Final Report

Impact Analysis of Health Professional Shortage Areas and Medically Underserved Areas in New York State

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A Report to

Division of Shortage Designations
Bureau of Health Professions
Health Research and Services Administration

from

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1. Summary

With proposed changes to the federal regulations on designation requirements for Health Professional Shortage Areas (HPSAs) and Medically Underserved Areas (MUAs) currently pending, it is critical to evaluate the impact of these potential changes on existing HPSAs and MUAs.

Under a contract with the Bureau of Primary Health Care, the Center for Health Workforce Studies (CHWS) conducted a state level impact analysis of proposed changes in designation methodologies on currently designated HPSAs and MUAs in New York State. Activities included:

- o Using available state data, validate federal data for primary care practitioners and validate the national impact analysis of the following geographic HPSA and MUA methodologies:
  - o the current designation criteria;
  - o the 1998 proposed designation criteria (identified as NPRM I); and
  - o the new designation criteria now under development (identified as NPRM II).
- o Using available state data, validate the national impact analysis of the geographic HPSA and MUA methodologies described above on federally sponsored sites using tiered exclusions:
  - o Tier 1 excludes federally obligated National Health Service Corps (NHSC) and State Loan Repayment Program (SLRP) recipients from the count of primary care capacity in an area;
  - o Tier 2 excludes federally obligated NHSC and SLRP recipients as well as physicians on J-1 visa waivers from the count of primary care capacity in an area; and
  - o Tier 3 excludes all primary care practitioners working at community health centers from the count of primary care capacity in an area.
- o Make recommendations on improvements to the database and/or the proposed methodology based on the impact analysis.

The most significant findings and recommendations are presented below.

Findings

- o Of the three methodologies analyzed (the current methodology, NPRM I and NPRM II), the NPRM I methodology resulted in the greatest number of currently designated geographic HPSAs and MUAs losing designation and the NPRM II methodology resulted in the fewest number of currently designated geographic HPSAs and MUAs losing designation.
- o When comparing the impact of the two data sets across all three methodologies, the CHWS (state) data set resulted in fewer currently designated geographic HPSAs and MUAs losing designation, particularly those located in urban areas.
- o When comparing the CHWS (state) data set to the federal data set, the CHWS data set had less than half the number of primary care physician FTEs than the number found in the federal data set which consistently reported a greater number of primary care physician FTEs in urban census tracts with hospitals.

- More HPSAs retained designation under both the current methodology and NPRM II with tiered exclusions using CHWS data compared to federal data.
- More MUAs retained designation under both the current methodology and NPRM II with tiered exclusions using CHWS data compared to federal data. However, the use of tiered exclusions appeared to have minimal impact on the total number of MUAs retained.

Recommendations

- Given the differences in outcomes when using state and federal data sets, further impact analyses should be conducted in more states with reliable primary care data sets.
- Reliable state data sets, where available, may provide a more accurate representation of a state's primary care health workforce than federal data. In instances where state data are available, they should be used instead of the federal data when determining eligibility for HPSA and MUA designation. In an effort to increase the availability of reliable state data, funding should be made available to support state level primary care practitioner data collection and analysis.
- Since tiered exclusions appeared to have little impact on the number of HPSAs or MUAs retaining designation, their use may be unnecessary in a new methodology.

2. State Data Sources Used by the Center

The state physician data set used in this analysis was based on a file of all licensed physicians in New York State. Physicians in New York State complete a re-registration survey every two years when they renew their medical licenses. Physicians are asked to identify their specialty, type of practice and practice location(s). There was a 57% response rate to this survey in 1999-2000. The nurse practitioner (NP) data used in this analysis were based on a survey of all certified NPs conducted by the Center in the fall of 2000. The survey included questions on specialty, type of practice and practice location. There was a 76% response rate to this survey.

Practice address information for both physicians and NPs were supplemented with practice addresses from a variety of other sources to account for those who did not respond to the survey or did not include practice addresses in their survey responses. This allowed for an adjustment that identified practice locations for all primary care physicians and NPs practicing in the state. All addresses were geo-coded and FTEs were aggregated to the census tract or minor civil division then aggregated by HPSA and MUA. No state level physician assistant (PA) or midwife (MW) data were available, so the Center used the national PA and MW data for both analyses.

3. Findings: HPSA Analysis

Table 1: Percent of Current Geographic HPSAs Retaining Designation By Designation Methodology and Data Source

	Current	NPRM I	NPRM II
Federal Data			
Total	44%	34%	58%
Rural	48%	36%	55%
Urban	33%	28%	67%
CHWS Data			
Total	58%	42%	89%
Rural	50%	45%	86%
Urban	78%	33%	94%

o Using federal data, 44% of current geographic HPSAs retained their designation under the current methodology (Table 1). A greater percentage of urban HPSAs lost designation (67%) than rural HPSAs (52%).

o Using CHWS data, 58% of current geographic HPSAs retained their designation under the current methodology (Table 1). A greater percentage of rural HPSAs lost designation (50%) than urban HPSAs (22%).

o More than twice as many urban HPSAs retained designation under the current methodology using CHWS data compared to federal data. There was little difference in the number of rural HPSAs retaining designation when comparing impacts of CHWS and federal data. (Table 2).

Table 2: Current Methodology for Geographic HPSAs

	Federal Data			CHWS Data		
	Does not Qualify	**Qualifies**	Total	Does not Qualify	**Qualifies**	Total
Rural	23	21	44	22	22	44
Urban	12	6	18	4	14	18
Total	35	27	62	26	36	62

o Using federal data, 34% of current geographic HPSAs retained their designation under NPRM I (Table 1). A greater percentage of urban HPSAs lost designation (72%) than rural HPSAs (64%).

o Using CHWS data, 42% of current geographic HPSAs retained their designation under NPRM I (Table 1). A greater percentage of urban HPSAs lost designation (67%) than rural HPSAs (55%).

o More rural HPSAs retained designation under NPRM I using CHWS data (20) compared to federal data (16). There was little difference in the number of urban HPSAs retaining designation under NPRM I when comparing impacts of CHWS and federal data (Table 3).

Table 3: NPRM I Methodology for Geographic HPSAs						
	Federal Data			CHWS Data		
	Does not Qualify	**Qualifies**	Total	Does not Qualify	**Qualifies**	Total
Rural	28	16	44	24	20	44
Urban	13	5	18	12	6	18
Total	41	21	62	36	26	62

o Using federal data, 58% of current geographic HPSAs retained their designation under NPRM II (Table 1). A greater percentage of rural HPSAs lost designation (45%) than urban HPSAs (33%).
o Using CHWS data, 89% of current geographic HPSAs retained their designation under NPRM II (Table 1). A greater percentage of rural HPSAs lost designation (14%) than urban HPSAs (6%).
o More urban HPSAs retained designation under NPRM II using CHWS data (17) compared to federal data (12) (Table 4). More rural HPSAs retained designation using CHWS data (38) compared to federal data (24).

Table 4: NPRM II Methodology for Geographic HPSAs						
	Federal Data			CHWS Data		
	Does not Qualify	**Qualifies**	Total	Does not Qualify	**Qualifies**	Total
Rural	20	24	44	6	38	44
Urban	6	12	18	1	17	18
Total	26	36	62	7	55	62

4. Findings: MUA Analysis

Table 5: Percent of Current MUAs Retaining Designation
By Designation Methodology and Data Source

	Current	NPRM I	NPRM II
Federal Data			
Total	26%	64%	54%
Rural	30%	63%	73%
Urban	25%	64%	47%
CHWS Data			
Total	50%	76%	79%
Rural	30%	63%	80%
Urban	58%	80%	79%

- Using federal data, 26% of current geographic MUAs retained their designation under the current methodology (Table 5). A greater percentage of urban MUAs lost designation (75%) than rural MUAs (70%).
- Using CHWS data, 50% of current geographic MUAs retained their designation under the current methodology (Table 5). A greater percentage of rural MUAs lost designation (70%) than urban MUAs (42%).
- More than twice as many urban MUAs retained designation under the current methodology using CHWS data (47) compared to federal data (20). There was no difference in the number of rural MUAs retaining designation (9) when using CHWS data compared to federal data (Table 6).

Table 6: Current Methodology for Geographic MUAs

	Federal Data			CHWS Data		
	Does not Qualify	**Qualifies**	Total	Does not Qualify	**Qualifies**	Total
Rural	21	9	30	21	9	30
Urban	61	20	81	34	47	81
Total	82	29	111	55	56	111

- Using federal data, 64% of designated geographic MUAs retained their designation under NPRM I (Table 5). A comparable percentage of urban (36%) and rural (37%) MUAs lost designation.
- Using CHWS data, 76% of designated geographic MUAs retained their designation under NPRM I (Table 5). A greater percentage of rural MUAs lost designation (37%) than urban MUAs (20%).
- A greater number of urban MUAs retained designation when using CHWS data (65) compared to federal data (52). There was no difference in the number of rural MUAs retaining designation (19) when using CHWS data compared to federal data (Table 7).

Table 7: NPRM I Methodology for Geographic MUAs

	Federal Data			CHWS Data		
	Does not Qualify	**Qualifies**	Total	Does not Qualify	**Qualifies**	Total
Rural	11	19	30	11	19	30
Urban	29	52	81	16	65	81
Total	40	71	111	27	84	111

- Using federal data, 54% of designated geographic MUAs retained their designation under NPRM II (Table 5). A larger percentage of urban MUAs (53%) lost designation than rural MUAs (27%).
- Using CHWS data, 79% of designated geographic MUAs retained their designation under NPRM II (Table 5). A comparable percentage of urban (21%) and rural (20%) MUAs lost designation.

- o A greater number of urban MUAs retained designation using CHWS data (64) compared to federal data (38) (Table 8). The number of rural MUAs retaining designation was slightly higher using CHWS data (24) compared to federal data (22).

Table 8: NPRM II Methodology for Geographic MUAs

	Federal Data			CHWS Data		
	Does not Qualify	**Qualifies**	Total	Does not Qualify	**Qualifies**	Total
Rural	8	22	30	6	24	30
Urban	43	38	81	17	64	81
Total	51	60	111	23	88	111

5. Findings: Impact on Federally Funded Community Health Centers in New York State

HPSAs

A total of 31 geographic HPSAs had either federally sponsored practitioners or federally sponsored sites eligible for the three-tiered exclusions when evaluating the impact of the methodologies. The following summarizes the findings of applying the exclusions under the current methodology and the NPRM II for HPSAs using CHWS and federal data.

Table 9: Percent of Current Geographic HPSAs Retaining Designation Using Three Tiered Exclusions by Data Source

Current Methodology

	No Exclusions	Tier 1 Exclusions	Tier 2 Exclusions	Tier 3 Exclusions
Federal Data				
Total	23%	26%	26%	35%
Rural	24%	29%	29%	35%
Urban	21%	21%	21%	36%
CHWS Data				
Total	52%	65%	68%	77%
Rural	29%	53%	59%	71%
Urban	79%	79%	79%	86%

- o Using federal data, there was very little change in the percent of geographic HPSAs retaining designation with no exclusions (23%), tier 1 exclusions (26%) and tier 2 exclusions (26%). However, the percent of geographic HPSAs retaining designations using tier 3 exclusions increased to 35%.
- o Using CHWS data, the percent of geographic HPSAs retaining designation increased from 52% with no exclusions, to 65% with Tier 1 exclusions, to 68% with Tier 2

exclusions, to 77% with Tier 3 exclusions. An increasing percentage of rural HPSAs retained designation with the tiered exclusions.
o   More HPSAs retained designation under the current methodology with tiered exclusions using CHWS data compared to federal data. (Table 10).

Table 10: Number of Current Geographic HPSAs Retaining Designation Using Three Tiered Exclusions by Data Source Current Methodology

	No Exclusions	Tier 1 Exclusions	Tier 2 Exclusions	Tier 3 Exclusions
Federal Data				
Total (n=31)	7	8	8	11
Rural (n=17)	4	5	5	6
Urban (n=14)	3	3	3	5
CHWS Data				
Total (n=31)	16	20	21	24
Rural (n=17)	5	9	10	12
Urban (n=14)	11	11	11	12

Table 11: Percent of Current Geographic HPSAs Retaining Designation Using Three Tiered Exclusions by Data Source NPRM II

	No Exclusions	Tier 1 Exclusions	Tier 2 Exclusions	Tier 3 Exclusions
Federal Data				
Total	42%	45%	48%	55%
Rural	29%	35%	41%	47%
Urban	57%	57%	57%	64%
CHWS Data				
Total	87%	87%	87%	90%
Rural	82%	82%	82%	88%
Urban	93%	93%	93%	93%

o   Using federal data, the percent of all geographic HPSAs retaining designation increased slightly, but steadily with the increasing levels of exclusion. The percent of rural HPSAs retaining designations showed the largest increase, rising from 29% with no exclusions to 47% with tier 3 exclusions.
o   Using CHWS data, the percent of geographic HPSAs retaining designation showed little change with increasing levels of exclusion.

o While more HPSAs retained designation using CHWS data compared to federal data, using tiered exclusions appeared to have a minimal impact on the number of HPSAs retained. (Table 12).

Table 12: Number of Current Geographic HPSAs Retaining Designation Using Three Tiered Exclusions by Data Source

NPRM II

	No Exclusions	Tier 1 Exclusions	Tier 2 Exclusions	Tier 3 Exclusions
Federal Data				
Total (n=31)	13	14	15	17
Rural (n=17)	5	6	7	8
Urban (n=14)	8	8	8	9
CHWS Data				
Total (n=31)	27	27	27	28
Rural (n=17)	14	14	14	15
Urban (n=14)	13	13	13	13

MUAs

A total of 43 MUAs had either federally sponsored practitioners or federally sponsored sites eligible for the three-tiered exclusions when evaluating the impact of the methodologies. Two of the MUAs could not be classified as either rural or urban and were excluded from the comparative analysis described below. The following summarizes the findings of applying the exclusions under the current methodology and the NPRM II for MUAs using CHWS and federal data.

Table 13: Percent of Current MUAs Retaining Designation Using Three Tiered Exclusions by Data Source Current Methodology

	No Exclusions	Tier 1 Exclusions	Tier 2 Exclusions	Tier 3 Exclusions
Federal Data				
Total	12%	12%	15%	15%
Rural	0%	0%	0%	0%
Urban	13%	13%	16%	16%
CHWS Data				
Total	54%	56%	56%	56%
Rural	0%	0%	0%	0%
Urban	58%	61%	61%	61%

o Using federal data, there was a slight increase in the percent of MUAs retaining designation with no exclusions or tier 1 exclusions (12%) compared to tier 2 or 3 exclusions (15%).
o Using CHWS data, there was a very small increase in the percent of MUAs retaining designation under the current methodology with tiered exclusions (56%) compared to no exclusions (54%).
o While more MUAs retained designation using CHWS data compared to federal data, the use of tiered exclusions appeared to have minimal impact on the number of MUAs retained. (Table 14).
o Using either federal or CHWS data, no additional rural MUAs retained designation using tiered exclusions.

Table 14: Number of Current MUAs Retaining Designation
Using Three Tiered Exclusions
by Data Source
Current Methodology

	No Exclusions	Tier 1 Exclusions	Tier 2 Exclusions	Tier 3 Exclusions
Federal Data				
Total (n=41)	5	5	6	6
Rural (n=3)	0	0	0	0
Urban (n=38)	5	5	6	6
CHWS Data				
Total (n=41)	22	23	23	23
Rural (n=3)	0	0	0	0
Urban (n=38)	22	23	23	23

Table 15: Percent of Current MUAs Retaining Designation
Using Three Tiered Exclusions
by Data Source
NPRM II

	No Exclusions	Tier 1 Exclusions	Tier 2 Exclusions	Tier 3 Exclusions
Federal Data				
Total	29%	32%	32%	37%
Rural	0%	0%	0%	33%
Urban	32%	34%	34%	37%
CHWS Data				
Total	68%	71%	73%	73%
Rural	33%	33%	33%	67%
Urban	71%	74%	76%	79%

- o Using federal data, there was a slight increase in the percent of MUAs retaining designation with no exclusions (29%) and tier 1 or tier 2 exclusions (32%). The percent of MUAs retaining designations with tier 3 exclusions showed the largest increase, rising to 37%.
- o Using CHWS data, there was a very small increase in the percent of MUAs retaining designation with tier 1 exclusions (71%) or tier 2 or 3 exclusions (73%) compared to no exclusions (68%).
- o While more MUAs retained designation using CHWS data compared to federal data, the use of tiered exclusions appeared to have minimal impact on the number of MUAs retained. (Table 16).

Table 16: Number of Current MUAs Retaining Designation
Using Three Tiered Exclusions
by Data Source

NPRM II

	No Exclusions	Tier 1 Exclusions	Tier 2 Exclusions	Tier 3 Exclusions
Federal Data				
Total (n=41)	12	13	13	15
Rural (n=3)	0	0	0	1
Urban (n=38)	12	13	13	14
CHWS Data				
Total (n=41)	28	29	30	30
Rural (n=3)	1	1	1	2
Urban (n=38)	27	28	29	30

6. Discussion

Using the federal data source on practitioners resulted in a greater reduction in the number of HPSAs and MUAs in New York State across all three methodologies. In an effort to better understand this, the Center compared the contents of the federal and CHWS practitioner data files. The two most significant differences are described below.

- o The CHWS data reported nearly 45% more FTE NPs (172.8) than the federal data (119.2).
- o The CHWS data had less than half the number of primary care physician FTEs (721.7) than found in the federal data source (1,598.7). On closer review, the federal data consistently reported a much greater number of primary care physician FTE in urban census tracts with hospitals.

The CHWS NP data used in this analysis was based on a survey of all state-certified nurse practitioners in New York State. The survey was conducted in 2000 and the response rate was 76%. A description of the methodology for calculating primary care NP FTEs is included in Attachment 1. Given the source of the data, the response rate and the adjustment to reflect the total number of NPs practicing in New York State, the CHWS NP data appear to be a reliable source of information on NP primary care capacity in New York State. The CHWS data reported 45% more primary care nurse practitioners in HPSAs than the federal data.

One possible reason for variation in NP counts between the state and federal data sets is that the data were collected for different time periods. There are a large number of NPs who complete training in New York State each year. The state and federal data sets may represent NP capacity in the state over different time periods.

Another reason for variation in NP counts between the state and federal data sets is that different data sources were used. Since the CHWS NP survey found that only 75% of NPs in New York State received national certification in their specialty, national data from NP accrediting organizations, the likely source of federal data, may not provide complete data on NPs practicing in New York State. Currently, New York State does not require nurse practitioners to obtain certification in their specialty from a national accrediting organization. Any data on New York State nurse practitioners obtained from a national NP accrediting organization would only reflect those NPs who voluntarily sought certification and would likely under-represent NP capacity in New York State.

It is unclear whether the CHWS is under-reporting hospital-based primary care physicians or the federal data source is over-reporting them. The Center reviewed its methodology for identifying primary care FTEs, particularly hospital-based physicians, to ensure that the count in its data file is accurate. A description of this methodology is included in Attachment 1. There do not appear to be any noticeable inconsistencies in the methodology that would result in an undercount of primary care physicians. The CHWS physician data reported 55% fewer primary care physician FTEs in HPSAs than the federal data. When examining HPSAs where there was a difference of 10 or more primary care physician FTEs between the two data sets, it was determined that the majority of these differences occurred in HPSAs with hospitals located in their rational service areas. On closer review, the FTE differences between the two data sets occurred in the census tracts where these hospitals are located. Since hospitals usually provide both primary care and specialty ambulatory services, it is possible that the federal data may include providers that may be certified in primary care but are not practicing primary care. The CHWS data set is able to differentiate between those physicians who may be certified in a primary care specialty, but do not practice primary care.

In an effort to assess the accuracy of the primary care physician FTE counts (at the HPSA level) in both data sets, these FTE counts were compared with an independent source, the count of FTE primary care physicians found in the January 2001 BCHDANET. The findings are detailed on Table 17.

Table 17: Comparison of CHWS and Federal Primary Care Physician FTE Counts with BHCDANET Report

HPSA ID	Federal Data	CHWS Data	BHCDANET	Hospitals located in the HPSA
3611	43.0	15.2	17.4	None
361R	25.5	12.5	11.4	Brooks Memorial Hospital
361S	235.3	99.2	110.3	Interfaith Medical Center Brooklyn Hospital- Downtown St. Mary's Hospital of Brooklyn Woodhull Medical Center
361T	80.5	50.2	32.9	Wyckoff Heights Medical Center
361W	166.0	48.1	50.7	Brooklyn Hospital – Caledonian Kings County Hospital Center Kingsbrook Jewish Medical Center Brookdale Medical Center University Hospital of Brooklyn
361Z	45.0	29.1	30.5	None
362C	19.5	10.2	10.4	None
362G	34.8	2.0	1.5	St. Jerome Hospital Genesee Memorial Hospital EJ Noble Hospital
362L	34.8	21.6	15.0	None
363F	51.0	21.0	14.9	St. Clares Hospital
3662	43.5	24.0	6.6	None
3670	103.8	40.0	55.7	Harlem Hospital Center
3675	186.0	32.7	35.2	Metropolitan Hospital Center Mount Sinai Hospital
3688	204.7	86.1	71.1	New York Presbyterian Hospital New York Presbyterian Hosp – Allen Pavilion

As indicated on Table 17, the CHWS dataset and the BCHDANET count are more consistent with each other, while the federal dataset reports substantially higher numbers than those reported on the BCHDANET.

7. Recommended Improvements to the Database or the Proposed Methodology

Given the differences in outcomes when using state and federal data sets, further impact analyses should be conducted in more states with reliable primary care data sets.

Reliable state data sets, where available, may provide a more accurate representation of a state's primary care health workforce than federal data. In instances where state data are available, they should be used instead of the federal data when determining eligibility for HPSA and MUA designation. In an effort to increase the availability of reliable state data, funding should be made available to support state level primary care practitioner data collection and analysis.

Since tiered exclusions appeared to have little impact on the number of HPSAs or MUAs retaining designation, their use may be unnecessary in a new methodology.

Attachment 1: Methodology for Calculating Primary Care Capacity

Primary Care Nurse Practitioner FTEs

In the fall of 2000, using the New York State Education Department Nurse Practitioner Certification database, the Center surveyed all the certified nurse practitioners (NPs) in New York State requesting information including but not limited to:

o Practice address;
o Practice hours;
o Specialty of collaborating physician; and
o Practice setting.

The survey response rate was 76% and was adjusted to account for non-respondents or incomplete addresses. Using the survey responses and the Federal definition of primary care used for the purpose of HPSA designation, the Center calculated FTE NPs providing patient care and FTE NPs providing primary care.

For the purposes of this analysis, NPs considered to be primary care practitioners must be:

o **Certified in a primary care specialty:**
  o Adult Health;
  o Community health;
  o Family health;
  o Gerontology;
  o Obstetrics/gynecology;
  o Pediatrics;
  o School health; or
  o Women's health.

o **Collaborating with a physician with a primary care specialty:**
  o General medicine;
  o Family medicine;
  o General internal medicine;
  o General pediatrics; or
  o General obstetrics-gynecology.

o **Practicing in a primary care setting:**
  o Hospital based ambulatory care services;
  o Community health clinics;
  o Group or solo nurse practitioner practices;
  o Group or solo physician practices;
  o School based health clinics;
  o State or local health departments; or
  o Home health agencies.

o **Providing primary care services as part of his or her professional practice (as reported on the survey).**

Primary Care Physician FTEs

The Center, in conjunction with the New York State Education Department, surveys physicians every two years when physicians re-new their licenses. The survey collects information on:

o   Practice address;
o   Practice hours;
o   Specialty; and
o   Practice setting.

This survey information was supplemented with other Center data sources to ensure that 100% of all licensed and practicing physicians in New York State were counted. Using this combined data set and the Federal definition of primary care used in HPSA designations, the Center calculated the total number of FTE physicians providing patient care and the total number of FTE physicians providing primary care. To be considered a primary care practitioner, the physician must be:

o   **Practicing in a primary care specialty:**
   o   General medicine;
   o   Family medicine;
   o   General internal medicine;
   o   General pediatrics; or
   o   General obstetrics-gynecology.

o   **Practicing in a primary care setting:**
   o   Hospital based ambulatory care services;
   o   Community health clinics;
   o   Group or solo physician practices
   o   State or local health departments

o   **Providing primary care services as part of his or her professional practice (as reported on the survey).**