

No More Tears: Trauma-free vaccinations in infants, children and adolescents



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Partners:



Anxiety
CANADA

AboutKidsHealth.ca



CANVAX

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The problem with needles

- Vaccines are the most common reason why people receive needles.
- Pain is the most common adverse event associated with immunization.
- 2/3 children and 1/4 adults are afraid of needles.
- Fear can fuel pain and lead to immunization stress-related responses (dizziness, headache, nausea, fainting).
- Negative vaccination experiences contribute to negative attitudes about vaccination and vaccine hesitancy.
- Up to **1 person in every 10** refuse vaccinations because of fear/pain.



Taddio et al. (2012); McMurtry et al. (2015); McMurtry (2020)
Selected icons made by Freepress from www.flaticon.com

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Experiences of parents with childhood vaccinations (n=883)

	Frequency (%)
Crying	752 (85)
Screaming	338 (38)
Flailing	288 (33)
Use of restraint	206 (23)
Running away	173 (20)
Kicking	136 (15)

Vaccine 2012

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Coping Strategies used by Parents (n=883)

	Frequency (%)
Hold	738 (84)
Reassure	641 (73)
Prepare	603 (68)
Distract	593 (67)
Act calm	574 (65)
Empathize	550 (62)
Oral analgesic	433 (49)

Strategies reported by < 49% of parents not shown

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Act calm	574 (65)
Empathize	550 (62)
Oral analgesic	433 (49)

Strategies reported by < 49% of parents not shown

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Case #1

Cathy is a first-time mother in for her infant's routine 4-month vaccinations.

- What do you see?
- What do you think?
- Do you have any suggestions?

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Infant



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Evidence-Based Interventions



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

The CPG includes evidence-based recommendations for reducing pain, fear and fainting. There are 5 domains of recommendations (5Ps):



Selected icons made by [Flaticon](https://www.flaticon.com) from www.flaticon.com

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

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Procedural

1) Injection method

- no aspiration, fast injection

2) Order of injection

- most painful last

3) Formulation

- physiologic pH



[Taddio, McKelvey et al. \(2015\)](#)
[Taddio et al. \(2015\)](#)
[Taddio et al. \(2010\)](#)

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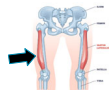
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Procedural

4) Vastus lateralis injection

(infants)

- In the middle of the space between the greater trochanter of the femur and the top of the knee



5) Simultaneous injections

if multiple vaccines given (infants)



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

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Physical

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, McKelvey et al. \(2015\)](#)

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Pharmacological

- 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



[Tackles, McMurty et al. \(2018\)](#)

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Psychological

- 1) **Interactions**
 - Words and actions can promote coping or increase distress
 - Use coping-promoting behaviours
- 2) **Distraction**
 - Take attention away from needle



[Tackles, McMurty et al. \(2018\)](#)

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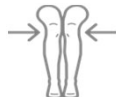
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Fainting or syncope during injection

Use muscle tension to raise blood pressure and help prevent fainting

If a patient feels dizzy during injection, they can do the following before, during, and after the injection:

- Squeeze or tense their leg and stomach muscles 10 to 15 seconds or until feeling flushed or warm in their face
- Release tension for 20 to 30 seconds
- Repeat in cycles until the symptoms disappear



[Vaccination pain management for adults \(Canada.ca\)](#)
[Pediatric Pain Health and Communication Lab resources](#)

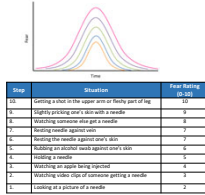
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High levels of needle fear

Exposure Therapy

- Facing fears gradually over time to overcome needle fear
- Typically requires assistance by a trained provider

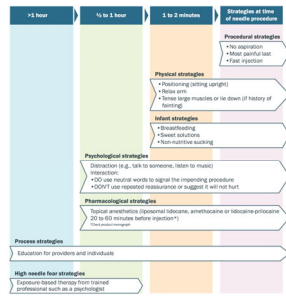


Taddio, McMurtry et al. (2015)
McMurtry, Taddio et al. (2016)

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Evidence algorithm



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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)
Goff et al. (2020)
McMurtry (2020)

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Process



- Provider education
- Caregiver/parent education
- Individual education

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

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- What do you see?
- What do you think?
- Do you have any suggestions?

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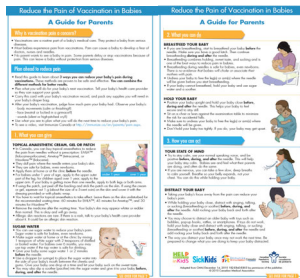
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Infant 2



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Taddio et al.
CMAJ 2018

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Case #2

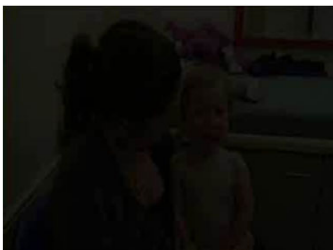
Mary is a toddler in the office with her mother for her routine vaccinations.

- What do you see?
- What do you think?
- Do you have any suggestions?

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Toddler



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Case #2

Mary is a toddler in the office with her mother for her routine vaccinations.

- What do you see?
- What do you think?
- Do you have any suggestions?

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Toddler 2



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Case #3

Josie was scheduled to have her school immunizations. She couldn't go through with it because she was too scared.

Her parents brought her to the doctor's office because they thought it would be better.

- What do you see?
- What do you think?
- Do you have any suggestions?

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Youth



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Case #3

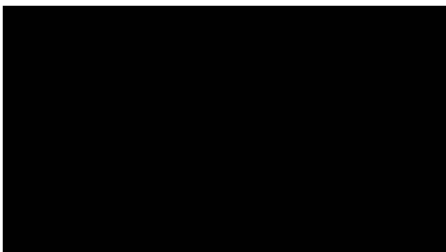
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- What do you see?
- What do you think?
- Do you have any suggestions?

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Youth 2



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CARD (Comfort Ask Relax Distract)

- Framework for educating children about ways to cope during needle procedures. Each letter category (C-A-R-D) includes strategies that reduce pain, fear and fainting.
- Translates the 5P's of pain management into a user-friendly tool.
- Each stakeholder can 'play their CARDS' to improve the vaccination experience.

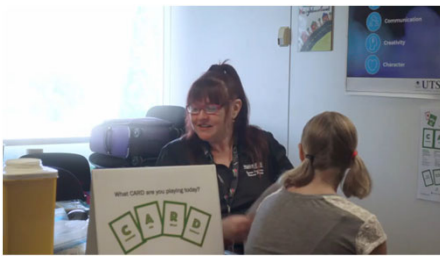


[Taddio et al. \(2019\)](#)

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Youth 3

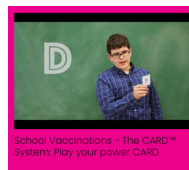


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CARD educational tools for kids

FIGURE 2. CARD pamphlet for youth (2 pages, both front and back sides displayed below)



Taddio 2019; Paediatr Child Health

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Case #4

At an office staff meeting, a team member mentions that they set up an appointment for a 5-year-old to get vaccinated. The parent said they anticipate the child will be very afraid.

- How do you respond?
- What procedures do you have in place to address this?

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School-age



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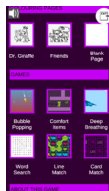
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NEW - CARD web game for kids



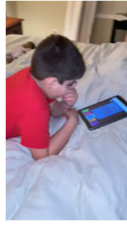
- Characters introduce CARD and then educate players about coping strategies in the different letter categories.
- Minigames (e.g., breathing game) are embedded for practice and reinforcement of learning. Players then play a variety of minigames in the arcade (e.g., line matching).



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CARD game - preparation



<https://immunize.ca/card-game-kids>

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CARD game – in action



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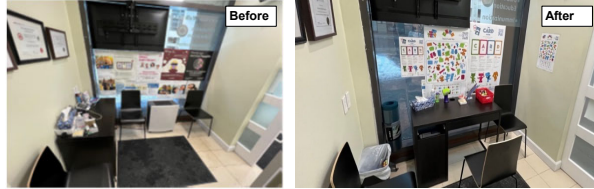
CARD game – in action 2



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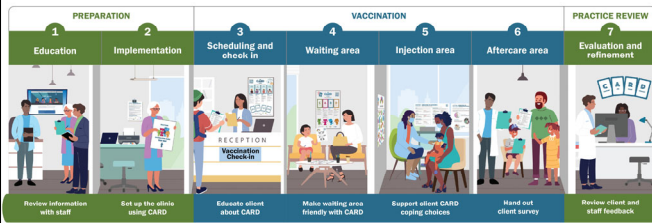
What recommendations do you have about the vaccination space???



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Summary of how CARD fits



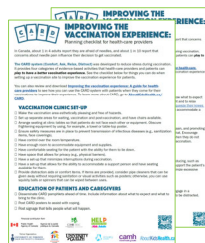
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1. What Providers can do

Set up and processes

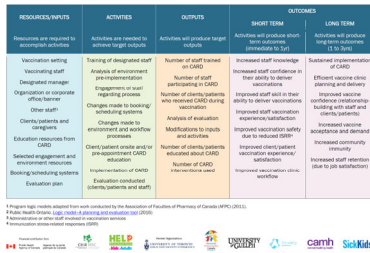
- Learn why the vaccination experience is important and what to do to help
- Prepare others (immunizers, children/individuals, parents/caregivers...)



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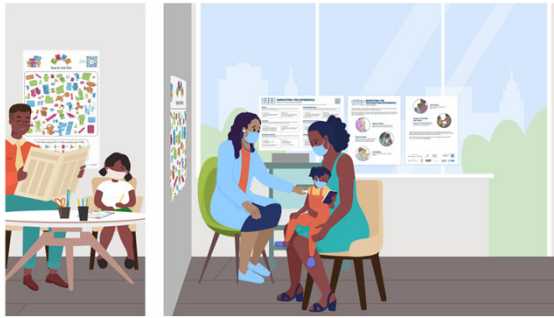
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CARD Logic model



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Tools to support environmental changes



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Tools to support work processes

ENVIRONMENTAL ASSESSMENT CHECKLIST

Use this checklist to assess the environment for potential barriers to implementation.

Assessor: _____ Date: _____

Project: _____

Location: _____

Priority: _____

Responsible: _____

Version: 1.0

Page 1 of 1

Principal Assessment and Checklist

Use this checklist to assess the environment for potential barriers to implementation.

Assessor: _____ Date: _____

Project: _____

Location: _____

Priority: _____

Responsible: _____

Version: 1.0

Page 1 of 1

Survey Feedback Tracking Form (Page 1)

Use this form to track feedback from the survey.

Assessor: _____ Date: _____

Project: _____

Location: _____

Priority: _____

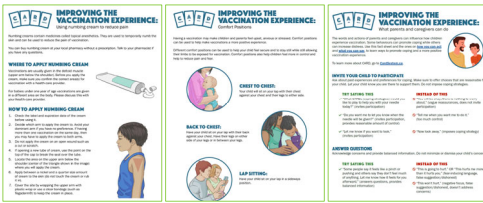
Responsible: _____

Version: 1.0

Page 1 of 1

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Tools to support coping interventions



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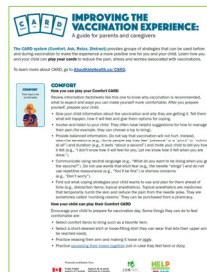
2. What Parents/Caregivers can do

Prepare yourself

- Learn why vaccination is recommended and what to expect
- Make sure your questions are answered
- Prepare your child

Prepare your child

- Give information about the vaccine and why they are getting it
- Tell them what will happen, how it will feel, and options for coping
- Involve and listen to your child

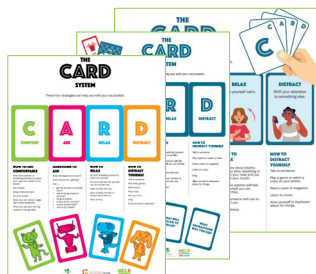


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3. What Children/vaccine clients can do

Prepare yourself

- Learn why vaccination is recommended, what will happen, how it will feel, and options for coping
- Active participation



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CARD coping checklist

CARD CHECKLIST:
What cards are you playing today?

We use the CARD (Comfort Ask Relax Distract) system to help make you more comfortable during your vaccination. Fill in the CARD survey below to tell us how we can make your vaccination a more positive experience. If you would like to use a strategy that is not listed, let us know and we will try to do it. To learn more about CARD, visit <https://www.hhs.gov/covid19/covid19-vaccine/covid19-vaccine-cards>

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"/> Privacy (separate room with closed door) <input type="checkbox"/> Sit upright in a chair <input type="checkbox"/> Sit in a parent or caregiver's lap <input type="checkbox"/> Lay down <input type="checkbox"/> Eat a snack or treat <input type="checkbox"/> Have the needle given in left or right arm <input type="checkbox"/> Other: _____
Ask What questions do you have about the vaccine or your appointment?	<input type="checkbox"/> I have questions about the vaccine <input type="checkbox"/> I have questions about what will happen during my appointment <input type="checkbox"/> I have questions about using a medicine on the skin (topical anesthetic) to make the pain from the needle last less <input type="checkbox"/> Other: _____
Relax How do you want to keep yourself calm?	<input type="checkbox"/> Deep breathing or other <input type="checkbox"/> No extra people around that can see me <input type="checkbox"/> Have someone I trust hold my arm (holding up a ballroom) <input type="checkbox"/> No alcohol or other substances <input type="checkbox"/> Other: _____
Distract Do you want to be distracted during vaccination?	<input type="checkbox"/> Tell me when it will happen <input type="checkbox"/> Do not tell me what I will happen <input type="checkbox"/> No conversation with me while I am distracting myself <input type="checkbox"/> Keep my eyes closed or look away <input type="checkbox"/> Play with a toy or comfort item from home <input type="checkbox"/> Use my cell phone to listen to music or watch a video <input type="checkbox"/> Use a distraction toy or activity provided by the clinic <input type="checkbox"/> Other: _____

Did you review information about CARD before coming today?
☐ No, Please explain: _____
☐ Yes, Please explain: _____

For children: Did you play the CARD online game? ☐ Yes ☐ No
 How old are you? _____ What is your gender? _____
 Some people are afraid of needles. How afraid are you? ☐ Not at all ☐ A little bit ☐ Medium amount ☐ A lot
 Do you ever feel dizzy or faint during needles? ☐ Yes ☐ No
 Tell us about anything else you want us to know: _____

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Feedback Survey

TELL US HOW YOU FEEL!
For individuals aged 8 years and older

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 know or don't want to answer any of these questions.

- Tell us how much the needle hurt.
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
- Tell us how scared/worried you were about the needle.
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 before, during and after the needle.
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
- Compared to the last time you got a needle, tell us if today's needle was better, worse, or the same.
☐ Better ☐ The same ☐ Worse ☐ I don't know ☐ I don't remember

Please explain: _____

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4. What Educators can do

Prepare yourself/your students

- Learn why the vaccination experience is important and what to do to help
- Prepare children

IMPROVING THE VACCINATION EXPERIENCE:
A guide for educators

Healthcare professionals (HCPs) and educators play a critical role in ensuring that children receive the COVID-19 vaccine. This guide provides information on how to prepare children for the vaccination experience, including how to address common concerns and how to provide support during the process.

Preparation:

- Discuss the vaccine with children and answer their questions.
- Practice deep breathing and relaxation techniques.
- Use distraction techniques, such as playing a game or watching a video.
- Provide a comfort item, such as a blanket or stuffed animal.

During the vaccination:

- Stay with the child and provide support.
- Use distraction techniques.
- Provide a comfort item.

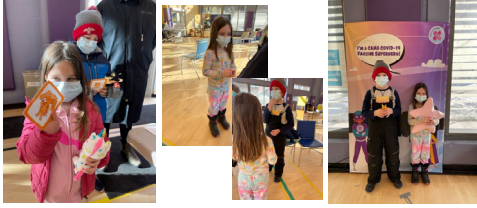
After the vaccination:

- Provide a reward or treat.
- Discuss the experience with the child.

For more information, visit <https://www.hhs.gov/covid19/covid19-vaccine/covid19-vaccine-cards>

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What does CARD look like in a mass vaccination clinic?



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Selected Resources

- SickKids (Aboutkidshealth): www.cardsystem.ca or www.aboutkidshealth.ca/card
- Immunize Canada: [CARD resources](#)
 - New: [CARD Game for Kids](#) (mobile web game)
- University of Toronto: www.helpkidspain.ca
- Pediatric Pain, Health and Communication Lab and resources
- Government of Canada: [Vaccination pain management for children: Guidance for health care providers](#)
- Government of Canada: [Vaccination pain management for adults: Guidance for health care providers](#)
- Canadian Paediatric Society's [statement on COVID-19 vaccinations](#)
- World Health Organization 2015 guideline on pain mitigation during vaccination
- Immunization stress-related responses: [full manual](#), [synopsis](#), [summary for clinicians](#)



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What CARD are YOU playing today?



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