



The State of Oral Health Access and Care in New York State and Models for Future Improvements

Execudent



Introduction

Dr. Matthew Weed, Ph.D.; Principal at Dr. Matthew Weed and Associates ; matthewweedconsults@gmail.com; www.drmatthewweed.com

Dr. Joel Berg, DDS; Founder and CEO of Execudent; joel@execudent.com



Dr. Weed's Personal History

- At least some **loss of sight** diagnosed at six weeks
- Total **blindness** by age eight
- **Type I Diabetes** diagnosed at age one
- **Massive seizures** caused by out-of-control blood sugar due to diabetes
- Family was informed that I had a **50% chance** of surviving to five years of age
- Had **three comas** before my fifth birthday
- Physicians did not expect me to live past 21 years old
- A member of the Bixby Family of Bolton Landing NY, which has been involved in Lake George and Hudson Valley matters for nearly two centuries



Dr. Weed's Educational History

- Bachelors in Political Science and Faculty Letter of Commendation in Biology from Yale (1993)
- Masters in Public Affairs from the Princeton University of Public and International Affairs (1995)
- Arts Masters in Genetics from Harvard (1996)
- Yale PhD in Genetics
- Post-Doctoral research in Bio-ethics and health professions education at Yale (2004-2010)
- Hastings Fellow in Bio-ethics at Yale and the Hastings center in New York (2013-2015).



Dr. Weed's Professional History

- Helped launch the \$150 million Wisconsin Institute for Discovery (2010-2012)
- Conducted a thorough survey of accessibility for the blind visitor of NIH websites resulting in a 350 page report to the Deputy Director For Intramural Research, NIH: 2020-2021.
- Presenter to numerous health professions schools and healthcare systems on ways to make clinical spaces more accessible for patients with special needs and improve outcomes of home based management: 2020-present.
- Consultant with Execudent Inc, on a project to put together and launch a Florida-based dental school. 2023-present.
- Principal of Dr. Matthew Weed and Associates, LLC since 2016
 - Provide college and graduate school search consulting, am a motivational and topical speaker, and [advise organizations on physical and virtual accessibility and reducing barriers to healthcare for patients with special needs](#)



Joel Berg Disclosures

- **Former:**
 - Academics, Pediatric Dentistry Chair and Dean at the University of Washington School of Dentistry
 - ESPE Dental, Seefeld, Germany – Head of the Scientific Department
 - Sonicare (Optiva/Philips) – Chief Dental Officer
 - CODA Commissioner
 - American Academy of Pediatric Dentistry, President
 - American Academy of Esthetic Dentistry, President



Joel Berg Disclosures

- **Current:**
 - Private Practice in Pediatric Dentistry, Part Time
 - AAPD – Little Teeth Big Smiles and Newly Erupted Podcasts Host
 - Consultant to United Healthcare Group
 - Consultant to Hu-Friedy Group
 - Chief Dental officer of Willo (automated toothbrush for children)
 - President and Founder of Execudent, Inc.

Ratios of dentists per person broken down by geographic code

TABLE X. Distribution of Licensed Dentists and Dental Hygienists in 2006 by Selected Geographic Areas of the State

Region	New York State Population	Number Dentists	Number Dental Hygienists	Population per Dentist	Population per Hygienist
New York City	8,143,197	6,293	1,486	1,294	5,480
Downstate-Metro (Suffolk, Nassau, Westchester, and Rockland Counties)	4,041,787	4,789	2,134	844	1,894
Rest of State	6,987,144	4,209	4,770	1,660	1,465
<i>Upstate-Metro</i>	3,735,338	2,691	2,811	1,388	1,329
<i>Rural-Urban-Suburban</i>	1,214,645	624	924	1,947	1,315
<i>Rural-Urban</i>	1,093,991	576	576	1,899	1,899
<i>Rural</i>	943,170	318	459	2,966	2,055
New York State	19,172,128	15,291	8,390	1,254	2,285
Mailing Addresses Outside NYS		2,740	1,049		
Total Licensed in NYS		18,031	9,439	1,063	2,031

The Impact of Oral Diseases in New York State

Upstate-Metro area, the ratio of person to dentist was 1,388 to 1

Rural-urban-suburban areas 1,947 to 1

Rural-urban areas 1,899 to 1

Rural areas 2,966 to 1

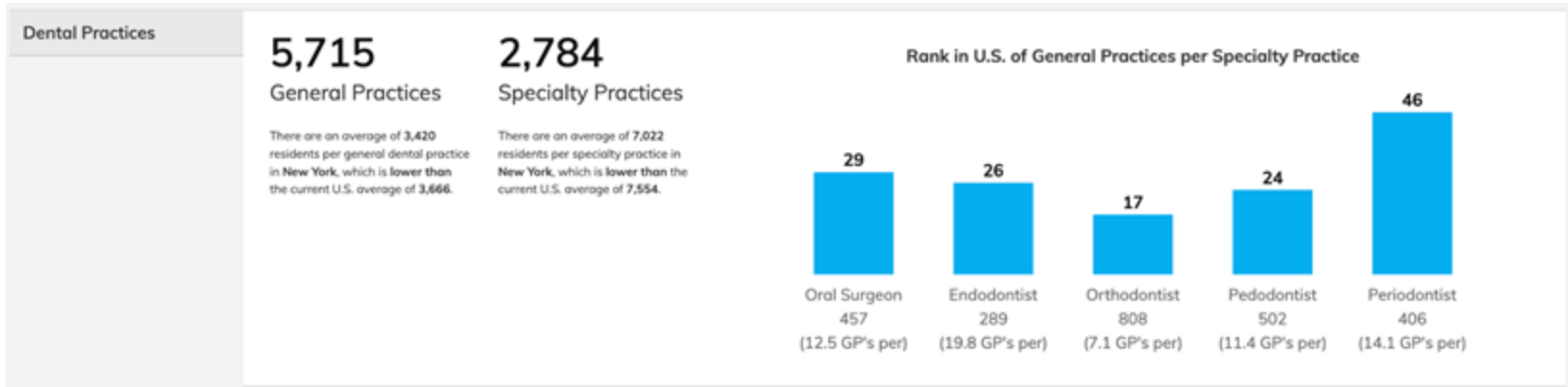
Report by the Community Health Foundation of Western & Central New York: Providers report **double booking all appointment times** because frequently patients will show late or no show. Patients also complain of long wait times for appointments, transportation challenges, coverage access, and finding a provider.

Data are from the New York State Education Department and reflect the geographic distribution of licensed individuals registered to use the professional title of Dentist or Dental Hygienist or to practice within New York State as of July 1, 2006. The data do not mean the licensee is actively practicing or that the mailing address is the licensee's practice address. <http://www.op.nysed.gov/dentcounts.htm>. Accessed September 6, 2006.

NYS versus other states

“While the state has one of the best population-to-dentist ratios in the country, **the distribution of practitioners is uneven, with shortages of dentists and dental hygienists in many rural and inner-city areas.**” - [Oral Health Plan for New York State](#)

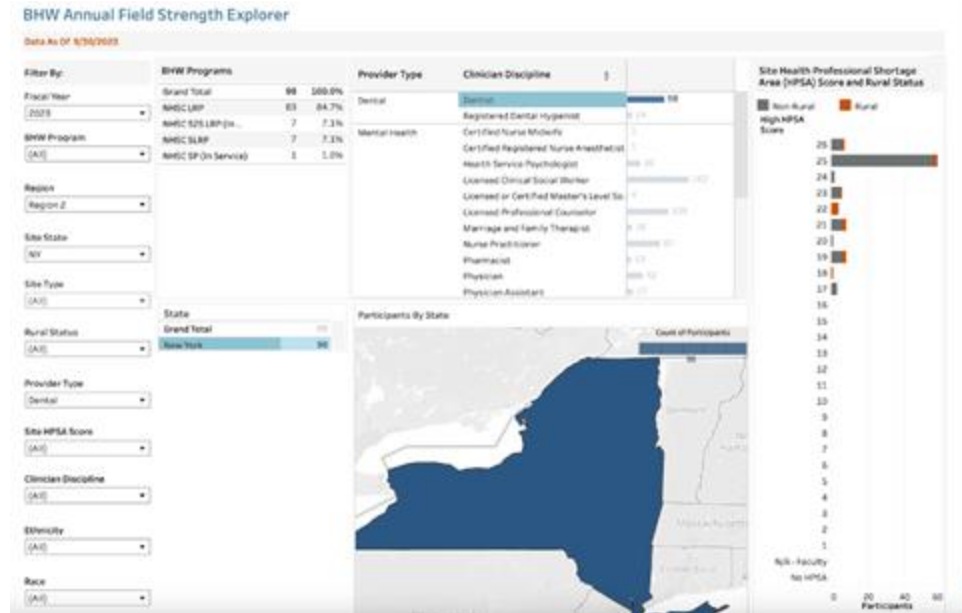
How many dentists to people ratio to have an effective practice: 1:1500 patients



Dentists in Health Professional Shortage Areas

Health Resources and Services Administration (HRSA) identifies NYS as #4 of states with dental profession shortages

- 98 dentists and 14 dental hygienists registered in NYS
- 13 dentists and 2 dental hygienists in rural designated areas
- 51 total dental students and trainees in NY state
 - 4 in Erie County, 40 in New York County, 6 unidentified, 1 in Suffolk County





Dental Hygienists in NYS

Geographic Distribution of Registered Licensees* As of July 1, 2024 Dental Hygienist

County	Number	County	Number	County	Number
Albany	198	Jefferson	78	Saratoga	271
Allegany	20	Kings	708	Schenectady	121
Bronx	285	Lewis	18	Schoharie	14
Broome	196	Livingston	62	Schuyler	7
Cattaraugus	46	Madison	56	Seneca	18
Cayuga	52	Monroe	674	Steuben	43
Chautauqua	53	Montgomery	23	St. Lawrence	65
Chemung	61	Nassau	942	Suffolk	1064
Chenango	34	New York	325	Sullivan	39
Clinton	43	Niagara	171	Tioga	51
Columbia	30	Oneida	142	Tompkins	32
Cortland	30	Onondaga	296	Ulster	90
Delaware	24	Ontario	96	Warren	44
Dutchess	199	Orange	329	Washington	37
Erie	862	Orleans	20	Wayne	94
Essex	18	Oswego	75	Westchester	410
Franklin	10	Otsego	37	Wyoming	28
Fulton	22	Putnam	77	Yates	11
Genesee	44	Queens	905	NYS TOTAL	10434
Greene	40	Rensselaer	155	OTHER US	1729
Hamilton	2	Richmond	368	NON-US	17
Herkimer	22	Rockland	147	TOTAL	12180

* Location reflects the licensee's primary mailing address on record with the Office of the Professions; the address is not necessarily the licensee's practice address. Although licensees must be registered to use the professional title or to practice within New York State, being registered does not mean the licensee is actively doing so.



Cost of Limited Oral Care Access

An average of 320.8 million work or school hours lost annually <92.4 million hours were for emergency (unplanned care> (Kelekar U, Naavaal S.)

- In 2015, productivity lost associated with \$45.9 billion due to oral health disease ([MedCity News](#))

More than 9 million missing school days yet still...

Delta Dental conducted a survey which reports:

Oral health impacting the classroom by the numbers:

- 9,067,082: Roughly the number of full school days missed by children due to an oral health problem, as reported by parents.
- 4,029,814: The number of half days parents say their 6 to 12-year-olds missed.
- 71: Percent of parents that cite their child's oral health as a top concern they think about daily, right up there with school grades (61 percent), personal finances (62 percent), child's physical activity (55 percent), and with whom their child is friends (36 percent).



Consequences of Limited Oral Health Care

- According to the [Alzheimer's Association](#), a study published in Science Advances in 2019 reports there are “bacteria that cause gingivitis that can destroy nerve cells, which in turn can lead to memory loss and eventually Alzheimer's.”

What health issues can be caused by inadequate oral health?

- **Cardiovascular disease:** Bacteria that can inflame gums and cause gum disease can also get into the bloodstream causing the arteries to build up plaque and harden.
- **Pneumonia:** Certain bacteria in the mouth can be pulled into a person's lungs, causing pneumonia and other respiratory diseases.
- **Cancer:** The risk for kidney cancer, pancreatic cancer, and blood cancers is much higher for people who have poor oral health, as oral infections can make it harder to fight off abnormal cells that develop

- Taking into consideration the aging population in particularly rural New York: [Naavaal, S, Griffin SO, Jones JA. Impact of Making Dental Care Affordable on Quality of Life in Adults Aged 45 Years and Older. J Aging Health. 2020 Aug-Sep;32\(7-8\):861-870. doi: 10.1177/0898264319857967. Epub 2019 Jul 1. PMID: 31258028](#) where GBD stands for Global Burden of Disease categorizations
 - 8.5% self-reported eating problem (GBD disability for severe tooth loss)
 - 14.3% self-reported bad breath/bleeding gum (GBD disability for severe periodontitis)
 - 37.7% reported sensitivity/toothache, missing/broken fillings, missing/broken teeth, or dry mouth (GBD disability assigned for untreated caries under generous assumptions)
 - Prevalence of symptoms associated with severe periodontitis and severe tooth loss was 19.0% under generous assumptions
 - Prevalence of dental conditions/ symptoms associated with severe periodontitis, severe tooth loss, and untreated caries was 41.9% under generous assumptions
- Shortage of Life Spans: A 2015 study found that those with 20 teeth or more at 70 had a considerably higher chance of living longer than those with less than 20 teeth ([VT Health Equity Initiative](#))
- Inability to afford dental care was associated with an increase of 0.017 disability-adjusted life-years (DALYs) per person per year, which adds up to half a year of life span after age 45
- The [Mayo Clinic](#) finds that for patients with chronic illnesses (diabetes and/ or coronary artery disease), an annual trip to the dentist saves more than \$500 per year in treatment costs



Model Briefs

- Model 1: To expand dental residencies across the state
- Model 2: To create a model similar to Thomas Jefferson University's PSAP
- Model 3: To create a model similar to University of Washington's RIDE Initiative
- Model 4: To create community service learning centers similar to East Carolina University (distributed learning systems)
- Model 5: To create a new dental school (traditional campus learning)



Model 1: Expansion of Residency Across NYS

Advantages:

- AEGD (Advanced Education in General Dentistry) and GPR (General Practice Residency)
- Lowest Cost out of our 5 options
- **Program Goal:** designed to reflect a private general practice within a dental school setting
- Could be implemented at Hudson Headwaters, Ticonderoga, University of Vermont

Classroom Structure:

- 2 faculty are assigned per clinic session to solely educate & provide support
- **Ratio of Faculty to Residents - 1:5 or better**
- **Residents could work closely with hygienists**
- **Access to faculty in every dental specialty**
- Optional Second Year



Model 1 (Continued)

Challenges:

- Only one year (for candidates with DDS/DMD degrees from US or Canada)
- Many of these programs are only funded in association with hospitals or medical schools or FQHCs
- Some dental residencies might not emphasize patient care enough, residency should focus on **Hands-On Care**
- By contrast, in this UCLA paper (Houlberg), residents at one dental institution do not believe that adequate attention is being devoted to practice and patient management strategies during dental residency

Model 2: Thomas Jefferson (Physician Shortage Area Program)

Advantages:

The yielding results (long term follow up) of Thomas Jefferson University's PSAP shows their effectiveness

- **70% of PSAP graduates** remained in rural family practice in the same area for **at least 20 to 25 years** after first located in practice
- An **additional 10%** had previously moved to another rural area
- Account for **21%** of family physicians practicing in rural Pennsylvania who graduated from one of the state's seven medical schools, even though they represent only 1% of graduates from those schools

- In Pennsylvania, almost one-half of all physicians practice in only 3 of 67 counties even though almost 3/4 of the population lives in the other 64 counties
- To help address the rural physician shortage, Jefferson Medical College of Thomas Jefferson University in Philadelphia, Pennsylvania, initiated the Physician Shortage Area Program (PSAP) in 1974
- Now also serves Delaware

Table 1

Numbers and Percentages of 762 Jefferson Medical College Graduates, Classes of 1978-1982, With Predictor Variables and 2007 Rural Practice Outcomes

Variable or outcome	No. (%) of graduates
Predictor variable	
Grew up in a rural area	
Yes	256 (34)
No	506 (66)
Planned rural practice at matriculation	
Yes	262 (34)
No	500 (66)
Planned family medicine at matriculation	
Yes	267 (35)
No	495 (65)
Practice outcome	
Rural practice in 2007	
Yes	172 (23)
No	590 (77)

Model 2: Thomas Jefferson (PSAP) (Continued)

Targeted Students in Recruitment

- Recruits medical school applicants who have a rural background and a strong commitment to a career in rural family practice
- Collaborate with seven Pennsylvania colleges for student recruitment and selection
- Applicants interested in the program fill out a supplemental application, submit additional letters of recommendation, and undergo interviews

Table 2
Numbers and Percentages of 762 Jefferson Medical College Graduates, Classes of 1978–1982, With Various Combinations of Predictors Practicing in a Rural Area in 2007

Predictive score	Predictors	No. of physicians	Physicians practicing in rural areas	
			No. (%)	95% CI*
3	Grew up rural, [†] plan rural, [‡] plan family medicine [§]	99	45 (45)	35–55
2	Grew up rural, plan family medicine	19	9 (47)	23–72
	Grew up rural, plan rural	59	19 (32)	20–44
	Plan rural, plan family medicine	67	20 (30)	19–41
1	Plan rural	37	11 (30)	14–45
	Grew up rural	79	20 (25)	16–35
	Plan family medicine	82	11 (13)	6–21
0	None	320	37 (12)	8–15

* Confidence intervals (CIs) based on the normal approximation to the binomial.

[†] Grew up in a rural area.

[‡] Planned to practice in a rural area at matriculation.

[§] Planned family medicine at matriculation.

Challenge:

There is no way to know if doing a dental school model based off a medical school program will yield the same outcomes



Model 2: Thomas Jefferson (PSAP) (Continued)

Structure: Students...

- represent around 6% of all Jefferson graduates and range from 5 to 24 students per year
- are assigned a faculty advisor and participates in patient interactions during their freshman year
- are required to take at least one of their required Phase 2 clinical clerkships in a smaller community
- are also encouraged to take at least one of their Phase 3 clinical rotations in a rural/small town setting
- are given schedule priority for outpatient clinical rotations with family physicians in smaller community settings
- take a six-week outpatient sub-internship in a rural family physician's office in their senior year
- receive a small amount of financial aid, mostly in the form of repayable loans
- are expected to complete a three-year residency in family practice
- while encouraged to practice in Pennsylvania, PSAP graduates can still practice in any state



Model 3: University of Washington Regional Initiatives Dental Education (RIDE)

Mission is to train dentists to meet the needs of rural and underserved populations in the state and region

RIDE is operated in conjunction with [Eastern Washington University](#) (EWU) and the [UW School of Medicine WWAMI](#) (Washington, Wyoming, Alaska, Montana and Idaho) program in Spokane.

Advantages:

- Successful 70% of graduates are now practicing in rural and underserved areas
- RIDE students take classes alongside medical and dental hygiene students (strong partnership with the WWAMI program and UW School of Medicine)

Challenges:

- Takes a lot of effort, time consuming
- Expensive
- First year students are not on the UW campus, but in Spokane, WA at EWU
- Additional CODA requirements



Model 3: University of Washington (RIDE) (Continued)

Phase	Description
Orientation and Summer (Seattle)	In the summer before first year, RIDE students come to Seattle for a weeklong Orientation followed by five-weeks of Intro to Clinical Dentistry and Biomedical Foundations courses. These courses are a great opportunity to explore the Seattle campus, connect with the Seattle cohort, meet upper-level RIDE students, and learn the basics of dentistry.
1st Year (Spokane)	After summer quarter, RIDE students attend dental school at the EWU Spokane campus where UWSOD delivers high quality dental education through both in-person instruction and distance learning modalities. RIDE students at EWU are remotely connected to the UWSOD campus and attend courses live with their Seattle classmates. Small group and interprofessional learning facilitated by EWU faculty enable an excellent student to faculty ratio while in Spokane.
RUOP Rotation (Regional)	The summer after their first year, RIDE students go on a four-week clinical rotation (RUOP) at an affiliated community health center in central or eastern Washington.
2nd Year (Spokane)	Following their RUOP rotations, RIDE students return to EWU Spokane for distance learning and in-person pre-clinical education at RIDE's state-of-the-art dental simulation lab in Spokane, WA.
3rd and 4th year (Seattle)	Students spend their entire third year and summer and fall quarters of 4th year at the UWSOD in Seattle and benefit from robust clerkship and comprehensive care clinical training.
Extended Rotation (Regional)	During winter and spring quarters of 4th year, RIDE students experience an intensive, five-month clinical rotation , usually at the same community health clinic, where they refine their clinical and professional skills under the mentorship of UW affiliate faculty.

SUNY Campuses that could house a RIDE Style Program:

Requirements: Anatomy Lab at nursing, dental, medical, or veterinary school

SUNY Albany (Medical school)

SUNY Binghamton (Medicine and Nursing)

SUNY Buffalo (Dental school)

NYS College of Veterinary Medicine at Cornell University (Vet)

SUNY Empire State (Nursing)

SUNY Upstate (Medicine)

*SUNY Stony Brook has a dental and medical school but seems to train students mostly for city practice and doesn't have much of a culture of interest in rural work



Model 3: University of Washington (RIDE) (Continued)

RIDE Budget: For the first-year distance learning model with 24 weeks of CHC rotation(s)

- The total cost of personnel is estimated to be \$1,686,750
- Cost of operations after start up: \$687,201
- One hub distance learning classroom with an estimated cost of \$150,000, One spoke distance learning classroom with an estimated cost of \$150,000
- Access to Anatomy lab is usually in conjecture with the campus' existing facilities.
- The spoke leased space costs \$65 per square feet per year for 5,000 square feet, for a total of \$325,000.
- The second spoke leased space costs \$65 per square feet per year for 6,000 square feet, for a total of \$390,000.
- Benefits paid by UW to staff is 25-30% of their total salary

Model 4: East Carolina University

Advantages:

- 1) Has **Community Service Learning Centers (CSLCs)** that help provide care to **rural communities**
- 2) Has success in placing graduates in rural/underserved areas -> 90% of those who completed GPR residency practicing in 70 NC counties
- 3) **Each CSLC provides \$1.25M in economic impact to those communities. The state invested \$30M for the clinics and is getting \$10M total per year back.**

In 2021-22 average debt from (public) health professions schools was **\$250K** for public and for private it was **\$350K**
VS
ECU: Kept average debt for graduates down to **\$115,000**





Model 4: East Carolina University - CSLCs (Continued)

Structure:

- 8 CSLCs present in NC with 2 dentists each; CSLCs owned & operated by ECU
- Current 4th year students: 3 rotations of 27 weeks at each site
- **Students play an integral role in providing care, especially with basic procedures (crowns/cavities)**
- **Approximately 48% of people in NC live within one county of an ECU CSLC**
- Students see **5-6 patients/day** in CSLCs **VS** most dental school settings where students see **1 patient/clinic session**

Our Proposal:

- Can replicate the CSLC model in NY with 2 dentists, couple dental hygienists, dental students, etc.
- If state/community built CSLC, Hudson Headwaters can hire dentists & help get students trained
- **Overall Goal/Outcome:** Lots of NY residents will receive quality dental care



Model 4: East Carolina University - CSLCs (Continued)

Challenge:

- Selection of CSLCs' sites will *take time*
 - Requires extensive demographic analyses, development of collaborative relationships with area practitioners, personal visits to sites, assessments of financial sustainability, etc.



Model 5: New Dental School

Pacific Northwest University as a Model:

- Partnered with:
 - Sea Mar - Yakima Neighborhood Health (FQHC with a focus on Latinx community)
 - Yakima Valley Farm Workers' Clinic (Community Health Center - Washington/Oregon)
- Each organization will establish a clinic for the PNWU dental students
 - 5 full time faculty; 1 director at each site; specialist faculty are part-time ; 1 care coordinator per site
- Students will spend 1 year in Yakima & 3 at the FQHCs
 - Curriculum: 2nd year dental students will do classroom & simulation work at FQHCs
 - Lectures are remote & synchronous; 2 days a week doing intro clinical work



Model 5: New Dental School

Our Current Work: Establishing a dental school in Florida to address the lack of oral health care in rural areas, using those numbers, we can predict:

Time Estimate:

- Completed by earliest 2030

Potential Complications:

- Other dental schools might not find a new one agreeable

Cost Estimates:

- Start Up Costs' Estimation: \$250 million
- Some Examples of Start Up Costs:
 - Annual CODA/other fees/permits: \$1 million
 - General Expenses: \$8.2 million
 - Fees, License, Malpractice, Professional Dev, etc.: \$400,000
 - Variable expenses 15K/student per year at 360 students: \$5.4 million
 - Startup Equipment: \$12 million
- Operating Budget: \$37.9 million per year



Choosing a Training Model

- A New York study is needed & lots of interaction within and across local interests across the state must be accomplished to figure out the best-suited training model
- Where dental trainees would go with distributed or traditional model, how they will be recruited, where they would be recruited from
- Dr. Joel Berg is a leader in building rural oral health training in Washington State
 - Dr. Berg asked me to be involved due to my unique personal background (everything from inspiring and building student services and health professions training programs to helping launch a \$150 million research center at the University of Wisconsin-Madison)
- My personal tie to New York gives some added perspective



Future Plan

- **At least two years** are needed to work with people across New York to make a reliable recommendation as to what kind of training program is likeliest to lead to a significant reduction in dental health professional shortage areas across the state
- Need support for putting residents in community health settings, which can be done in organizations, such as, Hudson Headwaters
- An **estimation of \$600,000 a year** to do this work, drawing in student assistants, doing needed travel, and bringing experts in rural workforce development and training as well as program leaders from the University of Washington at Seattle's School of Dentistry and possibly East Carolina University's School of Dentistry to help think through what is needed, where training can best be done, and how to recruit possible dentists and other oral health professionals in ways that will lead to the highest likelihood that the people we bring into any new program will complete it and continue to serve rural and underserved New York



Individual and Organization References

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- Finger Lakes Community Health,
- The Schuyler Center for Analysis and Advocacy
- Common Ground Health,
- SUNY Buffalo School of Dentistry
- Touro University College of Dentistry
- Columbia University School of Dental Medicine
- New York University College of Dentistry
- The Eastman Institute for Oral Health
- The SUNY Albany Center for Health Workforce Studies
- The New York Association of Medical and Dental Schools
- The New York State Dental Association
- The New York State Department of Health Office of the Dental Director
- 48 legislators, 30 Assemblypersons, 18 Senators, all with districts that are fully or partially rural
- The Centers for Disease Control's Division of Oral Health,
- The Health Resources and Services Administration Office of the Chief Dental Officer



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Thanks to the Schuyler Center for Analysis and Advocacy!

Emails:

- **Dr. Berg:** joel@execudent.com
- **Dr. Weed:** matthewweedconsults@gmail.com

Websites:

- **Execudent:** <https://www.execudent.com/>
- **Dr. Weed:** <https://www.drmatthewweed.com/>

Questions/ Comments?