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

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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

WHO, Ten threats to global health in 2019
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)](http://example.com)

Selected icons made by Freepik from www.flaticon.com
Algorithm of the research

>1 hour

½ to 1 hour

1 to 2 minutes

Strategies at time of needle procedure

Procedural strategies
- No aspiration
- Most painful last
- Fast injection

Physical strategies
- Positioning (sitting upright)
- Relax arm
- Tense large muscles or lie down (if history of fainting)

Infant strategies
- Breastfeeding
- Sweet solutions
- Non-nutritive sucking

Psychological strategies
- Distraction (e.g., talk to someone, listen to music)
- Interaction:
  - DO use neutral words to signal the impending procedure
  - DON'T use repeated reassurance or suggest it will not hurt

Pharmacological strategies
- Topical anesthetics (liposomal lidocaine, amethocaine or lidocaine-prilocaine
  20 to 60 minutes before injection*)

*Check product monograph

Process strategies
- Education for providers and individuals

High needle fear strategies
- Exposure-based therapy from trained professional such as a psychologist
The 5 P’s break the cycle of pain and fear

- Procedural interventions
- Psychological interventions
- Pharmacological interventions
- Physical interventions

Interventions for people with high needle fear

PAIN & FEAR

Pain → Fear

Proc. interventions

Development over time

McMurtry et al. (2015)
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)

BCCDC:  

AHS:  

Manitoba, Winnipeg Regional Health Authority:  
https://professionals.wrha.mb.ca/old/professionals/immunization/contents.php

Ontario:  

Quebec:  

Nova Scotia:  

New Brunswick:  
https://www2.gnb.ca/content/gnb/en/departments/ocmoh/for_healthprofessionals/cdc/NBImmunizationGuide.html

Newfoundland:  

Nunavut:  

Yukon (part of immunization competencies):  

Courtesy of Immunize Canada, 2021
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

Perceived Risk is low; other priorities

Complacency

Confidence

Convenience

Trust in vaccines, their delivery, policy-makers

Structural and psychological

The CARD™ System
Satisfaction and Trust

Promotion of Trust = Competence + Caring

Paling J. BMJ 2003; 327-745
Quality Care

Alignment with Models of Care Delivery

- Establish therapeutic relationship
- Communication
- Trust and respect
- Patient empowerment
- Shared power and responsibility
- Getting to know the person

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

<table>
<thead>
<tr>
<th>Study</th>
<th>Target</th>
<th>Setting</th>
<th>Design</th>
<th>Sample size</th>
<th>Impact</th>
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<tbody>
<tr>
<td>Freedman et al.</td>
<td>Providers, children 12 years, parents, educators</td>
<td>Schools</td>
<td>Controlled Clinical Trial</td>
<td>323</td>
<td>↓ fear, dizziness</td>
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<td>(2019)</td>
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<td>Taddio et al.</td>
<td>Providers, children 12 years, parents, educators</td>
<td>Schools</td>
<td>Randomized Controlled Trial</td>
<td>1919</td>
<td>↓ fear, pain, fainting</td>
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<td>(2022)</td>
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<tr>
<td>Tetui et al.</td>
<td>Providers, patients &gt;12 years</td>
<td>Mass vaccination clinics</td>
<td>Before and After Trial</td>
<td>2488</td>
<td>↓ fear, pain, dizziness</td>
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<td>(2022)</td>
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<td>Providers, parents, children 5-11 years</td>
<td>Pharmacies</td>
<td>Before and After Trial</td>
<td>153</td>
<td>↓ fear, pain</td>
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<td>(2022)</td>
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<td>Taddio et al.</td>
<td>Providers, adults &gt;18 years</td>
<td>University vaccination pop-up clinics</td>
<td>Before and After Trial</td>
<td>476</td>
<td>↓ fear</td>
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CARD Model

- Health care providers
- Vaccine clients
- Parents/caregivers

**Ahead of time**
- Vaccination day

- Health care providers
- Vaccine clients
- Parents/caregivers

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

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

**Education**
- Assess symptoms (fear, pain, fainting)
- Invite participation, answer questions
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- Minimize injection pain
Infographic of how to integrate CARD

**PREPARATION**
1. Education
2. Implementation

**VACCINATION**
3. Scheduling and check in
4. Waiting area
5. Injection area
6. Aftercare area

**PRACTICE REVIEW**
7. Evaluation and refinement

- Review information with staff
- Set up the clinic using CARD
- Educate client about CARD
- Make waiting area friendly with CARD
- Support client CARD coping choices
- Hand out client survey
- Review client and staff feedback
Education (Providers)

Needle fear, pain and vaccines:
Introduction to the CARD system as a framework for vaccination delivery

Dr. Anna Taddeo
University of Toronto

Dr. C. Meghan McMurtry
University of Guelph

April 20, 2022

“"I have a lot more confidence”

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

Education (Clients)

CARD game:
https://immunize.ca/card-game-kids

CARD posters and activities
CARD web game (children)

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

“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.”

https://youtu.be/R388DViRJBQ

“It helped me to be less afraid.”
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.
Environment (Providers)

Pre-vaccination area

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.

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

Vaccine injection area

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).

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

**Vaccine injection area**

**Before**

**After**

**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

**EDUCATION:**

- **REALM VACCINATION ONLY**
- **SORE:** In every situation, share CARD and their services
- **CONFIDENTIAL:** In every situation, share CARD and their services
- **COMFORT:** Provide comfort to the patient
- **CONTROL:** Provide control to the patient

**BE CALM**

- Easy, calm environment is the positive. If you can calm and give the initial notice, others will feel that connection.

**BE POSITIVE**

- For every positive, we need to think of a positive thought that is most positive. We can recap all the positive things in the past for the next time.

**TRY SAYING THIS**

- "I would like to explain some things about the vaccination process. It is important to understand that the vaccine will help protect you and others from serious diseases."

**INSTEAD OF THIS**

- "You don’t have to worry about getting vaccinated."

**TRY SAYING THIS**

- "We are happy to answer any questions you may have and provide information about the vaccine and its benefits."

**INSTEAD OF THIS**

- "I’m not sure if you can answer my question."

**TEXT BOX:**

Various pamphlets

*Image descriptions are placeholders and not actual images.*
Evaluation (Client)

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

“It made a big difference!”
Evaluation (Providers)

“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

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