



Workforce Planning in Chest Diseases-2024

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ABSTRACT

Effective healthcare workforce planning is essential for ensuring the timely, equitable, and quality delivery of medical services. This paper presents a structured framework for workforce planning in chest diseases, focusing on aligning healthcare personnel resources with current and future demands. The process begins with identifying institutional goals and assessing the current workforce. Subsequently, future needs are forecasted using workload and workforce analyses. Critical variables considered in planning include population growth, chronic disease prevalence, health system requirements, medical education outputs, and budget allocations. Performance metrics such as physician productivity and bed occupancy rates are also evaluated. Implementation involves strategic actions such as recruitment, career development, performance evaluation, and appropriate placement of healthcare workers. In the context of pulmonary medicine, where demand is increasing due to the growing burden of chronic respiratory diseases and aging populations, effective workforce planning is crucial. The integration of accurate demand forecasting with flexible implementation strategies can enhance the responsiveness and resilience of healthcare systems. This paper emphasizes the need for data-driven, adaptable planning processes to ensure adequate pulmonology staffing and meet long-term public health needs.

Keywords: Workforce Planning, Chest Diseases, Healthcare Workforce

Health workforce planning is defined as “employing healthcare workers in sufficient quantity, with high quality, distributed evenly, at the right time, and in the right way to deliver the healthcare services provided to society today and in the future” (1).

Main Stages of Workforce Planning

1. Institution's Goals and Plans
2. Current Workforce Resources
3. Forecasting the Future Workforce
4. Implementation Programs

Workload Analysis (Workforce Demand)

Workforce Analysis (Workforce Supply)

- Recruitment, selection, placement
- Performance evaluation
- Career development
- Promotion, transfer, dismissal

Variables considered in workforce planning include

- Population growth rate
- Annual number of visits per capita
- Rate of chronic disease



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- Average life expectancy
- Requirements of the health system in use
- Budget allocated to health
- Medical school quotas
- Specialist/general practitioner ratio
- Physician performance
- Number of actively working physicians
- Actual bed count and bed occupancy rate

Methods Of Calculating Health Workforce (2)

- 1. Needs-based methods:** Calculations based on the results of National Burden of Disease and cost-effectiveness studies.
- 2. Employment method:** Norm staff studies.
- 3. Utilization method:** Focused on the number of visits per capita.
- 4. Target method:** Based on targets set by the Ministry of Health.
- 5. Workforce-to-population ratio method:** Calculations based on the ratio to population.
- 6. Workload Indicators of Staffing Need (WISN) (3)**

In 2023, the population aged 65 and over was 8.7 million (10.2%), and it is expected to reach 12 million (12.9%) by 2030, an increase of 38% (4). Although the current average age of our chest disease patients is around 50, the number of patients and physician visits will increase in proportion to the aging population.

In the projection of population ratios by age groups in our country, the population aged 65 and over was 10.2% in 2023, and will equal the 0–14 age group as of 2040. Respiratory system diseases rank 3rd among causes of death with 13.2%. Turkey’s population is aging, with an average life expectancy of 77 years. Therefore, chronic diseases, especially chronic respiratory system diseases, are increasing due to smoking and environmental pollution (5). The crude death rate in 2023 was 6.2 per thousand (5). For those aged 65 and over, it exceeds 30 per thousand. Tobacco-related deaths in low- and middle-income countries are expected to double by 2030 compared to 2002 (6).

- Among men, 20 out of every 100 deaths, and among women, 14 out of every 100 deaths were due to diseases of the respiratory system.

In 2019, according to Ministry of Health data, there were nearly 100 million visits recorded with ICD-10 codes for respiratory system diseases, corresponding to over 42 million patients. In secondary and tertiary care, more than 24 million (58%) of annual visits were chest disease patients. The hospitalization rate for chest diseases is also 25% higher than the general average. Additionally, since most hospitalized patients have multiple comorbidities, their average length of stay is about twice the general average (around 10 days).

Two-thirds of chest disease outpatient visits consist of asthma and chronic obstructive lung disease (COPD)

patients, a group that is steadily increasing, with an annual growth rate of 5.6%. In 2023, the number of hospital visits per person was 6.5, and it is increasing every year. Every year, an average of 400 chest diseases residents start training in our training hospitals and universities through the medical specialty exam, but 15–20% leave during the year for various reasons. Between 2022 and 2023, the number of resident positions in chest diseases, as in other specialties, increased by up to 100% compared to previous years. In 2013, there were 3.21 pulmonologists per 100,000 people (1 per ~30,000) compared to 3.46 in 2023. By 2030, with a target of 1 pulmonologist per 25,000 people, at least 2,940 specialists will be needed. In 2002, the number of residents recruited was nearly half the number of specialists; however, over the years, the number of residents gradually decreased to 20% of the number of specialists. Consequently, despite the increasing patient load, the proportion of chest disease specialists has declined. In 2022 and 2023, the aim was to close the gap by recruiting the required number of residents. It should also be taken into account that at least 2.5% of specialists will complete 40 years of service and retire annually. Additionally, 15–20% of residents who start specialization through the Medical Specialization Examination resign.

When we compare with European countries, there are approximately 4.4 adult chest disease specialists per 100,000 population on average, whereas in our country, the number of pulmonologists is about half of that. According to population, the highest rates of chest disease specialists are seen in Greece, Italy, Poland, Hungary, Bulgaria, and Lithuania, with 6 or more per 100,000. Since the population aged 15 and over in 2023 was 67,060,744, based on a target of 4 chest disease specialists per 100,000 population (1 specialist per 25,000 people), the required number of specialists was calculated as 2,682. As there were 2,226 actively working chest disease specialists in 2023, there was a shortage of 456 specialists.

Considering that 2.5% retire each year, the expected number of specialists to retire in 2023 was 56. On the other hand, from the 983 residents in 2023, at best only 200 would become specialists. Therefore, by the end of 2023, the shortage of specialists would be around 300–350. There is a surplus of chest disease specialists in only 5 provinces (Ankara 64, İzmir 60, İstanbul 15, Edirne 2, Isparta 1), while a shortage of 598 specialists has been identified in 76 provinces.

Conclusion

In Turkey, there are 3.46 chest disease specialists per 100,000 people, compared to 4 in EU countries. The population of Turkey was 85,372,377 in 2023 and is expected to reach 88,188,221 by 2030. In 2009, there was 1 chest disease specialist per 22,725 people in EU count-

ries, compared to 1 per 42,582 in Turkey. Turkey is aging, with life expectancy reaching 77 years. The total disease burden in Turkey is 10,802,494 cases. Respiratory system diseases account for 675,876 cases (6.26%). In the national DALY ranking, lower respiratory tract infections are fifth (3.8%), and COPD is eighth (2.8%). The number of chest disease specialists is below the required level according to all calculation methods.

Both the increase in chronic diseases (COPD, cancer) and the rise in average life expectancy are increasing the need for chest disease specialists. Subspecialties within chest diseases such as intensive care, allergy, and sleep medicine, which require close collaboration with other departments, also face increasing patient loads. Additionally, a significant portion of chest disease patients are managed by internal medicine, general practitioners, thoracic surgeons, and other specialties. However, planning must be long-term and take into account all relevant variables.

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