

DILEMMAS AROUND THE JUNIOR MEDICAL WORKFORCE - CANADA

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*The text of this report has been organized to comply as closely as possible with the specific preambles and questions posed by the conference organizers. These are indicated in **bold print**.*

The postgraduate training of junior doctors has traditionally been based almost entirely on an indentured service/apprenticeship model. Although structured training programmes and the use of various forms of clinical simulation are increasingly important, junior doctors still need extensive clinical experience for their training, and hospitals depend on them to sustain services.

BACKGROUND AND RELEVANT HISTORY

Divided between two fundamental roles, junior doctors (otherwise referred to as interns, residents or housestaff) are unique participants in the health care system. In all aspects of their daily function they strive to fill the hybrid position of both learner and service provider. The complexity of this situation is immense and has far reaching implications ranging from how patient care is delivered to resident income. In Canada, residents perceive themselves as servants of two masters, the hospitals and the university. Ongoing vigilance is needed to ensure that the balance between these two roles is maintained in a healthy, flexible, fluid manner that will benefit residents both as individuals and as future physicians in independent practice.

There are a wide variety of tensions and Gordian knots in the ongoing efforts of residency groups, universities, hospitals and governments to meet their respective roles of ensuring quality care for patients, and quality education and compensation for residents within a collegial and respectful learning environment. The defining line between an educational and a service act is, with few extreme examples, challenging to identify. It is a fluid process that is situational and dependent upon both learner and preceptor. Additional factors relating to the practice environment and the specific skill and knowledge set must also be taken into account.

This situation is a residual of an almost 100-year-old system that began with the hiring of “house physicians”, later called interns and residents, for the sole purpose of providing

service to hospital in-patients. It was later recognized that in carrying out these duties, experience of an “apprenticeship” type was gained. Various licensing authorities, as they became established, gradually began to require such “internship” experience as a pre-requisite to licensure. While individual hospitals began to develop more structured training programs in order to enhance the quality of care and to compete for students seeking internship experiences, the need to provide service remained paramount among their administrations and medical staffs. For many decades, physicians with privileges in hospitals with internship programs came to regard the availability of interns and residents to help in the care of their private in-patients as one of the expected services provided by the hospital. While the commitment to teaching varied from outstanding to negligible, a tradition was established where most of the teaching done in return for service was voluntary. In addition, a hierarchal system of graduated responsibility emerged wherein residents also assumed a major teaching role with those most senior instructing and serving as role models for junior colleagues and medical students.

In the mid-1970s, the Royal College of Physicians and Surgeons of Canada, which accredits all specialty training in Canada, formally transferred responsibility for operation of these programs from hospitals to the medical schools. The College of Family Physicians of Canada did the same in relation to operation of the newly emerging two-year Family Medicine training programs. Rotating Internships continued to be accredited by a committee of the Federation of Medical Licensing Authorities of Canada, but also became increasingly regarded as university-based rather than hospital-based programs until their eventual discontinuation in 1994. The gradual shift from a hospital-based apprenticeship-type experience to one with a more structured curriculum, containing a defined academic component, often comes into conflict with service requirements.

What can be a very beneficial mutual dependency frequently is the source of major problems:-

- a) The numbers, geographical location and speciality mix of training posts are determined more by the immediate needs of the hospital system rather than longer term educational or workforce planning considerations;**

Restructuring of health care delivery within Canada has produced challenges for all sectors of the medical workforce. Those involving the junior medical workforce/residents might be summarized as follows:

1. For Hospitals and their Medical Staffs

While physicians, over time, can adjust to working with or without residents, it is more difficult to adapt to a constantly changing situation where the availability of residents is uncertain and subject to change at short notice. Such uncertainty about the availability of house-staff to assist in the care of very sick hospitalised patients has raised concern as to whether the volume of certain services currently offered by some hospitals could continue without substantial changes to current physician numbers and practice patterns. Similar

concerns exist in the delivery of care for an increasing number of outpatient and short stay procedures.

2. For Residents

Maintenance of an appropriate service/education ratio.

3. For Medical Schools

Concern re ability to:

- meet accreditation standards for residency programs;
- remain competitive in attraction of high-quality residents and fellows; and
- recruit and retain geographic full-time teaching faculty who traditionally are dependent on residents to help in the care of sick patients. The increasing need for such clinical faculty to occasionally provide primary care within tertiary care hospitals competes with their concurrent obligation to teaching, administration and research, including the maintenance of external grants on which their appointment and salary is sometimes dependant.

b) A chronic imbalance between training and career posts leads to inappropriate large scale importing of overseas doctors;

This is an unfortunate reflection of the absence of appropriate physician resource planning and a consequence of the failure of governments to heed predictions of physician shortages that were presented to them during the 1990s (*Ryten E., None is Too Many – It's Time to Discard This Bankrupt Physician Supply Policy for Canada. ACMC Forum, 1998, 31; 8-17*). Despite these indications of concern, governments proceeded to reduce medical student entries by 10% with a corresponding reduction in postgraduate positions to a figure that equated entry-level positions to the number of graduating students. That action has aggravated the current and predicted shortages of physicians in most sectors of the profession and has once again created a need for the importing of foreign physicians to help solve short-term deficiencies. This situation is not only inappropriate for Canada's own physician resource strategy, but also raises ethical issues in relation to the impact on those countries from which these physicians emigrate.

Academic health centres have also contributed to the problem by allowing a tradition to develop wherein the numbers of residents may be related more to service requirements and popularity of a specialty rather than societal need. As a result, specialities such as radiation oncology and laboratory medicine maintain a larger than usual dependency on foreign physicians.

The loss of the rotating internship, together with creation of the two-track stream to licensure via a Family Medicine or speciality route has changed the natural career path of many physicians. This, together with the decreased ability to re-enter into training after a period of practice has especially hurt specialities traditionally filled by re-entry physicians, particularly psychiatry, anaesthesia, community/occupational medicine and laboratory medicine (*Ryten*

E., Thurber D., and Buske L., The Class of 1989 and Post-MD training. Canadian Medical Association Journal, 1998, 158, 731-737).

c) Day to day service pressures can swamp structured training and reflective learning, while the service dependency on juniors makes it difficult to close educationally substandard posts.

As postgraduate training programs move from pure hospital - based apprenticeships to university-based programs subject to increasingly rigid national accreditation, there will be tensions between hospital administrators who see house-staff as service providers and medical educators who see them as students within programs with defined curricula. This conflict must be assessed in the light of new realities that have emerged in the field of medical education within Canada. These are:

1. Discontinuation of rotating internship programs in 1994

This removed the option of an undifferentiated year of training during which the enhancement of many clinical skills and experience was combined with substantial provision of service to the hospital. Instead medical students are required, immediately upon graduation, to differentiate into a family medicine or specialty stream of training. Within the specialty stream, most of the surgical disciplines (eg. plastic, orthopaedic, urologic, otolaryngologic, cardiac and thoracic surgery) and the medical specialities of neurology and dermatology must now be entered directly from medical school. Opportunities to change streams while in training are very limited, particularly in smaller institutions. In addition, it is also difficult to re-enter specialty training after a period of practice.

These changes appear to be pushing medical students to pursue the more limited subspecialty positions rather than family medicine, general internal medicine or general surgery.

2. Educational reforms which include:

- more scheduled academic programs within times protected from clinical responsibilities;
- encouragement and protected time for defined research experiences;
- an increasing amount of time within ambulatory care clinics;
- encouragement and requirement for more rotations in community and rural settings outside the traditional tertiary/quaternary care academic health centre;
- more elective experiences; and
- more opportunities for residents to attend outside educational meetings.

3. The establishment of residency organizations at provincial and national levels that serve as bargaining units and advocates for social change on behalf of their membership. This has produced advances that include:

- legislation of more "humane" working hours for residents;
- progress toward ensuring a safer working environment free of intimidation and harassment;
- more appropriate compensation and benefits; and

- advocacy for better access to different training programs with flexibility to change streams for personal and professional reasons.
4. Gradual increase in numbers of female physicians resulting in a significant increase in numbers of leaves for maternity and to fulfil parental obligations. An appropriate result of this reform is a growing desire for matching paternity programs. These reforms affect both resident and staff levels.

All the above reforms, none of which are related to reductions in numbers of residents, would have the effect of reducing the availability of house-staff to provide service to in-patients. Reductions in numbers clearly aggravate this. The problem is further aggravated by changing demographics of hospital in-patients, including:

- shorter hospital stays leading to more rapid turnover;
- increased acuity index requiring more intense and frequent monitoring by attending and house-staff;
- the need to see and follow significantly sicker patients in ambulatory care clinics and in the community; and
- more sophisticated technology/health care that leads to additional time and service demands for diagnostic and therapeutic interventions.

These problems appear to exist to different but significant degrees in all four countries, and the suggested session would use these different perspectives to explore:-

- a) the approaches used to plan numbers of doctors in postgraduate training and their relative success in achieving a correct trainee:career post balance;**

The establishment of a Canadian Postgraduate Medical Education Registry (CAPER) in 1987 has provided a very valuable database that enables tracking of all postgraduate trainees throughout their residency training and beyond into practice locations. This has proved to be a very valuable aid to all agencies involved in physician resource planning from both a practical and research perspective (*CAPER Annual Census of Post-MD Trainees 1999-2000. Association of Canadian Medical Colleges, Ottawa, Canada*). Membership is balanced between representatives of government (federal and provincial) and medical organizations.

Because provincial health ministries fund virtually all postgraduate training in Canada, it is possible to allocate entry-level training positions to various disciplines in a controlled manner. For example, for the past 8 years, 40% of entry-level positions have been allocated to residents in Family Medicine programs and 60% to the various specialties. The distribution of the 60% among the various specialties is expected to reflect societal need. While there are minor interprovincial variations, the 40/60 split is fairly standard across the country. The ratio was initially established because of a perceived surplus of family physicians in the early 1990s and seen as a means of re-establishing a projected 50/50 split.

At present it appears that the shortage of family physicians may exceed that of specialists, so there is pressure from some sectors to alter the entry ratio accordingly. The growing need for family physicians is further complicated by a recent decreased interest among students to pursue a career in family medicine. The reasons for this decline are not immediately clear, but may reflect concern about the above-mentioned changes to the training and licensing pathways, including decreased opportunities to re-enter specialty training after a period of practice. As reported by Tepper in a recent editorial, pressure to move away from family medicine may start at the undergraduate level and is exacerbated by the predominant exposure to specialist/subspecialist clinical role-models who teach within tertiary care hospitals (*Tepper J., Internal Schisms are Bad Medicine - editorial. Canadian Family Physician, 1999, 45; 558-9*). There may also be uncertainty about the effects of changes in delivery of family medicine as a result of primary care reform and the growing role of nurse practitioners. Another important factor has been the recent attempts to affect physician resource issues through the use of coercive measures against new graduates such as fee discounts or billing number restrictions.

Concurrent shortages in many specialties, particularly in general surgery and general internal medicine, are making a change in the 40/60 split difficult to achieve. One of the factors contributing to the shortage of “generalists” in surgery and internal medicine is the increasing tendency for residents who begin training in those disciplines to subspecialize.

In a recent study by Goldsand and Thurber, it was noted that since 1988, approximately 70% of all residents who began training in general internal medicine exited from their training programs 5-6 years later as subspecialists (*Goldsand G., and Thurber D., The Rate of Subspecialization by Residents Registered in Canadian Internal Medicine Training Programs, 1988 to 1994 - abstract. 57th Annual Meeting, Association of Canadian Medical Colleges, April, 2000*). The reasons for this are multiple, but would certainly include life-style, earning potential and pressure/role-modelling from teaching faculty, many of whom are themselves subspecialists who occupy influential positions within the academic hierarchy. The requirement for direct entry into areas such as neurology or subspecialty surgical disciplines also decreases the presence of ‘generalists’. Based on demographic profiles that show a rapidly aging population of established physicians, the problem of shortages is likely to increase. These aging physicians may also show a decreasing range of service provision, an important example being family physicians and obstetricians/gynaecologists who have stopped doing obstetrics, and anaesthetists who have stopped taking night call.

Though funding for postgraduate training positions is allocated to each of the medical schools by the provinces in which they are located, an attempt to achieve some national uniformity occurs through the National Co-ordinating Committee for Postgraduate Training (NCCPMT). The NCCPMT reports to the Conference of Deputy Ministers of Health from each of the provinces. Its membership comprises representatives from each of the major medical organizations that relate to medical education and from each of the provincial health ministries. The Committee is intended to be responsive to the future needs of the Canadian health care system with respect to ensuring that the capacity and output of its postgraduate

system is sufficient to meet the needs of all Canadians, and to advise provincial governments accordingly.

In order to achieve this objective the NCCPMT has recently submitted a report to the Conference of Deputy Ministers seeking ratification of a proposed mandate to:

- encourage, support and collaborate in long-range planning designed to meet future Canadian physician workforce needs through the Canadian medical education system;
- be informed on international, national and provincial/territorial trends in physician supply and specialty (including family medicine) mix;
- monitor changes in technology and practice patterns that have an impact on physician supply and distribution needs;
- assess trends in numbers, mix and location of postgraduate training positions in relation to meeting the medical care needs of the Canadian population;
- provide information/advice to and consult with the Postgraduate Deans and Deans of the medical schools in Canada and other relevant stakeholders with respect to changing needs in postgraduate positions and how these changes could be implemented;
- provide information and make recommendations to the Deputy Ministers on postgraduate medical training; and
- develop implementation plans and impact analyses in a responsive and timely manner at the request of the Deputy Ministers of Health.

The report included a series of General Recommendations as follows:

- The Deputy Ministers reaffirm the value of an ongoing national consultation forum for physician workforce planning which links government and the Canadian Medical Forum (CMF) in a spirit of collaboration and mutual respect. (*The Canadian Medical Forum is a national organization that comprises senior executives from the following medical organizations: The Association of Canadian Medical Colleges, The Canadian Medical Association, The Federation of Medical Licensing Authorities of Canada, The College of Family Physicians of Canada, The Royal College of Physicians and Surgeons of Canada, The Medical Council of Canada, The Association of Canadian Academic Healthcare Organizations, The Canadian Association of Interns and Residents and The Canadian Federation of Medical Students.*)
- The Deputy Ministers agree that Canadian physician resource needs should be met via the Canadian educational system and promote within each of their jurisdictions the intent to be part of a nationally designed postgraduate training system.
- The Deputy Ministers should recognize that the major role of the NCCPMT should be long-range planning activities as it is essential for these to be in place in order to allow inevitable short-term solutions to be more appropriate i.e. supportive of the long-term objective.

The NCCPMT is currently anticipating formal ratification of these terms of reference and recommendations from the Conference of Deputy Ministers.

The reality of a current shortage of physicians was recently highlighted in the report of a Task Force on Physician Supply in Canada prepared on behalf of the CMF by Dr. Lorne Tyrrell, Dean of the Faculty of Medicine and Dentistry at the University of Alberta and Dr. Dale Dauphinee, Executive-Director of the Medical Council of Canada (*Tyrrell L. and Dauphinee D. Task Force on Physician Supply in Canada, Canadian Medical Forum, November, 1999*). Included among their recommendations was an immediate increase of medical school enrolment from 1600 to 2000 per year; an increased effort to retain and repatriate Canadian physician graduates; an increase in government-funded entry level residency positions from 100/100 to 120/100 medical school graduates; and a need to address the issue of distribution and new models of delivery through co-operation of governments, health authorities, and educators. Several provinces have already responded to this report with modest increases in medical school enrolment and a few have allowed small increases in numbers of entry-level residency positions.

b) the impact of different approaches to funding postgraduate medical education on these problems;

The shift from a virtually exclusive focus on hospital-based apprenticeships geared to service provision to one where universities have a much larger role in the design and operation of residency programs (albeit still with sometimes overwhelming hospital service responsibilities) has led inevitably to discussions as to whether the government funding for these should also shift from the Ministry of Health to the Ministry of Advanced Education. There are pros and cons to such a change depending on the perspective from which the implications are being assessed.

The issue of funding has also been discussed in relation to an increased number of residents receiving training in community/peripheral hospitals. The hospitals and preceptors in these settings understandably argue about entitlement to some financial benefits from their increased roles. At the same time, residents obviously wish to ensure continued protection of the salaries and benefits negotiated by their representative associations.

Still another factor is the gradual transfer of an increased amount of training from the hospital to the ambulatory care sector. Whereas the presence of residents in hospitals to help care for in-patients may increase efficiency of patient care, the need to teach these same residents in an ambulatory care/office environment reduces efficiency and therefore has important funding implications.

c) the challenges of delivering appropriate education for primary care specialists from a hospital base;

This may be the most difficult challenge of all. The original “teaching hospitals” that emerged as the main locations for residency training and affiliation with medical schools evolved over the years into important academic health centres. This developed as a result of significant support of basic and clinical research that began in the 1950s and 1960s. Initial support from governments has been bolstered by additional and increasing support from industry and

private foundations. The resulting unimagined advances in medical knowledge and technology, from which the public has benefited enormously, must continue to be supported and encouraged.

A consequence of this development has been the growing dominance of specialty and subspecialty units within these institutions. The resulting shift towards increasing amounts of tertiary and quaternary care at the expense of primary care has raised the important question about the appropriateness of such hospitals as venues for teaching family physicians and general specialists. While the care within such tertiary/quaternary care institutions is increasingly specialized, it is sometimes fragmented and may lack appropriate continuity because of the increasing dominance of subspecialists at the expense of “generalists” within the disciplines of internal medicine and surgery and in the delivery of primary care. It should be noted that in Canada primary care is primarily the responsibility of family physicians, in contrast to the United States where it is practised by many general internists, paediatricians and obstetrician/gynaecologists.

The role of family physicians within tertiary care centres has also changed. In the past, most hospital medical staffs included family physicians who provided active in-hospital care, often within designated family medicine wards. Now, either by choice or external pressure, many family physicians have withdrawn from in-hospital care, and there are almost no family medicine wards for teaching or care delivery. Given the presence of many family medicine training sites within tertiary care centres, the emerging patterns of training and role-modelling within these institutions tends to discourage future family physicians from adopting this important skill set. Similar trends are occurring in the role of family physicians involved with obstetrics.

Another gulf seems to be developing between physicians who work in large urban areas with relatively easy access to a full range of specialists and subspecialists, and those family physicians and general specialists who prefer to work in more rural areas or regional centres. Given the problems cited above, there is an understandable tendency to advocate for residents with interests in rural practice to take most, perhaps all, of their training in rural settings. An argument can also be made that future urban-based specialists and subspecialists should also have exposure to rural practice during training, since many of the patients they will care for and physicians for whom they will consult will be from rural regions. There is concern that current trends in training may produce consultants with little contact or knowledge of the very different circumstances that exist for both physicians and patients in rural areas. This is particularly relevant in Canada where, by some definitions, almost 25% of the population resides in rural areas.

Such initiatives have also served to raise the level of interest among rural communities to become involved with resident teaching. This has been partially motivated by the realization that such involvement can help meet their growing service needs as well as being a recruitment tool for the future. The challenge of decentralizing a segment of postgraduate training outside the tertiary care hospital setting must be matched with equal efforts to ensure quality of education and an acceptable volume of clinical experience.

d) innovative approaches to relieving junior doctors of inappropriate or excessive service burdens, and their relative success;

The important debate here will be whether the inevitable hiring of physicians, advanced skill nurses or physician assistants to provide the service previously given by interns and residents in training programs should be done by “mixing” these individuals with postgraduate trainees; or whether this activity should occur in so-called non-teaching environments to which medical students and residents are not assigned. If there is an intent to maintain a critical mass of residents (and medical students) within clearly defined teaching environments with a system of graduated responsibility, there will be a need to more clearly define teaching and non-teaching hospitals and perhaps of teaching and non-teaching wards within a single hospital. This would necessitate a reduced number of teaching environments/hospitals.

In an attempt to begin addressing this issue, it is necessary to re-define the characteristics of teaching units/environments within tertiary care centres that might better address the issue of reforms in postgraduate medical education and some of the new realities of healthcare delivery referred to above. Suggested characteristics of such a teaching unit/environment are indicated below:

1. Must include both an in-patient and out-patient component:
 - In-patient and out-patient facilities should be conveniently accessible to one another - ie. in same building or “campus” area.
 - Each student/resident has opportunity to obtain in-patient and out-patient experiences on the same rotation.
 - Provide opportunity for continuity of care for individual patients in both the in-patient and out-patient setting.
 - Length of rotations should be appropriate to achieve educational objectives.
2. Have capacity to accommodate multiple levels of learners and enable graduated responsibility for residents, including opportunity to supervise/teach junior colleagues and medical students.
3. Have sufficient flexibility of design and operation to meet defined educational objectives of all learners, including residents seconded from “other” programs.
4. Ensure that education and service components of learners’ activities are complementary, with neither compromising the delivery of the other.
5. Ensure that organization of night and weekend duties for students and residents are an integral component of the total educational process for that rotation. This must be considered in relation to:
 - frequency of call;
 - service/education ratio ie. “workload”;

- preservation of graduated responsibility;
 - reporting lines ie. “morning report” or equivalent; and
 - regular availability of at least one resident from each service/unit.
6. Have a constant organization for supervision by attending faculty. This includes a designated education co-ordinator for each unit, who will have responsibility for supervision and evaluation of student, resident and attending staff activities, including the appropriate delegation of responsibility to senior resident staff.
7. Be organized in a manner that will avoid disruption to
- a) patient care;
 - b) “other” legitimate responsibilities of attending faculty ie. patient care, scheduled teaching, research, administration; and
 - c) education of student/resident colleagues,

whenever students or residents are required to be absent from in-patient duties because of ambulatory care commitments, on-call legislation, academic activities, educational leave, illness, etc.

The key change in achieving some of the above objectives is the assignment of a critical mass of learners and faculty to a smaller number of teaching units/environments. This would hopefully achieve the objective of ensuring adequate and continuous care to patients by the resident “team” while preserving an acceptable service/education ratio.

In addition to reviewing the structure and staffing of teaching units/environments in traditional academic centers as described above, there is also a growing recognition of a need to provide a segment of training away from the large urban hospitals. Accordingly, new curricula are being designed to operate predominantly in non-tertiary care centers. An increasing number of traditional programs are beginning to include some experience outside major academic health science areas. The goal is to have trainees develop the skills and comfort level to be able to practice in these settings. Clearly, an important benefit might be a previously unanticipated attraction of family physicians and general specialists to smaller centres where they are desperately needed. Physicians who elect to remain in larger cities will also benefit by enhancing their sensitivity and understanding of the challenges faced by colleagues who practice in non-urban areas, and who are required to refer some of their patients to tertiary care centres. Such rotations in peripheral community settings may also provide better opportunities to experience inter-disciplinary care delivery among physicians, nurse practitioners and other health care professionals.

Despite the above, resistance to the “release” of residents to participate in such ambulatory care and “community” experiences will persist in many sectors. Much of this resistance will revolve around issues of service or “coverage” within tertiary care hospitals. Residents are themselves often reluctant for fear of increasing the burden on remaining colleagues. They may also be concerned with possible increased personal costs that rotations away from their primary residence may entail.

There may also be concerns about the quality of the experience that residents might receive outside the academic health centre - this includes both the level of teaching and the caseload. If there is any validity to this concern, its solution lies in appropriate faculty development and increasing interaction between community preceptors and health science centre educational leaders.

The increasing role of tele-education is also allowing residents access to tertiary care medical education (however, the appropriateness of this education is a topic unto itself). As an aside, there is an increasing interest on the part of peripheral centres to benefit from the service provision of residents as well as an interest in participating in the educational process.

e) the potential impact of new teaching/learning methods, particularly clinical simulation, on the traditional service/education balance.

This will clearly be an advance, especially in procedurally oriented disciplines. The role of technology has changed the ability to conduct distance education at both undergraduate and postgraduate levels. While not necessarily addressing service issues in large urban teaching hospitals it can help to resolve concerns about quality of education and access to appropriate educational resources outside tertiary and quaternary care centres.

The advent of distance-learning technology also produces opportunities for new educational approaches at the undergraduate level. A recent proposal for a new medical school in Northern Ontario is based on the concept of integrated clinical/academic small group learning along the model epitomized by McMaster University.

Experience with the use of tele-medicine and tele-diagnosis and the art of telephone consultation must be included in specialty and subspecialty training programs since they will become an increasingly important component of consultant practice in tertiary care centres. The potential and increasing use of patient simulators for both learning and evaluation must also be recognized.

New technologies and educational approaches need to be balanced with a number of considerations. First, additional costs should not be transferred onto students or residents who are already facing unprecedented debt levels from educational costs. Second, new initiatives should be carefully evaluated and, where possible, new projects should be experience or evidence based. An international perspective is valuable in this regard. Third, the non-academic needs of learners should not be lost. For example, some programs have found that relying too heavily on tele-education in rural programs create feelings of isolation among residents and students.