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Disease Control Service,
Public Health Branch

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City of Ottawa Health Unit

Statistics

- August 2002

**PUBLIC HEALTH RESPONSE TO
PACKAGES OR MATERIALS
SUSPECTED TO CONTAIN
CHEMICAL OR BIOLOGICAL
MATERIAL****Background**

The terrorist attacks of September 11, 2001 on the World Trade Center in the United States, ushered in an unprecedented degree of concern and urgency regarding the vulnerability of our society to more such attacks. While the United States was still seeking how to deal with the tragedy of September 11, 2001, it would face a second wave of terrorism - this time, in the form of a biological attack.¹

Last fall, the suspicion of anthrax in a patient by an astute infectious disease clinician along with capable clinical and public health laboratory staff in Florida would lead to the discovery that *Bacillus anthracis* spores had been intentionally distributed through the postal system to persons in news media and government. Inhalational and cutaneous disease followed exposure to *B. anthracis* spores; 22 people became ill and five died in the United States as a result.^{1,2}

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The attacks initiated response activities in all states across the United States and in other countries, including Canada, and required considerable resources to support investigative efforts at various levels of government.^{2,7,11}

Prior to these events, Canada and the United States were awash with letters and packages claiming to contain anthrax bacteria. The letters and packages had been delivered to courthouses, abortion clinics, office buildings, department stores, hospitals, post offices, news media offices, Federal Bureau of Investigations (FBI) offices, schools and even nightclubs, leading to chaotic evacuations, mass quarantines and a wave of panic among the public.³⁻⁶

Early in February 2001, anthrax hoaxes hit in Canada. In Ottawa, a bioterrorism scare hit the Canadian capital after a "bacterial agent" was sent to the office of Elinor Caplan, Canada's Immigration Minister. The office building was sealed off and five people were treated at a hospital with antibiotics as a precaution.³ In Toronto, a suspicious package led to the evacuation of nearly 2,000 government employees from their offices while firefighters took the package from the mailroom. Fortunately, both incidents turned out to be hoaxes, as the National Microbiology Laboratory in Winnipeg identified no anthrax bacteria.³

Of concern, too, has been the callous way in which some individuals have seized the moment to unleash a wave of hoaxes, which have kept public health, the laboratories and law enforcement busy responding to the incidents. Overnight, anthrax threats have fast become the 1990s equivalent of bomb scares or the 1980s product tampering threats (after the Tylenol poisoning in Illinois), and they are forcing disaster response experts to re-evaluate how to react to a biological threat.^{5,6}

At the Public Health Branch (PHB), efforts to counter bioterrorism are focused on seven communicable disease causative agents, currently recognized as potential bioterrorism agents. Among these is *Bacillus anthracis* (causative agent of anthrax). Since October 2001, Public Health Branch has been responding to incidents of suspicious materials in letters and packages from various places in Ontario. These incidents have been reported either to the local health units or the first responders directly.

A number of incidents have been due to the pattern described above. However, some of the incidents have been purely a result of the heightened vigilance that the public has grown to attach to the real threat of bioterrorism. This report summarizes the findings of incidents reported to the

Ministry of Health and Long-Term Care (MOHLTC) over a one-year period (October 2001 - October 2002).

Methods

Public health and First Responders responded to reports of suspicious packages, envelopes and environmental materials from various individuals and locations throughout the province. Environmental samples were collected by public health, law enforcement, and other responding staff and were sent to the Central Public Health Laboratory (CPHL) in Toronto for testing.

Intervention teams were initiated at the local level to coordinate environmental monitoring and decontamination, post-exposure prophylaxis and follow-up. Reports of incidents and environmental sampling, updates of interventions, and other activities were communicated to PHB by health units (HUs) using a form developed by PHB (*Notification of Health Unit Involvement with Packages or Materials Suspected to Contain Chemical or Microbiological Material*). The forms were faxed, usually preceded by a telephone call notification.

The Central Public Health Laboratory tested specimens, powder-containing envelopes, and environmental samples for the presence of *B. anthracis*. Results of the testing were initially communicated to PHB electronically, and later by courier, on a regular basis. The results were reported as 1) No suspicious material seen; 2) Gram stain: No bacteria seen; and 3) Gram stain: No significant bacteria seen.

Results

The Central Public Health Laboratory has been very busy since the advent of the anthrax scare. By the end of January, CPHL had done more than 520 tests for anthrax originating from Ontario. According to a MOHLTC newsletter, *Inside Health*, it is reported that about 80% of the packages sent in were innocent (mostly cornstarch or laundry powder); the other 20% warranted special attention, as some of them were accompanied by threatening messages and had to be referred to police and forensic labs. In contrast, the federal lab in Winnipeg, looking after much of the rest of the country, had handled fewer than 200.

According to the reports submitted by the office of the Medical Microbiologist at CPHL, 850 environmental samples were received by the lab between October 2001 and October 2002 (see Table 1). All the samples have tested negative for *B. anthracis*.

Table 1. Incident Reports by Health Unit

No.	Health Unit Name	Incidents	(%)
1	Algoma	2	0.24
2	Brant	1	0.12
3	Bruce-Grey	16	1.88
4	Chatham-Kent	5	0.59
5	Durham	36	4.24
6	Eastern Ontario	2	0.24
7	Elgin-St. Thomas	3	0.35
8	Haldimand-Norfolk	4	0.47
9	Halton	14	1.65
10	Hamilton	17	2
11	Hastings-Prince Edward	12	1.41
12	HKPR	10	1.18
13	Huron	3	0.35
14	KFLA	5	0.59
15	Lambton	13	1.53
16	Leeds, Grenville, Lanark	9	1.06
17	Middlesex-London	13	1.53
18	Muskoka-Parry Sound	10	1.18
19	Niagara	9	1.06
20	North Bay	6	0.71
21	Northwestern	0	0
22	Ottawa-Carlton	51	6
23	Oxford	12	1.41
24	Peel	38	4.47
25	Perth	2	0.24
26	Peterborough	10	1.18
27	Porcupine	2	0.24
28	Renfrew	1	0.12
29	Simcoe	41	4.82
30	Sudbury	22	2.59
31	Thunder Bay	0	0
32	Timiskaming	1	0.12
33	Toronto	315	37.06
34	Waterloo	27	3.18
35	Wellington-Dufferin-Guelph	10	1.18
36	Windsor-Essex	22	2.59
37	York	106	12.47
	Total	850	

According to the above table, nearly all health units have had incidents, with the exception of Northwestern and Thunder Bay District health units. The top ten HUs with the largest number of reported incidents are listed in Table 2. They accounted for almost 80% of all incidents reported. With 315 incidents (37.06%), Toronto Public Health Unit reported the most incidents, followed by York with 106 (12.47%) and Ottawa - Carlton with 51 (6%). Each of the remaining HUs reported less than 5% of the total incidents.

Table 2. Top Ten Health Units Reporting Most Incidents

Health Unit	No. Incidents	(%) of Total
1. Toronto	315	37.06
2. York	106	12.47
3. Ottawa - Carlton	51	6.00
4. Simcoe	41	4.82
5. Peel	38	4.47
6. Durham	36	4.24
7. Waterloo	27	3.18
8. Sudbury	22	2.59
9. Windsor-Essex	22	2.59
10. Hamilton	17	2.00

As shown in Table 3, of the 850 incidents, human exposure occurred in 241 (28.35%) incidents, with 1728 individuals being exposed. Of these exposed individuals, 106 (6.13%) have been decontaminated. Of the total exposed individuals, only 6 (0.35%) received prophylaxis. However, the type and duration of prophylaxis given is not known. In all, area decontamination took place in only 88 (10.35%) incidents.

Table 3. Exposure, Decontamination and Prophylaxis

Event	Total No.	(%)
Human Exposure (No. Incidents)	241	28.35
Individuals Exposed (Total No.)	1,728	
No. of Exposed Individuals Decontaminated	106	6.13
No. of Exposed Individuals Given Prophylaxis	6	0.35
Area Decontaminated (No. of Incidents)	88	10.35

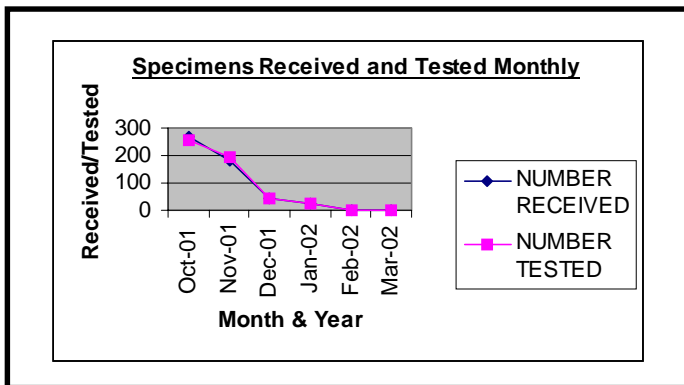
The overwhelming description of materials submitted to CPHL for examination indicated white powder/substance (n=573) with or without an accompanying threat. Very few incidents (n=3) have involved reporting of gas or vapor. The rest of the materials were not characterized. Where no suspicious material was seen (in 34% of incidents; n = 287), there was no testing done. Otherwise, Gram stain (with or without culture) was done on the remaining 563 (66%) materials.

Table 4 below gives a summary of the data of specimens received and tested by CPHL in the first six months. In total, 520 incidents were reported. Laboratory staff worked hard to ensure that specimens were tested and reported in a timely fashion, as shown in the graph. The number of incidents reported reached a high of 268 in October 2001 and then started to drop precipitously to a low of 26 in January 2002. No incidents were reported in February and March 2002. New incidents started to resurface in the spring of 2002.

Table 4. Monthly Electronic Data Summary: Specimens Received and Tested

MONTH	NUMBER RECEIVED	NUMBER TESTED
OCTOBER 2001	268	258
NOVEMBER 2001	184	194*
DECEMBER 2001	43	42
JANUARY 2002	25	26*
FEBRUARY 2002	0	0
MARCH 2002	0	0

* Number tested includes backlog



Discussion

The public health response to packages or materials suspected to contain chemical or biological material required contributions from many persons of varied expertise. As events of September 11 and its aftermath have shown, an effective response to a bioterrorist event focuses on two key areas: joint efforts between the medical community and public health agencies and better trained and coordinated first responders (i.e., law enforcement, public safety, hospital personnel, and public health officials).⁸⁻¹⁰

According to Dr. Margaret Fearon, in an interview given to *Inside Health*, CPHL was fully prepared with contingency plans of responding to the scare. The laboratory staff worked diligently and quickly to process and test the packages, thus allaying public fears and giving them peace of mind. Staff also took care to avoid duplication of reports to maintain the integrity of the data. In some instances, however, there was no standard way of data entry at the lab. For example, some reports had bizarre statements in the final lab results field like: “sweet and low; no bacteria”; “negative but sample small.” Such statements are hard to interpret and compromise the report.

Reports from local health units are very important in helping to build a complete picture of the incident(s). In a way, this has not happened consistently and there’s room for improvement. While it is true that sometimes health units have been bypassed, with the public dealing directly with first responders, still it would be most helpful if HUs could make every effort to follow up on every reported incident so that we could capture all the required data for better planning and response.

There is a lot of speculation as to why anthrax is the threat of the moment. Some sources speculate it is the influence of movies and books such as “Outbreak” and “The Hot Zone,” which are about biological disasters, while others

note that biological and chemical warfare in the news is to blame.⁵ The motives of the hoaxsters are varied. It has been suggested that sometimes the sender wants to publicize a cause, as in the letters to abortion clinics. Sometimes, FBI agents believe, the sender wants to get a look at the response of law enforcement and rescue workers; the larger the response the more it encourages others to want the same response.⁶ Sometimes the motive isn’t apparent and the act is simply perpetrated by copycats.

As evidenced by the US experience, the substantial role of public health in the 2001 anthrax investigation and response suggests that strong public health infrastructure supported by applied public health and basic-science research are key elements to the control and prevention of future bioterrorism threats.¹²

Conclusions

The response to a biological threat is a multifaceted act and draws upon cooperation from various sectors of law enforcement, public health system, laboratory capability and timely and effective communication. The drain on human and capital resources is enormous and unacceptable in a hoax setting. But government and society in general cannot let down the guard given the seriousness of the outcomes in the event of a real bioterror incident.

The anthrax cases in the US highlighted the importance of what has been described as the “golden triangle” of response between clinicians and clinical microbiologists, the health-care delivery system, and public health officials.¹ These critical linkages, including those between public health, law enforcement, and emergency response systems, need to be strengthened.

Enhancing the knowledge and skills of clinicians and laboratorians for diagnosing bioterrorism-related infections and improving collaboration between clinicians and public health practitioners will set the stage for better detection of cases associated with any future acts of bioterrorism.

Future investigations of bioterrorism-related anthrax should evaluate persons potentially exposed along the path of the delivery vehicle as well as those targeted by the attack. Findings in the US suggest that prompt use of antimicrobial prophylaxis following suspected bioterrorist attacks can prevent disease.²

Public health emergency preparedness cannot be emphasized enough. Having contingency plans, training and retaining staff, laboratory capacity building, good organization, communication and strong leadership are all

key to effective response to a bioterrorist threat. It is commendable the way public health has responded to the threats so far.

Since the perpetrator(s) of the egregious acts in the US have not been apprehended, it is presumable that new anthrax attacks can still occur. Canada remains vulnerable. Therefore, continued collaboration with law enforcement officials is required, and clinicians and laboratorians, public health officials and the general public should still maintain a high state of alert for patient symptoms or findings or other suspicious materials or packages that might indicate bioterrorism-related incidents.

ACKNOWLEDGEMENTS

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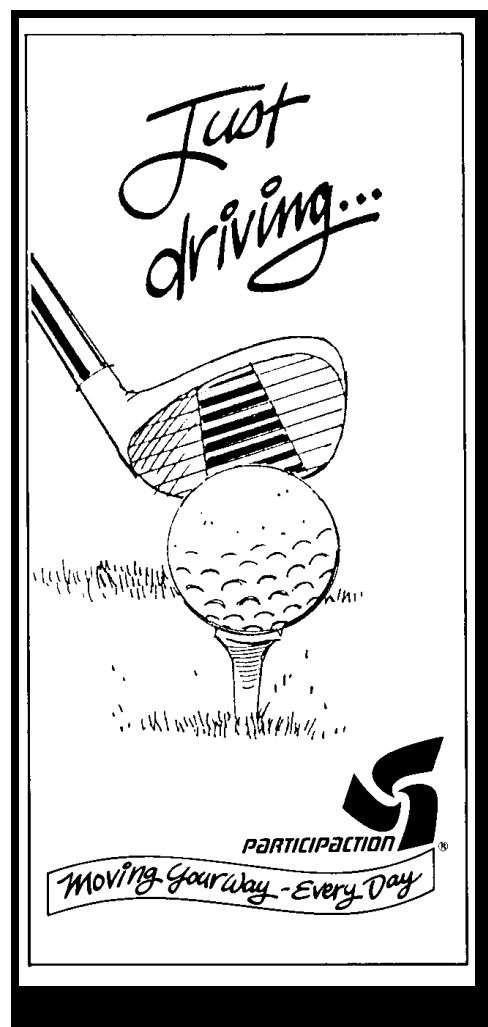
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Communiqué

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USE OF SERIAL SURVEYS TO PLAN AND EVALUATE BREASTFEEDING PROGRAMS CITY OF OTTAWA – 1988 - 2000

Simpson, Jane, RN, MSc (A), Dunkley, Geoffrey C, MD., FRCP(C), Potter, Janice, BA, Sims-Jones, Nicola, RN, MScN.

INTRODUCTION

Every four years, since 1988, the Family Health Program at the City of Ottawa has surveyed women who have birthed within the past year collecting their demographics, their infants' demographics and their opinions on issues ranging from the length of stay in hospital after delivery to workplace support for breastfeeding. Questions included mother's opinions about public health services such as prenatal education, well-baby drop-ins, and the public health information telephone line. Questions also related to non-public health services, for example, use of hospital emergencies and family physicians. Questions relating to new programming initiatives were also included. For example, the 2000 survey sought to determine the level of Public Health Nurse (PHN) visiting after the Ministry of Health and Long-Term Care increased funding for home visiting following childbirth, through the Healthy Babies, Healthy Children Program. The information gained from the surveys was intended to guide program development for clients of Family Health Services. The information contained in the surveys was shared with hospitals and community agencies in the City of Ottawa.

The Study

Population

Mothers were the key informants for each of these four surveys. The surveys conducted in 1988, 1992, 1996 and 2000 addressed their experience with their youngest child who had to be six months old at the time of the interview. All mothers who gave birth to a baby in the City of Ottawa within a specified two-month period were offered the opportunity to participate. Sampling statistics indicated that a sample size of approximately 400 women was required. Some eligibility criteria applied such as the child did not have significant congenital anomalies. The interviews were offered in both French and English. A similar recruitment process was followed in all four surveys. Ethics approval to conduct the surveys was obtained from the City of Ottawa's Public Health and Long Term Care Research Ethics Board.

Response Rates

Survey response rates varied from year to year for women who agreed to participate in the study. For instance, there was an 85% response rate in 2000 and 75% in both 1996 and 1992. In 1988, the response rate was 81 %.

Design

Each study was designed to collect data from 400 mothers regarding their pregnancies, birthing and parenting experiences. Trained interviewers conducted a forty-minute structured telephone interview. The interview consisted of one hundred and twenty questions completed in a half hour. Written consent was obtained from women in hospital agreeing to be contacted followed by a verbal consent to participate at the beginning of the telephone interview. The surveys from 1988, 1992, 1996 and 2000 represent an Ex Post Facto design in that there was no attempt to exercise control over the variables. A descriptive approach was deemed more favourable than hypothesis testing to analyze data from each survey year. The data would be used by managers for program evaluation and therefore, a higher level of statistical testing was not required. Additionally, due to missing data from year to year and differences in obtaining levels of significance from year to year around the one hundred and twenty questions, statistical analysis was rejected and results of frequency tables were used to populate the graphs. While inferences cannot be made related to causation, this study included the entire population of women giving birth during a two-month period. Despite the limitations of the design, the

results of these studies over the four survey times may be considered to be strong on realism due to the use of the whole population (1). Data for the 2000 survey were collected during the process of municipal amalgamation. Although the City ward boundaries changed post amalgamation, the catchment area for the study did not. Women continued to be recruited for the study at their local hospital.

Program Evaluation

The purpose of program evaluation is to generate accurate, objective and evidence-based information to assist managers to make sound, effective decisions about their programs and initiatives. These surveys were conducted every 4 years to assess effectiveness in achieving program objectives, impacts (both intended and unintended), continued relevance, and alternative ways of achieving expected results. This trend report used a serial survey design, which is considered to be a stronger design than the Ex Post Facto design of each individual survey (1). Therefore, the strength of evidence to assist managers to evaluate their programs was enhanced.

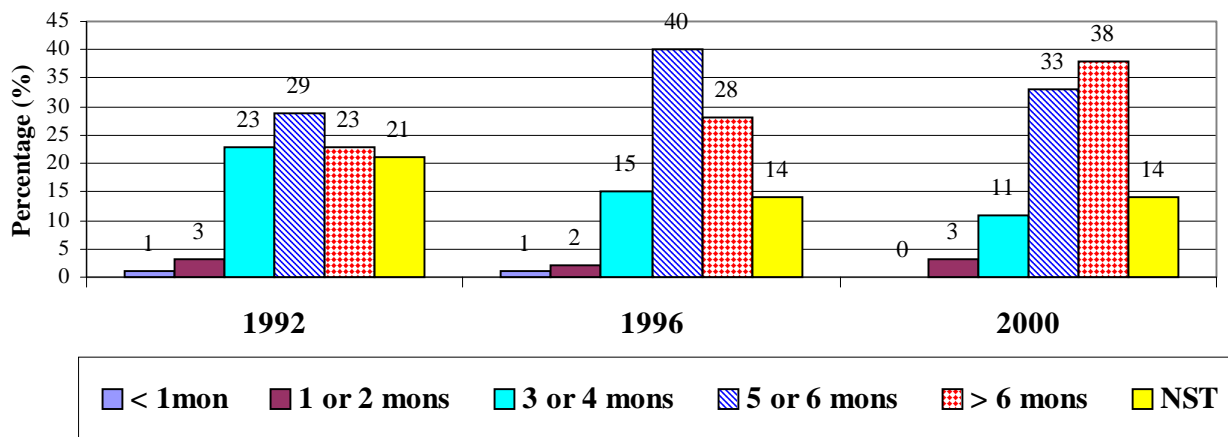
Results

The primary methodology of analyzing the data was visual analysis. This technique has been used as an alternative to

regression analysis or modeling (1). Analysis is conducted by visual inspection of the graph of the survey series. Using visual inspection, managers obtained an impression of trend by noting whether the series moved generally up, down or stayed flat. A sample of graphs is included in this article rather than the results from the entire study. Please note, in Figure I, Planning to Breastfeed, data for 1988 were unavailable because the question was not asked.

As shown in Figure I, in 2000, there was an increase in the percentage of women planning to breastfeed for longer than six months (38%) than had occurred in the previous years of the survey (28% in 1996; 23% in 1992). There was a concomitant decrease in the number of women planning to breastfeed for three to four months. In 1992, 23% of women planned to breastfeed for three to four months. The percentage decreased to 11% of women in 2000. This change may be due to more concentrated public health programming such as a local campaign with messaging that it is possible to return to work at six months postpartum and continue to breastfeed. Alternatively the results may reflect the shorter maternity leave benefits in place in 1992 and 1996. Hopefully, the 2004 survey will demonstrate women breastfeeding longer as a result of the extended, one-year maternity leave legislation recently adopted by the province.

Figure I Number of Months Women Planned to Breastfeed – 1992 – 2000



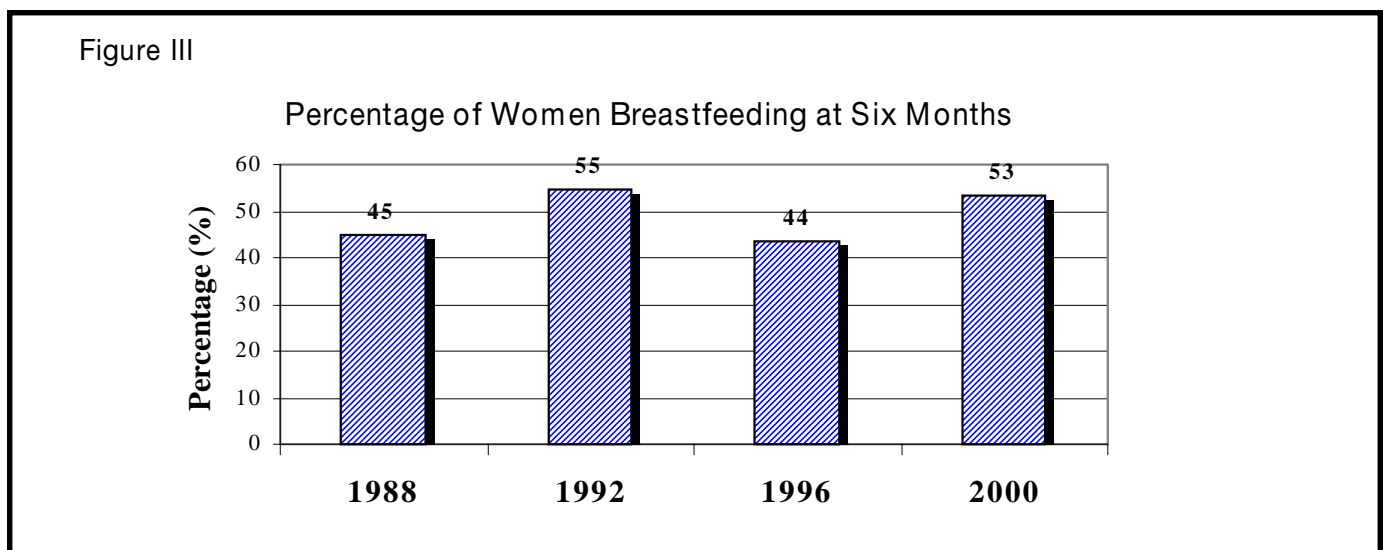
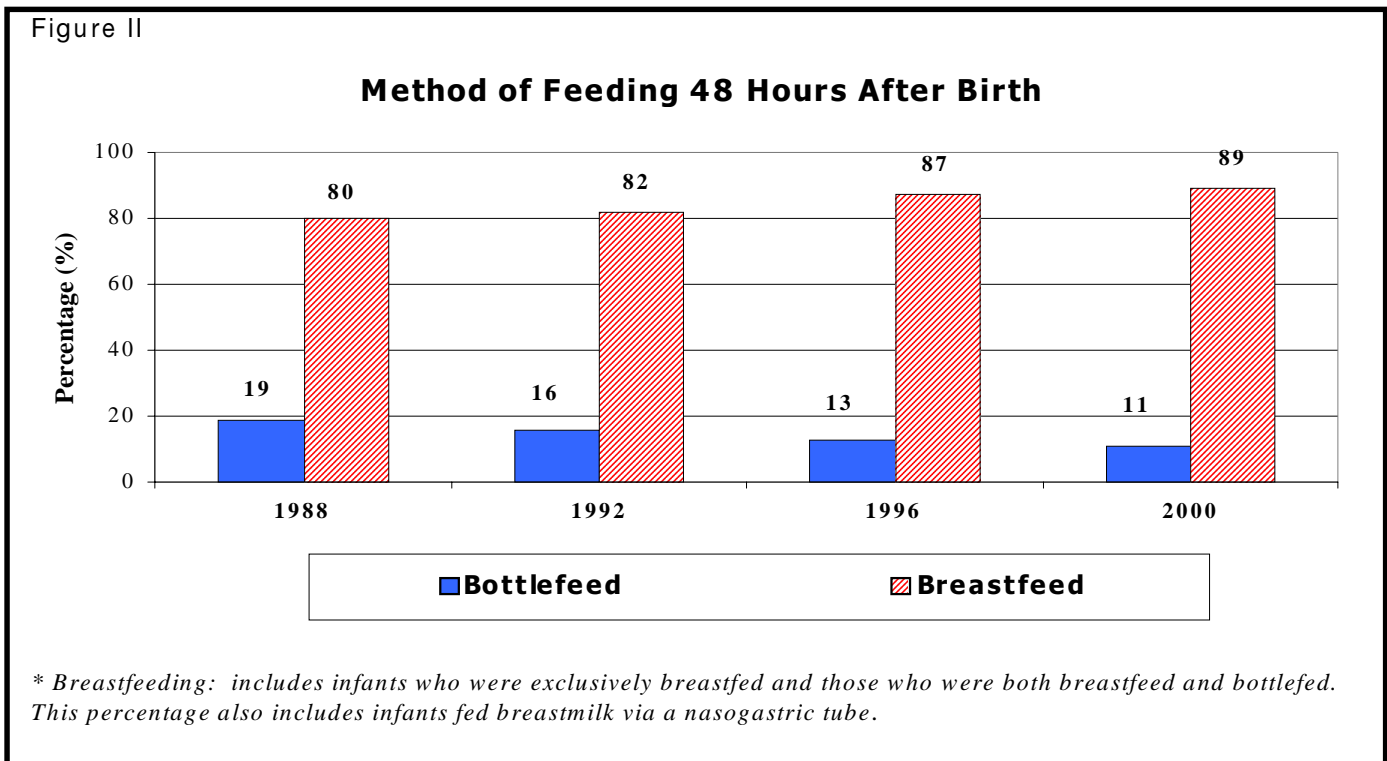
* Data are unavailable from 1988 – the question wasn't asked

** NST – no specified time

The graph displaying information related to women breastfeeding or bottlefeeding their infant in hospital (see Figure II) shows an upward trend of women initiating breastfeeding in hospital over the twelve years of the study. Confidence intervals, to confirm whether this is statistically significant, are not available. The Family Health program has promoted breastfeeding to women and families across the City of Ottawa using various strategies such as participating in the community-wide Breastfeeding Promotional Committee. We cannot say with certitude that this 9% increase in breastfeeding initiation rates at each time

point on the graph is due to promotion strategies. We can, however, compare ourselves to other cities in Ontario and have determined that our rates are similar (2,5).

The graph (see Figure III) demonstrates an increase in the percentage of women breastfeeding at six months in 2000 (53%) up from 45% in 1988. The finding of a 53% breastfeeding rate at six months in 2000 is comparable to reported findings from published research in other Ontario cities (2, 5) and unfortunately has not changed much from earlier studies published in 1990 (4).



As a result of the increase in provincial funding in 1999, health units offered home visits to all new mothers in Ontario in 2000. This increase in visiting is reflected in the 2000 survey results demonstrating an increase in home visits by Public Health Nurses (see Figure IV). The graphs also demonstrated that by 1996, prior to the increased funding announcements, efforts were already being undertaken at the regional level to visit more new families than were visited in 1992.

Limitations to Conducting a Serial Survey Analysis

It was sometimes difficult to capture the data required for the visual trend analysis due to the extensive period of the survey years, i.e., 12 years. Data are lost, purged or reported in a way that precludes analysis. In addition, consistency of data collection varied, i.e., questions were asked differently in some survey years or omitted. Another limitation in conducting a similar survey in other health units

may be related to costs and expertise of personnel to conduct the analysis.

Summary

Despite its limitations, the trend analysis has been well received by Family Health staff, managers and community partners. Family Health programs have been offered or modified based in part on information obtained from visual trend analysis report. In addition, the data have demonstrated that gaps in public health data exist and remedial action has been taken. The use of a visual

analysis of the graphs is a credible method of assisting managers to evaluate programs using a methodology that is intuitively grasped.

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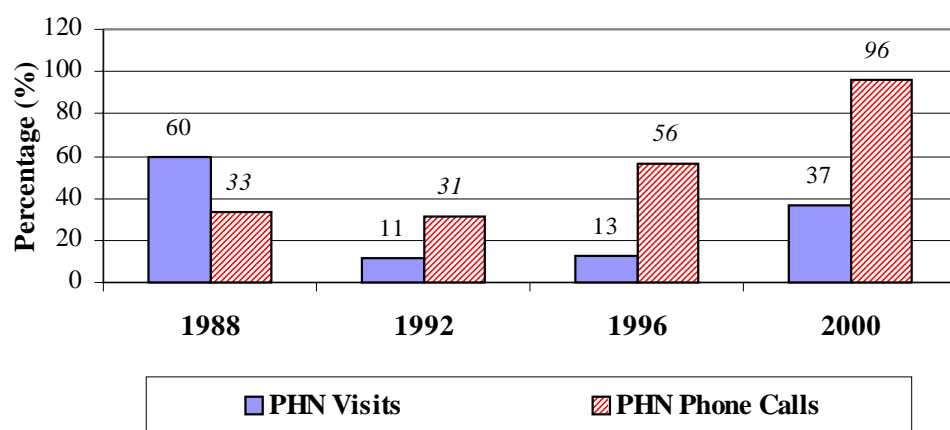
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Figure IV

Public Health Nurse Visits and Phone Calls



Use of the Trend Report

The sequential surveys demonstrate some of the changes that took place in Family Health programs from 1988 – 2000 in the City of Ottawa. A few samples are highlighted here.

Some of the impacts of utilization of the survey information include:

- Hospitals continued to implement new initiatives leading to improved family care upon discharge into the community;
- Some public health clinics have been reformatted due to underutilization leading to greater efficiency;
- Information from the trend analysis was used in proposals for Early Years Initiative funding; and
- Information from the trend analysis demonstrated gaps in services. These gaps being addressed to provide service to families to whom barrier to public health programs and services exist.

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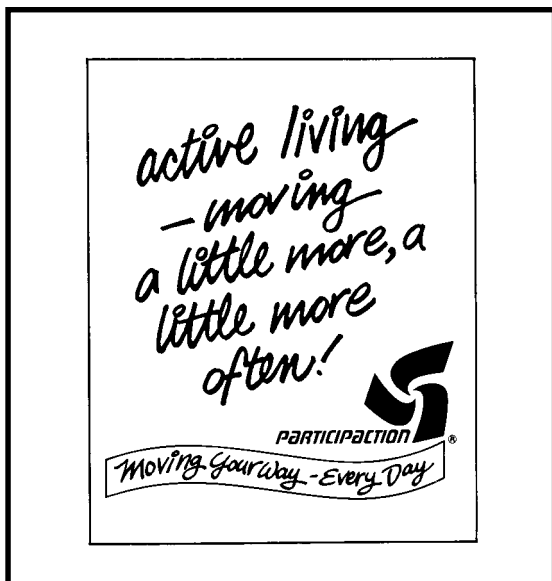
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Summary of Reportable Diseases in Ontario - August, 2002

Health Units by Region	Population 2000	AIDS	Campylo.	Chicken-pox	Chlamydia	Enceph/Meningitis	GAS	Gonorrhoea
Algoma	125,109		5		25			1
North Bay	93,505		2	1	10		1	1
Northwestern	91,920		3	3	14			2
Porcupine	93,680				18			2
Sudbury	199,619		3	1	23	1		
Thunder Bay	158,698		4		26	1		2
Timiskaming	37,721							
Total - Northern	800,252		17	5	116	2	1	8
Eastern Ontario	194,945		7		10			
Hastings & Prince Edward	159,088		2	4	8	1	1	
Kingston, Frontenac & Lennox	180,225				30	2	2	2
Leeds, Grenville & Lanark	163,143		5			1	1	
Ottawa	779,274		39	11	100	9	4	15
Renfrew	101,131		1		13			
Total- Eastern	1,577,806		54	15	161	13	8	17
Durham	512,271		15		59		2	13
Haliburton-Kawartha	168,120		4		6			
Muskoka-Parry Sound	86,218		2		1			
Peel	1,008,163		59	115	99	5	1	26
Peterborough	128,881	1	1		16	2		1
Simcoe	377,405		22		28	3		3
Toronto - total	2,542,844		137	66	509	28	4	145
<i>North</i>	<i>627,021</i>		<i>35</i>	<i>17</i>	<i>116</i>	<i>4</i>		<i>28</i>
<i>South</i>	<i>688,584</i>		<i>45</i>	<i>12</i>	<i>176</i>	<i>18</i>	<i>4</i>	<i>66</i>
<i>West</i>	<i>509,302</i>		<i>33</i>	<i>6</i>	<i>128</i>	<i>2</i>		<i>29</i>
<i>East</i>	<i>717,937</i>		<i>24</i>	<i>31</i>	<i>89</i>	<i>4</i>		<i>22</i>
York	724,969		59		34	9		4
Total - Central East	5,548,871	1	299	181	752	47	7	192
Grey Bruce	157,664		7		2		1	3
Elgin-St. Thomas	84,182		2	5	8	1		
Huron	61,097		8		5		1	
Chatham-Kent	112,897		3	3	6			
Lambton	131,643							
Middlesex-London	412,976		6		45	9	1	6
Oxford	102,561		4		5			
Perth	75,238		5		1	1		
Windsor-Essex	381,672		20		40	1		3
Total - Southwest	1,519,930		55	8	112	12	3	12
Brant	126,481		2	6	23	1		
Haldimand-Norfolk	109,536		2		3			
Halton	375,705		9	7	10	4		2
Hamilton	498,553		14	16	61	4	2	8
Niagara	423,600		24		20	3		6
Waterloo	446,833		23		57	1	2	1
Wellington-Dufferin-Guelph	241,777		9		20			3
Total - Central West	2,222,485		83	29	194	13	4	20
August 2002	11,669,344	1	508	238	1,335	87	23	249
* Total YTD 2002	-	48	2,990	10,648	11,648	320	271	1,930
* Total YTD 2001	-	94	3,207	8,413	10,894	335	241	1,992

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* Adjusted for deletions and late reports.

Summary of Reportable Diseases in Ontario - August, 2002

Health Units by Region	Population 2000	PPNG	Hepatitis A	Hepatitis B	Hepatitis C	Hib	Influenza	Measles	Meningococcal
Algoma	125,109				2				
North Bay	93,505				1				
Northwestern	91,920								
Porcupine	93,680			1	2				
Sudbury	199,619				7				
Thunder Bay	158,698				7				
Timiskaming	37,721								
Total - Northern	800,252			1	19				
Eastern Ontario	194,945				6				
Hastings & Prince Edward	159,088								
Kingston, Frontenac & Lennox	180,225			1	5				
Leeds, Grenville & Lanark	163,143				4				
Ottawa	779,274	1	2		35				1
Renfrew	101,131								1
Total - Eastern	1,577,806	1	2	1	50				2
Durham	512,271								
Haliburton-Kawartha	168,120				1				
Muskoka-Parry Sound	86,218				3				
Peel	1,008,163	2	1		35		2		1
Peterborough	128,881				4				
Simcoe	377,405	2			14				
Toronto - total	2,542,844	6	12	5	97				2
<i>North</i>	627,021	1		2	17				
<i>South</i>	688,584	3	1	2	37				1
<i>West</i>	509,302	1	6	1	20				
<i>East</i>	717,937	1	5		23				1
York	724,969	3	1	1	6				1
Total - Central East	5,548,871	13	14	6	160		2		4
Grey Bruce	157,664				2				
Elgin-St. Thomas	84,182				1				
Huron	61,097				3	1			
Chatham-Kent	112,897								
Lambton	131,643								
Middlesex-London	412,976	1			14				
Oxford	102,561								
Perth	75,238								
Windsor-Essex	381,672				10				
Total - Southwest	1,519,930	1			30	1			
Brant	126,481		1		2				
Haldimand-Norfolk	109,536								
Halton	375,705				6				
Hamilton	498,553	1			19		1		
Niagara	423,600		1		18				
Waterloo	446,833				7				
Wellington-Dufferin-Guelph	241,777			1	1				
Total - Central West	2,222,485	1	2	1	53		1		
August 2002	11,669,344	16	18	9	312	1	3		6
* Total YTD 2002	-	141	82	85	3,344	4	2,171		40
* Total YTD 2001	-	135	119	118	3,684	4	762	6	88

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Summary of Reportable Diseases in Ontario - August, 2002

Health Units by Region	Population 2000	Mumps	Pertussis	Rubella	Salmon.	Shigellosis	Syphilis (Prim/Sec)	VTEC
Algoma	125,109		3		2			
North Bay	93,505		1					3
Northwestern	91,920				1			3
Porcupine	93,680		3					
Sudbury	199,619		1		3			
Thunder Bay	158,698		1		1			
Timiskaming	37,721							
Total - Northern	800,252		9		7			6
Eastern Ontario	194,945		4		2		1	2
Hastings & Prince Edward	159,088		2		4			4
Kingston, Frontenac & Lennox	180,225							
Leeds, Grenville & Lanark	163,143		2		4			2
Ottawa	779,274		4		25	2	1	5
Renfrew	101,131				1			
Total- Eastern	1,577,806		12		36	2	2	13
Durham	512,271				7	1		5
Haliburton-Kawartha	168,120				4			2
Muskoka-Parry Sound	86,218				1			
Peel	1,008,163		1		23	8		1
Peterborough	128,881		4		2	1		
Simcoe	377,405		1		2			
Toronto - total	2,542,844		12		80	14	6	8
<i>North</i>	627,021		3		21	1		1
<i>South</i>	688,584		3		23	11	4	3
<i>West</i>	509,302		4		27	1	1	2
<i>East</i>	717,937		2		9	1	1	2
York	724,969		3		24			9
Total - Central East	5,548,871		21		143	24	6	25
Grey Bruce	157,664				4			4
Elgin-St. Thomas	84,182					1		
Huron	61,097		5		3			
Chatham-Kent	112,897				1			1
Lambton	131,643							
Middlesex-London	412,976				3			
Oxford	102,561				1	1		
Perth	75,238				6			
Windsor-Essex	381,672				8			2
Total - Southwest	1,519,930		5		26	2		7
Brant	126,481				5			3
Haldimand-Norfolk	109,536				3			
Halton	375,705				7	2		
Hamilton	498,553				10	1	1	1
Niagara	423,600				11	3		2
Waterloo	446,833				13			4
Wellington-Dufferin-Guelph	241,777				7			2
Total - Central West	2,222,485				56	6	1	12
August 2002	11,669,344		47		268	34	9	63
* Total YTD 2002	-	9	288	2	1,552	741	78	234
* Total YTD 2001	-	6	295	15	1,738	168	12	234

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