



# Creating a positive vaccination experience with CARD: How to *play your best hand*



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Anxiety  
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AboutKidsHealth.ca



CAN VAX

# Learning objectives

1. Identify the consequences of poorly managed needle pain
2. Describe evidence-based strategies to reduce needle pain
3. Apply evidence-based strategies to reduce needle pain

# 1. Background/rationale for treating needle pain



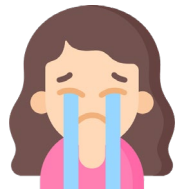
Delay in acceptance or refusal of vaccines despite the availability of vaccination services

- **complex** and **context specific**, varying across **time**, **place** and **vaccine**
- influenced by such factors as **confidence**, **convenience** and **complacency**

# Needle related pain and stress



- Vaccines are the most common reason why people receive needles.
- Pain is the most common adverse event following immunization (AEFI).
- 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.



# Fact or Fiction?

People's experiences of pain from a needle injection are the same because the pain stimulus is the same.

**Fiction:** Pain is an inherently **subjective experience** which is influenced by biological, psychological, and social factors and does **not** simply reflect the amount of tissue damage.



## 2. Evidence for reducing needle pain



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.**

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



Procedural



Physical



Pharmacologic



Psychological

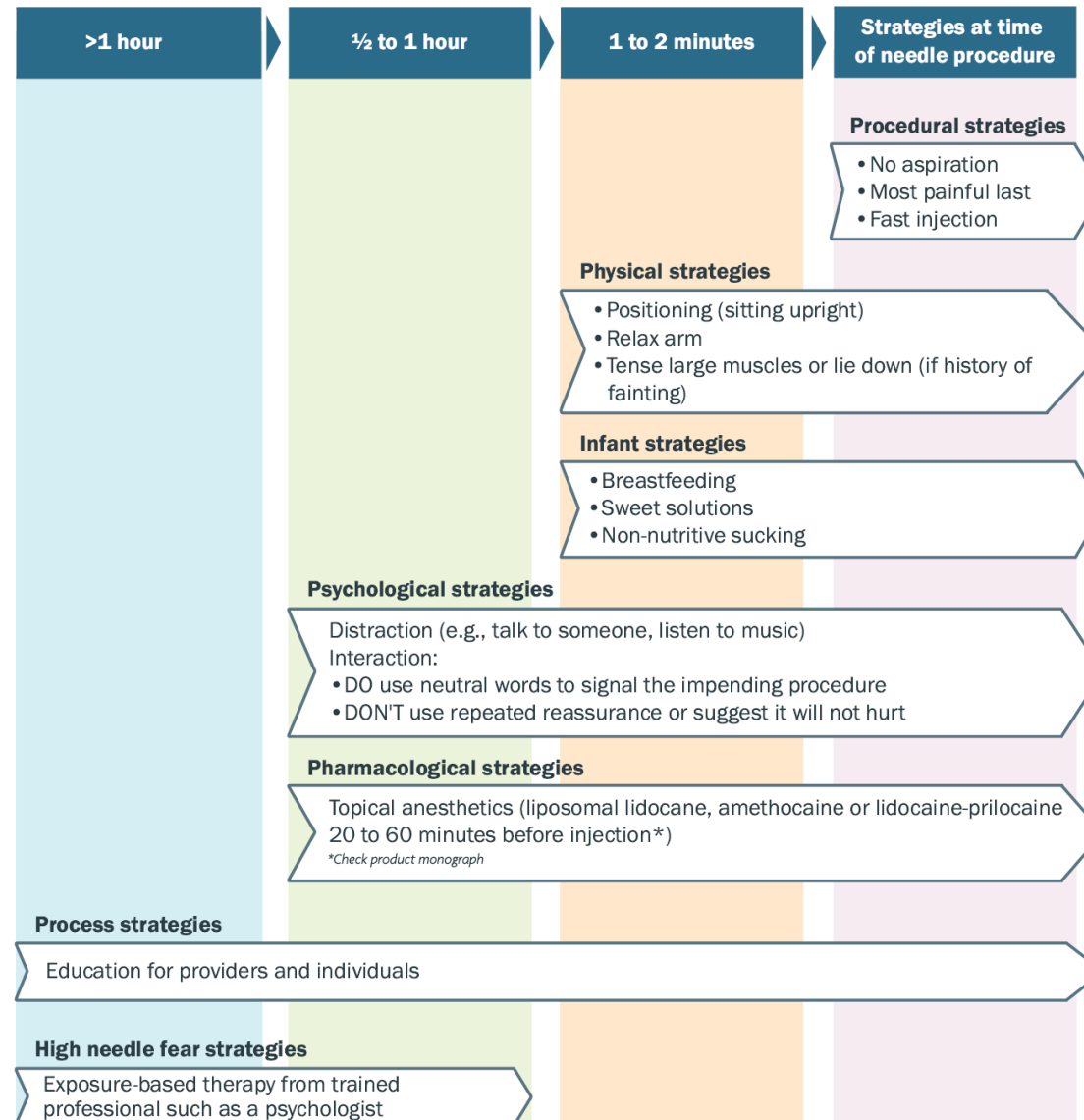


Process

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

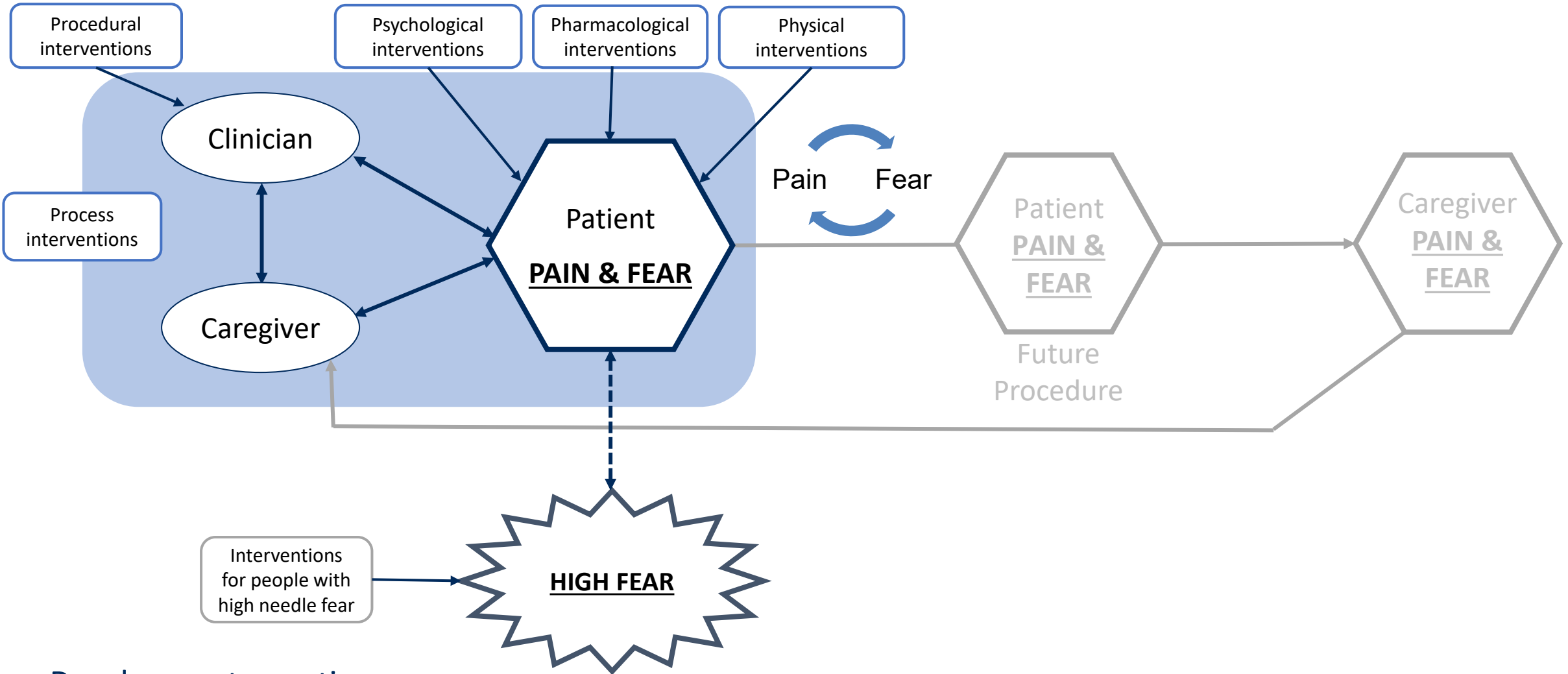
Selected icons made by [Freepik](#) from [www.flaticon.com](http://www.flaticon.com)

# Algorithm of the research





# The 5 P's break the cycle of pain and fear



Development over time

# 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 \(2020\)](#)

# 'Uptake' of Clinical Practice Guideline (CPG)



Courtesy of Immunize Canada, 2021

**BCCDC:**

[http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%20-%20-%20Imms/Appendix\\_D\\_RIIP.pdf](http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%20-%20-%20Imms/Appendix_D_RIIP.pdf)

**AHS:**

<https://www.albertahealthservices.ca/assets/info/hp/cdc/if-hp-cdc-ipism-standard-administration-immunization-06-100.pdf>

**Manitoba, Winnipeg Regional Health Authority:**

<https://professionals.wrha.mb.ca/old/professionals/immunization/contents.php>

**Ontario:**

[https://www.health.gov.on.ca/en/common/ministry/publications/reports/immunization\\_2020/immunization\\_2020\\_report.pdf](https://www.health.gov.on.ca/en/common/ministry/publications/reports/immunization_2020/immunization_2020_report.pdf)

**Quebec:**

<https://www.msss.gouv.qc.ca/professionnels/vaccination/protocole-d-immunisation-du-quebec-piq/>

**Nova Scotia:**

<https://novascotia.ca/dhw/cdpc/documents/Immunization-Manual.pdf>

**New Brunswick:**

[https://www2.gnb.ca/content/gnb/en/departments/ocmoh/for\\_healthprofessionals/dc/NBImmunizationGuide.html](https://www2.gnb.ca/content/gnb/en/departments/ocmoh/for_healthprofessionals/dc/NBImmunizationGuide.html)

**Newfoundland:**

<https://www.gov.nl.ca/hcs/files/publichealth-cdc-im-section4.pdf>

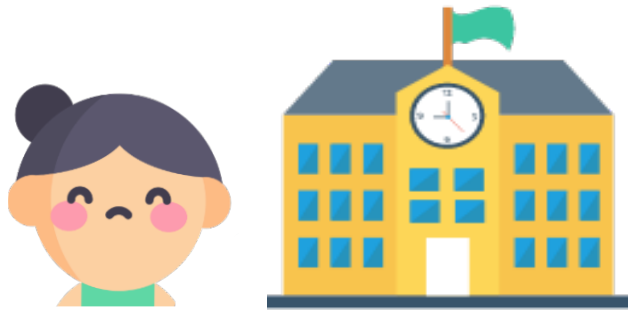
**Nunavut:**

[https://www.gov.nu.ca/sites/default/files/immunization\\_manual.pdf](https://www.gov.nu.ca/sites/default/files/immunization_manual.pdf)

**Yukon (part of immunization competencies):**

[https://yukon.ca/sites/yukon.ca/files/section\\_1\\_-\\_yukon\\_immunization\\_competencies\\_2021\\_final\\_july\\_2021.pdf](https://yukon.ca/sites/yukon.ca/files/section_1_-_yukon_immunization_competencies_2021_final_july_2021.pdf)

# Practice review Clinical Care Gaps



## NATIONAL PERSPECTIVE, 2017

Fear is worst part of vaccination	59%
Pain is worst part of vaccination	35%
Know how to reduce pain/fear	50%
Prepared ahead of time	17%



## ONTARIO PUBLIC HEALTH UNITS, 2021

Policies on pain/fear	58%
Formal training on program delivery	74%
Formal training on pain/fear	50%
Incorporate coping preferences	30%
Document stress-related responses*	0%

\* Pain/fear/dizziness; Fainting monitored in 83%

# 3. The CARD framework

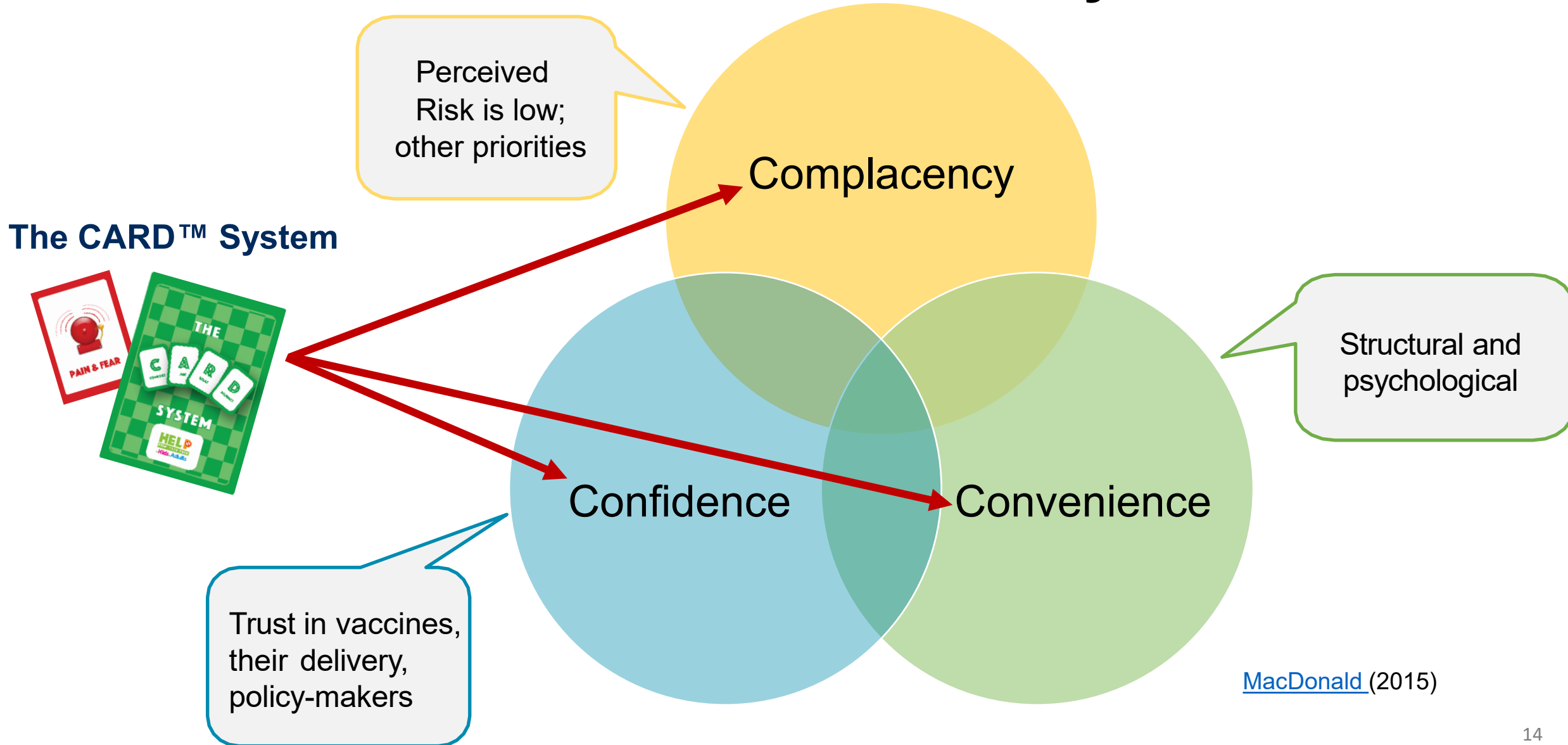
- ‘Systems level’ approach to address the identified clinical care gap
- Targets all stakeholders involved
- Turns the evidence into ‘action’ and uses a user-friendly and intuitive tool
- Each stakeholder *‘plays their CARDS’* to improve the experience for all
- Interventions implemented ‘ahead of time’ and ‘on needle procedure day’



**C** – Comfort  
**A** – Ask  
**R** – Relax  
**D** – Distract

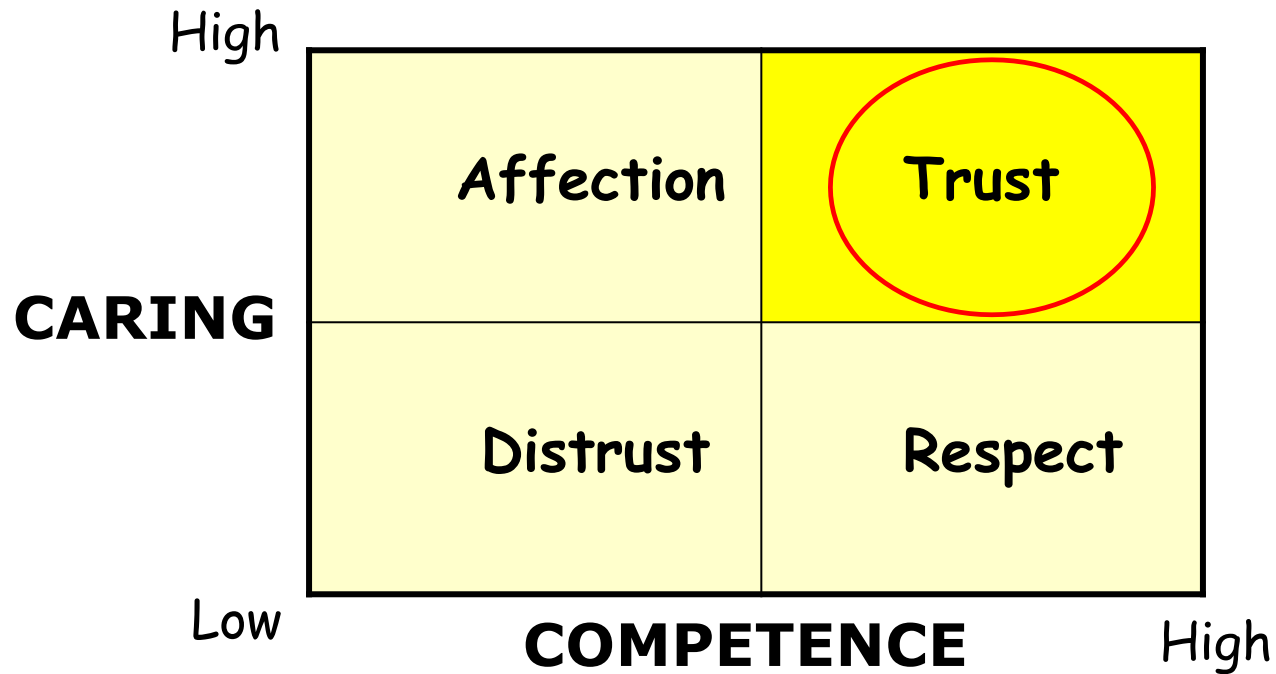
[Taddio et al. \(2019\)](#)

# WHO 3C Model of Vaccine Hesitancy



# Satisfaction and Trust

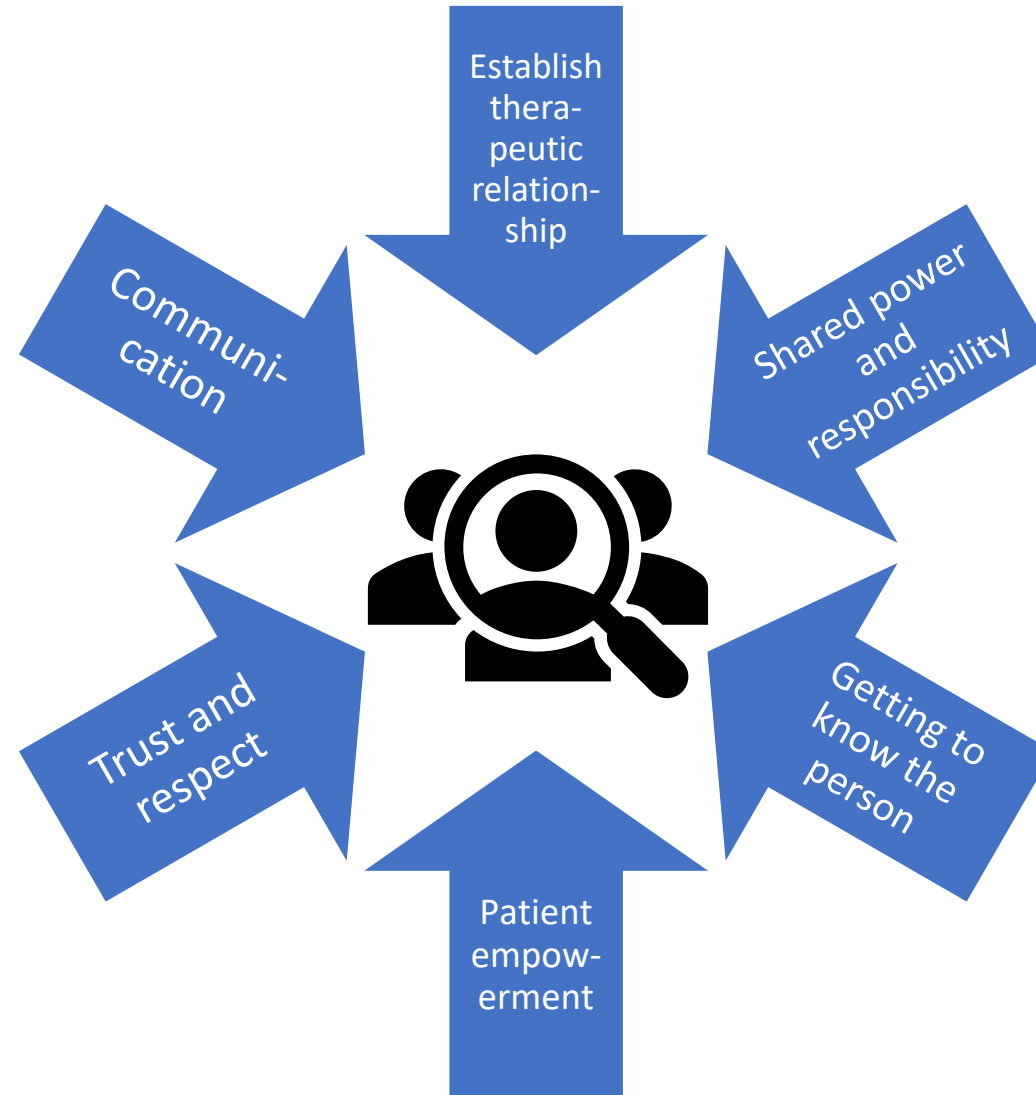
Promotion of Trust = Competence + Caring



Paling J. BMJ 2003; 327-745

# Quality Care

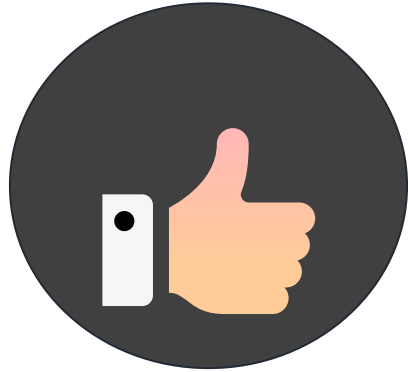
## Alignment with Models of Care Delivery



**Person-centred care**  
Sharma, 2015



# CARD improves:



Attitudes



Knowledge



Safety



Experiences

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

[Taddio et al. \(2022\)](#)

[Tetui et al. \(2022\)](#)

[Taddio et al. \(2022\)](#)

# Studies with CARD in the vaccination context

Study	Target	Setting	Design	Sample size	Impact
<a href="#">Freedman et al. (2019)</a>	Providers, children 12 years, parents, educators	Schools	Controlled Clinical Trial	323	↓ fear, dizziness
<a href="#">Taddio et al. (2022)</a>	Providers, children 12 years, parents, educators	Schools	Randomized Controlled Trial	1919	↓ fear, pain, fainting
<a href="#">Tetui et al. (2022)</a>	Providers, patients ≥12 years	Mass vaccination clinics	Before and After Trial	2488	↓ fear, pain, dizziness
Taddio et al. (2022)	Providers, parents, children 5-11 years	Pharmacies	Before and After Trial	153	↓ fear, pain
Taddio et al. (in prep'n)	Providers, adults ≥18 years	University vaccination pop-up clinics	Before and After Trial	476	↓ fear

# CARD Model

- Health care providers
- Vaccine clients
- Parents/caregivers
- **Ahead of time**
- **Vaccination day**

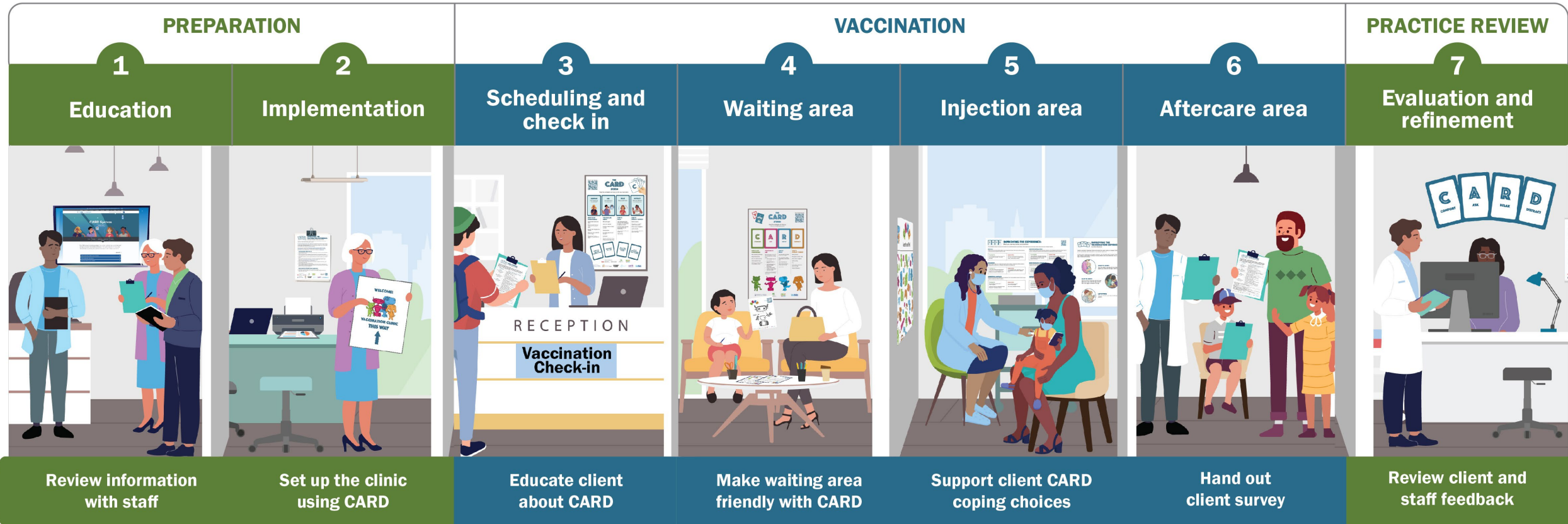
- Health care providers
- Vaccine clients
- Parents/caregivers



- Seating available (everyone)
- Space for support person
- Privacy
- Distractions
- Minimize fear cues (visual and auditory)

- Be calm, positive, promote coping
- Assess symptoms (fear, pain, fainting)
- Invite participation, answer questions
- Support CARD (coping) choices
- Minimize injection pain

# Infographic of how to integrate CARD



# Education (Providers)

Webcast - Needle fear, pain and vaccines

Watch later Share

CANVAX WEBCAST

## Needle fear, pain and vaccines:

Introduction to the CARD system as a framework for vaccination delivery

April 20, 2022

PRESENTED BY THE PUBLIC HEALTH AGENCY OF CANADA | HOSTED BY CANVAX

Watch on YouTube



Dr. Anna Taddio  
University of Toronto



Dr. C. Meghan McMurtry  
University of Guelph

<https://www.youtube.com/watch?v=tCV8UIOnpOY>

“I have a lot more confidence”


CANADIAN PUBLIC HEALTH ASSOCIATION ASSOCIATION CANADIENNE DE SANTÉ PUBLIQUE

## Immunization

Home Courses Immunization

Course categories:

Search courses

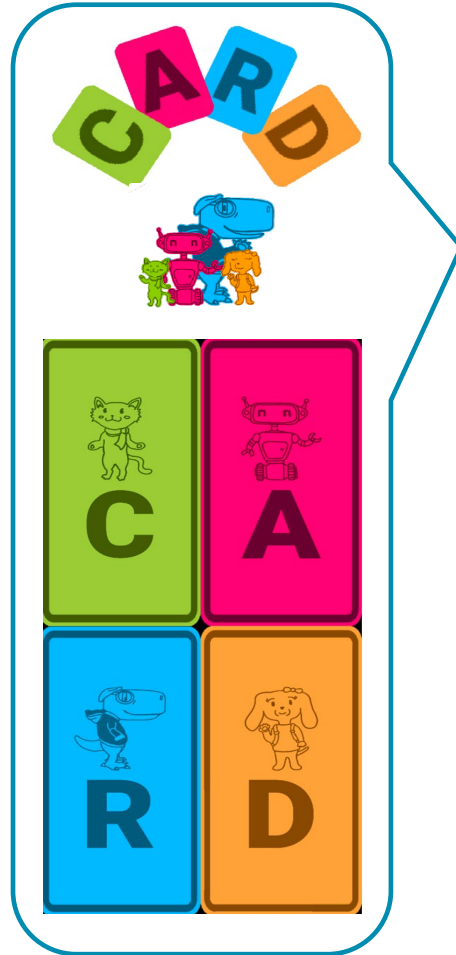


### The CARD System

Explore the CARD System™ for improving the vaccination experience.

<https://learning.cpha.ca/course/index.php?categoryid=16>

# Education (Clients)



**CARD game:**

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



**THE CARD SYSTEM**

Scan for more resources

These four strategies can help you with your vaccination.

C COMFORT	A ASK	R RELAX	D DISTRACT
<p><b>HOW TO GET COMFORTABLE</b></p> <p>Wear short sleeves or something that lets you show your upper arm easily for the needle.</p> <p>Eat a snack.</p> <p>Bring a favourite item.</p> <p>Sit up in a chair or lie down.</p> <p>Make your arm loose or jiggle (like cooked spaghetti).</p> <p>Squeeze your knees together if you feel faint or dizzy.</p>	<p><b>QUESTIONS TO ASK</b></p> <p>What will happen on my turn? What vaccine am I getting? Can I ...</p> <ul style="list-style-type: none"> <li>have the vaccine in privacy?</li> <li>use numbing creams or patches? *</li> <li>bring my friend, family member or trusted adult?</li> <li>look at the needle?</li> </ul> <p><small>*You may need to purchase and apply the numbing cream 20 to 60 minutes prior to your appointment.</small></p>	<p><b>HOW TO RELAX</b></p> <p>Do belly breathing (pretend to blow out a candle).</p> <p>Do some positive self-talk (tell yourself you can handle this).</p> <p>Have a friend with you.</p> <p>Have a family member or trusted adult with you.</p> <p>Have privacy.</p>	<p><b>HOW TO DISTRACT YOURSELF</b></p> <p>Talk to someone.</p> <p>Play a game or watch a video.</p> <p>Read a book or magazine.</p> <p>Listen to music.</p> <p>Sing.</p> <p>Allow yourself to daydream about fun things.</p>

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**HELP**  
 Immunization Kids/Adults

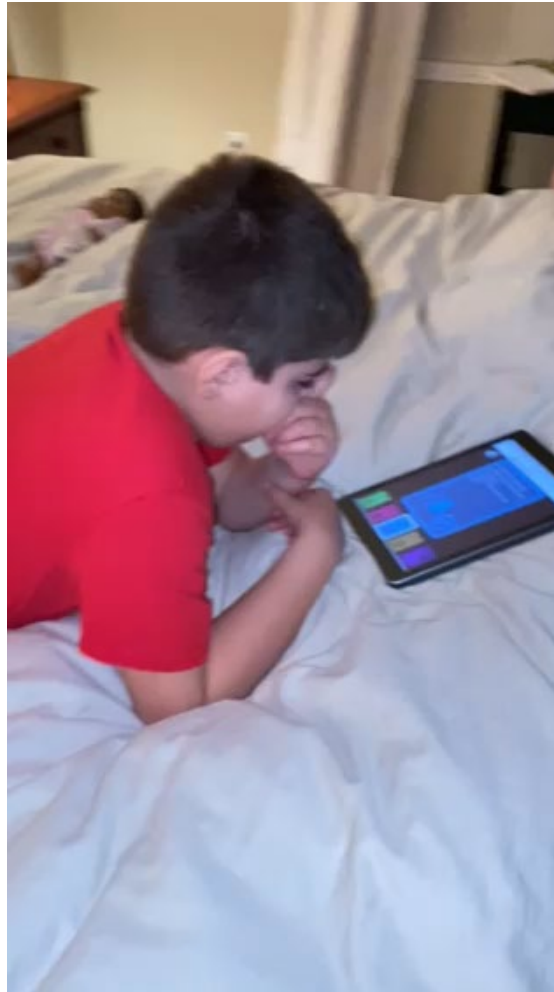
**CARD posters and activities**

# CARD web game (children)



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

**“It helped me to  
be less afraid.”**



<https://youtu.be/R388DViRJBQ>



**“I learned ways to distract  
myself when I’m getting a  
needle. Um, and questions to  
ask everyone and ways to  
relax, and like comfortable  
positions and stuff.”**

# CARD checklist (children and adults)

The difference of having this piece of paper in front of me, prior to giving the vaccination - it gives me perspective already as to **what this child would prefer.**



## 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 [CardSystem.ca](http://CardSystem.ca).

CARD System	Choose all options you want for your vaccination
<p><b>Comfort</b> What would you like to do to make yourself more comfortable?</p>	<input type="checkbox"/> Privacy (separate room with closed door) <input type="checkbox"/> Sit upright on a chair <input type="checkbox"/> Sit on a parent's or caregiver's lap <input type="checkbox"/> Lay down <input type="checkbox"/> Eat a snack or treat <input type="checkbox"/> Arm the needle goes in (left or right): _____ <input type="checkbox"/> Other: _____
<p><b>Ask</b> What questions do you have about the vaccine or your appointment?</p>	<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 hurt less <input type="checkbox"/> Other: _____
<p><b>Relax</b> How do you want to keep yourself calm?</p>	<input type="checkbox"/> No or low levels of noise <input type="checkbox"/> People I want to be with me (nobody or give names): _____ <input type="checkbox"/> No extra people around that can see me <input type="checkbox"/> Take deep belly breaths (like blowing up a balloon) <input type="checkbox"/> No alcohol wipe beforehand <input type="checkbox"/> Other: _____
<p><b>Distract</b> Do you want to be distracted during vaccination?</p>	<input type="checkbox"/> Tell me when it will happen <input type="checkbox"/> Do not tell me when it 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

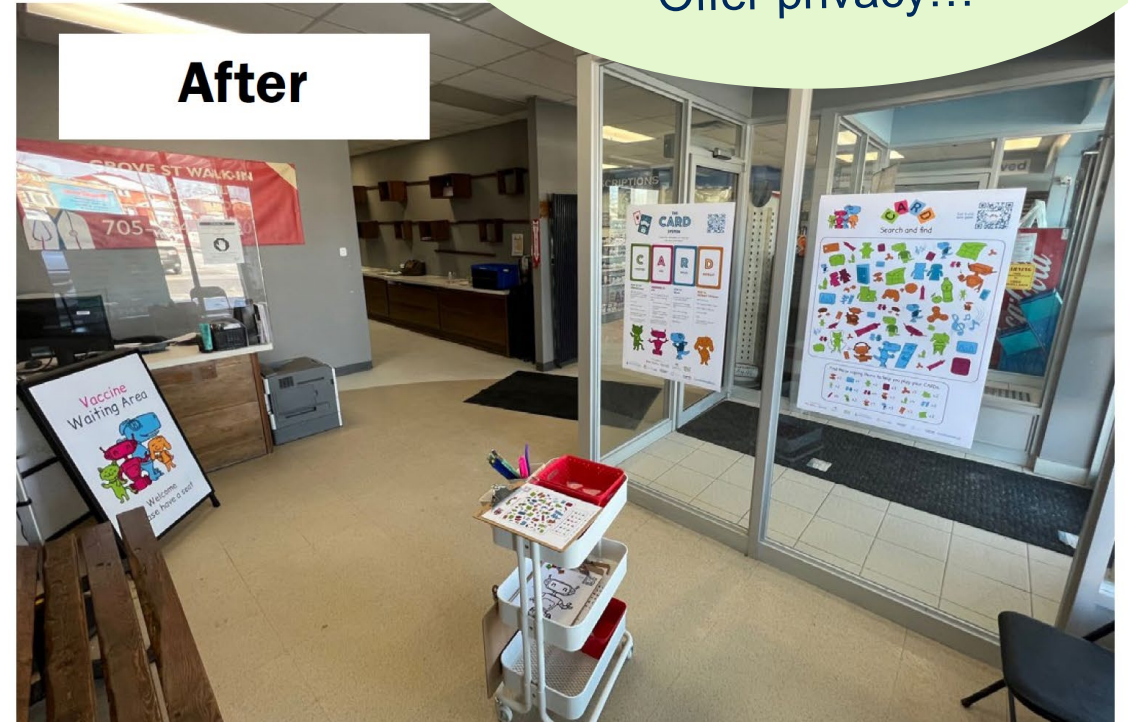
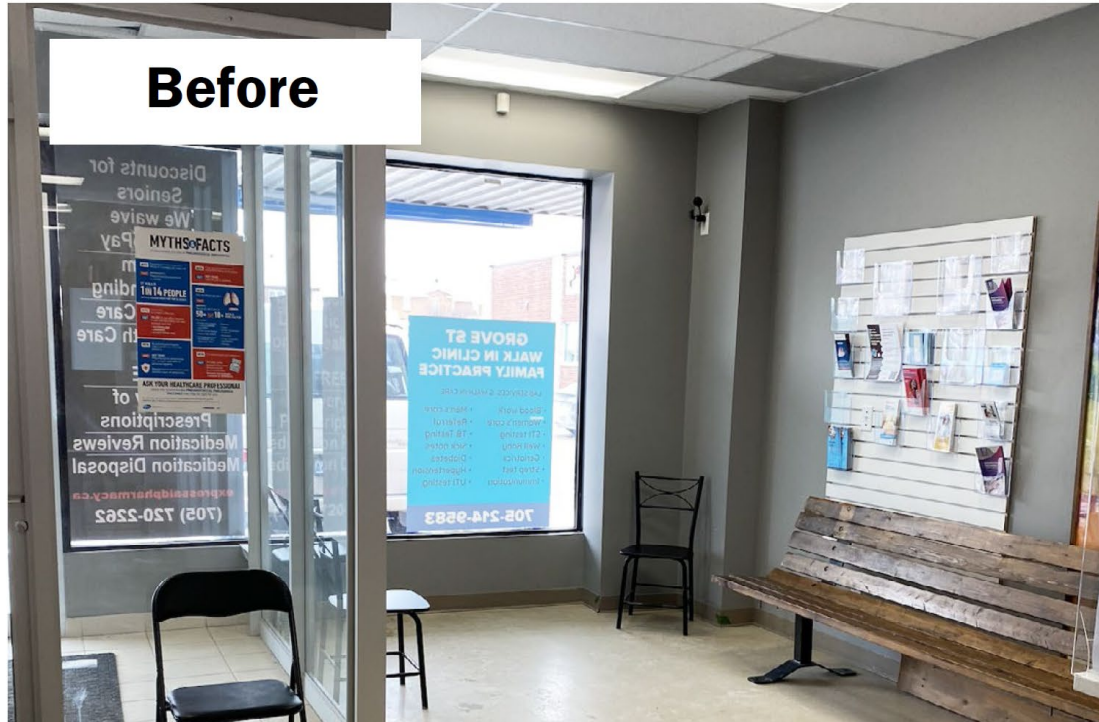
Tell us about anything else you want us to know: \_\_\_\_\_



# Environment (Providers)

## Pre-vaccination area

“Put up some posters, have toys that kids can play with, maybe colouring papers. The added cost is not much. Offer privacy...”

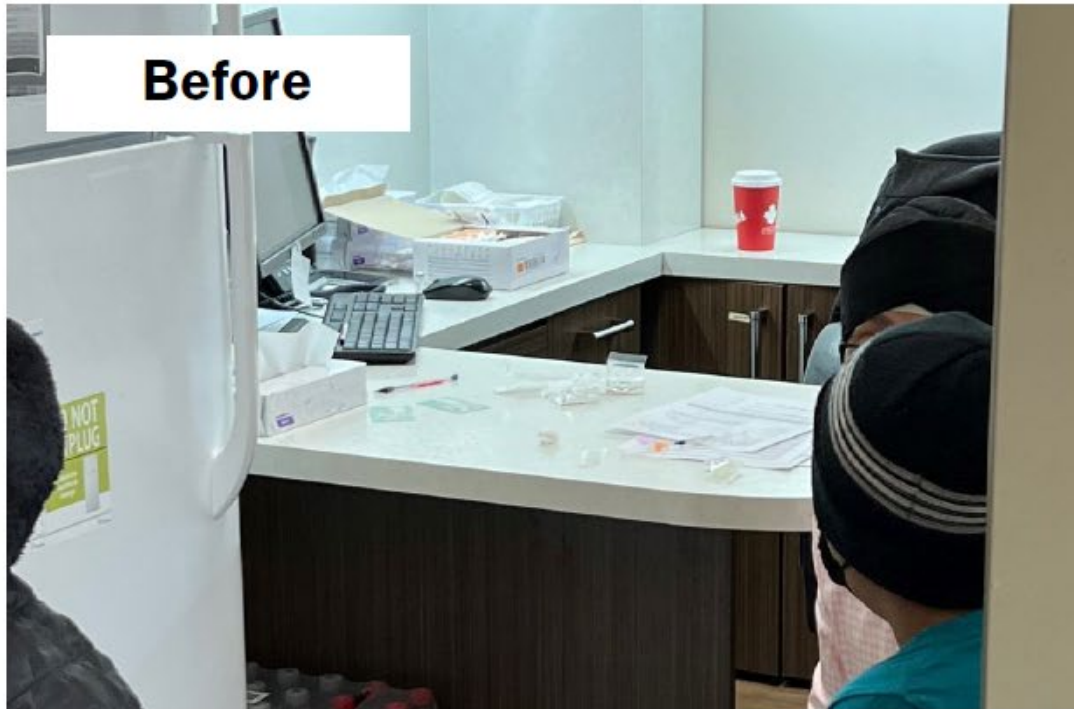


**Waiting area 1:** The waiting area has been made more inviting and comfortable for vaccine clients. This was done by including signage, education about CARD (via poster), and distraction items (posters and activities) that are easily accessible via a moveable cart, that can be used while waiting.

# Environment (Providers)

## Vaccine injection area

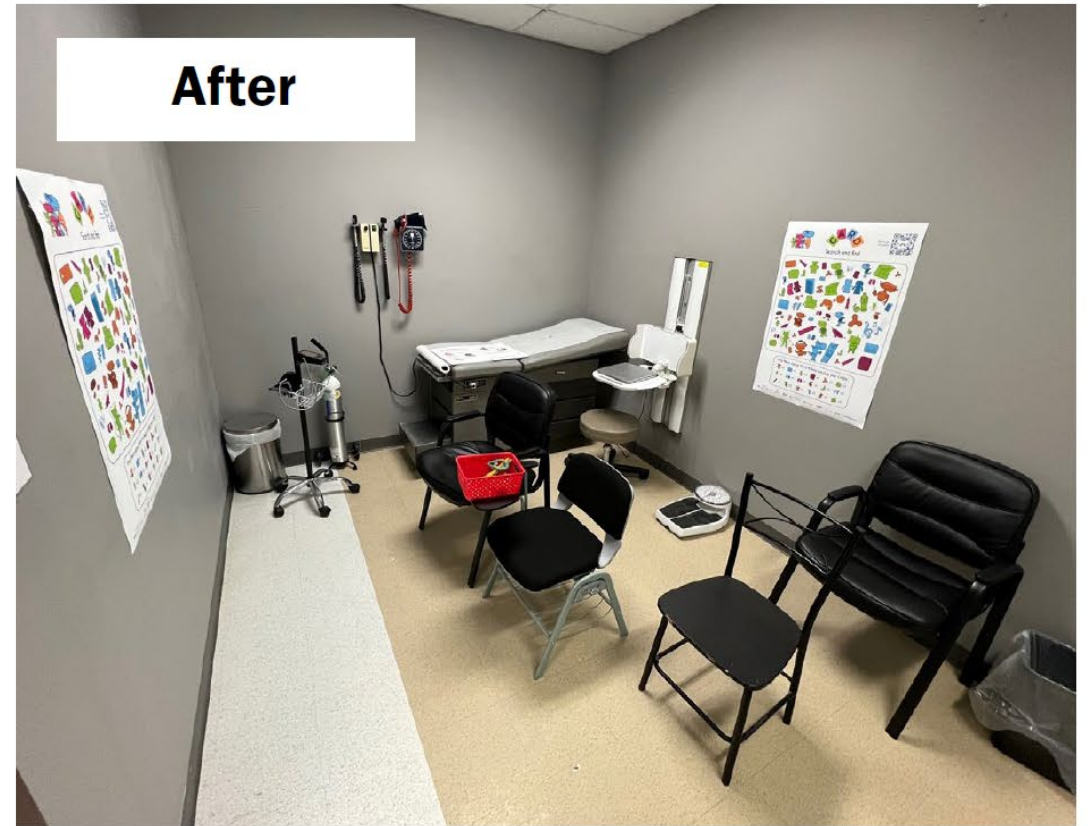
“So just reorienting the room a little - changing where people are looking and hiding things, like needles - can keep the fear much lower”



**Injection area 2:** In this example, the original room used for vaccinations has been changed to a different room with more space and the ability to provide privacy. Posters provide distraction and obscure equipment. The client's chair has been positioned to face a poster. The vaccinator uses a stool (tucked under the desk) to sit beside the client. Distraction items are provided on the examination table (not in view).

# Environment (Providers)

## Vaccine injection area



**Injection area 1:** In this example, furniture has been re-arranged to facilitate seating of the client, a support person and the vaccinator. Clients are facing a visually engaging poster and distraction items are available for use beside them (on the desk attached to the client chair). The client does not face equipment.

# Environment



## Coping interventions

“And that positive experience with topical anesthetics will probably make their next vaccine much better too because they’ll think about it much differently”

# Engagement (Provider)



## CARD 4E MODEL:

A guide for providers of vaccination services

The **CARD system (Comfort, Ask, Relax, Distract)** is a framework that can be used to plan and deliver vaccinations. Each letter category (C-A-R-D) includes evidence-based activities that vaccinators and vaccine clients can **play** to reduce pain and other immunization stress-related responses (i.e., fear, headache, nausea, dizziness, fainting). Using CARD improves the vaccination experience for vaccine clients and staff.

Learn how to integrate CARD in your practice setting using the **4E model (Education, Environment, Engagement and Evaluation)** as a guide. For more information and resources, you can visit [CardSystem.ca](http://CardSystem.ca).



**BEFORE VACCINATION DAY**

- Staff:** Review information about CARD and share with staff. Address comments and questions and plan for how to integrate CARD into the vaccination process. Consider feedback obtained from vaccine clients about how to make vaccinations a more positive experience for them. Review the [CARD vaccination planning checklist](#) and [CARD vaccination day checklist](#) to select options for your setting. Integrate into vaccination policies and procedures.
- Clients:** Provide information about CARD ([CARD fact sheet](#)) to vaccine clients at various times in the vaccination process, such as at the time of booking and at vaccination appointment check-in. Include information about what to expect and available coping strategies in the different letter categories of CARD (i.e., Comfort, Ask, Relax, Distract) ([CARD checklist](#)).


**ON VACCINATION DAY**

- Staff:** Review CARD with staff and implement selected tools and processes.
- Clients:** Use the CARD checklist at vaccine appointment check-in to record demographic information (including the level of fear) and coping strategy choices. The completed CARD checklist can be used to guide the appointment. If [topical anesthetic](#) is checked off, staff can explain the required waiting period (e.g., 20 to 30 minutes for Maxilene™; other products take longer). Assist with topical anesthetic application and give options to leave and return or engage in a distraction activity while waiting.
- If clients identify a history of fainting, counsel them regarding the prevention of fainting using [muscle tension](#) (and supine positioning).

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Scan for more resources >




## IMPROVING THE VACCINATION EXPERIENCE:

What health-care providers can say

The words and actions of health-care providers can influence how someone experiences vaccination. Some behaviours can promote coping while others can increase distress. Use this fact sheet to learn ways to promote coping and more positive vaccination experiences. Share our resources for parents and caregivers on [what they can say](#), [how they can act](#) and [what they can do](#) to help their child during vaccination.

To learn more about CARD, go to [CardSystem.ca](http://CardSystem.ca).



**BE CALM**  
Foster a calm environment and be positive. If you are calm and use your normal voice, others will feel that everything is OK.

**TRY SAYING THIS**  
✓ "Let's work together to make your vaccination experience comfortable." (promotes calmness)



**INSTEAD OF THIS**  
⊗ "There are so many people here today and I don't have a lot of time! Let's just get it done quickly." (makes others nervous)

**BE POSITIVE**  
Focus your attention on helpful things and on things that are going well. Use praise to encourage and recognize the efforts people are making. Congratulate people on getting vaccinated and help them to remember their vaccination in a positive way for the next time.


**TRY SAYING THIS**  
✓ "You did a great job relaxing your arm, etc."  
✓ Thanks so much for coming in today to get vaccinated. Let me know what you think helped and how I can help to make it even better the next time." (positive focus)

**INSTEAD OF THIS**  
⊗ "Finally, it's over; that was hard!" (negative focus)  
⊗ "This took a long time. Maybe you should get vaccinated somewhere else next time." (negative focus)

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Scan for more resources >



Various pamphlets

# Evaluation (Client)



## 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.

1. 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

2. 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

3. 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

4. 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. \_\_\_\_\_

“It made a big difference!”

“I almost cried reading the CARD checklist because I felt so cared for. Thank you!”

# Evaluation (Providers)

## CARD staff debrief survey

Clinic Date: \_\_\_\_\_ Location: \_\_\_\_\_ Time: \_\_\_\_\_

Who was present: \_\_\_\_\_

Post-clinic debriefing sessions provide opportunities for staff to share successes and challenges and empower them to help each other learn from their experiences. Reflect on the vaccination program by using these questions as a guide. Include feedback from vaccine clients when answering the questions to ensure their perspectives are captured and considered. This will require reviewing/collating their feedback before answering the questions.

1. What went well and why?

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2. What didn't go well and why?

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3. Did the team work productively together?

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4. What can we do differently to make it even better next time?

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“Everything was just a little more strategic. It's just building on the skills we already have”

“CARD made the entire process less stressful, for myself, as a vaccinator, for the child, and also the parents”

“All around positive reviews! I mean, you'd have to really be out of your mind as a parent or child to have a negative review about this, right?”

# CARD in action



<https://youtu.be/FXj6ELi4BVg>



# Summary

- Pain and fear *hurt* vaccination
- Evidence-based strategies exist to reduce pain and fear
- The CARD framework helps integrate the evidence into practice

“I love my job and this made it better”



# Resources

- Aboutkidshealth (SickKids): [www.cardsystem.ca](http://www.cardsystem.ca)
- Immunize Canada: [CARD resources](#)
  - *New:* [CARD Game for Kids](#) (mobile web game)
- [HELPinKids&Adults \(University of Toronto\) and resources](#)
- [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](#)



# What's YOUR play?

“I love my job and this made it better”



[www.helpkidspain.ca](http://www.helpkidspain.ca)

[www.cardsystem.ca](http://www.cardsystem.ca)

# Summary of CARD domains (4Es)

## Education

- Website, webinars, e-module, videos
- CARD checklist
- Posters, pamphlets

## Environment

- Friendly/inviting (minimizes visual/auditory fear cues)
- Coping interventions (distractions/activities) available

## Engagement

- Coping-promoting language and behaviour
- Address children directly
- Support coping choices

## Evaluation

- Client and staff feedback

