

## THE PRESENT AND FUTURE

### COUNCIL PERSPECTIVES

# The Supply and Demand of the Cardiovascular Workforce

## Striking the Right Balance



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### ABSTRACT

As the burden of cardiovascular disease in the United States continues to increase, uncertainty remains on how well-equipped the cardiovascular workforce is to meet the challenges that lie ahead. In a time when health care is rapidly shifting, numerous factors affect the supply and demand of the cardiovascular workforce. This Council Commentary critically examines several factors that influence the cardiovascular workforce. These include current workforce demographics and projections, evolving health care and practice environments, and the increasing burden of cardiovascular disease. Finally, we propose 3 strategies to optimize the workforce. These focus on cardiovascular disease prevention, the effective utilization of the cardiovascular care team, and alterations to the training pathway for cardiologists. (J Am Coll Cardiol 2016;68:1680-9) © 2016 by the American College of Cardiology Foundation.

Cardiovascular disease (CVD) remains the leading cause of mortality in the United States and the world. One American dies from CVD approximately every 42 s (1). Despite substantial progress in the treatment of CVD, the cardiovascular (CV) workforce has become the subject of intense scrutiny in recent years, as the promise of providing high-quality, streamlined care to the growing CVD patient population has come into question (2-8). Without concerted efforts to optimize the CV workforce to meet U.S. public health needs, some forecasters predict that a crisis of staggering proportions may be imminent. Understanding the CV workforce requires understanding the numerous factors that influence both the supply of and demand for cardiologists and CV services (2). Both

fellows-in-training (FITs) and early-career cardiologists are key players in this paradigm, and thus are uniquely positioned to shape the CV workforce.

The most significant factor influencing the demand for cardiologists is the growing burden of CVD in the United States. Indeed, nearly one-third of all deaths result from CVD (1). However, the supply of cardiologists is influenced by workforce demographics, including the geographic distribution of all cardiologists and practice trends of recent fellowship graduates (4). Central to both the supply and demand are the dynamic changes taking place in health care reform. Through the passage of the Affordable Care Act (ACA) of 2010 and subsequent landmark legislation, health care organizations are increasingly focused on the importance of the CV care team in providing care



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to patients with CVD and spearheading efforts in prevention (9,10). Last, but certainly not least, exploring changes to the pathway of training a practicing cardiologist may represent a compelling opportunity to optimize the CV workforce.

This Council Commentary from the Fellow-In-Training Section Leadership Council aims to identify forces that influence the supply and demand of the CV workforce. It explores the CV demographics and the evolving health care and practice environments that influence the available supply. We also discuss the increasing burden of CVD as the dominant element affecting the demand for CV professionals (Central Illustration). Finally, we propose changes in health care policy and the training pathway for cardiologists as possible solutions to optimize the CV workforce.

## FACTORS THAT INFLUENCE THE SUPPLY OF THE CV WORKFORCE

Several factors affect the supply of the CV workforce, including the demographics of practicing cardiologists, evolving health care reform, and the training pathway to becoming cardiologists. Ensuring that this supply is readily accessible to meet the needs of patients with CVD is a multifaceted problem. This commentary examines each of these factors in turn.

**DEMOGRAPHICS OF THE CV WORKFORCE.** Understanding the current demographics of the CV workforce provides a framework to comprehend the challenges that lie ahead. In 2009, the *Journal* published detailed demographics of the CV workforce on the basis of results from a nationwide survey of employers of cardiologists (11). As of 2009, of the more than 25,000 practicing cardiologists in the United States, approximately 20% were interventional cardiologists, 7% were electrophysiologists, and the remainder comprised general cardiologists, heart failure specialists, pediatric cardiologists, and other CV subspecialists. The median ages of a general cardiologist, interventional cardiologist, and electrophysiologist were 53, 48, and 46 years, respectively. Moreover, nearly one-half of all practicing cardiologists were >55 years of age. Additionally, fewer than 15% of general cardiologists and fewer than 10% of interventional cardiologists and electrophysiologists combined were women (11,12). Importantly, disparities exist across racial and ethnic groups within the CV workforce. Although more than one-quarter of the U.S. population is black or Hispanic, <10% of all practicing cardiologists are black or Hispanic (11). In parallel with population growth in the United States

between 1995 and 2007, an increase in the overall number of practicing physicians was observed. The data collected demonstrated that the total number of U.S. physicians increased by 28.6%. Despite a commensurate increase of 26.3% in the number of primary care providers (PCPs) during this time period, the number of cardiologists grew by only 19.2% (13).

In addition to a growing and aging workforce, the geographic distribution of cardiologists is remarkably heterogeneous (11,14).

For the most vulnerable patients, including those  $\geq 65$  years of age and those residing in underserved areas of the country, fewer cardiologists are accessible. When grouped by quartile, significant portions of the Midwest and Western states have one-quarter to one-half the number of cardiologists per 100,000 patients  $\geq 65$  years of age compared with population-dense regions (13). Geographic maldistribution is more marked in cardiology than in primary care; however, conflicting data exists regarding the specific effect of this heterogeneous geographic distribution on clinical outcomes (13). For example, patients in the lowest quintile of cardiologist density experienced higher 30-day and 1-year mortality for hospitalization related to acute myocardial infarction or heart failure in one risk-adjusted analysis (15). Other research has shown that higher access to specialists leads to increased health care utilization without a significant difference in outcomes (16). Yet, patients living in areas with a low concentration of subspecialists report similar satisfaction in terms of access to subspecialty care compared with individuals living in areas with a high concentration of subspecialists (17,18). Thus, given these conflicting data, evidence guiding the optimal geographic distribution of cardiologists remains unclear.

**EVOLVING HEALTH CARE REFORM.** CV workforce composition is not only influenced by federal and state policymakers, but also by insurance providers. Changes in reimbursement models are anticipated after repeal of the Medicare Sustainable Growth Rate (SGR) formula in 2015 (19). Under the SGR formula, physician reimbursements were adjusted annually, often at a loss, to ensure that the health care expenses incurred by Medicare claims did not exceed the growth in the gross domestic product. Passage of the Medicare Access and CHIP Reauthorization Act (MACRA) in 2015 permanently abolished the unsustainable SGR formula directed at reimbursement cuts.

The shift away from fee-for-service payments directed by MACRA marks a new paradigm of

## ABBREVIATIONS AND ACRONYMS

ACA	= Affordable Care Act
APN	= advanced practice nurse
CV	= cardiovascular
CVD	= cardiovascular disease
FIT	= fellow-in-training
MACRA	= Medicare Access and CHIP Reauthorization Act
PA	= physician assistant
PCP	= primary care provider

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