Special Population Case Studies
High risk children and the role of BC Children's Hospital

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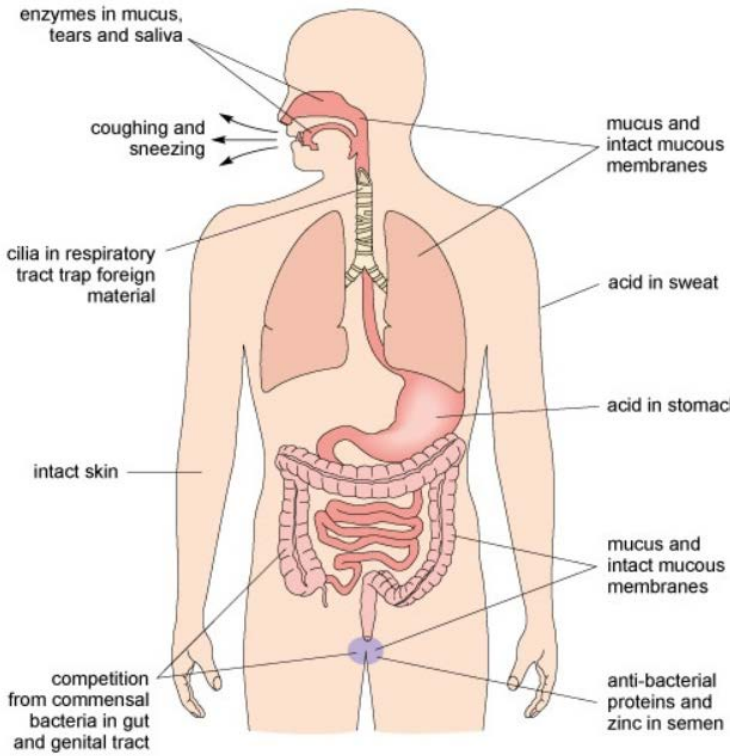
Objectives

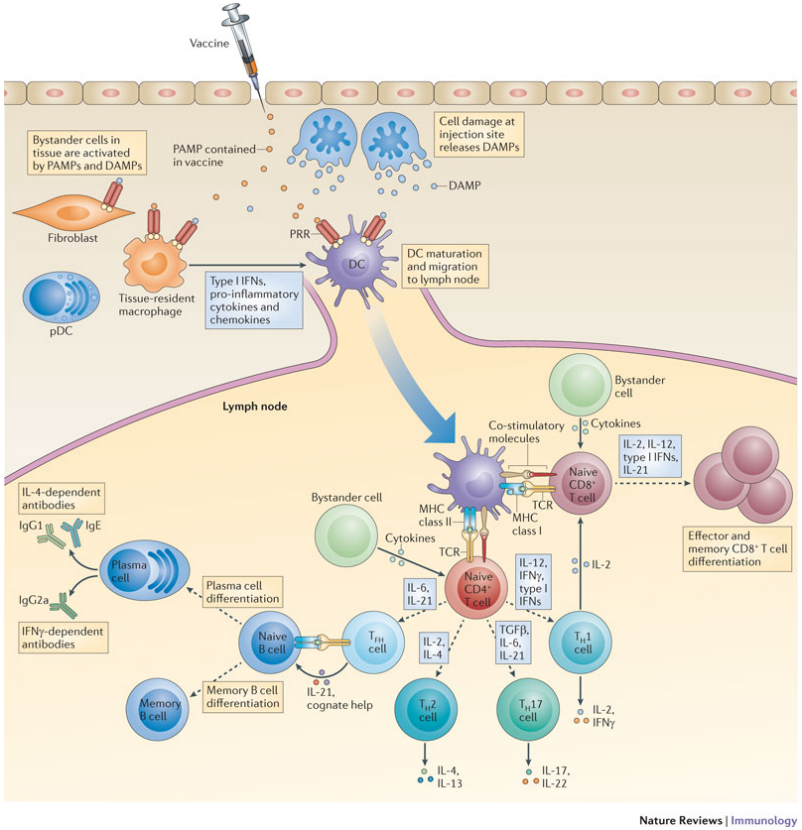
- Explain the impact of under-immunization on the health of medically high risk children

- Illustrate how the new Family Immunization Clinic at BCCH will help to identify and immunize medically high risk children

Protection against infection

- Physical/chemical barriers
- Cells of the immune system





"Medically high risk children" - examples

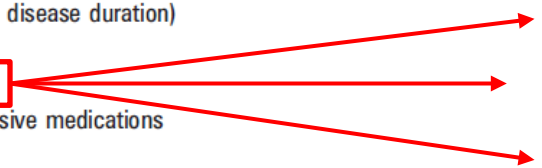
- Defects in
  - Physical/chemical barriers
    - Cystic fibrosis & influenza
  - Cells of the immune system
    - Chronic conditions: inflammatory bowel disease (IBD)
      juvenile idiopathic arthritis (JIA)
    - Immunodeficiency: HIV
    - Immunosuppressive medications: children with cancer

- Vaccine delivery problems
  - Frequent visits to hospital
  - Children with severe behavioural problems

Increased risk of infections in IBD

Table 1 Opportunistic infections reported with immunosuppressant therapy in inflammatory bowel disease

Factors that may predispose to infectious complications in IBD	IBD (disease type and extension, disease duration)
	Malnutrition
	Immunosuppressive medications
	Leucopenia from immunosuppressive medications
	Surgery
	Concomitant disease
Viral infections	Virus Varicella zoster
	Virus Herpes simplex
	Cytomegalovirus
	Epstein–Barr virus
	Human papilloma virus
Bacterial infections	*Escherichia coli*
	Salmonella spp.
	Streptococcus pneumoniae
	Clostridium difficile
	Staphylococcus spp.
	Mycobacterium tuberculosis
	Legionella pneumophila
	Listeria monocytogenes
	Mycobacterium avium spp. or *xenopi*
	Nocardia
Parasite and fungal infections	*Candida* spp.
	Pneumocystis jiroveci (*carinii*)
	Aspergillus spp.
	Histoplasmosis
	Cryptococcus spp.
	*Toxoplasma gondii**
	Coccidioides immitis
	Leishmania donovani
	Blastomycoses



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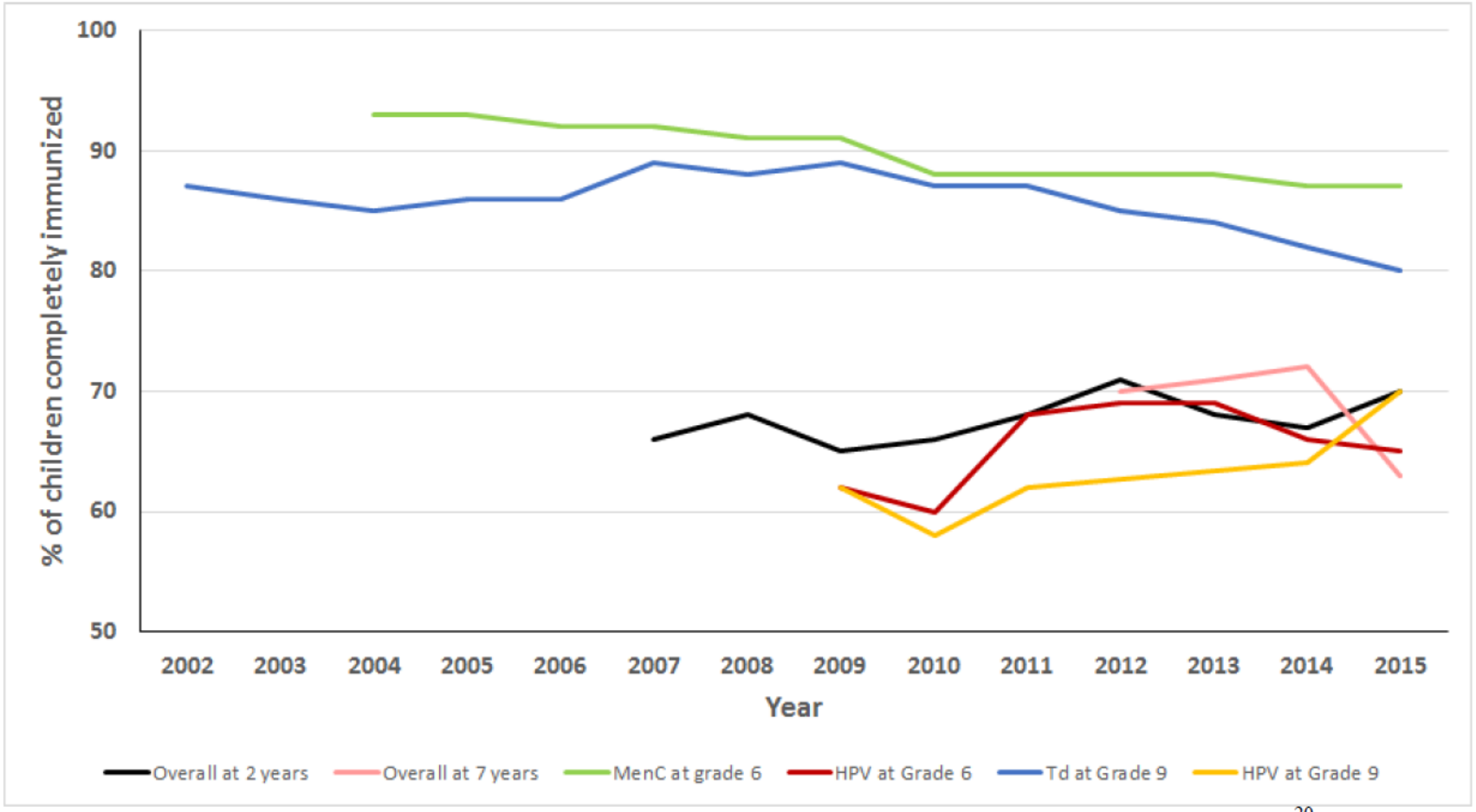
Responsibility for vaccination?

- Shared responsibility

- Specialist(s)
- Family Physician
- Public Health
- Patient & Family

Cannot rely on herd immunity

Figure 1. Percentage of children completely immunized at 2 years and 7 years of age, and at Grades 6 and 9 for selected vaccines in BC, 2002-2015.



MenC = meningococcal group C; HPV = human papillomavirus; Td = tetanus-diphtheria. Data from BCCDC[20]

The BCCH Family Immunization Clinic

- Opened October 16th
- Highly visible
- Easily accessible
- Expert immunization care – nurses & physicians
- Focus on the whole family
- Link between acute health care and public health

The practicalities

- Opened October 16th
  - Flu shots only initially
  - All vaccines from January 15th, 2018
- Ambulatory Care Building, main floor, opp. clinic 7
  - High traffic area
  - "Starbucks building"
- Drop-in and pre-booked appointments
- Not intended for staff or local residents

A story of many firsts

- First in-hospital immunization clinic in Canada
- First clinic at BCCH to offer a drop-in service
- First hospital in BC with full access to immunization records
- First clinic to integrate 'Belly Breathing App' into practice
- First clinic to offer care to all friends & family members
- First group of staff to complete new BCCH training program
- First area to systematically engage patients in research
- First area at BCCH to be paperless (almost!)

What do we do?

- Routine & catch-up vaccines
- Immunization counselling
  - After previous adverse events
  - Vaccine hesitancy
  - Complex medical conditions
- Personalized vaccine schedules for complex cases
  - Cancer
  - Other immune suppressive medications
- Nurse and physician consultations

- Immunization education, advocacy and outreach

Education in other clinics at BCCH

1. Ensure fully immunized to date from the start
   - If not, then initiate catch up ASAP

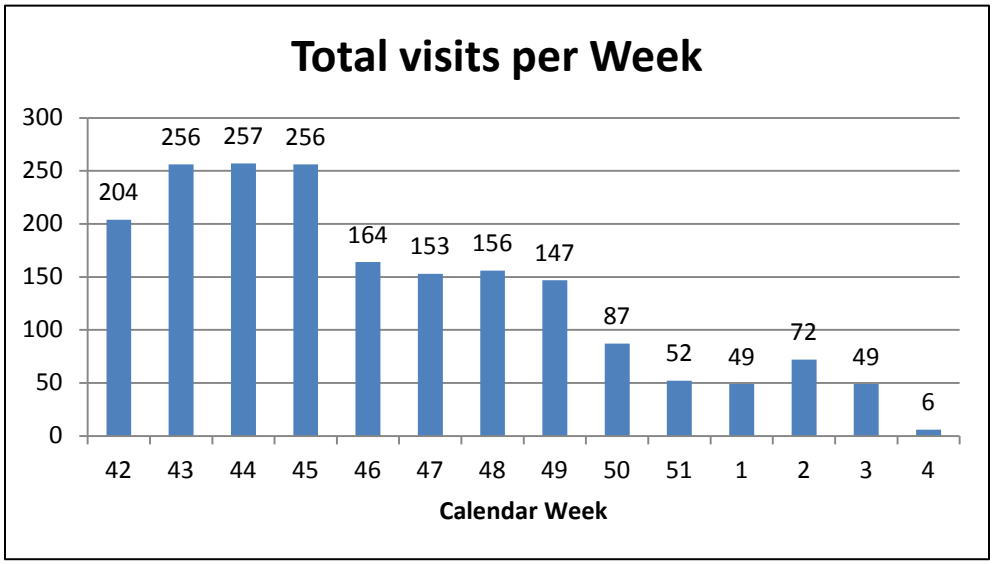
2. Ensure family members are fully immunized

3. Anticipate immunosuppression
   - Timely immunization (especially live vaccines)
   - Extra vaccines and/or doses may be needed

4. Ongoing consideration
   - Extra vaccines and/or doses, travel vaccines

The numbers so far

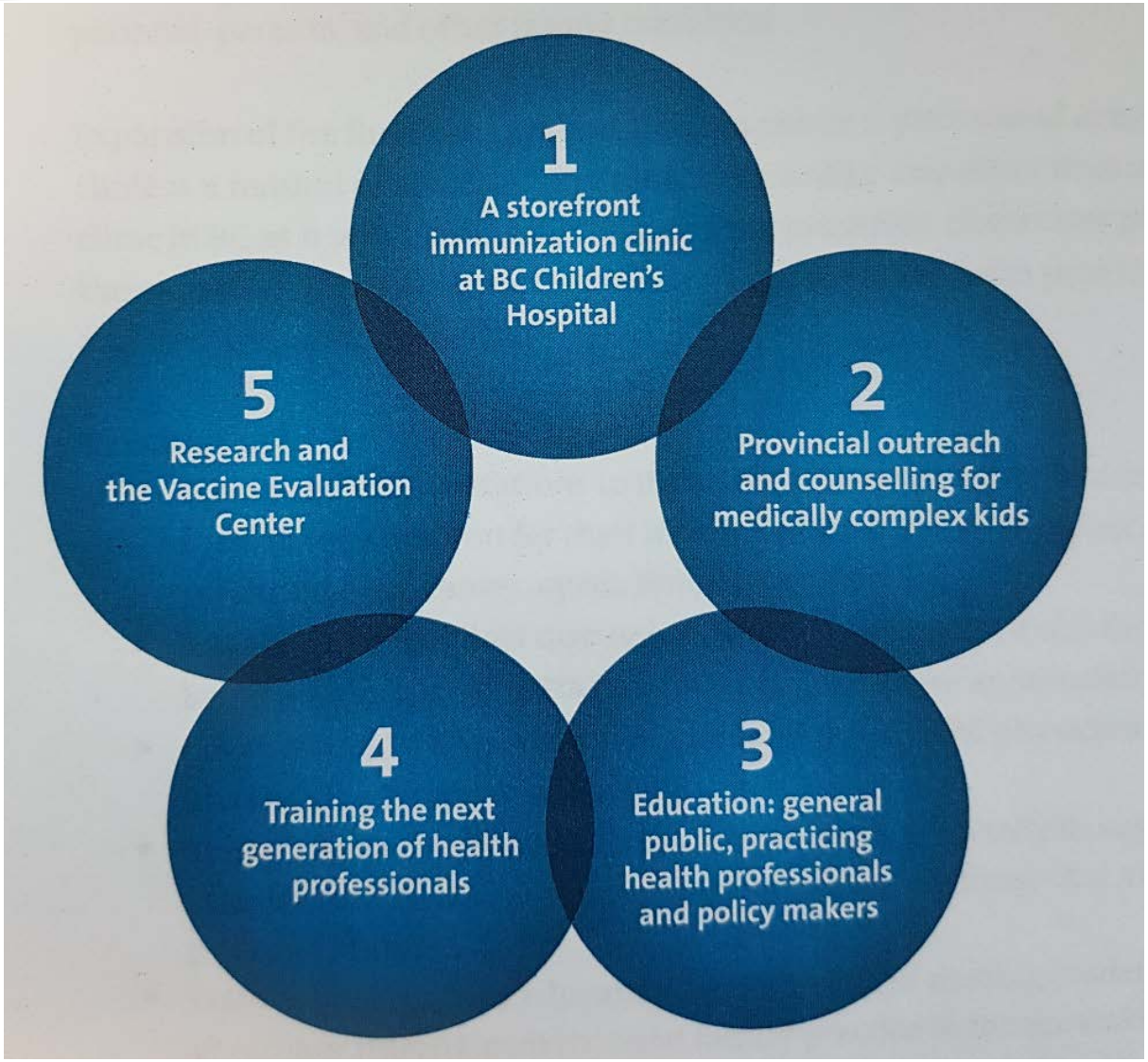
- 12 weeks flu only + 1 week all vaccines
- 1,921 patients immunized so far
- 1,896 influenza shots
  - 2016: 1,525 shots
  - 2015: 1,556 shots
  - 2014: 957 shots



Who's coming?

	Number	%
TOTAL	1,851	
Patients + family members	1,396	75%
- BCCH patients	757	41%
- Mother	354	19%
- Father	188	10%
- Siblings	74	4%
- Grandparent	23	1%
Others	455	25%
- Other children	185	10%
- Other adults	267	14%
- Unknown	3	0.2%

Part of BCCH Immunization Project



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Thank you

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