

Examples from outside: Food allergy - Issues beyond avoidance

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Bra Mat för Alla Webinarium
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**University
of Manitoba**

Objectives

1. To review why we need to talk about food allergy
2. To describe the impact of food allergy on children and their families
3. To highlight select opportunities for collaboration between Canada and Sweden

Why talk about food allergy ?



Get those EpiPen's ready, because this is going to be worth it! Churro Bowls are out and [redacted] Bowls are in!
This giant [redacted] is sure to get the heart racing! Loaded with Ice Cream and drizzled in Peanut Butter and Chocolate, it sure screams, get me to the hospital ASAP!... See more



Perceived prevalence:
12-40% (1-3)

Food is...

- Essential for life
- Integral in every society
- A trigger for allergic reactions

1. Eggesbo et al. *Pediatr All Immunol*. 1999
2. Roehr et al. *Esp Allergy*. 2004.
3. Pereira et al. *J Allergy Clin Immunol*. 2005.

Food allergy

- A potentially life threatening immunological response that occurs reproducibly upon ingestion of the allergen¹
- Affects approximately 4-8% of children^{2,3}
- 2.4% of children have multiple food allergies³
- 3% experience severe reactions³
- Increase in recent decades⁴

1. Boyce JA et al. J Allergy Clin Immunol 2010.
2. Gupta RS et al. Pediatrics 2011.
3. Soller L et al. J Allergy Clin Immunol. 2012
4. Keet CA et al. Ann Allergy Asthma Immunol. 2014.

Food allergy

Strict avoidance of the food
Constant possession of EAI



Dietary, behavioural
changes

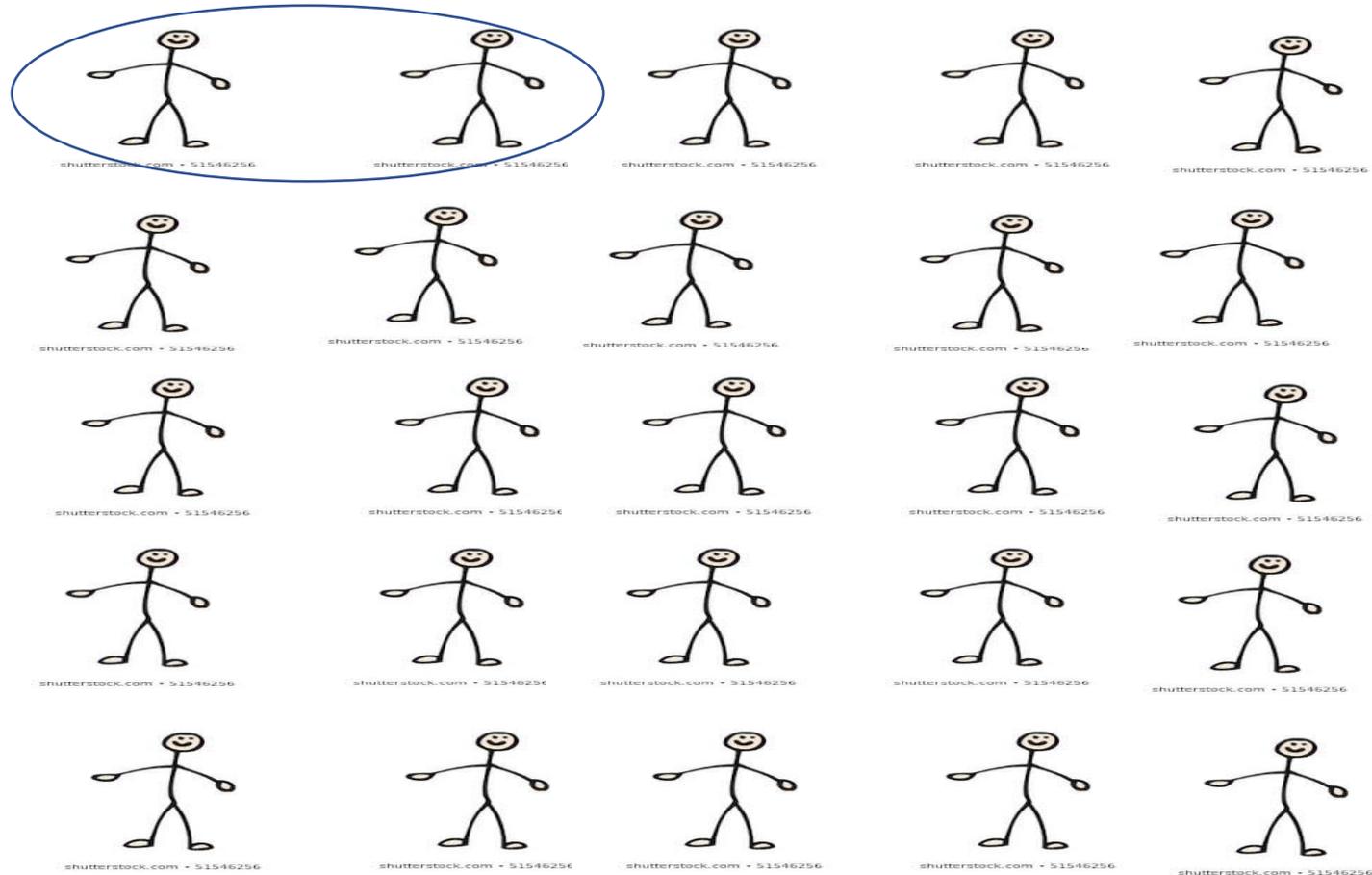


Silent impact of disease



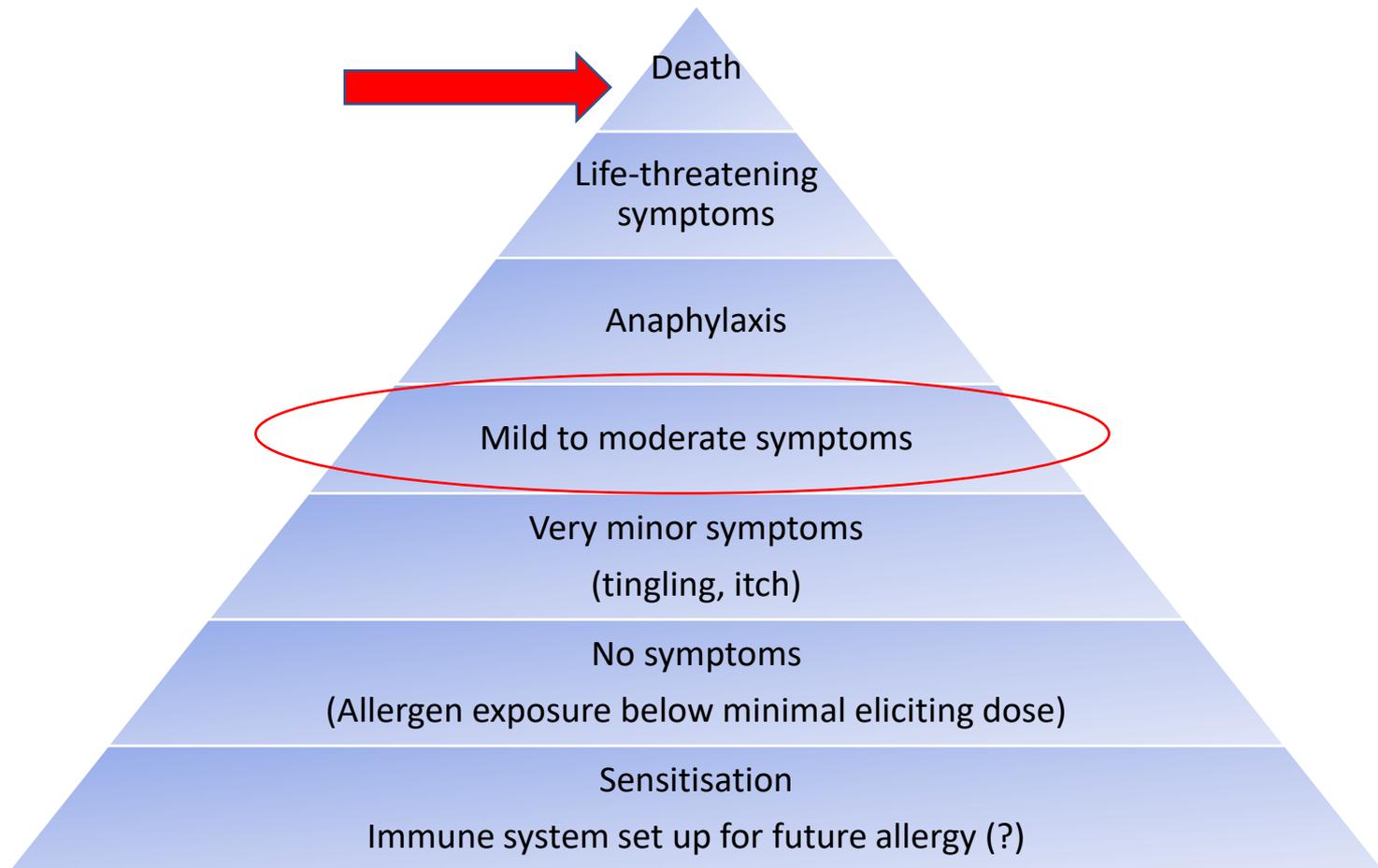
EAI
\$120 each

Approximately 7% of Canadian children have food allergy¹...
1 or 2 in every class room



¹Soller L et al. J Allergy Clin Immunol 2012.

Worst case vs. most common scenario



Anaphylaxis: Definition

- 1902: Richet and Portier coined term “anaphylaxis”

Consensus definition¹

Anaphylaxis is a serious allergic reaction that is rapid in onset and may cause death

- Acute illness involving skin, mucosa AND respiratory compromise or reduced blood pressure
- If exposed to a likely allergen: Two of the following: skin/mucosal involvement, respiratory compromise, reduced blood pressure, persistent GI symptoms
- If exposed to a known allergen: Low blood pressure



Impact of food allergy on children and their families

“The financial costs and emotional effect of living with food allergy cannot be underestimated”

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Immunology

Food allergy-related costs to family*



Canada ?



US¹:
Household costs: €3663 per child
*Before increases in EAI out-of-pocket expenses

Sweden²:
Excess family costs
Children: €3961
Adolescents: €4792



Matallergi påverkar både individer och olika samhällssektorer ekonomiskt. I Sverige uppskattas matallergi mot ägg, mjölk eller vete medföra ökade hushållskostnader med mellan 35 000 och 72 000 kr per år, beroende på om allergin finns hos ett barn, en ungdom eller vuxen.

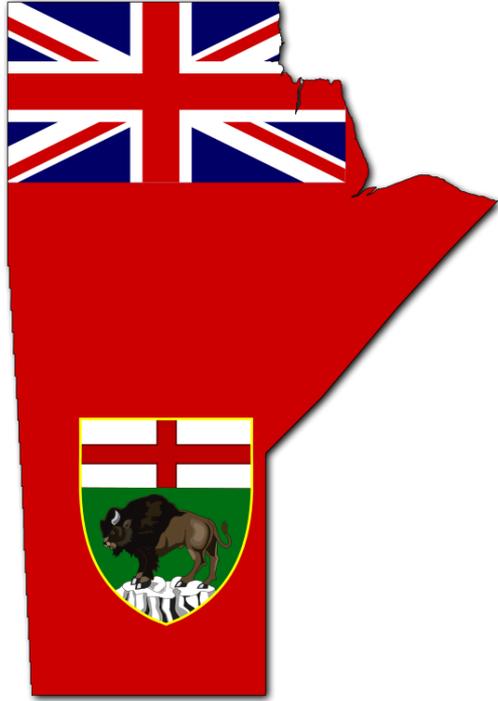
>> text: JENNIFER PROTUDJER, PHD, ROELANDE MIDDEVELD, PHD, STAFFAN AHLSTEDT, PHD, LENNART NILSSON, MD, PHD, University of Manitoba, Kanada, Linköpings universitet, Linköping och Karolinska Institutet, Stockholm. jennifer.protudjer@ki.se



* Converted to CAD Canadian Dollars

1. Gupta R et al. JAMA Pediatr. 2013.

2. Protudjer JLP et al. JACI In Practice, 2014.



Presuming the same costs in Manitoba as in Sweden:

- *1.5 to 2 months' salary for average Manitobans.*
- *For low-income, urban families, these figures represent as much as 30% of a family's annual income¹*

No tax credits exist at this time for food allergy²

1. MCHP. Rural (0) and Urban (1) Income Quintiles for Manitoba – 1979 to 2017.
2. Government of Canada. (2018). *Medical Expenses*.

Health-related quality of life (HRQL)

- “The effects of an illness and its consequent therapy upon a patient, as perceived by the patient”¹
- Children and youth with food allergy may have worse HRQL
 - Compared to non-food allergic peers^{1,2}
 - Compared to others with serious illnesses^{3,4}
 - In relation to social well-being and independence⁵
 - Than estimated by their parents⁶
 - With inconsistent differences by gender^{1,8}
 - Worsens much earlier than previously thought⁹

1. de Blok BMJ et al.; 2006.
2 Marklund et al, 2006

3.Primeau et al, 2001
4. Flokstra-de Blok et al, 2010
5. Dunn Galvin et al, 2015

6. Van der Velde et al, 2011
7. Stensgaard et al, 2017
9. Thörnqvist et al, 2019

HRQL in children and youth^{1,2}



Anaphylaxis



1. Protudjer et al. Acta Paediatr. 2015
2. Protudjer et al. Clin Exp Allergy, 2016

Silent physical impacts of food allergy



- Risk of malnutrition^{1,2}, decreased growth and bone mineral density^{3,4}
 - Less dietary calcium, protein
 - Particularly if multiple food allergies
 - Especially in early life

- Comorbid allergic diseases⁵

1. Sova C et al. . Nutr Clin Pract. 2013.
2. Meyer R et al. J Hum Nutr Diet. 2014
3. Mehta H et al, Curr Opin Allergy Clin Immunol. 2013.

4. Hildebrand et al, forthcoming
5. Sicherer & Sampson. J Allergy Clin Immunol. 2014.

Silent psychosocial impacts of food allergy

- Bullying/teasing^{1,2}
 - >30% of food allergic children bullied due to food allergy
 - Only half parents knew about this bullying



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Warning:

Some may be disturbed by the text on the next two slides.

“A boy...came to [food allergic child] one day and said he was going to bring peanut butter to school and he was going to make [child] eat it. And my son said, ‘If you do that, I will die.’ And [the bully] goes, ‘Yep, that’s the funny part. And, I’m going to video tape it and put it on YouTube, and we’re all gonna laugh as you die.”

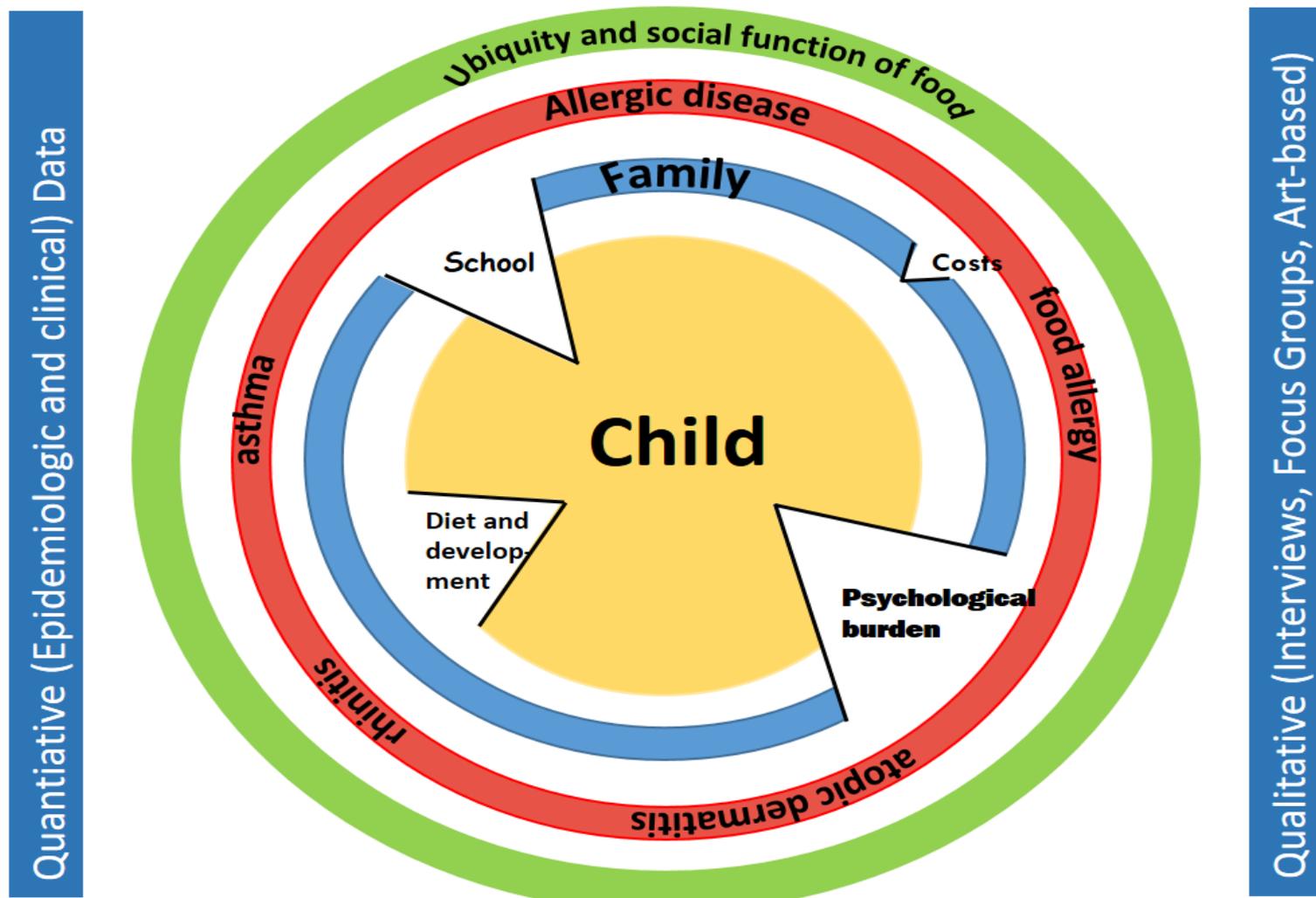
“I guess if he wanted to ever kill himself... think about it. A glass of milk or eat a peanut. You'll never know if it was an accident.”

Anxiety, depression and exclusion

- “*Depressed*” and “*terrified*” about leaving their children in the care of others who were perceived as being minimally equipped to handle food allergy.
- Parents felt “*overwhelmed and alone*,” especially if limited support from their extended family, daycare/school
 - [Grandparent says] “*I cannot do it. It’s too difficult*”
- Social exclusion from age-appropriate activities
 - “*He never gets invited to friend’s cabins or things like that and I always wonder if people are less inclined to invite him because they’re worried about their environments and being away.*”

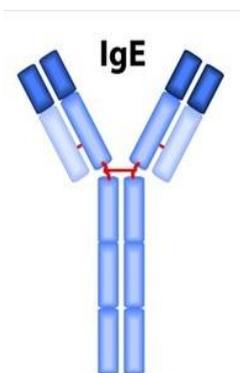
Select opportunities for collaboration between Canada and Sweden

Provincial, national and international programs and policies
Mixed methods to improve patient outcomes



Participant Advisory Council

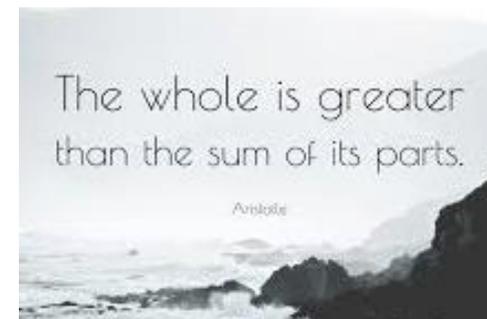
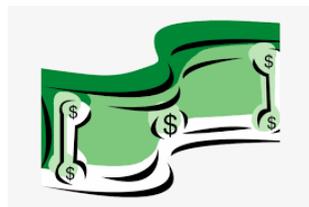
Mixed methods to identify research priorities and action



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FOOD ALLERGY ACTION PLAN



CHARTING THE PATH FORWARD

It's time to act.

*Now is the time to **reduce the impact** of food allergy and **improve the quality of life** for the more than 2.6M Canadians living with this medical condition.*

My roles:

Development of a patient centered research agenda
Psychosocial burden of food allergy



Similar healthcare systems.¹ Similar food allergy impacts?



Aims:

1. To develop a single standardized tool to assess the psychosocial health of families with a child with food allergy
2. To perform an international comparison of the psychosocial health of families with a child with food allergy

Conclusions

1. Beyond avoidance, food allergy profoundly impacts children and their families
2. Substantial opportunities to develop food allergy-related collaborations between Canada and Sweden. These collaborations are key to addressing this burden on the world stage, and in our own backyard



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