Letters

RESEARCH LETTER

State Repayment Programs for Health Care Education Loans

Repayment of loans for health care education is a popular incentive among states to attract clinicians to underserved areas. As of 1996, 37 states offered loan repayment programs for primary care clinicians, co-sponsored loan repayment programs with the State Loan Repayment Program of the National Health Service Corps (NHSC), or offered both programs.[1] Seven states also offered direct financial incentive programs, which are like loan repayment programs but allow clinicians flexibility in using program funds. In this study, we identified all state loan repayment and direct financial incentive programs for health professionals of all types as of 2010, described changes in program numbers from 2007 to 2010 during the first years of the worldwide recession with tight state budgets, and characterized the disciplines and size of the collective workforce by state.

Methods | We identified state programs by searching all available online compendia of programs,[2,3] under the terms "loan repayment" and each state's name, websites of known programs,[1] and websites of key recruitment offices by state. Program directors were contacted when program eligibility was uncertain. Eligible programs (1) provided loan repayment or direct financial incentives during the study period to any health professionals (apart from nurses solely below the master's level) and (2) required clinical service in underserved communities or practices.

We e-mailed questionnaires to all program directors of identified programs, which asked about changes in funding during the 4-year study period and requested tabulation of clinicians by each discipline serving in 2010. Nearly complete survey responses were received from 96 of 99 eligible programs (97%). Missing clinician count data were estimated for 1 or more missing disciplines in 8 programs (9%) using other information from questionnaires (eg, workforce figures for earlier years; n = 5 programs), secondary data (eg, a program report available online; n = 1 program), and a combination of these sources (n = 2 programs).

Results | States offered a total of 93 programs in 2010; 55 were solely state-funded loan repayment programs, 27 were joint state and NHSC loan repayment programs, and 11 were direct financial incentive programs (**Table**). The number of programs increased from 87 in 2007, with 12 programs created and 6 programs losing all funding (another 6 programs lost then regained funding after 1 or 2 years). All states except Florida, Hawaii, and Mississippi offered at least 1 program during this period.

A total of 3325 clinicians served in state programs as of 2010, with 1288 physicians constituting the single largest discipline (Table). Solely state-funded loan repayment programs fielded the largest workforce with 2284 clinicians, and they supported the highest number and proportion of mental health practitioners among the 3 program types. The number of participating clinicians varied across states from 2 to 488 (**Figure**).

Discussion | Loan repayment programs play a prominent role in efforts by states to meet the health workforce needs of underserved communities. Generally, they weathered the first years of the worldwide recession with modest growth in total program numbers. The 1395 primary care clinicians (physicians, physician assistants, nurse practitioners, and certified nurse midwives) serving in solely state-funded

Table. State Programs Combined Workforce Numbers in 2010 by Discipline and Type of Program[a]

	Loan Repayment Programs			
	Joint State and NHSC (n = 27)	Solely State-Funded (n = 55)	Direct Financial Incentive Programs (n = 11)	All Programs Combined (n = 93)
Physicians	313 (40)	863 (38)	112 (45)	1288 (39)
Physician assistants	111 (14)	158 (7)	20 (8)	289 (9)
Nurse practitioners	94 (12)	214 (9)	18 (7)	326 (10)
Certified nurse midwives	7 (1)	8 (1)	2 (1)	17 (1)
Dentists	115 (15)	281 (12)	10 (4)	406 (12)
Dental hygienists	14 (2)	28 (1)	3 (1)	45 (1)
Mental health	130 (16)	588 (26)	9 (4)	727 (22)
Other disciplines[b]	7 (1)	144 (6)	76 (30)	227 (7)
All clinicians	791 (100)	2284 (100)	250 (100)	3325 (100)

Abbreviation: NHSC, National Health Service Corps.

[a] Values are expressed as number (percentage).

[b] Includes pharmacists, physical therapists, occupational therapists, speech pathologists, and other.

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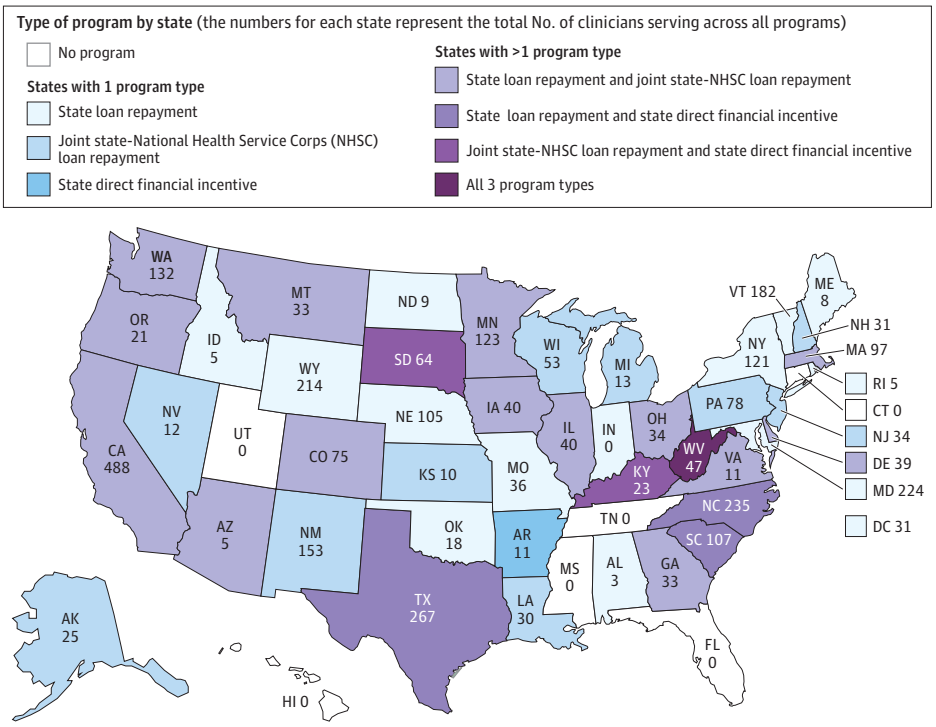
Figure. Types of Programs and Total Clinician Counts in Each State, 2010



loan repayment and direct incentive programs in 2010 was a large increase from the 777 primary care clinicians serving in these programs in 1996.[1]

Like the NHSC,[4] state programs support a diverse workforce. The combined workforce of 3325 primary care, mental health, and dental health clinicians in state programs in 2010 was larger than the 2500 clinicians in the NHSC's federal loan repayment program in 2008, but about half of the federal program's 7200 clinicians in 2010 following its rapid expansion under the American Recovery and Reinvestment Act.[4,5] For perspective, another 16 125 clinicians are currently needed within Health Professional Shortage Areas.[6]

Study limitations are that our search may have overlooked a few eligible programs, and clinician participant counts are self-reported by programs and some include our data-derived estimates.

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Study concept and design: Pathman, Goldberg, Konrad, Morgan.
Acquisition of data: Pathman, Goldberg.
Analysis and interpretation of data: Pathman, Konrad, Morgan.
Drafting of the manuscript: Pathman.
Critical revision of the manuscript for important intellectual content: Pathman, Goldberg, Konrad, Morgan.
Statistical analysis: Pathman, Konrad.
Obtained funding: Pathman.
Study supervision: Pathman.

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COMMENT & RESPONSE

Preventable Acute Care Spending for Medicare Patients

To the Editor The study on preventable acute care spending by Dr Joynt and colleagues[1] had a number of limitations. The authors did not look specifically at end-of-life costs and the savings generated by a physician who keeps a patient out of the hospital through the appropriate provision of palliative or hospice services would not be counted.

For example, if a nonambulatory patient with dementia and living in a nursing home rolled out of bed and broke her hip but did not have surgery, this event would not count as a preventable ED admission according to the methods used in the study, even though nonoperative management may be the best approach.[2]

The authors concluded that 41.0% of ED costs for high-cost patients were potentially preventable. A recent study estimated the downstream costs of ED care may be as high as 10% of the total US health care costs,[3] which implies there are more total cost savings than they calculated.

In addition, in the Discussion section, the authors wrote: "Our findings regarding the effect of primary care and specialty care on per-capita preventable costs are somewhat in contrast to prior work by Baicker and Chandra demonstrating that states with high primary care supply had lower costs and higher quality for their Medicare beneficiaries ... ."

The study by Baicker and Chandra[4] found a correlation between higher quality and lower costs and family physician supply, not all primary care physician supply. There is no evidence that internist or pediatrician supply is associated with higher quality and lower costs. In fact, higher internist supply is associated higher ED use, more hospital admissions, and higher costs; the opposite is true for family physicians.[5] There are differences among primary care physicians that result in system effects that the authors did not capture or analyze, which is an important limitation of their study.

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To the Editor Dr Joynt and colleagues[1] demonstrated limitations in cost savings achievable by reducing emergency department (ED) visits and hospitalizations for some of the most common preventable diseases faced by Medicare patients in a high-cost group.

However, the study used an algorithm created by Billings et al[2] to define preventable visits as those ED diagnosis codes that were determined to be nonemergent; emergent but primary care treatable; and emergent, ED care needed, but preventable.

Even though the algorithm by Billings et al[2] remains a convenient way for researchers to measure preventable ED visits, its convenience is outweighed by its fallibility. Determining preventability using a retrospective application of ED visit diagnostic codes can result in bias.

Joynt and colleagues[1] reported that 41.0% of ED visits in high-cost patients were potentially preventable, which is a strikingly high proportion. For example, a middle-aged man who comes to the ED with chest pain and has a normal electrocardiogram and a negative troponin level may be discharged with a preventable diagnosis of esophageal reflux. Yet if the testing had indicated that he had acute coronary syndrome, the determination of preventability would have been different.

Recent work by Raven et al[3] highlighted the major flaws of this algorithm and the limitations of using ED diagnostic codes to determine the urgency or preventability of a visit. We support abandoning use of the algorithm by Billings et al,[2] except perhaps for its original intent of tracking the status of the health care safety net.

Despite these limitations, the conclusions of the study by Joynt et al[1] may underemphasize the absolute amount of cost savings available by reducing hospitalizations that originate in the ED. The total amount of savings attributable to reducing 10% of admissions from the ED may be 2.5% of federal health expenditures,[4] accounting for $7 billion annually, which is no small sum with respect to bending the cost curve.

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