The place of school-based immunization and how to make it a more positive experience?

WHO

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Why school-based programs?

Immunization ‘whole of life’ – beyond the infant platform

- Need to develop and support older child, adolescent and youth health promotion and prevention

- Schools integral part of local communities
  - Usually well supported by local communities
  - Broad-based participation for children....and in many places adolescents

- Opportunity to increase cohesion and integration health and education sectors

School-based vaccination opportunities

- Mass campaigns
  - Outbreaks/epidemics
- Catch up on missed vaccinations from childhood
  eg MR
- Boosting waning immunity
  eg pertussis, tetanus, diphtheria
- New vaccines best delivered in adolescent years
  eg meningococcal, HPV

https://sciencelife.uchospitals.edu/2014/10/06/

www.immunize-utah.org

www.ndb-online.com/august1115/vaccines-protect-kids-diseases

Platforms

- Schools
  - Usually highest coverage rates
    - Partic. younger ages and lower school grade levels
  - Captures most
  - More effective to close equity gaps
- Health-base facilities
  - Tend to get lower coverage rates and higher equity gaps
- Mixed strategies
  - Those run alongside school programmes are likely to have the highest coverage
  - Are needed for out of school/older adolescents
    - Can includes other venues/outreach
    - Tend to still have low coverage

Considerations

- Government and policy support
- Community engagement
  - Incl. social media influences
- Integration with other adolescent services
- Consent processes
- School-base services usually the best starting point
  - Captures most
  - More effective to close equity gaps
  - Age of vaccination, cultural context
- Late-adolescents, those out of school
  - Harder age group to access

School-based platforms

ADVANTAGES

- All children should attend school
  - Equitable delivery opportunity
- Opportunity for comprehensive platform
- Opportunity for health education and communication
- Young people usually less likely to access health services
- Current health systems not responsive, particularly to adolescent health needs
- Can strengthen public confidence in vaccination

CHALLENGES

- Schools are overburdened
  - Low priority with competing needs
- Different sector from health, not the same communication lines
- Sustainability of financial resources can be challenging
- Different issues
  - childhood
  - early, middle and late adolescence
- Should immunisation services be siloed, partially siloed or integrated with other school-health services?
- Lack of platforms in many countries
  - Age of attendance and retention, partic. girls
- Evidence-based interventions are relatively limited

Acknowledgement: Sabin Institute "*Immunization in the context of adolescent health*" workshops in UAE, Singapore & Brazil 2018

Key considerations

- Consent
  - legality issues pertinent to each country ?age of consent
- Communication
  - Child/adolescent
  - Families
  - Community
    - Social media community
- Engagement
    - With the education sector
    - Connection with other school health services

- Planning and preparation
  - Areas of responsibility, roles
  - Financing, resourcing, equipment and workforce capacity
- Information systems
- Equity
  - Participation and those who miss out
- Evaluation/review

REFs:
WHO Global Standards for Quality Health-care services for adolescents Vol 2: Implementation guide
Van Damme, P. (2017). Childhood and Adolescent Immunization Programs in Europe. In Pediatric Vaccines and Vaccinations (pp. 19-26). Springer, Cham.
Paul, P., & Fabio, A. (2014). Literature review of HPV vaccine delivery strategies: Considerations for school-and non-school based immunization program. Vaccine, 32(3), 320-326.
Clark, S. Jet al (2018). Public Health Opportunities to Improve Late-Adolescent Immunization. Journal of public health management and practice: JPHMP
Bernstein, H. H., Bocchini, J. A., & Committee on Infectious Diseases. (2017). The need to optimize adolescent immunization. Pediatrics, e20164186.
Klein, J., Tan, L. L., & Zimet, G. D. (2017). Improving Adolescent Immunization Coverage: The Time to Act Is Now. Journal of Adolescent Health, 61(5), 541-543
Bernstein, H. H., Bocchini, J. A., & COMMITTEE ON INFECTIOUS DISEASES. (2017). Practical approaches to optimize adolescent immunization. Pediatrics, e20164187.

Ethical considerations for school-based programmes

Informed consent

- Need to align programmes with community preferences
- Parents
- The adolescents
  - Giving some choice and agency to the adolescent

Privacy and confidentiality

- The informed consent process
- The vaccinating environment

Child/Adolescent fears/anxieties

- Role of social media
- Needle pain/phobias – don't underestimate

Braunack-Mayer A et al (2015) American Journal of Public Health 105(7)
Marshal H et al (2014) Vaccine 32(2434-2440)

Learnings from existing programs

General points

- Need political and key social influences engagement
- Need strong coordination between health and education sector
- Broader sensitization campaigns with community awareness
  - more effective
  - School-based disconnect from community services

Communication

- Promotion/communications not matching child, adolescent or parents needs
  - Adolescents and social media
  - Often vaccination is not a priority, particularly for adolescent age group
  - Health literacy:
    - use of right language for adolescents and parents to understand eg HPV: language for cervix.

Program issues

- Need to consider Information systems, registers, data sharing across sectors
- Parental consent or authorization
  - Written consent, community consent (eg Vietnam, Uganda), or opt-out (Tanzania, Rwanda)
- 'late-adolescents' hard to reach

Adolescent issues

- Prioritisation and engagement
- Social networks
  - Use of social media
- Role of adolescent champions
- **Needle phobia** (often unrecognised)

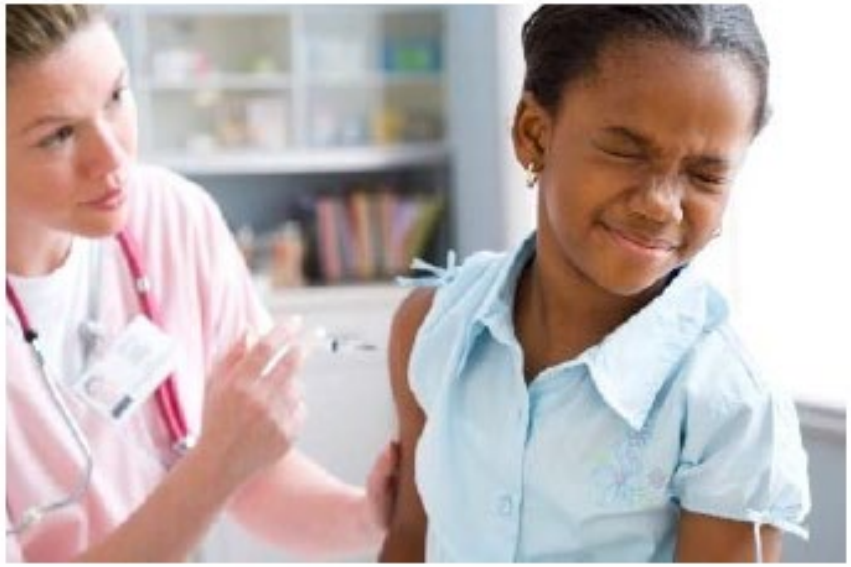
2012, NZ adolescent programme

Summary: School-base programs

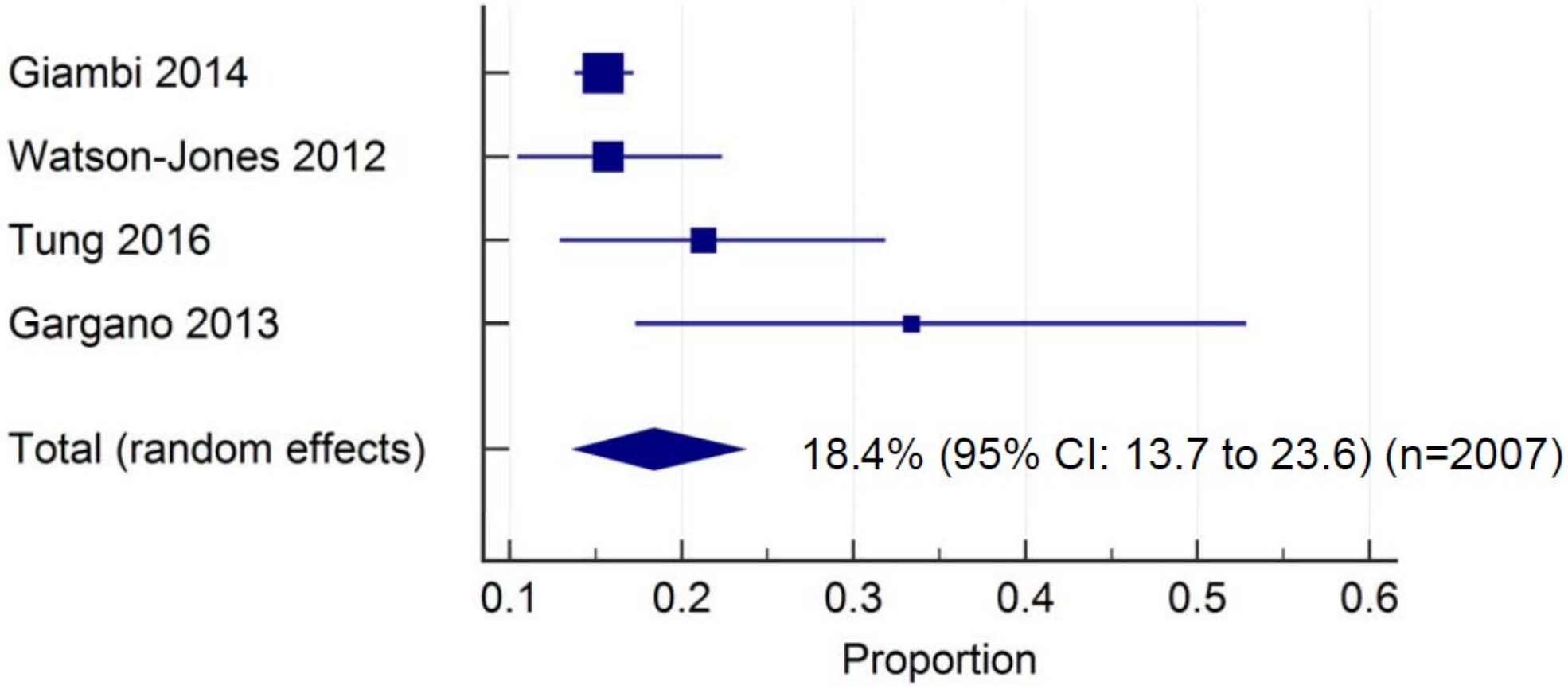
- A necessary platform for an effective immunisation program
  - Routine
  - Catch-up
  - Mass campaigns
- Lots of challenges/road blocks in setting up well
  - Child delivery /adolescent delivery/ siloes or integrated with other services
  - Education sector engagement
  - Community support
  - Adolescent-specific issues
- More research is needed in effective systems for school-based delivery

What would we like immunization in schools to look like?

Adapted from Taddio



Pain and Fear as Barriers to Vaccination in Adolescents : Meta-analysis



Adapted from Taddio

Qu The Ontario Public Health Conf 2019

Canadian Experience

- School based immunization programs since mid 1980's all across Canada
- Variable age & vaccines by province /territory
  - Up to 4 different vaccines in a grade (NS)
  - Up to 3 different grades (4 or5 , 6 and 9)
  - Tdap, Men conj – ACYW-135, HPV, Hep B*, HAV, catch up VZV

Evidence- based Interventions

5 Ps Pain Management

What

1. Procedural (techniques)
2. Physical (body position & activity)
3. Pharmacological (pain medication)
4. Psychological (thoughts and behaviours)

How

5. Process (education)

Taddio et al CMAJ 2015;187:975-82

Canadian Experience

Recent Studies

- **Lucie Bucci et al** - Staying clear of pain and fear: A survey of policies and practices in public health school immunization clinics across Canada *presented at 2018 Canadian Immunization Conference*

- **Anna Taddio et al** -

The CARD ™ System for Improving the Vaccination Experience at School: Results of a Small-Scale Implementation Project

7 papers in April 2019 issue: Paediatrics & Child Health 2019; 24 Supplement 1

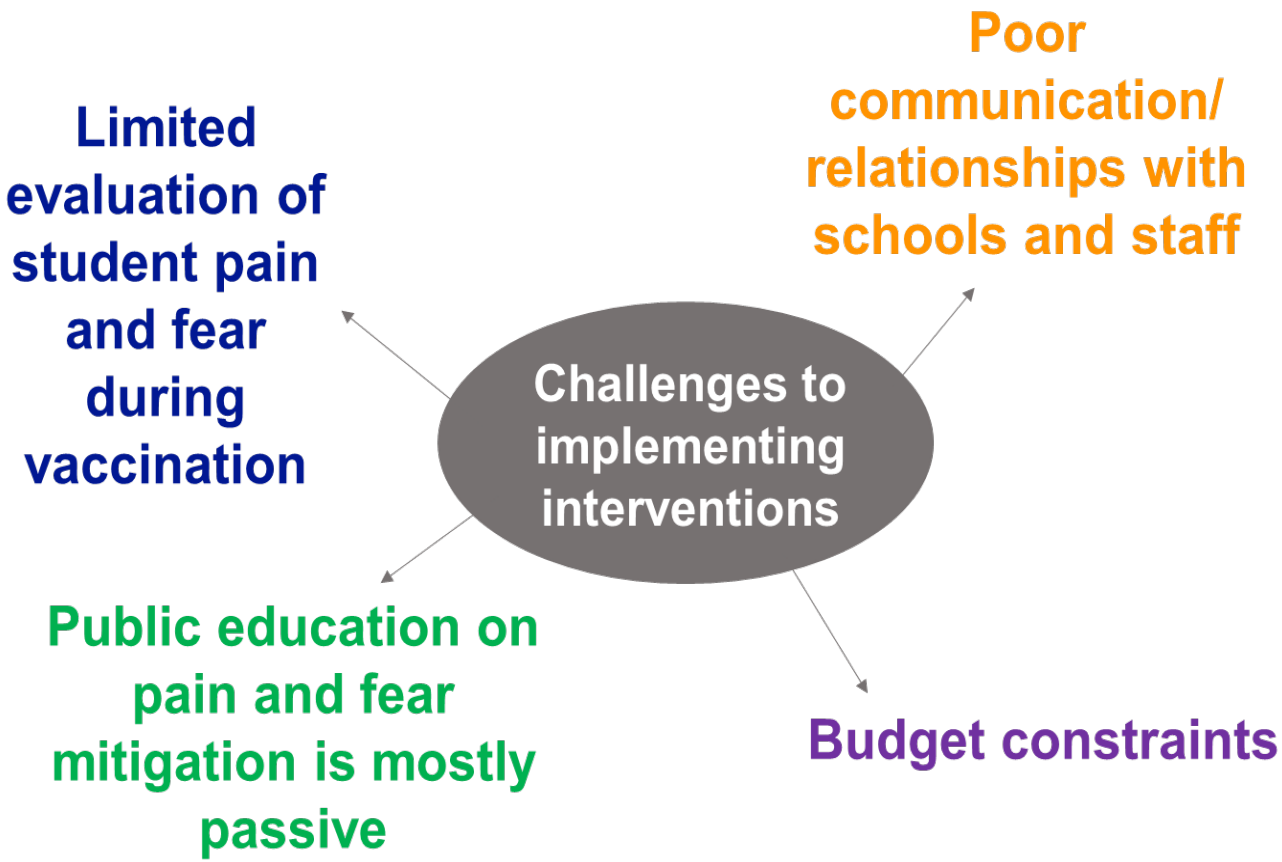
https://academic.oup.com/pch/issue/24/Supplement_1

Staying clear of pain and fear: A survey of policies and practices in public health school immunization clinics across Canada Bucci etal

Preliminary results

Training/Ed	PHN	Parents	Students
Pain Mitigation	<60%	<45%	33%
Fear Mitigation	<60%	<60%	<60%

Monitor for pain/fear during immunization- <10%!



The CARD ™ System for Improving the Vaccination Experience at School- Taddio etal

Background

- Had determined educational needs and preferences those involved school imm:
  - students, nurses, school staff, parents.
- Based on feedback:

created evidence-based, client centered framework for delivering vaccinations:

CARD™ System

C-Comfort, A-Ask,

R-Relax, D-Distract

Knowledge Translation (KT) tools: videos, pamphlets and checklists.

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Objectives:

to determine the impact of CARD™ implementation for school vaccinations on

- ***student symptoms*:**

  fear, pain, dizziness

- ***process outcomes*:**

  vaccination rate, attitudes, satisfaction

Methods

Controlled clinical trial.

- Niagara Region Public Health.
- 5 schools (experimental – CARD TM group)
- 5schools (control- standard care group)
- School vaccination clinics in 2017-2018
- Grade 7 students (Rounds 1 & 2).

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CARD™ Framework: Promotes Patient Centred Care and Control

Plan Ahead:

1. Ensure adequate clinic space & lay out at school
   esp an area privacy
2. Confirm space ahead of time
3. Educate students and school staff about CARD™
4. Have students fill out CARD™ pamphlet

Vaccination Day:

1. Minimize visual cues that elicit fear- optimize set up
2. Visit classroom before clinic starts
3. Identify and triage students with fear and special requests
4. Use CARD™ during interactions with students- Fear assessment , Pain assessment and how student wants these addressed

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Elements of CARD™ System: Student Control

Student Developed

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HOW TO DISTRACT YOURSELF

Talk to someone.

Play video games.

Read books.

Play music.

Rub your arm.

Sing.

Allow yourself to daydream.

HOW TO RELAX

Do belly breathing (pretend to blow out a candle).

Do some self-talk (tell yourself you can handle this).

Have a friend with you.

Have a family member or trusted adult with you.

Have privacy.

QUESTIONS TO ASK

What will happen on my turn?

What vaccine am I getting?

Can I ...

- get the vaccine in a private room?
- use numbing creams or patches?
- bring my friend?
- bring a family member?
- bring a trusted adult?
- look at the needle?

HOW TO GET COMFORTABLE

Wear short sleeves, or something that lets you show *your upper arm easily for the* needle.

Eat a snack.

Bring a favourite item.

Sit up in a chair.

Make your arm loose or jiggly (like cooked spaghetti).

Tense your stomach and leg muscles if you get dizzy.

School Clinic Layout

NOT stand in long line watching

Minimize –ve cues

Privacy – may need separate room for some; may need to lie down

Tables and chair set up

- NOT facing same way
- Card board barrier not see needle prep
- Friend may sit with them*
- Assess fear – " some students have no fear, some have lots of fear – where are you on a scale of 1 -3"
- What have you chosen to help with this – what cards are you playing?

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Results: Student Participants

	CARD™	Control
Round 1		
Number of students vaccinated	124 (76.1)	123 (76.9)
Mean number of vaccines	2.5 (0.7)	2.6 (0.6)
Round 2		
Number of students vaccinated	111 (68.1)	112 (70.0)
Mean number of vaccines	1.6 (0.5)	1.7 (0.5)

Values are means (SD) or frequencies (%); p> 0.05 for all comparisons

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Effect of Card™ Training

Table 3. In-class education pre–post-knowledge, fear, and willingness to be vaccinated scores for students in the experimental (CARD™) Group (n=142)*

	Pre-education	Poste-ducation	P-value**
Knowledge[a]	6.1 (2.3)	6.9 (2.5)	<0.001
Fear Level[a]	4.4 (3.6)	4.1 (3.6)	0.03
Willingness to be vaccinated[b]	1.7 (1.1)	1.5 (1.0)	0.001

*Values are mean (standard deviation).

**Paired t-test.

[a]Values for knowledge and fear range from 0 (none) to 10 (maximum).

[b]Values for willingness to be vaccinated range from 1 (yes) to 5 (no).

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Student Symptoms: CARD vs Standard Care

	Card	Standard Care
Round 1		
Fear	19%	31%
Dizziness	3%	10%
Pain	11%	9%
Round 2		
Fear	15%	30%
Dizziness	1%	5%
Pain	10%	10%

P< 0.05 for high fear*, & dizziness*

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* Values are percent of students reporting high levels, defined as >7 out of 10 on a scale of 0-10.

Student ISRR Post Immunization: –Significant Enough to Leave Class to See Nurse

	Card	Standard Care
Post Round 1		
ISRR: Headache, fatigue, nausea etc	1	6
Round 2		
ISRR: Headache, fatigue, nausea etc	1	8

NS but small numbers

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PHN Nurses involved in School Immunization

- able to integrate CARD™ within usual activities, including clinic planning, student education, clinic-day set-up, student vaccinations.
- ***did not take more time or person power***
- students in CARD™ schools were described by nurses and school staff as more prepared and less fearful during vaccinations- ***used much more +ve language to describe students*** **.**
- Nurses reported that CARD™ built on their practice had higher confidence in their ability to assess pain and fear higher satisfaction with their ability to manage it.
- Nurses also reported improved collaboration with students and with each other.

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PHN- comments

With CARD…

"Its just building on the skills we already have"

"Everything was just a little more strategic"

"Students were prepared, confident, empowered"

"We were able to make it an enjoyable experience"

"The fear question showed that you cared, right to the very end and you got feedback after the experience. "

"I love my job and this made it better"

"It made a big difference. I don't know why you would go back."

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Student Comments

- *"The CARD strategy definitely helped me with learning how to distract myself and different ways to calm myself and relax myself."*
- *"…nothing was really a surprise. The videos were almost spot on with everything that was gonna happen so they helped out a lot."*
- *"… it's just like the manners of the different nurses. Like the nurses at (CARD) school, they're more caring and like, comforting. But the nurses at the doctors' offices are just like trying to get through everybody…"*
- *"I think the information like the CARDs, should be shared with everybody because even if they're not going to use it for vaccines specifically, this coping with fear and like stress and that sort of stuff is helpful for everybody. At some point in your life, you're going to use this sort of a strategy and I think it's important for people to get to know."*

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Other observations:

Teachers

- Not take more time
- Helpful strategies for us to know to help students
- Will apply CARD™ to other stressful student situations

Students

CARD should be taught to all students – those who went before us and are coming behind- they should not miss out because CARD™ really helps

Parent

- daughter so afraid – did not think possible at school but she did it with CARD™
  - –I am so proud - she even said it went OK and would use CARD™ for other stressful situations

Nurses

- Could never go back to the old system

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Implications CARD™ and Next Steps

- School immunization can be a more positive experience
- NO extra cost – CARD™

- Much larger study being run in Alberta
  - broader population background,
  - examine impact on uptake (i.e. # students not attend on days imm clinics),
  - examine impact on post immunization ISRR

- If successful needs to be adapted for low and middle income country school settings