

ACEP Rural Emergency Care Task Force 2020
Report to the ACEP Board of Directors
October 2020

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Executive Summary

The 2020 Rural Emergency Care Task Force, convened by the ACEP Board of Directors, began work in June 2020 and continued over the next four months addressing the assigned objectives using the listed methods and yielding recommendations as follows:

1. *Objective:* Review the data from the ongoing workforce study. Review the data regarding recent closure of rural hospitals. Provide an assessment and recommendations on the current and projected workforce.

Methods: Review of current workforce study; original data analyses.

Assessment: Current understaffing of rural emergency departments (ED) is likely to worsen and restricting this assessment to emergency medicine (EM) residency trained, EM board certified emergency physicians (EPs) provides a far worse situation and forecast. More rural EDs are closing than opening.

***Goals:* Support physicians, physician assistants (PA), and nurse practitioners (NP) currently staffing rural EDs, acknowledging prior training is often limited in formal EM, through EM-focused professional development activities. Develop strategies to avoid further rural ED closures.**

Suggested ACEP actions:

- a. **Develop a recommended knowledge and experience base for non-EM board certified physicians who are working in rural areas. This should not be confused as a substitute for board certification. Require a period of mentorship with an EM board certified physician via telemedicine.**
 - b. **Develop a recommended knowledge and experience base for PAs and NPs who are working in rural areas. Require a period of mentorship with an EM board certified physician via telemedicine.**
 - c. **Work with the American Hospital Association and other specialty organizations to provide support for rural hospitals and practitioners.**
2. *Objective:* Review the outcomes of residency training programs with specific rural emphasis and make recommendations on ways to increase the number of board-certified EPs practicing in rural areas.
Methods: Program director (PD) survey, structured interviews.

Assessment: Majority of PDs reported educational benefit of rural rotations. Rural rotations provide a bridge between academic training and community practice. Barriers to offering rural rotations during residency training include financing, housing, and supervision.

Goals: Reduce barriers involving the credentials of a ‘supervising physician’ with the Accreditation Council for Graduate Medical Education (ACGME) Review Committee-Emergency Medicine (RC-EM). Enhance knowledge of rural training through collaboration with national groups. Establish loan repayment for EM residency graduates practicing in rural areas. Promote rural EM residency tracks.

Suggested ACEP actions:

- a. **Meet with RC-EM to discuss rural ED rotations and current barriers to these experiences.**
- b. **Collaborate with CORD and EMRA to increase the options for rural ED rotations.**
- c. **Highlight rural EM through ACEP Now articles.**

3. *Objective:* Perform a needs assessment of our rural members, including equipment (eg, video laryngoscopes, ultrasound, etc.), consultation, education (physician, nursing, etc.), and policies.
Methods: Survey of ACEP Rural Emergency Medicine Section, American Academy of Emergency Nurse Practitioners (AAENP), and Society of Emergency Medicine Physician Assistants (SEMPA).
Assessment: Most rural sites report adequate equipment to provide care, and most required ACLS, ATLS, and PALS. Few rural sites required additional education or onboarding activities to address EM knowledge or procedural skills training.

Goals: Develop a model onboarding for PAs and NPs practicing without EM board certified EP presence in rural EDs, to include EM specific knowledge and procedural skills training. Facilitate the utilization of telemedicine in rural sites to enable supervision by EM board certified physicians for initial onboarding supervision of PAs and NPs, as well as ongoing telemedicine availability.

Suggested ACEP actions:

- a. **The Board of Directors should discuss the role of ACEP in driving improved quality of care in rural hospitals.**
- b. **Create a document that outlines the recommended on-boarding for PAs and NPs in settings without EM board certified EPs, which would include specific knowledge and skills competency, as well as recommendations for supervision by EM board certified EPs.**
- c. **Create a policy that advocates that hospitals without EM board certified physician coverage should have telemedicine availability for consultation.**

4. *Objective:* Provide several models of successful rural care practices.
Methods: Review of several models of rural ED practice by expert panel. Discussions with rural ACEP members.
Assessment: Mayo and TeamHealth onboarding practices reviewed and summarized. Alternative programs for non-EM board certified physicians and PAs/NPs requiring additional EM knowledge and procedural skills training leading to other credentials and Certificates of Added Qualification (CAQs) reviewed. Review of low volume EDs to better understand challenges of staffing these sites.

Goal: Highlight institutions that have quality rural care practices such as the Mayo model

Suggested ACEP actions:

- a. **Conduct a study of low volume frontier ED practices to understand and address unique challenges of these sites (staffing, inpatient care).**

b. Create ACEP Now articles and other communication devices to promote best practices.

5. *Objective:* Make recommendations on opportunities to improve rural emergency care including accreditation programs, incentives, and policies.

Methods: Review and opinion of expert panel. Discussions with rural members.

Assessment: Many rural EDs staffed by non-EM board-certified physicians, PAs, and NPs lack oversight/supervision by EM board certified physicians.

Goals: Develop a model onboarding curriculum for PAs and NPs practicing without EM board certified EP presence in rural EDs, to include EM specific didactic knowledge and procedural skills training. Encourage rural EDs to utilize telemedicine supervision by EM board-certified EPs for initial onboarding and supervision of PAs and NPs, as well as ongoing availability of telemedicine supervision and support.

Suggested ACEP action:

- a. **As above, create a document with ACEP recommendations for onboarding and ongoing telemedicine supervision and support.**

We would ask that the Board consider devoting some time at their retreat to discuss this paper and its recommendations, and specifically what ACEP can do to improve the quality of care provided in rural settings, and, where appropriate, add tactics to the strategic plan to develop appropriate programs.

Background

Rural emergency medicine (EM) represents a wide spectrum of clinical practice, often characterized by annual patient census, remoteness of location, ED/inpatient practice mix, and variable physician/PA/NP staffing. Regardless, both rural and urban EDs see high acuity and complex patients, and this common thread represents a major challenge of working in rural EDs. With rural EDs representing 53% of all hospitals in the US and 24% of total ED patient volume^{1,2}, the care provided at these sites significantly affects the overall health of the US population and, as such, demands the attention of our organization. ACEP recognized the discrepancies in quality of care between urban and rural sites and past rural task force recommendations and ongoing work to encourage EM residency trained/EM board certified physicians to migrate to those rural EDs. Unfortunately, despite a 28% increase in EM residency positions over the past 10 years^{3,4}, we see no corresponding increase in EM residency trained or EM board certified physicians working in rural EDs.³

Review of summaries from previous rural task forces, specifically those from 2003 and 2015, indicates that the challenges we face today are not new. The 2020 Rural Emergency Care Task Force (RECTF) is faced with the following questions:

1. What we can do here and now to improve care for rural emergency patients? and
2. What recommendations can we make to improve rural emergency care into the future?

The 2020 RECTF used the following prioritization of guiding principles in completing our work and making recommendations to the ACEP Board of Directors:

1. Patient care and patient safety
2. Physician/PA/NP needs and interests
3. Medical facility needs and interests

With quality patient care as our guiding principle, we recommend that ACEP should:

- 1. Determine how to better support EPs currently working in rural EDs, acknowledging a spectrum of residency training and board certification status.**
- 2. Collaborate with hospitals and other healthcare systems to develop strategies to avoid further rural ED closures, including ongoing support of the Critical Access Hospital (CAH) program.**
- 3. Further study small, low volume rural EDs, based on annual patient census and location, to better address specifics unique to rural care delivery.**
- 4. Encourage EM residencies to incorporate rural EM practice into their clinical curricula, working with ACGME and RC-EM to reduce accreditation barriers PDs cite as currently limiting rural training opportunities.**
- 5. Investigate mid-career EP practice preferences with an objective to identify and educate how rural practice may meet many such preferences.**
- 6. Collaborate with other national organizations, such as the American Academy of Family Physicians (AAFP), to address needs of non-EM residency trained, non-EM board certified physicians working in rural EDs, specifically through EM-focused professional development resources, promoting additional education and ongoing support from EM board certified EPs via telemedicine.**
- 7. Collaborate with other national organizations (such as SEMPA and AAENP) to address needs of PAs and NPs working in rural EDs, specifically through EM-focused professional development resources, promoting additional education and supervised clinical experience before beginning any work in an ED without the presence of a EM board-certified EP, followed by ongoing telemedicine support from EM board certified EPs.**

Our hope is to have key stakeholder organizations join ACEP in support of these recommendations to improve rural emergency care.

Objective 1: Review the data from the ongoing workforce study. Review the data regarding recent closure of rural hospitals. Provide an assessment and recommendations on the current and projected workforce

Dr. Carlos Camargo, chaired this workgroup.

Objective 1 workgroup members met with Dr Catherine Marco, chair of the ACEP Emergency Physician Workforce Task Force; reviewed the relevant rural emergency care literature; and performed original research to fill identified knowledge gaps. A brief summary of our findings is provided here.

Rural Emergency Physician Workforce

The recent workforce publication by Bennett et al³ provided highly relevant data. Briefly, the authors analyzed the 2020 American Medical Association Physician Masterfile dataset to identify all 48,835 clinically active EPs in the US. Of these EPs, 81% were EM residency trained or EM board-certified; the most common alternate training pathways for EPs were family medicine (33%), internal medicine (24%), or surgery (12%).

Based on the county-based Urban Influence Codes⁴, the vast majority of US EPs were in urban areas (92%), while 2,730 (6%) were in large rural areas and 1,197 (2%) were in small rural areas. Figure 1 shows the EP density per 100,000 population by county; panel A shows all EPs, while panel B shows EM residency trained or EM board certified EPs. Urban EPs were younger (median age 50 years) than those in large rural areas (median age 58 years) or small rural areas (median age 62 years); the interquartile range for small rural areas was 51 to 68 years (ie, one-quarter of small rural area EPs are 68 years old or older).

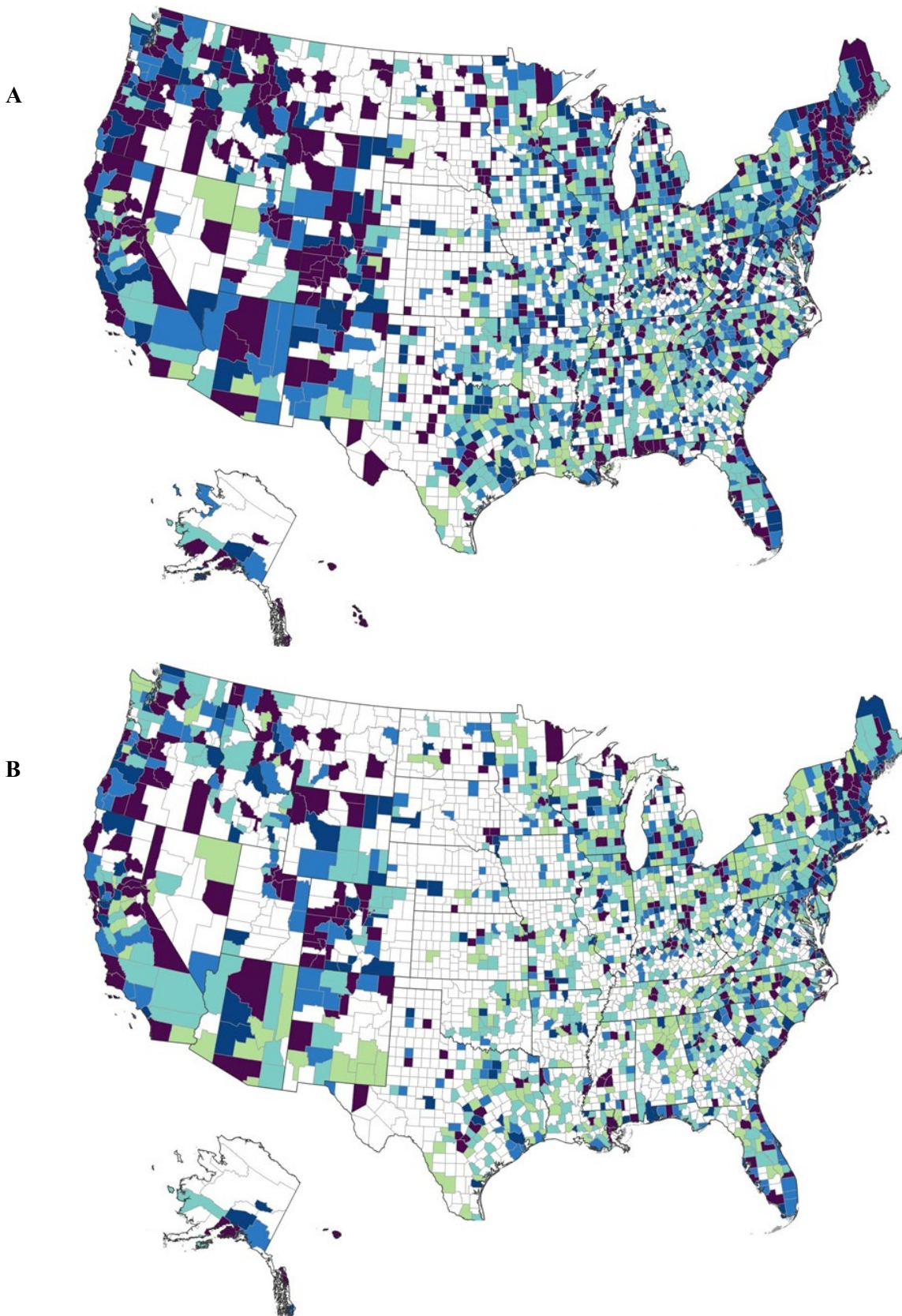


Figure 1: Emergency physician density per 100,000 population by county. A, All emergency physicians. B, Emergency medicine–trained or emergency medicine board–certified emergency physicians. Three hundred fifty-eight emergency physicians (1%) had missing county-level population data and could not be classified.³

Compared with a comparable study on 2008 EP workforce¹, the total number of clinically active EPs has increased by 9,774 (Figure 1A); however, per 100,000 population in 2020, EP density has decreased in both large rural (-0.4) and small rural (-3.7) areas (Figure 1B).

Rural Hospital Closures

The popular press often reports on the closure of individual rural EDs, but current national data are lacking. Accordingly, the committee undertook original research to better understand recent trends in rural ED openings and closures. Briefly, the National ED Inventory (NEDI)-USA database contains basic information about all non-federal, non-specialty US EDs open 24 hours per day, 7 days per week, and 365 days per year.⁵ Per NEDI-USA, there were 1,899 rural EDs open in 2018, with rural defined using the county-based Urban Influence Codes.² Rural EDs comprised 34% of all 5,514 US EDs in 2018.

Between 2002 and 2018, there were 82 rural ED openings and 137 rural ED closures, with a net loss of 55 rural EDs over the 17 years. Figure 2 shows the net number of rural ED closures and openings per year, with an early surplus (2004-2005) and consistent deficits in the years since.

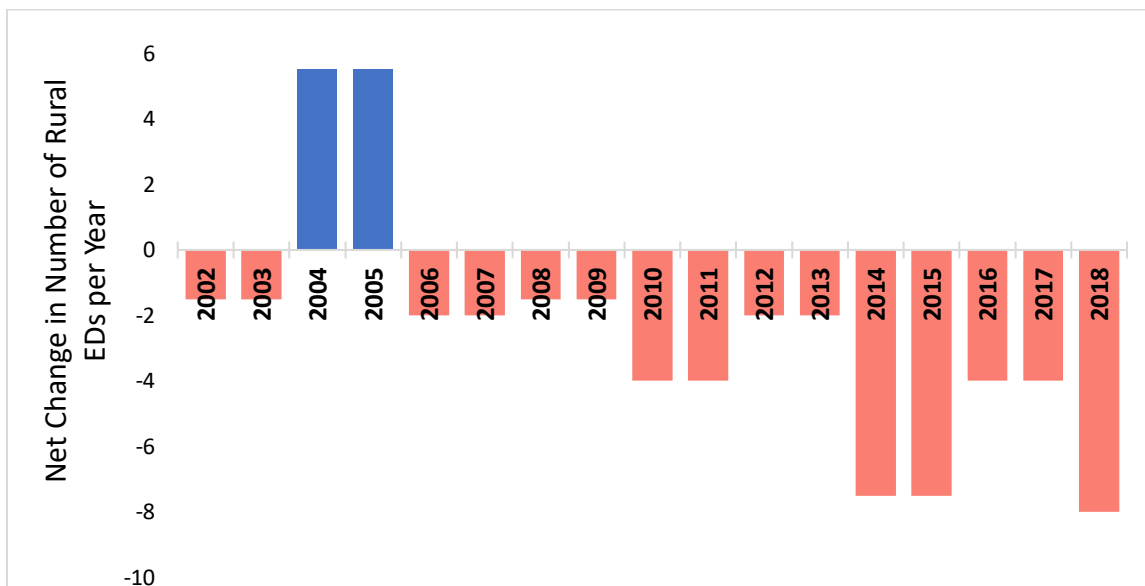


Figure 2: Net number of rural ED closures and openings per year between 2001-2018. *Reprinted from EMNet/NEDI website with permission.*⁵

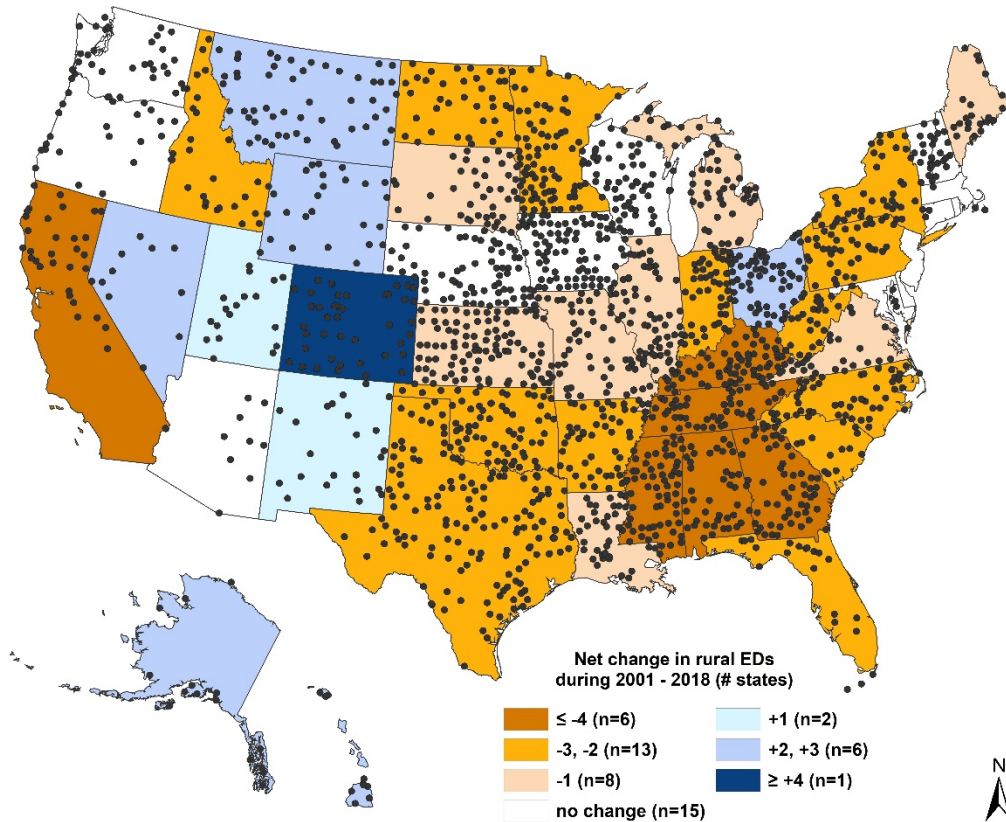


Figure 3: Location of rural EDs in 2018, with state specific summary of net gain or loss of rural EDs since 2001. *Reprinted from EMNet/NEDI website with permission.*⁵

The change in the number of rural US EDs also varied by state. Figure 3 shows the location of rural EDs in 2018, and shading indicates which states had gained, lost, or retained the same number of rural EDs in 2018 versus in 2001. The overall trend is a net loss of rural EDs.

Assessment and Recommendations for Rural Workforce

Based on the best available evidence, current understaffing of rural EDs by EPs is likely to worsen in the years ahead. Restricting analyses to only those EPs with EM training or EM board certification provides an even worse situation – and forecast.

Evidence also indicates that more rural EDs are closing than opening. While the numbers are small – relative to the total of 1,899 rural EDs open in 2018 – the trends are concerning.

Taken together, we encourage ACEP to better support the EPs now working in rural EDs – regardless of their EM training or EM board-certification status – and to work with rural hospitals to develop strategies to avoid further ED closures. Ongoing support of the CAH Program should be an important part of any ACEP strategy to maintain and potentially improve access to rural emergency care.

Objective 2: Review the outcomes of residency training programs with specific rural emphasis and make recommendations on ways to increase the number of board-certified EPs practicing in rural areas.

Drs. Diane Rimple and Melissa Fleegler co-chaired this workgroup.

We believe access to rural experience during medical training is an integral component of a cohesive strategy for improving access to high quality emergency medicine care in rural communities by encouraging EM residency trained physicians to consider practicing in rural areas. Rural EM rotations may be a recruitment tool for rural hospitals to hire EM residency trained, EM board certified physicians, offer valuable clinical training that can be applied across resource-limited practice settings, and prepare trainees for a successful and rewarding transition to post-residency EM practice. We sought to determine training PDs' attitudes toward the utility of rural training experiences, the availability of rural rotations, the barriers to establishing rural rotations, and interest in a combined EM/Family Medicine (FM) residency to address the rural physician work force scarcity. A survey of EM residency PDs was performed, which was then followed by a structured survey of interested participants to further explore these topics.

The current workgroup engaged in several activities to accomplish our objective, including:

Survey in collaboration with the Council of Residency Directors in Emergency Medicine (CORD-EM)

We conducted a survey of emergency medicine residency program directors through CORD-EM to better understand the current availability of rural experiences within emergency medicine residency programs. Of 265 emergency medicine residency programs in the United States, we received feedback from 59. Survey response highlights include:

Attitudes and Availability:

- 97% of respondents felt there was benefit to offering a rural rotation separate from simply offering a second (or extra) training site for resident clinical experience, while 52% report currently offering such a rotation.
- Of the programs that currently do not offer a rural rotation (48% of respondents), 82% would offer a rural rotation if they could.

Barriers:

- The most commonly cited barrier to offering a rural rotation was financial, both covering resident salaries and providing housing and other amenities required for distant rotations.
- Nearly as many respondents reported issues arising from the ACGME's requirement that trainees be supervised by EM board eligible/board certified physicians in rural EDs.
- Additional barriers endorsed by respondents included sites being too far away to be feasible, lack of interest by residents, lack of interest by rural sites.
- 89% of programs noted that they permit their residents to moonlight. During a structured follow up interview, moonlighting is seen as a substitute for, or alternative to, structured resident rotations in rural areas.

Interest in EM/FM combined residency:

- Notably, when asked whether they would consider creating new combined EM/FM residencies (as previously put forth by the 2003 ACEP Task Force) *if there was available financial support*, 73% of respondents affirmed interest in this concept.

Narrative comments highlighted further insights such as,

- ACGME discouragement of required rotations that take residents away from their families.
- Some programs may feel that a rural rotation does not align with their residency mission and vision.
- There may be safety concerns related to some rural locations.

This survey is being followed up by structured qualitative phone interviews with residency program directors to further explore these topics. While these interviews are still ongoing, there are clear themes emerging among program directors, whether or not they have rural rotations as part of their training program.

- Rural rotations are regarded as an important opportunity to bridge the gap between academic training and community practice. They can serve a role in providing progressive responsibility and offer trainees important insight into work outside of academic hospitals.
- PDs report strong resident support for these types of training opportunities. If offered as an elective, they often progress to a required rotation due to resident enthusiasm.
- Moonlighting is seen as an alternative to formal rural rotations, particularly for programs currently unable to offer a rural rotation.
- Programs with rural rotations have a wide range of approaches to overcoming the barriers to establishing them. Each program has a slightly different experience.
 - Funding was found from the affiliated hospital or EM group, from endowments, the sponsoring institution, or the academic department.
 - Often, rural hospitals started off with few EM board eligible/board certified physicians available to supervise trainees but were able to hire more EM board certified physicians after establishing a rotation. Many of these new hires were former trainees who had rotated there.
 - Housing options are varied and can prove complicated and expensive to provide.
- When asked if they had thoughts about increasing the number of EM board certified physicians working in rural environments, economic incentives were frequently cited. Specifically, loan repayment programs were mentioned as the best means for drawing new graduates to CAHs.

Discussions with Stakeholders at the National Level

Discussions were held with the following:

- ACGME Medically Underserved Area/Population project regarding funding and administrative support for EM rural rotations.
- RC-EM CORD-EM liaison regarding alternative models of supervision for rural rotations.
- ACEP Director of Regulatory Affairs for clarification of new CMS regulations regarding funding for rotations at CAHs.
- PDs of EM/FM residency programs to discuss their perspective on training physicians focused on providing rural emergency care.

Assessment and Recommendations for Residency Education

Based on the above activities, as well as consensus discussions among committee members, this subcommittee recommends the following with respect to rural EM residency training:

- Work with the ACGME to increase opportunities for EM residents to rotate in rural practice environments by addressing existing barriers associated with ACGME requirements.
 - Engage with the RC-EM leadership around the qualifications of supervising physicians during rural ED rotations.
 - Develop innovative acute care rotations in rural environments, encompassing a spectrum of sites that may include pre-hospital, clinic, urgent care, ED, inpatient, and post-acute care settings.
 - Explore the role of telemedicine supervision and/or case review with EM residency home institutions attending physicians.
- Work with other national organizations to disseminate information around rural training.
 - Create white paper recommendations for rotation best practices
 - Broadcast the changes to CMS funding for rural rotations to EM residency programs.

- Cross cutting studies, presentations, and meetings with other national organizations, including CORD-EM, SAEM, EMRA, EMSA.
- Support EMRA in conducting a survey of medical students and residents that parallels the Task Force's survey of PDs regarding rural residency experiences.
- Underscore benefits of rural residency experiences and practice to trainees, including, but not limited to:
 - Urban and academic job markets with greater saturation as compared with employment opportunities in rural communities.
 - Community administrative leadership opportunities, such as emergency medical services (EMS) directorships, ED medical directorships, and other hospital leadership roles.
 - Blended academic/community jobs can serve as a recruitment tool for graduating residents.
- Work with federal governmental organizations, including the Centers for Medicare and Medicaid Services (CMS) and Indian Health Services (IHS), to establish loan repayment for EM residency graduates practicing in rural areas.
- Promote rural EM residency tracks
 - Many EM residencies offer specialized tracks for trainees, such as EMS and critical care. We propose similar development of rural EM pathways.
 - Identify funding streams for EM/FM combined residency tracks: The 2003 ACEP Task Force promoted the concept of combined EM/FM residency programs, however only two of these residencies currently exist. Our survey indicates strong interest by PDs in establishing additional programs if there is available funding to support residency positions.

Interviews with FM PDs and EM/FM PDs were less positive about the role of EM/FM graduates in increasing the rural EP workforce. Current graduates of these programs work predominantly in EDs in academic or larger community hospitals for a variety of reasons. If we embrace this model, exploring ways of aligning outcomes with mission should be undertaken.

Objective 3: Perform a needs assessment of our rural members, including equipment (eg, video laryngoscopes, ultrasound, etc.), consultation, education (physician, nursing, etc.), and policies.

Dr. Steve Jameson chaired this workgroup.

Objective 3 workgroup created a survey to address availability of critical equipment for airway management, IV access, and emergency bedside ultrasonography in these rural EDs. Additionally, the survey included physician, PA, and NP education in the use of this equipment and overall training in EM required to work at these facilities. A brief summary of the data follows here:

- Surveys targeted physicians, PAs, and NPs working in rural facilities through ACEP listserv, SEMPA, AAENP, and the CALS organization.
- A total of 371 physicians, PAs, and NPs practicing in rural EDs completed this survey.
- The vast majority of rural hospitals had video laryngoscopy, IO devices, crich trays, and a bedside ultrasound available.
- 20 – 25% of PA and NP respondents work in EDs with volumes of < 5,000 annual visits (so called Frontier rural hospitals). Physicians tend to work at higher volume rural facilities, 5, 000 – 15,000, and data suggests (and anecdotal experience suggests as well) that physicians work collaboratively with PAs and NPs at ED volumes > 15,000.
- 31% of NPs and 45% of PAs reported that they work independently in their ED (no physician on site and virtually no presence of a supervising physician)
- The majority of rural hospitals required PAs, NPs, and non-EM residency trained, non-EM board certified physicians to have ACLS, ATLS, and PALS in order to work in their EDs, but only a small minority required any additional EM training/onboarding, neither foundational knowledge-based education nor procedural/skills training.

Assessment and Recommendations for Rural ED Needs

Based on survey results, there does not seem to be a great need for advanced emergency equipment at rural hospitals, but there is certainly a lack of any standard of education. It is broadly agreed upon by members of the ACEP RECTF, informed by survey results obtained from members of ACEP, that physicians trained in primary care and surgery, and all newly graduated PAs and NPs, are not adequately trained in EM and require additional training in this field in order to safely practice in any ED. With a significant proportion of PAs and NPs working independently in rural EDs without any standard of training/onboarding, this arguably makes these rural patients our most at-risk population across the spectrum of ED patients. This workgroup found the following resources/programs to be particularly valuable for the education and onboarding of rural PAs and NPs and non-EM trained physicians:

- ACLS
- ATLS
- PALS
- CALS (Comprehensive Advanced Life Support)
- RTTDS (ACS Rural Trauma Team Development course)
- EMCT (Emergency Medicine Core Training)
- EM Boot Camp course
- An advanced airway course
- Additionally, there are specific post-graduate EM training programs and certificates of added qualification included in Objective 4 and 5 summaries.

Objectives 4 & 5: Provide several models of successful rural care practices. Make recommendations to ACEP on opportunities to improve rural emergency care including accreditation programs, incentives, and policies.

Drs. Steve Jameson and Chris Sampson chaired these workgroups, with the resulting work overlapping to a great degree and, therefore, leading to the creation of a single work product.

The gold standard for the care of ED patients is provision of care by EM residency trained and EM board-certified EPs, with board certification from the American Board of Emergency Medicine (ABEM) and the American Osteopathic Board of Emergency Medicine (AOBEM). Based on a recent workforce study,¹ however, it was found that only 8% of all EPs (not necessarily ABEM/AOBEM certified) work in rural EDs and only about 2% work in very low volume ED's. Primary care physicians typically fill this void, but increasingly we see it filled by PAs and NPs – at times working with, or under the supervision of, a physician and at times working as solo practitioners. This workgroup was asked to identify several best practices, where emergency groups, hospitals, or health systems had developed an educational program or mandatory education for physicians and PAs/NPs in an effort to better prepare them to adequately manage the population of emergency patients that present to these rural facilities. Patient safety is paramount, and when an EM residency trained, EM board certified physician cannot be present, we must advocate for improved education of our emergency care colleagues. Because the very low volume rural EDs have, arguably, the most at-risk patients, we focused our efforts on training for physicians, PAs, and NPs at these facilities. Our findings are as follows:

Models of Successful Rural Care Practices

- The Mayo system in Minnesota was found to have the most robust onboarding and monitoring process for PAs and NPs to work solo in frontier rural EDs, which often are part of the federal CAH program. The process is as follows:
 - PA/NP fellowship track to work at frontier CAH
 - 18-month program

- Variety of clinical rotations including EM
 - EMCT (Emergency Medicine Core Training) Program
 - RSI (Rapid Sequence Intubation) course
 - Endotracheal intubations in OR
 - Ultrasound course
 - ACLS
 - CALS
 - Bridge to solo practice (supervised solo shifts)
 - Procedure/skills review with supervisor and medical director
 - Telemedicine oversight as needed at solo site
- Non-PA/NP fellowship track to work at frontier CAH
 - Need years of experience in large volume ED – supervised
 - EMCT (Emergency Medicine Core Training) Program
 - RSI (Rapid Sequence Intubation) course
 - Endotracheal intubations in OR
 - Ultrasound course
 - ACLS
 - CALS completion
 - Bridge to solo practice (supervised solo shifts)
 - Procedure/skills review with supervisor and medical director
 - Telemedicine oversight as needed at solo site
- TeamHealth
 - Traditionally used Center for Emergency Medicine Education (CEME) Boot Camp but transitioning to EMCT Program for foundational knowledge in EM.
 - Procedural and Sim labs, lectures, and other specific training varies depending on location.
 - We were not able to get information on telemedicine oversight or a specific training path for solo practice at a frontier ED.
- Board certification in emergency medicine (BCEM) certification for primary care physicians
 - Must have finished a primary care residency
 - Must have clinical experience in EM
 - Letters of recommendation from Board certified EM physicians
 - All EM fellowship programs are 12 months
 - Letter of certificate of EM hours and good standing from fellowship director or hospital administrator
 - 10 EM critical cases write up and case discussion with verified hospital medical records sign off
 - Pass EM written board exam
 - Pass EM oral board exam
 - ATLS, ACLS, PALS
 - Continued board certification requires recertification written exam and review of EM CME every 10 years
- Certificate of Added Qualification (CAQ) tracks for NPs and PAs
 - NPs – emergency NP post graduate certification
 - <https://www.aanpcert.org/certs/qualifications> - three tracks:
 - APP EM fellowship
 - Approved academic emergency care program
 - Non-fellowship/academic track
 - Pass EM certification exam (CAQ exam that ACEP helped develop)
 - PAs
 - <https://www.sempa.org/professional-development/nccpas-caq-in-emergency-medicine/> - process of CAQ outlined here:
 - 3,000 EM clinical hours

- Procedure competency – signed off by supervising physician
- Valid PA-C and state license
- Pass CAQ exam at testing center (120 multiple choice questions)
- CME – 75 hours focused on EM in 10-year cycle

Limitations of Models Applied to Broad Spectrum of Rural EDs

The all-encompassing term ‘rural ED’ can mean anything from a facility with two acute care beds seeing less than five ED patients per day to rural hospitals with over 300 beds, making broad application of models problematic. Further work is needed to fully understand practice environments in hospitals that are at the lower end of the volume spectrum and identify challenges related to these facilities (See Appendix).

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Introduction: There are many overlapping federal programs and state programs used to identify rural healthcare facilities however, none are comprehensive and complete. The term “rural ED” can mean anything from a facility with two acute care beds, seeing less than five ED patients per day, to hospitals with over 300 acute care beds. This summary seeks to highlight practice environments at the lower end of this volume spectrum and identify challenges present in these facilities. We also attempted to identify the scope of the problem by looking at the frequency in which these environments occur.

Background Motivation Questions:

Landscape

- What are the clinical obligations at a facility that does not have the volume to support a full-time, in house ED clinician?
- How many extremely low volume facilities exist in the United States?

ED Coverage

- At what point is the emergency department able to be staffed on an as needed/ “On- call” basis?
- At what point does a dedicated ED clinician become necessary?
- At what point can that dedicated ED clinician no longer be able to perform a 24-hour shift?
- At what point can that dedicated ED clinician no longer be expected to cover floor patients?
- At what point does ED operational oversight by an EM board certified (BCEM) physician become ideal?

Hospital coverage

- What is the ideal frontier or small rural hospital physician coverage model?
 - Five family practice physicians? Three FM and two EM physician who are willing to cross train?
 - Three FM, one EM doc and one general surgeon all willing to cross train?
 - Two FM, one EM doc, one general surgeon and one OB/gyn all willing to cross train?

PAs and NPs

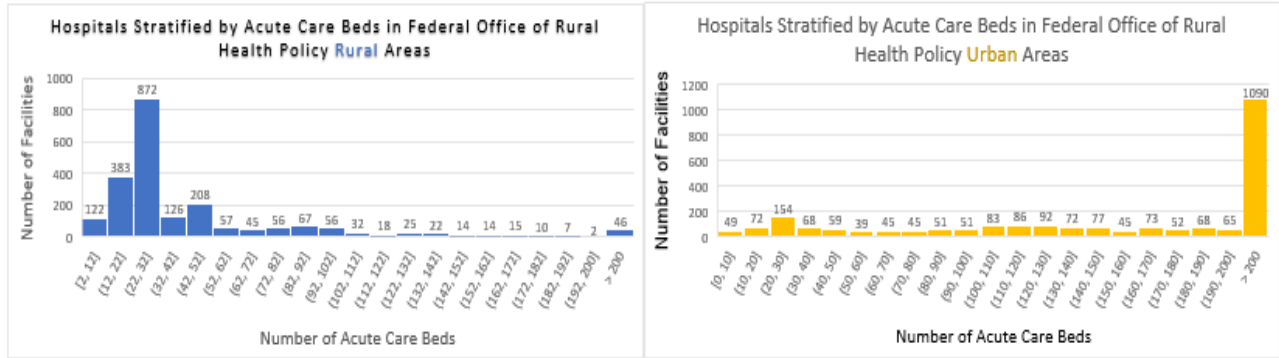
- Should PAs and NPs be working independently at rural facilities?
 - If so, in what areas are the best suited to practice? Wards, ED, Clinic, Surgery
 - In what areas would they have the best oversight?
 - If close supervision/parallel working environments (surgery) are not available, what are the best onboarding options?

Landscape of Rural Hospitals in the United States

Data Sources:

<https://www.flexmonitoring.org/critical-access-hospital-locations-list>

<https://www.ruralhealthinfo.org/resources/types/directory>

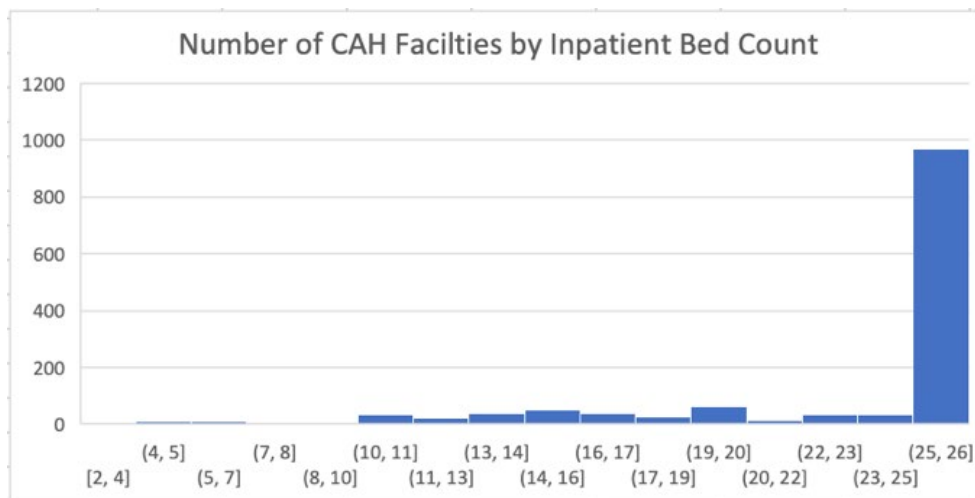


Appendix Figure 1: Comparison of rural vs. urban hospital size based on number reported acute care beds.

In 2019, there were 2,198 hospitals in Federal Office of Rural Health Policy (FORHP) designated rural areas compared to 2,459 hospitals in FORHP designated urban areas. Rural hospitals are on average much smaller than their urban counterparts with an average of 58 vs 278 acute care beds. Of the hospitals in FORHP designated rural areas, most participate in at least one of the federally designated special payment classification programs for rural facilities. CAHs represent the largest number of facilities, are the most rural, and have the lowest average acute care beds. Rural-Urban Commuting Area Codes (RUCAs) are a measure of rurality and are based on a 1.0-10.6 scale with 1 representing a metropolitan core and a 10.6 representing the most rural areas in the US.

Special Payment Classification	Number of Facilities	Average RUCA Code	Average Acute Beds	Standard Deviation
Critical Access Hospital (CAH)	1256	7.6	21.98	15.06
Indian Health Service (IHS)	25	6.8	34.44	21.62
Medicare Dependent Rural Hospital (MDH)	136	5.7	51.32	20.97
Rural Referral Center (RRC)	95	4.3	150.68	66.83
Sole Community Hospital (SCH)	368	5.2	58.47	32.64
RRC/MDH	15	4.2	83.07	21.60
SCH/RRC	114	4.4	134.70	81.88
None	284	5.2	66.43	49.72

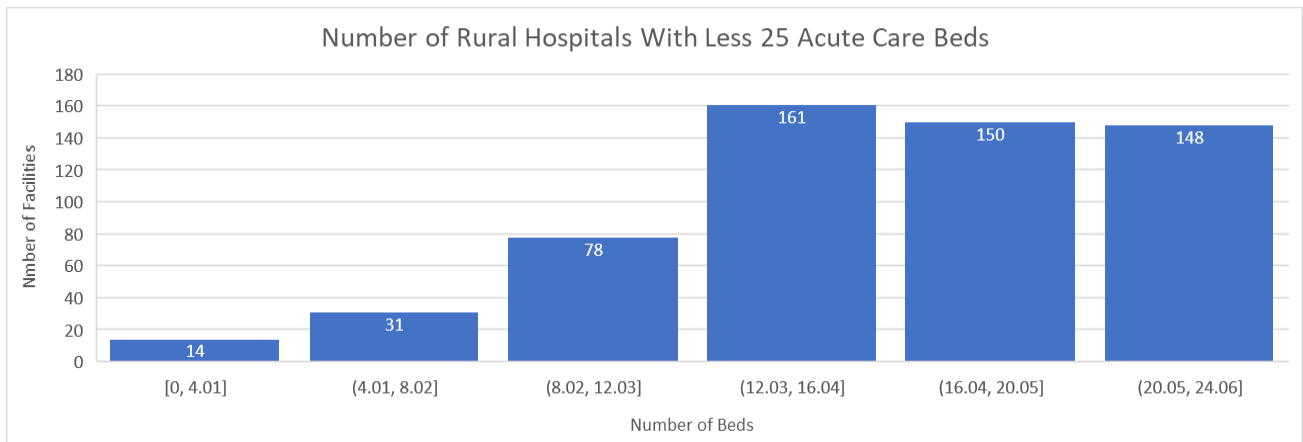
Appendix Table 1: Characteristics of hospitals in FORHP designated rural areas.



Appendix Figure 2: Number of acute care beds in all CAHs

CAH locations are scattered throughout 45 states in the US. To qualify for federal funding, a CAH must meet certain criteria, such as having no more than 25 acute care beds, maintaining an average length of stay less than 96 hours, and being located more than 35 miles from another hospital (however exceptions can be made for average travel time). National data regarding ED volumes was not available at the time of this report; however, estimates were made based on total number of acute care beds. Most CAHs are 25 bed facilities, which is the upper limit of the federally mandated number of acute care beds. This suggests these hospitals are physically larger, however, are only able to use 25 acute care beds when they restructured to obtain CAH status. Although no comprehensive annual volumes are available, the facilities with 25 acute care beds likely do not represent the extreme frontier rural facilities. Based on anecdotal experience by task force members, a review of internal West Virginia University network hospital volumes and cross-referencing available data from New Mexico, these facilities likely represent average ED volumes of greater than 10,000 visits per year.

By limiting the data to facilities with less than 25 acute care beds and removing the large number of 25 bed CAH facilities, we are likely looking at the number of true low volume, frontier hospitals in the US. The hospitals in the graph below represent 26.4% (581/2198) of rural facilities and 9.4% (9586/101122) of acute care beds in FORHP rural areas. Facilities with less than 12 beds represent 5.6% (123/2198) of rural facilities and 0.7% (760/101122) of the total acute care beds in FORHP rural areas. These facilities present significant challenges in ED care delivery but also represent an exceedingly small subset of rural hospitals.



Appendix Figure 3: Subset of hospitals in FORHP rural areas with less than 25 beds.

Acute Care Beds	Number of Facilities	Average RUCA Code	CAH	IHS	MDH	SCH	No Designation
Less than 5	13	7.4	77% (10/13)	0	0	0	23% (3/13)
5 to 8	31	8.1	81% (25/31)	13% (4/31)	3% (1/31)	0	3% (1/31)
9 to 12	78	8.3	90% (70/78)	1% (1/78)	1% (1/78)	1% (1/78)	6% (5/78)
13 to 16	161	8.6	92% (148/161)	<1% (1/161)	2% (3/161)	2% (4/161)	3% (5/161)
17 to 20	150	8.0	93% (139/150)	2% (3/150)	2% (3/150)	<1% (1/150)	3% (4/150)
21 to 24	148	7.7	89% (131/148)	< 1% (1/148)	1% (2/148)	3% (4/148)	7% (10/148)

Appendix Table 2: Characteristics of hospitals in FORHP rural areas with less than 25 beds.

The lack of available ED volumes at these hospitals leads to uncertainty and is a significant limitation in this data. Adding this metric to future databases would be very helpful.

Typical Rural Hospital Practice Environment

Summary: Practice environments in rural EDs varies significantly depending on expected annual volume. The strategies to provide care in an extreme frontier emergency department require creative solutions and systems unique to that environment. In this setting, clinicians perform many roles outside of caring for ED patients. The following tables seek to serve as theoretical examples of practice environments as volumes increase and the role of the ED clinician becomes that of a more traditional dedicated emergency department physician. Of note, these are theoretical and were developed through discussions with task force members. Expected nighttime volumes were extrapolated from internal analysis of West Virginia University network CAH sites.

Extreme Frontier Emergency Departments Annual volume < 2,500 Daily Volume = < 6.8 pts/24hrs Expected volume between 12p and 7a = < .68 pts/night				
Typical Site Description: 5 ED beds or less Less than 15 acute care beds ED services are “on call” and may be 30-60 min away Physician, NP, PA continuously move between ED, outpatient clinics and inpatient services. Requires Significant cross training Level 4-5 trauma center, likely CAH		Typical Services Available: Dependent on capabilities of physician, NP, PA. Likely no dedicated specialists unless telemedicine or outreach clinics are available. OB care site/staff dependent		
Distinguishing features	ED clinician	Onboarding/Training Expectation	% time 1.0 FTE is in the ED	Notes
Volume does not support a dedicated ED physician, NP, PA.	No dedicated ED physician, NP, PA immediately available.	Site dependent and complex as a single physician, NP, PA must play many roles	< 25%	

Frontier Emergency Departments Annual volume 2,500 – 5,000 Daily Volume = 6.8 – 13.7 pts/24hrs Expected volume between 12p and 7a = .68 – 1.4 pts/night				
Typical Site Description: 5 ED beds or less 10-20 acute care beds ED is operations during peak hours but may be “on call” overnight. Physician, NP, PA may not be in the facility Physician, NP, PA have other responsibilities apart from ED coverage Level 4-5 trauma center, Likely CAH		Typical Services Available: Dependent on capabilities of physician, NP, PA. Likely no dedicated specialists unless telemedicine or outreach clinics are available. OB care site/staff dependent		
Distinguishing features	ED clinician	Onboarding/Training Expectation	% time 1.0 FTE is in the ED	Notes
Volumes support a dedicated ED physician, NP, PA during peak times	Physician, NP, PA is immediately available during the day but can be “on call” overnight	Site dependent and complex as a single physician, NP, PA must play many roles	25-50%	

Small Rural Emergency Departments Annual volume 5,000 – 10,000 Daily Volume = 13.7 – 27.4 pts/24hrs Expected volume between 12p and 7a = 1.4 – 2.7 pts/night				
Typical Site Description: 5-10 Bed Emergency department 15-25 acute care beds Possible Extended care unit Single Coverage ED with 12hr and 24hr shifts Level 4-5 trauma center, Likely CAH		Typical Services Available: Possible hospitalist coverage Possible surgical coverage OB care site/staff dependent Minimal subspecialty support unless telemedicine or outreach clinics, may have local referrals for some specialties		
Distinguishing features	ED clinician	Onboarding/Training Expectation	% time 1.0 FTE is in the ED	Notes
Moving towards dedicated ED staff. Single physician, NP, PA likely covers ED and inpatients.	Single coverage physician, NP, PA is in house.	BCEM physician is ideal ED medical director. Works with interdisciplinary team. Director may also work at larger site.	75 -100 %	

Medium Rural Emergency Departments Annual volume 10,000 – 15,000 Daily Volume = 27.4- 41 pts/24hrs Expected volume between 12p and 7a = .2.7- 4.1 pts/night				
Typical Site Description: 10-15 bed ED 25 acute care beds if CAH Level 4 trauma canter Stroke Ready Facility Lower limit of a dedicated ED training site Likely CAH		Typical Services Available: Hospitalist Coverage Dedicated ED staff Surgical Coverage Some Subspecialty Support Significant outpatient services		
Distinguishing features	ED physician	Onboarding/Training Expectation	% time 1.0 FTE is in the ED	Notes
Approaching limits of single coverage with no overlap or support. At 15k visits, EM physician sees the same volume of patients per year as an EM physician at a large community site.	Single coverage physician Possible NP, PA Support	BCEM physician	100%	

Medium/Large Rural Emergency Departments Annual volume: 15000-20000 Daily Volume = 41-55 pts/24hrs Expected volume between 12p and 7a = 4.1-5.5 pts/night				
Typical Site Description: 10-15 bed ED 25 acute care beds if CAH, more if not a CAH Level 4 trauma canter Stroke Ready Facility		Typical Services Available: Hospitalist Coverage Dedicated ED staff Surgical Coverage Some Subspecialty Support		

Acceptable ED training site Likely CAH		Significant outpatient services		
Distinguishing features	ED physician	Onboarding/Training Expectation	% time 1.0 FTE is in the ED	Notes
Approaching volumes where shifts overlap, fast-tracks open or APP's support in the ED	Physician overlap for peak times.	BCEM physicians	100%	

Larger Rural Emergency Departments Annual volume: Over 20,000 visits Daily Volume => 55 pts/24hrs Expected volume between 12p and 7a => 5.5 pts/night				
Typical Site Description: 15+ beds ED 25 acute care beds if CAH, more if not a CAH Level 3 or 4 trauma center Stroke Ready Facility Likely CAH		Typical Services Available: Hospitalist Coverage Dedicated ED staff Surgical Coverage Some Subspecialty Support Significant outpatient services		
Distinguishing features	ED physician	Onboarding/Training Expectation	% time 1.0 FTE is in the ED	Notes
Overlapping shifts, Fast-track	Physician and NP/PA. Likely single coverage overnight	BCEM physicians	100%	

State Example of Rural Hospitals: Oregon

Data Source: <https://www.ohsu.edu/oregon-office-of-rural-health/rural-and-frontier-hospitals>

Summary: Oregon has 37 rural hospitals. These hospitals are stratified into three state classifications. They are also classified along federal lines as either CAHs, rural referral centers (RRC) or Sole Community Hospitals (SCH). Descriptions for both state and federal designations are listed below. Numbers are cross referenced from the website. All facilities have only one state designation. No federally qualified CAH's carry another federal designation and are limited to 25 inpatient beds by federal regulations. Many do have an attached swing bed unit. Sole community hospitals may also be rural referral centers:

State Designations

Class A (12 Hospitals): Small remote hospital that has 50 or fewer beds and is more than 30 miles from another acute inpatient care facility.

Class B (21 Hospitals): Small and rural hospital that has 50 or fewer beds and is 30 miles or less from another acute inpatient care facility.

Class C (2 Hospitals): Rural hospital which has more than 50 beds but is not a referral center.

Federal Designations

Critical Access Hospital (25 Hospitals): The Medicare Rural Hospital Flexibility (Flex) Program, established by the Balanced Budget Act of 1997 (Public Law 105-33) enables certain rural hospitals to be classified as CAHs. A CAH is able to improve its financial stability through enhanced Medicare

reimbursement and reduced operating costs. In Oregon, the process of designation is coordinated by the Oregon Office of Rural Health.

Rural Referral Center (7 Hospitals): Rural Referral Centers are high-volume acute care rural hospitals that treat a large number of complicated cases. The Centers for Medicare and Medicaid Services (CMS) classifies hospitals as Rural Referral Centers. Hospitals classified as Rural Referral Centers may be eligible to participate in the 340B Drug Pricing Program if they have a disproportionate share adjustment percentage equal to or greater than 8 percent for the most recently filed Medicare cost report and meet the requirements of 42 USC 256b(a)(4)(L)(i). Rural Referral Centers may also register their outpatient clinics.

Sole Community Hospital (6 Facilities): A SCH is often the only source of hospital care for isolated rural residents. As such, the CMS classification provides payment protections in order to keep these hospitals viable. A hospital is eligible to be classified as a SCH if it meets distance requirements and is the primary source of inpatient hospital services available in a geographic area for Medicare beneficiaries.

