



Outbreak cost analysis development in an acute care facility

Advancing the Health of Our Community by Being Canada's Best Community Teaching Health Centre

Presented by Benjamin Rogers | May 28, 2019
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Objectives

- Recognize the costs associated with specific outbreaks at one acute care hospital
- Apply principles to their own individual facility context and needs

Disclosure

- No financial or conflict of interest disclosures

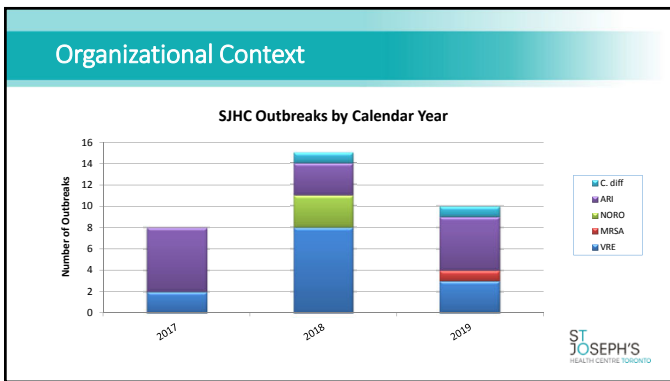


Organizational Context

St. Joseph's Health Centre - Unity Health Toronto

- Founded in 1921
- 426 beds
- Stats per year
 - 22,289 admissions
 - 3,275 births
 - 26,565 Surgical and Procedural cases
 - 247,471 Ambulatory Care visits
 - 101,038 Emergency Department visits





Investigation Background

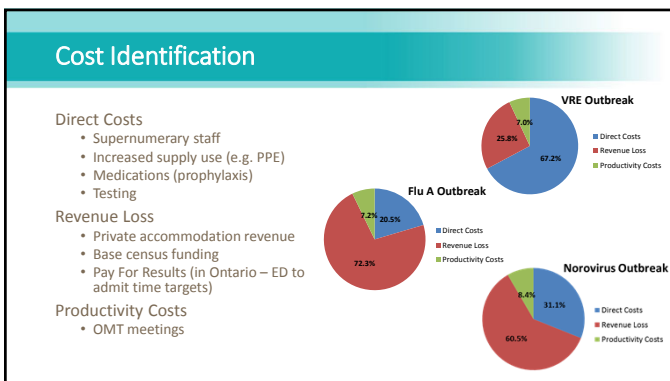
Study Rationale

- Lack of attentiveness to preventative strategies
- Quantify outbreak costs

Primary outcomes

- Develop a tool to calculate the cost of outbreaks
- Shift conversation to prevention rather than control

ST JOSEPH'S HEALTH CENTRE TORONTO



Direct Cost - Example

VRE Point Prevalence



- Positive Test – Cost per test: \$27.96
- Negative Test – Cost per test: \$5.40

Oseltamivir Prophylaxis

- Patients – Cost per day: \$2.84
- Staff – Cost per course (10 days/course): \$28.35



PPE (per isolated patient per day)

- Contact Precautions: \$15.60
- Droplet/Contact Precautions: \$29.76

Revenue Loss - Example

- Bed Closures
 - Loss of private room accommodation revenue
 - \$310 per room per day
 - Decreased census impact on budget formula and volumes
 - Medicine Unit Bed: \$450 per day



Productivity Cost - Example

Outbreak Management Team (OMT)

- Average attendance
- Average salary
- \$1007 per meeting

OMT Meetings Per Outbreak Type

- VRE: 1 per week
- CDI: 2 per week
- Influenza: 3 per week
- Noro: 3-4 per week

Actual Outbreak Costs – VRE				
Item	Quantity	Cost	Unit of Measurement	Cost
Additional RN	11	\$ 509.74	12-hour shift	\$ 5,607.11
Additional RPN	13	\$ 330.73	12-hour shift	\$ 4,299.46
Additional HCA	29	\$ 181.40	8-hour shift	\$ 5,260.67
Additional EVS staff	31	\$ 165.74	8-hour shift	\$ 5,138.02
OMT Meeting	2.5	\$ 1,007.00	1-hour meeting	\$ 2,517.50
Point Prevalence – Positive	11	\$ 27.96	Positive result	\$ 307.56
Point Prevalence – Negative	74	\$ 5.40	Negative result	\$ 399.60
Terminal Cleaning	105	\$ 5.00	Extra Cleaning	\$ 525.00
Additional PPE	105	\$ 15.60	Isolation Days	\$ 1,638.00
Private Revenue Loss	28	\$ 310.00	Private Room Isolation Day	\$ 8,680.00
Total Number of Days	18		Outbreak Total Cost	\$ 34,372.92

Actual Outbreak Costs – Influenza A				
Item	Quantity	Cost	Unit of Measurement	Cost
Additional RN	2	\$ 509.74	12-hour shift	\$ 1,019.48
Additional RPN	5	\$ 330.73	12-hour shift	\$ 1,653.64
Additional HCA	6	\$ 181.40	8-hour shift	\$ 1,088.42
Additional EVS staff	13	\$ 165.74	8-hour shift	\$ 2,154.65
OMT Meeting	3	\$ 1,007.00	1-hour meeting	\$ 3,021.00
Tamiflu - Staff	26	\$ 28.35	Positive result	\$ 737.10
Tamiflu - Patients	147	\$ 2.84	Negative result	\$ 417.48
Terminal Cleaning	42	\$ 5.00	Extra Cleaning	\$ 210.00
Additional PPE	42	\$ 29.76	Isolation Days	\$ 1,249.92
Closed Medicine Beds	67	\$ 450.00		\$ 30,150.00
Total Number of Days	8		Outbreak Total Cost	\$ 41,701.68

Actual Outbreak Costs – Norovirus				
Item	Quantity	Cost	Unit of Measurement	Cost
Additional RN	19	\$ 509.74	12-hour shift	\$ 9,685.01
Additional RPN	21	\$ 330.73	12-hour shift	\$ 6,945.28
Additional HCA	38	\$ 181.40	8-hour shift	\$ 6,893.30
Additional EVS staff	43	\$ 165.74	8-hour shift	\$ 7,126.93
OMT Meeting	9	\$ 1,007.00	1-hour meeting	\$ 9,063.00
Terminal Cleaning	92	\$ 5.00	Extra Cleaning	\$ 460.00
Additional PPE	92	\$ 29.76	Isolation Days	\$ 2,737.92
Closed Medicine Beds	145	\$ 450.00		\$ 65,250.00
Total Number of Days	20		Outbreak Total Cost	\$108,161.43


What Next?

- Incorporate the cost to date into routine OMT meetings
 - Real time information
- Facilitate the conversation towards prevention strategies
 - Investment to prevent outbreaks
 - e.g. Dedicated equipment
 - e.g. Upgrade infrastructure

Outbreak Summary


- Outbreak Declared: April 24, 2019
- April - 3 CDI HAIs, all positive by EIA
- Suspected case reported at OMT on Monday was negative
- New suspected case this morning, sample in progress, should have results this afternoon

• Outbreak Total Cost (to date): **\$ 538,105.93**



So What?

- Outbreak costs were much higher than expected
- Data collection was multifaceted and challenging
- Potential for analysis of additional costs
 - e.g. P4R



Conversation has begun to shift to acknowledging that cost dollars can be used proactively to prevent future outbreaks

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