

# Learners as Leaders: A Global Groundswell of Students Leading Choosing Wisely Initiatives in Medical Education

Karen B. Born, PhD, Christopher Moriates, MD, Victoria Valencia, MPH, Marlou Kerssens, MSc, and Brian M. Wong, MD, FRCPC

## Abstract

Resource stewardship and reducing low-value care have emerged as urgent priorities for health care delivery systems worldwide. However, few medical schools' curricula include adequate content to allow learners to master the knowledge, skills, and attitudes needed to contribute to this transformation toward value-based health care. This article describes a program to launch student-led curriculum enhancement initiatives in 7 countries. The program, called STARS (Students and Trainees Advocating for Resource Stewardship), was inspired by Choosing Wisely, a campaign by the American Board of Internal Medicine Foundation that seeks

to promote conversations on avoiding unnecessary medical tests, treatments, and procedures.

The initial STARS model, which originated in Canada in 2015, included a leadership summit, where students from multiple medical schools learned about Choosing Wisely principles, leadership, and advocacy. These students then led grassroots efforts at their local medical schools with faculty and other students to raise awareness and advocate for changes related to resource stewardship. Student-led efforts resulted in the integration of Choosing Wisely principles into case-

based learning, the creation of student interest groups and electives, the launch of social media campaigns, and the organization of special presentations by local experts.

The rapid spread of similar programs in 6 other countries (Italy, Japan, the Netherlands, New Zealand, Norway, and the United States) by 2018 suggests that STARS resonates across multiple settings and signals the potential for such a model to advance other important areas in medical education. This article documents results and lessons learned from the first 4 years of the program.

**B**eginning in 2012 in the United States, Choosing Wisely, a campaign by the American Board of Internal Medicine (ABIM) Foundation, spurred an international movement to promote conversations within the health care professions, and with patients, to raise awareness about the harms of overuse of health care resources.<sup>1</sup> The cornerstone of Choosing Wisely is lists of recommendations that feature tests, treatments, and procedures that clinicians and patients should question; the lists were developed in partnership

with national clinician societies. The recommendations are a means to spur conversations about overuse of resources between clinicians and patients and to foster implementation of the recommendations into practice. The Choosing Wisely campaign has a clear focus on changing a medical culture that has traditionally promoted the belief that more care is better.<sup>2</sup> The campaign quickly spread to more than 20 countries and has spurred numerous activities aimed at addressing the problem of low-value care. These activities include measuring the burden of overuse<sup>3,4</sup>; clinician-led interventions aimed at reducing unnecessary health care tests, treatments, and procedures<sup>5</sup>; and physician society engagement to raise awareness broadly and advance the core tenets of the campaign.

Yet there remains a need to better incorporate content related to the campaign on overuse, resource stewardship, and health care costs into medical education, as well as to address elements within the training environment that may drive overuse.<sup>6,7</sup> These topics are not covered well in the formal curriculum, partly because of the slow

nature of curriculum reform in many medical schools. Physicians' ordering behaviors and resource use are strongly influenced by practices to which they are exposed during training.<sup>8</sup> Given these concerns, one strategy to address these deficits is to organize, support, and empower students to lead grassroots initiatives to raise awareness about the various Choosing Wisely activities led by clinicians, organizations, and physician societies and to advocate for changes to explicitly include content about high-value care and resource stewardship in the curriculum at their own medical schools. In this article, we describe a program designed to carry out that strategy—STARS (Students and Trainees Advocating for Resource Stewardship)—and discuss the program's early results and expansion.

## STARS Model of Students Leading Change in Medical Education

The STARS program was designed to catalyze grassroots, student-led initiatives to advance the integration of overuse, resource stewardship, and health care costs into medical education. This program was launched in November

Please see the end of this article for information about the authors.

Correspondence should be addressed to Brian M. Wong, Sunnybrook Health Sciences Centre, 2075 Bayview Ave., Room H466, Toronto, ON M4N 3M5, Canada; telephone: (416) 480-6100, ext. 83709; email: BrianM.Wong@sunnybrook.ca; Twitter: @Brian\_M\_Wong.

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2015 by Choosing Wisely Canada with the support of an ABIM Foundation education grant. Faculty leaders (K.B.B. and B.M.W.) and medical students cocreated the program, including developing its aims, strategic focus, and program content. National student associations used email and social media to share details about STARS and invite first-year medical students with interest in leadership to apply to attend the leadership summit and lead STARS-related efforts at their medical school. Two medical students from each of Canada's 17 medical schools participated in STARS. At the leadership summit, the students learned about Choosing Wisely and leadership, advocacy, and communication skills. Choosing Wisely Canada has run 3 more leadership summits in February 2017, April 2018, and May 2019. The planning committees for these leadership summits have included 1 or 2 past STARS students, who also presented their accomplishments and lessons learned during the summit.

STARS students worked with faculty and other students to embed Choosing Wisely content into medical education at their schools. STARS also established a longitudinal learning community to allow participating students to share common challenges, lessons learned, and success stories. At a number of Canadian schools, STARS students successfully introduced content related to resource stewardship into the curriculum through a variety of tactics. These tactics include conducting a needs assessment, mapping resource stewardship content to the existing medical school syllabus, and in some instances, working directly with curriculum leads to develop new content, such as integrating Choosing Wisely recommendations into case-based learning. Other STARS students created Choosing Wisely student interest groups; launched social media campaigns; and organized campaign weeks, special presentations by local experts, and Choosing Wisely-themed conferences.<sup>9</sup>

The following example from the University of Ottawa in Ottawa, Ontario, Canada, illustrates the degree to which STARS students could influence local change. The 2 STARS students worked together on an undergraduate medical education program summer research project to integrate Choosing Wisely Canada recommendations into case-

based learning to encourage students to engage in discussions about necessary and unnecessary tests in each given patient scenario, and they created tutor guides to provide further information on the discussion topics. They also conducted a survey among the first- and second-year students to gauge baseline level of student knowledge about topics relevant to Choosing Wisely. The students presented their summer project and survey results at their local Medical Education Research Poster Day, spreading interest among faculty members who attended the event. They then worked with a local medical student society to start an official interest group, which hosted several talks by local physicians and experts. They organized a daylong Choosing Wisely conference at their university that featured a variety of speakers, including doctors who discussed how change is instilled in their departments, laboratory researchers who described what happens when labs are ordered, and experts who addressed the financial aspects of health care. The students then wrote an article that provided an overview of Choosing Wisely and why it is needed in medical education, along with an update on the progress at the University of Ottawa; the article was published in the *University of Ottawa Journal of Medicine*.<sup>10</sup>

### International Spread of Student-Led Choosing Wisely Medical Education Programs

The Canadian STARS program drew the attention of the broader medical education community internationally. Students and medical educators in multiple countries began approaching the Choosing Wisely Canada team for advice about launching similar programs in their own countries. In short order, a groundswell of student leadership programs and initiatives emerged in a number of countries to advance Choosing Wisely (Figure 1). Some of these programs are linked to the national Choosing Wisely campaign in their countries, but others are not, showing that the STARS (student-driven model) spread separately from the wider Choosing Wisely campaigns.

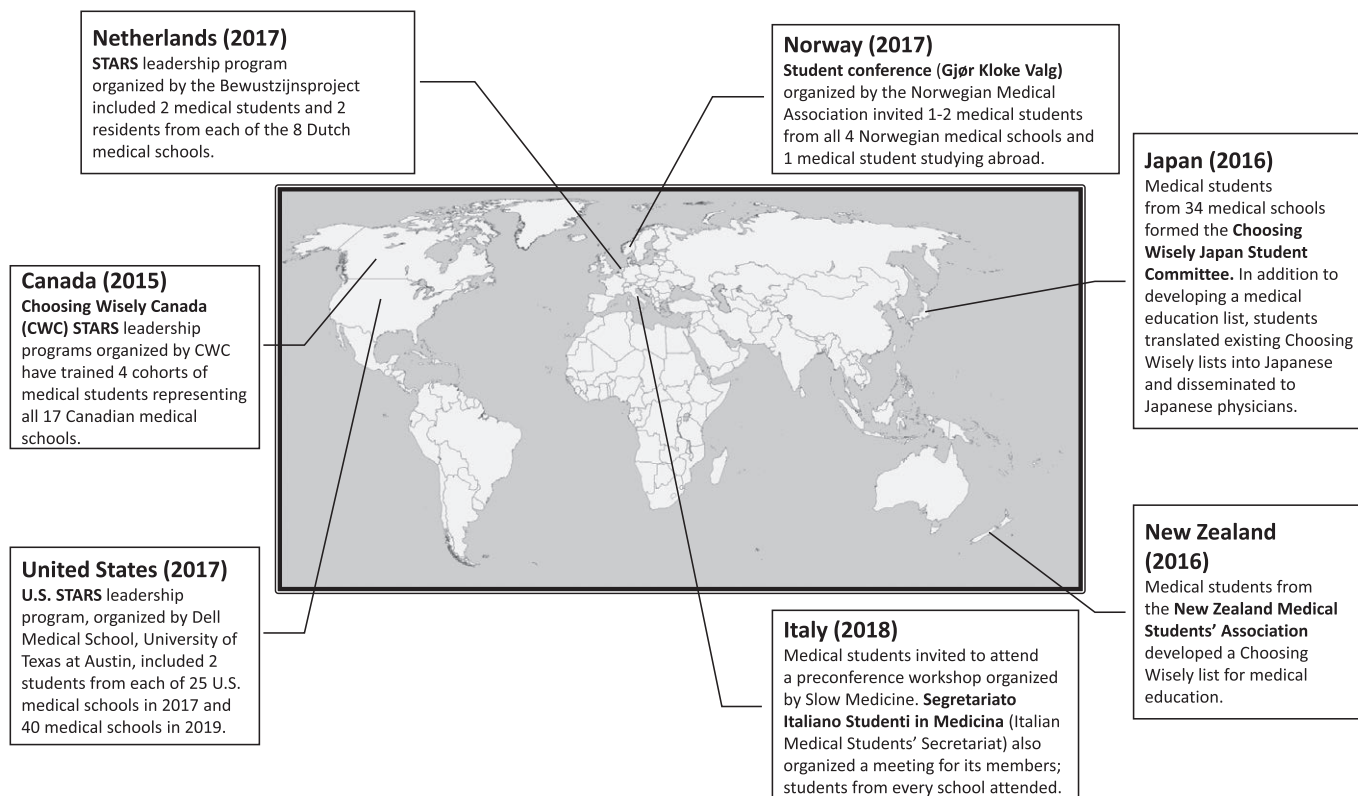
In the Netherlands, the Bewustzijnsproject, a collaboration between the national physician association and Maastricht University that focuses on high-value, cost-conscious care, established a STARS program in September 2017. This program

brought together student and resident representatives from the country's 8 medical schools, expanding from a prior national campaign that had focused solely on residents. The acronym STARS was adapted to Dutch, and students participated in a series of national meetings, including a leadership summit.

The United States followed shortly after by starting a STARS program in December 2017, initially for medical students from 25 U.S. medical schools. The U.S. program was organized by faculty members (C.M. and V.V.) from Dell Medical School at the University of Texas at Austin, in partnership with the ABIM Foundation, the Josiah Macy Jr. Foundation, and the nonprofit Costs of Care. In the United States, the central STARS team recruited local faculty champions at each school, who were then responsible for identifying and recruiting 2 students from their school to participate in the program. Some schools created a robust application process, whereas others selected students from a specific program (such as a health care delivery science track). A Canadian STARS student presented at the U.S. STARS program to provide an overview of her student-led initiatives as an example of the types of changes that were possible. The U.S. STARS program has expanded to 40 U.S. medical schools, which participated in the second leadership summit in the United States, held in January 2019.

National student programs are also being planned in Norway and Italy, with students actively involved in shaping and launching the campaigns.

In a few countries, programs have emerged more directly from student efforts. In Japan, a medical student, after hearing about STARS, took it upon himself to create a national student movement and founded the Choosing Wisely Japan Student Committee in October 2016 in conjunction with Japan's Choosing Wisely campaign. The group consists of medical students and residents invited from all training years and all Japanese medical schools.<sup>11-13</sup> In addition to awareness-building activities, students initiated a process of translating English-language Choosing Wisely lists into Japanese and disseminated them to practicing physicians and trainees. Students in Japan are also working on a Choosing Wisely textbook



**Figure 1** Overview of student-led Choosing Wisely medical education programs around the world, with brief description of student-led initiatives in 7 countries (Canada, Italy, Japan, the Netherlands, New Zealand, Norway, and the United States). Source: File:A large blank world map with oceans marked in blue.PNG. Wikimedia Commons. [https://commons.wikimedia.org/wiki/File:A\\_large\\_blank\\_world\\_map\\_with\\_oceans\\_marked\\_in\\_blue.PNG](https://commons.wikimedia.org/wiki/File:A_large_blank_world_map_with_oceans_marked_in_blue.PNG). Accessed June 18, 2019.

that will include cases, articles, and recommendations.

National medical student associations have also played a key role in supporting student-led initiatives related to Choosing Wisely in several countries. The Canadian Federation of Medical Students and Fédération médicale étudiante du Québec partnered with Choosing Wisely Canada to develop a Choosing Wisely list of recommendations for medical education.<sup>14</sup> Each year, 1 representative from each of these associations serves on a STARS steering and planning committee. In 2017, the New Zealand Medical Students' Association (NZMSA) launched WISE, a mnemonic to recall key Choosing Wisely concepts of Why? Is there an alternative? Seek clarification, and Explore/Explain. WISE was shared on lanyards and cards for medical students with advice for how to use Choosing Wisely lists.<sup>12</sup> The NZMSA also created a Choosing Wisely list for medical education, modeled after the Canadian list. In August 2018, the International Federation of Medical Students' Associations invited a Canadian

STARS student to deliver a workshop on Choosing Wisely that was attended by students from around the world.

### Early Impact

Besides simply measuring the organic spread and reach of the STARS model for student-led curricular change, more robust evaluation efforts are underway at varying stages in different countries. The Canadian program has published outcomes from its first-year experience, demonstrating impact with students leading a variety of awareness-building activities at schools across the country.<sup>9</sup> In 14 of the 17 schools (82%), students led various local activities (e.g., interest groups, campaign weeks) to raise awareness about resource stewardship among medical students and faculty. Students contributed to curriculum change (both planned and implemented) at 10 schools (59%).

In the United States, STARS students who completed a survey after the first leadership summit in 2017 (N = 46; 92% response rate) indicated strong agreement (median score = 7, strongly agree, on a

scale of 1 to 7) that the summit was a valuable experience, that they learned about a Choosing Wisely program they could implement, that they felt more prepared to lead discussions about Choosing Wisely at their school, and that they learned about leadership and advocacy concepts that they can apply. Students also demonstrated that they had gained knowledge about Choosing Wisely at the summit.

One of the most exciting outcomes has been the impact that students have had on changing their school's curriculum. Similar to what was achieved in Canada, nearly half of the 25 U.S. schools that participated in the first STARS leadership summit in 2017 implemented curricular changes within 6 months of their students attending the leadership summit, and 84% reported clear plans for curricular changes within the first year. For example, at Dell Medical School, STARS students led the integration of Choosing Wisely learning objectives into nearly a third of first-year case-based learning activities for the following class. Students at the University of Chicago hosted a well-attended community grand

rounds to teach patients, caregivers, and health professionals about the principles of Choosing Wisely and how to advocate for appropriate care, in addition to creating an official elective for medical students. Medical students and residents in the Netherlands have led changes at their schools similar to those in the United States and Canada.

On a broader level, students' impact is seen through their contributions to the scholarly literature. For example, students in Canada, Japan, the Netherlands, and New Zealand developed Choosing Wisely lists of recommendations for medical education.<sup>13</sup> Others have authored

online articles and blog posts, prepared peer-reviewed publications, and written position papers for regional and national organizations.<sup>11,14</sup> STARS students have also presented posters, workshops, and oral abstracts at national conferences.

### Lessons Learned for Achieving Student Engagement

Despite the early wins and rapid spread of Choosing Wisely student-led efforts internationally, we have learned numerous lessons from confronting challenges and potential pitfalls. Common themes point toward a set of guiding principles to

facilitate establishment of these types of student-engagement programs. Table 1 lists these 10 principles, along with illustrative examples from the existing national student campaigns.

Inherent tensions exist between student-led curriculum reform initiatives and the many competing demands of medical school life. To maintain momentum, central coordination to check in regularly with students to keep them on track and to align student efforts with the resources available has proven important. In addition, each medical school environment is unique and complex.

Table 1

### Key Principles for Effective Student-Led Programs That Have Emerged Through the STARS (Students and Trainees Advocating for Resource Stewardship) Experience

Principle	Description	Illustrative example(s)
Foster student leadership	The work is student led (rather than primarily faculty or administration led), and the program supports local student leadership at each medical school.	Students participate in a leadership summit to learn about resource stewardship. They are encouraged to then deploy locally appropriate initiatives.
Identify local faculty mentorship	Although student leadership is the key component of this model, dedicated faculty mentorship at the local medical school to help with content knowledge and stakeholder awareness is critical for enabling success.	In Japan, students from medical schools self-organized and reached out for supervisors to assist with content knowledge and other efforts.
Ensure top-down support	Leadership from each school should be supportive of the program to help remove potential institutional barriers for the students and their local faculty mentors.	Before the launch of STARS in the United States, the team obtained the endorsement of a dean-level leader from each of the 25 participating medical schools. In Canada, medical school deans actually sponsored travel and accommodation costs for students.
Coordinate centrally	An organization needs to act as central convener to coordinate the student leadership summit and associated activities, such as the network and email contact list, and to be accountable for the overall results of the program.	The STARS central coordinator has differed by country and has included national campaigns (Canada, Italy, Norway), student associations (New Zealand, Japan), and medical education faculties or groups (the Netherlands and the United States).
Enable creative space	Providing students with creative space allows them to be most flexible to innovate within their unique local contexts and needs, resulting in original, inspired solutions.	At a STARS leadership summit in the United States, the students undertook a rapid crowdsourcing activity to identify leading ideas they would like to work on and then broke out into small groups based on the ideas.
Create a network	The student groups tend to come together like other social movements and benefit from a network that reinforces their efforts; allows for cross-institutional initiatives; and supports collective learning, feedback, and sharing of ideas.	In Japan, the students' interest group connects via a private group that uses the WhatsApp messaging application to share activities, ideas, and challenges. In Canada, the Netherlands, and the United States, students communicate through Facebook groups.
Engage medical student associations	Local, regional, or national medical student associations play a role in aligning STARS to existing efforts related to education and advocacy within their spheres of influence.	The New Zealand Medical Students' Association developed a Choosing Wisely list for medical education.
Celebrate success/tell stories using the students' voice	The program should find ways for students to demonstrate accomplishments and let the students tell their stories, through blogs, conferences, and publications, for example.	The Japanese student interest group included sharing accomplishments both nationally and internationally as a core strategic priority and has published in national medical magazines and international journals.
Evaluate your impact	A robust evaluation plan is necessary to know whether the program is achieving intended goals across multiple levels.	In the United States, the evaluation plan for STARS includes using a validated survey of the entire first-year class at each of the initial 25 participating schools to identify the impact of student-led changes.
Design for sustainability	Medical students are inherently transient; therefore, the program must develop a clear plan for sustainability both locally and nationally that accounts for transition plans as students move through their training.	The Canadian Federation of Medical Students and Fédération médicale étudiante du Québec have an annual call for student leaders to act as STARS liaisons nationally. Locally, Canadian medical schools have set up interest groups that recruit new executives each year.



Students often do not know the processes and local hierarchies to enact curriculum change; therefore, students need local faculty support, mentorship, and guidance.

To succeed, students need both centralized and top-down support as well as sufficient creative space to identify innovative solutions.<sup>15</sup> Peer networks allow students to share and exchange ideas on a number of platforms. These networks promote sharing and dissemination of student efforts and resonate especially when shared on broader platforms such as blogs, publications, or conferences.

Success stories are important to generate student engagement and celebrate achievements. However, there is also a need to more concretely demonstrate impact to obtain ongoing financial support for these types of programs. Costs can include student travel, meeting planning, and faculty time and resources to support local activities for national coordination. The majority of programs thus far have been funded by small year-to-year grants. Articulating the return on investment and highlighting student success stories, combined with rigorous evaluation of the impact of programs, are critical to the ongoing sustainability of these efforts given the inherently transient nature of medical students.

## Conclusions

The impacts seen through national student-led initiatives affirm the critical role that students and learners can play to accelerate change. Generally speaking, the student impact on their medical school environments and beyond has been resoundingly positive. Students have demonstrated leadership through many roles, from generating local initiatives at their medical schools to becoming involved in cocreating the program with the national planning team (and in some countries, such as Japan, independently organizing the national program) and disseminating programs and initiatives widely. The rapid international spread of the STARS program suggests that it resonates across multiple settings and signals the potential for such a model to advance other important areas in medical education.

Although there is significant heterogeneity in the genesis and evolution of national student efforts, the common thread includes the shared commitment to promote resource stewardship training

and the recognition that student leadership can act as a driver of change in medical education. While providing centralized support, the STARS program is purposefully flexible to allow students to adapt to local idiosyncratic assets and barriers, which likely has been key to the model spreading to diverse medical education environments across the world. As STARS continues and subsequent years of students join in these efforts at medical schools around the world, we hope to help seed a culture change that enables Choosing Wisely to be a natural part of caring for our patients.

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*Previous presentations:* Choosing Wisely STARS U.S. was presented during poster presentations at the 2018 High Value Practice Academic Alliance national meeting, September 2018, Baltimore, Maryland, and Learn Serve Lead 2018: The AAMC Annual Meeting, November 2018, Austin, Texas.

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**K.B. Born** is knowledge translation lead, Choosing Wisely Canada, and assistant professor, Institute of Health Policy, Management and Evaluation, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada.

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**C. Moriates** is assistant dean for health care value, Department of Medical Education, and associate chair for quality, safety, and value and associate professor of internal medicine, Department of Internal Medicine, Dell Medical School, University of Texas at Austin, Austin, Texas, and executive director, Costs of Care, Boston, Massachusetts.

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**V. Valencia** is assistant professor, Department of Medical Education, Dell Medical School, University of Texas at Austin, Austin, Texas.

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**M. Kerssens** is junior consultant at Adviestalent, part of Twynstra Gudde, Amersfoort, the Netherlands, and was recently a summer research intern with Choosing Wisely Canada, Toronto, Ontario, Canada.

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**B.M. Wong** is medical education lead, Choosing Wisely Canada, associate director, Centre for Quality Improvement and Patient Safety, University of Toronto, and associate professor, Department of Medicine, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada.

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