

Emergency Medicine Rural Rotations: A Program Director's Guide

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The Institute of Medicine's 2006 report titled "Hospital-Based Emergency Care: At the Breaking Point" called national attention to the lack of specialty-trained emergency care practitioners, particularly in rural America. One suggested strategy for narrowing the gap between the prevalence of residency-trained, board-certified emergency physicians practicing in rural and urban emergency departments is the development of rural clinical experiences for emergency medicine residents during the course of their training. This article addresses promotion of a rural emergency medicine rotation to hospital leadership and resident recruits, examines funding sources, discusses medical liability and disability insurance options, provides suggestions for meeting faculty and planned educational activity residency review committee requirements, and offers guidance about site selection to direct emergency medicine academic leaders considering or planning a new rural emergency medicine rotation. [Ann Emerg Med. 2013;61:578-583.]

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The Institute of Medicine's 2006 report titled "Hospital-Based Emergency Care: At the Breaking Point" called national attention to the lack of specialty-trained emergency care practitioners, particularly in rural America.¹ Recent studies specifically addressing emergency medicine workforce issues describe a relatively low number of residency-trained, board-certified emergency physicians practicing in rural emergency departments (EDs) compared with their urban counterparts and estimate that this discrepancy will increase in the future.² As a result, patients in many rural areas will continue to be denied access to the level of care available to patients in urban areas.

One suggested strategy for narrowing the gap between the prevalence of residency-trained, board-certified emergency physicians practicing in rural and urban EDs is the development of rural clinical experiences for emergency medicine residents during the course of their training.³ Helland et al³ found that 44% of recent emergency medicine residency graduates who did not participate in a rural rotation during residency stated that they would have, if one had been available. Rural rotations allow the emergency medicine resident, while still in a training environment, to experience differences that occur in medical decisionmaking outside an environment with many resources and consultants available.

This article addresses promotion of a rural emergency medicine rotation to hospital leadership and resident recruits, examines funding sources, discusses medical liability and disability insurance options, provides suggestions for meeting faculty and planned educational activity residency review committee requirements, and offers guidance about site selection to direct emergency medicine academic leaders considering or planning a new rural emergency medicine rotation.

PROMOTING A RURAL ROTATION TO RESIDENT RECRUITS

Most emergency medicine residents train in tertiary care hospitals and trauma centers with access to subspecialty care 24 hours a day, which is in contrast to most emergency medicine residency graduates who work in community EDs without wide-ranging specialty and subspecialty consultants readily available. One skill essential to the community emergency physicians practicing in non-tertiary care facilities is recognizing the need for transfer of a patient to a tertiary care center. Recognizing the difference in an emergency physician's scope of practice in a tertiary care versus non-tertiary care facility on a patient-by-patient basis is difficult, especially if one has not received training in a limited-resource, limited-consultant setting. Although faculty at the academic institutions can teach to these ends by discussion, an academic discussion cannot replace the experience of working in a rural setting and actually making these decisions.

A rural emergency medicine rotation allows the emergency medicine resident to bridge this gap. Rural rotations permit the resident, while still in a training environment, to see the differences in patient care without wide-ranging resources and consultants available. Experiencing these differences allows the emergency medicine resident to assess deficiencies in his or her medical knowledge or skills that might not have been detected had the resident remained in a consultant-rich environment. Although the majority of a resident's training takes place in the primary sponsoring institution, a rural elective can be much more representative of the "real world" for many emergency medicine residency graduates. As such, a rural emergency medicine experience could allow an easier transition to a career in

non-tertiary care community emergency medicine or in a further resource-limited setting such as rural or developing world settings.

RURAL SITE SELECTION

A rural training site must ensure adequacy of resident supervision and hospital resources, provide a high-quality emergency medicine clinical experience, and preserve the rural experience.

Supervision

Supervision is the most important and challenging consideration an emergency medicine residency program director faces when considering selection of a rural training site. A rural ED rotation is intended to encourage rural practice selection by American Board of Emergency Medicine (ABEM)-qualified residency graduates, an intention that acknowledges the relative scarcity of such physicians. Once a rural site with appropriately credentialed physicians is identified (see "Meeting Faculty Requirements"), the program director must ensure a commitment to resident education and participation in faculty development activities.

Faculty Commitment to Resident Education

Rural site faculty must possess ABEM certification and share a commitment to resident education. There must be a dedicated, competent rural site director who knows program requirements, ensures that the rural site is compliant with the requirements, directs appropriate scheduling of ED shifts, and provides the program director with assessment of resident performance. Other rural faculty should participate in planned educational activities and faculty development activities provided by the rural hospital, residency program, or other continuing medical education activities.

Clinical Experience: Patient Volume and Acuity

The program director must determine adequacy of the clinical experience available to residents at the rural site. Essential information includes annual ED census, acuity measures (admission rate, telemetry and critical care admission rates, procedure numbers), departmental and institutional policies ensuring high-quality emergency medicine clinical practice (procedural sedation, use of thrombolytics without mandatory consultation), and availability of necessary medical devices and equipment in the ED such as ultrasonography.

Patient Volume

Previous efforts to initiate rural ED rotations at nonprimary sites were limited by residency review committee-emergency medicine program requirements that set the minimum annual patient volume at 36,000. However, a 2005 revision to 30,000 patient visits per year, which also said that "educationally justifiable exceptions will be considered, such as clinical sites in a rural setting," opened the door to more rural training opportunities.^{4,5} Although ED census no longer prevents residents from rotating at lower-volume EDs, there is an

optimal range to ensure an active clinical experience at a rural site. Patients evaluated by emergency medicine residents in primary institution EDs range from 1 to 2 patients per hour, which would require a minimum annual ED census of 10,000 to provide a similar level of clinical activity for a single rotating resident. A recent study identified 857 rural EDs with 10,000 or more annual visits, providing ample opportunities for rural training.⁶

Patient Acuity

Acuity measures such as telemetry, intensive care, and overall admission rates will provide an estimate of patient acuity at the rural site. Rates similar to those of urban sites are desirable, but lower rates are more likely. Lower patient acuity at rural sites limits the number of months a resident may rotate. Procedure numbers also provide a measure of resident experience; a recent study reports similar procedural numbers per resident hour in the ED for both rural and urban EDs.⁴ However, higher frequencies of intubations and adult trauma resuscitations in an urban ED versus higher frequencies of dislocation or fracture reduction and pediatric trauma resuscitations at a rural site suggest the possibility of complementary experiences.⁴

Hospital Resources

The rural site should provide the rotating resident with living accommodations in close proximity to the hospital. Internet access is also desirable to allow practice-based learning activities, Web module-based asynchronous learning activities, and communication with the residency program while the resident is at the rural site.

Ensuring a Rural Experience

Finally, the rural rotation must provide the "rural experience" that will allow residents to realistically consider a rural ED as a future practice opportunity. Whether a site meets the definition of "rural" will likely differ between programs. We suggest considering the level of care provided by the hospital and the location of the community served. A rural emergency medicine experience must include limited consultation availability and relative lack of resources that typically challenge rural emergency physicians. However, some EDs in rural areas may enjoy all the amenities of a tertiary hospital ED, such as Geisinger Health System in rural central Pennsylvania, making selection of a rural training site as determined by US Census standards alone problematic. Therefore, an optimal rural site should combine a low-resource, limited-consultation, limited-specialty backup, Level III or IV trauma center ED with a rural community setting. Oftentimes, the best starting point for finding a site is to identify the critical access hospitals in the vicinity of the residency program.

FUNDING

The federal government and state governments fund the majority of graduate medical education. As the payer with the

The Optimal Rural Site

- Supervising physicians are ABEM board-certified/board-eligible
- Dedicated, competent site director
- Low resource
- Limited available consultation
- Limited specialty backup (significant transport time to tertiary care center [>1 hour])
- Rural community setting
- Exposure to unique patient population
- ED patient census of 10,000 to 30,000 or minimum average of 1.0 patient per hour
- Critical access hospital

largest investment, the Centers for Medicare & Medicaid Services largely determines the method and distribution of revenue allocation for graduate medical education throughout the nation⁷⁻⁹ and requires each teaching hospital to provide a detailed account of time spent by residents in positions it funds.⁷⁻⁹ Only that period spent within the primary teaching hospital's system is reimbursed, with an exception made for residents training at outpatient rural clinics.^{10,11} Because most rural EDs are hospital based, rotations at these sites are not currently supported by Centers for Medicare & Medicaid Services funding.¹¹

Because of the limitations on governmental funding, teaching hospitals are increasingly exploring other revenue sources. Some hospitals and physician practice groups have supported additional resident positions or entire residency programs. The stated cost to support a resident physician ranges from \$130,000 to \$200,000 annually, depending on inclusion of indirect costs and support for program faculty.^{12,13}

Before a movement toward direct funding of residents takes place, hospital systems and physician practice groups consider the return on investment of hiring residents rather than expanding levels of attending physicians or allied health professionals. Attending physicians are expected to generate more revenue per physician and have superior clinical quality. Allied health professionals have the advantage of lower direct costs compared with residents and eliminate the cost of a faculty teaching obligation. Furthermore, each resident delivers only a fraction of a full-time equivalent because of program curricula requiring clinical rotations outside of the ED. For these reasons, direct conversion of existing allied health professional positions into resident positions may have the unintended consequence of providing less clinical service.

Beyond participation in the altruistic teaching mission, indirect and nonfinancial incentives for hospital administrators and physician groups to support residents in rural sites may include facilitation of recruiting high-quality residency graduates, increased prestige within their local community resulting from academic affiliation, and increased involvement in a higher-profile hospital network encouraging regionalization of care and advancement of local reputation.

Grants, charitable gifts, and endowments may also be sources of revenue for resident funding, but these are not common. Because of the continuous and interdependent nature of a training program, the sustainability of additional positions from year to year is important and may make these funding sources even less appealing.

MEDICAL LIABILITY INSURANCE

Emergency medicine resident physicians are expected to work clinically at rural sites and therefore require rotation-specific medical liability insurance coverage. Ideally, the resident will continue to be covered by the primary institution's policy. However, rural rotation sites can provide medical liability coverage under their hospital policy or may choose to include all residents rotating there for the year under a "group policy." If medical liability coverage cannot be provided by the primary institution or rural hospital, it can be purchased for the resident individually or as a group policy for the residency. It is of utmost importance to thoroughly research details of each policy and be aware of the issuing company's financial health and reputation. Although cost is certainly a factor, policy language varies widely. Available Web sites, such as <http://www.covermd.com> and <http://www.docliability.com>, provide malpractice insurance quotes from a plethora of companies. A thorough review of medical liability insurance found on the American College of Emergency Physicians (ACEP) and American Medical Association Web sites allows an informed choice in carriers and policies.^{14,15}

DISABILITY INSURANCE

Disability insurance for resident physicians is often provided by the primary sponsoring institution. Residents engaging in rotations at secondary sites that are approved parts of their training program should be covered by their primary institution's disability policy.

MEETING FACULTY REQUIREMENTS

The Accreditation Council for Graduate Medical Education (ACGME) Program Requirements for Graduate Medical Education in Emergency Medicine put forward 5 requirements that must be met by physician faculty instructing and supervising emergency medicine residents rotating in an ED at each location.⁵ Although each of the requirements demands additional commitment of the primary institution's department of emergency medicine leadership and each rural emergency physician faculty member, 2 of them are considered most difficult to accomplish: current certification in the specialty by ABEM (or qualifications acceptable to the review committee) and regular participation in organized clinical discussions, rounds, journal clubs, and conferences.⁵ Though time, expense, and effort intensive, the requirement for regular participation of faculty in organized teaching may be met by

1. videoconferencing of the rural site into the primary site's didactics;

2. development of a series of didactic activities to be held at the rural site, perhaps with a focus on specific rural emergency medicine issues (eg, transfer issues, emergency medicine workforce, triage within the ED);
3. participation in the primary site's journal club or holding a rural site journal club; and
4. incorporation of high-fidelity simulation in the rural site as a teaching and team-building tool for case scenarios highlighting care that may be unique to or managed differently at the rural site than at the primary site (see "Planned Educational Activities").

Perhaps more challenging to achieve is rural ED supervision by physicians with current certification by ABEM, or possession of qualifications acceptable to the emergency medicine–residency review committee, including certification by the American Osteopathic Board of Emergency Medicine, certification by a subspecialty board sponsored or cosponsored by ABEM (toxicology, pediatric emergency medicine, sports medicine, undersea and hyperbaric medicine, hospice and palliative medicine), or qualification as a recent graduate actively working toward certification.¹⁶ Difficulty establishing rural emergency medicine rotations compliant with this requirement is apparent when the discrepancy between metropolitan and rural emergency physician residency training and ABEM certification is considered. Wadman et al¹⁷ reported that 48% of physicians staffing rural Midwestern EDs were ABEM certified, whereas only 12% are emergency medicine residency trained, compared with 65% and 31%, respectively, for US Census Bureau–defined metropolitan EDs. The same study demonstrated no statistical difference between admission rate and acuity in rural EDs with at least 10,000 annual visits and metropolitan EDs, indicating equal need for residency-trained, ABEM-certified physicians.¹⁷ Furthermore, multiple studies have demonstrated an improvement in overall quality of ED care provided by residency-trained, ABEM-certified physicians, including increased first-attempt intubation success, decreased time to definitive airway control, and reduced cricothyrotomy rate coincident with a decreased cost of malpractice coverage and no increase in cost of ED care.^{18–23}

Given the improvement of quality of care, we hold an obligation to our patients to increase the rate of rural EDs staffed by residency-trained, ABEM-certified physicians. To achieve such, surveys conducted by the Association of American Medical Colleges and studies of family physicians indicate that training in rural environments significantly increases the chances that a resident will practice in a rural location. Hence, finding ways to work within the spirit of the requirement as it is currently written is essential. Working within the spirit of the requirement for ABEM certification of faculty could be achieved by

1. staffing of rural EDs by academic medical centers;
2. using interactive telemedicine to allow supervision of emergency medicine residents at rural sites by academic

medical center faculty when the on-site supervisor is not ABEM-certified;

3. developing rural emergency medicine resident rotations largely under the supervision of ABEM-certified faculty, with a plan to increase the extent of resident supervision by ABEM-certified faculty through the recruitment of emergency medicine residents as they complete training; and
4. petitioning of the emergency medicine–residency review committee on behalf of individual non-ABEM-certified physicians (such as has been done for nonfellowship-trained, American Board of Pediatrics–certified physicians staffing pediatric EDs) whose tenure in the ED and quality of care would allow creation of rural emergency medicine rotations in locations that would otherwise be unfeasible.

PLANNED EDUCATIONAL ACTIVITIES: CONFERENCES AND DIDACTICS

When considering resident didactic experience while rotating at a rural site, a program director must address access and content. Residents rotating more than a commutable distance from the primary ED may require special arrangements to ensure access to the planned educational experiences of the program. The rural experience may also introduce certain patient presentations, illnesses, and injuries, as well as systems-based practice issues specific to the rural ED, suggesting the need for rural emergency medicine curricular didactics to supplement the resident's clinical experience.

Access

Access to all didactic activities provided by a residency program is desirable for residents whether rotating at a remote rural site or in the primary ED. However, certain constraints inherent to rotating at a remote rural site are difficult to overcome. Special arrangements to ensure resident access and participation in regularly scheduled conferences while rotating at a rural site depend on certain factors. The duration of the rural experience and structure of the residency curriculum dictate the amount of planned educational activities a resident may miss while on a rural rotation. The ACGME requirements state that the program director *must* "ensure that residents are relieved of clinical duties to attend these planned educational experiences" and *should* "require that residents participate, on average, in at least 70% of the planned emergency medicine educational experiences offered."⁵ For most programs, resident absence from planned educational activities while rotating at a rural site will not lead to an average attendance of less than 70%. The typical duration of a rural rotation for emergency medicine residency programs currently requiring rural rotations is 1 to 3 months during 3 years of training.

Teleconferencing

Although most rural rotations will not require alternate strategies to achieve the required 70% attendance, the program

director should attempt to provide residents access to all planned educational activities while rotating at the rural site. One strategy to achieve access is interactive teleconferencing. In regard to this educational modality, the ACGME states that the emergency medicine–residency review committee “will consider the use of alternative methods of education, such as interactive teleconferencing, with appropriate educational justification.”⁵ The ACGME milestone project may place less emphasis on educational processes and more on outcomes.²⁴

Asynchronous Learning

Use of asynchronous learning at the rural site is an attractive, lower-cost alternative to teleconferencing. A 1- to 3-month module addressing planned curricular components for the months at the rural rotation, rural emergency medicine topics, or a combination of both would allow rotating residents to participate in didactic education if they are limited from attending scheduled conferences by geographic constraints. Because asynchronous learning is a relatively recent concept in graduate medical education, the program director is encouraged to obtain guidance from the residency review committee–emergency medicine about the acceptable planned educational activities. Programs may use asynchronous instruction for up to 20% of the planned educational experiences.¹⁶

Content

Residents rotating at a rural site are likely to encounter unique illnesses and injuries, patient presentations, and system-based practice issues not commonly observed in primary site’s ED. Although resident practice-based learning is encouraged on a rural rotation, a formal rural emergency medicine curriculum will provide residents, site directors, and residency leadership with a framework for developing educational activities. The ACEP’s Academic Affairs Committee has developed a rural emergency medicine curriculum template that includes selected curricular components worthy of focused didactic activities.²⁵

Simulations

As with many clinical curricular topics, certain rural patient presentations may not occur with the frequency necessary for adequate resident learning from clinical experience alone, especially in a limited rotation period of 1 to 3 months. Simulation may play a key role in exposing residents to the less frequent but critical rural emergency medicine presentations. Some suggested rural topics for simulation cases include silo filler’s disease, manure pit or closed space extrication, ST-segment elevation myocardial infarction or thrombolytic administration, organophosphate exposure, variceal hemorrhage unresponsive to medical management requiring Blakemore tube tamponade, and transfer of a multisystem trauma patient.

PROMOTING A RURAL ROTATION TO HOSPITAL ADMINISTRATORS

Most academic medical centers engage in a mission to provide outstanding patient care, deliver excellent graduate medical education, and train practitioners to serve their region. Many academic medical centers serve a catchment area including rural referral hospitals with EDs staffed by family practitioners.²⁶ After reviewing the hospital’s mission, vision, strategic plans, and annual plans, a program director or department chairperson may develop a presentation highlighting the hospital’s mission and vision with the advantages of a rural emergency medicine site: higher quality of care,^{19,21,22} increased cost-effectiveness of care,²³ potential for reduced malpractice costs,¹⁸ physician recruitment advantages,²⁷⁻²⁹ and establishment of patient referral patterns.³⁰ Conversations with key stakeholders, including the academic medical center’s hospital administrators and graduate medical education committee and the rural hospital’s medical executive committee, before implementation of the rotation are recommended.

FUTURE DIRECTIONS

As a greater number of emergency medicine residency programs develop elective and required rural clinical experiences, it is hoped that the development of tracking systems by members of the Council of Emergency Medicine Residency Directors (CORD) and data collection from the Residency Review Committee for Emergency Medicine will allow further study about funding sources being used, patient contacts compared with that at the primary site, effectiveness of faculty supervision solutions, and appraisal of unique rural emergency medicine rotation objectives. Furthermore, the CORD postgraduate survey of recently graduated emergency medicine residents will likely be an important tool in evaluating the effect of rural emergency medicine clinical experiences on emergency medicine workforce distribution.

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