Why Canadian immunization programs need bar codes on vaccines

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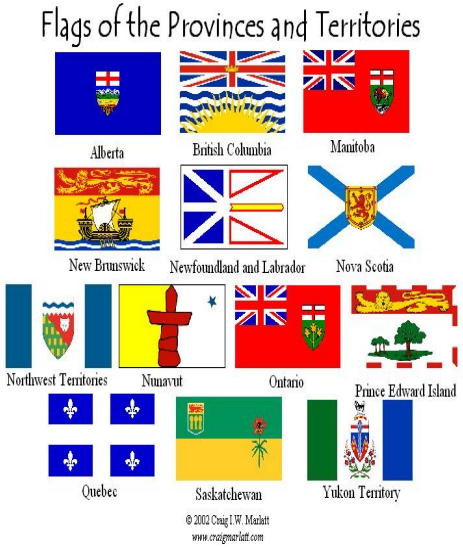
British Columbia Centre for Disease Control

GS1 meeting, Toronto, June 17, 2008

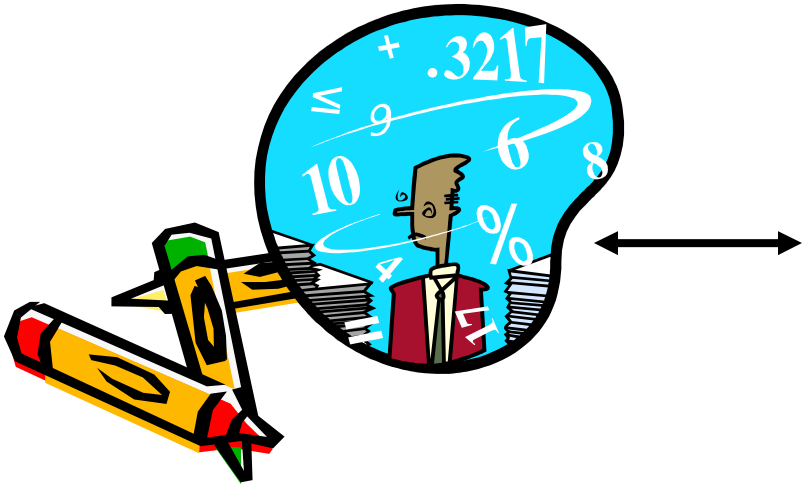
Immunization program cycle

Manufacturer

Health Canada



Effectiveness and safety:
disease incidence,
immunization rates,
adverse events



Program planning

and implementation

Change of pace in introduction of new vaccines and vaccine policy

1990s:

- Hib
- DPT-Polio/Hib
- MMR 2nd dose
- Hepatitis B routine

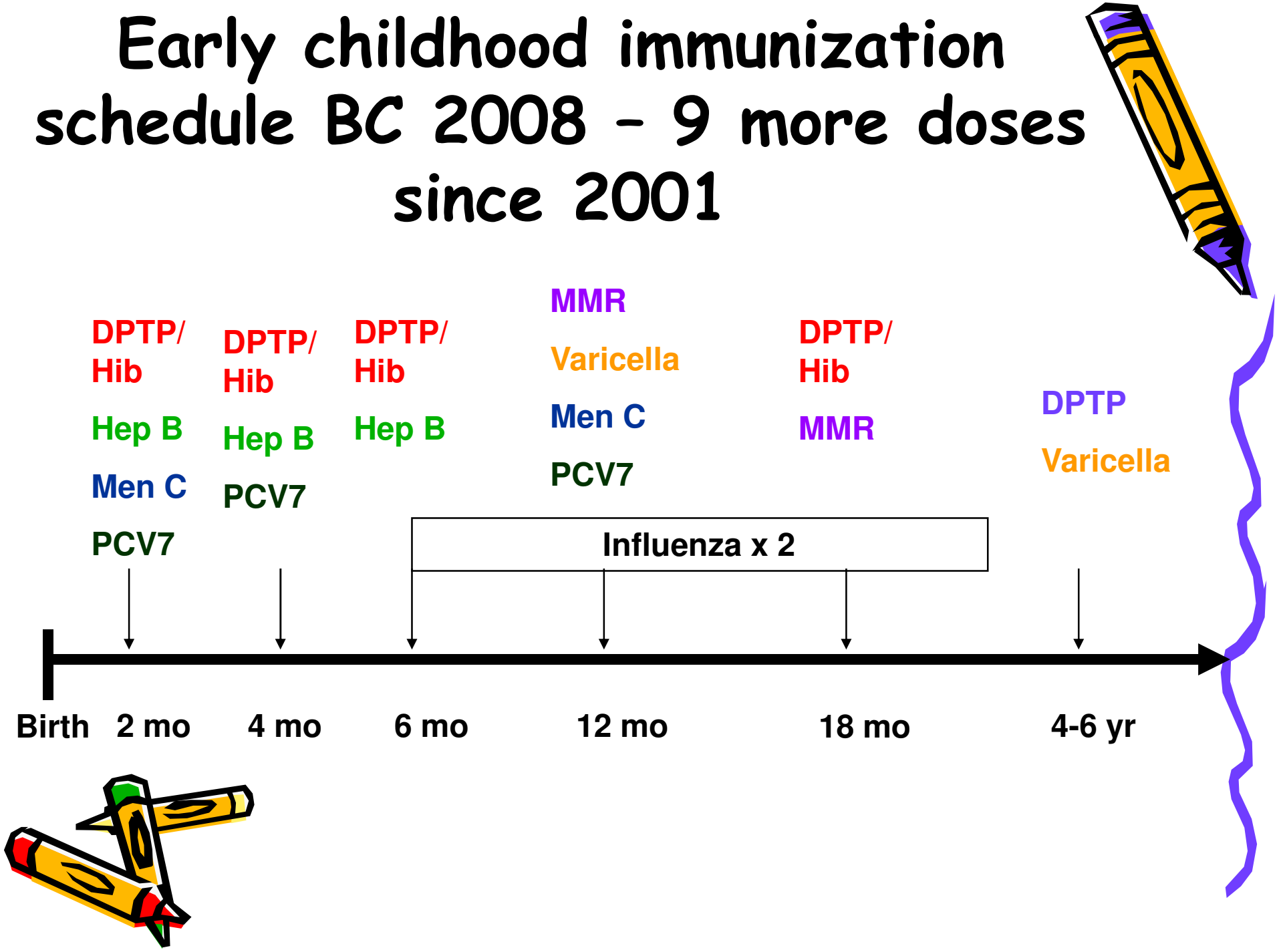
Since 2000:

- **Varicella**
- **Meningococcal C conjugate**
- **Pneumococcal conjugate 7**
- **TdaP**
- **GSK DPT containing infant vaccines**
- **HPV**
- **Meningococcal conjugate quadrivalent**
- **HBV/HAV**
- **Policy: infant influenza, mumps 2nd dose**

Future:

- **Rotavirus**
- **MMRV**
- **Zoster-shingles**
- **Policy: varicella 2nddose**
- **New influenza vaccines**
- **HSV, GAS, GBS, MBV, RSV**

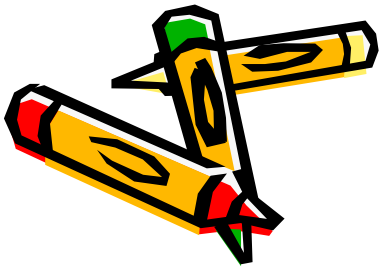
Early childhood immunization schedule BC 2008 – 9 more doses since 2001




http://www.co.chippewa.wi.us/ccdph/images/IMMUNIZATION%20CLINIC%203.jpg
2005 6 9

Vaccine-preventable diseases, Canada
Change in reported morbidity

Disease	Pre-vaccine	Now	% change
Diphtheria	9,000	1	-100
Polio	20,000	0	-100
Tetanus (deaths)	40-50	0	-100
Measles	300,000	8	-99.99
Mumps	52,000	900	-98
Rubella	69,000	10	-99.9
CRS	2,000	1	-99.95
Invasive Hib	2,000	20	-97.5
Pertussis	25,000	6,096	-69.92
TOTAL	477,050	6,271	98.7%



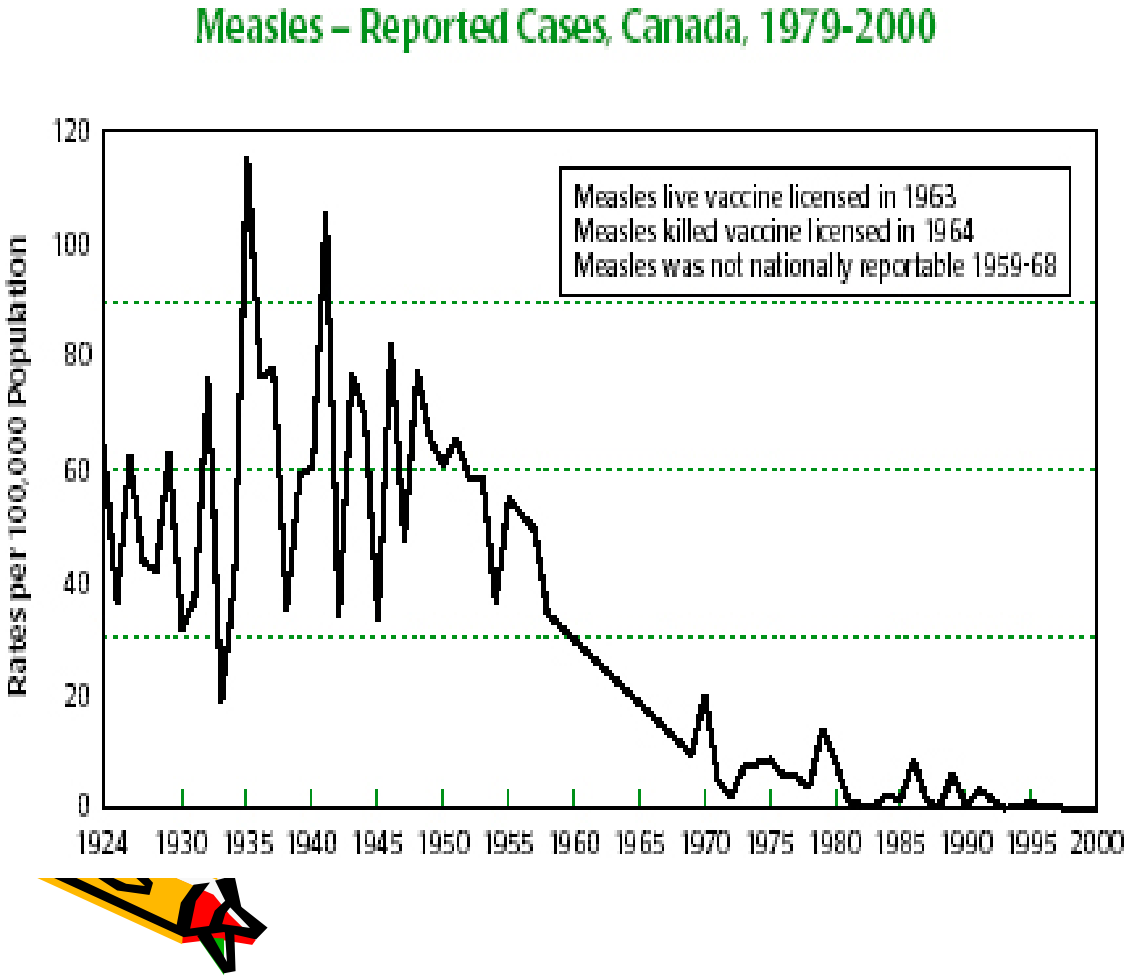
* Maximum cases reported in pre-vaccine era and year

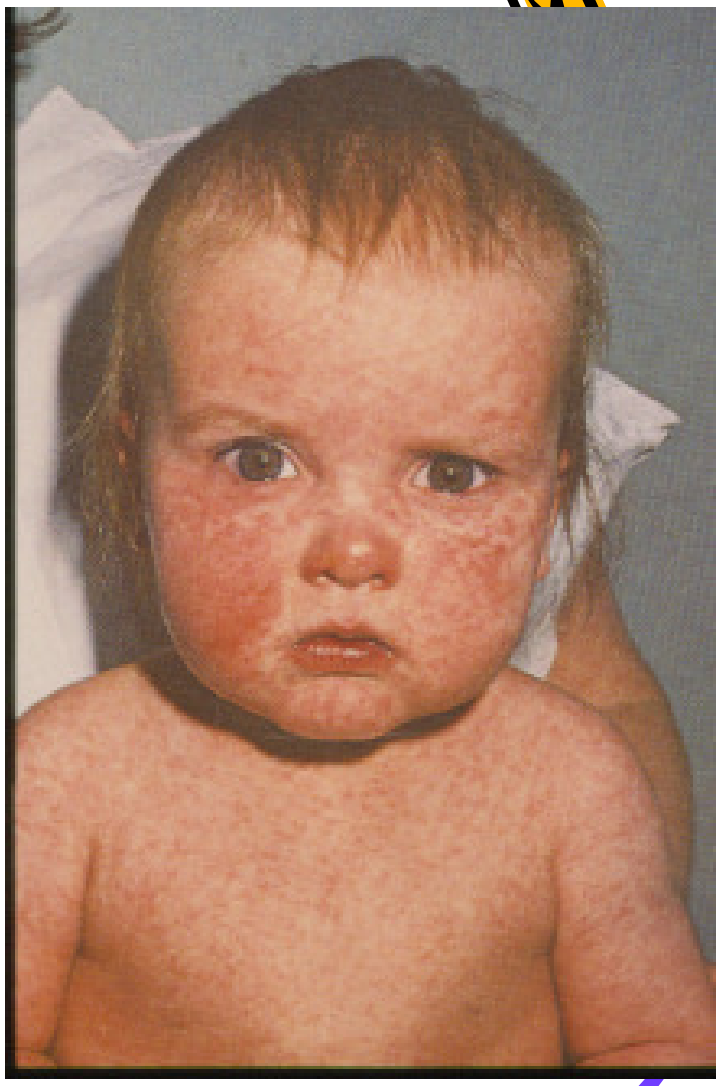
\+ Estimated because no national reporting existed in the prevaccine era

Polio elimination in the Americas

- In the 1950's, polio outbreaks crippled or killed tens of thousands every year...
- In 1991, in Peru, Luis Fermin Tenorio caught polio.
  He is the last known case of wild polio in the Americas.
- PAHO declared polio elimination September 1995.

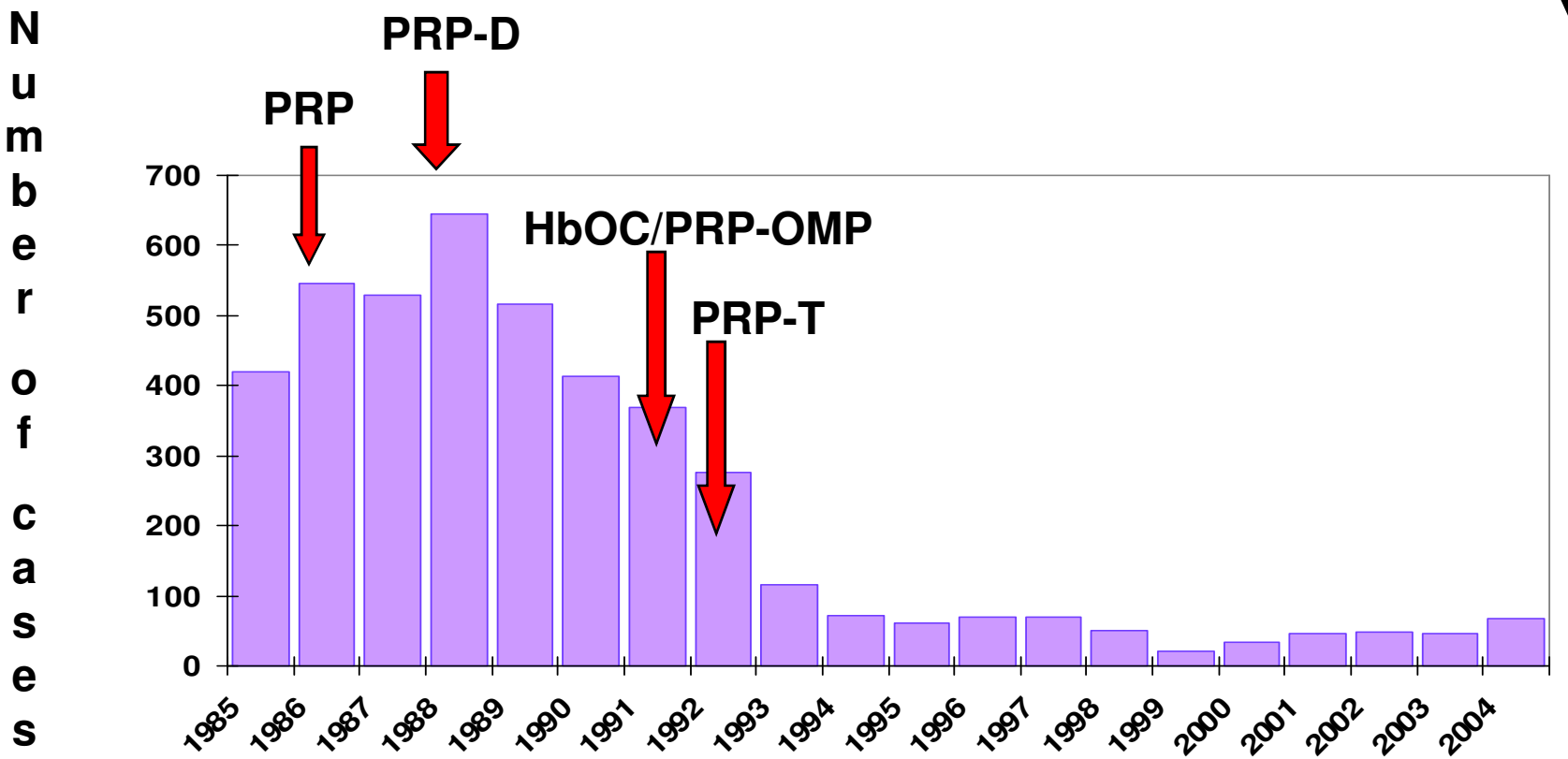
Measles Elimination in Canada in 1996





Measles in a 1 year old

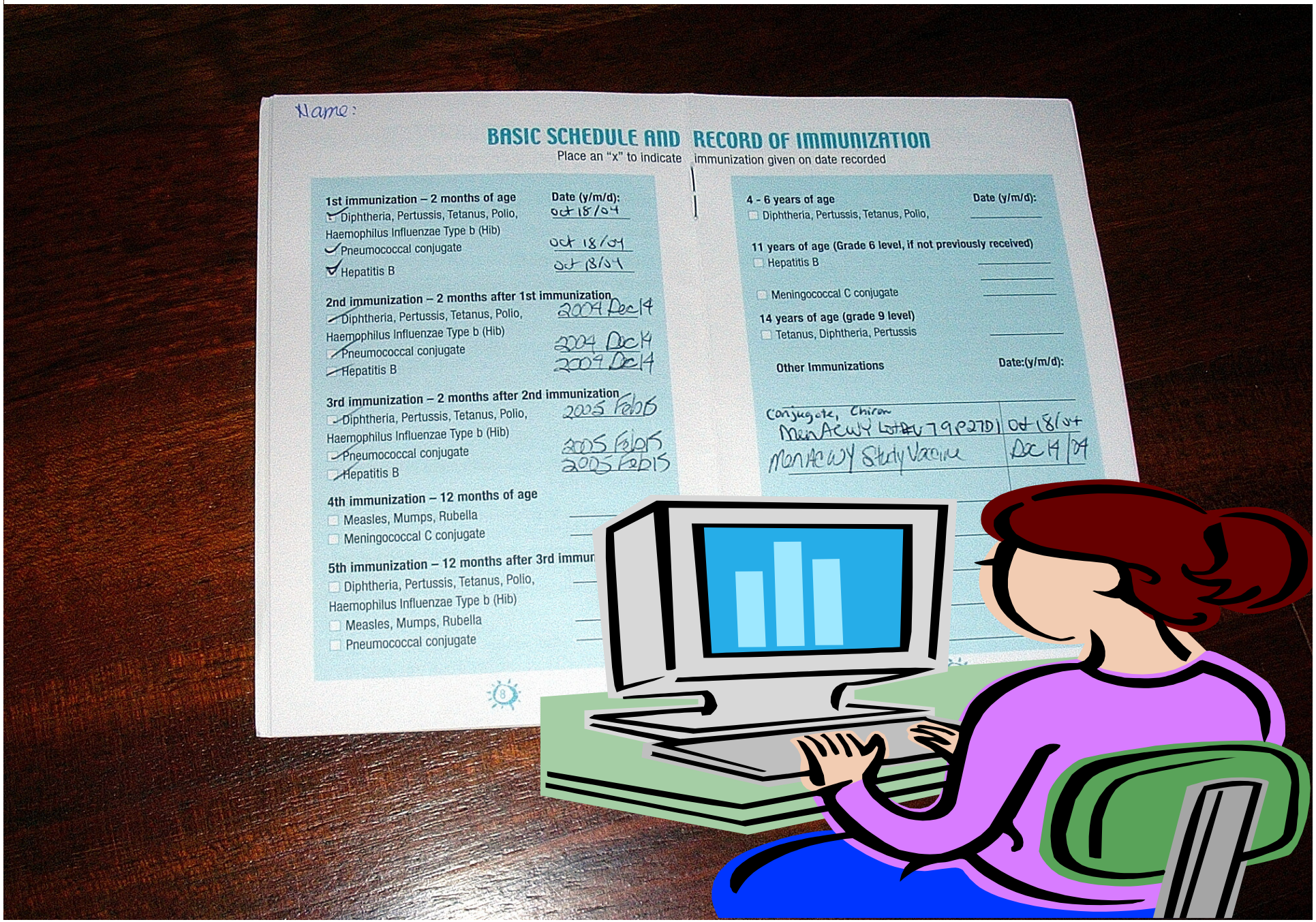
Invasive *Hib* disease
Reported cases, Canada 1985-2004



Routine immunization schedule
BC, 2008

Age	Vaccine(s)
2 mo	DPT-Polio/Hib, PCV7, MenC, Hepatitis B
4 mo	DPT-Polio/Hib, PCV7, Hepatitis B
6 mo	DPT-Polio/Hib, Hepatitis B Influenza (2 doses, to 23 mos only)
12 mo	MMR, PCV7, MenC, Varicella
18 mo	DPT-Polio/Hib, PCV7, MMR
4-6 years/ Kindergarten	DPT-Polio, Varicella
11 years/ Grade 6	Hepatitis Bx2, MenC, Varicella, HPVx3
14-16 years/ Grade 9	dTaP, HPVx3
Adult	Tdap/ Td, influenza, pneumococcal, travel vaccines

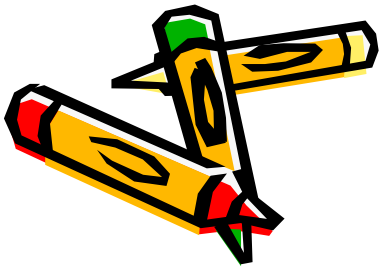
Immunization records and registries



Standards for recording of immunization data

Vaccines administered to an individual should be recorded in three locations: personal record, medical chart, immunization registry

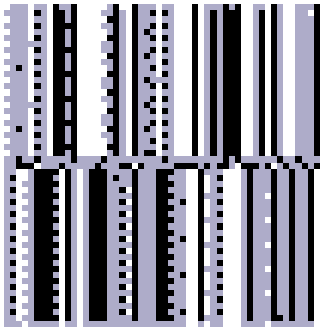
- Each method of recording should include the following:
  - trade name of the product
  - disease(s) against which it protects
  - date given (day, month and year)
  - dose
  - site and route of administration
  - manufacturer
  - lot number
  - name and title of person administering the vaccine.
- Preprinted, peel-off labels and bar coding of products will facilitate such recording. Manufacturers are encouraged to produce these labels and to bar code products. Immunization registries should have mechanisms that will allow bar coded information about the products to be read into the database.



Source: National Advisory Committee on Immunization
Canadian Immunization Guide, 2006, 7th Edition: Page **55**

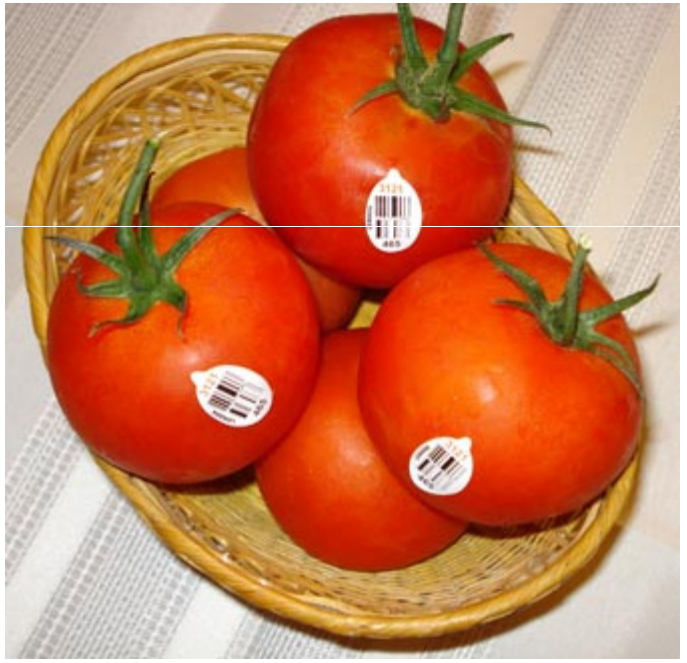
Immunizations

RED variables can be obtained from a bar code

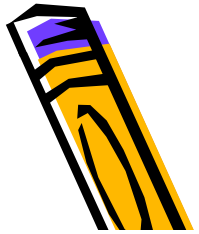


Appt Date	2002-11-12
HA	CAPITAL HEALTH REGION
Branch	SAANICH PENINSULA
Provider	MNAUS
Created By	WRENCY WU
Manufacturer	**Merck Frosst Limited**
Agent /trade name	**Recombivax** cine
Lot Number (Expiry Date)	**L2003947857 (2009-06)**
Site	RL
Route	**IM**
Dosage	**0.5**
Dosage Units	**ml**
Dose #	3
Consent	
Reason For Immunization	**Routine**

Comments



Reporting of Adverse Events Following Immunization



Health Canada Santé Canada

REPORT OF A VACCINE-ASSOCIATED ADVERSE EVENT

Protected when completed

In confidence to:
Vaccine Safety Unit
Bldg #6, Tunney's Pasture 0602C
Ottawa, Ontario, K1Y 0L9
(613) 954-5590 FAX (613) 946-0244
E-mail: CAEFI@phac-aspc.gc.ca

IDENTIFICATION

PATIENT IDENTIFIER	PROVINCE/TERRITORY	DATE OF BIRTH YEAR MONTH DAY	SEX ☐ Male ☐ Female	DATE OF VACCINE ADMINISTRATION YEAR MONTH DAY

VACCINES

VACCINE(S) GIVEN	NUMBER IN SERIES	SITE	ROUTE	DOSAGE	MANUFACTURER	LOT NUMBER

ADVERSE EVENT(S)

Events marked with an asterisk (*) must be diagnosed by a physician. Report only events which cannot be attributed to co-existing conditions. Additional information for all events should be provided under SUPPLEMENTARY INFORMATION on reverse side. Record interval between vaccine administration and onset of each event in minutes, hours or days.

LOCAL REACTION AT INJECTION SITE

☐ **INFECTED ABSCESS** (tick one or both of the options below) — MIN. | HOURS | DAYS
- (i) positive gram stain or culture ☐
- (ii) existence of purulent discharge with inflammatory signs ☐

☐ **STERILE ABSCESS/NODULE** — MIN. | HOURS | DAYS
No evidence of acute microbiological infection

☐ **SEVERE PAIN AND/OR SEVERE SWELLING** — MIN. | HOURS | DAYS
(tick one or both of the options below)
- (i) lasting 4 days or more ☐
- (ii) extending past nearest joint(s) ☐

☐ **SCREAMING EPISODE/PERSISTENT CRYING** — MIN. | HOURS | DAYS
Inconsolable for 3 hours or more; OR quality of cry definitely

☐ **SEVERE VOMITING AND/OR DIARRHEA** — MIN. | HOURS | DAYS
Must be severe enough to interfere with daily routine

☐ **HYPOTONIC-HYPORESPONSIVE EPISODE** (in children < 2 yrs. only) — MIN. | HOURS | DAYS
Characterised by all the features of: (i) generalized decrease/loss of muscle tone; AND (ii) pallor or cyanosis; AND (iii) decreased level of awareness or loss of consciousness
Should not be mistaken for fainting, a post-convulsion state, or anaphylaxis

☐ **CONVULSION/SEIZURE** — MIN. | HOURS | DAYS
Febrile ☐ Afebrile ☐
Past history of: A) Febrile seizures Yes ☐ No ☐
B) Afebrile seizures Yes ☐ No ☐
Omit fainting, seizures occurring within 30 minutes of immunization, and seizures occurring as part of encephalopathy or meningitis/encephalitis

Rotavirus vaccine: Rotashield associated with intussusception 1998-99 USA, and withdrawn from the market

MORBIDITY AND MORTALITY
WEEKLY REPORT

Printed and distributed by the Massachusetts Medical Society, publishers of *The New England Journal of Medicine*

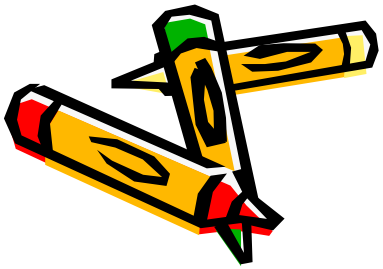
July 16, 1999 / Vol. 48 / No. 27

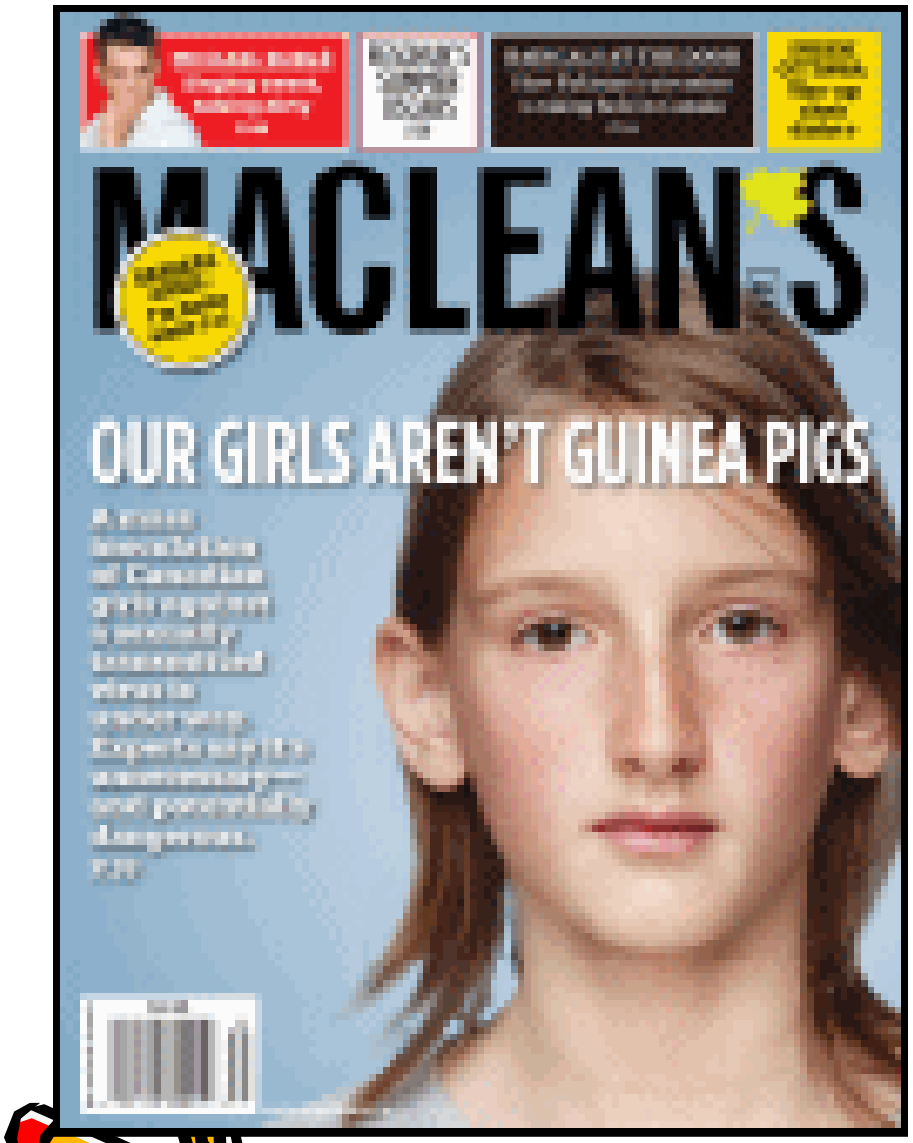
Intussusception Among Recipients of Rotavirus Vaccine — United States, 1998–1999

On August 31, 1998, a tetravalent rhesus-based rotavirus vaccine (RotaShield®*, Wyeth Laboratories, Inc., Marietta, Pennsylvania) (RRV-TV) was licensed in the United States for vaccination of infants. The Advisory Committee on Immunization Practices (ACIP), the American Academy of Pediatrics, and the American Academy of Family Physicians have recommended routine use of RRV-TV for vaccination of healthy

Vaccine safety investigations

- MMRII: quarantine of 3 lots, December 2007
- Influenza: GBS, Oculo-respiratory syndrome, pandemic vaccine
- Infant deaths: Ontario cluster, every case
- Advisory Committee on Causality Assessment
- Trivirix: late 80s in Canada





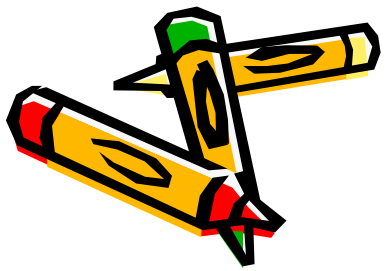
Maclean's Magazine
CATHY GULLI
27 August 2007

"Our girls aren't guinea pigs"

"A mass inoculation of Canadian girls against a sexually transmitted virus is under way. Experts say it's unnecessary - and potentially dangerous."

Documentation

- Documentation of vaccine administration – electronic health record and immunization registry
  - Completeness and accuracy of recording of data elements
    - **Up to 15% of records with incomplete agent information (BC)**
    - **24% discrepancy and 5% missing data (MB)**
    - **10% of pop'n revaccinated needlessly because of missing record of prior vaccination**
    - **20% VAAE reports to PHAC 1987-2003 missing lot number**



Bar codes: application to vaccines

- Vaccine identification and data entry is done more:
  - Quickly: increase efficiency
  - Correctly: reduce errors
  - Completely: no missing data elements
- Patient safety: Vaccine identification for verification of appropriateness of use in particular person
- Inventory management
  - In: Received
  - Out: Picked/ Packed
  - In: Returned
- Status of ability to implement: Panorama…post SARS