

Introducing CARD (Comfort Ask Relax Distract) as a vaccine delivery program for community pharmacy-based vaccinations

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COMMUNITY PHARMACY-BASED VACCINATIONS ARE A FEASIBLE and efficient way of immunizing large numbers of individuals. Across Canada, the last decade has seen an increasing number of vaccines being administered via community pharmacies. During the COVID-19 pandemic alone, pharmacists have been responsible for the administration of more than 17 million COVID-19 vaccine doses.¹

The increase in the number of vaccines being administered by pharmacy immunizers means that they will be more likely to encounter adverse reactions associated with vaccine administration, the most frequent being immunization stress-related response (ISRR).² ISRR includes symptoms such as fear, pain, dizziness and fainting and is more prevalent in children and young adults undergoing vaccination.³ Preinjection anxiety and fear can fuel ISRR, and these vaccine-associated harms can contribute to negative attitudes about vaccines and health care providers administering them and can lead to refusal of subsequent vaccination.² Importantly, witnessing ISRR can also negatively affect health care providers who administer vaccines as well as onlookers, such as caregivers or siblings. Efforts to prevent the iatrogenic harms of vaccination are relevant and important across vaccination settings and in community pharmacies in particular, due to the increasing demand for vaccination services in this setting and likelihood that ISRR will be more frequently encountered.

In 2019, the World Health Organization (WHO) named *vaccine hesitancy*—a delay or refusal of available vaccines—as 1 of the 10 top threats to global health.⁴ The COVID-19 pandemic provided evidence for the importance of this barrier to vaccination, with significant numbers of individuals refusing COVID-19 vaccination for themselves and/or their children. Although the reasons for vaccine hesitancy are complex and multifactorial, evidence-based interventions exist to address ISRR. These interventions are summarized in our 2015 Clinical

Practice Guideline (CPG) on this topic.⁵ In its first position statement on mitigating pain during vaccination, based on the CPG, WHO stated that mitigating pain is part of good immunization practice; that is, pain mitigation is part of the delivery of vaccinations.⁶ In subsequent work, we developed a practice tool called the CARD (Comfort Ask Relax Distract) system to help operationalize the CPG recommendations for vaccination programs.⁷ CARD organizes the CPG recommendations into a user-friendly and intuitive approach. Each letter category of the word *CARD* incorporates evidence-based interventions from the CPG. CARD can be used as a vaccine delivery framework and communication tool to assist health care providers (Figure 1) and vaccine clients (Figure 2) with adoption of the CPG recommendations and making vaccinations more person-centred. Everyone involved in vaccinations can select interventions that are included in the letter categories to improve the vaccination experience for all. We demonstrated diminished ISRR when CARD was used (vs standard care) in 2 separate trials involving children undergoing vaccinations at school.^{8,9} During the COVID-19 pandemic, we additionally showed a benefit when CARD was used in mass vaccination clinics in a before-and-after study including individuals aged 12 years and older undergoing COVID-19 vaccinations.¹⁰ A gap in research, however, exists regarding perceptions and impact of CARD for the community pharmacy vaccination context.

At present, there are no evidence-based frameworks for vaccination delivery that are systematically integrated across community pharmacies to reduce ISRR and improve the vaccination experiences of all individuals involved. In 2021, with funding from the Public Health Agency of Canada to support COVID-19 vaccination, we undertook additional research to address this knowledge to care gap. Specifically, we undertook



IMPROVING THE VACCINATION EXPERIENCE:

What is CARD for health-care providers

The **CARD system (Comfort, Ask, Relax, Distract)** is a vaccine delivery framework that improves the safety of vaccine delivery. Each letter category (C-A-R-D) includes evidence-based activities that staff and clients can use to reduce fear, pain and other immunization stress-related responses (e.g., dizziness, fainting). Staff can find guidance on how to set up and prepare their clinic and how to interact with clients. Use the patient-centred resources for your clients. CARD can be adapted for any vaccination setting. Using CARD helps you deliver patient-centred care and improves the vaccination experience for vaccine clients and staff. To learn more about CARD, go to [CardSystem.ca](https://www.cardsystem.ca).

Comfort

- Provide information about CARD to clients ahead of time so they know what to expect and how to cope. Tailor the information to your client's needs.
- Create comfortable spaces for people during vaccination (e.g., private vaccination spaces, seating for a support person).



Ask

- People are anxious when they do not have enough information. Encourage clients to ask questions so they are informed and prepared for vaccination.
- Invite people to select their preferred coping strategies during vaccination and support their choices.



Relax

- Stay calm and be positive. Your actions and words can influence your clients' reactions. If you are calm and use your normal voice, your clients will feel that everything is OK.
- Reduce visual and auditory fear cues. For example, hide needles and obscure equipment, and minimize excessive noise and activity.



Distract

- Provide physical and visual distraction items for individuals that want to be distracted. These can be placed in waiting and vaccination areas.
- Use CARD posters and other items and activities (e.g., fidget toys, puzzles).



a Knowledge Translation (KT) project aimed at adapting and evaluating CARD for the community pharmacy context. Our goal was to improve the vaccination experiences of vaccine recipients, their families and the pharmacy staff providing vaccination services. Selected creators of the CARD system

partnered with various organizations, including pharmacy organizations, to undertake this work.

The project was guided by 2 frameworks: the Knowledge to Action (KTA)¹¹ cycle and the Consolidated Framework for Implementation Research (CFIR).¹² This supplement to the



IMPROVING THE VACCINATION EXPERIENCE:

Learn how to play your CARDS

COMFORT

Find ways to get comfortable.



ASK

Ask questions to be prepared.



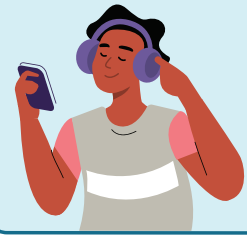
RELAX

Keep yourself calm.



DISTRACT

Shift your attention to something else.



The **CARD system (Comfort, Ask, Relax, Distract)** provides groups of strategies that can be used to make your vaccination experience a more positive one. Choose what CARDS you want to play to reduce the stress and pain associated with vaccinations. There's no wrong move.

To learn more about CARD, go to CardSystem.ca.

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Canadian Pharmacists Journal includes 6 articles summarizing this work (Table 1). In brief, the first article explores community pharmacists' experiences with COVID-19 vaccinations and offers suggestions to improve current practices.¹³ The second article summarizes the feedback that the same pharmacist vaccinators provided about the utility of CARD and ways to incorporate it into pharmacy practice.¹⁴ The third and fourth articles describe the clinical and implementation outcomes of a small-scale implementation project with CARD involving 5 community pharmacies.^{15,16} The fifth article examines perceptions of pharmacy technician students regarding a new CARD training e-module included as part of vaccine injection training education.¹⁷ The sixth article provides guidance for pharmacies and pharmacy organizations that want to implement CARD.¹⁸ Together, this supplement offers readers the

scientific evidence base supporting CARD for community pharmacy-based vaccinations and the tools they can use to facilitate integration of this research evidence in their own practice settings.

ISRRs are iatrogenic harms of vaccination. Experiencing an ISRR can lead to negative attitudes about vaccination and future vaccine delay or refusal.² Mitigating ISRR is an important aspect of vaccine delivery. Not only does mitigating ISRR improve vaccine safety by reducing adverse reactions to vaccination, but it also optimizes the experiences of all individuals involved, which in turn promotes positive attitudes about vaccination and increases vaccine acceptance. Increasing vaccine acceptance can lead to positive effects on individual and societal health by reducing morbidity and mortality associated with vaccine-preventable diseases.

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TABLE 1 Summary of articles included in this supplement*

Description	Summary of article contents
Qualitative study including community pharmacist vaccinators from across Canada ^{13,14}	Experiences with COVID-19 vaccinations Perceptions of CARD for use in community pharmacy-based vaccinations
Before-and-after CARD implementation study in community pharmacies delivering COVID-19 vaccinations in children 5-11 years old in southern Ontario ^{15,16}	Clinical outcomes (immunization stress-related responses, satisfaction), including children and parents/guardians Implementation outcomes (knowledge, beliefs, attitudes and practices), including vaccinators and implementation leads
Qualitative study including pharmacy technician students training to be vaccinators in a community college in Toronto ¹⁷	Perceptions of CARD e-module for learning about CARD
Overview article describing how to implement CARD in community pharmacies ¹⁸	Guide for CARD implementation in community pharmacy setting with summary of key considerations, tools and resources

CARD, Comfort Ask Relax Distract.

*For articles that report on the results of primary studies, the design, population and setting are summarized here.

References

1. Neighbourhood Pharmacy Gazette. *Community pharmacy & COVID vaccinations*. 2022. Available: <https://neighbourhoodpharmacies.ca/sites/default/files/2022-03/NPG-Spring2022-Issue-8.pdf> (accessed June 17, 2022).
2. McMurtry CM, Pillai Riddell R, Taddio A, et al. HELPinKids&Adults Team. Far from “just a poke”: common painful needle procedures and the development of needle fear. *Clin J Pain* 2015;31:S2-11.
3. Centers for Disease Control and Prevention (CDC). *Syncope after vaccination—United States, January 2005-July 2007*. *MMWR Morb Mortal Wkly Rep* 2008;57:457-60.
4. World Health Organization. *Ten threats to global health in 2019*. Available: <https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019> (accessed Sept. 27, 2022).
5. Taddio A, McMurtry CM, Shah V, et al. HELPinKids&Adults. Reducing pain during vaccine injections: clinical practice guideline. *CMAJ* 2015;187:975-82.
6. World Health Organization. Reducing pain at the time of vaccination: WHO position paper—September 2015. *Wkly Epidemiol Rec* 2015;90:505-16.
7. Taddio A, McMurtry CM, Bucci LM, et al. Pain Pain Go Away Team. Overview of a Knowledge Translation (KT) project to improve the vaccination experience at school: the CARD™ system. *Paediatr Child Health* 2019;24(Suppl 1):S3-18.
8. Freedman T, Taddio A, Alderman L, et al. Pain Pain Go Away Team. The CARD™ system for improving the vaccination experience at school: results of a small-scale implementation project on student symptoms. *Paediatr Child Health* 2019;24(Suppl 1):S42-53.
9. Taddio A, Gudzak V, Jantzi M, et al. Impact of the CARD (Comfort Ask Relax Distract) system on school-based vaccinations: a cluster randomized trial. *Vaccine* 2022;40:2802-9.
10. Tetui M, Grindrod K, Waite N, et al. Integrating the CARD (Comfort Ask Relax Distract) system in a mass vaccination clinic to improve the experience

- of individuals during COVID-19 vaccination: a pre-post implementation study. *Human Vacc Immunother* 2022;18:2089500.
11. Graham ID, Logan J, Harrison MB, et al. Lost in knowledge translation: time for a map? *J Contin Educ Health Prof* 2006;26:13-24.
12. Damschroder LJ, Aron DC, Keith RE, et al. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implement Sci* 2009;4:50.
13. Gerges S, Gudzak V, Bowles S, et al. Experiences of community pharmacists administering COVID-19 vaccinations: a qualitative study. *Can Pharm J (Ott)* 2023;156(Suppl):7S-17S.
14. Gudzak V, Freedman T, Logeman C, et al. Community pharmacists’ perceptions of the CARD (Comfort Ask Relax Distract) system for use during vaccinations. *Can Pharm J (Ott)* 2023;156(Suppl):18S-26S.
15. Taddio A, Morrison J, Gudzak V, et al. CARD (Comfort Ask Relax Distract) for community pharmacy vaccinations in children: effect on stress-related responses and satisfaction. *Can Pharm J (Ott)* 2023;156(Suppl):27S-35S.
16. Taddio A, Morrison J, Gudzak V, et al. Integration of CARD (Comfort Ask Relax Distract) for COVID-19 community pharmacy vaccination in children: effect on implementation outcomes. *Can Pharm J (Ott)* 2023;156(Suppl):36S-47S.
17. Taddio A, Gerges S, Rocchi M, et al. Perceptions of pharmacy technician students of the CARD (Comfort Ask Relax Distract) e-module introduced as part of vaccine injection training. *Can Pharm J (Ott)* 2023;156(Suppl):48S-55S.
18. Taddio A, Rocchi M, Bucci LM, et al. CARD (Comfort Ask Relax Distract) implementation guide for community pharmacies administering vaccinations: how to play your best hand. *Can Pharm J (Ott)* 2023;156(Suppl):56S-61S.