus influenzae* type b, rubella, mumps, pneumococcal conjugate vaccine, varicella, and hepatitis A
- Free predelivery hostel services near maternal care units for women in rural and difficult-to-reach areas
- Conditional cash transfers for antenatal and postnatal and newborn follow-up (including immunisation)
- Implementation of new neonatal services, including neonatal emergency care and air ambulance for maternal emergencies, additional newborn screening for hypothyroidism and biotinidase to complement screening for phenylketonuria and hearing problems
- Enhanced nutritional support during pregnancy and early childhood, including folic acid and iron supplements for pregnant women, and vitamin D and iron supplements for children
- Implementation of an improved monitoring system in the prenatal and postnatal period for women and for child health and development
- Expansion of neonatal intensive care programme, financed from extended health insurance benefits

General Health Insurance, the Ministry of Health extended targeted health promotion and prevention programmes for the general population—especially for women and children—provided to users free of charge (panel 4).

### Expansion of health insurance coverage for the poorest people: health expenditures for the Green Card scheme

Between 2004 and 2009, coinciding with the introduction of the HTP, expenditures for Green Card holders increased almost fivefold from TL1·2 billion in 2004 to TL5·51 billion in 2009. In the same period, spending for Social Insurance Organisation beneficiaries doubled from TL13·2 billion in 2004 to TL28·9 billion in 2009 (table 2). In 2004, the health spending per person for Green Card holders at TL176·0 was around half the amount (TL323·0) spent for Social Insurance Organisation beneficiaries. However, by 2009, the expenditures for Green Card beneficiaries had increased to TL570·7 per person,

	Estimated number of people reporting obligatory insurance	Registered Green Card holders	SIO spending per person (nominal million TL)	SIO spending per person (nominal US\$)	Green Card spending (nominal million TL)	Green Card spending per person (nominal US\$)	SIO spending per person (nominal TL)	Green Card spending per person (nominal TL)
2004	40 708 000	6 852 000	13 150	230.7	1206	125.7	323.0	176.0
2005	44 061 000	7 256 000	13 607	237.5	1809	191.8	308.8	249.3
2006	47 583 000	8 279 000	17 668	265.2	2910	251.1	371.3	351.5
2007	47 612 000	9 355 000	19 983	322.8	3913	321.8	419.7	418.3
2008	50 103 000	9 338 000	25 404	390.0	4031	332.1	507.0	431.7
2009	48 900 000	9 647 000	28 863	393.5	5506	380.5	590.3	570.7

Data are authors' calculations, based on SIO annual reports and Household Budget Surveys. Insured SIO population is estimated from the Household Budget Survey 2004–09. SIO=Social Insurance Organisation. TL=Turkish lira.

**Table 2: Per-person spending for SIO and Green Card scheme, 2004–09**

converging with the amount (TL590.3) spent for Social Insurance Organisation beneficiaries (table 2).

#### Enhancement of equity: health insurance coverage by nominal per-person expenditure deciles

Government financing of non-contributory health insurance for the poorest deciles and increased coverage of contributory health insurance by richer deciles enabled expansion of the Green Card scheme and the introduction of a unified General Health Insurance scheme.

In 2003, only 24% of the poorest decile was covered by insurance (12% by obligatory insurance for those in active employment and 12% by the Green Card scheme). By 2011, health insurance coverage for the poorest decile had increased to almost 85% (about 60% through the Green Card scheme, 24% through obligatory health insurance, and the rest by private insurance; figure 7).

Health insurance coverage has improved for all expenditure deciles. For example, coverage for the second decile increased from 38% in 2003 (roughly 8% Green Card scheme, 29% obligatory health insurance, and the rest by private insurance) to 84% in 2011 (about 33% Green Card scheme, 50% obligatory health insurance, and the rest by private insurance). In the higher income deciles 4–10, insurance coverage has increased from 47–90% in 2003, to 85–96% in 2011 (figure 7). In a comparison of 2003 and 2011, the largest increases in health insurance uptake were achieved for deciles 2, 3, and 4, with increases from 29% to 50%, from 40% to 65%, and from 53% to 75%, respectively (figure 7).

#### Enhancement of equity: improved targeting of the Green Card scheme

In 2003, the Green Card scheme covered only 2.4 million people (3.6% of the population of Turkey, when about 19 million people [29% of the population] were classified as poor). The expansion of benefits (depth of coverage; see panel 3 and appendix p 16) was accompanied by rapid expansion in 2004–05 of the number of Green Card beneficiaries that almost quadrupled from 2.4 million people in 2003 to 8.3 million in 2005, then increased to

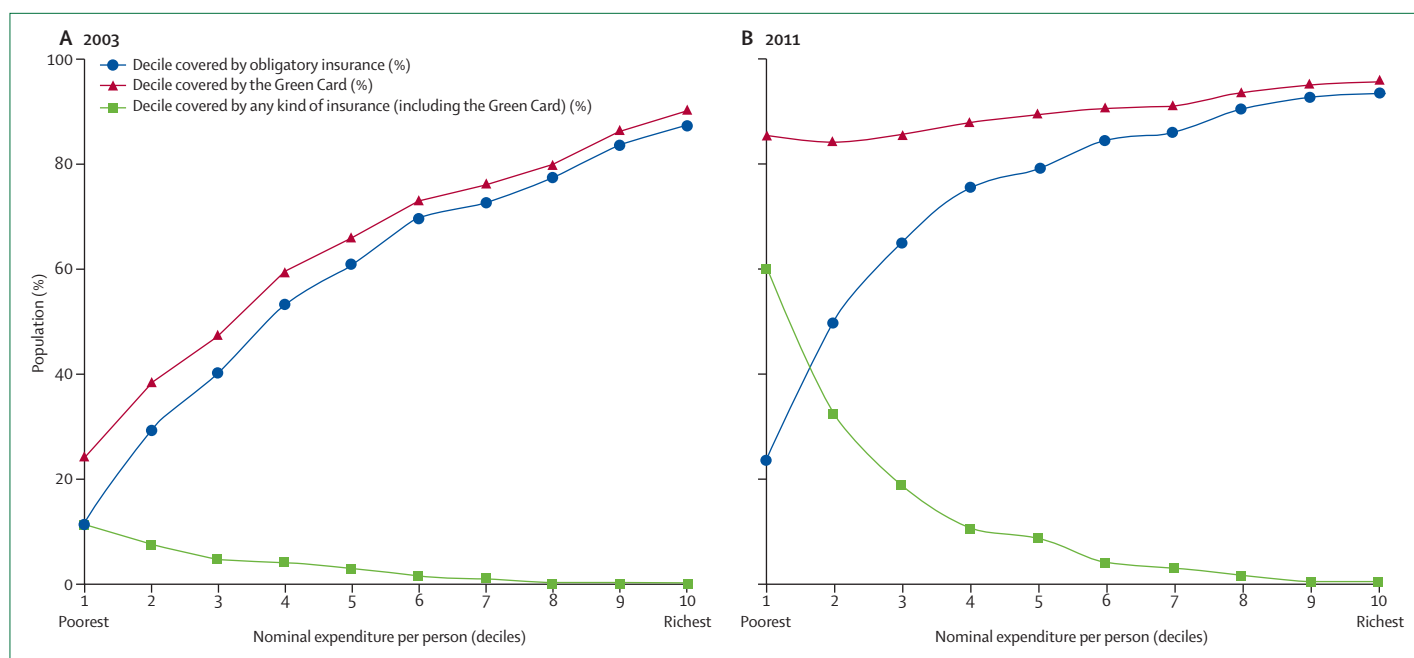
around 10.2 million people by 2011, which accounted for 13.8% of the total population (when around 11.8 million people [16% of the population] were classified as poor). Targeting of poorer deciles also improved. In 2003, only 33% of the poorest expenditure decile (decile 1) was covered by the scheme, but by 2011 this proportion had increased to 42%. Between 2003 and 2011, for deciles 1 and 2, Green Card targeting improved from 54% to 65% (appendix p 17).

#### Enhancement of equity: improved financial protection and reduced catastrophic expenditures

Expansion of the Green Card scheme coincided with increased benefits, including coverage of outpatient drugs and reduced cost-sharing for many health services. Inadequate benefits had previously deterred people from joining the scheme. With the HTP, emergencies, intensive care, and complex procedures (a typical cause of catastrophic expenditures) were made free for beneficiaries.

Analysis of out-of-pocket expenditures across the five expenditure quintiles who had access to the Green Card scheme shows that overall, medical expenditures (including those for pharmaceuticals, outpatient services in secondary and tertiary hospitals, and medical devices—for all of which small cost-sharing exists) decreased for all quintiles. For the lowest-income quintile (quintile 1), medical expenditures as a percentage of health expenditures fell substantially from 63.2% in 2003, to 49.4% in 2011. Similar, albeit less substantial, decreases were recorded in income quintiles 2, 3, 4, and 5. Consequently, medical expenditures for quintile 1 are now closer to those in quintiles 2, 3, 4, and 5 (appendix p 18). Overall, health expenditures as a proportion of non-food spending decreased (from 3.1% in 2003, to 2.4% in 2011). For the lowest-income quintile, a small increase from 2.4% to 2.8% occurred (appendix p 18).

Importantly, expansion of the Green Card scheme helped to reduce catastrophic health expenditures. In 2003, the mean head count, which measures the incidence of spending, at 15%, 25%, and 40% of total non-food health expenditures was 0.050, 0.022, and



**Figure 7: Population by nominal per capita expenditure decile reporting any type of health insurance, 2003 and 2011**

(A) 2003. (B) 2011. Data are from the Turkey Household Budget Survey 2003–2011, and the Turkish Social Security Institute (appendix pp 2–13). The analysis is updated from reference 27.

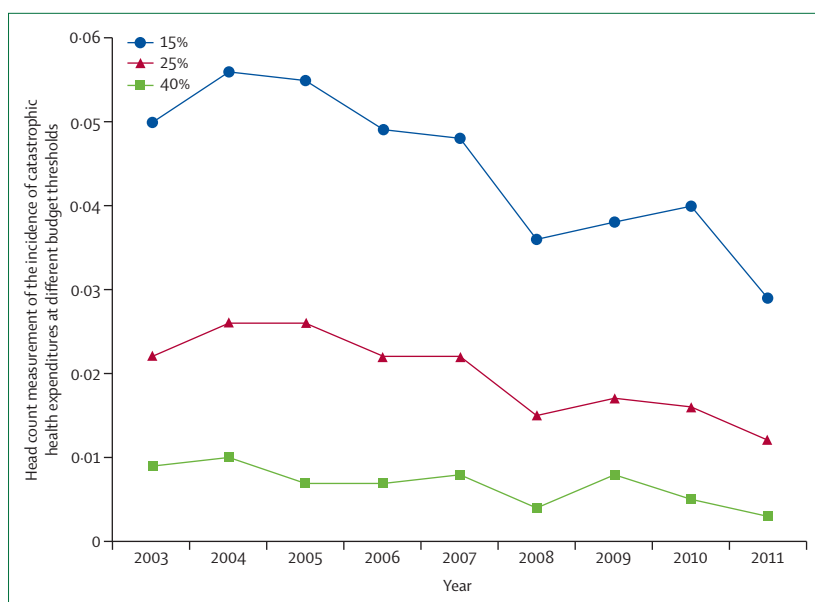
0·009, respectively, and decreased two-to-threefold by 2011 to 0·029, 0·012, and 0·003, respectively (figure 8).

### Human resource management

To address absolute shortages and inequitable distribution of health staff in the health system, the HTP

introduced four major human resources initiatives. The first initiative, which was implemented after agreement with the higher education council, increased the number of places at universities and higher institutions to train doctors, nurses, midwives, and other health personnel. The annual intake of medical students increased from 5253 in 2003, to 8438 by 2010, with similar increases for nurses, pharmacists, and other health professions. In 2007, training of nurses was restricted to universities. New medical graduates and newly qualified specialist doctors had to undertake compulsory service and spend 300–500 days in different regions of Turkey that had a high need for doctors, especially in rural areas, east, and southeast Turkey. The second initiative introduced higher salaries and performance-related incentives in hospitals and for primary health-care providers, with the opportunity to substantially increase remuneration of health workers. The third initiative introduced new personal contracts with health staff and outsourcing of health services, underpinned by new decrees introduced in 2003 to expand staff availability in regions where recruitment and retention of health workers was difficult. New contracts offered higher salaries and performance-related pay.<sup>50</sup> Furthermore, new decrees introduced changes to general civil service law (which governed the employment terms and conditions for public sector health staff), with flexibilities for health-care institutions during recruitment of new staff.<sup>51</sup>

The fourth initiative introduced a new law in 2010, which required that doctors employed in public institutions (Ministry of Health hospitals and university hospitals)



**Figure 8: Head count for out-of-pocket health spending as a share of non-food household expenditure, at different budget thresholds**

Data are from the Turkey Household Budget Survey 2003–2011, and the Turkish Social Security Institute (appendix pp 2–13).

work full-time and do not engage in parallel private practice. This new law was resisted by some clinicians who had private practices and who also worked in university hospitals and large public hospitals in conurbations.<sup>52</sup> After the changes, a few clinicians resigned from university teaching hospitals, and more did so from large public hospitals in major cities, such as Istanbul and Ankara.

These human resource initiatives enabled the Ministry of Health to rapidly increase the number of staff it employed from 256 000 in 2002, to 507 000 by 2012. Between 2002 and 2012, the number of outsourced health staff increased almost 12-fold, from 11 000 to 126 000 (figure 9). Between 2004 and 2010, the number of specialist physicians increased from about 53 300 to 63 600, and the number of general practitioners increased from 33 300 to 38 800. In 2004–10, the number of nurses increased from 82 600 to 114 800, and the number of midwives increased from 42 700 to 50 300. Similarly, the number of auxiliary personnel increased from 57 700 in 2004, to 94 400 in 2010.<sup>53</sup>

The new human resource policies collectively helped to address staff shortages in the Turkish health system and reduce inequities. For example, in 1990, there were 856 people per specialist physician in west and central regions of Turkey and 43 668 people per specialist in the east region. The ratio of specialist doctors in the west and central regions to the east region was 51:1. In the year 2000, there were 749 people per specialist physician in the west and central regions and 25 178 in the east region; thus, the ratio of specialist physicians between the regions decreased to 34:1. In 2010, the number of people per specialist physician declined to 559 in west and central regions and to 2705 persons in the east region, with the ratio of specialist physicians among regions narrowing to 5:1 (figure 10).

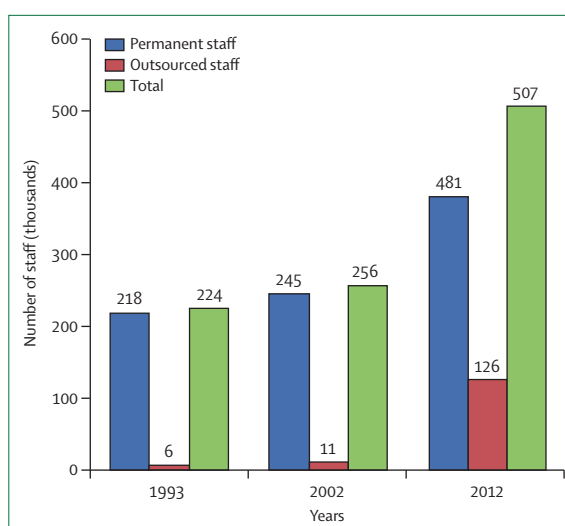
Similarly, in 1990, the number of people covered by a general physician in northern and eastern regions was 1745 and 6628, respectively, with a ratio of 4:1. By 2000, the difference had widened, with 1288 and 5747 persons covered per general physician respectively in northern and eastern regions, with the ratio worsening to 5:1. However, by 2010, the number of people covered in northern and eastern regions by a general physician had fallen to 1396 and 2291, respectively, and the ratio narrowed to 1·6:1 (figure 11).

In 1990, the number of people covered by a nurse or midwife was 414 in the northern region and 2404 in the east region, with a 6:1 regional ratio between the best and the worst served regions. In 2010, the number of people covered per nurse or midwife was 235 people in the central region and 826 in the east region, with the ratio between the best and the worst served regions improving to 3·2:1 (figure 12).

## Service delivery

### Expansion of primary health-care services

Before the HTP, primary health-care services in Turkey were organised as a three-tier system, in accordance with



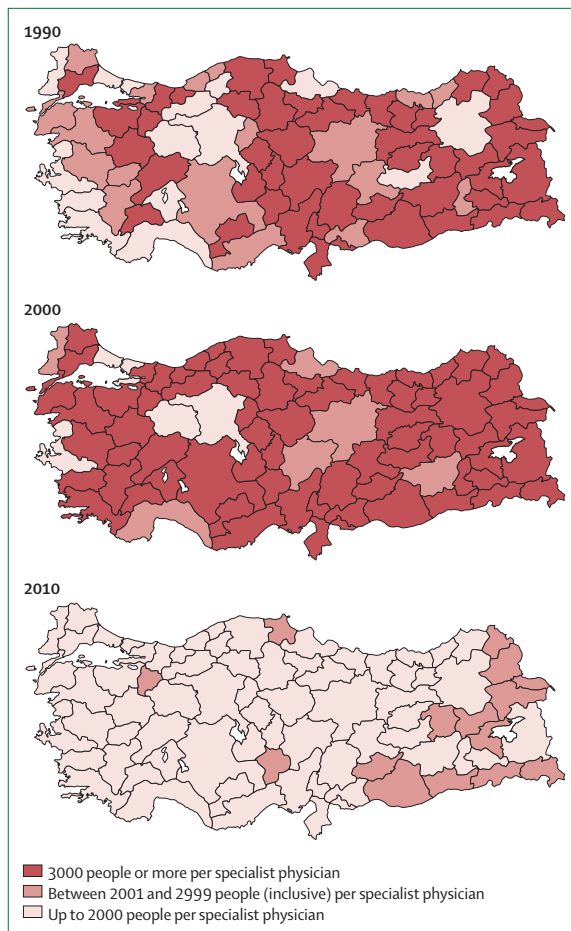
**Figure 9: Number of clinical and administrative staff employed or contracted by the Ministry of Health in Turkey, 1993–2012**

Data are authors' analysis based on data from Ministry of Health, General Directorate of Health Services, and The Ministry of Health of the Republic of Turkey Health Statistics Yearbook, 2011.<sup>17</sup>

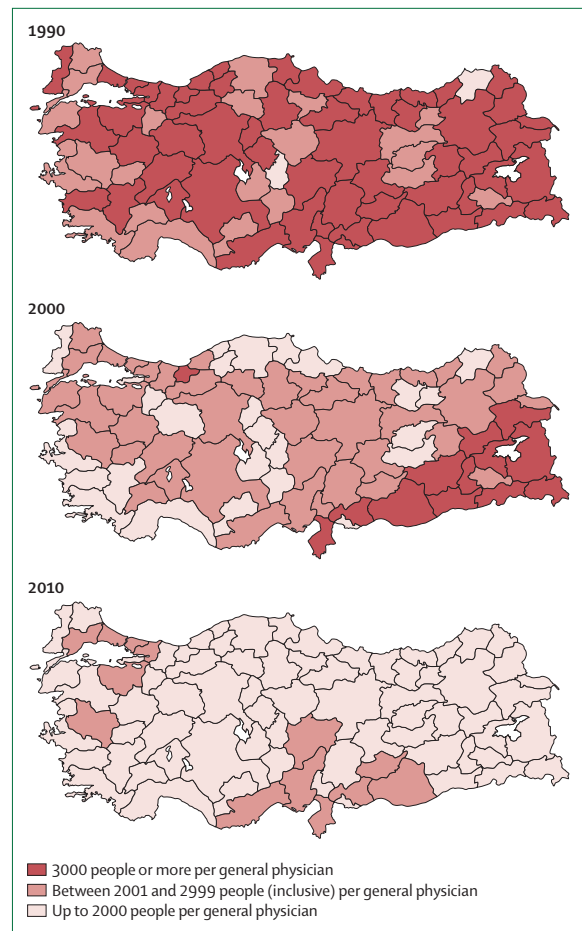
the 1961 Law on Socialization of Medicine. The first tier was so-called health houses, staffed by midwives (covering a population of 2000–2500 people). The second tier consisted of primary health-care centres (covering 5000–10 000 people in villages; 10 000–30 000 people at the district level; or 30 000–50 000 people at the provincial level), staffed by teams comprising a physician, a nurse, and a midwife (with a health technician and an administrator in larger centres). The third tier, at provincial levels, included additional health centres that catered for mother and child health and family planning, and dispensaries for tuberculosis control. However, an absolute shortage of infrastructure and health staff, and variable staff skills, characterised the primary health-care level.

In 2005, the HTP introduced a family medicine-centred primary health-care model, with a focus on increased resources in three areas—physical resources, human resources, and human resource capacity.<sup>54</sup> With this model, each family doctor or family practice offered a larger set of services than did health houses or traditional primary health-care centres to a maximum registered population of 4000 citizens. About 20 000 new family medicine teams were established after 2005. Infrastructure was upgraded and expanded—most of the health houses were kept and, along with health centres, refurbished or converted into family medicine centres. By 2011, 6250 new family centres had been established.

From 2005 onwards, family physicians were engaged in contracts to provide primary health-care services, with expanded preventive activities, and women and child health services. Additionally, they were responsible for providing mobile health services to people registered with them and living in rural areas, and homecare



**Figure 10: Population covered per specialist physician by province in 1990, 2000, and 2010**  
Provinces are grouped according to the grouping used in Demographic and Health Survey regions. Data are authors' analysis based on data from Ministry of Health, General Directorate of Health Services, The Ministry of Health of the Republic of Turkey.



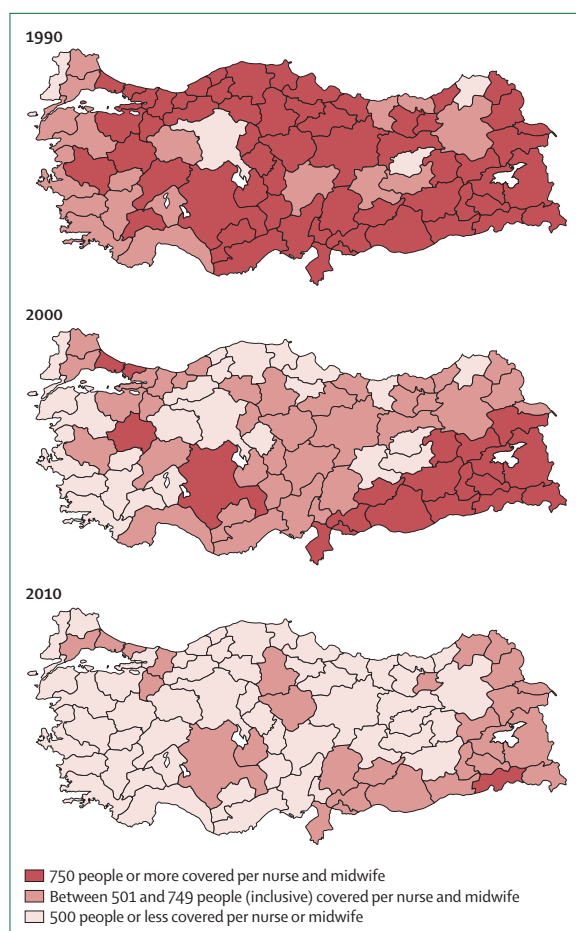
**Figure 11: Population covered per general physician by province in 1990, 2000, and 2010**  
Provinces are grouped according to the grouping used in Demographic and Health Survey regions. Data are authors' analysis based on data from Ministry of Health, General Directorate of Health Services, The Ministry of Health of the Republic of Turkey.

services for patients unable to travel to clinics, along with services to nursing homes, prisons, and child care centres through regular visits.

The findings from the controlled before and after study undertaken as part of this study (appendix pp 2–13), which explored services provided by primary health-care physicians before (phase 1) and after (phase 2) the introduction of the new family medicine model, showed substantial improvements in the availability of key maternal and child health services after the introduction of the model. The immunisation services provided on a daily basis by the primary care physicians surveyed increased from 60·6% in phase 1 to 91·4% in phase 2. The improvements in the availability of in-house and mobile immunisation services were significantly higher in pilot sites than in control sites ( $p=0\cdot04$  and  $p=0\cdot01$ , respectively). The general availability of antenatal services on a daily basis was 97·0%. Mobile service availability for antenatal care

provided by the primary health-care physicians decreased substantially from 78·8% in phase 1 to 54·1% in phase 2 as the availability of daily services increased in phase 2 (from 93·9% to 95·6% in control regions and from 93·9% to 98·1% in pilot regions), but no statistically significant differences were reported between pilot and control sites. Almost all primary health-care units provided family planning services on a daily basis in both phases (table 3).

Additional econometric analysis from the controlled before and after study, using difference-in-difference estimates, shows that primary health-care physicians were more likely to be involved in first contact management of diseases commonly encountered in primary health care (OR 1·27, 95% CI 1·12–1·44), in the management of maternal and child care (OR 1·70, 95% CI 1·15–2·52), and in the diagnosis (OR 1·13, 95% CI 1·00–1·28), treatment initiation (OR 1·41, 95% CI 1·21–1·65), and monitoring (OR 1·45, 95% CI 1·25–1·69) of long-term disorders in



**Figure 12: Population covered per nurse and midwife by province in 1990, 2000, and 2010**

Provinces are grouped according to the grouping used in Demographic and Health Survey regions. Data are authors' analysis based on data from Ministry of Health, General Directorate of Health Services, The Ministry of Health of the Republic of Turkey.

pilot provinces than in control provinces in the second phase of the HTP family medicine rollout (table 4).

With increased staffing, improved infrastructure, and new contracts for family physicians that included incentives, the volume of primary health-care services (number of visits) increased from 74·8 million in 2002 to 244·3 million in 2011.<sup>55</sup>

#### *Expansion of emergency and hospital services to address maternal and neonatal emergencies*

During the HTP, the number and capacity of human resources increased substantially, with a more equitable distribution of health staff across the country than existed previously. Family medicine-centred primary health-care services were developed in all provinces. Emergency ambulance services were expanded substantially, including the air ambulance service for complex emergencies. These emergency services, which are provided free of charge, also responded to obstetric and neonatal

	Phase 1 (%)	Phase 2: control (%)	Phase 2: pilot (%)	Pilot×Phase 2 ( $\beta_3$ ), odds ratio (95% CI)
<b>Immunisation services</b>				
Services provided on a daily basis	60·6%	89·0%	93·4%	4·97 (1·10–22·6)
A system to monitor immunised children	100·0%	95·6%	97·2%	NA
Mobile immunisation services	61·6%	52·7%	62·3%	2·48 (1·24–4·92)
<b>Antenatal care services</b>				
Services provided on a daily basis	93·9%	95·6%	98·1%	NA
A system to monitor pregnant women	100·0%	97·8%	97·2%	NA
Mobile antenatal services	78·8%	62·6%	46·7%	1·01 (0·49–2·13)

Data are authors' analysis of data from task profile survey of primary care physicians in family medicine pilot and control regions. The specifications for the regression model that uses difference-in-differences are given in the appendix pp 2–13. NA=not available because insufficient variation in services in the time period studied and between control and pilot regions to estimate odds ratios.

**Table 3: Key maternal and child health services provided in phases 1 and 2 of family medicine-centred primary health-care reforms in pilot and control regions**

	Number of activities per service category	Pilot×Phase 2 ( $\beta_3$ ), odds ratio (95% CI)
Application of medical technologies	8	0·89 (0·73–1·08)
First contact management	26	1·27 (1·12–1·44)
<b>Prevention</b>		
Patient based	6	1·24 (0·92–1·67)
Population based	6	0·87 (0·70–1·07)
Maternal and child care	5	1·70 (1·15–2·52)
<b>Long-term disorders</b>		
Diagnosis	20	1·13 (1·00–1·28)
Treatment initiation	18	1·41 (1·21–1·65)
Monitoring	20	1·45 (1·25–1·69)

Data are authors' analysis of data from task profile survey of primary care physicians in family medicine pilot and control regions. The specifications for the regression model that uses difference-in-differences are given in the appendix pp 2–13.

**Table 4: Effect of the introduction of family medicine on medical skills and scope of health services provided by primary health-care physicians**

emergencies. By 2008, accident and emergency services and intensive care services were made freely accessible in all public and private hospitals. Moreover, blood transfusion services were developed further, with a rapid response system for maternal emergencies. Collectively, these changes led to increased service access to maternal and child health services and have helped to reduce maternal, under-5, infant, and neonatal mortality. New staff contracts, increased remuneration, and better working conditions have helped to attract and retain staff in poor and underserved areas.

During the HTP, the number of hospitals providing neonatal services expanded sixfold, from 141 in 2002, to 906 in 2011. The expanded benefits in the General Health Insurance scheme included free services (in both public and private providers) for maternal emergencies, neonatal services (including neonatal intensive care), and services for management of congenital anomalies.

*Expansion of hospital capacity and services*

The number of hospital beds in Turkey increased gradually from 105 710 in 1990 (1·87 beds per 1000 population) to 134 950 in 2000 (1·99 beds per 1000 population), and increased sharply thereafter with the HTP to 194 504 in 2011 (2·6 beds per 1000 population). Between 1990 and 2011, the number of beds per 1000 population rose almost twofold, from 80 403 to 121 297 in Ministry of Health hospitals and from 16 817 to 34 802 in university hospitals.

In line with HTP objectives to improve emergency services and services for complex disorders, between 2002 and 2011, the number of intensive care unit beds in Ministry of Health hospitals increased more than tenfold from 869 to 9581, in university hospitals from 353 to 3890, and in private hospitals from 992 to 7506. In total, across the public and private sectors, the number of intensive hospital beds increased ninefold from 2214 in 2002, to 20 977 in 2011.<sup>55</sup>

Use of both public and private hospitals was an explicit strategy within the HTP to expand the hospital sector and use the country's available capacity effectively. By 2010, the Social Security Institution had established contracts with 421 private hospitals to provide general diagnostic and curative hospital services, with copayments by users. Furthermore, these private hospitals provided free services for emergencies, burns, intensive care, cardiovascular surgery, neonatal care, congenital anomalies, organ transplantation, cancer care, and renal dialysis. The volume of hospital services (number of hospital visits) provided by the private sector increased from 5·7 million (4·6% of the total 124·3 million services) in 2002, to 59·1 million (17·5% of the total 337·8 million) in 2011.<sup>55</sup> The number of private sector hospital beds increased almost tenfold from 3361 in 1990 (0·06 per 1000 population) to 31 648 (0·42 per 1000 population) in 2011, with a rapid increase after 2005 to accommodate the increased patient volumes after the service contracts established by the Social Insurance Organisation with accredited private sector hospitals to provide services for insurance beneficiaries.

The expansion of the private sector was accompanied by increased government regulation. Whereas the Ministry of Finance introduced stringent financial oversight and controls over private hospitals, especially taxation, the Ministry of Health introduced new regulations on the accreditation, manpower planning (with capacity ceilings), and quality standards. Additionally, both ministries monitor user satisfaction and complaints with private hospitals, and intervene when necessary. Almost 90% of large private hospitals established contracts with the Social Insurance Organisation and then the Social Security Institution, who act as the purchaser of services and monitor service volumes and claims closely to identify excess or unwarranted claims, with penalties and reduced compensation against such claims. Increased oversight and regulation by the Ministry

of Finance, the Ministry of Health, and the Social Security Institution has been facilitated by the introduction of new government decrees on private sector administration, health-care service quality standards, special health services, in-vitro fertilisation, transplantation services, and intensive care services. Ministry of Health circulars or communiqués have been issued in relation to implementation of health service standards.

New regulations were introduced in 2008 to moderate the growth of the private sector and movement of health staff from the public to the private sector. New regulations specified private sector hospital capacity and annual increases in number of beds, services provided, and staffing numbers.

Between 2002 and 2011, the average length of hospital stay decreased in the three major groups of hospital providers: from 8·6 to 5·8 days in university hospitals (tertiary units treating more complex cases); from 5·7 to 4·3 days in Ministry of Health facilities (mainly secondary care units); and from 3·1 to 2·0 days in private sector hospitals (which cater for privately insured patients and those with health insurance). On average, hospital length of stay fell from 5·8 days in 2002 to 4·1 in 2011, whereas the bed occupancy rate increased from 59·4% in 2002, to 65·6% in 2011.<sup>56</sup> However, the effect of these efficiency gains on service quality has not been measured.

**Public health**

In the aim to achieve UHC, the HTP prioritised a range of public health interventions to address high smoking rates and health risk factors such as physical inactivity and obesity. New public health and community-based programmes have been introduced to address the growing disease burdens from mental illness and diabetes mellitus. The HTP has also invested in the development of rapid response capability and in strengthening health system resilience to manage natural and man-made disasters. We do not discuss these initiatives and programmes in detail, but panel 5 provides a brief summary.

**Effect of the HTP and UHC on access to maternal and child health services and child mortality**

Analysis of the Turkish Demographic and Health Survey 1993–2008 shows that the use of maternal and child health services improved substantially throughout Turkey in this period, and especially in 2003–08. Improvements occurred in all regions of the country, especially after 2003 in the less well-served east region, rural areas, and in socioeconomically disadvantaged groups (table 5).

**Improvements in access to maternal and child health services and enhanced equity***Antenatal care*

Overall, from 1993 to 2008, the probability of receiving antenatal care during pregnancy increased from 63·0% to 93·4%, with the most significant increase in use between

### Panel 5: Public health interventions and initiatives to develop health system resilience to natural and man-made disasters

#### Tobacco control

In 2004, Turkey became a signatory of the WHO Framework Convention for Tobacco Control, which was approved by the Grand National Assembly that year. In 2007, the Prime Minister launched the National Strategy for Tobacco Control (2008–12). In 2008, a comprehensive tobacco control law introduced a complete ban on smoking in public places, prohibited mass media advertising, and banned the promotion and sponsorship of all tobacco products.<sup>57</sup> In 2010–11, the tax on tobacco products was increased to 78% of cigarette costs, meeting the levels recommended by WHO.<sup>58</sup> These interventions have helped to reduce daily smoking prevalence in the Turkish adult population (those aged 15 years or older) from 32.1% in 2003, to 23.8% in 2012.<sup>58</sup> Turkey was the first country to fully implement the WHO Empower strategy for tobacco control, with initiatives targeting behaviour change of tobacco users.<sup>59,60</sup>

#### Obesity management

In 2010, about 34.6% of the population in Turkey was overweight and 30.3% was obese.<sup>17</sup> As part of the Health Transformation Program, the Ministry of Health introduced the Healthy Diet and Active Life Program of Turkey 2010–14 and for 2013–17, to raise population awareness of obesity, to promote a healthy diet, and to encourage regular physical activity.<sup>61</sup> Specialist teams have been established under the auspices of the Ministry of Health to fight obesity and in each province, directly accountable to provincial governors, to encourage active lifestyles and healthy nutrition.<sup>42</sup>

#### Mental health

In 2007, Turkey had the lowest number of psychiatrists per 100 000 population (one per 100 000), the third lowest number of psychiatric beds (12 per 100 000 population), and the fourth lowest number of admissions (115 per 100 000 population) in Europe. Mental health nurses accounted for only 1% of the total nurse workforce.<sup>62</sup> The management of mental health has focused on hospital-based care, with 4000 of the 6000 beds for mental illness located in eight specialised regional psychiatric hospitals.<sup>63</sup>

According to the Global Burden of Disease Study, in Turkey, between 1990 and 2010, major depressive disorder and anxiety disorders increased by roughly 50%. In 2010, major depressive disorder was the third largest cause of disease burden in terms of disability-adjusted life-years, and anxiety disorders were in the top ten leading disorders for disability-adjusted life-years.<sup>64</sup>

In 2011, the Ministry of Health launched a National Mental Health Action Plan 2011–23,<sup>65</sup> with the aim to establish 240 community mental health centres by 2015, each serving a population of 300 000 people.<sup>66</sup> The plan aims to strengthen the provision of mental health services for adults, children, and adolescents; to reduce stigma associated with mental illness; to eliminate violence against women; to stop child abuse; and to prevent suicides and prevent post-traumatic distress and mental disorders after natural disasters and trauma. Its objectives for 2011–16 are to: improve rational prescribing for mental illness; increase the number of psychiatric beds (reducing beds in

specialised psychiatric hospitals and increasing beds in general hospitals); shift hospital-based services to the community by expanding community-based mental health centres and outpatient services; expand the number of secure psychiatric beds in newly planned hospital campuses; increase the number of mental health professionals; and integrate mental health services within primary health care.<sup>65</sup>

#### Development of health system resilience to natural and man-made disasters

The 1999 Marmara earthquake in western Turkey caused unprecedented death, damage, and suffering, with immense economic, political and social consequences. The government, severely criticised by the population for its inability to mount an effective response, established a General Directorate of Turkish Emergency Management in 1999.<sup>67</sup>

In 2004, the Ministry of Health developed Disaster and Emergency Coordination Centers, equipped with portable facilities and systems for communicating with 81 provinces and international rescue teams. From 2004, new national medical rescue teams were formed, with 4847 volunteers trained and certified by 2011.<sup>68</sup> In 2009, the Prime Minister's Disaster and Emergency Management Presidency was created, focusing on disaster preparedness and rescue operations,<sup>69</sup> while the Ministry of Health concentrated on medical management of rescued people, establishing a comprehensive and integrated response capability to manage natural and man-made disasters.

In contrast to the Marmara disaster, the responses to the Van earthquake in 2011 (which measured 7.2 on the Richter scale) was rapid and comprehensive—the first emergency and rescue teams arrived in the affected area within 30 min, the Minister of Health arrived within 3 h to supervise the response, and within a few hours the Ministry of Health had established a hotline to coordinate communication flow with patient relatives. About 250 people were rescued from the collapsed infrastructure and rubble, mostly within 24 h of the earthquake,<sup>70</sup> with around 1700 patients with major physical and psychological trauma evacuated to regional hospitals by airlift and land transport.<sup>71</sup> More than 13 000 households were provided with tents and screened for injury, and around 5000 people were provided with psychosocial counselling. Public health interventions were implemented to prevent the emergence of communicable diseases, with a strict disease surveillance regime for foodborne and waterborne diseases.<sup>70</sup>

From 2011 onwards, an effective response was also mounted to address the Syrian refugee crisis, coordinated by Prime Minister's Disaster and Emergency Management Presidency and the Turkish Red Crescent Society.<sup>72</sup> By March, 2013, almost 230 000 Syrian refugees were housed in purpose-built facilities in southeast Turkey and provided with food, shelter and free medical assistance,<sup>73</sup> as well as a weekly subsistence allowance for each refugee.<sup>74</sup>

2003 and 2008. The use of antenatal care rose by 3.1 percentage points from 1993 to 1998, by 8.5 percentage points from 1998 to 2003, and by 18.8 percentage points from 2003 to 2008. Striking increases occurred in rural areas, in eastern Turkey, and in low-asset quintiles. For example, although the use rate for the poorest quintile was

36.1% in 1993, this rate increased to 36.8% in 1998, to 44.9% in 2003, and then leapt to 84.1% in 2008. Between 2003 and 2008, the increase in use of antenatal care for the poorest quintile was a striking 39.2 percentage points. For the richest asset quintile, the use rate was 90.9% in 1993 and increased to 99.0% by 2008. Similarly, in women

	Antenatal visit (%)				Proportion of births in a health facility (%)				Proportion of births attended by trained staff (%)				Immunisation uptake (all) (%)			
	1993	1998	2003	2008	1993	1998	2003	2008	1993	1998	2003	2008	1993	1998	2003	2008
Location																
Urban	73.2%	74.4%	83.6%	96.4%	73.0%	76.4%	84.2%	91.8%	80.8%	81.9%	85.1%	94.1%	74.8%	49.5%	62.6%	78.4%
Rural	48.8%	51.2%	56.8%	87.7%	42.2%	61.0%	60.9%	74.1%	52.8%	67.6%	62.2%	76.2%	52.3%	38.3%	34.0%	63.8%
Region																
West	85.4%	83.7%	89.7%	97.2%	80.4%	86.7%	92.0%	93.4%	88.0%	89.2%	90.4%	95.8%	76.5%	50.3%	64.3%	79.3%
South	75.5%	73.6%	83.4%	95.9%	64.0%	69.3%	79.0%	90.1%	75.9%	84.2%	83.4%	90.5%	81.1%	56.8%	63.2%	75.5%
Central	59.4%	71.8%	82.1%	95.6%	64.2%	82.6%	90.1%	94.2%	72.2%	85.6%	91.0%	96.1%	64.9%	52.5%	59.7%	82.1%
North	63.1%	58.5%	82.5%	93.3%	66.8%	77.9%	87.3%	92.2%	71.6%	83.1%	81.6%	91.1%	62.5%	60.0%	60.5%	77.3%
East	35.1%	43.3%	54.1%	84.0%	30.3%	47.8%	54.1%	61.8%	41.4%	53.4%	57.1%	65.8%	41.6%	25.1%	35.3%	51.9%
Mother's education																
No education	36.9%	36.0%	45.0%	81.7%	32.2%	41.3%	42.7%	61.1%	42.7%	49.8%	47.1%	65.8%	47.8%	31.6%	22.5%	58.0%
Primary education	69.7%	70.1%	78.4%	94.1%	68.1%	75.9%	83.6%	89.3%	76.6%	82.3%	85.0%	91.2%	69.9%	45.1%	59.9%	75.5%
Secondary education or higher	89.9%	91.1%	96.2%	99.0%	86.5%	92.5%	94.6%	93.5%	93.5%	94.0%	91.6%	95.1%	81.9%	61.2%	65.3%	78.1%
Mother tongue																
Non-Turkish	39.0%	43.9%	53.2%	86.7%	27.7%	42.6%	50.0%	66.8%	39.3%	51.9%	53.9%	71.2%	37.3%	25.7%	33.1%	59.6%
Turkish	70.0%	75.9%	86.0%	96.4%	69.6%	83.4%	90.4%	94.0%	77.7%	87.9%	90.0%	95.4%	72.2%	53.6%	62.9%	79.3%
Asset quintile																
Asset quintile 1	36.1%	36.8%	44.9%	84.1%	33.0%	45.7%	50.4%	67.1%	43.1%	52.2%	53.0%	70.4%	48.0%	30.3%	29.0%	54.9%
Asset quintile 5	90.9%	94.8%	97.0%	99.0%	90.0%	95.1%	96.9%	92.4%	94.0%	93.2%	93.8%	94.6%	84.4%	70.4%	71.1%	79.0%
Mother's health insurance																
SIO	77.0%	83.1%	91.4%	97.0%	76.8%	85.5%	92.6%	92.3%	83.7%	89.5%	91.1%	93.8%	76.4%	55.1%	67.5%	78.7%
Green Card	29.7%	55.6%	56.6%	87.4%	37.8%	67.3%	63.0%	72.2%	56.8%	71.7%	63.0%	77.1%	20.0%	32.7%	38.8%	60.0%
None	52.8%	55.5%	64.3%	90.0%	47.7%	61.1%	64.7%	83.2%	57.9%	68.4%	68.8%	83.5%	56.2%	41.1%	42.5%	72.8%
Total	63.0%	66.1%	74.6%	93.4%	60.1%	70.9%	76.3%	85.7%	69.0%	76.8%	77.4%	88.0%	65.0%	45.3%	53.2%	73.7%

Data are authors' analysis of data from the Turkish Demographic and Health Survey 1993, 1998, 2003, and 2008 (references 12–15 in appendix and appendix pp 2–13). Sample consists of children younger than 5 years for the first three analyses, and children between 12 months old and 24 months of age for immunisation. A fully immunised child has received the following vaccines: BCG; diphtheria-tetanus-pertussis 1, 2, and 3; polio 1, 2, and 3; and measles. SIO=Social Insurance Organisation.

**Table 5: Use of health services analysed by location, region, socioeconomic groups, and health insurance (1993–2008)**

living in the east region or rural areas, those who do not speak Turkish as their mother tongue, and those women with no formal education, use of antenatal care increased substantially from 2003 to 2008 (table 5 and figure 13A).

#### Use of health services during birth

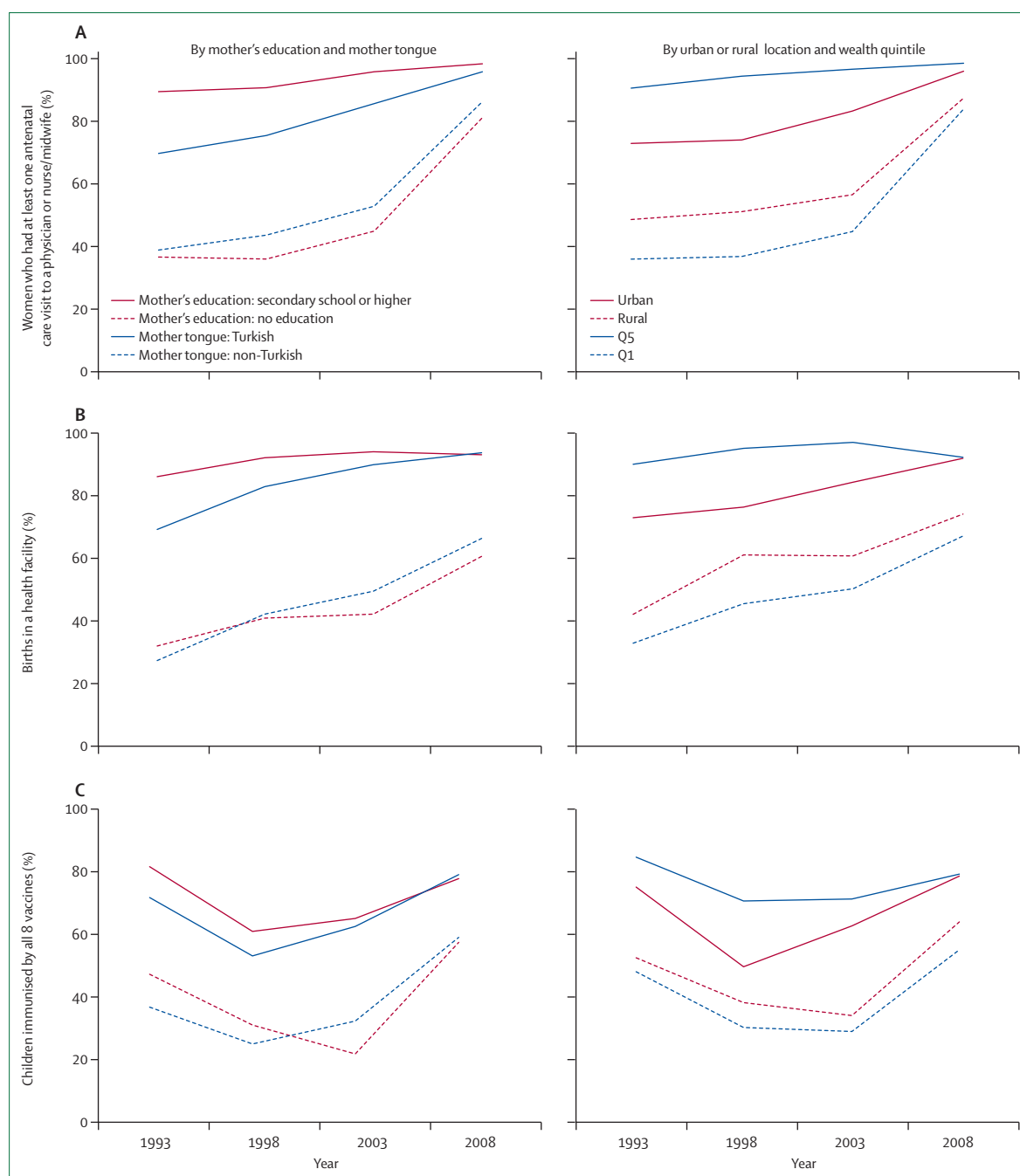
Analysis of health-care use during birth (defined as whether birth took place at a public or private hospital and whether it was attended by skilled health personnel—a doctor, midwife, or nurse) showed that the percentage of births taking place at a health facility increased from 60.1% in 1993 to 85.7% in 2008. Use of health services during birth increased most substantially for the poorest asset quintile and in rural or remote areas. In rural regions, the probability of delivering at a public or private health facility was 42.2% in 1993, increased to 61.0% in 1998, remained stable at that level in 2003, and then underwent a large increase to 74.1% in 2008. Similarly, for the poorest asset quintile, use of health facilities during birth increased from 33.1% in 1993 to 45.7% in 1998, with most of the improvement from 50.4% to 67.1% occurring between 2003 and 2008

(16.7 percentage points; see table 5 and figure 13B). In 1993, only 69% of births in Turkey were attended by skilled staff, but by 2008 this proportion had increased to 88%. For the poorest quintile, the probability of the birth being attended by skilled staff increased from 43.1% in 1993, to 70.4% in 2008, with the largest change (a 17.4 percentage point increase from 53.0%) between 2003 and 2008. Similar improvements were noted for mothers with no education and for those whose mother tongue was not Turkish (table 5 and figure 13B).

#### Childhood immunisations

The probability of having a complete set of childhood immunisations deteriorated in Turkey between 1993 and 1998 from 65.0% to 45.3%, and then improved to 53.2% in 2003, with a large increase to 73.7% in 2008. In rural areas, immunisation rates decreased through 2003, and then improved substantially from 34.0% coverage in 2003 to 63.8% in 2008 (table 5 and figure 13C).

From 2003, in the most disadvantaged and remote areas, we find a convergence in access to services across quintiles and across urban–rural regions. In addition to



**Figure 13: Access to maternal and child health services, 1993–2008**

(A) Antenatal visits (% of women who had at least one antenatal care visit to a physician or nurse/midwife). (B) Proportion of births in a health facility.

(C) Immunisation uptake. Data are authors' analysis of data from the Turkish Demographic and Health Survey 1993, 1998, 2003, and 2008 (references 12–15 in appendix and appendix pp 2–13).

poorer households, women living in the east region of Turkey, less well educated women, and women whose mother tongue is not Turkish (and these women's children) experienced substantial rises in use of maternal services and immunisation coverage (table 5 and figures 13A, 13B, and 13C).

#### Changes in under-5 mortality, infant mortality, and neonatal mortality

Improvements in equity of access to health services in Turkey have emulated the sharp and significant reductions in under-5, infant, and neonatal mortality. The under-5 mortality rate decreased from 52·7 per 1000 livebirths in

	Under-5 mortality per 1000 livebirths				Infant mortality per 1000 livebirths				Neonatal mortality per 1000 livebirths			
	1993	1998	2003	2008	1993	1998	2003	2008	1993	1998	2003	2008
Location												
Urban	44.4	38.5	26.9	18.0	40.3	34.4	22.8	16.3	27.0	23.7	15.5	13.3
Rural	63.9	62.3	45.8	20.7	58.9	52.8	38.9	17.4	27.3	30.0	20.7	13.2
Region												
West	43.3	33.1	27.6	11.7	40.8	30.7	21.2	9.4	29.3	27.2	14.8	8.6
South	52.3	38.2	23.7	22.1	48.3	29.0	23.7	22.1	26.8	16.8	16.9	18.1
Central	60.5	48.8	27.0	20.1	54.2	43.6	21.1	19.0	29.0	28.2	10.6	14.2
North	39.6	45.7	53.6	10.6	37.9	40.6	40.2	10.6	15.5	15.2	26.8	0.0
East	62.8	63.3	41.7	27.7	56.1	55.5	37.6	22.9	31.4	31.2	21.5	18.1
Mother's education												
No education	66.7	64.3	53.3	19.6	59.8	57.2	46.4	14.7	26.5	37.4	26.6	11.4
Primary education	55.3	46.4	29.5	18.7	50.9	39.8	24.3	17.1	31.8	23.2	14.6	14.4
Secondary education or higher	15.4	27.1	20.5	18.9	15.4	24.1	17.8	17.0	12.0	19.5	13.3	12.3
Mother tongue												
Non-Turkish	68.4	53.1	44.8	27.6	62.7	45.8	40.6	23.9	31.9	25.6	24.8	20.3
Turkish	47.9	44.4	27.0	15.0	43.8	39.0	21.6	13.4	25.7	26.1	13.2	10.2
Asset quintiles												
Asset quintile 1	84.5	67.8	47.8	23.6	74.9	56.3	39.8	20.5	31.7	26.4	16.7	14.4
Asset quintile 5	18.0	20.7	11.6	11.4	18.0	20.7	8.7	9.5	9.0	18.7	5.8	7.6
Mother's health insurance												
SIO	44.2	38.7	23.1	17.2	41.7	36.4	19.1	15.7	28.4	27.9	14.1	12.3
Green Card	27.0	70.1	49.8	26.3	27.0	60.7	41.7	22.8	27.0	28.0	20.2	18.3
None	60.2	51.6	36.7	14.9	54.0	43.3	31.7	11.6	26.3	25.3	18.6	10.0
Total	52.7	47.1	33.2	18.9	48.2	41.1	28.2	16.6	27.1	26.0	17.2	13.3

Data are authors' analysis of data from the Turkish Demographic and Health Survey 1993, 1998, 2003, and 2008 (references 12–15 in appendix and appendix pp 2–13). Sample consists of children who were born in the 5 years preceding the survey year. SIO=Social Insurance Organisation.

Table 6: Under-5 mortality, infant mortality, and neonatal mortality rates (1993–2008)

1993, to 18.9 in 2008. For the overall population, for the poorest quintile, and in rural or remote areas, the largest percentage point reductions in under-5 mortality rates occurred between 2003 and 2008 (table 6).

In 1993–2008, under-5 mortality in urban areas decreased from 44.4 per 1000 livebirths in 1993, to 18.0 in 2008. In rural areas, the fall was more notable, from 63.9 per 1000 livebirths in 1993, to 20.7 in 2008. In the richest quintile (quintile 5), the under-5 mortality rate fell from 18.0 per 1000 livebirths in 1993, to 11.4 in 2008, whereas that for the poorest quintile (quintile 1) decreased sharply from 84.5 per 1000 livebirths in 1993, to 23.6 in 2008. Between 1993 and 2008, and especially after 2003, the differences in under-5 mortality rates between rural and urban areas, between the poorest and the richest quintiles, and between women with no education and those with

secondary or higher education, narrowed substantially, with convergence to similar rates (figure 14).

The under-5 mortality rate in Turkey decreased in all Turkish Demographic and Health Survey regions. In the North region, the rates fell from 39.6 per 1000 livebirths in 1993, to 10.6 in 2008. In the East region, the mortality rate declined from 62.8 per 1000 livebirths in 1993, to 27.7 in 2008 (table 6).

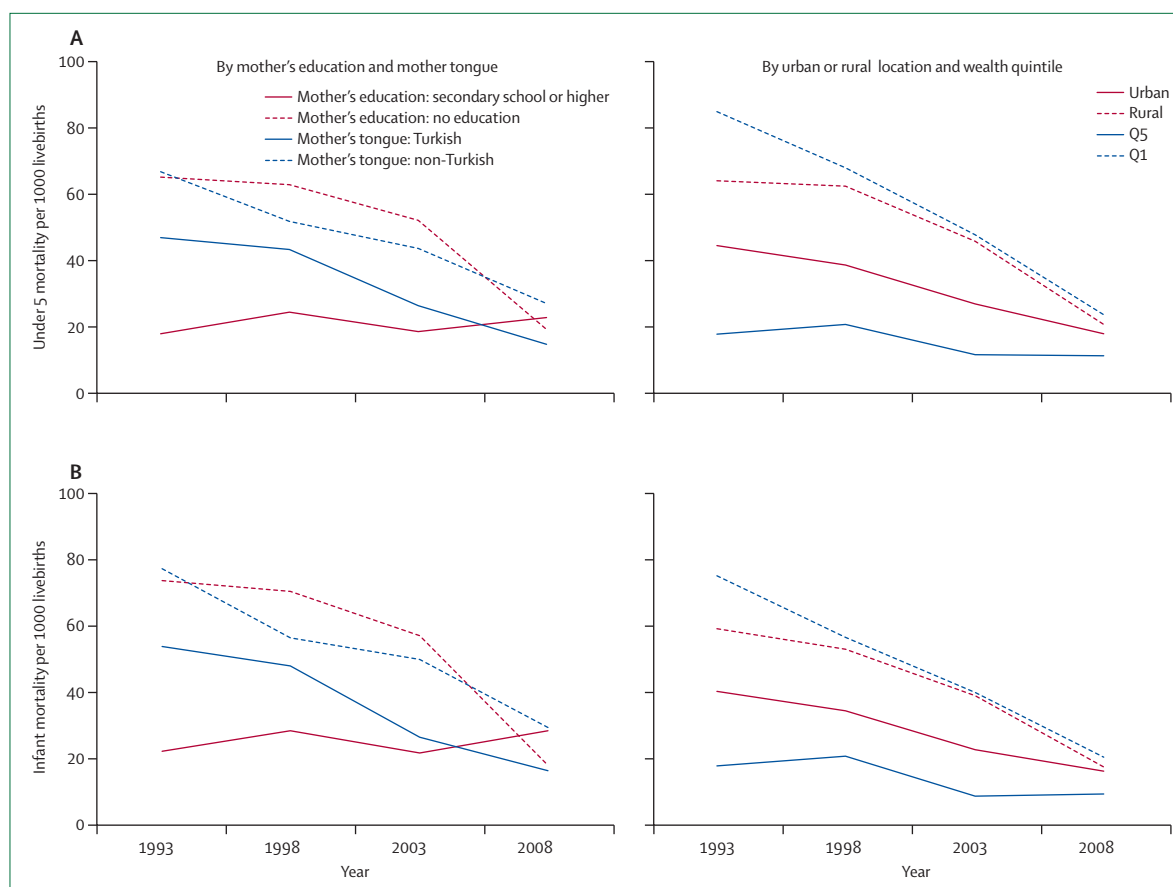
The reductions in infant mortality resembled those reported for under-5 mortality, falling from 48.2 per 1000 livebirths in 1993, to 16.6 in 2008. Between 1993 and 2008, and especially after 2003, the differences in infant mortality rates between rural and urban areas, between the poorest and the richest quintiles, and between women with no education and those with secondary or higher education narrowed substantially, with convergence to similar rates (figure 14).

Between 1993 and 2008, infant mortality rates fell in all of the five Turkish Demographic and Health Survey regions of West, Central, North, South, and East Turkey. The infant mortality rate fell in the West region from 40.8 per 1000 livebirths in 1993, to 9.4 in 2008. In the East region, the level decreased from 56.1 per 100 livebirths in 1993, to 22.9 in 2008. Similarly, from 1993 to 2008, the neonatal mortality rate fell from 27.1 per 1000 livebirths in 1993, to 13.3 in 2008. In the North region, the neonatal mortality rate fell from 15.5 per 1000 livebirths in 1993, to none in 2008. In the East region, the rate fell from 31.4 per 1000 livebirths in 1993, to 18.1 in 2008 (table 6).

#### Effect of household characteristics and health insurance on access to maternal and child health services, and on under-5 and infant mortality rates

To ascertain the effect of the HTP and UHC on access to maternal and child health services and on under-5 and infant mortality, we extended our analysis of the Demographic and Health Survey and ran a multivariate regression analysis, controlling for household socio-economic and geographic characteristics (such as rural vs urban location; region of Turkey; income quintile; education of mother; and whether mother tongue is Turkish or not) and access to health insurance at the household level, to see whether the links between household circumstances and use rates weakened over time. We would expect the effect of household characteristics to weaken over time and health insurance (Green Card coverage) to increase if access to insurance affected access to services. We ran this multivariate regression analysis for four cross-sections of the Demographic and Health Survey data in 1993, 1998, 2003, and 2008 (see table 7).

Table 7 shows that the most disadvantaged group of children (represented by the constant term in the regression) had a baseline probability of being born out of pregnancies where the mother received antenatal care 16.1% of the time, and this value increased for this group of children to 74.9% by 2008, up from 25.4%



**Figure 14: Under-5 mortality and infant mortality, 1993–2008**

(A) Under-5 mortality rates per 1000 livebirths. (B) Infant mortality rates per 1000 livebirths. Data are authors' analysis of data from the Turkish Demographic and Health Survey 1993, 1998, 2003, and 2008 (references 12–15 in appendix and appendix pp 2–13).

probability only 5 years previously in 2003. In the regressions, being in eastern Turkey is an omitted reference category: a child born in western Turkey was 25.9 percentage points more likely than a child in eastern Turkey to have been in a pregnancy in which the mother received antenatal care in 1993. By 2008, a child in western Turkey was only 4.4 percentage points more likely to have been in a pregnancy where the mother received antenatal care than a child in eastern Turkey. A mother's amount of education was one of the most important determinants of reception of antenatal care in earlier years: for example, a woman who had a secondary school education or higher education degree was 20.7 percentage points more likely in 1993, and 20.3 percentage points more likely in 2003, to have received antenatal care than a woman with no formal education. However, in 2008, the association between a woman's educational attainment and her probability of receiving antenatal care was much weaker, with women with secondary school or higher education degrees being only 7.6 percentage points more likely to have received antenatal care than was a woman with no formal education in 2008.

Similarly, the association between poverty status (proxied in this case by being in the poorest asset quintile in the Demographic and Health Survey data), and antenatal care use also weakened in 2008. A child born into a household in the top quintile was 26.1 percentage points more likely to be born out of a pregnancy where the mother received antenatal care in 1993 than was a child in the poorest quintile. This association remained strong and positive until 2003. In 2003, the coefficient in the regression for being in the top quintile was 25.3 (ie, a child in the top quintile was 25.3 percentage points more likely to have received antenatal care than was a child in the bottom quintile in 2003). However, the coefficient for being in the top quintile declined to 9.0 in 2008.

We found similar results for the health-care use variables during birth (table 7). In 1993, for the most disadvantaged group of children (ie, those without health insurance and living in rural areas of eastern Turkey in households in the poorest asset quintile, whose mothers do not speak Turkish as mother tongue or had no formal education), the probability of being born in a private or public health facility was not statistically significantly

	Antenatal visit attended by health staff				Delivery in a health facility				Immunisation uptake (all)			
	1993	1998	2003	2008	1993	1998	2003	2008	1993	1998	2003	2008
Constant (average for omitted category)	0.161*	0.150*	0.254*	0.749*	0.027	0.214*	0.243*	0.500*	0.216*	0.165*	0.057	0.399*
Location												
Rural	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Urban	0.044†	0.044†	0.096*	NS	0.149*	0.050*	0.099*	0.052*	0.108*	0.015	0.153*	NS
Region												
East	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
West	0.259*	0.177*	0.088*	0.044*	0.180*	0.121*	0.085*	0.055*	0.128†	0.072	0.057	0.138*
South	0.241*	0.157*	0.118*	0.061*	0.114*	NS	0.040†	0.067*	0.226*	0.238*	0.128†	0.137†
Central	0.086*	0.108*	0.058*	0.034*	0.122*	0.113*	0.078*	0.046*	NS	0.167*	0.080	0.124†
North	0.144*	0.090*	0.057*	0.041*	0.187*	0.136*	0.072*	0.059*	NS	0.183†	0.097	0.117‡
Mother's education												
No formal education	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Primary education	0.143*	0.177*	0.149*	0.053*	0.137*	0.121*	0.191*	0.115*	NS	NS	0.216*	0.092‡
Secondary education or higher	0.207*	0.247*	0.203*	0.076*	0.155*	0.186*	0.191*	0.112*	NS	NS	0.192*	NS
Mother tongue												
Non-Turkish	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Turkish	NS	0.051†	0.074*	NS	0.154*	0.206*	0.172*	0.138*	0.188*	0.160*	0.056	0.024
Welfare indicator												
Asset quintile 1	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Asset quintile 2	0.097*	0.125*	0.169*	0.065*	0.066*	0.108*	0.087*	0.111*	NS	0.028	0.074	0.095‡
Asset quintile 3	0.191*	0.244*	0.228*	0.105*	0.148*	0.169*	0.142*	0.117*	NS	0.172*	0.088	0.189*
Asset quintile 4	0.258*	0.268*	0.254*	0.088*	0.216*	0.183*	0.153*	0.104*	0.117‡	0.201*	0.154*	0.171†
Asset quintile 5	0.261*	0.309*	0.252*	0.088*	0.219*	0.200*	0.154*	0.059†	0.127‡	0.336*	0.192*	NS
R <sup>2</sup>	0.246	0.274	0.298	0.085	0.277	0.276	0.319	0.192	0.166	0.136	0.213	0.092
Observations	3516	3392	4331	3747	3516	3392	4331	3747	710	699	802	802

Data are authors' analysis of data from the Turkish Demographic and Health Survey 1993, 1998, 2003, and 2008 (references 12–15 in appendix and appendix pp 2–13). Dependent variables are binary values, taking a value of 1 if the incident has been realised, and 0 if the incident has not been realised. Reference categories are having no insurance, rural location, east region, mother has no education, non-Turkish mother tongue, and asset quintile 1. Sample consists of children younger than 5 years for the first three analyses, and children between 12 months old and 24 months of age for immunisation. A fully immunised child has received the following vaccines: BCG; diphtheria-tetanus-pertussis 1, 2, and 3; polio 1, 2, and 3; and measles. The regression analysis controls for health insurance status of the household. NS=non-significant (coefficient is not significantly different from 0 for that year). \*p<0.01. †p<0.05. ‡p<0.1.

**Table 7: Use of maternal and child health-care services—multivariate regression analysis results (linear probability model)**

different from zero. However, by 2008, this probability for this most disadvantaged group of children rose to 50%. Again, we found that the partial correlation coefficient on being in western Turkey, in urban areas, and in the richest asset quintile all fell over time. In 2008, a child in the richest asset quintile was only 5.9 percentage points more likely to be born in a health facility than was a child in the poorest quintile, whereas only 5 years previously, this value was 15.4 percentage points (table 7).

The probability of being born with the attendance of skilled health staff also improved over time. Overall, we found that for all variables for use of health services during pregnancy and birth, the association between the circumstances into which children were born became delinked from actual use of services over time as a result of services becoming more widely available to children and households, irrespective of assets and location (table 7). Appendix p 19 reports the results of the linear probability model regression analysis in detail,

For a robustness check, we also ran the same regression analysis with a logistic regression functional form and estimated odds ratios for various population categories (eg, rural/urban, education level, welfare indicator) using services. The odds ratios were similar to those in the linear probability model. In the logistic regression, we omitted the most advantaged group from the regression and compared the odds ratio of the disadvantaged groups with this advantaged reference group. Consistent with the findings in the linear probability model, we found that rural households had increasing odds of using health facilities over time (especially between 2003 and 2008). Similarly, women with low amounts of education (no formal education) had increased odds of delivering at a health facility or their births being attended by trained staff as time progressed. For example, in 1993, a woman with no formal education had odds of 0.317 for her delivery being attended by trained staff compared with a woman

	Under-5 mortality				Infant mortality			
	1993	1998	2003	2008	1993	1998	2003	2008
Constant (average for omitted categories)	0.089*	0.085*	0.058*	0.037*	0.081*	0.072*	0.050*	0.032*
Health insurance								
No insurance	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Social Insurance Organisation	NS	NS	NS	NS	NS	NS	-0.001	NS
Green Card	NS	NS	0.021†	NS	NS	NS	0.018‡	NS
Private	NS	NS	NS	-0.025*	NS	NS	NS	-0.022*
Location								
Rural	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Urban	NS	NS	NS	NS	NS	NS	NS	NS
Region								
East	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
West	NS	-0.025‡	NS	NS	NS	NS	NS	NS
South	NS	-0.023‡	NS	NS	NS	-0.025†	NS	NS
Central	NS	NS	NS	NS	NS	NS	NS	NS
North	NS	-0.028‡	NS	NS	NS	-0.023‡	NS	NS
Mother's education								
No formal education	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Primary education	NS	-0.024‡	-0.020†	NS	NS	-0.026†	-0.016‡	NS
Secondary education or higher	-0.023‡	-0.028‡	-0.024†	NS	NS	-0.030†	-0.018‡	NS
Mother tongue								
Non-Turkish	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Turkish	NS	0.021‡	NS	NS	NS	0.021‡	NS	NS
Welfare indicator								
Asset quintile 1	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Asset quintile 2	-0.039*	NS	NS	NS	-0.034*	NS	NS	NS
Asset quintile 3	-0.031†	NS	NS	NS	-0.024‡	NS	NS	NS
Asset quintile 4	-0.048*	NS	NS	NS	-0.043*	NS	NS	NS
Asset quintile 5	-0.056*	-0.028‡	-0.020†	NS	-0.048*	NS	-0.017†	NS
Observations	3638	3474	4483	3852	3638	3474	4483	3852
R <sup>2</sup>	0.013	0.010	0.011	0.003	0.011	0.009	0.010	0.003

Data are authors' analysis of data from the Turkish Demographic and Health Survey 1993, 1998, 2003, and 2008 (references 12–15 in appendix and appendix pp 2–13). Dependent variables are binary values, taking a value of 1 if the incident has been realised, and 0 if the incident has not been realised. Reference categories are having no health insurance, rural location, east region, mother has no education, non-Turkish mother tongue, and asset quintile 1. Sample consists of children who were born in the 5 years preceding the survey year. NS=non-significant (coefficient is not significantly different from zero for that year). \*p<0.01. †p<0.05. ‡p<0.1.

**Table 8: Under-5 mortality and infant mortality—multivariate regression analysis results (linear probability model)**

with a secondary school or higher education degree. These odds increased to 0.709 by 2008 in comparison to the more educated group. Similarly, for immunisations, we found that in rural areas and among non-Turkish speaking mothers, the odds of completing immunisations were 0.584 and 0.432 in 1993, which increased by 2008 to a level that was not significantly different from 1. Thus, by 2008, the odds of these disadvantaged groups receiving a full set of immunisations were on a par with the advantaged groups in the sample (see appendix p 20 for logistic regression analysis results and odds ratios).

The multivariate regression analysis results, controlling for household characteristics and estimating the probability of under-5 and infant mortality for cross-sections of data in 1993, 1998, 2003, and 2008, show that

none of the child circumstance variables (except for having access to private health insurance) were significantly correlated with low mortality rates in 2008. Although in 1993, and even in 2003, the mother's educational attainment and the asset quintile of the household were significant determinants of under-5 and infant mortality (with a child in the top quintile and born to a mother with secondary school or university degree being 7.9 percentage points less likely to die before the age of 5 years in 1993), we found that the association between these variables and child mortality was reduced to practically zero by 2008. The results of the multivariate regression analysis with the linear probability model are reported in table 8 and in appendix pp 21–22. As a robustness check, we undertook logistic regression analysis and report findings as odds ratios in appendix pp 23–24.

	Antenatal visit	Delivery in a health facility	Delivery attended by trained staff	Immunisation uptake (all)	Under-5 mortality	Infant mortality
Year effects (supply side)						
1993	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
1998	0.011	0.134*	0.103*	-0.160*	-0.005	-0.008
2003	0.108*	0.181*	0.117*	-0.104*	-0.022*	-0.021*
2008	0.355*	0.325*	0.235*	0.092‡	-0.030*	-0.028*
Health insurance (demand side)						
No insurance	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Green Card (in 1993)	-0.106	-0.015	0.099	-0.375†	-0.041	-0.034
Interaction between Green Card and year						
Green Card in 1998	0.193†	0.133	0.001	0.361†	0.045	0.042
Green Card in 2003	0.125‡	0.117	-0.039	0.364†	0.061†	0.051‡
Green Card in 2008	0.215*	0.092	-0.001	0.442†	0.028	0.022
Household characteristics	Included	Included	Included	Included	Included	Included
Observations	8302	8302	8302	1610	8583	8583
R <sup>2</sup>	0.237	0.255	0.240	0.165	0.011	0.010

Data are authors' analysis of data from the Turkish Demographic and Health Survey 1993, 1998, 2003, and 2008 (references 12–15 in appendix and appendix pp 2–13). Dependent variables are binary values, taking a value of 1 if the incident has been realised, and 0 if the incident has not been realised. Other independent variables included in the regression but not shown here are: location, region (five levels), mother's education (three levels), mother tongue, asset quintiles (five levels), and constant term. Samples for the first three dependent variables consist of children younger than 5 years. Sample consists of children who were born in the past 5 years for mortality calculations, and children between 12 months and 24 months of age for immunisation. A fully immunised child has received the following vaccines: BCG; diphtheria–tetanus–pertussis 1, 2, and 3; polio 1, 2, and 3; and measles.\*  $p < 0.01$ . †  $p < 0.05$ . ‡  $p < 0.1$ .

**Table 9: Effect of universal health coverage and Health Transformation Program on service use, under-5 mortality, and infant mortality—pooled differences in differences (linear probability model) regression analysis results**

### Effect of UHC and the HTP on access to maternal and child health services, under-5 mortality, and infant mortality

Comprehensive supply-side and demand-side interventions were introduced by the HTP to achieve UHC. On the demand side, the Green Card scheme successfully targeted non-contributory health insurance programmes, increased access to health insurance for the poorest deciles, expanded benefits, and reduced cost-sharing. Expansion of the primary health care and hospital services across the country improved access to health services for insured citizens.

Through difference-in-differences estimation with pooled cross-sections of the Turkey Demographic Health Survey data, we assessed the relative importance of the demand-side and supply-side interventions included in the HTP on the use of maternal and child health services, under-5 mortality, and infant mortality, which we have used as tracers for health system performance. The supply-side effects of the HTP were classified in regressions as the year effect for 2008 (web appendix pp 2–13).

#### Supply-side effects

For all maternal health service use variables, we show strong and significant year effects for 2008 (table 9). When all household characteristics are controlled for, a

child whose information was collected in 2008 was 36.1 percentage points more likely to have their mother receive antenatal care during pregnancy than was a child in 1993. The child was 33 percentage points more likely to be born in a health facility, and 24 percentage points more likely to have had their birth attended by skilled health-care personnel than a child whose data were collected in 1993. Although the year effects for 1998 and 2003 were also significant for these variables, compared with the baseline year of 1993, the correlation coefficient for being born in 2008 showed the largest increase.

For immunisation coverage, under-5 mortality, and infant mortality rates, we also found significant year effects in 2008. In fact, because of deteriorations in immunisation outcomes during 1998 and 2003, negative correlation coefficients were associated with these years for immunisation uptake, whereas that for 2008 was positive. A child whose data were collected in 2008 was 10 percentage points more likely to have a complete set of immunisations at 1 year of age than a child whose data were collected in 1993, when all other child and household characteristics are controlled for. This child was also 2.9 percentage points less likely to die before the age of 1 year, and 3.2 percentage points less likely to die before the age of 5 years (table 9).

#### Demand-side effects

The interaction between the Green Card and the 2008 year variable was significant for antenatal care use and for immunisations (table 9). This finding suggests that in the presence of Green Card, and in 2008 after the expansion of health services, households were even more likely to benefit from maternal and child health services.

When we used multivariate analysis to assess the effect of the Green Card scheme alone, back in the baseline year of 1993, we found that the effect of the scheme alone was insignificant on many of these outcomes and use indicators (tables 8 and 9). For immunisations, we even found a negative correlation coefficient. Hence, although an effect on use was likely because of improved access through the demand side—through the Green Card scheme—this effect was stronger in the presence of supply-side interventions, for which we found the most significant coefficients on the Green Card, in its interaction with the 2008 year variable, after the service expansion introduced by the HTP (table 9).

#### The effect of UHC and the HTP on user satisfaction

Our analysis of annual life satisfaction surveys undertaken by the Turkish Statistical Institute showed that from 2003 (when the surveys began), user satisfaction with health services increased substantially. In 2003, only 39.5% of the population was satisfied with health services, whereas by 2011 this proportion had increased to 75.9%.

Increase in satisfaction with health services outstripped increases in satisfaction for public services related to social insurance, education, legal and judiciary, and public

security and order. Whereas in 2003 the population was least satisfied with health services compared with other public services, by 2011 the amount of satisfaction with health services had increased the most (36·4 percentage points) as compared with social insurance (21·4 percentage points), education (15·5 percentage points), legal and judiciary (–6·8 percentage points), and public security and order (21·5 percentage points). By 2011, health services had reached similar satisfaction levels to services for public and security order, for which satisfaction was the highest (figure 15).

## Discussion

The HTP accelerated six decades of efforts in Turkey to achieve UHC. With sustained leadership from a committed transformation team, Turkey successfully introduced changes in key health system functions of organisation and governance, financing, resource management, and service delivery. These changes helped to address three major problems faced by the Turkish health system: inadequate and inequitable health financing; inadequate and inequitably distributed health infrastructure and health human resources (and consequent inequalities in health service access); and inequities in health outcomes.

Our analysis shows that UHC, underpinned by the HTP, expanded health insurance coverage, especially for the poorest population decile, and provided financial risk protection. UHC has led to substantial improvements in use of key maternal and child health services, especially for the most disadvantaged population groups, and has helped to reduce under-5, infant, and neonatal mortality, especially in socioeconomically disadvantaged households. New Ministry of Health data suggest that the improvements shown in the analysis of the Demographic and Health Survey for improved service access, and under-5, infant, and neonatal mortality, have continued beyond 2008.<sup>17</sup> The Ministry of Health is planning a new Demographic and Health Survey study in 2013 to quantify the improvements between 2003 and 2013 (ie, when the HTP was implemented).

The case of Turkey clearly shows the effectiveness of UHC as a platform to achieve health system goals and improve equity. Our results suggest that UHC had quantifiable and beneficial effects on all health system goals: improved level and distribution of health, fairness in financing with better financial protection, and increased user satisfaction. Since 2003, population satisfaction with the health services has increased steadily, and has outstripped that for all other public services. These achievements were possible because of simultaneous improvements in both the demand side (increased health insurance coverage, expanded benefits, and reduced cost-sharing) and the supply side (expansion of infrastructure, health human resources, and health services—with more free health-care services, especially those that are likely to trigger catastrophic expenditures).

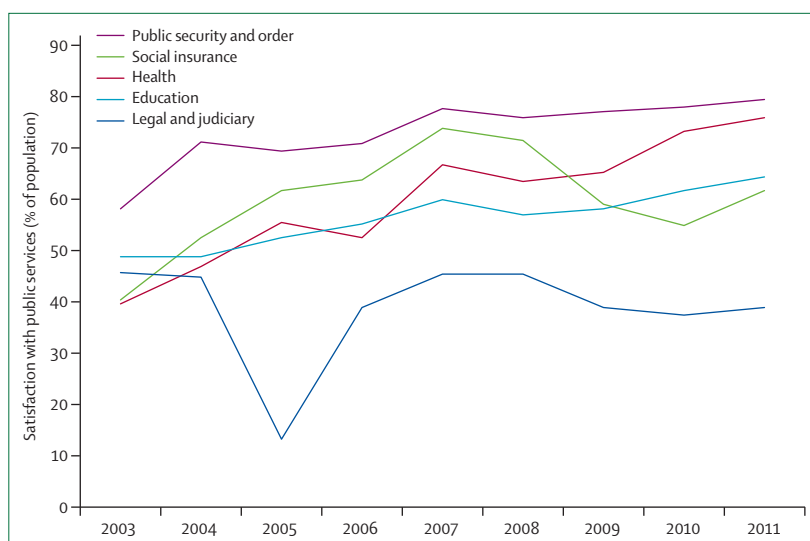


Figure 15: Satisfaction with health services and other public services in Turkey, 2003–11  
Data taken from reference 24.

## Key achievements of the HTP

### Organisation and governance

Structural changes introduced in 2003–10 enabled the separation of stewardship, financing, and service provision roles within the Turkish health system, with the Ministry of Health undertaking stewardship duties, and focusing on policy and strategy development, for which new directorates were established. Health service-related operational and supervisory roles were delegated to new quasi-public agencies charged to oversee delivery of public health and personal health services, and the pharmaceutical and medical devices sectors. The newly established Social Security Institution has assumed financial pooling (of funds from health insurance contributions and the government budget) and strategic purchasing functions, with a focus on improving the quality and efficiency of the services contracted from both private and public sector health-care providers. New laws and mechanisms have increased empowerment of citizens in relation to health service providers, with clear articulation of rights to health insurance and services and what citizens should expect from the health system.

### Health system financing

The fiscal space created by sustained economic growth in Turkey enabled the government to substantially increase health expenditures. From 2003, total health expenditures as a proportion of GDP increased from 5·3% to reach 6·1% in 2008, with almost three-quarters of this amount coming from the public sector. Private sector investment in the health sector also rose. Furthermore, the fragmented and inequitable health insurance system, which consisted of five insurance schemes each with different benefits, was consolidated

to establish a unified general health insurance scheme with harmonised benefits.

In addition to these improvements, perhaps the most notable achievement of the financial reforms was the rapid expansion of the Green Card scheme and its establishment as an insurance mechanism. The number of people enrolled in the scheme rose from 2·4 million in 2003, to 10·2 million in 2011. Targeting of the Green Card scheme to cover the poorest groups of the population also improved. By 2011, roughly 85% of the poorest decile was covered by the Green Card or another insurance scheme, and 96% of the wealthiest deciles were covered by contributory insurance. Patient cost-sharing for health services was reduced for insurance beneficiaries, with expansion of free health-care services, especially for complex interventions likely to cause catastrophic expenditures, such as intensive care, cardiovascular surgery, renal dialysis, and cancer care. Consequently, out-of-pocket expenditures generally did not rise and catastrophic expenditures decreased.

#### *Human resources and service delivery*

The number of health staff almost doubled with the HTP, which enabled expansion of health system capacity. Increased university intake of medical and nursing students and other health professions, raised salaries, performance incentives, new contracting mechanisms for health human resources, and outsourcing of health services underpinned this expansion. The compulsory service for newly qualified doctors and specialists, and the elimination of dual practice among hospital physicians helped to address staff shortages in the public sector and expand capacity of clinical services in hospitals. Regulations, which moderated private sector capacity and growth, ensured public sector staffing needs were met.

The doubling of the number of health human resources in 2002–12 was accompanied by improved service access across the country, especially in eastern Turkey. By 2010, almost 20 000 family medicine teams were established to scale up family medicine-centred primary health care in 81 provinces, to offer a wider range of services than was previously possible. Both public and private organisations now provide health services for Social Security Institution beneficiaries, with better use of the available capacity and resources in the country. Maternal and child health services, including neonatal intensive care, emergency services, air ambulance, and transfusion services, were expanded to further reduce maternal and neonatal mortality.

Our findings suggest that in 2003–08, the simultaneous introduction of comprehensive demand-side (health insurance) and supply-side (human resources and service delivery) changes were more instrumental than socioeconomic and cultural determinants in improving service access and reducing under-5 and infant mortality rates. With the HTP, population coverage of health

insurance rose, health benefits for insured people expanded, and out-of-pocket expenditures fell. The uptake of key health services by poorer population segments, and previously underserved populations in eastern and rural areas of Turkey, rose substantially.

#### **Challenges and opportunities for Turkey in further expansion and maintenance of UHC**

Many goals have been achieved during the HTP to reach UHC, but much remains to be done to reinforce the gains and sustain UHC underpinned by an equitable, efficient, effective, and responsive health system. A focus on sustainability is crucial, as Turkey and the world follow a post-Millennium Development Goal agenda that emphasises sustainable development.<sup>75</sup>

We have focused on maternal and child health services as tracers to measure the success of the HTP and UHC. These areas, which were a priority for the HTP, had the largest inequities and underachievement, but also had the most reliable data over time. This focus is also an important limitation of our analysis. Data weaknesses in relation to chronic diseases and services for them have hindered systematic analysis of changes in relation to diseases such as diabetes mellitus, hypertension, heart disease, mental illness, and cancers. As is the case for other middle-income countries, chronic illnesses pose a major future challenge for Turkey that needs to be comprehensively addressed in the next phase of UHC.

#### *Upkeep of health insurance coverage and benefits*

With the HTP, health insurance coverage in Turkey expanded rapidly. Whereas in 2003 only 24% of the poorest decile was covered by health insurance, by 2011 this proportion had increased to 85%. For the richest decile, health insurance coverage has increased from 90% in 2003, to 96% in 2011. Further expansion has occurred since, but efforts need to be intensified to expand coverage to 100% (for both the Green Card scheme and obligatory insurance). However, as UHC reaches 100% population coverage, appropriate regulatory systems will be necessary to clarify the role of voluntary and additional health insurance.

Turkey has effectively introduced UHC to address unmet need and reduce inequities, especially in relation to maternal and child health. The future scope and scale of UHC need to be aligned with changing health needs, since chronic illnesses, especially diabetes mellitus, cancer, and mental illness, are increasing. As the steward of the health system, the Ministry of Health needs to set clear strategic priorities, with transparent mechanisms to efficiently allocate resources to cost-effective interventions to meet emerging challenges. The newly created Ministry of Health directorates, with responsibility for generation of intelligence and for formulation of strategic policy direction, are well positioned to identify emerging needs and set priorities in line with international best practice. Useful lessons

can be learned from international experience—for example, from the National Institute for Health and Care Excellence in the UK, which has successfully extended its role beyond health technology assessment to the development of effective guidelines for health and social care.<sup>76</sup>

### **The unfinished equity agenda**

The HTP emphasised citizens' rights to health, social justice, and equity, and reduced stark inequalities between the east and west, the poor and rich, uneducated and educated, and rural and urban populations. However, despite improvements in access to women's health services and maternal mortality ratios, women still face inequalities in other sociocultural aspects of life.<sup>77</sup>

In relation to women's health and gender, Turkey ranks below what should be achieved in view of its degree of socioeconomic development. Future efforts should prioritise women, especially women's education, health literacy, reproductive health rights, social empowerment, and labour participation. Unacceptable violence against women must be stopped. Emerging risk factors related to obesity, heart disease, and women's cancers should be government priorities. The development of the National Action Plan—Gender Equality 2008–13 is an important step in relation to efforts aimed at further improving women's health and reducing gender inequalities.<sup>78</sup>

### *Quality and safety*

The next phase of UHC needs to focus on quality and safety in health care, with use of the regulatory powers of the Ministry of Health and the strategic purchasing power of the Social Security Institution. Both organisations should establish clear quality parameters and undertake transparent benchmarking of health-care providers across the country. Information about the quality of services provided by health-care institutions should be made publicly available by the Social Security Institution, which contracts with these providers and has data for services purchased. Benchmarking and public provision of information about the quality of health services will empower citizens and help to increase accountability of health-care providers. Initiatives by the Ministry of Health that began in 2012 to improve the clinical quality of health-care services, including those for chronic illnesses, are an important step in this direction.

### *Revival of public health and the health system to manage chronic diseases*

Turkey has achieved substantial improvements in maternal and child health and communicable diseases, but the Global Burden of Disease 2010 analysis suggests that the country faces an emerging burden of chronic illnesses, which in disability-adjusted life-year terms has increased by more than 50% between 1990 and 2010. Ischaemic heart disease, cerebrovascular disease, major depressive illness, and cancers account for the top

disease types by disability-adjusted life-years. The burden of cancers, mental illness, diabetes mellitus, and musculoskeletal disorders is increasing rapidly. Dietary risk factors, smoking, high body-mass index, high blood pressure, physical inactivity, high fasting plasma glucose, ambient pollution, and high total cholesterol—which contribute variously to cardiac disease, circulatory and respiratory illnesses, and cancer—were the major risk factors accounting for most of the disease burden in 2010.<sup>79</sup> These interacting risks and chronic diseases will bring multimorbidity that needs to be managed in new ways that focus on wellness, risk identification, and mitigation, and primary health care-based long-term prevention, treatment, and care.<sup>80</sup>

An efficient health system is crucial to sustain UHC as Turkey goes through this epidemiological transition with a rising burden of chronic illnesses, disability, and risks of illnesses. To effectively manage future health risks and chronicity, Turkey needs to strengthen its primary health-care system further. Additional investments are needed to increase the number of family physicians and nurses, develop the skill set of staff, and improve the physical and technical resources within primary health care to establish a comprehensive system that provides high-quality services with well-functioning referral and counter-referral systems. In particular, Turkey needs to expand access to community-based prevention and screening programmes for breast and cervical cancer; for chronic illnesses (eg, hypertension, heart disease, diabetes mellitus, and mental illness); and for physical, nutritional, and metabolic risk factors.

To monitor emerging risks for non-communicable diseases, Turkey should consider investment in population data systems. In addition to profiling biological risks, Turkey should develop systems to better measure and manage physical and environmental risks that affect progression of chronic diseases. The high availability of mobile telephone and internet technologies in the country offers opportunities to efficiently capture individual data for prevention, risk modification, and self-management of chronic illnesses.<sup>81–83</sup>

### *Expansion of fiscal space to continue investments in health*

The political and economic stability achieved by Turkey since 2002 looks likely to continue in the near future. Thus far, Turkey has successfully withstood the global economic crisis and has continued to achieve healthy economic growth, which has provided the necessary fiscal space to increase health expenditures, which rose rapidly from 5·4% of GDP in 2000, to 6·7% in 2009, and stabilised thereafter at 6·7% in 2010 and 2011.<sup>84</sup> However, instability in neighbouring Middle East countries is worrying. Combined with the global economic crisis, especially in Europe, the risk of economic volatility is real. Sustained investment in the health sector will need maintenance of government tax and the revenue base. Further tax increases for tobacco and alcohol products,

which have adverse health effects and whose consumption is highly sensitive to price increases, could provide additional revenues for increased investments in the health sector.<sup>85</sup>

#### *Management of public expectations*

The transformation in the health system and advances in citizens' rights have increased public expectations, which will probably rise further with increased health literacy and availability of information. In addition to effective regulation to ensure safety and quality of services, the public will probably expect greater transparency and responsiveness from the government, the Ministry of Health, Social Security Institution, health-care providers, and the new agencies involved in the health sector.

Improvements in accountability, a core stewardship responsibility, should be a priority for the Ministry of Health, which needs to ensure independence, objectivity, and transparency, perhaps through the establishment of an independent agency for accountability and responsiveness, which could be based on new effective models such as the Independent Expert Review Group on Information and Accountability for Women's and Children's Health<sup>86</sup> and the Office for Budget Responsibility in the UK.<sup>87</sup>

#### *Cultivation of the health workforce*

The HTP achieved rapid expansion of the health workforce, with the introduction of contracting, new employment conditions, and outsourcing. The full-time work regulation eliminated dual practice and expanded public sector capacity to benefit patients, but increased the workload for clinicians in hospitals. Investments are now needed to expand opportunities for professional development and research, to create a committed and well-trained health workforce, especially in the public sector that provides almost 83% of all health services in Turkey.

Although the HTP is supported by most of the health workforce, the Turkish Medical Association has opposed many of the changes introduced. Although the association is a long-time opponent of private practice in the Turkish health system, contrary to this position it also expressed opposition to the changes to dual practice, which introduced full-time work and abolished private practice. They also asked for a reversal of several changes introduced by the HTP—specifically, for the Ministry of Health to provide doctors employed in the public sector with higher fixed salaries without performance-related pay, guaranteed employment, a national health system paid for by general taxation and not health insurance, and free health care at the point of delivery. The Ministry of Health's attempts to include the Turkish Medical Association in policy dialogues and stakeholder meetings have not always been successful, but this organisation's opposition has not hindered the transformation process.

#### **Turkey's role in global health**

With sustained economic growth since 2003, in 2012 Turkey emerged as the 17th largest economy (in nominal GDP terms) in the world.<sup>88</sup> Turkey is now a member of the Group of 20 (G20) and E7 countries. To achieve the ambition of becoming the tenth largest economy in the world and to remain competitive as a top-tier economy, Turkey needs to develop a knowledge-based economy that fosters innovation, knowledge creation, and knowledge translation.

#### *A health system for innovation*

Like other industrialised countries that have undergone economic transformation, Turkey is transitioning from an agricultural-intensive agrarian economy and labour-intensive manufacturing economy to a knowledge economy that relies on innovation and clusters of knowledge to create industries.<sup>89</sup> During this transition, the health sector, which accounts for an increasing proportion of the GDP and a large share of the government budget, needs to be reconceptualised as a dynamic sector that creates economic development and wealth for Turkey, and is not just an expenditure that brings benefits of improved health, financial risk protection, and user satisfaction.<sup>90–92</sup> Transition from a delivery-oriented health system to a health sector that is a dynamic driver of economic growth needs investment in research, development, and innovation.<sup>93</sup> To create an environment that fosters innovation and knowledge generation, Turkey will need to increase investments in the life sciences sector, especially to build a substantial research infrastructure by bringing together the life sciences industry, universities, and the Turkish health system.<sup>94,95</sup>

Investments in life sciences need to be combined with efforts to raise the profile of research and development among health staff and create incentives for them to engage in such research. Establishment of an innovative and globally competitive pharmaceutical industry will need substantial investment to develop scientific know-how. In view of Turkey's strong manufacturing and service industries, initial health research and development efforts in the country could target innovations in health service delivery and medical technologies to develop low-cost and effective innovations in health-care delivery.

Turkey is well positioned to develop cross-border health (health tourism) because of its geographical location, strong hotel and service industry, new investments in the health sector, and growing private sector. Turkey has already established a presence in cross-border health with a Ministry of Health directorate, which has a target of 500 000 patients by 2015, and \$7 billion in revenues. To encourage health tourism, the government has decided to establish free trade areas that provide tax and research and development incentives.<sup>96</sup>

### *A leading role in global health*

In view of Turkey's success in introducing UHC, and the country's early experience in international health, as a G20 member and an E7 country, Turkey has the opportunity to assume a new role in global health, particularly in relation to development, diplomacy, and security. Since 1992, the Ministry of Health, through the Turkish Cooperation and Coordination Agency Presidency within Prime Minister's Office,<sup>97</sup> has actively engaged in technical and financial cooperation with countries in the Balkans (Bosnia and Herzegovina, and Kosovo), Central Asia (Azerbaijan, Kyrgyzstan, Kazakhstan, Turkmenistan, Uzbekistan, Afghanistan, and Tajikistan), the Middle East (West Bank and the Gaza Strip, Egypt, and Yemen), and Africa (Sudan, Somalia, and other African countries through its Africa Health Programme). Turkey cooperates mainly with other Turkic or Islamic territories or countries. Additionally, Turkey has actively supported global water and sanitation projects, reproductive health and infrastructure programmes, and has provided rescue teams to earthquakes, most notably in Haiti, Indonesia, Iran, and Pakistan. These experiences provide opportunities for Turkey to have an increased role in development, by using the know-how gained in the health sector, especially in relation to UHC. Turkey can also further extend the experience gained from effective management of the Syrian refugee crisis to other countries in the region affected by conflict, to reinforce the country's roles in diplomacy and security. The country's effective management of the avian influenza epidemic in 2006 and successful implementation of pandemic preparedness plans<sup>98</sup> provides a further platform for international cooperation in global health, and for Turkey to have a more active role in health and human security.

### **Lessons learned**

In previous studies, investigators have identified several factors that are crucial for health systems to achieve health and social outcomes, including good governance and political commitment, institutions (including bureaucracies for institutional memory), ability to innovate (especially in service delivery), and capacity to respond to population needs and resilience.<sup>99</sup> In relation to UHC, the importance of political economy has been emphasised in cross-country studies. In particular, political commitment (expressed as a legal mandate), ability to raise higher tax revenues, and greater democracy have been identified as important factors that enable a greater share of GDP being allocated to public health spending, which is crucial to achieve UHC. Evidence also suggests that UHC is more difficult to introduce in divided societies with ethnic, religious, linguistic, or income inequalities.<sup>100</sup>

Several lessons emerge from Turkey's experience of UHC. These lessons are useful for Turkey as the country moves to the next phase of transformation to sustain

UHC, but also for other countries that have embarked on a journey to achieve UHC.

### *Creation of a receptive context*

In Turkey, interaction of several contextual factors, including demographic, economic, political, sociocultural, and technological factors, created a receptive context, in which the policy and service delivery innovations introduced through the HTP were considered by the population to be legitimate and timely to address the range of problems in the Turkish health system.<sup>101–104</sup>

### *Health as a fundamental right*

The core principle of HTP, which emphasised human rights and in particular citizens' right to health, resonated well with the public, who wanted improvements in their rights—democracy, education, and health. This focus on human rights probably helped to increase the legitimacy of the HTP and generated widespread public support.

### *Political stability*

The political stability achieved by the Turkish Government, which benefited from a majority in the Grand National Assembly, was an important factor that enabled the transformation. The Grand National Assembly was able to enact many transformative laws developed by the government—in stark contrast with many years of fragile coalition governments characterised by their inability to implement policies. The government, with a mandate from the population, was able to rapidly develop and enact legislations, which were implemented quickly. A committed transformation team at the Ministry of Health, strong prime ministerial support for change, and the leadership and continuity of the Minister of Health and senior management provided the opportunity to execute laws that had been legislated by the Grand National Assembly.

### *Economic growth and stability*

The economic stability and the rapid GDP growth achieved by Turkey in 2003–12 created the much-needed fiscal space for the government to invest in social sectors. In this period of growth, the government could increase health expenditures and investments in the health sector in both absolute and relative terms, while enjoying growth in investments from the private sector. Along with the sustained growth in GDP, new legislation and practices to improve tax collection and balanced economic policies enabled increased tax receipts, a fall in inflation, and reductions in unemployment. Increased government revenues from tax, privatisation proceeds, and foreign direct investment enabled the government to provide financing from general budget revenues to expand Green Card coverage and create a unified general health insurance scheme. Increased employment also helped to expand obligatory insurance beyond the Green Card scheme.

#### *The transformation team*

A crucial success factor for the HTP and UHC was the transformation team—a highly committed team that remained together for almost 10 years from 2003 to 2013. The transformation team had an active role in the conception, design, implementation, and monitoring of the HTP, and provided strategic direction, continuity, and institutional memory for the transformation. The team engaged closely with international experts and agencies and provided a bridge between the strategic and operational stages of the implementation. Regular field visits helped to establish strong communication channels between provincial leadership, local implementation teams, and the Ministry of Health.

#### *Sustained leadership*

Findings suggest that sustained leadership with high-level support from the Prime Minister,<sup>105</sup> the Council of Ministers, and the Minister of Health was important for the success of the HTP and UHC. Although ministerial differences arose during the design and implementation of the HTP, with strong opposition from some parts of the bureaucracy, these differences lessened as the success of the programme became evident and support for transformation policies increased. As the HTP progressed, broad and sustained support from the cabinet ensured institutionalisation of the changes introduced by the HTP, rather than it being seen as an initiative of the health ministry. This widespread support also helped to anchor health in all policies.

#### *Enhanced role of health within government*

A key feature of the HTP was the emphasis placed on gathering of systematic information about population perceptions of general living conditions and public services. Regular focus groups and annual household surveys undertaken by the Turkish Statistical Institute provided comprehensive intelligence to the government so that it could fine-tune its policies. Health services, the worst performing in 2003 of all public services surveyed regularly, were to improve substantially with the introduction of the HTP and UHC. Improved satisfaction levels increased the legitimacy of the HTP, providing a receptive context for change, and also increased the standing of the Ministry of Health and its minister within the Cabinet of Ministers. In 2003–12, health transitioned from being a marginal ministry (as was the case in the 1980s and 1990s, with Ministry of Health offered as a ministerial portfolio to the weakest coalition member with ministerial changes on almost an annual basis) to a strong and assertive ministry, with annual budget increases.

The success of the HTP enabled health policies to affect the country politics. Health became a major political agenda item for all political parties. The lessons from the HTP were used to inform other major government initiatives. The success of the programme,

which led to a rise in user satisfaction, was probably a success factor in the re-election of the government.

#### *Flexible implementation approach with ongoing learning*

The flexible implementation approach adopted by the government combined strategic and tactical actions to introduce policies as windows of opportunity arose.<sup>106</sup> As broader strategic and structural changes in the health system were pursued, these changes were combined with highly visible tactical changes that improved user experience of, and satisfaction with, the health system.

The field coordinator model and regular focus groups and surveys enabled rapid identification of implementation challenges. Regular gathering of intelligence, with information sharing between the transformation leadership, the Ministry of Health, and the implementation teams, created feedback loops for effective communication. Many discussion meetings, both locally and centrally, fostered continuous learning and improvement. This learning environment and the flexible implementation approach helped the transformation leadership to continuously modify the scope, speed, and sequence of the transformation, while staying within the strategic framework of the HTP.

#### *Speed of implementation*

A crucial factor in the success of the HTP was the speed at which policies were implemented. Once a decision was made or a law enacted, implementation progressed rapidly, according to ambitious implementation timelines that the transformation team monitored weekly. When delays occurred, implementation strategies were changed and local groups or special Ministry of Health teams were assigned tasks to address bottlenecks. Rapid implementation prevented the formation of organised opposition to the changes and helped to overcome bureaucratic resistance. The speed of implementation was legitimised by rapid demonstration of benefits to the users and the public.

#### *Combination of comprehensive demand-side changes with supply-side transformation*

An important lesson from the UHC experience in Turkey is that comprehensive health system changes on the demand side (health insurance) and the supply side (human resources and service delivery) were instrumental in expanded insurance coverage and in translation of UHC to expanded service access, especially for the most disadvantaged segments of the population.

Our evidence suggests that although improved insurance coverage enhances access, benefits are more likely to be realised and are stronger in the presence of supply-side interventions. Importantly, our results also show that the combination of demand-side and supply-side changes were instrumental, beyond other determinants, in improving service access and in reducing under-5 and infant mortality rates.

## Towards 2023: the 100th anniversary of the Turkish Republic

Turkey aims to become a top-ten country in the world in terms of GDP size by 2023. These economic ambitions need to be represented in relation to health care, in view of the recent UHC experience. As Turkey enters the decade leading to the 100th anniversary of the Turkish Republic, UHC, achieved through the HTP, provides remarkable possibilities for the population's health and wellbeing to improve further. Turkey has developed a strategic plan for the health sector for 2013–17, with targets for 2023. When implementing this plan to further improve the health of the country's citizens, Turkey also has the opportunity to contribute to global health by sharing the experience and know-how gained during the introduction of UHC—a role befitting the country's global economic ambitions.

### Contributors

RiA led the research team, study design, data analysis, and data interpretation; and wrote the first and subsequent drafts and the final report. SA and ReA contributed to data interpretation and writing of the drafts. SC, SS, MA, IG, and SN contributed to data analysis and data interpretation and contributed to drafts. SO, UA, BA, and UD contributed to data collection and provided comments on drafts. RiA is the guarantor.

### Conflicts of interest

RiA has acted as an adviser and a consultant to the Ministry of Health of the Republic of Turkey, including in the Health Transformation Program, and has undertaken consulting assignments in Turkey for the Ministry of Health of Turkey, WHO, and the World Bank. ReA was the Minister of Health of Turkey from 2002 to 2012. SA was the Undersecretary of the Ministry of Health of Turkey from 2002 to 2009. SC works for the World Bank and was involved in the World Bank-funded Health Transition Project in Turkey. SC is on a secondment to Medipol University. SS, MA, IG, and SN have undertaken analytical consulting assignments for the Ministry of Health of Turkey. SO, UA, BA, and UD are employed at the General Directorate of Health Research, The Republic of Turkey Ministry of Health.

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