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Le Collège royal des médecins et chirurgiens du Canada a fait de la sécurité des patients et de l'amélioration de la qualité (SPAQ) une priorité dans la formation des résidents, mais l'atteinte de ces objectifs est limitée par l'hétérogénéité des programmes de formation existants. Nous avons co-construit avec des residents un programmede formation longitudinal sur la sécurité des patients (SP), à partir d'incidents réels et pertinents liés à la SP et d'un cadre d'analyse. Facile à réaliser et bien accueillie par les résidents, la formation a été suivie d'une amélioration marquée des connaissances, des compétences et des attitudes des résidents en matière de SP. Notre formation a permis de créer une culture de la SP au sein d'un programme de résidence en pédiatrie, de promouvoir l'adoption de pratiques qui favorisent la SPAQ dès le début de la residence et de combler ainsi une lacune des programmes actuels.

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Implementation of a resident-led patient safety curriculum
Mise en œuvre d'une formation sur la sécurité des patients co-construite par des résidents

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Implication Statement

The Royal College of Physicians and Surgeons of Canada has made Quality Improvement and Patient Safety (QIPS) a priority in residency education, however, implementation is limited by the heterogeneity of previously published curricula. We created a longitudinal resident-led patient safety (PS) curriculum using relatable, real-life PS incidents (PSIs) and an analysis framework. Implementation was feasible, well received by residents and demonstrated significant improvement in residents' PS knowledge, skills, and attitudes. Our curriculum built a culture of PS within a pediatric residency program, promoted engagement in QIPS practices early in training, and filled a gap in the current curriculum teaching.

Énoncé des implications de la recherche

Le Collège royal des médecins et chirurgiens du Canada a fait de la sécurité des patients et de l'amélioration de la qualité (SPAQ) une priorité dans la formation des résidents, mais l'atteinte de ces objectifs est limitée par l'hétérogénéité des programmes de formation existants. Nous avons co-construit avec des residents un programme de formation longitudinal sur la sécurité des patients (SP), à partir d'incidents réels et pertinents liés à la SP et d'un cadre d'analyse. Facile à réaliser et bien accueillie par les résidents, la formation a été suivie d'une amélioration marquée des connaissances, des compétences et des attitudes des résidents en matière de SP. Notre formation a permis de créer une culture de la SP au sein d'un programme de résidence en pédiatrie, de promouvoir l'adoption de pratiques qui favorisent la SPAQ dès le début de la residence et de combler ainsi une lacune des programmes actuels.

Introduction

The Royal College of Physicians and Surgeons of Canada prioritized Quality Improvement and Patient Safety (QIPS), mandating and supporting residency programs to implement QIPS teaching.[1] Though many QIPS educational approaches have been evaluated, there remains significant heterogeneity in content and delivery.[2,3] Factors associated with successful implementation include learner buy-in, faculty role models, and combined didactic and experiential teaching.[2] Use of real-life patient safety incidents (PSIs) for case-based learning is favoured,[4] however its use is not widespread among published curricula.[3]

Our objective was to design, implement, and evaluate a curriculum to teach and practice QIPS principles and build patient safety (PS) culture within a Pediatric residency program. With the use of real-life PSIs and a resident-led approach, we aimed to promote QIPS engagement and improve residents' knowledge, skills and behaviours related to PS.

Innovation

Based on increased emphasis on QIPS in residency education and as part of regular curriculum review, we designed a three-part curriculum; (i) introductory session, (ii) Institute of Healthcare Improvement (IHI) online modules[5] and (iii) a six-month pilot of monthly one-hour interactive PS rounds. Key stakeholders were engaged early, including residents, program director, faculty with expertise in QIPS and the director of QIPS department. Real-life PSIs were chosen to illustrate common themes,

including communication, medication errors, situational awareness, and cognitive biases.

Our curriculum was incorporated into the existing weekly mandatory academic half days, typically attended by 12-15 residents. The interactive PS rounds were facilitated by an assigned senior resident supported by a faculty mentor with expertise in QIPS (completed the ASPIRE course or equivalent). Relevant cases were chosen from PSIs reviewed by our hospital's QIPS committee and provided to the resident and faculty mentor in advance. Participants were led through analysis of PSIs using a framework focusing on level of harm, root cause analysis, human and systems factors, cognitive biases, second victim/ hidden curricula and QI. The fishbone diagram, five whys worksheet and cognitive biases handout[5] were used to facilitate discussion.

Evaluation

Residents completed voluntary and confidential pre- and post-implementation surveys to assess subjective knowledge, attitudes towards PS, confidence in skills and behaviours using a questionnaire previously developed for evaluation of QIPS curricula .[6] Residents gave feedback on their ability to demonstrate the objectives, their satisfaction, and suggested improvements for the curriculum after each PS rounds and at pilot completion. IWK REB approval was obtained (1023950). 13 of 25 residents completed both surveys (Table 1). Non-parametric Wilcoxon Signed-Rank test was used to assess improvement.

Residents' PS knowledge scores increased significantly from 0-8% up to 80% (P = 0.001-0.004). Prior to the curriculum, feelings/beliefs towards PS were generally high and did not change significantly. Post-implementation, residents' attitudes significantly changed with higher intent to support team members involved in a PSI (P = 0.008) and to make a point of learning from PSIs (P = 0.031). After the curriculum, confidence in skills improved in almost all domains and 100% (from 23%) felt confident analyzing a PSI (P = 0.002). There was no difference in behaviours related to PS. 85% of residents were satisfied that the curriculum met all objectives. Comments indicated a high level of satisfaction and highlighted the use of real-life cases and the interactive nature of PS rounds.

Table 1. Participants subjective knowledge, attitudes and confidence in PS skills and behaviours pre- and post-implementation

Table 1: Results	Survey Score (% agreement*)		Individual survey score change (%), n=13			
	Pre	Post	Decrease	No change	Increase	P-Value
Subjective Knowledge						
1. Different types of patient safety incidents (PSI)	0 (0%)	5 (39%)	0 (0%)	4 (31%)	9 (69%)	**0.004**
2. Factors contributing to error	0 (0%)	10 (77%)	0 (0%)	3 (23%)	10 (77%)	**0.002**
3. Factors influencing patient safety	0 (0%)	11 (85%)	0 (0%)	2 (15%)	11 (85%)	**0.001**
4. Ways of speaking up about PSIs	0 (0%)	8 (62%)	0 (0%)	4 (31%)	9 (69%)	**0.004**
5. What should happen if a PSI occurs	1 (8%)	9 (69%)	0 (0%)	4 (31%)	9 (69%)	**0.004**
6. How to report a PSI	1 (8%)	10 (77%)	0 (0%)	2 (15%)	11 (85%)	**0.001**
Attitudes - Feelings about error						
1. Telling others about an error I made would be: (% easy or very easy)	2 (15%)	3 (23%)	1 (8%)	7 (54%)	5 (39%)	0.22
2. Telling others about an error I made would be: (% acceptable or very acceptable)	11 (85%)	10 (77%)	4 (31%)	4 (31%)	5 (39%)	1
3. Telling others about an error I made would be: (% helpful or very helpful)	12 (92%)	10 (77%)	4 (31%)	6 (46%)	3 (23%)	1
Attitudes - Beliefs about error						
1. By concentrating on the causes of PSIs I can contribute to patient safety	12 (92%)	12 (92%)	1 (8%)	7 (54%)	5 (39%)	0.22
2. If I keep learning from my mistakes, I can prevent PSIs.	12 (92%)	12 (92%)	3 (23%)	6 (46%)	4 (31%)	1
3. Acknowledging and dealing with my errors is an important part of my job.	13 (100%)	13 (100%)	1 (8%)	9 (69%)	3 (23%)	0.63
4. It is appropriate to challenge well-established practices even if they compromise PS	9 (69%)	9 (69%)	2 (15%)	3 (23%)	8 (62%)	0.11
5. Admitting an error I had made would lead to just and fair treatment by team/management	11 (85%)	11 (85%)	2 (15%)	6 (46%)	5 (39%)	0.45
Attitudes - Influence over safety						
1. It is easier to find someone to blame rather than focus on the causes of error	6 (46%)	5 (39%)	5 (39%)	5 (39%)	3 (23%)	0.73
2. I am always able to ensure that patient safety is not compromised.	2 (15%)	2 (15%)	4 (31%)	5 (39%)	4 (31%)	1
3. I believe that filling in reporting forms will help to improve patient safety.	9 (69%)	12 (92%)	1 (8%)	8 (62%)	4 (31%)	0.38
4. I am able to talk about my own errors.	10 (77%)	10 (77%)	1 (8%)	10 (77%)	2 (15%)	1
Attitudes - Intentions regarding errros						
1. I will report any errors I make at my place of work.	10 (77%)	11 (85%)	1 (8%)	7 (54%)	5 (39%)	0.22
2. I intend to challenge any complacency I notice with regard to patient safety issues.	11 (85%)	12 (92%)	0 (0%)	11 (85%)	2 (15%)	0.5
3. I will support any members of my team who are involved in a PSI.	12 (92%)	13 (100%)	0 (0%)	5 (39%)	8 (62%)	**0.008**
4. I plan to inform my colleagues about the errors they make.	9 (69%)	10 (77%)	1 (8%)	9 (69%)	3 (23%)	0.63
5. I will intervene whenever I think a patient may be exposed to harm.	13 (100%)	13 (100%)	1 (8%)	11 (85%)	1 (8%)	1
6. I plan to make a point of learning from the mistakes of others.	12 (92%)	13 (100%)	0 (0%)	7 (54%)	6 (46%)	**0.031**
Confidence in Skills						
1. Identify a PSI	12 (92%)	12 (92%)	1 (8%)	10 (77%)	2 (15%)	1
2. Identify situations which could lead to a PSI	10 (77%)	12 (92%)	1 (8%)	8 (62%)	4 (31%)	0.38
3. Analyse a PSI to identify the harm and the contributory factors	3 (23%)	13 (100%)	0 (0%)	3 (23%)	10 (77%)	**0.002**
4. Generate learning from a PSI	9 (69%)	13 (100%)	0 (0%)	8 (62%)	5 (39%)	0.062
5. Identify actions to be taken to prevent future incidents	9 (69%)	11 (85%)	1 (8%)	7 (54%)	5 (39%)	0.22
6. Speak to someone who is showing a lack of concern for a patient's safety	7 (54%)	11 (85%)	1 (8%)	7 (54%)	5 (39%)	0.22
7. Speak to someone who has made an error	7 (54%)	10 (77%)	0 (0%)	9 (69%)	4 (31%)	0.13
Behaviours (% with 3+ PSI)						
1. How many PSIs are you aware of that have occurred in the past 6 months?	8 (62%)	5 (39%)	8 (62%)	3 (23%)	2 (15%)	0.11
2. How many PSIs have you discussed with your colleagues in the past 6 months?	7 (54%)	4 (31%)	6 (46%)	5 (39%)	2 (15%)	0.29
3. How many PSIs have you or your team disclosed to a patient in the past 6 months?	4 (31%)	0 (0%)	5 (39%)	5 (39%)	3 (23%)	0.73
4. How many PSIs have you reported via Incident Reporting Systems in the past 6 months?	1 (8%)	0 (0%)	3 (23%)	7 (54%)	3 (23%)	1
5. How many MOMs/PSI analysis have you participated in in the past 6 months?	1 (8%)	2 (15%)	2 (15%)	5 (39%)	6 (46%)	0.29

* % agreement indicates those who responded with 4=high/agree or 5=very high/strongly agree (unless otherwise indicated); Rating scale: 1=very low/disagree strongly, 2= low/disagree, 3 = average/neutral, 4= high/agree, 5= very high/strongly agree

Next steps

Implementation of a resident-led PS curriculum was feasible, well received, and demonstrated significant improvement in subjective knowledge, skills and attitude. We intend to continue monthly PS rounds and consider broadening to multidisciplinary participation. Factors felt to contribute to successful implementation included use of relatable real-life cases, interactive resident-led sessions, structured framework and tools, early stakeholder engagement and incorporation into existing mandatory resident education. Using existing resources (IHI modules and QIPS tools) this curriculum could be replicated with access to real-life PSI and interested faculty mentors. Limitations included single residency program, small size and resident recall and selection bias. Response rate to both pre and post survey could have been due to email and survey fatigue and residents being away. Future research is needed to evaluate the impact of PS educational interventions on long-term behaviour change and patient outcomes.

Conflicts of Interest: The authors have no conflicts of interest to disclose.

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