HEALTH WORKFORCE STRATEGIC PLAN CARES ACT SECTION 3402

care providers to deliver medication-assisted treatment for substance use disorder, including opioid use disorder.

The demand for geriatricians is projected to exceed supply, resulting in a shortage of nearly 27,000 positions in 2025. 48 Numerous factors challenge the education and training of health professionals in the area of geriatrics, such as a shortage of faculty, limited availability of clinical experiences, and few opportunities for advanced training. Similarly, the geographic maldistribution of women's health service providers also is well recognized, and shortages of obstetrician gynecologists are projected to increase in the coming years. Only six percent of obstetrician gynecologists work in rural areas, and less than half of women in rural areas live within a 30-minute drive of a hospital with obstetric services. 49 Also, the Improving Access to Maternity Care Act (Public Law 115-320) could help to redistribute maternity care health professionals to rural and underserved areas.

## Objective 4.2. Advance health workforce knowledge through research and evaluation

This objective describes efforts to identify and prioritize areas of current and future health workforce needs, policy, strategies, and education and training requirements through research and evaluation.

Building the health workforce of the future must entail education and training that facilitates progressive achievement of milestones and competencies that trainees will leverage throughout their professional lives. <sup>101</sup> Developing the skills for evidence-based practice is essential, as is learning how to better use technology to deliver appropriate, safe, high-quality care. <sup>102</sup> The scientific evidence that builds a provider's knowledge base will constantly evolve. <sup>103</sup>

Within HHS, ACL, AHRQ, ASPE, CDC, HRSA, and SAMHSA implement activities advancing this objective, through the strategies below.

- 4.2.1 Conduct studies to learn how best to prepare primary care providers to participate in and lead health care systems aimed at improving access, quality of care, and cost effectiveness
- 4.2.2 Assess the workforce needed to deliver high-quality behavioral health care
- 4.2.3 Engage stakeholders to assemble best practices for supporting the public health workforce
- 4.2.4 Develop evidence to improve the home and community-based services workforce

# Appendix A: Coronavirus Aid, Relief, and Economic Security Act (Public Law 116-136), Section 3402. Health Workforce Coordination

### (a) Strategic Plan.--

- (1) In general.--Not later than 1 year after the date of enactment of this Act, the Secretary of Health and Human Services (referred to in this Act as the ``Secretary"), in consultation with the Advisory Committee on Training in Primary Care Medicine and Dentistry and the Advisory Council on Graduate Medical Education, shall develop a comprehensive and coordinated plan with respect to the health care workforce development programs of the Department of Health and Human Services, including education and training programs.
  - (2) Requirements.--The plan under paragraph (1) shall--
    - (A) include performance measures to determine the extent to which the programs described in paragraph (1) are strengthening the Nation's health care system;
    - (B) identify any gaps that exist between the outcomes of programs described in paragraph (1) and projected health care workforce needs identified in workforce projection reports conducted by the Health Resources and Services Administration;
      - (C) identify actions to address the gaps described in subparagraph (B); and
    - (D) identify barriers, if any, to implementing the actions identified under subparagraph (C).
- (b) Coordination With Other Agencies.--The Secretary shall coordinate with the heads of other Federal agencies and departments that fund or administer health care workforce development programs, including education and training programs, to--
  - (1) evaluate the performance of such programs, including the extent to which such programs are efficient and effective and are meeting the nation's health workforce needs; and
  - (2) identify opportunities to improve the quality and consistency of the information collected to evaluate within and across such programs, and to implement such improvements.
- (c) Report.--Not later than 2 years after the date of enactment of this Act, the Secretary shall submit to the Committee on Health, Education, Labor, and Pensions of the Senate, and the Committee on Energy and Commerce of the House of Representatives, a report describing the plan developed under subsection (a) and actions taken to implement such plan.

### Appendix B: Health Workforce Strategic Plan Workgroup List

#### U.S. Department of Health and Human Services

- Administration for Children and Families
  - Office of Family Assistance
- Administration for Community Living
- Agency for Healthcare Research and Quality
- Centers for Disease Control and Prevention
  - o Center for State, Tribal, Local, and Territorial Support
  - o Center for Surveillance, Epidemiology, and Laboratory Services
  - o National Center for Emerging and Zoonotic Infectious Diseases
  - National Center for Health Statistics
  - o National Institute for Occupational Safety and Health
- Centers for Medicare & Medicaid Services
- Food and Drug Administration
- Health Resources and Services Administration
  - o Bureau of Health Workforce
  - Maternal and Child Health Bureau
  - Federal Office of Rural Health Policy
  - o Office of Planning, Analysis, and Evaluation
- Indian Health Service
- Office of the Assistant Secretary for Health
- Office of the Assistant Secretary for Planning and Evaluation
  - o Office of Behavioral Health, Disability, and Aging Policy
  - o Office of Health Policy
- Substance Abuse and Mental Health Services Administration
  - o Center for Substance Abuse Prevention
  - Center for Substance Abuse Treatment
  - Center for Mental Health Services

## 2.2.3: Apply solutions that integrate primary care, geriatric care, and public health to expand a workforce capable of managing the complex and challenging demands <sup>105</sup> in caring for older adults

Program/Activity (with hyperlink)	Description	Division
Geriatrics Workforce Enhancement Program	Integration of geriatrics with primary care and transformation of primary care clinical environments into age-friendly health systems to maximize patient and family engagement and improve health outcomes for older adults.	HRSA

### 2.2.4: Conduct targeted investments to reduce disparities in access to specialized health care services, including oral health, behavioral health, maternal and child health, and public health

Program/Activity (with hyperlink)	Description	Division
Implementation of Improving Access to Maternity Care Act	Development of criteria for Maternity Care Health Professional Target Areas.	HRSA
NEPQR - Veteran Nurses in Primary Care Training Program	Career ladder programs to increase the enrollment, progression, and graduation of veterans from nursing programs to expand the nursing workforce and improve employment opportunities for veterans in high demand careers such as nursing.	HRSA
Rural Communities Opioid Response Program	Recruitment and retention of the substance use disorder workforce in rural communities to implement and sustain substance use disorder prevention, treatment, and recovery services in underserved rural areas.	HRSA
State Opioid Response Technical Assistance Grant	Promotion of greater access to prevention treatment, recovery supports to address opioid and stimulant misuse, and care, by identifying health care professionals with relevant expertise and capacity to provide technical assistance.	SAMHSA

# 2.2.5: Strengthen the public health workforce to support robust responses during public health emergencies such as the COVID-19 pandemic

Program/Activity (with hyperlink)	Description	Division
Executive Order 13994: Ensuring a Data-Driven Response to COVID- 19 and Future High-Consequence Public Health Threats	Enhanced data collection and collaboration activities for high-consequence public health threats and advance innovation in public health data and analytics.	HHS
Executive Order 13996: Establishing the COVID-19 Pandemic Testing Board and Ensuring a Sustainable Public Health Workforce for COVID-19 and Other Biological Threats	Recruitment and training of sufficient public health workers and other personnel to ensure adequate and equitable community-based testing, testing in schools, and testing in high-risk settings.	HHS
Executive Order 13999: Protecting Worker Health and Safety	Protection of the health and safety of health care workers and other essential workers during the COVID-19 pandemic.	HHS
Enhancing Community-Based Capacity for National COVID-19 Vaccine Outreach	Effort to establish, expand, and sustain a public health workforce to prevent, prepare for and respond to COVID-19 including mobilizing community outreach workers, which may include community health workers, patient navigators and social support specialists to educate, and assist individuals in receiving the COVID-19 vaccination.	HRSA
CDC TRAIN	Modernization and support for integration between TRAIN and other learning management systems to better provide trainings to build the skills of the current workforce.	CDC
CDC Steven M. Teutsch Prevention Effectiveness Fellowship	Implementation of an infectious disease modeling track.	CDC
Emergency System for Advance Registration for Volunteer Health Professionals	Development of a national network of state-based programs for pre-registration of volunteer health professionals who can provide needed help during an emergency.	ASPR

Program/Activity	Description	Division
(with hyperlink)		
Epidemiology Elective Program	Expansion of a program to support placing more EEP students at state, tribal, local, and territorial health departments.	CDC
National Public Health Laboratory Fellowship Program	Establishment of a program to expand the current CDC/Association for Public Health Laboratories program to support Bachelor or Master's level fellows for 1 year full time fellowships in state, local or territorial laboratories.	CDC
National Special Pathogen System	Effort to improve recruitment and retention of special pathogen-trained staff with specialties that may be needed in special pathogen response.	ASPR
Public Health AmeriCorps	Partnership with AmeriCorps to recruit and build a new workforce to respond to the public health needs of the nation and provide public health service in their own communities.	CDC
Public Health Laboratory Internship Program	Collaboration with Association for Public Health Laboratories to establish new national public health laboratory internship program for undergraduates for up to 12 weeks, full time internships in state, local or territorial laboratories.	CDC

# 3.1.1: Provide continuing education opportunities for health care providers to improve quality and patient safety, comparative effectiveness, and prevention/care management

Program/Activity (with hyperlink)	Description	Division
AHRQ PSNet Continuing Medical Education, Maintenance of Certification	Continuing education modules in the form of Web based Morbidity and Mortality Rounds (Web M&M) for clinicians to learn about patient safety challenges resulting from medical errors, and how to address them.	AHRQ
AHRQ PSNet Training Catalog	Continuing education through a published national resource featuring a variety of classroom, self-study, and web-based training opportunities.	AHRQ
Health Assessment Recertification Project for Diversely Trained Clinicians	Evidence-based practice improvement guide and interactive web-based modules that help diversified clinicians design and implement a quality improvement plan to improve documentation of health assessments.	AHRQ

Program/Activity (with hyperlink)	Description	Division
Patient Self-Management Support of Chronic Conditions: Framework for Clinicians Seeking Recertification Credit	Interactive web-based module to help clinicians design and implement a quality improvement plan that solicits patient input to improve patient self-management support for those with chronic health conditions.	AHRQ
Project Firstline	Culturally appropriate and linguistically accessible infection control training opportunities for all U.S. frontline health care workers and select public health professionals to support the healthcare community to stop the spread of infectious diseases in healthcare settings.	CDC

# 3.1.2: Provide training and technical assistance to the health workforce to help them apply knowledge from recent advances in medical research, health care program evaluations, and data analysis to their field of practice

Program/Activity (with hyperlink)	Description	Division
Behavioral Health Workforce Development Technical Assistance and Evaluation	Tailored technical assistance to behavioral health workforce programs.	HRSA
CDC Public Health Training	Training and continuing education credits through free accredited courses, engaging professionals in state, Tribal, local and territorial agencies and organizations.	CDC
Center of Excellence for Infant and Early Childhood Mental Health Consultation	Tools, resources, training, and mentorship to the infant and early childhood mental health field to promote the healthy social and emotional development of infants and young children.	SAMHSA
Centers of Excellence in Maternal and Child Health Education, Science and Practice	Leadership training, applied research, and technical assistance to communities, states, and regions to prepare students for careers in maternal and child public health practice, research, planning, policy development, and advocacy.	HRSA

### 3.2.1: Promote team-based care 106 to take a patient-centered approach to planning and delivering care

Program/Activity (with hyperlink)	Description	Division
Nurse Education, Practice, Quality and Retention – Registered Nurses in Primary Care Training Program	Recruitment and training of nursing students and current registered nurses to practice in community-based primary care teams, with a focus on chronic disease prevention and control, including mental health and substance use conditions.	HRSA
Nurse Education, Practice, Quality, and Retention Interprofessional Collaborative Practice Program: Behavioral Health Integration	Promotion of team-based care models in interprofessional nurse-led primary care teams in rural or underserved areas.	HRSA
Opioid Workforce Expansion Program Professionals	Training at interprofessional and team-based care field placement sites and internships integrating behavioral health and primary care to increase the number of behavioral health professionals and transform integrated behavioral health and primary care teams.	HRSA
TeamSTEPPS (Strategies and Tools to Enhance Performance and Patient Safety) 2.0 Curriculum	Evidence-based program to improve teamwork and communication skills among health care providers, enabling them to respond quickly and effectively to whatever situations arise.	AHRQ

# 3.2.2: Integrate community health workers, paraprofessionals, social workers, and social service agencies into interdisciplinary teams to strengthen coordination of primary care and public health approaches

Program/Activity (with hyperlink)	Description	Division
Center of Excellence for Protected Health Information	Training and technical assistance for health care practitioners on privacy laws and regulations related to information about mental and substance use disorders.	SAMHSA

### 4.1.2: Conduct ongoing tracking of adverse actions to support the delivery of quality care

Program/Activity (with hyperlink)	Description	Division
National Center for Health Statistics	Nationally representative statistics on health care to inform the development of professional education curricula for health care workers, formulate health policy, inform medical practice management, and evaluate quality of care.	CDC
National Practitioner Data Bank	Web-based repository of medical malpractice payments and certain adverse actions related to health care practitioners, providers, and suppliers as a flagging system to prevent practitioners from moving state to state without disclosure or discovery of previous damaging performance.	HRSA

## 4.2.1: Conduct studies to learn how best to prepare primary care providers to participate in and lead health care systems aimed at improving access, quality of care, and cost effectiveness

Program/Activity (with hyperlink)	Description	Division
AHRQ Primary Care Research Studies	Research concerning the nature and characteristics of primary care practice, the management of commonly occurring and undifferentiated clinical problems, and the continuity and coordination of health services.	AHRQ
Health Workforce Research Centers	Research and data analysis on national health workforce issues, and technical assistance to regional and local entities on workforce data collection, analysis, and reporting.	HRSA

### 4.2.3: Engage stakeholders to assemble best practices for supporting the public health workforce

Program/Activity (with hyperlink)	Description	Division
CDC-ASTHO Partnership	Discussions with ASTHO committee developing a new program to enhance the capacity and strengthen the professional network of mid- to senior level governmental public health professionals from identity groups that are underrepresented in public health leadership, including people of color, people with disabilities, and lesbian/gay/bisexual/transgender individuals.	CDC
HRSA Maternal and Child Health Bureau's Public Health Workforce Expert Panel Meeting	Meeting to gather input about priorities, needs, and opportunities to support an optimal public health workforce.	HRSA
Public Health Accreditation Board	A voluntary national accreditation program which supports the use of field-developed and evidence-based consensus standards for state, tribal, local and territorial health departments. The program includes a domain and set of standards dedicated to workforce development.	CDC

### 4.2.4: Develop evidence to improve the home and community-based services workforce

Program/Activity (with hyperlink)	Description	Division
Rehabilitation Research and Training Center Program	Program to accelerate development and application of non-medical, person-centered outcome measures that inform the design, implementation, and continuous improvement of federal and state home and community-based services programs, policies, and interventions, by identifying promising practices and requisite service-delivery competencies.	ACL
COVID-19 Intensifies Nursing Home Workforce Challenges (October 2020)	Examination of the impact of the COVID-19 pandemic on nursing homes in relation to long-standing workforce challenges, and identify new federal, state, and facility-level policies and practices that have been implemented to address	ASPE

Program	Measure	Division
Behavioral Health Workforce Development Program	6.I.C.34 Number of students currently receiving training in behavioral health degree and certificate programs.	HRSA
Behavioral Health Workforce Development Program	6.I.C.35 Number of graduates completing behavioral health programs and entering the behavioral health workforce.	HRSA
Advanced Nursing Education Programs	6.I.C.38 Number of students trained in advanced nursing degree programs.	HRSA
Advanced Nursing Education Programs	6.I.C.40 Number of graduates from advanced nursing degree programs.	HRSA
Nursing Workforce Diversity Program	6.I.C.42 Number of program participants who participated in academic support programs during the academic year.	HRSA
Nursing Workforce Diversity Program	6.I.C.43 Number of program participants who are enrolled in a nursing degree program.	HRSA
Nurse Faculty Loan Program	6.I.C.46 Number of graduate-level nursing students who received a loan.	HRSA
Nurse Faculty Loan Program	6.I.C.47 Number of loan recipients who graduated from an advanced nursing degree program.	HRSA
Nursing Education, Practice, Quality, and Retention Program	6.I.C.57 Number of Nurse Education, Practice, Quality, and Retention nursing students trained in primary care.	HRSA
Medical Student Education Program	6.I.C.60 Number of medical students matched to primary care residencies.	HRSA
Behavioral Health Workforce Development Program	6.I.C.62 Number of substance use disorder treatment providers receiving loan repayment.	HRSA

Program	Measure	Division
Public Health Training Center	6.I.C.9 Number of trainees participating in continuing education sessions delivered by Public Health Training Centers.	HRSA
Children's Hospitals Graduate Medical Education Payment Program	7.E Percent of payments made on time.	HRSA
Children's Hospitals Graduate Medical Education Payment Program	7.I.A.1 Maintain the number of FTE residents training in eligible children's teaching hospitals.	HRSA
Children's Hospitals Graduate Medical Education Payment Program	7.VII.C.1 Percent of hospitals with verified FTE residents counts and caps.	HRSA
State Offices of Rural Health	31.V.B.5: Number of clinician placements facilitated by the SORHs through their recruitment initiatives.	HRSA
MCH Pipeline Training Program (Undergraduate)	Training 07: The percent of MCHB Pipeline Program graduates who have been engaged in work focused on MCH populations 5 years post-graduation.	HRSA
MCH Pipeline Training Program (Undergraduate)	Training 08: The percent of pipeline graduates that enter graduate programs preparing them to work with the MCH population 5 years post-graduation.	HRSA
MCHB Graduate Training Programs	Training 10: The percent of long-term trainees that have demonstrated field leadership after completing an MCH training program (5 years after completing the training program).	HRSA
MCHB Graduate Training Programs	Training 11: The percentage of long-term trainees who are engaged in work focused on MCH populations after completing their MCH Training Program (5 years after completing the training program).	HRSA

Program	Measure	Division
MCHB Graduate Training Programs	Training 12: The percent of long-term trainees who at 5 years post training have worked in an interdisciplinary manner to serve the MCH populations (e.g., individuals with disabilities and their families, adolescents and their families, etc.).	HRSA
Loan Repayment Program	IHP-4 Number of new 2-year contracts awarded under Section 108.	IHS
Loan Repayment Program	IHP-4 Number of continuing 1-year contracts awarded under Section 108.	IHS
Scholarship Program	Proportion of Health Scholarship recipients placed in Indian Health settings within 90 days of graduation.	IHS
Scholarship Program	Number of scholarship awards under section 103.	IHS
Scholarship Program	Number of scholarship awards under section 104.	IHS
Scholarship Program	Number of externs under section 105.	IHS
Public Health Informatics and Technology Workforce Development Program	Number of Minority Serving Institution students trained in Public Health Informatics and Technology.	ONC
Improving Access to Overdose Treatment Activities	5.2.1 Number trained on prescribing FDA-approved opioid-overdose reversal drugs or devices for emergency treatment of known or suspected opioid overdose.	SAMHSA
First Responder Training-CARA	5.1.1 Number of first responders trained how to administer FDA- approved overdose reversing medication kits.	SAMHSA
PDO-Naloxone	5.1 Number of lay persons trained how to administer Naloxone (or other FDA approved drug or device).	SAMHSA

**Goal 2: Improve Distribution of the Health Workforce to Reduce Shortages** 

Program	Measure	Division
Health Profession Opportunity Grants (HPOG)	HPOG does not have program-wide targets; however, all grantees are required to establish 5-year quantifiable projections for the following 7 program activities: Overall Enrollment; TANF Enrollment; Basic Skills Enrollment; Basic Skills Completion; Healthcare Training Enrollment; Healthcare Training Completion; First-Time Employed in Healthcare.	HRSA
Nurse Corps	5.1.C.5 Proportion of NURSE Corps Loan Repayment Program/Scholarship Program participants retained in service at a critical shortage facility for at least one year beyond the completion of their NURSE Corps Loan Repayment Program/Scholarship Program commitment.	HRSA
Nurse Corps	5.I.C.4 Proportion of NURSE Corps Loan Repayment Program participants who extend their service contracts to commit to work at a critical shortage facility for an additional year.	HRSA
Bureau of Health Workforce Cross- Cutting Measure	6.I.B.1 Percentage of graduates and program completers of Bureau of Health Workforce-supported health professions training programs who are underrepresented minorities and/or from disadvantaged backgrounds.	HRSA
Bureau of Health Workforce Cross- Cutting Measure	6.I.C.1 Percentage of trainees in Bureau of Health Workforce-supported health professions training programs who receive training in medically underserved communities.	HRSA
Bureau of Health Workforce Cross- Cutting Measure	6.I.C.2 Percentage of individuals supported by the Bureau of Health Workforce who completed a primary care training program and are currently employed in underserved areas.	HRSA
Scholarships for Disadvantaged Students	6.I.C.22 Number of disadvantaged students with scholarships.	HRSA
Geriatrics Workforce Enhancement Program	6.I.C.12 Number of Bureau of Health Workforce-sponsored educational offerings provided on Alzheimer's disease and related dementias.	HRSA

Program	Measure	Division
Geriatrics Workforce Enhancement Program	6.I.C.13 Number of trainees participating in educational offerings on Alzheimer's disease and related dementias.	HRSA
Geriatrics Workforce Enhancement Program	6.I.C.32 Number of continuing education trainees in geriatrics programs.	HRSA
Geriatrics Workforce Enhancement Program	6.I.C.33 Number of students who received geriatric-focused training in settings across the care continuum.	HRSA
Graduate Psychology Education Program	6.I.C.36 Number of graduate-level psychology students supported in Graduate Psychology Education program.	HRSA
Graduate Psychology Education Program	6.I.C.37 Number of interprofessional students trained in Graduate Psychology Education program.	HRSA
Advanced Nursing Education Program	6.I.C.39 Percent of students trained who are underrepresented minorities and/or from disadvantaged backgrounds.	HRSA
Nursing Workforce Diversity Program	6.I.C.41 Percent of program participants who are underrepresented minorities and/or from disadvantaged backgrounds.	HRSA
Teaching Health Center Graduate Medical Education	6.I.C.48 Percent of Teaching Health Center Graduate Medical Education-supported residents training in rural and/or underserved communities.	HRSA
Teaching Health Center Graduate Medical Education	6.I.C.5 Number of resident positions supported by Teaching Health Centers.	HRSA
Area Health Education Center	6.I.C.49 Number of Area Health Education Center scholars trained in medically underserved communities and/or rural areas.	HRSA
Area Health Education Center	6.I.C.50 Percent of Area Health Education Center program completers practicing in medically underserved communities and/or rural areas.	HRSA

Program	Measure	Division
Health Careers Opportunity Program	6.I.C.51 Number of Health Careers Opportunity Program trainees from disadvantaged backgrounds participating in academic programming, clinical training and/or student support services.	HRSA
Health Careers Opportunity Program	6.I.C.52 Percent of Health Careers Opportunity Program health professions program completers who intend to work in primary care settings.	HRSA
Opioid Workforce Expansion Program	6.I.C.53 Number of Opioid Workforce Expansion Program trainees currently receiving training in opioid-related behavioral health degree and certificate programs.	HRSA
Opioid Workforce Expansion Program	6.I.C.54 Number of Opioid Workforce Expansion Program graduates completing opioid-related behavioral health programs and entering the behavioral health workforce.	HRSA
Medical Student Education Program	6.I.C.59 Number of medical students trained in underserved states.	HRSA
Addiction Medicine Fellowship Program	6.I.C.61 Number of new addiction medicine and addiction psychiatry fellowship graduates entering workforce.	HRSA
Maternal and Child Health Undergraduate and Graduate Training Programs	Training 06: The percentage of participants in MCHB long-term training programs who are from underrepresented racial and ethnic groups.	HRSA
Maternal and Child Health Pipeline Training Program (Undergraduate)	The percent of MCH Pipeline Program graduates who have been engaged in work with populations considered to be underserved or vulnerable 5 years post-graduation.	HRSA
Maternal and Child Health Graduate Training Programs	Former Trainee Survey: The percentage of former trainees who report working with underserved or vulnerable populations.	HRSA

**Goal 3: Enhance Health Care Quality through Professional Development, Collaboration, and Evidence-Informed Practice** 

Program	Measure	OpDiv
University Centers for Excellence in Developmental Disabilities, Education, Research and Service (UCEDD)	Increase the percentage of individuals with developmental disabilities receiving the benefit of services through activities in which professionals were involved who completed University Centers of Excellence in Developmental Disabilities (UCEDDs) state-of-the-art training within the past 10 years.	ACL
Project Firstline	For the initial phase of the program (Project Firstline infection control training for health care personnel and the public health workforce), Project Firstline will track the following elements: learning needs of frontline workers, reach of Project Firstline partner networks, program responsiveness to the infection control informational and delivery needs of frontline workers, profession or role of those receiving Project Firstline training materials, perceived value of information to the trainee, and integration of IPC curricular elements into academic workforce training programs.	CDC
Division of Scientific Education and Professional Development and the Center for State, Tribal, Local, and Territorial Support's Public Health Associate Program	Increase the number of CDC trainees in state, Tribal, local, and territorial public health agencies.	CDC
Division of Scientific Education and Professional Development	Increase the number of CDC's free accredited courses passed by learners to earn Continuing Education (CE), demonstrating successful achievement of educational content.	CDC

Program	Measure	OpDiv
Resources for Integrated Care (RIC), a CMS/Medicare- Medicaid Coordination Office contract	RIC Contractor tracks webinar attendance and website statistics. The contractor also solicits ongoing feedback of technical assistance products to determine effectiveness and potential areas of improvement.	CMS
Bureau of Health Workforce Cross- Cutting Measure	6.I.1 Percent of clinical training sites that provide interprofessional training to individuals enrolled in a primary care training program.	HRSA
Nurse Education, Practice, Quality, and Retention	6.I.C.58 Number of Nurse Education, Practice, Quality, and Retention trainees and professionals participating in interprofessional team-based care.	HRSA
National Traumatic Childhood Stress Initiative	3.2.24 Number of child-serving professionals trained in providing trauma-informed services.	SAMHSA
Assertive Outpatient Treatment for Individuals with SMI	3.4.08 Number of people in the mental health and related workforce trained in mental health-related practices/activities.	SAMHSA
Other Mental Health Capacity Programs	3.5.00 Number of people in the mental health and related workforce trained in mental health-related practices/activities that are consistent with the goals of the grants.	SAMHSA
Infant and Early Childhood Mental Health	3.4.18 Number of people in the mental health and related workforce trained in specific mental health-related practices/activities as a result of the program.	SAMHSA

Goal 4: Develop and Apply Data and Evidence to Strengthen the Health Care Workforce

Program	Measure	Division
National Practitioner Data Bank	8.III.B.5 Increase the number of practitioners enrolled in Continuous Query (which is a subscription service for Data Bank queries that notifies them of new information on enrolled practitioners within one business day).	HRSA
National Practitioner Data Bank	8.III.B.7 Increase annually the number of reports disclosed to health care organizations.	HRSA

# Appendix F: Advisory Committee on Training in Primary Care Medicine and Dentistry and Advisory Council on Graduate Medical Education

Section 3402 of the CARES Act directed the Department to consult with two advisory committees on the development of this Strategic Plan. The Department engaged these committees on the plan's initial framework and invited their input. Letters from these advisory committees are included separately.

#### Advisory Committee on Training in Primary Care Medicine and Dentistry

The <u>Advisory Committee on Training in Primary Care Medicine and Dentistry</u> (ACTPCMD) advises and makes recommendations to the Secretary of the Department of Health and Human Services, the Senate Committee on Health, Education, Labor and Pensions, and the House of Representatives Committee on Energy and Commerce on policy, program development, and other matters of significance concerning the medicine and dentistry activities under Section 747 of the Public Health Service Act. In addition, ACTPCMD develops, publishes, and implements performance measures and longitudinal evaluations for programs under Part C of Title VII of the Public Health Service Act.

#### **Council on Graduate Medical Education**

The <u>Council on Graduate Medical Education</u> (COGME) provides an ongoing assessment of physician workforce trends, training issues and financing policies, and recommends appropriate federal and private sector efforts on these issues. COGME advises and makes recommendations to the Secretary of the U.S. Department of Health and Human Services and to the Senate Committee on Health, Education, Labor and Pensions, and the House of Representatives Committee on Energy and Commerce.

#### Appendix G: Other Health Workforce Advisory Groups

The Department also engaged and invited input from three advisory committees not specifically mentioned in the CARES Act but with whom the Department regularly engages on matters related to the health workforce. Letters from these advisory committees are included separately.

#### Advisory Committee on Interdisciplinary, Community-Based Linkages

The Advisory Committee on Interdisciplinary, Community-Based Linkages (ACICBL) is authorized by section 757 of the Public Health Service Act (42 U.S.C. 294f), as amended by the Patient Protection and Affordable Care Act, Public Law 111-148. ACICBL provides advice and recommendations on policy and program development to the Secretary of Health and Human Services (Secretary) concerning the activities under Title VII, Part D of the Public Health Service Act, and is responsible for submitting an annual report to the Secretary and Congress describing the activities of ACICBL, including its findings and recommendations concerning the activities under Part D of Title VII. In addition, ACICBL develops, publishes, and implements performance measures and guidelines for longitudinal evaluations, as well as recommends appropriation levels for programs under this part. ACICBL focuses on the following targeted program areas and/or disciplines: Area Health Education Centers, Geriatrics, Allied Health, Chiropractic, Podiatric Medicine, Social Work, Graduate Psychology, and Rural Health.

#### **National Advisory Council on Nurse Education and Practice**

The National Advisory Council on Nurse Education and Practice (NACNEP) is required by section 851 of the Public Health Service Act (42 U.S.C. 297t), as amended. NACNEP provides advice and recommendations on policy, program, and general regulation development to the Secretary of Health and Human Services (Secretary) and Congress with respect to the administration of Title VIII of the Public Health Service Act. This includes the range of issues relating to nurse workforce, nurse supply, education, and practice improvement. In addition, NACNEP is responsible for submitting an annual report to the Secretary and Congress on its activities, including findings and recommendations concerning the activities under Title VIII.

#### **National Advisory Council on the National Health Service Corps**

The National Advisory Council on the National Health Service Corps (NACNHSC) was established under section 337 of the Public Health Service Act (42 USC 254j), as amended by Section 10501 of the Affordable Care Act. NACNHSC is governed by provisions of Public Law 92-463 (5 USC App. 2), which set forth standards for the formation and use of advisory committees. NACNHSC serves as a forum to discuss and identify the priorities of the National Health Service Corps (NHSC), bring forward new priorities as needed, and anticipate health workforce emerging program trends as well as challenges. NACNHSC provides ongoing communication with Council members, professional organizations, and with the NHSC. NACNHSC functions as a sounding board for proposed policy changes by using its expertise to advise on specific program areas and new initiatives.

### Appendix H: Endnotes

- <sup>1</sup> White House. January 21, 2021. "Executive Order on Establishing the COVID-19 Pandemic Testing Board and Ensuring a Sustainable Public Health Workforce for COVID-19 and Other Biological Threats." <a href="https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/21/executive-order-establishing-the-covid-19-pandemic-testing-board-and-ensuring-a-sustainable-public-health-workforce-for-covid-19-and-other-biological-threats/(Accessed October 22, 2021).
- <sup>2</sup> U.S. Department of Health and Human Services. n.d. "Healthy People 2020: Access to Health Services." Last Modified October 8, 2020. <a href="https://www.healthypeople.gov/2020/topics-objectives/topic/Access-to-Health-Services">https://www.healthypeople.gov/2020/topics-objectives/topic/Access-to-Health-Services</a> (Accessed October 22, 2021).
- <sup>3</sup> Starfield, B., L. Shi, and J. Macinko. 2005. "Contribution of Primary Care to Health Systems and Health." *Milbank Q* 83 (3): 457-502. <a href="https://doi.org/10.1111/j.1468-0009.2005.00409.x">https://doi.org/10.1111/j.1468-0009.2005.00409.x</a>. <sup>4</sup> U.S. Department of Health and Human Services. n.d. "Healthy People 2020: Oral Health." Last Modified October 8, 2020. <a href="https://www.healthypeople.gov/2020/topics-objectives/topic/oral-health">https://www.healthypeople.gov/2020/topics-objectives/topic/oral-health</a> (Accessed October 22, 2021).
- <sup>5</sup> Institute of Medicine, National Cancer Policy Forum. 2009. "Supply and Demand in the Health Care Workforce." *Ensuring Quality Cancer Care through the Oncology Workforce: Sustaining Care in the 21st Century: Workshop Summary*, 3-12. Washington, DC: National Academies Press. <a href="https://www.ncbi.nlm.nih.gov/books/NBK215247/">https://www.ncbi.nlm.nih.gov/books/NBK215247/</a> (Accessed October 22, 2021).
- <sup>6</sup> U.S. Bureau of Labor Statistics. n.d. "Healthcare Occupations." Occupational Outlook Handbook. Last Modified September 8, 2021. <a href="https://www.bls.gov/ooh/healthcare/home.htm">https://www.bls.gov/ooh/healthcare/home.htm</a> (Accessed October 22, 2021).
- <sup>7</sup> Health Resources and Services Administration, National Center for Health Workforce Analysis. n.d. *Oral Health Workforce Projections, 2017-2030: Dentists and Dental Hygienists.* Rockville, MD: Health Resources and Services Administration. https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/oral-health-2017-

nttps://bnw.nrsa.gov/sites/default/files/bureau-nealtn-workforce/data-research/oral-nealtn-201/-2030.pdf (Accessed October 22, 2021).

- <sup>8</sup> Ellison, E. Christopher, Timothy M. Pawlik, David P. Way, Bhagwan Satiani, and Thomas E. Williams. 2018. "Ten-Year Reassessment of the Shortage of General Surgeons: Increases in Graduation Numbers of General Surgery Residents are Insufficient to Meet the Future Demand for General Surgeon." *Surgery* 164 (4): 726-732. <a href="https://pubmed.ncbi.nlm.nih.gov/30098811/">https://pubmed.ncbi.nlm.nih.gov/30098811/</a> (Accessed July 15, 2021).
- <sup>9</sup> Health Resources and Services Administration, National Center for Health Workforce Analysis. n.d. *Behavioral Health Workforce Projections, 2017-2030*. Rockville, MD: Health Resources and Services Administration.
- https://bhw.hrsa.gov/sites/default/files/bhw/nchwa/projections/bh-workforce-projections-fact-sheet.pdf (Accessed October 22, 2021).
- <sup>10</sup> Institute on Community Integration, University of Minnesota. 2021. "Direct Support Workforce." <a href="https://ici.umn.edu/program-areas/community-living-and-employment/direct-support-workforce">https://ici.umn.edu/program-areas/community-living-and-employment/direct-support-workforce</a> (Accessed October 22, 2021).

- <sup>11</sup> Institute of Medicine. 2014. *Graduate Medical Education That Meets the Nation's Health Needs*, ed. Jill Eden, Donald Berwick and Gail Wilensky. Washington, DC: The National Academies Press. <a href="https://www.nap.edu/catalog/18754/graduate-medical-education-that-meets-the-nations-health-needs">https://www.nap.edu/catalog/18754/graduate-medical-education-that-meets-the-nations-health-needs</a> (Accessed October 22, 2021).
- <sup>12</sup> National Academies of Sciences, Engineering, and Medicine. 2017. *Future Financial Economics of Health Professional Education: Proceedings of a Workshop*, ed. Patricia A. Cuff and Megan M. Perez. Washington, DC: The National Academies Press. <a href="https://www.nap.edu/catalog/24736/future-financial-economics-of-health-professional-education-proceedings-of-a">https://www.nap.edu/catalog/24736/future-financial-economics-of-health-professional-education-proceedings-of-a</a> (Accessed October 22, 2021).
- <sup>13</sup> Phillips, Julie P., Stephen M. Petterson, Andrew W. Bazemore, and Robert L. Phillips. 2014. "A Retrospective Analysis of the Relationship Between Medical Student Debt and Primary Care Practice in the United States." *Ann Fam Med* 12 (6): 542-549. <a href="https://doi.org/10.1370/afm.1697">https://doi.org/10.1370/afm.1697</a>. <sup>14</sup> Jolly, P. 2005. "Medical School Tuition and Young Physicians' Indebtedness." *Health Aff (Millwood)* 24 (2): 527-535. <a href="https://doi.org/10.1377/hlthaff.24.2.527">https://doi.org/10.1377/hlthaff.24.2.527</a>.
- <sup>15</sup> Regenstein, Marsha, Kiki Nocella, Mariellen Malloy Jewers, and Fitzhugh Mullan. 2016. "The Cost of Residency Training in Teaching Health Centers." *N Engl J Med* 375 (7): 612-614. https://doi.org/10.1056/NEJMp1607866.
- <sup>16</sup> National Academies of Sciences, Engineering, and Medicine. 2017. *Future Financial Economics of Health Professional Education: Proceedings of a Workshop*, ed. Patricia A. Cuff and Megan M. Perez. Washington, DC: The National Academies Press. <a href="https://www.nap.edu/catalog/24736/future-financial-economics-of-health-professional-education-proceedings-of-a">https://www.nap.edu/catalog/24736/future-financial-economics-of-health-professional-education-proceedings-of-a</a> (Accessed October 22, 2021).
- <sup>17</sup> U.S. Government Accountability Office. December 11, 2015. *Health Care Workforce: Comprehensive Planning by HHS Needed to Meet National Needs.* GAO-16-17. Washington, DC: U.S. Government Accountability Office. <a href="https://www.gao.gov/products/GAO-16-17">https://www.gao.gov/products/GAO-16-17</a> (Accessed October 22, 2021).
- <sup>18</sup> Health Resources and Services Administration, National Center for Health Workforce Analysis. November 2016. *National and Regional Projections of Supply and Demand for Primary Care Practitioners: 2013-2025*. Rockville, MD: Health Resources and Services Administration. <a href="https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/primary-care-national-projections-2013-2025.pdf">https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/primary-care-national-projections-2013-2025.pdf</a>. (Accessed October 22, 2021).
- <sup>19</sup> National Academies of Sciences, Engineering, and Medicine. 2017. *Future Financial Economics of Health Professional Education: Proceedings of a Workshop*, ed. Patricia A. Cuff and Megan M. Perez. Washington, DC: The National Academies Press. <a href="https://www.nap.edu/catalog/24736/future-financial-economics-of-health-professional-education-proceedings-of-a">https://www.nap.edu/catalog/24736/future-financial-economics-of-health-professional-education-proceedings-of-a</a> (Accessed October 22, 2021).
- <sup>20</sup> Reyes-Akinbileje, Bernice. August 13, 2013. *Health Workforce Programs in Title VII of the Public Health Service Act. R43177*. Washington, DC: Congressional Research Service. <a href="https://www.hsdl.org/?view&did=744097">https://www.hsdl.org/?view&did=744097</a> (Accessed October 22, 2021).
- <sup>21</sup> Wakefield, Mary. 2014. "Improving the Health of the Nation: HRSA's Mission to Achieve Health Equity." *Public Health Rep* 129 Suppl 2 (Suppl 2): 3-4. <a href="https://doi.org/10.1177/00333549141291S202">https://doi.org/10.1177/00333549141291S202</a>.
- <sup>22</sup> Health Resources and Services Administration, National Center for Health Workforce Analysis. August 2017. *Sex, Race, and Ethnic Diversity of U.S, Health Occupations (2011-2015)*. Rockville, MD: Health Resources and Services Administration.

https://bhw.hrsa.gov/sites/default/files/bhw/nchwa/diversityushealthoccupations.pdf (Accessed October 22, 2021).

- <sup>23</sup> Council on Graduate Medication Education. May 2016. *Resource Paper: Supporting Diversity in the Health Professions*. Rockville, MD: Health Resources and Services Administration. <a href="https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/graduate-medical-edu/resource-papers/May2016.pdf">https://www.hrsa.gov/sites/default/files/hrsa/advisory-committees/graduate-medical-edu/resource-papers/May2016.pdf</a> (Accessed October 22, 2021).
- <sup>24</sup> National Academies of Sciences, Engineering, and Medicine. 2017. *Future Financial Economics of Health Professional Education: Proceedings of a Workshop*, ed. Patricia A. Cuff and Megan M. Perez. Washington, DC: The National Academies Press. <a href="https://www.nap.edu/catalog/24736/future-financial-economics-of-health-professional-education-proceedings-of-a">https://www.nap.edu/catalog/24736/future-financial-economics-of-health-professional-education-proceedings-of-a</a> (Accessed October 22, 2021).
- <sup>25</sup> Accreditation Council for Graduate Medical Education. 2019. 2019 Milestones National Report. Chicago, IL: Accreditation Council for Graduate Medical Education. <a href="https://www.acgme.org/Portals/0/PDFs/Milestones/2019MilestonesNationalReportFinal.pdf?ver=2019-09-30-110837-587">https://www.acgme.org/Portals/0/PDFs/Milestones/2019MilestonesNationalReportFinal.pdf?ver=2019-09-30-110837-587</a> (Accessed October 22, 2021).
- <sup>26</sup> Mehrotra, Ateev, Michael Chernew, David Linetsky, Hilary Hatch, and David Cutler. "The Impact of the COVID-19 Pandemic on Outpatient Visits: A Rebound Emerges." *To the Point* (blog), *Commonwealth Fund*. May 19, 2020.
- https://www.commonwealthfund.org/publications/2020/apr/impact-covid-19-outpatient-visits (Accessed October 22, 2021).
- <sup>27</sup> Association of American Medical Colleges. November 2016. *Policy Priorities to Improve the Nation's Health. From America's Medical Schools and Teaching Hospitals*. Washington, DC: Association of American Medical Colleges. <a href="https://www.aamc.org/system/files/c/2/472838-policy-priorities-improve-nations-health.pdf">https://www.aamc.org/system/files/c/2/472838-policy-priorities-improve-nations-health.pdf</a> (Accessed October 22, 2021).
- <sup>28</sup> Surdyk, Patricia M. 2017. "The History of Sponsoring Institutions, 1982-2017." *J Grad Med Educ* 9 (6 Suppl): 7-10. <a href="https://doi.org/10.4300/1949-8349.9.6s.7">https://doi.org/10.4300/1949-8349.9.6s.7</a>.
- <sup>29</sup> Health Resources and Services Administration. n.d. "Teaching Health Center Graduate Medical Education (THCGME) Program." Last Modified February 2021. <a href="https://bhw.hrsa.gov/funding/apply-grant/teaching-health-center-graduate-medical-education">https://bhw.hrsa.gov/funding/apply-grant/teaching-health-center-graduate-medical-education</a> (Accessed October 22, 2021).
- <sup>30</sup> Institute of Medicine. 2014. *Graduate Medical Education That Meets the Nation's Health Needs*, ed. Jill Eden, Donald Berwick and Gail Wilensky. Washington, DC: The National Academies Press. <a href="https://www.nap.edu/catalog/18754/graduate-medical-education-that-meets-the-nations-health-needs">https://www.nap.edu/catalog/18754/graduate-medical-education-that-meets-the-nations-health-needs</a> (Accessed October 22, 2021).
- <sup>31</sup> Barrett, Felicia A., Martin S. Lipsky, and May Nawal Lutfiyya. 2011. "The Impact of Rural Training Experiences on Medical Students: A Critical Review." *Acad Med* 86 (2): 259-263. https://doi.org/10.1097/ACM.0b013e3182046387.
- <sup>32</sup> Kwan, Jennifer M., Dania Daye, Mary Lou Schmidt, Claudia Morrissey Conlon, Hajwa Kim, Bilwaj Gaonkar, Aimee S. Payne, Megan Riddle, Sharline Madera, Alexander J. Adami, and Kate Quinn. Winter. 2017. "Exploring Intentions of Physician-Scientist Trainees: Factors Influencing MD and MD/Phd Interest in Research Careers." *BMC Med Educ* 17 (1): 115-115. https://doi.org/10.1186/s12909-017-0954-8.
- <sup>33</sup> Klink, K. A., S. E. Joice, and S. K. McDevitt. 2014. "Impact of the Affordable Care Act on Grant-Supported Primary Care Faculty Development." *J Grad Med Educ* 6 (3): 419-423. https://doi.org/10.4300/jgme-d-14-00329.1.

- <sup>34</sup> Shipman, S. A., and C. A. Sinsky. 2013. "Expanding Primary Care Capacity by Reducing Waste and Improving the Efficiency of Care." *Health Aff (Millwood)* 32 (11): 1990-1997. https://doi.org/10.1377/hlthaff.2013.0539.
- Association. February 2015. *Quality of Life Impacts the Recruitment and Retention of Rural Health Providers*. Washington, DC: National Rural Health Association. <a href="https://www.ruralhealthweb.org/getattachment/Advocate/Policy-Documents/QualityofLifeRecruitmentRetentionProvidersFeb2015.pdf.aspx?lang=en-US">https://www.ruralhealthweb.org/getattachment/Advocate/Policy-Documents/QualityofLifeRecruitmentRetentionProvidersFeb2015.pdf.aspx?lang=en-US</a> (Accessed October 22, 2021).
- <sup>36</sup> National Academies of Sciences, Engineering, and Medicine. 2019. *Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-Being*. Washington, DC: The National Academies Press. <a href="https://www.nap.edu/catalog/25521/taking-action-against-clinician-burnout-a-systems-approach-to-professional">https://www.nap.edu/catalog/25521/taking-action-against-clinician-burnout-a-systems-approach-to-professional</a> (Accessed October 22, 2021).
- <sup>37</sup> Miguel-Puga, José Adán, Davis Cooper-Bribiesca, Francisco José Avelar-Garnica, Luis Alejandro Sanchez-Hurtado, Tania Colin-Martínez, Eliseo Espinosa-Poblano, Juan Carlos Anda-Garay, Jorge Iván González-Díaz, Oscar Bernardo Segura-Santos, Luz Cristina Vital-Arriaga, Kathrine Jáuregui-Renaud. 2021. "Burnout, Depersonalization and Anxiety Contribute to Posttraumatic Stress in Frontline Health Workers at COVID-19 Patient Care, a Follow-Up Study." *Brain Behav.* e02007. <a href="https://doi.org/10.1002/brb3.2007">https://doi.org/10.1002/brb3.2007</a>.
- <sup>38</sup> Centers for Medicare & Medicaid Services. June 23, 2020. "CMS Unveils Major Organizational Change to Reduce Provider and Clinician Burden and Improve Patient Outcomes." <a href="https://www.cms.gov/newsroom/press-releases/cms-unveils-major-organizational-change-reduce-provider-and-clinician-burden-and-improve-patient">https://www.cms.gov/newsroom/press-releases/cms-unveils-major-organizational-change-reduce-provider-and-clinician-burden-and-improve-patient</a> (Accessed October 22, 2021). <sup>39</sup> Shipman, S. A., and C. A. Sinsky. 2013. "Expanding Primary Care Capacity by Reducing Waste and Improving the Efficiency of Care." *Health Aff (Millwood)* 32 (11): 1990-1997.
- https://doi.org/10.1377/hlthaff.2013.0539.

  40 Association of State and Territorial Health Officials. 2016. *Issue Brief: Utilizing Community Health Workers to Improve Access to Care for Maternal and Child Populations: Four State Approaches*. Arlington, VA: Association of State and Territorial Health Officials. <a href="https://astho.org/Maternal-and-Child-Health/AIM-Access-CHW-Issue-Brief/">https://astho.org/Maternal-and-Child-Health/AIM-Access-CHW-Issue-Brief/</a> (Accessed October 22, 2021).
- <sup>41</sup> Health Resources and Services Administration, National Center for Health Workforce Analysis. November 2016. *National and Regional Projections of Supply and Demand for Primary Care Practitioners: 2013-2025*. Rockville, MD: Health Resources and Services Administration. <a href="https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/primary-care-national-projections-2013-2025.pdf">https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/primary-care-national-projections-2013-2025.pdf</a>. (Accessed October 22, 2021).
- <sup>42</sup> Facilities automatically designated as HPSAs based on statute or through regulation include Federally Qualified Health Centers (FQHC), FQHC Look-A-Likes, Indian Health Facilities, Indian Health Service and Tribal Hospitals, Dual-funded Community Health Centers and Tribal Clinics, and CMS-Certified Rural Health Clinics.
- <sup>43</sup> Health Resources and Services Administration. n.d. "Shortage Areas." Last Modified October 21, 2021. <a href="https://data.hrsa.gov/topics/health-workforce/shortage-areas">https://data.hrsa.gov/topics/health-workforce/shortage-areas</a> (Accessed October 22, 2021).
- <sup>44</sup> Cosby, A. G., M. M. McDoom-Echebiri, W. James, H. Khandekar, W. Brown, and H. L. Hanna. 2019. "Growth and Persistence of Place-Based Mortality in the United States: The Rural

Mortality Penalty." *Am J Public Health* 109 (1): 155-162. https://doi.org/10.2105/ajph.2018.304787.

- <sup>45</sup> Petterson, S. M., R. L. Phillips, Jr., A. W. Bazemore, and G. T. Koinis. 2013. "Unequal Distribution of the U.S. Primary Care Workforce." *Am Fam Physician* 87 (11). https://www.ncbi.nlm.nih.gov/pubmed/23939507.
- <sup>46</sup> Liu, X., L. Dou, H. Zhang, Y. Sun, and B. Yuan. 2015. "Analysis of Context Factors in Compulsory and Incentive Strategies for Improving Attraction and Retention of Health Workers in Rural and Remote Areas: A Systematic Review." *Hum Resour Health* 13: 61. <a href="https://doi.org/10.1186/s12960-015-0059-6">https://doi.org/10.1186/s12960-015-0059-6</a>.
- <sup>47</sup> U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. n.d. "Rural Communities." Last Modified July 7, 2021. <a href="https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/other-at-risk-populations/rural-communities.html#why-higher-risk">https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/other-at-risk-populations/rural-communities.html#why-higher-risk</a> (Accessed October 22, 2021).
- <sup>48</sup> Health Resources and Services Administration, National Center for Health Workforce Analysis. n.d. "Projecting Health Workforce Supply and Demand." Last Modified April 2021. <a href="https://bhw.hrsa.gov/data-research/projecting-health-workforce-supply-demand">https://bhw.hrsa.gov/data-research/projecting-health-workforce-supply-demand</a> (Accessed October 21, 2021).
- <sup>49</sup> Rayburn, W. F., M. E. Richards, and E. C. Elwell. 2012. "Drive Times to Hospitals with Perinatal Care in the United States." *Obstet Gynecol* 119 (3): 611-616. https://doi.org/10.1097/AOG.0b013e318242b4cb.
- <sup>50</sup> Liu, X., L. Dou, H. Zhang, Y. Sun, and B. Yuan. 2015. "Analysis of Context Factors in Compulsory and Incentive Strategies for Improving Attraction and Retention of Health Workers in Rural and Remote Areas: A Systematic Review." *Hum Resour Health* 13: 61. <a href="https://doi.org/10.1186/s12960-015-0059-6">https://doi.org/10.1186/s12960-015-0059-6</a>.
- <sup>51</sup> Barrett, F. A., M. S. Lipsky, and M. N. Lutfiyya. 2011. "The Impact of Rural Training Experiences on Medical Students: A Critical Review." *Acad Med* 86 (2): 259-63. https://doi.org/10.1097/ACM.0b013e3182046387.
- <sup>52</sup> Goodfellow, A., J. G. Ulloa, P. T. Dowling, E. Talamantes, S. Chheda, C. Bone, and G. Moreno. 2016. "Predictors of Primary Care Physician Practice Location in Underserved Urban or Rural Areas in the United States: A Systematic Literature Review." *Acad Med* 91 (9): 1313-1321. https://doi.org/10.1097/acm.000000000001203.
- <sup>53</sup> Downey, L. H., J. R. Wheat, J. D. Leeper, J. A. Florence, J. G. Boulger, and M. L. Hunsaker. 2011. "Undergraduate Rural Medical Education Program Development: Focus Group Consultation with the NRHA Rural Medical Educators Group." *J Rural Health* 27 (2): 230-238. https://doi.org/10.1111/j.1748-0361.2010.00334.x.
- <sup>54</sup> Rosenblatt, R. A., F. M. Chen, D. M. Lishner, M. P. Doescher, and WWAMI Rural Health Research Center. August 2010. *The Future of Family Medicine and Implications for Rural Primary Care Physician Supply. Final Report #125*. Seattle, WA: WWAMI Rural Health Research Center. <a href="http://depts.washington.edu/uwrhrc/uploads/RHRC\_FR125\_Rosenblatt.pdf">http://depts.washington.edu/uwrhrc/uploads/RHRC\_FR125\_Rosenblatt.pdf</a> (Accessed October 22, 2021).
- Workforce Policy for Rural Communities? Rensselaer, NY: Oral Health Workforce Research Center, Center for Health Workforce Studies, School of Public Health, SUNY Albany. <a href="http://www.oralhealthworkforce.org/wp-content/uploads/2020/10/OHWRC">http://www.oralhealthworkforce.org/wp-content/uploads/2020/10/OHWRC</a> Dental Workforce Policy for Rural Communities 2020.pd

 $\underline{\mathbf{f}}$  (Accessed October 22, 2021). 76 | P a g e

- <sup>56</sup> Terry, D. R., B. Peck, A. Smith, T. Stevenson, and E. Baker. 2019. "Is Nursing Student Personality Important for Considering a Rural Career?" *J Health Organ Manag* 33 (5): 617-634. https://doi.org/10.1108/jhom-03-2019-0074.
- <sup>57</sup> Kaplan, L., T. Klein, S. Skillman, and C. H. Andrilla. 2016. "Faculty Supervision of NP Program Practicums: A Comparison of Rural and Urban Site Differences." *Nurse Pract* 41 (7): 36-42. <a href="https://doi.org/10.1097/01.NPR.0000484321.06426.fa">https://doi.org/10.1097/01.NPR.0000484321.06426.fa</a>.
- <sup>58</sup> Schwartz, M. R., D. G. Patterson, and R. L. McCarty. December 2019. *State Incentive Programs that Encourage Allied Health Professionals to Provide Care for Rural and Underserved Populations*. Seattle, WA: Center for Health Workforce Studies, University of Washington. <a href="https://depts.washington.edu/fammed/chws/wp-content/uploads/sites/5/2019/12/State-Incentive-Programs-Allied-Health-FR-2019.pdf">https://depts.washington.edu/fammed/chws/wp-content/uploads/sites/5/2019/12/State-Incentive-Programs-Allied-Health-FR-2019.pdf</a> (Accessed October 22, 2021).
- <sup>59</sup> Domino, M. E., C. C. Lin, J. P. Morrissey, A. R. Ellis, E. Fraher, E. L. Richman, K. C. Thomas, and M. J. Prinstein. 2019. "Training Psychologists for Rural Practice: Exploring Opportunities and Constraints." *J Rural Health* 35 (1): 35-41. <a href="https://doi.org/10.1111/jrh.12299">https://doi.org/10.1111/jrh.12299</a>. <sup>60</sup> Liu, X., L. Dou, H. Zhang, Y. Sun, and B. Yuan. 2015. "Analysis of Context Factors in Compulsory and Incentive Strategies for Improving Attraction and Retention of Health Workers in Rural and Remote Areas: A Systematic Review." *Hum Resour Health* 13: 61. <a href="https://doi.org/10.1186/s12960-015-0059-6">https://doi.org/10.1186/s12960-015-0059-6</a>.
- <sup>61</sup> Academy Health. December 2017. *Rapid Evidence Review: What are Effective Approaches for Recruiting and Retaining Rural Primary Care Health Professionals?* Academy Health. <a href="https://academyhealth.org/publications/2018-01/rapid-evidence-review-what-are-effective-approaches-recruiting-and-retaining">https://academyhealth.org/publications/2018-01/rapid-evidence-review-what-are-effective-approaches-recruiting-and-retaining</a>. (Accessed October 22, 2021).
- Morken, C., K. Bruksch-Meck, B. Crouse, and K. Traxler. 2018. "Factors Influencing Rural Physician Retention Following Completion of a Rural Training Track Family Medicine Residency Program." WMJ 117 (5): 208-210. <a href="https://www.ncbi.nlm.nih.gov/pubmed/30674097">https://www.ncbi.nlm.nih.gov/pubmed/30674097</a>.
   Weil, A. R. 2017. "Pursuing Health Equity." Health Aff (Millwood) 36 (6): 975-975. <a href="https://doi.org/10.1377/hlthaff.2017.0583">https://doi.org/10.1377/hlthaff.2017.0583</a>.
- <sup>64</sup> Azar, Alex M. November 18, 2018. "Remarks on Primary Care and Value-Based Transformation. Remarks to the Patient-Centered Primary Care Collaborative (Washington, D.C.) on November 8, 2018." Washington, DC: U.S. Department of Health and Human Services. <a href="https://www.hhs.gov/about/leadership/secretary/speeches/2018-speeches/remarks-on-primary-care-and-value-based-transformation.html">https://www.hhs.gov/about/leadership/secretary/speeches/2018-speeches/remarks-on-primary-care-and-value-based-transformation.html</a> (Accessed October 22, 2021).
- <sup>65</sup> Ellner, A. L., and R. S. Phillips. 2017. "The Coming Primary Care Revolution." *J Gen Intern Med* 32 (4): 380-386. https://doi.org/10.1007/s11606-016-3944-3.
- <sup>66</sup> Wakefield, Mary. 2014. "Improving the Health of the Nation: HRSA's Mission to Achieve Health Equity." *Public Health Rep* 129 Suppl 2 (Suppl 2): 3-4. <a href="https://doi.org/10.1177/003335491412918202">https://doi.org/10.1177/003335491412918202</a>.
- <sup>67</sup> Welp, A., A. Johnson, H. Nguyen, and L. Perry. 2018. "The Importance of Reflecting on Practice: How Personal Professional Development Activities Affect Perceived Teamwork and Performance." *J Clin Nurs* 27 (21-22): 3988-3999. <a href="https://doi.org/10.1111/jocn.14519">https://doi.org/10.1111/jocn.14519</a>.
- <sup>68</sup> Dill, M. J., S. Pankow, C. Erikson, and S. Shipman. 2013. "Survey Shows Consumers Open to a Greater Role for Physician Assistants and Nurse Practitioners." *Health Aff (Millwood)* 32 (6): 1135-1142. <a href="https://doi.org/10.1377/hlthaff.2012.1150">https://doi.org/10.1377/hlthaff.2012.1150</a>.
- <sup>69</sup> Giberson, S., S. Yoder, and M. P. Lee. December 2011. *Improving Patient and Health System Outcomes through Advanced Pharmacy Practice. A Report to the U.S. Surgeon General*. | P a g e

Rockville, MD: Office of the Chief Pharmacist, U.S. Public Health Service.

https://dcp.psc.gov/OSG/pharmacy/sc comms sg report.aspx (Accessed October 22, 2021).

- <sup>70</sup> Mehrotra, Ateev, Michael Chernew, David Linetsky, Hilary Hatch, and David Cutler. "The Impact of the COVID-19 Pandemic on Outpatient Visits: A Rebound Emerges." *To the Point* (blog), *Commonwealth Fund*. May 19, 2020.
- https://www.commonwealthfund.org/publications/2020/apr/impact-covid-19-outpatient-visits (Accessed October 22, 2021).
- <sup>71</sup> Weil, A. R. 2017. "Pursuing Health Equity." *Health Aff (Millwood)* 36 (6): 975-975. https://doi.org/10.1377/hlthaff.2017.0583.
- <sup>72</sup> Shigekawa, E., M. Fix, G. Corbett, D. H. Roby, and J. Coffman. 2018. "The Current State of Telehealth Evidence: A Rapid Review." *Health Aff (Millwood)* 37 (12): 1975-1982. https://doi.org/10.1377/hlthaff.2018.05132.
- <sup>73</sup> Academy Health. December 2017. *Rapid Evidence Review: What are Effective Approaches for Recruiting and Retaining Rural Primary Care Health Professionals?* Academy Health. <a href="https://academyhealth.org/publications/2018-01/rapid-evidence-review-what-are-effective-approaches-recruiting-and-retaining">https://academyhealth.org/publications/2018-01/rapid-evidence-review-what-are-effective-approaches-recruiting-and-retaining</a> (Accessed October 22, 2021).
- <sup>74</sup> Welp, A., A. Johnson, H. Nguyen, and L. Perry. 2018. The Importance of Reflecting on Practice: How Personal Professional Development Activities Affect Perceived Teamwork and Performance." *J Clin Nurs* 27 (21-22): 3988-3999. <a href="https://doi.org/10.1111/jocn.14519">https://doi.org/10.1111/jocn.14519</a>.
- <sup>75</sup> Riley, C., L. A. Spies, L. Prater, and S. L. Garner. 2019. "Improving Neonatal Outcomes Through Global Professional Development." *Adv Neonatal Care* 19 (1): 56-64. https://doi.org/10.1097/anc.0000000000000550.
- <sup>76</sup> McCann, E., and M. Brown. 2018. "The Inclusion of LGBT+ Health Issues within Undergraduate Healthcare Education and Professional Training Programmes: A Systematic Review." *Nurse Educ Today* 64: 204-214. <a href="https://doi.org/10.1016/j.nedt.2018.02.028">https://doi.org/10.1016/j.nedt.2018.02.028</a>.
- <sup>77</sup> Gibson-Helm, M., E. C. Tassone, H. J. Teede, A. Dokras, and R. Garad. 2018. "The Needs of Women and Healthcare Providers regarding Polycystic Ovary Syndrome Information, Resources, and Education: A Systematic Search and Narrative Review." *Semin Reprod Med* 36 (1): 35-41. https://doi.org/10.1055/s-0038-1668086.
- <sup>78</sup> Agency for Healthcare Research and Quality. n.d. "Project ECHO." Last Modified September 2020. <a href="https://www.ahrq.gov/patient-safety/resources/project-echo/index.html">https://www.ahrq.gov/patient-safety/resources/project-echo/index.html</a> (Accessed October 22, 2021).
- <sup>79</sup> Johnson, J. E. 2013. "Working Together in the Best Interest of Patients." *J Am Board Fam Med* 26 (3): 241-243. https://doi.org/10.3122/jabfm.2013.03.130075.
- <sup>80</sup> Peterson, L. E., R. L. Phillips, J. C. Puffer, A. Bazemore, and S. Petterson. 2013. "Most Family Physicians Work Routinely with Nurse Practitioners, Physician Assistants, or Certified Nurse Midwives." *J Am Board Fam Med* 26 (3): 244-245. https://doi.org/10.3122/jabfm.2013.03.120312.
- <sup>81</sup> Dill, M. J., S. Pankow, C. Erikson, and S. Shipman. 2013. "Survey Shows Consumers Open to a Greater Role for Physician Assistants and Nurse Practitioners." *Health Aff (Millwood)* 32 (6): 1135-1142. https://doi.org/10.1377/hlthaff.2012.1150.
- <sup>82</sup> Kurtzman, E. T., and B. S. Barnow. 2017. "A Comparison of Nurse Practitioners, Physician Assistants, and Primary Care Physicians' Patterns of Practice and Quality of Care in Health Centers." *Med Care* 55 (6): 615-622. <a href="https://doi.org/10.1097/mlr.00000000000000089">https://doi.org/10.1097/mlr.000000000000000089</a>.

- <sup>83</sup> Naylor, M. D., and E. T. Kurtzman. 2010. "The Role of Nurse Practitioners in Reinventing Primary Care." *Health Aff (Millwood)* 29 (5): 893-899. <a href="https://doi.org/10.1377/hlthaff.2010.0440">https://doi.org/10.1377/hlthaff.2010.0440</a>.
- <sup>84</sup> Margolius, D., and T. Bodenheimer. 2010. "Transforming Primary Care: From Past Practice to the Practice of the Future." *Health Aff (Millwood)* 29 (5): 779-784. https://doi.org/10.1377/hlthaff.2010.0045.
- <sup>85</sup> Peikes, D., A. Zutshi, J. Genevro, K. Smith, M. Parchman, and D. Meyers. February 2012. *Early Evidence on the Patient-Centered Medical Home. Final Report.* Rockville, MD: Agency for Health care Research and Quality.
- $\frac{https://pcmh.ahrq.gov/sites/default/files/attachments/Early\%20Evidence\%20on\%20the\%20PCM}{H\%202\%2028\%2012.pdf} (Accessed October 22, 2021).$
- <sup>86</sup> Ellner, A. L., and R. S. Phillips. 2017. "The Coming Primary Care Revolution." *J Gen Intern Med* 32 (4): 380-386. <a href="https://doi.org/10.1007/s11606-016-3944-3">https://doi.org/10.1007/s11606-016-3944-3</a>.
- <sup>87</sup> Mehrotra, Ateev, Michael Chernew, David Linetsky, Hilary Hatch, and David Cutler. "The Impact of the COVID-19 Pandemic on Outpatient Visits: A Rebound Emerges." *To the Point* (blog), *Commonwealth Fund*. May 19, 2020.
- $\underline{https://www.commonwealthfund.org/publications/2020/apr/impact-covid-19-outpatient-visits} \ (Accessed October 22, 2021).$
- <sup>88</sup> Wakefield, Mary. 2014. "Improving the Health of the Nation: HRSA's Mission to Achieve Health Equity." *Public Health Rep* 129 Suppl 2 (Suppl 2): 3-4. https://doi.org/10.1177/00333549141291S202.
- <sup>89</sup> Bates, D. W., and H. Singh. 2018. "Two Decades Since To Err Is Human: An Assessment Of Progress And Emerging Priorities In Patient Safety." *Health Aff (Millwood)* 37 (11): 1736-1743. https://doi.org/10.1377/hlthaff.2018.0738.
- <sup>90</sup> Ellner, A. L., and R. S. Phillips. 2017. "The Coming Primary Care Revolution." *J Gen Intern Med* 32 (4): 380-386. https://doi.org/10.1007/s11606-016-3944-3.
- <sup>91</sup> McDonald, K. M., E. Schultz, L. Albin, N. Pineda, J. Lonhart, V. Sundaram, C. Smith-Spangler, J. Brustrom, E. Malcolm, L. Rohn, and S. Davies. June 2014. *Care Coordination Measures Atlas Update*. Rockville, MD: Agency for Healthcare Research and Quality. <a href="https://www.ahrq.gov/ncepcr/care/coordination/atlas.html">https://www.ahrq.gov/ncepcr/care/coordination/atlas.html</a> (Accessed October 22, 2021).
- <sup>92</sup> U.S. Census Bureau. n.d. "U.S. and World Population Clock." https://www.census.gov/popclock (Accessed March 22, 2021).
- <sup>93</sup> U.S. Bureau of Labor Statistics. n.d. "Healthcare Occupations." Occupational Outlook Handbook. Last Modified September 8, 2021. <a href="https://www.bls.gov/ooh/healthcare/home.htm">https://www.bls.gov/ooh/healthcare/home.htm</a> (Accessed October 22, 2021).
- <sup>94</sup> Health Resources and Services Administration. n.d. "The National Center for Health Workforce Analysis (NCHWA)." Health Resources and Services Administration. https://bhw.hrsa.gov/health-workforce-analysis/about (Accessed October 22, 2021).
- <sup>95</sup> Health Resources and Services Administration, National Center for Health Workforce Analysis. 2019. *Technical Documentation for HRSA's Health Workforce Simulation Model. Version 4.2020.* Rockville, MD: Health Resources and Services Administration.

https://bhw.hrsa.gov/sites/default/files/bhw/health-workforce-

- <u>analysis/research/projections/technical-documentation-health-workforce-simulation-model.pdf</u> (Accessed October 22, 2021).
- 96 Health Resources and Services Administration, National Center for Health Workforce Analysis. 2019. *Technical Documentation for HRSA's Health Workforce Simulation Model*. a g e

- <sup>98</sup> Mehrotra, Ateev, Michael Chernew, David Linetsky, Hilary Hatch, and David Cutler. "The Impact of the COVID-19 Pandemic on Outpatient Visits: A Rebound Emerges." *To the Point* (blog), *Commonwealth Fund*. May 19, 2020.
- https://www.commonwealthfund.org/publications/2020/apr/impact-covid-19-outpatient-visits (Accessed October 22, 2021).
- <sup>99</sup> Grover, A., and L. M. Niecko-Najjum. 2013. "Building a Health Care Workforce for the Future: More Physicians, Professional Reforms, and Technological Advances." *Health Aff (Millwood)* 32 (11): 1922-1997. https://doi.org/10.1377/hlthaff.2013.0557.
- Health Resources and Services Administration, National Center for Health Workforce Analysis. 2019. *Technical Documentation for HRSA's Health Workforce Simulation Model. Version 4.2020.* Rockville, MD: Health Resources and Services Administration. <a href="https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/technical-documentation-health-workforce-simulation-model.pdf">https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/technical-documentation-health-workforce-simulation-model.pdf</a>. (Accessed October 22, 2021).

<sup>101</sup> Surdyk, Patricia M. 2017. "The History of Sponsoring Institutions, 1982-2017." *J Grad Med Educ* 9 (6 Suppl): 7-10. https://doi.org/10.4300/1949-8349.9.6s.7.

- <sup>102</sup> Mackey, A., and S. Bassendowski. 2017. "The History of Evidence-Based Practice in Nursing Education and Practice." *J Prof Nurs* 33 (1): 51-55. https://doi.org/10.1016/j.profnurs.2016.05.009.
- <sup>103</sup> Grover, A., and L. M. Niecko-Najjum. 2013. "Building a Health Care Workforce for the Future: More Physicians, Professional Reforms, and Technological Advances." *Health Aff (Millwood)* 32 (11): 1922-1927. <a href="https://doi.org/10.1377/hlthaff.2013.0557">https://doi.org/10.1377/hlthaff.2013.0557</a>.
- Definition of the Health Care Workforce." 2010. 42 U.S.C. 294q National Health Care Workforce Commission. <a href="https://www.govinfo.gov/app/details/USCODE-2010-title42/USCODE-2010-title42-chap6A-subchapV-partE-subpart1-sec294q">https://www.govinfo.gov/app/details/USCODE-2010-title42/USCODE-2010-title42-chap6A-subchapV-partE-subpart1-sec294q</a> (Accessed October 22, 2021).
- <sup>105</sup> National Research Council, Panel on a Research Agenda and New Data for an Aging World. 2001. "Chapter 6: The Health of Aging Populations." *Preparing for an Aging World: The Case for Cross-National Research*. Washington, DC: National Academies Press. https://www.ncbi.nlm.nih.gov/books/NBK98373/ (Accessed October 22, 2021).
- <sup>106</sup> Schottenfeld, L, D Petersen, D Peikes, R Ricciardi, H Burak, R McNellis, and J Genevro. March 2016. *Creating Patient-Centered Team-Based Primary Care. AHRQ Pub. No. 16-0002-EF*. Rockville, MD: Agency for Healthcare Research and Quality.

https://pcmh.ahrq.gov/sites/default/files/attachments/creating-patient-centered-team-based-primary-care-white-paper.pdf (Accessed October 22, 2021).