Enhancing the Care Continuum in Rural Areas: Survey of Community Health Center–Rural Hospital Collaborations

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ABSTRACT: ***Context:*** *Community Health Centers (CHCs) and Critical Access Hospitals (CAHs) play a significant role in providing health services for rural residents across the United States.* ***Purpose:*** *The overall goal of this study was to identify the CAHs that have collaborations with CHCs, as well as to recognize the content of the collaborations and the barriers and facilitators to collaborations.* ***Methods:*** *The target population was CAHs within 60 miles of CHCs. Surveys were mailed to 386 chief executive officers of CAHs in 41 states who met the study criteria. The response rate was 40.9%. A descriptive analysis using chi-square tests compared the status of partnerships along with factors identified as barriers and facilitators to collaboration.* ***Findings:*** *Out of the 161 CAH respondents, 24 (14.9%) reported having a collaborative agreement with a CHC, and 2 indicated that they planned to develop a collaborative agreement. A common reason given for not collaborating was lack of awareness of a CHC within the service area. Other barriers identified were competition with CHCs and organizational differences. External funding to start a collaborating service was the most frequently cited factor to facilitate collaborations.* ***Conclusions:*** *The findings indicate that collaborations between CAHs and CHCs are a largely untapped resource. The rural health care services continuum may benefit from increased collaborations.*

Rural America, with about 48 million persons in 2,052 counties in 2003, is faced with significant socioeconomic and health disparities. The rural population has disproportionately more poor and near-poor persons compared to urban populations.[1] In the most remote rural counties, 1 in every 4 residents is uninsured.[2] Rural residents are more likely to report fair or poor health, to suffer from chronic conditions such as diabetes, and to die prematurely.[3] Despite greater rural needs for care, fewer physicians are available to rural than to urban residents; with 20% of the US population, rural areas have only 9% of practicing physicians.[4] Physician/population ratios are lower in rural than in urban areas for both primary care physicians (5.3 vs 7.8 per 10,000) and specialists (7.8 vs 13.4).[5] Change is unlikely in the short term, because a very small minority of medical school graduates anticipate practicing in rural areas.[6] Nearly a third of rural counties (65%) are wholly or partly health professions shortage areas.[7] Due to geographically dispersed locations of rural providers, patients take longer to reach a provider.[8] As a result of geographic and financial access barriers, rural Americans disproportionately suffer the adverse impacts of chronic diseases, limitations on activities of daily living, and premature death.

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Community Health Centers

Community Health Centers (CHCs), supported in part by federal grants, have been a key element of the rural safety net. They provide comprehensive primary and preventive health care services to rural and inner-city populations, at reduced or no cost to patients (sliding fee scale based on income for patients without health insurance). In addition to conventional medical services, these centers provide a broad spectrum of enabling services, such as case management, health education, nutrition counseling, transportation, translation, child care, and child parenting classes, addressing many of the nonmedical needs of the rural population.[9] In 2004, over 900 CHCs (51% rural) served about 13.1 million residents of federally designated health underserved areas, a little less than a third of this population, providing care through 5,502 sites.[10]

Studies have shown that primary care services have "the potential to mitigate the negative effects of income inequality on health status."[9] Primary care is documented to exert significant influences on life expectancy and overall mortality, after controlling for income inequality in rural areas.[11] As noted by Politzer et al, to achieve these results, the source of primary care "must be regular and usual, user-friendly and engender the trust of its patients, . . . and the services must be integrated and accessible."[9] Rural CHCs are hampered, however, by a relatively high vacancy rate of primary care physician positions, taking longer time to fill vacancies, compared to urban CHCs.[12] Specialists are also in short supply in rural CHCs.

Critical Access Hospitals

Critical Access Hospitals (CAHs), along with other rural hospitals, may be well positioned to help bridge the physician shortages faced by rural CHCs. An analysis of 3 years of survey data on CAH services showed that most offered specialty clinics and many offered rural health clinics, obstetric care, and inpatient surgery.[13] About 20% of surveyed CAHs planned to expand services.

The CAH program was enacted to support the retention of hospital facilities in small and remote areas. Qualifying hospitals must be located in rural areas, at least 35 miles from another hospital (or 15 miles in areas with mountainous terrain or with only secondary roads), or certified by the state prior to January 1, 2006, as being a "necessary provider of health services." Once a hospital is certified as a CAH, it is restricted to 25 or fewer acute care beds and an average length of stay of 96 hours or less, and it must provide 24-hour emergency services. In exchange, CAHs receive cost-based reimbursement for Medicare beneficiaries rather than prospective payment. CAH status also permits more flexible staffing options relative to community need, allows capital improvement costs to be billed to and reimbursed by Medicare, and provides access to Flex program grant money. These features provide some funding support for hospitals to sustain their rural operations and better position them for cooperative activities with other providers, such as CHCs.

The CAH concept is implemented through the federal government's Rural Hospital Flexibility Program (Flex), enacted through the Balanced Budget Act of 1997. States are offered Flex Program grants to implement the CAH program, if they agree to create a state rural health plan, and encourage the development of rural health networks, to improve care quality and rural emergency medical services. The Flex Program offers rural hospitals a mechanism to sustain operations in resource-poor rural areas through the financial and regulatory relief offered to CAHs. The emphasis on networking in the CAH program reflects current trends in health and social services.[14]

Past Research on Interorganizational Collaborations

Organizations form relationships to acquire needed resources and political support, and to increase organizational legitimacy, rationales applicable to rural health networks.[14] The impetus for these networks appears to arise from a realization among health care organizations that collaboration brings benefits that cannot be achieved by conducting business alone.[15] Collaborators enjoy mutual benefits such as access to resources (providers, medical technology, etc.), information and political clout, without shouldering all the costs.[15,16] Empirical analysis of a Robert Wood Johnson-funded 4-year rural hospital network demonstration project supports this claim.[17] The authors found that hospitals joined networks for economic gains, and these networks were beneficial because of shared dependence among the participating organizations. In addition, case studies also demonstrate the political and economic underpinnings for seeking to participate in rural health networks.[18]

Research on interorganizational relationships shows that mutual trust or the reliability of each collaborator is key to success.[14,19] Effective leadership and efficient resource/task allocation are also associated with success in community health partnerships.[19] Barriers to communication, such as distance between potential partners, can impede the development of effective and sustainable networks.[20]

Research suggests that CHCs have been developing substantial linkages with other providers,

sharing services (eg, laboratory, information technology) or developing formal vertical or horizontal integration mechanisms.[20] Although CHCs are more likely than hospitals to formally collaborate with public health agencies,[21] in rural areas, external pressures (such as managed care), for collaboration with hospitals, may be less relevant.[22] Internal factors such as the need to share resources, to avoid unnecessary competition, to meet community needs, and/or to reduce costs through shared services may be important incentives driving collaboration among rural providers. In addition, the small size, limited human and financial resources, and distance of rural providers can hinder interactions between potential rural collaborators.[23]

Study Purpose

Whether and how CHCs are collaborating with CAHs has not yet been explored. Given the Flex program's requirements to establish health service networks, have rural CAHs and CHCs established collaborations to improve the breadth and depth of services for rural populations? How prevalent are collaborative relationships, in what functional areas, and how well are they working? To answer these questions, a study of CAH–CHC relationships was sponsored in 2003 by the National Rural Health Association and the federal Bureau of Primary Health Care (US Department of Health and Human Services [DHHS], Health Resources and Services Administration [HRSA]). In the first phase, we conducted a qualitative study of 5 model collaborations, identified as such by the directors of state primary care associations, directors of state offices of rural health, and state hospital associations. Based on the findings of this study we designed an instrument to survey all CAHs in the United States to address the following study objectives: (1) Identify CAHs that have collaborations with a CHC; (2) Identify the most prevalent among the 4 potential domains of collaboration, as identified by the 5 model CHC–CAH collaboration sites—workforce development, shared administrative/program services, systems infrastructure, and shared clinical programs; (3) Identify the barriers and facilitators to collaboration; and (4) Identify reasons for lack of collaborative agreements with a CHC.

Methods

The study surveyed all CAHs that were located within 60 miles of a CHC. Federal guidelines for designating Health Professional Shortage Areas (HPSA) specify that primary care services must be no closer than 30 minutes travel time, 15-25 miles based on road conditions.[24] We chose 60 miles, or double the HPSA standard, to ensure that we would capture as many collaborative associations as possible. However, it is noted that the 60-mile measure used here was arbitrary and may not reflect actual hospital service areas.

Qualifying hospitals were identified using ArcGIS Streetmap software (ESRI, Redlands, Calif).[25] Of 891 CAHs in 2003, 393 met this criterion. Of 393, 7 did not have a valid mailing address. CEOs of the remaining 386 hospitals, located in 41 states, were sent a mail survey in spring 2004, followed by a second mailing and telephone follow-up of nonrespondents. There were 161 responses, yielding an overall response rate of 40.9% (161/393). Response rates across the Bureau of Primary Health Care's 10 regions were also calculated for the 156 CAHs for which ownership information was available (Table 1). We looked at response rates by DHHS regions because collaboration can be affected by HRSA, which administers both the CHC and CAH programs. The distance between the CAH and any nearby CHC(s) was retained in the data set for analytic purposes. Factors that might influence CAH willingness or ability to form collaborative relationships were also measured. These included ownership type (for-profit, not-for profit, public), length of time the facility had been designated as a CAH, and distance (30 miles vs farther).

The principal outcome was whether a CAH either had or planned a collaborative agreement with a CHC. If a responding hospital reported having an agreement in place, we further inquired regarding the content of the relationship, across 4 domains: workforce development, shared administrative/program services, systems infrastructure, and shared clinical programs. We also asked about the quality of the relationship and joint services the hospital would wish to add to the current agreement. All respondents were asked to rate factors that might help facilitate collaborative activities with CHCs. Hospitals lacking an agreement were asked to indicate whether 7 specific barriers, derived from case studies of the model CHC–CAH collaborations, might have influenced their thoughts about such collaboration.

Respondents' perceptions of the relative importance of the barriers and facilitating factors for collaboration were derived from their responses on a 4-point Likert scale (1-4). We chose not to include a neutral mid-point to preclude equivocation, because a neutral response (eg, "Neither important nor unimportant," or "Not sure") may be semantically

Table 1. Distribution of All CAHs, Surveyed CAHs (Those With CHC Within 60 Miles) and Responding CAHs, by BPHC Region and Distance From Their Nearest CHC*

BPHC Region	Total No. of CAHs†	No. of CAHs With CHC(s) Within 60 Miles (Surveyed CAHs)‡	No. of CAHs Responding to the Survey (%)§	
	N	N	N	Percent
Region 1	18	16	11	68.7
Region 2	8	3	0	0.0
Region 3	10	9	6	66.7
Region 4	81	70	30	42.8
Region 5	120	77	28	36.4
Region 6	55	38	8	21.0
Region 7	111	68	27	39.7
Region 8	100	47	22	46.8
Region 9	31	23	8	34.8
Region 10	54	42	16	38.1
All Regions	588	393	156	40.4 (156/386)

*Only 41 states are included in this table, because the remaining 9 states had no CAH with a CHC within a 60-mile radius. Only CAHs with at least 1 CHC within a 60-mile radius were eligible for survey.
†Column 2 shows the distribution of total 588 CAHs in these 41 states, regardless of their distance from the nearest CHC.
‡Column 3 shows the distribution of 393 CAHs that had at least 1 CHC located within a 60-mile radius. These were eligible for survey. Only 386 hospitals were surveyed, as 7 hospitals had an incomplete address that could not be verified from the 2004 edition of the American Hospital Association Directory.
§Response rate among surveyed CAHs in the respective BPHC region.

equivalent to "not important."[26] Open-ended comments were summarized.

Due to the small number of respondents reporting collaborative relationships, we could not statistically compare the distribution of hospitals with and without collaborations by collaboration type or factors affecting the type of collaboration. Thus, the focus of analysis is primarily descriptive. We present chi-square test statistics to compare collaboration status by hospital ownership (not-for-profit, government owned and for-profit), and by duration since acquiring CAH status (<3 years or ≥3 years). Quantitative data were analyzed using SPSS (SPSS Inc., Chicago, Ill).

Results

Characteristics of Responding CAHs. Of 161 responding CAHs, 79 provided information on the duration for which they had been a designated CAH (Table 2). Of the 79, the majority (52 CAHs or 65.8%) had been designated as CAHs for 3 years or less, and only 8 (10.1%) were designated CAHs for 5 years or more. Ownership information was available for 156 CAHs, of which 85 (54.5%) were not-for-profits (NFP), 68 (43.6%) were government-owned (nonfederal), and 3 were for-profit institutions (FP).

Prevalence of Collaborative Arrangements. Of total 161 CAHs, 24 (14.9%) reported having a collaborative agreement with a CHC, and 2 indicated that they planned to develop a collaborative agreement (Table 2). Conversely, 28 (17.3%) indicated that they were not aware of a CHC within their service area. Two of the latter indicated during telephone follow-up that they did not recognize the term "CHC," and inquired if we meant a rural health center.

Table 2 shows the distribution of responding CAHs by HHS region, ownership, distance from the nearest CHC, and number of years since acquiring CAH status. All hospitals with CHC agreements were non-profit (15 hospitals) or public (9 hospitals), neither type being more or less likely to have a collaborative agreement ($P = 0.06$). Most CAHs with an agreement (70.0%) had acquired CAH status within the previous 3 years. Number of years since acquiring CAH status was not significantly different among CAHs with and without collaborative agreements ($P = 0.41$). HHS region was not significantly associated with having a CHC collaborative agreement ($P = 0.28$). The majority of the CAHs with a collaborative agreement had no CHC located within a 30-mile radius. Those with CHCs within 30 miles were also no more likely to have a collaborative agreement than those with CHC(s) more than 30 miles away ($P = 0.97$).

Table 2. Comparison of All CAH Respondents and CAHs Reporting Collaborations

Distance to the Nearest CHC (n = 152*)	All Responding CAHs N	All Responding CAHs %	CAHs With CHC Collaboration† N	CAHs With CHC Collaboration† %
≤30 miles	67	44.1	10	43.5
30-60 miles	85	55.9	13	56.5
Duration of CAH designation (n = 79)				
≤1-2 years	29	36.3	8	34.8
3 years	24	30.0	9	39.1
4 years	19	23.8	5	21.7
5+ years	8	10.0	1	4.3
HHS region				
1	11	6.8	3	14.3
2	0	0	0	0
3	7	4.3	1	4.8
4	30	18.6	0	0.0
5	29	18.0	7	33.3
6	9	5.6	1	4.8
7	28	17.4	4	19.0
8	22	13.7	3	9.5
9	8	5.0	3	9.5
10	17	10.6	1	4.8
Ownership (N = 156)				
Not for profit	85	54.5	15	62.5
Govt nonfederal	68	43.6	9	37.5
For profit	3	1.9	0	62.5

*Of 161 respondents, 152 identified themselves on the survey permitting us to impute this information from the American Hospital Association Directory 2002.

†Note that under some items, the distribution of CAHs with CHC collaborations adds up to less than 24 because of missing information on the survey, or the hospital not being included in the American Hospital Directory 2002 listings, which was the source for missing information on ownership and duration of CAH designation. Number of CAHs with a collaboration by HHS region adds up to 23 because 1 CAH did not report state information.

Type of Collaborative Arrangements. The areas of collaboration and perceived effectiveness of these collaborations are shown in Table 3. For all types of collaborations, most of the time the arrangement worked very well or at an acceptable level.

Of the 24 CAHs, 15 had shared clinical programs or arrangements in the area of specialty care. Radiology services were the most common (15 hospitals), followed by specialty care (13), laboratory services (12), primary care (9), case management (9), and wellness programs (6). Collaboration in human resources management included provider staff recruitment and retention (14), credentialing of providers (13), training (11), and shared staff (11). Collaboration in general health care administration areas included electronic medical records/patient information systems (10), quality assurance/performance improvement systems (10), case management (9), billing (7), malpractice insurance (5), and audit policies and procedures (5). Most of the time these arrangements worked well, or at an acceptable level.

Barriers to Collaboration. Respondents were requested to rate the importance of a list of items as potential barriers to collaboration with their local CHC (scale of 1-4, 1 = Not an important barrier; 4 = Important barrier). Of the total 161 respondents, 28 indicated that they did not have or were not aware of any CHC within their service area. Excluding these CAHs, of the remaining 133 respondents, competition with the CHC (14 or 10.5% scored 3 or 4), and lack of trust (11 or 8.3%) were among the significant barriers reported (Table 4). Most surveys had missing responses on 1 or more items.

Factors Facilitating Collaboration. Respondents also rated the extent to which specific factors could facilitate collaboration with their local CHC (Table 4). The leading facilitating factors all entailed financial resources: seed money to start a collaborative service (67 or 50.4% of 133 respondents without collaborations and aware of a CHC), a funded collaboration unit (53 or 39.8%), and a funded collaboration facilitator (50 or 37.6%).

Lack of Collaboration. CAHs without a collaborative agreement (137 CAHs) were requested to respond to an item set of reasons for the lack of collaboration (Table 5). As noted earlier, 28 CAHs had not considered collaboration since they were either unaware of a CHC in their service area or considered it located too far off to build a collaborative relationship. Excluding these CAHs, the leading reasons for lack of collaboration among the remaining 109 facilities were lack of a specific proposal or initiative from the CHC leadership (56 or 51.4%), not given serious thought to the potential gains from collaboration (51 or 46.8%), CEO perception that collaboration was not of value to their hospital's goals (18 or 16.5%), and other pressing organizational priorities (54 or 49.5%).

Conclusions and Discussion

Seven years into the Flex Program, an impressive number of hospitals, 891, have acquired CAH status. Among these, 393 have a CHC within a 60-mile radius. Given the geographic diversity of CAH hospitals, a

Table 3. Areas of CAH–CHC Collaboration, and How Well It Works (n = 24)

Collaborative Area	CAHs Reporting This Collaboration	CAHs Reporting It Works Acceptably or Well	
		N	%
Shared clinical programs			
Radiology	15	13	86.7%
Specialty care	13	10	76.9%
Laboratory	12	11	91.7%
Primary care	9	9	100.0%
Case management	9	7	77.8%
Pharmacy	7	6	85.7%
Wellness programs	6	3	50.0%
Workforce recruitment and development			
Staff recruitment/retention	14	12	85.7%
Credentialing	13	11	84.6%
Training	11	10	90.9%
Shared staff	11	8	72.7%
Shared administrative/program services			
Medical records (electronic) information	10	8	80.0%
Billing	7	5	71.4%
Systems infrastructure			
Quality assurance/Performance Improvement Systems	10	8	80.0%
Malpractice insurance	5	4	80.0%
Audit policies/procedures	5	3	60.0%

60-mile radius may or may not be viewed as its service area by any given hospital, so the actual number of potential CAH/CHC collaborations is probably less than the total of 393. Nonetheless, the number of CAHs having ongoing collaborations with CHCs was disappointing. Of 133 responding CAHs with a recognized CHC in their catchment areas, only 24 had established cooperative arrangements.

Table 4. Reported Barriers to and Facilitators for Collaboration (n = 133)*

	Important Barrier (Score=3 or 4)	Not Important Barrier (Score = 1 or 2)
Barriers to collaboration		
Competition	14 (10.5%)	15(11.3%)
Different corporate cultures	12 (9.0%)	16 (12.0%)
Lack of trust	11 (8.3%)	17 (12.7%)
Competing daily responsibilities	6 (4.5%)	19 (14.3%)
Conflicting regulations	5 (3.7%)	21 (15.8%)
Facilitators for collaboration		
Seed money funding to start a collaborative service	67 (50.4%)	10 (7.5%)
A funded collaboration unit	53 (39.8%)	17 (12.7%)
A funded collaboration facilitator	50 (37.6%)	21 (15.8%)
Changes in CHC regulations	36 (27.1%)	34 (25.6%)
Changes in hospital regulations	27 (20.3%)	38 (28.6%)

*A total of 133 CAHs that were aware of having a CHC in service area, and did not have a collaboration. Note that all respondents did not respond on all items, so the number of CAHs reporting on an item does not add up to 133.

Methodological issues in the present study could contribute to the relative paucity of CAH/CHC cooperative agreements found. Although distance from another hospital (35 miles) is 1 criterion for qualifying as a CAH, it should be noted that many CAHs qualified by meeting the alternative criterion, being certified by their state government as a "necessary provider." Such CAHs are located substantially less than 35 miles from another hospital. As a result, some responding CAHs may have perceived a CHC within the 60-mile radius used by the study to lie within the service area of a different hospital.

From the perspective of the small number of ongoing CAH–CHC collaborations documented here, collaborations appear to offer a means of expanding the market for hospital services, including radiology, specialty care, and laboratory services. Similarly, collaboration was common for scarce or difficult services, including credentialing, training and sharing of staff. Most of the time (88%) the arrangement worked very well or at an acceptable level. Our findings on the existing collaborative relationships suggest that, if fostered through meticulously designed policies and programs, there is ample scope for developing successful collaborations on a much larger

Table 5. Reasons for Not Collaborating Offered by CAH Respondents (n = 109)*

	N (% of N)
Did not receive specific proposal/initiative from CHC leadership	56 (51.4%)
Other pressing organizational priorities	54 (49.5%)
Not seriously thought about potential gains from collaboration	51 (46.8%)
Do not believe collaboration will add much value to the hospital's goals	18 (16.5%)
Interpersonal communication problems with CHC leadership	12 (11.0%)
Hospital leadership turnover	11 (10.1%)
CHC leadership turnover	8 (7.3%)

*Of the 161 CAHs responding to survey, 24 had existing collaboration and an additional 28 CAHs did not check "Not aware of CHC within service area/feasible distance for collaboration,"so the number of CAHs with a potential partner is 109.

scale across the country, with consequent improvements in rural health care access and delivery.

Given the benefits of collaboration, what barriers were found or reported? Two related issues, the pressure of day-to-day hospital priorities and the absence of a proposal from the CHC, were cited as potential barriers to collaboration by about half of responding CEOs who recognized a CHC in their service area. Similarly, nearly half of CEOs reported never having seriously assessed whether collaboration would be useful for the hospital. These findings suggest that overwork and organizational inertia combine to reduce collaborative outreach. The Rural Hospital Flexibility Program Tracking Project concluded that some CAHs' organizational structure and historic philosophy may not give priority to network participation.[27] Factors implying actual opposition to collaboration, such as a perception that it would not "add much value" or interpersonal differences, were cited by only a small proportion of non-collaborating hospitals.

Complicating inertia is invisibility: about 1 in 5 CAHs either did not realize that there was a CHC within their service area or regarded a local CHC as too far away for effective cooperation. Distance has previously been identified as a barrier to the development of community health partnerships.[28] One potential partner has to take the initiative to overcome both inertia and invisibility. Unfortunately, our survey did not inquire which party had initiated the relationship within the 24 CAH–CHC collaborations found.

Policy Implications

Overall, our findings suggest that there is an opportunity to improve rural health care systems through CAH/CHC collaborations, as indicated by the ongoing collaborations found. The organizational development activities of the National Rural Health Association (NRHA) and the National Association of Community Health Centers (NACHC) could be leveraged in field initiatives to enhance CHC–CAH collaborations. For example, the NRHA/NACHC Joint Task Force could be of assistance by exploring potential changes in CHC regulations that would facilitate CAH/CHC collaborations. Given increasingly visible rural health disparities, and the federal government's initiatives to expand CHC numbers, it will be critical to improve rural health care resource integration and networking to achieve the goals of Healthy People 2010.

Our findings suggest that policy efforts to foster collaborations between CAHs and CHCs should commence with increasing their mutual awareness of one another's potential. Existing research showing the potential for CHC–CAH arrangements to reduce uninsured visits to hospital emergency departments,[29] for example, could be disseminated specifically to CAH administrators. At the simplest level, a joint web site mapping CAH and CHC locations would facilitate the identification of local partners. More sophisticated tools could also be developed. For example, in 2003 the NACHC provided grants to 20 states to increase awareness of CHCs and the role they play in providing health care to communities. Our findings suggest that these efforts have not reached CAHs. Thus, efforts need to be continued to increase awareness about CHCs among key health care providers in rural communities, as much as in the community itself.

Future Study

A number of potential studies could enhance the development of collaborative activities between CAHs and CHCs in resource-poor rural areas. First, additional in-depth qualitative analysis of how collaborations are initiated and maintained are needed as a "lessons learned" template for administrators considering such efforts. In addition, quantitative analyses could address the financial and quality results of collaborations in such key fields as radiology and laboratory services, which were prominent among the areas of collaboration found in this small study. A third area suggested by our findings is comparisons of recruiting practices and successes of rural CHCs and CAHs. Finally, it would be helpful to evaluate the barriers in CHC and CAH legislation and program regulation that may inhibit collaborative efforts.

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