Disclosure Statement

Disclosure of Relationship	**Company/Organization(s)**	If you think this might be perceived as biasing your presentation or a conflict of interest, identify how you will address this in your presentation.
I have ownership interest or other financial interest in the company (i.e. stocks, stock options or other ownership interest, excluding diversified mutual funds)	NA	NA
I am a member of an Advisory Board or similar committee	NA	NA
I am a member of a Speaker's Bureau	NA	
I am involved in research grants and funding from industry	Unrelated to this presentation: Pfizer (epidemiological study on *N.meningitidis*), terminated	NA
I am currently participating in or have participated in a clinical trial within the past two years	Unrelated to this presentation: Sanofi Pasteur (*C.difficile* vaccine RCT), terminated	NA
I have received honorarium, consulting fees, salary, royalty, grant-in-aid or other monetary support received from or expected from the company	NA	NA
I have ownership in a patent for a product referred to in the presentation or marketed by the company	NA	NA
I am involved in the design of clinical studies concerning the use of products manufactured by the company	NA	NA
My spouse or close family member(s) have commercial affiliation(s)	NA	NA

Evaluation of new palivizumab recommendations in healthy term infants in Nunavik, Quebec

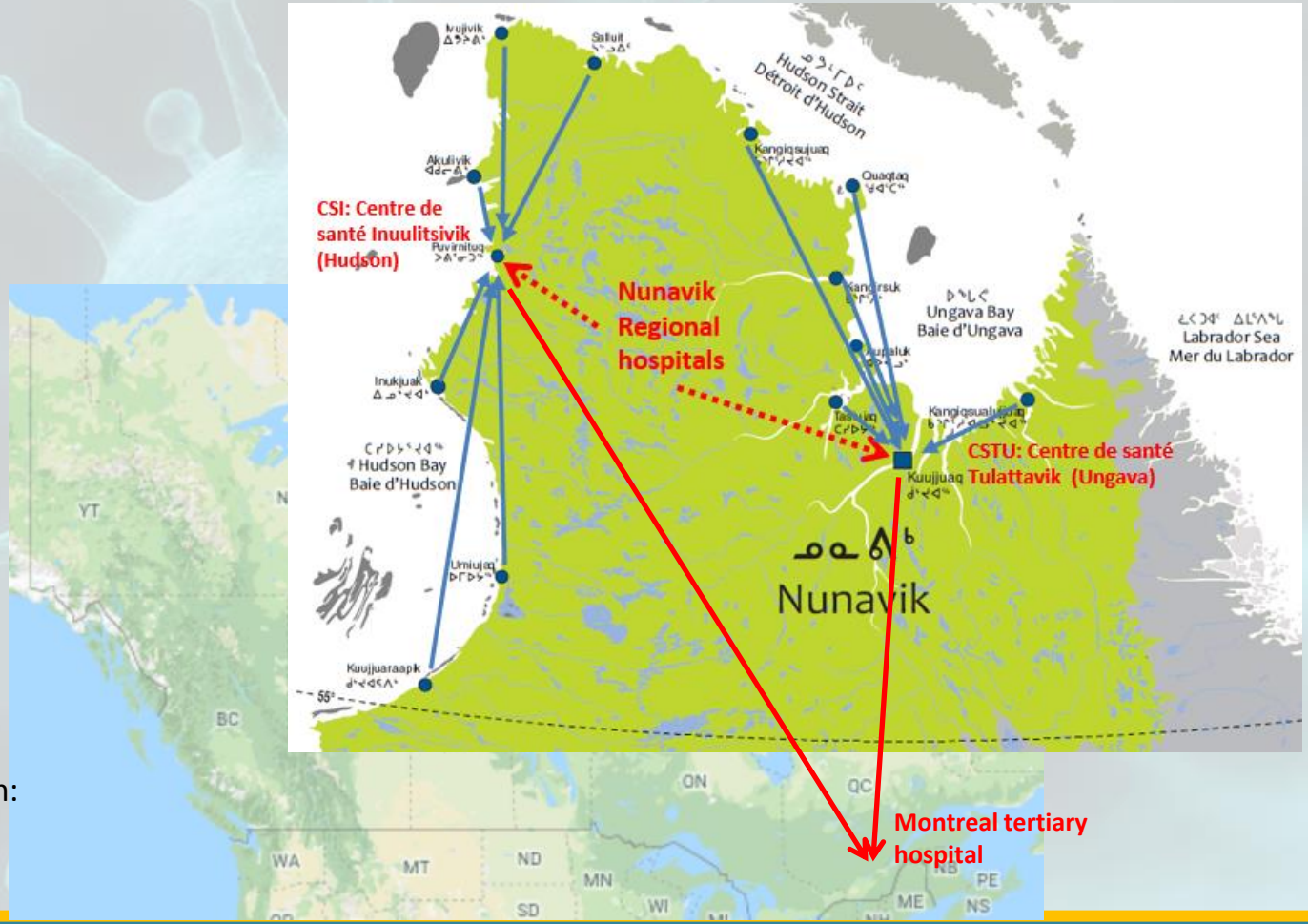
Rodica Gilca*, Marie-Noëlle Billard, Marie Rochette, Jesse Papenburg, Hugues Charest, Joseline Zafack , François Boucher, Armelle Lorcy, Gaston De Serres

December 5, 2018

Background

- Palivizumab (SYNAGIS®, AbbVie): monoclonal antibody for prevention of RSV infections in groups at high risk
- First dose at birth, subsequent doses every month during RSV season
- New eligibility criteria issued in Quebec for the 2016-17 RSV season for **Nunavik healthy full-term infants 0-2 months of age (<3 months)**
- Implementation by Nunavik authorities in 2016
  - up to 3 doses for the 2016-17 season
  - up to 5 doses for the 2017-18 season
- To our knowledge, no program in healthy full-term infants has been implemented elsewhere

- Nunavik
  - Population ≈12,000
  - Pop/km² 0.02



transfer by air transportation:

regional → tertiary →

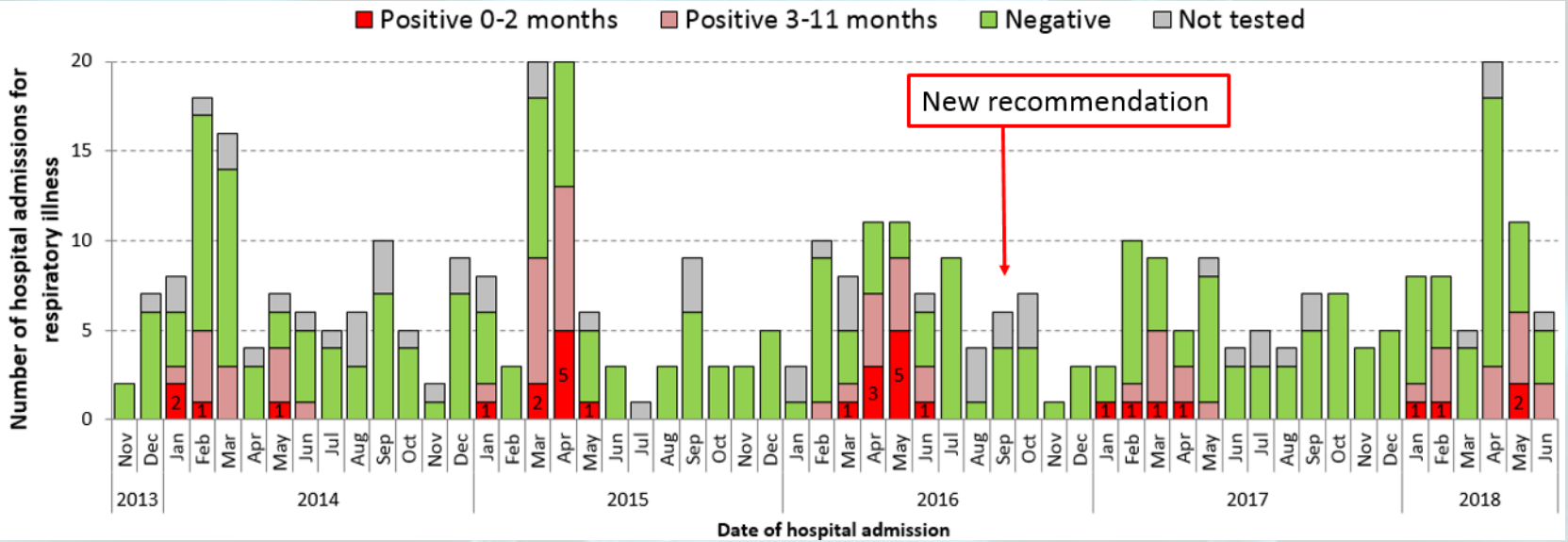
Evaluation of the impact of new recommendation on RSV-associated hospitalizations

- Little information on the burden of RSV-associated hospital admissions in Nunavik
- A minimum of 7 years deemed necessary to detect a significant decrease in RSV hospitalizations following new recommendation
  - 3 retrospective seasons 2013-14 to 2015-16
  - 4 prospective seasons 2016-17 to 2020-21
- Qualitative evaluation for the first prospective season

Data sources

- Hospital admission registry
  - ICD10 respiratory Dx codes J00-J22
- Hospital charts of <12-month-old Nunavik infants admitted to hospital (regional and tertiary) with a respiratory Dx
- Laboratory RSV tests results
  - Retrospective: antigenic tests and/or multiplex PCR tests in tertiary hospitals
  - Prospective: systematic multiplex PCR tests at Québec Public health laboratory
- Palivizumab use: pharmacy data (administered doses)

Number of respiratory regional and tertiary hospital admissions in <12-month-old Nunavik infants by month, November 2013 to June 2018



RSV season: January to June, severity variable

Number of regional and tertiary admissions with a **confirmed RSV** infection in Nunavik infants, according to different sources

Season	Regional and tertiary admissions				Tertiary admissions			
	0-2 months	3-5 months	6-11 months	overall	**0-2 months**	3-5 months	6-11 months	overall
2005-06					4			4
2006-07					5		2	7
2007-08					1	1		2
2008-09	17	7	18	42	4			4
2009-10	11	8	13	32	3	4	3	10
2010-11					2		2	4
2011-12					1	2		3
2012-13					6	1		7
2013-14	4	5	7	16	1		2	3
2014-15	8	7	10	25	2			2
2015-16	10	6	6	22	5			5
2016-17	**4**	**2**	**6**	**12**	**0**			**0**
2017-18	**4**	**5**	**8**	**17**	**1***			**1***

New recommendations in 0-2 months

Courtesy of Dr Anna Banerji

Courtesy of Dr Johanne Morel

Present evaluation and Dr Morel data for tertiary transfers up to 2015-16

*child with chronic condition

2017-18: 8 tertiary transfers for other viruses (4 rhinoviruses); 1 not tested

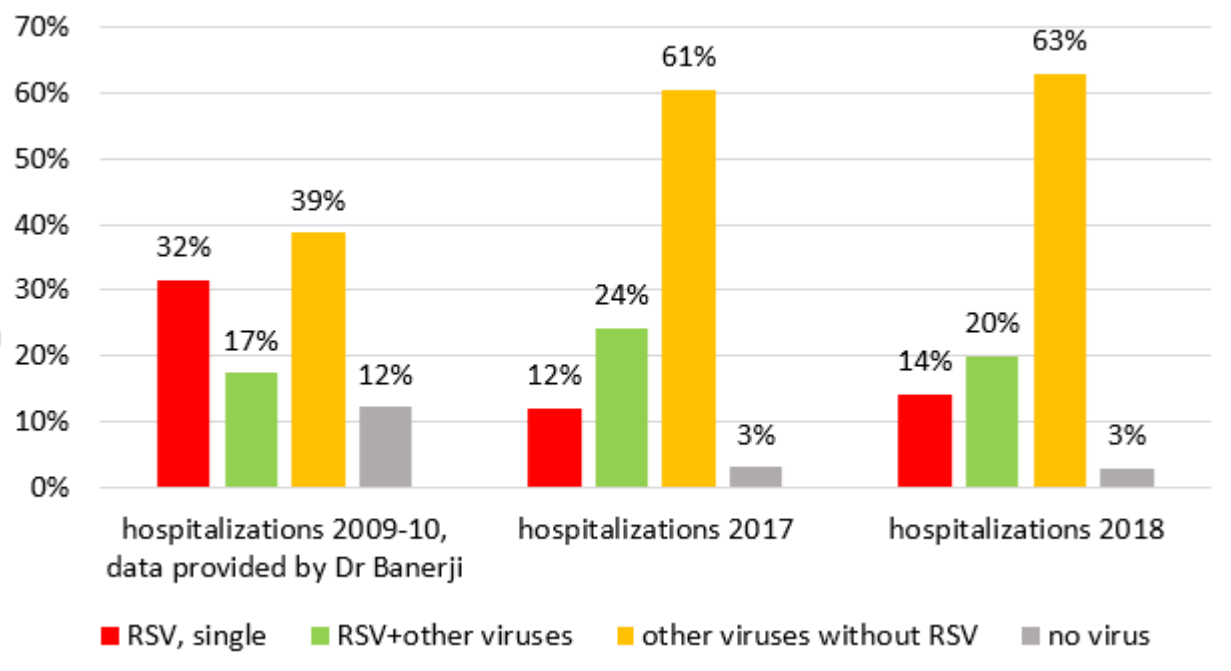
Number of laboratory tests and results by type of test, **January to June**

Respiratory admissions	Retrospective period (2014-2016)	Intervention period	
		2017	2018
	N= 169	**N= 39**	**N= 57**
Antigen detection test done (% among admissions)	**145 (86%)**	**37 (95%)**	**53 (93%)**
RSV+		7 (19%)	10 (19%)
PCR done* (% among admissions)	**38 (23%)**	**32 (82%)**	**22 (36%)**
RSV+		12 (38%)	12 (55%)

Sensitivity of the local antigen detection test compared to PCR: 58% in 2017; 46% in 2018

* Tertiary center and/or Québec public health laboratory

RSV and other respiratory viruses in infants hospitalized with a respiratory Dx



Other detected viruses:

- Rhino/Enteroviruses
- HMPV
- Adenoviruses
- PIV 1-4
- Coronaviruses
- Influenza
- Bocavirus

up to 4 viruses detected simultaneously in one infant

Palivizumab use

Retrospective

2014-16

- Average per year≈41 children (premature and/or with chronic conditions)
- 10%-50% of those eligible received at least one dose
- At least one dose missed compared to scheduled doses: 50%

Prospective

2016-17

- N=170 healthy full-term children* eligible
- 95% received at least one dose
- At least one dose missed compared to scheduled doses: : 31%

Prospective

2017-18

- N=182 healthy full-term children**eligible
- 86% received at least one dose
- At least one dose missed compared to scheduled doses: 46%

*born between October 1, 2016 and April 30, 2017
**born between October 1, 2017 and May 31, 2018

Healthy full-term infants < 3 months hospitalized with a confirmed RSV infection in 2017 and 2018

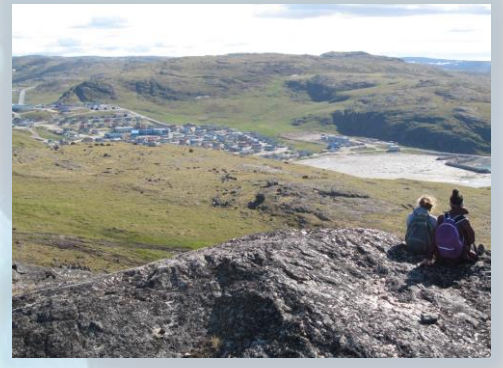
#Case	Laboratory test		Other respiratory viruses	Palivizumab		
	Local antigenic test	PCR		Eligible	Received	Delay between last dose and date of admission
2017						
1	negative	positive	Metapneumovirus	3 doses	1 dose	49 days
2	**negative**	**positive**	**Rhino/Enterovirus**	**3 doses**	**3 doses**	**24 days**
3	**positive**	**positive**	**No**	**3 doses**	**3 doses**	**4 days**
4	positive	positive	Adeno + Parainfluenza	1 dose	No	NA
2018						
5	positive	NA	NA	5 doses	No	NA
6	**negative**	**positive**	**Rhino/Enterovirus**	**2 doses**	**2 doses**	**24 days**
7	negative	positive	Rhino/Enterovirus	3 doses	2 doses	39 days

NA: not available

In red: failure to prevent regional hospitalization/and regional medevac (air transportation)

Conclusions

- Some reduction in RSV-associated hospitalizations was observed in <3-month-olds after the implementation of new recommendation
- The impact of the program is difficult to measure with precision at this point, but it does not seem optimal; this includes acceptability and feasibility issues
- A cost-effectiveness analysis is essential in order to evaluate the pertinence of palivizumab program in Nunavik



Thank you!

Report of first year evaluation available at:
https://nrbhss.ca/sites/default/files/documentations/report_palivizumab_immunoprophylaxis_nunavik_infants.pdf

Acknowledgments

- Dr Banerji and Dr Morel for historical data
- Nunavik health professionals and authorities
- Ministry of Health of Québec
- Québec public health laboratory (Laboratoire de santé publique du Québec)