

**INSPQ** INSTITUT NATIONAL DE SANTÉ PUBLIQUE DU QUÉBEC  
Centre d'expertise et de référence

Outbreaks in different settings

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[www.inspq.qc.ca](http://www.inspq.qc.ca)

microbiologie  
prévention des traumatismes  
recherche  
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Declaration of Conflict of Interest

✓ I do **not** have an affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.

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Objectives

- Highlighting the importance of a structured outbreak service to support Health care facilities and community
- Key steps that could have been taken to prevent an outbreak spreading to community
- The important take home messages for Infection Control Professionals

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Outline

- What is Field epidemiology?
- Role of INSPQ in outbreak investigations
- Examples of support
  - Review of a healthcare-associated outbreak
- Take home messages

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What is Field Epidemiology (FEP)?

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Characterized by...

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The field epidemiologist

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Lakeside General Hospital hit by four  
 A Quebec outbreak of toxoplasmosis linked  
 to undercooked outbreak spreads across  
 Canada

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Strategy of development of FEP in Quebec

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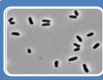

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### Support team in action

-  **Outbreak of *Pseudomonas* infections in a neonatal unit in 2011**
-  **Outbreak of *Corynebacterium striatum* in a Heath facility in 2011**
-  **Measles outbreak in a unvaccinated community in 2015**  
Collaboration with CFEP

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### More support examples

-  **Tuberculosis outbreak in Nunavik in 2015**  
• Mobilisation in collaboration with CFEP
-  **Investigation of a bartonellosis cluster in 2016**

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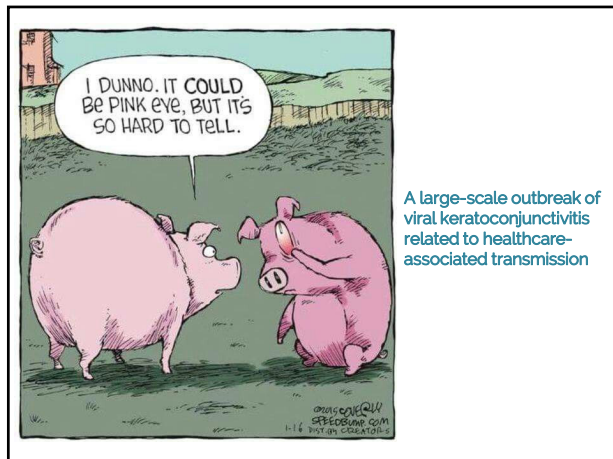
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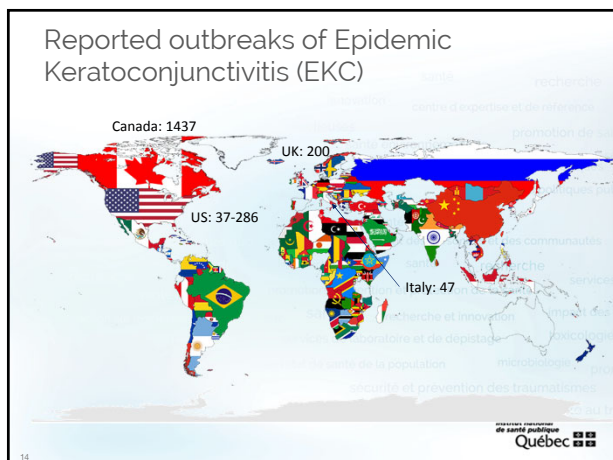
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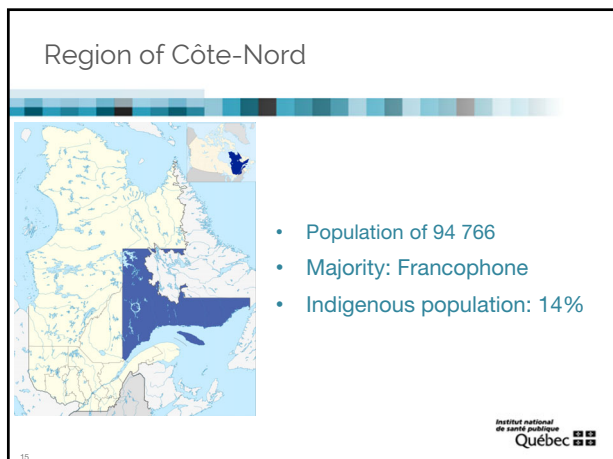
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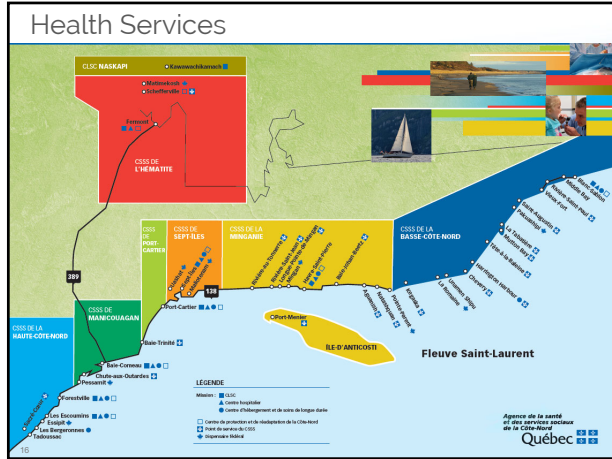
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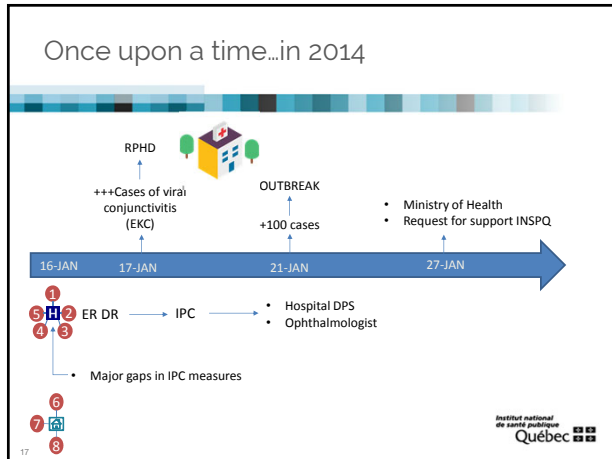
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### INSPQ Mobilisation

- SEPT: Field epidemiology support team
- CERDM: Center of expertise in reprocessing of medical equipment

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### IPC measures: 1<sup>st</sup> to 24 February 2014

- Enhanced IPC measures
- Posters
  - Hospital
  - Daycare and schools
- Ad hoc committee and crisis unit
- New reprocessing procedures for ophthalmology medical devices
- Ophthalmology service closed
- Visits and group activities suspended

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### Investigation

- Design:** Observational, descriptive study
- Study period :** December 1st, 2013 to March 1st, 2014
- Data:** Patient medical records
- Laboratory tests :** Sample from cases
- Case definitions:** Probable cases (clinical presentation), severe cases, Healthcare-associated and community-associated

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### Distribution of cases by age and sex: Outbreak of EKC, December 2013 to May 2014. N=939.

Age groups (years)	n (%)	Incidence rate*
0-5	98 (11)	42
6-16	114 (12)	26
17-24	73 (8)	19
25-44	275 (29)	29
45-64	245 (26)	17
65 and more	130 (14)	17
<b>TOTAL</b>	<b>935 (100)</b>	<b>22</b>

\* Per 1 000 persons (population estimated for HCN-M for 2014)

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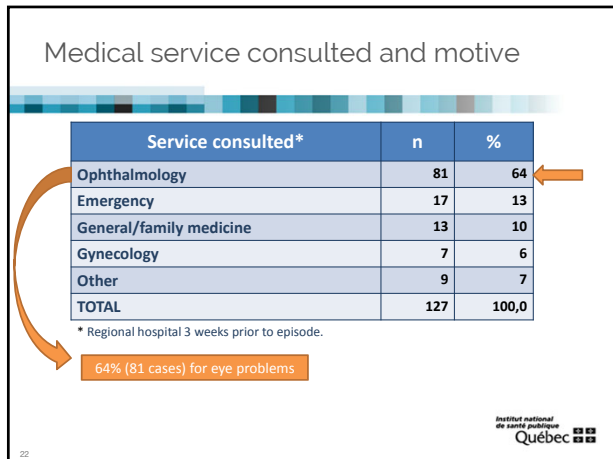
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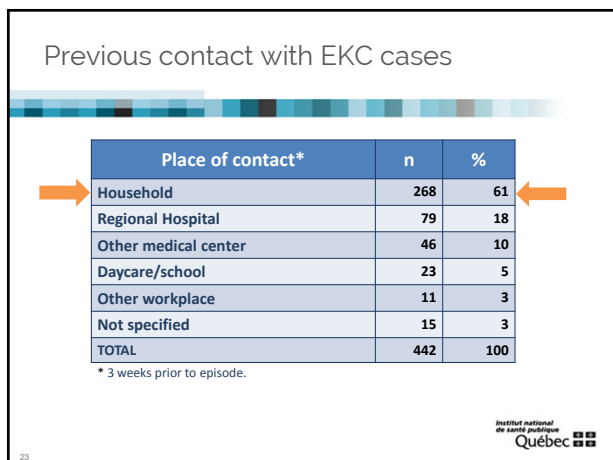
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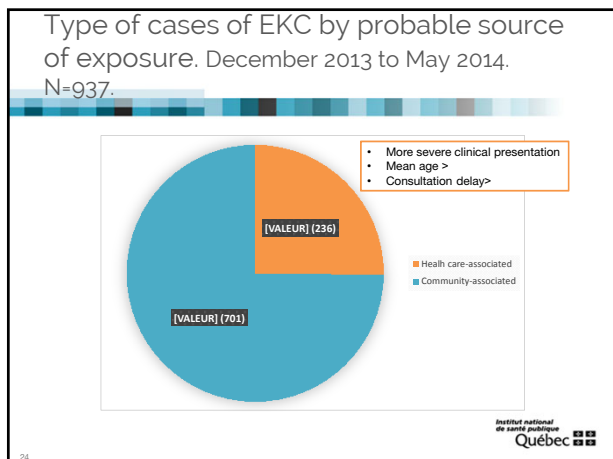
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Type of patient that met case definition for :  
**Healthcare-associated** EKC, December 2013 to May 2014.

Type of patient	N (%)
Healthcare professional	115 (48)
Hospitalized patient	17 (8)
Patient with prior consultation*	104 (44)
Total	236 (100)

\* At the Regional hospital 3 weeks prior to episode.



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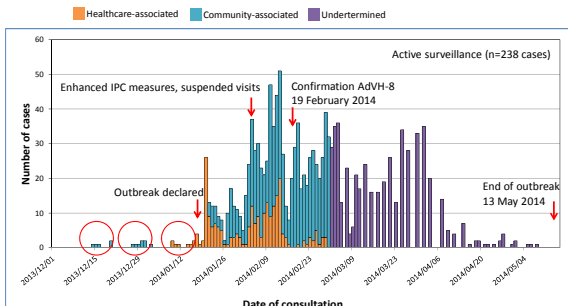
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Epidemic curve of EKC cases, December 2013 to May 2014. N=1435.



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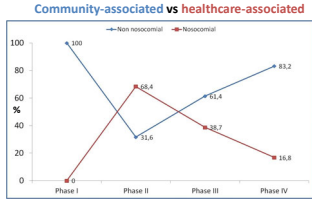
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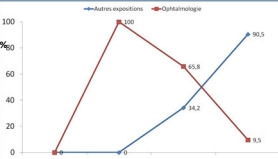
Outbreak progression: relative risk based on place of acquisition

Community-associated vs healthcare-associated



Phase I :	8 to 28 December 2013
Phase II :	29 December 2013 to 18 January 2014
Phase III :	19 January to 8 February 2014
Phase IV :	9 February to 1st March 2014

Healthcare-associated to ophthalmology and other services



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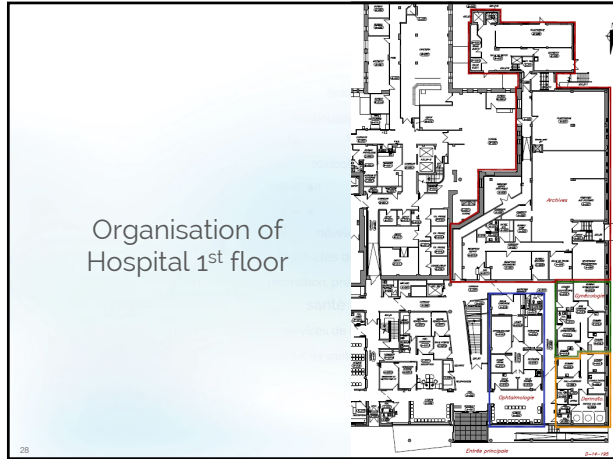
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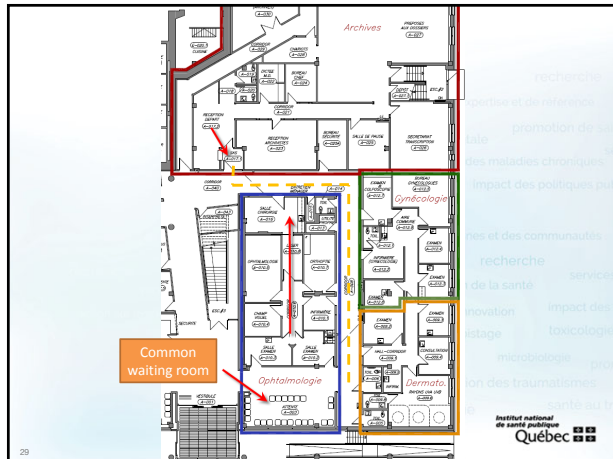
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### Observations (before and during the outbreak)

- Major gaps in IPC measures (mainly in ophthalmology)
  - Risk of contamination of the environment and cross-transmission by personnel
- Delayed declaration (under-estimation of risk)
- Health care personnel working while contagious
- Amplification sources

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### Hypotheses: Outbreak Progression

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### Take home messages

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### Health care services

- Promote standard and enhanced IPC measures
  - Exclude all infected personnel
  - Identify and isolate suspected cases
  - Increase social distance between patients
- Conduct audits
- Adequate reprocessing of medical equipment
- Make friends with Public Health professionals
- Maintain IPC and outbreak investigation training

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### Additional measures for ophthalmology service







[OHEANDONLTCAMPAGNE.ORG](http://OHEANDONLTCAMPAGNE.ORG)

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### Recommandations: Alert system for cluster surveillance

**Level 1: 1 cluster of ≥5 cases over 1 week**

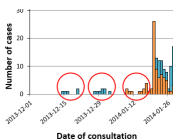
- Notify IPC team
- Site visit: Review basic hygiene and disinfection measures
- Ongoing surveillance

**Level 2: 2<sup>nd</sup> cluster over 3 weeks**

- Implement/enhance immediate IPC measures
- Confirm diagnosis
- Notify RPHD
- Investigate cases

**Level 3: 3<sup>rd</sup> cluster or additional healthcare-associated cases**

- Assemble team
- Initiate outbreak investigation



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## The dream team

CISSS de la Côte-Nord : infectious disease service

- Dr François Desbiens
- Dr Hélène Chouinard
- Dr Manon Gingras
- Dr Claudette Viens
- Suzie Bernier
- Julie Lafrenière
- Service and archive personnel and IPC nurses (Nathalie Landry and Isabelle Tremblay)

INSPO

- Dr Julio C. Soto
- Mihaela Gheorghe
- Mélissa Trudeau
- Myriam Trosch



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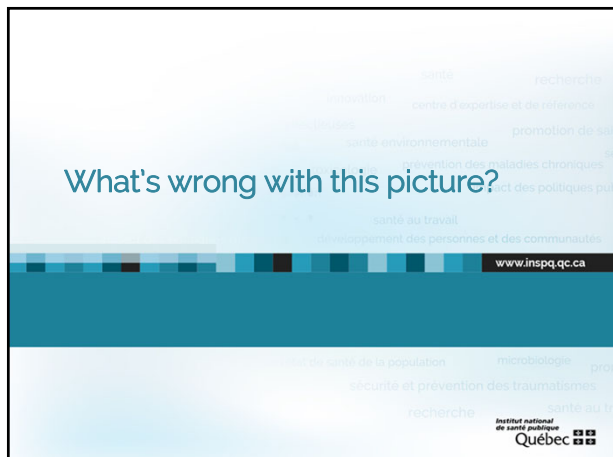
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What's wrong with this picture?



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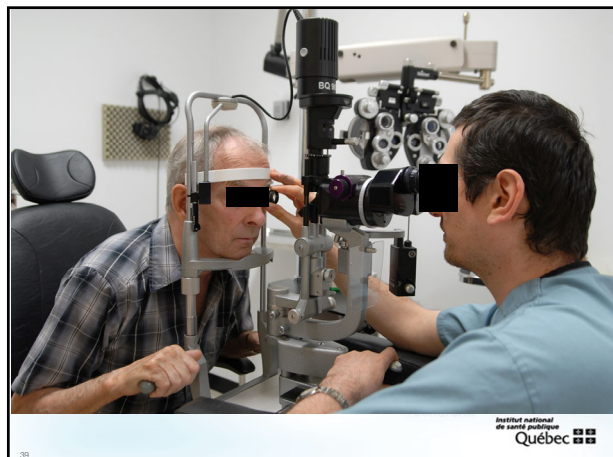
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BINGO!

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 promotion de  
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 prévention des maladies chroniques  
 impact des politiques pub  
 au travail  
 des personnes et des communautés  
 santé  
 recherche  
 services  
 protection de la santé  
 impact des  
 erche et innovation  
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 prévention des traumatismes  
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Questions?

Attention de ne pas marcher sur les ~~doigts~~  
Yeux

Adapted from Journal of Manic, 18 February 2014. © Métyvié

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