Ideas at Work

Cultivating Rural Healthcare Professionals: The Norfolk General Hospital Health Science Perspectives Program

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Studies around the world have shown that where healthcare professionals establish their practice is influenced by where they grow up and receive their training. In our Simcoe, Ontario-based Norfolk General Hospital (NGH), about 40% of our physicians and 80% of other medical health professionals study nearby and return here to their rural roots.

However, cultivating rural healthcare professionals anywhere poses some of the toughest and most unique challenges, and we are not exempt. To deal with this issue, some countries have created rural health professional recruitment programs with remarkable and quantifiable success. Our Health Science Perspectives Program (HSPP), one of the first of its kind in Canada, is a case in point.

The program, conducted in partnership with Simcoe Composite School (SCS), builds on our belief that we can increase our odds of recruiting and retaining health professionals by planting our health sciences seeds early – in high school. And the indicators are, based on our first two grade-12 student groups in 2000 and 2001, that we're on the right track: of the 34 initial participants, 22 (65%) are now in health sciences or related disciplines at the post-secondary level. By contrast, fewer than 30% of SCS science graduates who do not participate in the HSPP enter post-secondary health sciences programs.

While we cannot predict how many graduates will become healthcare professionals or return to our community, the program will likely put more professionals into the field – and hopefully attract more graduates to NGH.

But it's not just about numbers. The Health Science Perspectives Program, now entering its fourth year, has also provided countless qualitative benefits to NGH, SCS and the community we serve. And it provides a model that other rural communities – perhaps even urban ones – can adopt.

The Challenge

Norfolk General Hospital, a full-service, 120-bed community hospital in an underserviced southern Ontario rural area, needs to recruit and retain more healthcare professionals. Simcoe Composite School, until recently the town's only secondary school, needs to attract more students at a time when rural schools are already dealing with declining enrolments. We both face unprecedented competition for healthcare professionals and students, respectively.

The school is therefore under pressure to come up with innovative magnet programs to draw students. The most successful magnets are those with high levels of community support and participation, and unwavering commitment on the part of all players.

Case Studies: Examples

The cases we use were either developed from scratch or adapted from existing studies. Hospital personnel worked closely with SCS teachers, but were encouraged to create scenarios based on their personal comfort levels. Here are three examples.

Case study #1: Stroke: The Impact
Presenter: Pam Whalen, Speech-Language Pathologist, Norfolk General Hospital
"Flash Gordon," a man in his 50s (composite of real patients) has a stroke. Students are given a chart that tracks emergency procedures, lab work, medication, and so on. Their assignment includes responding to questions about stroke diagnosis, treatment and rehabilitation. The stroke is simulated to allow students to experience visual deficiencies and hemiplegia by using wheelchairs, modified glasses, slings and incontinence supplies.

Challenges
- Case development took about 10 hours, plus 20 for delivery. Case preparation, presentation and review are shared by staff from occupational therapy, physiotherapy, dietary and speech pathology. The case is reused every year.
- Initially, we gave students too much information and too many questions. We have since fine-tuned the case.

Benefits
- Excellent opportunity for the hospital to gain profile as a community partner.
- An investment in the future of students, hospital, community, country.
- Exposes students to a real hospital setting; gets them interested – or helps them realize they will never be comfortable in a hospital.

"We all recognized that we need new approaches for recruiting, and the best place to start is in our own back yard."
– Pam Whalen.

Case study #2: Time is Muscle: From the Heart
Presenter: Dr. David Kennedy, Chief of Medicine and ICU, Norfolk General Hospital
A single mother is admitted to the ICU with a heart attack. Students must research answers to questions such as the science behind what's causing the attack; effective treatment; how the mother will support her children while she is off work; who will look after them; how to get the message out to the community about heart disease prevention. Students are hooked up to a heart monitor in ICU and taken through the process of treating heart-attack victims.

Challenges
- Time commitment is three mornings per semester: one to go over the case with students; another to hear their answers; a third (optional) is the year-end review. Cases are developed by head nurses and reviewed by the doctor.

Benefits
- I enjoy the teaching aspect; don't get much opportunity to teach. Biggest personal reward is just seeing great kids at work.
- Provides students with a more interesting way to learn and increases retention.
- Community sees the hospital's commitment – it's not there just to treat people, but also to educate them.

"I hope that students going through the program get interested in some form of healthcare and come back to NGH after their training." – Dr. David Kennedy

Case study #3: Teamwork: The Financial Function
Presenter: Shawn Gilhuly, Vice-President, Finance, Norfolk General Hospital
Scenarios used for problem-solving include a shipwreck on an uninhabited island and a plane crash in the desert. These survivor-type cases (purchased from an education supplier) challenge students to work out in teams how to survive with a limited number of items – some critical to survival, some not. This is then related to how hospitals must deal with limited resources on a day-to-day basis. Students fill out score sheets, grade themselves, critique each other and discuss hospital funding and administrative issues.

Challenges
- Making support services interesting and relevant to their studies.

Benefits
- Students learn how to make decisions and work in teams. They also gain an appreciation for the financial issues facing hospitals.
- An opportunity to get out from behind my desk and work in a classroom setting with students who are interested, going places and likely to end up in healthcare.

"By providing students with early exposure to NGH, we can allay any fears or negative feelings, create positive experiences for them and tip the scales in our favour."
– Shawn Gilhuly.

A Solution

The spark that ignited our imaginations was a program running between Brantford, Ontario's North Park Collegiate-Vocational School (NPC-VS) and The Brantford General Hospital (BGH), a 230-bed acute care facility. Starting with a school careers day, this initiative has developed into a full-fledged magnet program now in its fifth year.

According to one of the program's architects, Susan Bouwer, NPC-VS's head of science, the partnership with the hospital began when science students spent a half-day job-shadowing hospital medical personnel. "This was such an eye-opener and motivator for participants that we knew we were on to something significant," she says.

As part of a small team of teachers, Bouwer and girls' physical education teacher Diane Porter subsequently developed and sold a proposal to the BGH to offer one course per semester. The course combines theory in health science with practical applications such as case studies, team exercises and field trips. "The constant interaction among our students and the many healthcare professionals involved is a definite highlight," says Bouwer.

The Brantford program is based on the McMaster model of independent (problem-based) learning (see <http://www.mcmaster.ca/pres/leadership.html>) which is a new approach for high schools. "We have yet to formally track where our graduates end up," notes Bouwer. "But we see a significant number of them pursuing post-secondary studies in the health sciences. NPC-VS generously shared the details of their program with us, providing a good basis for developing our own."

Our Health Science Perspectives Program

The two-credit NGH-SCS Health Science Perspectives Program focuses on authentic learning situations not found in textbooks. It is delivered under SCS' science department, headed by Brian Snow. According to Snow, the program is ahead of its time, going beyond imparting information to teaching students skills such as teamwork, researching, negotiating and presenting.

"Students learn about everything from the boiler room to the operating room, taking away imprints that will stay with them throughout their lives," he says. "And their enthusiasm for what and how they learn spreads to their friends, families and acquaintances."

Students undergo a rigorous selection process, which is based not only on marks, but also on social skills. Whenever they are in the hospital, they are supervised by one or both teachers, and carefully briefed on confidentiality issues.

The program is structured around the four adult learning principles:

- somatic – learn by doing (peer-to-peer learning);
- audio – learn by hearing (interactive discussions);
- visual – learn by seeing (illustrations, charts); and
- intellectual – learn by solving problems (case examples).

Led by Snow and science teacher Chris Harvey, the 16-week program begins in the classroom with general topics such as: challenges and issues affecting the quality of available healthcare; human body systems in normal and diseased states; current medical technologies; ethics in healthcare; and careers in health sciences. "We've been fortunate to have administrators from NGH such as President and CEO Bill Lewis and Operations Vice-President Terry Fadelle come to the school and explain quite openly about the operational and political issues faced by the hospital," says Snow. "Such attentiveness personifies the commitment of the hospital to the kids, the program and the community."

These initial sessions are followed by case studies based on real patients. Prepared by doctors and hospital staff in cooperation with the two SCS teachers, they challenge students to solve problems by working in teams to devise solutions and prepare presentations for their case leaders to rate. "Cases go beyond physical health, encompassing the impact of illness on a patient's entire life," reports Snow. "This includes sociological, emotional, financial and legal aspects, among others."

After case studies are handed out, students are required to research, compile and present their reports within a week. Research includes job shadowing, field trips, Internet searches and literature reviews. The entire process, facilitated by SCS teachers and the NGH coordinator (Linda Vancso), focuses on teamwork and problem-solving. A student leader is charged with keeping things on track and acting as chief liaison between students and teachers.

Students are encouraged to present their answers and reports in any form they want. They work out among themselves how to conduct the research (individually or in teams), develop reports and present the information. Their professionalism is astounding – using everything from paper to multimedia presentations, they demonstrate tremendous comprehension of healthcare. Groups have presented their case answers using anything from flip charts to PowerPoint slides, skits, game shows, videos and other imaginative approaches.

At the end of each semester, students, teachers, hospital educators and other stakeholders gather for a group evaluation of the sessions. Out of this come frank, multilateral feedback and exchanges, ideas for improvements and additional volunteers for the next year's program.

Implementation Challenges

Our first year – the pilot – was the toughest, since everything was new. The hospital and school had to recruit case presenters and field-trip partners, work out logistics and communicate

Tips For Developing and Sustaining Such a Program

Our three years of experience have taught us a great deal. We've come up with five top tips for other hospitals and high schools contemplating a partnership of this kind.

1. Get commitment and support.
All school and hospital personnel need to be committed to get such a program off the ground and sustain it. In our case, we have strong support from everyone in the hospital, starting with our president and CEO, Bill Lewis. Our two dedicated SCS teachers also went outside the community to arrange field trips to organizations such as the Robarts Institute, The BGH and the University of Western Ontario that have equipment and processes not available locally. Local support came from a variety of partners including the Norfolk Hospital Nursing Home, the Community Care Access Centre (CCAC) and Holmes House (an addiction rehabilitation facility).

2. Communicate effectively.
We found that creating a buzz about the program throughout the school captured the interest of students and their parents. Initially, we began talking the program up in grade 11; now it's a topic of conversation from Grade 9 onward. Word of mouth is a key communication tool in small communities, and the word about the HSPP has spread beyond the area we have traditionally served. The program also attracted media attention, which raised awareness among our constituents.

Parents are an important part of the equation, so the teachers involve them from the beginning. This ensures they understand what is expected of their children and provide appropriate support and encouragement.

The NGH coordinator keeps hospital staff and other stakeholders informed and updated through meetings, reports and memos.

3. Select the right teachers and appoint a coordinator in the hospital.
Having the right teachers is critical to the success of the program. "You can't get just anyone to teach the course," said HSPP student Krista Fess. "Mr. Snow and Mr. Harvey were open about everything, interested in healthcare and encouraged us to find out things on our own." Adds Meagan Reid, "They love science and have science backgrounds, so they're really committed to this."

Because the program contains so many components and requires so many players, having a single coordinator in the hospital is crucial to its smooth operation. At NGH, this is Linda Vancso, who knows department managers, physicians and other staff; communicates and supports the efforts of staff; addresses scheduling issues and so on.

4. Keep the content interesting.
Both students and educators need to be challenged and kept fresh. We have found that students are bored with lectures and respond well to the adult learning approach. Hospital educators should also be able to relate well to this age group, and be interested in teaching (many of ours have high-school children of their own).

To ensure that educators do not burn out, and to maintain consistency, sharing cases and recruiting new presenters can provide a good supply of backups.

5. Plan ahead.
We've been fortunate to have teachers with backgrounds in biology and physiology and a passion for healthcare. We also have committed medical personnel in the hospital. However, staff turnover is a reality, and it's important to broaden the base of educators and presenters to ensure sustainability if anyone moves on.

It is also essential to keep in tune with changes to the school system that affect credits. Under the new secondary school system, for example, we had to re-apply for credit status to the Ministry of Education.

Source: Physician Shortage Area Program (Pennsylvania) by Rabinowitz. Western Australia Rural Program by Western Australian Center for Remote and Rural Medicine, Barer and Stoddart

the initiative to various stakeholders. This was also a time for determining the right quantity and level of information to present to students, agreeing on expectations, ironing out communications issues and firming up the methodology for working together effectively. Subsequent years have been easier, with the system in place and awareness and enthusiasm for the program growing.

Initially, the hospital was apprehensive about having students on the premises, and worried about issues such as accountability, supervision and confidentiality. Faced with increasingly heavy workloads, case educators (hospital staff and doctors) also feared the program would add to their burden. However, their fears subsided when they realized that the teachers took full responsibility for the students, and would work with case

presenters to alleviate any additional burden.

The time commitment to develop, deliver and evaluate case studies varies with each educator. It decreased once the model was established and reusable cases developed. Now, the case presenters' time ranges from two full days over the 16-week program to about four. The hospital coordinator's time averages about two hours a week during the semester, while others such as those involved in student orientation and shadowing rotation spend considerably less.

The Results

Some benefits of the program are quantifiable; others are not. We can count the numbers of HSPP students going into health sciences (65% so far) and those coming back to work here. But it's hard to quantify the attitude shifts, the increased comfort levels, and the appreciation for the hospital system that students take with them throughout their lives and share with their worlds as ambassadors armed with unique knowledge.

We know the program has created paradigm shifts in thinking based on what students, parents, teachers, community leaders and others say and do.

For example, program graduates Krista Fess and Meagan Reid, now in their second year of health science at the University of Western Ontario, report that they would not have gone into the health sciences without HSPP. Both plan to become speech pathologists as a result of their eye-opening exposure to this field at NGH. Dave Nichol, in his second year of health science at McMaster University, concurs. "I don't remember having any aspirations to become a doctor before I took this course," he noted. "Now, I hope to get into medical school." Nichol is also convinced that going through the course helped him gain entry into McMaster.

Case developers and presenters all list qualitative benefits to their lives. The most common are that the students' enthusiasm is infectious and exhilarating, and that they have a chance to refresh their own knowledge. It briefly gets the educators away from their daily routines, challenges them in ways not common to their everyday lives and makes them feel they're contributing to the future of healthcare by influencing young people favourably toward health sciences. While some see this as yet another task on their long to-do list, none find it onerous.

Through word of mouth, print and other media, the program has also helped educate the public about our healthcare system. It has even yielded a few surprises: one year, for instance, HSPP students galvanized the entire school into raising $10,000 toward the new NGH emergency room.

Looking Ahead

According to Morris Barer and Greg Stoddart (1991), "The importance of recruiting and admitting future physicians who have grown up in rural and remote settings now seems clearly established ... However ... only a fraction of what could be done in this area is currently being done."

We at NGH and SCS are confident that our Health Science Perspectives Program is doing something unique and concrete in this area by cultivating potential healthcare professionals where they grow.

While results are encouraging, our success is creating new challenges. We are seeing more applicants for the program than it can accommodate. With a second high school recently built in Simcoe, the hospital must consider how it could accommodate additional students if another HSPP-type program were launched. Both NGH and SCS must maintain an effective balance of leadership and commitment as program supporters move on or retire.

But whatever challenges arise, we're ready. We'll continue to carefully sow our health education seeds, nurture the healthcare professionals of tomorrow, and keep the fields fertile – a solid investment in a healthy future.

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