Needle Poke Pain: How to play your best hand

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Declarations

Land acknowledgement:

The University of Toronto acknowledges that the land on which it operates has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit.

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Partners:
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. Consequences of needle pain

- Needles are ubiquitous in health care: vaccinations are the most common needle procedure
- Pain is the most common adverse event following needle procedures
- 2/3 children and 1/4 adults are afraid of needles
- Fear can fuel pain and lead to other stress-related responses (dizziness, headache, nausea, fainting)
- Negative experiences contribute to non-compliance with needle procedures
Non-compliance with childhood vaccination - systematic review

1 out of 12 people have refused vaccination due to needle fear

Taddio, et al., Vaccine 2022
Vaccine hesitancy

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
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
The 5 P’s target the cycle of pain and fear

McMurtry et al. (2015)
Algorithm of the research
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 groups involved (patients and providers)
- Turns the evidence into ‘action’ and uses a user-friendly and intuitive tool
  - Each group “plays their CARDs”
- Interventions implemented “ahead of time” and “on needle procedure day”
WHO 3C Model of Vaccine Hesitancy

The CARD™ System

Perceived Risk is low; other priorities

Complacency

Trust in vaccines, their delivery, policy-makers

Confidence

Convenience

Structural and psychological

MacDonald (2015)
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
- Shared power and responsibility
- Getting to know the person
- Trust and respect
- Patient empowerment

Person-centred care
Sharma, 2015
How CARD works – The 4E Model

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

- Vaccine clients
- Health care providers
- Parents/caregivers

**4E**

- **Education**
- **Environment**
- **Evaluation**
- **Engagement**

- Separate all clinic areas
- Seating available
- Distractions
- Space for support person
- Privacy
- 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
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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</thead>
<tbody>
<tr>
<td>Freedman et al. (2019)</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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<tr>
<td>Taddio et al. (2022)</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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<tr>
<td>Tetui et al. (2022)</td>
<td>Providers, patients ≥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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<tr>
<td>Taddio et al. (2022)</td>
<td>Providers, parents, children 5-11 years</td>
<td>Community pharmacies</td>
<td>Before and After Trial</td>
<td>153</td>
<td>↓ fear, pain</td>
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<tr>
<td>Taddio et al. (2023)</td>
<td>Providers, parents, children 12-14 years</td>
<td>Schools (urban)</td>
<td>Randomized Controlled Trial</td>
<td>8839</td>
<td>↓ fear</td>
</tr>
<tr>
<td>Gudzak et al. (in prep’n)</td>
<td>Providers, adults ≥18 years</td>
<td>University vaccination pop-up clinics</td>
<td>Before and After Trial</td>
<td>476</td>
<td>↓ fear, pain</td>
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Case

Sarah is 6 years old.

She is not vaccinated against COVID-19. She is very afraid of needles. The last time she got a needle, her dad held her down. It was very stressful for everyone.

What do you recommend?
How CARD works – The 4E Model

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

- Vaccine clients
- Health care providers
- Parents/caregivers

**4E**

- **Education**
- **Environment**
- **Evaluation**
- **Engagement**

- Separate all clinic areas
- Seating available
- Distractions
- Space for support person
- Privacy
- Minimize fear cues (visual and auditory)

**4E**

- 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

1. **PREPARATION**
   - Education
   - Implementation
   - Scheduling and check in

2. **VACCINATION**
   - Waiting area
   - Injection area
   - Aftercare area

3. **PRACTICE REVIEW**
   - 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
“I have a lot more confidence”

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

CARD in action - gr. 7 school vaccinations

https://youtu.be/FXj6ELi4BVg
Education (Client)

CARD game

CARD checklist

You can use the CARD (Comfort and Relax Electronic) system to help make you more comfortable during your vaccination. Fill in the CARD game before you tell us so 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: [CARD Information]

CARD CHECKLIST: What cards are you playing today?

You can use the CARD (Comfort and Relax Electronic) system to help make you more comfortable during your vaccination. Fill in the CARD game before you tell us so 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: [CARD Information]

CARD game

CARD checklist
CARD game for children 5-12 years

• 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).
CARD in action – child playing breathing game

https://immunize.ca/card-game-kids
Child feedback about CARD game

- I learned needles aren't as bad as they seem and it's easy to distract yourself.
- I liked the games because they were kind of simple but fun and really distracting.
- It helped me be less afraid because you can just breathe in and out.
- I can tell my friends, "Hey, there's this game and it really helped me.”
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

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

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

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

"It made a big difference!"

**CARD Checklist**

**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: _________________________________________________
Evaluation (Providers)

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

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

Back to Sarah…

What can you/your organization do differently?
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 available (distractions/activities)

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

**Evaluation**
- Client and staff feedback
Here are some questions we get about CARD...
#1: Don't we already do this? How is CARD different?

- **CARD puts the patient first!** It engages patients in their care and is aligned with organizational strategic plans, mission statements and values of patients.

- **CARD is an innovation, like other innovations that we implement routinely in practice.** It is an evidence-based framework/protocol for performing needle procedures that improves patient safety and patient, family and staff satisfaction, so everyone wins!

- **CARD systematically integrates evidence** about reducing pain, fear and fainting, and leads to equitable care.

- Like any new protocol, **CARD is associated with some changes** – including more intentional and systematic ways of planning and performing needle procedures. **We learn from research and are constantly changing and improving our care by implementing innovations like CARD.**

- **CARD builds life skills for patients.** CARD educates and prepares children to cope with stressors and promotes coping and mental health.
#2: Will CARD will add time to the procedure?

- Providers report that **CARD reduces needle procedure time!**

- Skipping child preparation adds time because procedures are more complicated – children are more afraid, and more resources are needed (additional time and staff).

- More complicated procedures lead to negative memories of the experience and impacts future experiences negatively.

- CARD embodies the **child and family-centred care** model which dictates the expected approach to providing care. CARD is aligned with professional and organizational goals, mission statements and values.
#3: Isn’t it good enough to provide distractions to the patients who need them?

• To provide equitable care, distraction items must be offered to each patient. Patients do not know what they are not aware of.

• Children do not advocate for themselves – they need to be invited to participate. Adults may not be aware of the preferences of children.

• Distraction carts are available all over the hospital with the intent they are offered to all.

• Distraction items serve multiple purposes – even if patients do not want to handle them, they can serve as visual distractions and facilitate procedures.

• Distraction carts reduce fear cues by making the environment more child friendly 😊
The **CARD checklist is intended to be filled in by patients.** It was developed this way to invite participation and promote patient autonomy.

*Providers leading coping options is problematic:*

1) Children have difficulty processing verbal instruction (it is too quick for child to understand and process options) and they are often rushed during the process

2) It inadvertently leads to missing some options to increase expediency (i.e., providers will skip options they think are not needed/important) which is not equitable

3) Children do not advocate for their preferences, which leads to them settling for interventions recommended by adults

4) Children are not prepared and are not using their preferred coping strategies.
#5: Can we just do one letter category/can we leave some parts of CARD out?

Pain care involves multiple components. The **CARD protocol includes these components in the 4E model (4E’s: Education, Environment, Engagement and Evaluation)**. All components contribute to better pain care and work better when they are integrated together. We need to follow the research evidence.

- We have moved away from a provider-led to **person-centred** approach.
Summary

• Pain and fear *hurt* everyone
• CARD integrates all we know about pain and fear
• Visit [www.cardsystem.ca](http://www.cardsystem.ca) and *start playing!*

“I love my job, and this made it better”
Please complete our CARD survey
What’s YOUR play?

“I love my job and this made it better”

www.helpkidspain.ca  www.cardsystem.ca