



Exploring Pain Management during Vaccination In Older Adults

Anna Taddio BScPhm, BScPhm, MSc, PhD,
Chair and Scientific Lead, HELPinKids&Adults
anna.taddio@utoronto.ca



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Declarations

Land acknowledgement:

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Chair and Scientific Lead, HELPinKids&Adults
GSK Chair in Vaccine Education and Practice-Oriented Tools

Partners:

AboutKidsHealth.ca



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Pain and Fear from Vaccinations

- **Unpleasant sensations, subjective, highly variable**
- **Complicate procedures** (more client symptoms, longer duration, unsuccessful procedures, needlestick injuries)
- Symptoms can **escalate over time**
- Up to **1 person in every 10** refuses vaccinations because of concerns of pain or fear

Medical procedures are typically undertaken using a provider-centred approach. Providers are largely unaware of and under-prioritize the patient experience.

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Goal

Promoting health by minimizing vaccine-preventable disease and pain-related harms of vaccination



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2015 Clinical Practice Guideline

In 2015, we created a Canadian clinical practice guideline (CPG) – it has been incorporated into the Canadian Immunization Guide and **adopted by the World Health Organization.**

- Evidence-based recommendations for reducing pain, fear and fainting
- Spans 5 domains of recommendations (5Ps)



Procedural



Physical



Pharmacologic



Psychological



Process

[Taddio, McMurtry et al. \(2015\)](#)

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Procedural (injection technique)

1. Injection method

- no aspiration, fast injection



2. Order of injection

- most painful last



[Taddio, McMurtry et al. \(2015\)](#)

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Physical (body position and activity)

1. Breastfeeding

- Between 0-2 years, if not breastfeeding, sweet-tasting solution & non-nutritive sucking



2. Positioning

- Skin-to-skin contact in neonates
- Holding in children up to 3 years
- Sitting upright in children >3 years and adults



3. Tactile stimulation with cold (children and adolescents)



[Taddio, McMurtry et al. \(2015\)](#)

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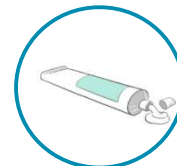
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Pharmacological (pain medicine)

1. Topical anesthetics

- Lidocaine-prilocaine, amethocaine, liposomal lidocaine



2. Sweet-tasting solution (0-2 years)

- Sucrose, glucose
- Alternatively, oral rotavirus vaccine first (2 to 4 months)



3. Vapocoolants (adults)

- PainEase, Ethyl Chloride



[Taddio, McMurtry et al. \(2015\)](#)

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Psychological (thoughts and behaviours)

1. Interactions

- Words and actions can promote coping or increase distress
- Use coping-promoting behaviours

2. Distraction

- Take attention away from needle



[Taddio, McMurtry et al. \(2015\)](#)

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Process (education and preparation)

1. Clinicians

2. Individuals

3. Support persons



[Taddio, McMurtry et al. \(2015\)](#)

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Good practice recommendations



Minimize fear-inducing stimuli



Minimize waiting time



Provide privacy and comfort



Be observant and responsive

[Taddio, McMurtry et al. \(2015\)](#)
[Gold et al. \(2020\)](#)
[McMurtry \(2020\)](#)

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The **CARD** system



A **knowledge translation tool** based on the 2015 Clinical Practice Guideline
 - Turns the research evidence into 'action'

Involves **all knowledge users**
 - Providers and patients 'play together'

Proven across settings and patients
 - Schools, clinics, pharmacies, hospitals

[Taddio et al. \(2019\)](#)

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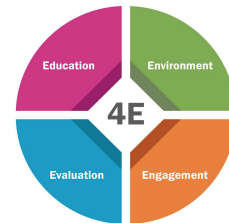
The Patient and Provider roles in CARD

For Patients...



1. Acronym with 4 categories of coping strategies for patients to choose
2. A participatory approach whereby patients are decision makers and lead their coping

For Providers...



1. A protocol for providers to help integrate evidence into care
2. Helps to provide patient centered and equitable care

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Research with CARD during Vaccination



Attitudes



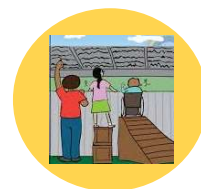
Safety



Knowledge



Experiences



Equity

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Taddio et al. (2019), Taddio et al. (2022), Tetui et al. (2022), Taddio et al. (2022)

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Research with **CARD** for vaccination

Study	Patient population	Setting	Design	Sample size	Impact
Freedman et al. (2019)	Children 12 years	School-based clinics	Controlled Clinical Trial	323	↓ fear, dizziness
Taddio et al. (2022)	Children 12 years	School-based clinics	Randomized Controlled Trial	1919	↓ fear, pain, fainting
Tetui et al. (2022)	Children ≥ 12 years and adults	Mass vaccine clinics	Before and After Trial	2488	↓ fear, pain, dizziness
Taddio et al. (2023)	Children 5-11 years	Community pharmacies	Before and After Trial	153	↓ fear, pain
Taddio et al. (2023)	Children 12-14 years	School-based clinics	Randomized Controlled Trial	8839	↓ fear
Gudzak et al. (submitted)	Adults ≥ 18 years	University pop-up clinics	Before and After Trial	476	↓ fear, pain
Taddio et al. (submitted)	All ages	Community pharmacies	Randomized Controlled Trial	2206	↓ pain (≥ 20yr) ↓ dizziness, fear (20-39yr)

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1) CARD in Long-Term-Care

- Design: post-implementation qualitative study in two campuses of a long-term-care facility including 189 residents
- Procedures: The care teams determined components of CARD to integrate into COVID-19 vaccinations; interviews were held with 8 staff and residents and analyzed according to themes
- CARD interventions: i) CARD pamphlets for staff involved in vaccination, ii) virtual education sessions for staff and residents, iii) interventions to improve comfort (e.g., topical anesthetics, oral analgesics, omission of alcohol swab before injection)

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CARD Resources

**IMPROVING THE VACCINATION EXPERIENCE:
A GUIDE FOR HEALTHCARE PROVIDERS**

THE CARD SYSTEM

The CARD system brings together everything we know about making vaccinations a more positive experience in a step-by-step process for healthcare providers to follow.

This factsheet explains how to plan and give vaccinations in a way that is patient-centred and promotes coping. It can also increase the likelihood your patients will complete recommended vaccination schedules, including COVID-19 vaccination.

Individuals with positive experiences will also be more likely to recommend vaccination to family members and others.

GETTING STARTED

Provide your patients with their own CARD pamphlet for a more positive vaccination experience. Each letter category represents a different group of activities patients can play to have a better vaccination experience and reduce negative reactions. For more CARD tools visit <https://immunize.ca/card-adults>

COMFORT

Comfort strategies include providing educational materials to people from whom they expect and/or intend to receive vaccines and physical ease.

Immunizations can be given in vaccination settings that are comfortable, relaxing and with comfortable seating for both individuals to expect a short period of time (e.g., 10 to 15 minutes).

ASK QUESTIONS

Asking questions can help people learn more about the vaccine and what to expect.

Many people are anxious because they do not have enough information. Health professionals can provide information, answer questions and address their concerns.

Encourage vaccine communication and education techniques to provide the best care possible.

RELAX

Relax strategies help keep people calm. Immunizations can provide a relaxing experience. Visual cues that elicit fear (such as needles and syringes) excessive noise and activity to promote calmness.




Individuals can use techniques such as deep breathing or positive self-talk (I can do this).

DISTRACT

Distraction strategies are used to take an individual's mind off the needle injection. Immunizations can be fun and enjoyable.

Do things that would be fun and enjoyable. They can be distracting, they can be fun and enjoyable. They can be fun and enjoyable.

SEE NEXT PAGE FOR A CHECKLIST THAT HELPS WITH INTEGRATING CARD INTO YOUR VACCINATION PLANNING.

VACCINATING WITH CARD CHECKLIST

VACCINATION PREPARATION AND PLANNING

1. Ensure adequate clinic space (e.g. parents/guardians, teachers)

- Ethnic room, free of hazards
- Temperature control
- Accommodates equipment and supplies
- Comfortable waiting for patient with ability to lie down
- Allows for no interruptions
- Allows for ability to accommodate a support person with seating

2. Educate patients and other stakeholders (e.g. parents/guardians, teachers)

- CARD education (e.g. discussion, tools)
- Answer patient questions
- Book vaccination appointment

3. Vaccination day reminders

- Patients ask questions they have about vaccination or coping interventions.
- Patients plan how they will play their selected coping strategies (e.g. bring cell phone to use as a distraction item, wear short-sleeved shirt to allow for easy access to arm and to increase comfort)

VACCINATION DAY




1. Vaccination clinic set-up

- Use separate areas for waiting, vaccination and post-vaccination with chairs
- Allow for privacy (e.g., use window coverings, physical barriers)
- Ensure safety measures are in place to prevent transmission of infectious diseases (e.g., sanitization items, face coverings)
- Make sure patients have comfortable seating and are able to be in a reclining position
- Allow patients to use distraction aids or comfort items
- Allow patients to bring a support person
- Arrange seating at clinic tables so that patients do not face each other or equipment, and obscure frightening equipment from site (e.g., use towel, table-top poster)

2. Vaccination administration

- Foster a calm environment and be positive
- Review patients' medical history, including fainting and level of fear or worry about vaccination
- Answer patients' questions
- Communicate using neutral language. Do not use words that elicit fear (e.g. the needle "stings") and do not use repetitive reassurance (i.e. "don't worry, it's ok, you'll be fine")
- Provide balanced information. Do not suggest that vaccination will not hurt, instead, describe sensations (e.g. "pressure" and "twitch") and duration (e.g. "about 1 second") and invite patients to report on how they feel
- Ask patients about their preferences. Do not impose coping interventions such as verbal distraction, taking deep breaths, looking away during injection (these interventions are counter to preferred coping strategies of many individuals and lead to increased levels of fear or distress)
- Ask patients what CARDs they are playing and accommodate requests (e.g. topical anesthetic, support person, private room, injection of two vaccines in same arm)
- Provide distraction agents for patients that do not have them but would like to be distracted (in keeping with infection control and prevention guidelines)
- Ask patients about their preference with respect to the arm to vaccinate. If there is no preference, inject the non-dominant arm
- Ask patients about their preference with respect to injecting two vaccines in the same arm
- Encourage patients to show their arm so that it is loose and jiggy
- Consider if there is unnecessary, adds time and can increase anticipatory anxiety
- Inject patients sitting upright (on a parent's/guardian's lap if patient is a young child)
- If there are multiple injections, administer the most painful vaccine last
- Monitor patient symptoms after vaccination. Suggest muscle tension to patients who are dizzy or prone to fainting (this can be achieved by squeezing legs together) or lying down in a reclining chair or on a gym mat
- Counsel patient regarding post-injection reactions and use of acetaminophen
- Document symptoms and feedback to inform future vaccination

>1 hour	% to 1 hour	1 to 2 minutes	Strategies at time of needle procedure
			<p>Procedural strategies</p> <ul style="list-style-type: none"> No aspiration Most painful last Fast injection
			<p>Physical strategies</p> <ul style="list-style-type: none"> Positioning (sitting upright) Relax arm Tense large muscles or lie down (if history of fainting)
			<p>Infant strategies</p> <ul style="list-style-type: none"> Breastfeeding Sweet solutions Non-nutritive sucking
			<p>Psychological strategies</p> <p>Distraction (e.g., talk to someone, listen to music) interaction:</p> <ul style="list-style-type: none"> DO use neutral words to signal the impending procedure DON'T use repeated reassurance or suggest it will not hurt
			<p>Pharmacological strategies</p> <p>Topical anesthetics (EMLA, lidocaine, amethocaine or lidocaine-prilocaine 20 to 60 minutes before injection*)</p> <p><small>*Check product monograph</small></p>
			<p>Process strategies</p> <p>Education for providers and individuals</p>
			<p>High needle fear strategies</p> <p>Exposure-based therapy from trained professional such as a psychologist</p>







See also related material <https://immunize.ca/immunization-pain-management-clinician>. We are thankful to Public Health England for permission to reuse copyrighted material.

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Results







Complexity of CARD




Lack of available resources and communication



Implementation climate – patient-centredness.



Resident network to voice their preferences.



Knowledge and beliefs – staff perceived CARD was effective

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2) CARD in Community Pharmacy

- **Design:** cluster randomized controlled trial in 25 pharmacies (n=12 CARD, n=13 control) providing vaccinations in 2023-2024
- **Procedures:** Staff and vaccine recipients in both groups completed surveys using a computer tablet. Vaccine recipients reported experiences and symptoms
- **CARD interventions:** i) CARD education and supplies for pharmacies allocated to CARD; ii) site visit to review processes, iii) audit-and-feedback, iv) chat group (WhatsApp™)

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CARD Resources

THE CARD SYSTEM
These four strategies can help you with your vaccination.

- COMFORT**
Find ways to get comfortable.
Have a snack before and after.
Wear a top that lets your arms be reached easily.
Bring an item that gives you comfort.
Relax your arms so that it is easier to inject.
Squeeze your thumb together if you feel tight or rigid.
- ASK**
Ask questions to be prepared.
What will happen.
What it will feel like.
Bring a friend or family member.
Having privacy.
A numbing cream to dull the pain.
Lying flat.
You may need to pinch and hold the numbing cream for 30 seconds prior to your appointment.
- RELAX**
Keep yourself calm.
Take slow deep breaths.
Keep your hands breathing in through your nose and out through your mouth.
Do some positive self-talk (tell yourself you can handle this).
Have someone with you to support you.
Have privacy.
- DISTRACT**
Shift your attention to something else.
Talk to someone.
Play a game or watch a video on your phone.
Read a book or magazine.
Listen to music.
Allow yourself to daydream about fun things.

HOW WILL YOU GET COMFORTABLE?
WHAT WILL YOU ASK?
WHAT WILL YOU DO TO RELAX?
WHAT DISTRACTIONS WILL YOU USE?

Pharmaceutical partners:

CARD CHECKLIST:
For adults and children (4 years and older)

We use the CARD (Comfort Ask Relax Distract) system to help make vaccinations more comfortable. Fill in the CARD checklist to tell us how to make your vaccination a more positive experience. Parents/caregivers can help younger children. To learn more about CARD, visit www.cardsystem.ca.

CARD System	Choose all options you want for your vaccination
Comfort What would you like to do to make yourself more comfortable?	<input type="checkbox"/> Sitting on a chair <input type="checkbox"/> (Kids) Sitting on a parent or caregiver's lap <input type="checkbox"/> Lying down <input type="checkbox"/> Have a snack or treat <input type="checkbox"/> Other: _____
Ask Do you have questions about...	<input type="checkbox"/> The vaccine <input type="checkbox"/> What will happen during the appointment <input type="checkbox"/> Using numbing cream to make the needle hurt less <input type="checkbox"/> Let us know right away if you want numbing cream <input type="checkbox"/> Other: _____
Relax How do you want to keep yourself calm?	<input type="checkbox"/> No extra people around <input type="checkbox"/> People I want to be with me: _____ <input type="checkbox"/> Take slow deep breaths (like blowing up a balloon) <input type="checkbox"/> No or low levels of noise <input type="checkbox"/> Other: _____
Distract Do you want to be distracted during vaccination?	<input type="checkbox"/> Tell me when it's happening <input type="checkbox"/> Don't tell me when it's happening <input type="checkbox"/> I want to watch when it's happening <input type="checkbox"/> I want to close my eyes or look away <input type="checkbox"/> Talk to me about something I like: _____ <input type="checkbox"/> Don't talk to me <input type="checkbox"/> Use a toy or comfort item from home <input type="checkbox"/> Use my cell phone <input type="checkbox"/> Use a toy or activity from the pharmacy <input type="checkbox"/> Other: _____

Which of the following describes you? ☐ Girl/Female ☐ Boy/Male ☐ Or, I am: _____
 How old are you? _____
 Some people are afraid of needles. How afraid are you? ☐ Not at all ☐ A little bit ☐ Medium amount ☐ A lot
 Have you ever felt dizzy or fainted with a vaccine? ☐ Yes ☐ No ☐ I don't remember/I don't know
 We do not use alcohol wipes because they are not needed. Tell us if you want them: ☐ No ☐ Yes
 Sometimes you can pick the arm the needle goes in. Tell us which one you prefer: ☐ Left arm ☐ Right arm
 Tell us about anything else you want us to know: _____

Pharmacy Vaccination Surveys

Thank you for visiting our pharmacy. Your satisfaction with our vaccination services is important to us. Please answer our short feedback survey (less than 5 minutes) while you are waiting to let us know about your experience today. Your input will be used to plan future vaccinations in our pharmacy.

Press "Submit" at the bottom of the screen to start the survey.

Tell us how you feel
 Tell us about what happened so we can help to make needles a better experience for you. If you ever need to get another needle, it's ok if you don't want to answer some or all of these questions.

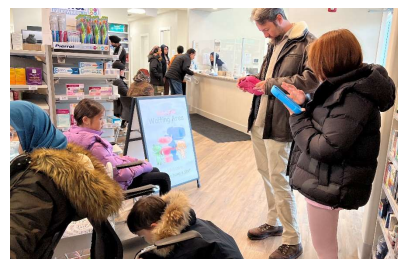
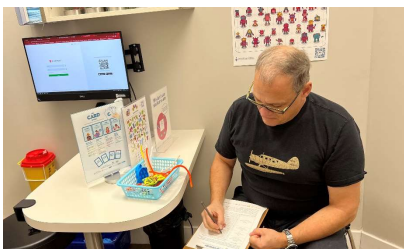
- 1 Tell us how much the needle hurt. If you had more than one needle, just tell us about how much it hurt overall. Pick a number from 0 to 10, where 0 is no pain at all and 10 is the most pain possible.
 0 1 2 3 4 5 6 7 8 9 10 reset
- 2 Tell us how scared/worried you were about the needle. If you had more than one needle, just tell us about how scared/worried you were overall. Pick a number from 0 to 10, where 0 is not scared/worried at all and 10 is the most scared/worried possible.
 0 1 2 3 4 5 6 7 8 9 10 reset
- 3 Tell us how dizzy you were before, during and after the needle. If you had more than one needle, just tell us about how dizzy you were overall. Pick a number from 0 to 10, where 0 is not dizzy at all and 10 is most dizzy possible.
 0 1 2 3 4 5 6 7 8 9 10 reset
- 4 Did you faint?
 Yes No reset
- 5 Compared to the last time you got a vaccine, tell us if your experience today was better, worse, or the same.
 Better The same Worse I don't know I don't remember reset
- 6 We use the CARD system here. People tell us what they want to do to make getting needles easier. Tell us how much using CARD helped you with your vaccination today. Pick a number from 0 to 10, where 0 is not helpful at all and 10 is most helpful possible.
 Not at all A little bit A medium amount A lot reset
- 7 Did you know about CARD before coming to our pharmacy?
 Yes No reset
- 8 Do you want to use CARD again if you ever get another vaccination?
 Yes No I don't know reset
- 9 Tell us if you would come back to our pharmacy for your next vaccination.
 Definitely yes Probably yes I don't know Probably no Definitely no reset
- 10 Tell us about anything that you didn't like so we can make it better the next time.
 Expand

Press "Submit" at the bottom of the screen and then give the tablet to the pharmacy staff.

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Pictures of different pharmacies



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Results for Vaccine Recipients >60 years



	CARD (n=364)	Control (n=551)	P-value
Experience better (%) ^a	38 (48.8) *	25 (28.0) †	0.12
CARD helped (%)	284/384 (74) **	-	-
Pain, mean (SD) ^b	0.7 (1.4)	1.2 (1.6)	0.02
Fear, mean (SD) ^b	0.7 (1.6) ***	0.7 (1.6) ‡	0.76
Dizziness, mean (SD) ^b	0.15 (0.7)	0.22 (0.9)	0.53

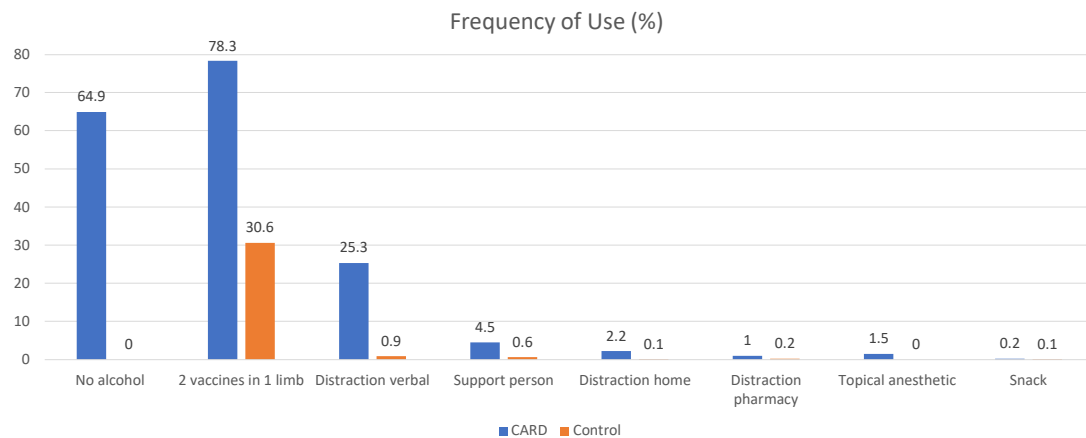
* n=363; ** n=384; *** n=361; † n=549; ‡ n=544

^a Experience better than the last vaccination; number that said yes (%)

^b Pain, fear and dizziness scored from 0 to 10.

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Pain Treatment Selections



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3) CARD in Retirement Home

- Design: post-implementation study in one retirement home receiving vaccinations by a community pharmacy in 2024-2025
- Procedures: Pharmacy staff set-up vaccination spaces and vaccinated 38 residents. Residents recorded experiences and symptoms using paper surveys
- CARD interventions: i) CARD education and supplies for pharmacy staff to set-up and use at the site

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Modifications to CARD Resources

Poster

YOUR VACCINE, YOUR WAY!

We use the CARD (Comfort Ask Relax Distract) system to help make vaccinations a more positive experience. Choose from the strategies below to personalize your vaccination experience.

Options for everyone!

COMFORT	ASK	RELAX	DISTRACT
Sit upright	About the vaccine	Look or don't look	Tell me when / don't tell me when
Lie down	How it feels	Shhh...	Distract myself
Eat snack	What will happen	Deep breaths	Talk to me

Tell us if you have any other requests

Scan for more information

Checklist

TELL US WHAT YOU WANT FOR YOUR VACCINATION!

We use the CARD system here to help make getting vaccinations a more positive experience.

COMFORT	ASK	RELAX	DISTRACT
<input type="checkbox"/> Right arm <input type="checkbox"/> Left arm	<input type="checkbox"/> About the vaccine	<input type="checkbox"/> I want someone with me	<input type="checkbox"/> Tell me when <input type="checkbox"/> Don't tell me when
<input type="checkbox"/> Sit upright	<input type="checkbox"/> Numbing cream	<input type="checkbox"/> Privacy. No extra people around	<input type="checkbox"/> Look <input type="checkbox"/> Don't look
<input type="checkbox"/> Lie down	<input type="checkbox"/> How it feels	<input type="checkbox"/> No talking/noise	<input type="checkbox"/> Distract myself
<input type="checkbox"/> Eat snack	<input type="checkbox"/> What will happen	<input type="checkbox"/> Deep breaths	<input type="checkbox"/> Talk to me

We don't use alcohol-based antiseptics

- ☐ They still not needed
- ☐ They take extra time
- ☐ They cause stinging

Tell us if you have any other requests:

Some people are afraid of needles. How afraid are you?
☐ Not at all ☐ A little bit ☐ Medium amount ☐ A lot

Feedback

No. 8202411-012

Dear Patient: Tell us about your vaccination experience today!

- Check-off all the vaccine(s) you received today.
☐ Influenza ☐ COVID-19
- Tell us how much the needle hurt you. If you had more than one needle, just tell us about how much it hurt overall. Pick a number from 0 to 10, where 0 is no pain at all and 10 is the most pain possible.
☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10
- I tell us how scared/worried you were about the needle. If you had more than one needle, just tell us about how scared/worried you were overall. Pick a number from 0 to 10, where 0 is not scared/worried at all and 10 is the most scared/worried possible.
☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10
- Tell us how dizzy you were. If you had more than one needle, just tell us about how dizzy you were overall. Pick a number from 0 to 10, where 0 is not dizzy at all and 10 is most dizzy possible.
☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ I fainted
- We give people a CARD checklist to choose ways to make their vaccinations a better experience for them. Tell us how much that helped improve your experience today.
☐ not at all ☐ a little bit ☐ a medium amount ☐ a lot
- Compared to the last time you got a vaccine, tell us if your experience today was better, worse, or the same.
☒ better ☐ the same ☐ worse ☐ I don't know ☐ I don't remember
- Tell us your age (in years): 42 Tell us your gender: F
- Tell us about the best part of your vaccination appointment today.
nothing
- Tell us about anything you didn't like so we can make it better the next time.
nothing

Thank you!

See also: www.cardsystem.ca

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CARD Set-up in Retirement Home

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Results for Vaccine Recipients >60 years



	CARD (n=38)
Experience better (%) ^a	14 (41) *
CARD helped (%) ^b	25 (76) **
Pain, mean (SD) ^b	1.3 (1.8) ***
Fear, mean (SD) ^b	0.7 (1.2) ***
Dizziness, mean (SD) ^b	0.5 (1.5) ***

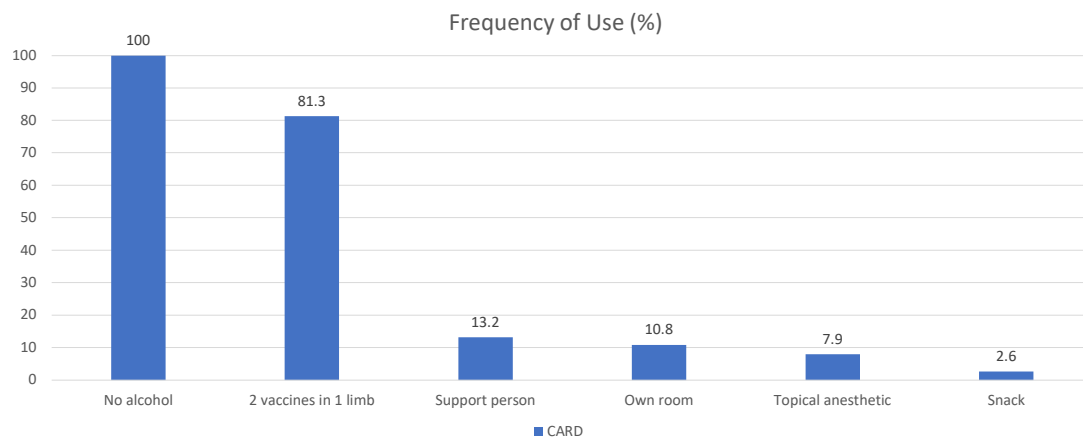
* n=34; ** n=33, ***n=37

^a Experience better than the last vaccination; number that said yes (%)

^b Pain, fear and dizziness scored from 0 to 10.

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Pain Treatment Selections



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Summary

- Pain and fear *hurt* vaccination
- CARD integrates all we know about pain and fear
- Visit www.cardsystem.ca and *start playing!*



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Resources

- Please contact us for your specific needs!

Thank you !

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