An Evaluation of the Ontario Rapid Risk Factor Surveillance System

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ABSTRACT

Background: The Rapid Risk Factor Surveillance System (RRFSS) is an ongoing population health survey conducted by a collaborating group of Ontario public health units. This formative evaluation examined the process effectiveness, collaboration, utility and cost-effectiveness of RRFSS during its first year of operation.

Methods: An Evaluation Framework was developed with reference to guidelines for evaluation of surveillance systems developed by the World Health Organization and the U.S. Centers for Disease Control and Prevention. The study focussed on evaluable performance areas in a young surveillance system and on information needed to inform stakeholder decisions about future participation and improvement. Data were collected through surveys and interviews of key informants in participating health units, non-participating health units, the survey research house, and the provincial health ministry.

Results: Findings documented early use and dissemination of RRFSS data in health units after less than a year of surveillance system operation, stakeholder perceptions overall of data impact and value, and satisfaction with system functioning. Challenges to effectiveness were documented concerning data analysis, barriers to data use, and sustainability. Performance improvement strategies were identified for survey implementation and supports, data use, system participation, and reduced costs.

Conclusion: In its first year, RRFSS was an effective collaborative method to collect population data for public health program planning and evaluation. The evaluation provided valuable information on use, functioning, effectiveness, strategic issues and areas for improvement in a young surveillance system, created opportunities for stakeholder input into evaluation and planning, and provided a baseline for future evaluations.

MeSH terms: public health, population surveillance, evaluation studies, program evaluation, data collection, cooperative behavior

La traduction du résumé se trouve à la fin de l'article.

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The Rapid Risk Factor Surveillance System (RRFSS) is a population health survey conducted by a collaborating group of Ontario public health units, and administered by the Institute for Social Research (ISR) at York University. Each month, random samples of 100 adult residents (aged 18 and older) in each of the health unit districts are surveyed by telephone in either English or French. The purpose of RRFSS is to provide data that are timely, relevant to local public health needs, useful for surveillance, and responsive to emerging public health issues.¹ It is designed to minimize the need for one-time surveys by individual health units and maximize overall public health efficiency through a coordinated system.² This article describes the methodology, findings, and subsequent actions from a formative evaluation of RRFSS.³

The framework for RRFSS was based on the Behavioral Risk Factor Surveillance System (BRFSS) used in the United States. RRFSS was developed in 1999 as a pilot in Durham Region, Ontario, by a partnership among Health Canada, the Ontario Ministry of Health, Cancer Care Ontario, and the Durham Region Health Department. Following the success of the pilot,⁴ in 2000 with financial support from the Ontario Ministry of Health and Long-Term care (MOHLTC), a group of three health units (Durham Region, Simcoe County, and Haliburton-Kawartha-Pine Ridge District) developed a plan for expanding RRFSS, revised the questionnaire, and developed a data dictionary. Through consultations with health unit staff, representatives from the MOHLTC, and local health and social services agencies, the group identified needs for information suitable to the RRFSS format. In addition, provincial guidelines for public health unit programs and key data sources such as the Canadian Community Health Survey (CCHS), were reviewed to identify data gaps that could be addressed by RRFSS. When there were no pre-existing suitable questions, questions were developed with the help of ISR, health unit staff, MOHLTC consultants and experts in the field. The questions were grouped into a core set of modules considered to be of general interest and into optional modules.² The total survey was pilot tested and revised, but no validity or reliability studies were conducted.

Figure 1. RRFSS Evaluation Framework

In 2001-02, RRFSS activities were coordinated by the Ontario RRFSS Working Group (ORWG) with representation from all participating health units. This group oversees all RRFSS processes and collaborates with ISR. Additional documentation of RRFSS objectives, methods and current status can be found elsewhere.^{1,2,5}

This evaluation, conducted for the ORWG, reflected on the first year of

RRFSS operation, when the number of health units participating grew from 6 in January 2001 to 12 by year end. The purpose of the evaluation was to examine the process effectiveness, collaboration, utility and cost-effectiveness of RRFSS. The evaluation focussed on information needed to inform RRFSS stakeholder decisions about future RRFSS participation and improvement.

METHODS

Measures

The evaluation covered four areas of RRFSS performance – process issues, collaboration, usefulness, and cost effectiveness – recognizing that this was a young surveillance system in its first year of implementation. These ideas were shaped through review and adaptation of perfor-

TABLE I**Summary of Results on PROCESS EFFECTIVENESS**

	Evidence of Effectiveness	Challenges or Limits to Effectiveness
Awareness	In RRFSS health units, many awareness-raising activities were reported. Epidemiologists and MOHs in non-participating health units and key provincial ministry staff were aware of RRFSS.	Among responding program staff in RRFSS health units, most, but not all, were familiar with RRFSS content.
Data Analysis	All RRFSS health units had begun to analyze RRFSS results, but few had completed analysis of all modules. RRFSS representatives were satisfied with data transmitted to health units, but less satisfied with data timeliness.	Few RRFSS health units reported having the quantity of skilled staff needed for RRFSS data analysis. Staff capacity was a key issue for those dissatisfied with RRFSS and for health units reluctant to participate.
Dissemination	RRFSS health units reported multiple strategies used to disseminate RRFSS results. Most program staff reported accessing results and being satisfied with how they were provided.	Program staff and RRFSS representatives noted needs for more continuous promotion of data use in health unit programs and sharing of results with communities and target audiences.
Questionnaire Development	Those involved in questionnaire development were generally satisfied with these processes, but areas for improvement were noted.	Program staff reported processes were lengthy, complicated, and should involve staff more. Unequal health unit participation was noted.
Data Quality	Most of those involved in question design and data analysis were satisfied with sample size, response rate and utility of RRFSS data. Question quality was judged to be good, but also to need further improvement.	New modules were considered not as well developed as original ones; pressure to keep modules even if flawed was a concern. Better mechanisms to discuss methodology, get user feedback, and pilot questions were requested.
Overall Implementation in Health Unit	There was general satisfaction with how RRFSS is implemented in RRFSS health units.	Costs and staff resources were noted barriers to effective RRFSS implementation in health units.

TABLE II**Summary of Results on COLLABORATION EFFECTIVENESS**

	Evidence of Effectiveness	Challenges or Limits to Effectiveness
Partnership in General	RRFSS representatives and MOHs in RRFSS health units were generally satisfied with the RRFSS partnership among health units.	Key needs identified were a budget for central coordination of RRFSS functions and a Memorandum of Understanding on policies, procedures, roles, and expectations of partners.
Work Groups	Effectiveness ratings were highest for Working, Advisory and Ad Hoc work groups and ISR. ISR staff were satisfied with the working relationship among partners and described work groups as collegial, knowledgeable, and committed.	Ratings were not as high for the Analysis and Evaluation work groups as for others. Advisory Group stability, operational funding, and ability to represent the larger collective on an ongoing basis were questioned.
Decision-making	Most RRFSS representatives felt that all RRFSS health units had an equal voice in decision-making processes.	Varying health unit participation, staff capacity, and RRFSS experience were felt to affect decision influence. Reaching agreement among an increasing number of participating health units was an identified challenge. More clarity in decision-making policies was advocated.

mance concepts for surveillance system evaluation developed by the World Health Organization and the U.S. Centers for Disease Control and Prevention.^{6,7}

The identified RRFSS performance areas were linked to intermediate outcomes expected from the surveillance system. These included local awareness of surveillance information; involvement in generating appropriate, accurate information; practice of evidence-based program planning (use of information); and cost effectiveness to programs. The research questions and data sources ultimately addressed in the evaluation are shown in the Evaluation Framework (Figure 1).

Tools

Different survey tools were developed for different stakeholder groups, including interview questions for a representative of

ISR, and a survey for the Public Health Branch of the MOHLTC. Within health units participating in RRFSS, separate surveys were developed for the RRFSS representatives (usually a health unit epidemiologist), program staff, and the Medical Officer of Health (MOH). Epidemiologists in non-participating health units also had a separate survey. All surveys were self-administered and contained both open and closed questions.

Participants

Sampling of program staff within participating RRFSS health units was not systematic; surveys went to a list of contacts identified as program representatives in each health unit. For the other health unit surveys, one response per health unit was accepted. A response from one key informant was requested from ISR and from MOHLTC.

Data collection and analysis

For all surveys, distribution was by personal e-mail and return could be by e-mail, fax or mail. Confidentiality of respondents and health units was assured; at least one wave of personal reminders was issued. Quantitative data from the health unit questionnaires were analyzed in SPSS and open-ended responses were analyzed in text files to identify common responses and themes. Findings from these surveys were combined with information from the ISR interview and the MOHLTC survey.

RESULTS

Across all four health unit questionnaires, 109 responses were obtained from 72% of the targeted respondents, representing 11 of the 12 health units participating in RRFSS, and 17 of the 25 health units not

TABLE III**Summary of Results on USEFULNESS**

	Evidence of Effectiveness	Challenges or Limits to Effectiveness
Relevance	In RRFSS health units, RRFSS representatives and MOHs were satisfied with RRFSS content and surveillance capacity, based on ability to provide timely data, address emerging issues, and share workload.	The need for more capacity to add modules and questions was identified by program staff and RRFSS representatives. It was broadly recognized that RRFSS cannot meet all survey needs.
Use	After almost a year of data collection, nearly all health units reported using RRFSS results. A third of program staff had not yet received results and most had not yet used them. Most uses were in planning, evaluation, and communications (Fig. 2). Chronic and communicable disease prevention and environmental health programs were the most frequent users.	Key barriers to use of RRFSS results were weak awareness among staff and the time needed to analyze and present data. Central coordination, common analytical tools, and stronger analysis and dissemination programs in health units were identified needs to better promote use.
Impact	The great majority of respondents, including all MOHs and almost all RRFSS representatives, expected RRFSS to improve health unit planning and evaluation capacity. Benefits to surveillance and partnerships were also stressed. Expected impacts of terminating RRFSS were reduced access to locally relevant data, reduced ability to measure program objectives, and the need for additional investment in surveys.	Only among program staff did a minority of participants respond that they expected RRFSS to improve health unit capacity for planning and evaluation – 44% expected RRFSS results to improve planning and evaluation capacity and 26% did not think it would, leaving 30% who were not sure.

TABLE IV**Summary of Results on COST EFFECTIVENESS**

	Evidence of Effectiveness	Challenges or Limits to Effectiveness
Current Costs and Return on Investment	In RRFSS health units, there was general satisfaction among MOHs and RRFSS representatives with their health unit's return on investment in RRFSS. ISR estimated that survey administration cost savings due to health unit collaboration in RRFSS were about \$10,000 per health unit (\$10 per interview).	Estimates for key staff involved in RRFSS ranged from 0.2 to 2.0 FTE per health unit and averaged 0.7 FTE. Three health units reported additional costs for legal fees, over-sampling, and translation. Key workload drivers were work group meetings, questionnaire development, data analysis and dissemination. For health units not considering future participation, reasons were cost or lack of staff.
Future Costs and Sustainability	Over half of the responding health units not participating in RRFSS did indicate interest in participating in the future. In participating health units, most MOHs and RRFSS representatives agreed that all health units and the province should participate. A majority also felt there should be a province-wide sample and 100% provincial funding.	The following sustainability challenges were identified across evaluation respondent groups: <ul style="list-style-type: none"> • Adequacy of health unit resources to support surveillance system costs. • Capacity for participation of program staff. • Capacity for expansion and flexibility of questionnaire to meet information needs. • Capacity to support data use, rapid data analysis, and methodology improvements. • Capacity for survey administration and for system management with continued growth. • Need for expanded participation to support operations, efficiency, and consistency.

participating, plus a response from ISR and the MOHLTC.

The evaluation findings provided substantial evidence of both effectiveness and challenges of RRFSS. In brief, results suggested that:

- Stakeholders were satisfied with RRFSS content, processes, data quality, awareness, dissemination, and partnership functioning (Tables I, II, and III).
- Data analysis and dissemination were underway in health units, but capacity for data analysis posed challenges to dissemination and use (Table I).
- RRFSS data were being used in health units after less than a year of data collection (Table III, Figure 2), but barriers to use were also evident (Table III).
- RRFSS was perceived to be of substantial importance to public health surveillance, due to data quality, local rele-

vance, timeliness, and usefulness (Table III).

- There was widespread belief that RRFSS has a positive impact on public health program effectiveness, planning and evaluation, surveillance understanding, and public health partnerships (Table III).
- Estimated staffing for RRFSS participation varied from 0.2 to 2.0 FTE, with an average of 0.7 FTE per health unit (Table IV).
- There were sustainability challenges for RRFSS, including capacity to support costs and the need to expand participation, continue modification of the RRFSS questionnaire, manage system growth, and improve methodology (Table IV).
- Most stakeholders endorsed the importance of participation in RRFSS by all

health units and the province. There was also support for having a provincial sample and funding for RRFSS (Table IV).

- More than half of the non-participating health units were interested in joining RRFSS. Cost was the key barrier for those not planning to participate (Table IV).

Several suggestions for improving RRFSS were proposed. Key areas for improvement were:

- Ways to improve implementation and supports: resourcing of a central coordinating group, improvement of questionnaire development procedures, better developed data analysis systems, and improved function of work groups.
- Strategies to increase data use: central coordination of certain tasks to reduce duplication, coordination of data analysis and dissemination strategies, and

Figure 2. Uses of RRFSS results reported by program staff after nearly a year of data collection

more dissemination and awareness-building activities within health units.

- Cost reduction prospects: central coordination, expanded partnerships, and efficiencies obtained through system maturation.
- Paths to greater participation: provincial cost sharing, core questionnaire funding, increased marketing, and more activities promoting use of RRFSS data.

DISCUSSION

The evaluation findings support the perception that, in its first year, the Ontario Rapid Risk Factor Surveillance System was an effective collaborative partnership. The results documented early use and dissemination of RRFSS data in health units, stakeholder perceptions overall of data impact and value, and stakeholder satisfaction with system functioning.

The evaluation suggested that expectations of RRFSS impact varied across groups of health unit staff. Although all MOHs and nearly all RRFSS representatives expected RRFSS to improve planning and evaluation capacity in their health units, a minority of program staff anticipated this impact (26% anticipated no impact on planning and evaluation and 30% were simply not sure). It is hard to know if this reflects greater realism among program staff, but it does likely reflect the

early stage of RRFSS. RRFSS sample sizes would have become sufficient for data analysis and distribution to staff only a few months before the evaluation, and it was likely that many staff would not yet have used the results. In addition, program staff expressed concerns that questions of particular interest to them were not available in RRFSS and that they wanted to be more involved in question development.

RRFSS was expected to fill a unique surveillance niche in Ontario given its focus on public health, capacity to provide content driven by local health unit information needs, adaptability to address changing and emerging local public health concerns, and rapidly available results. Although the 1999 RRFSS pilot occurred prior to creation of the Canadian Community Health Survey, the full RRFSS, which began in 2001, was planned to be complementary to the CCHS.² Evaluation respondents were not specifically asked to comment on the role of RRFSS in relation to CCHS. However, comments supported the fact that RRFSS provided additional utility.

In addition to documenting areas of effectiveness, the evaluation highlighted challenges to RRFSS effectiveness and identified strategies to improve performance. These included strengthening health unit implementation and supports, increasing data quality and data use,

increasing participation, and reducing costs.

Actions

To promote use of the evaluation, feedback was requested on initial findings from the Ontario Rapid Risk Factor Surveillance System Working Group and RRFSS stakeholders through discussions of key issues raised at the 2002 RRFSS Workshop.⁸ This input was then reflected in a final evaluation report.³

Many of the effectiveness and sustainability concerns raised were later addressed through a Memorandum of Understanding and a Memorandum of Operations among health units and ISR. For example, RRFSS terms of reference, decision-making processes, and data-sharing responsibilities were further clarified.

Data quality was an area of concern to ISR, particularly for new modules developed during 2001. Several processes were instituted to address this issue, including a limit on the number of new modules developed per year and more time for pilot testing.

Other issues are being dealt with through the ongoing activities of RRFSS working groups. For instance, a RRFSS coordinator was hired in 2002, regional groups were established in 2003, the Memorandum of Understanding and Memorandum of Operations between partners are constantly updated, core module indicators are analyzed centrally, and analysis guidelines for all modules are updated in the data dictionary. Data sharing, needs around data analysis, new modules, module review, and addition of rotating core modules are frequent working group agenda items. The need for provincial representation has not been resolved. RRFSS is a dynamic partnership where issues and solutions are constantly identified. It is not possible to know how much of these actions are directly attributable to this evaluation.

Limitations

Limitations of this evaluation arise from its formative focus on priority information needed to inform stakeholder decisions, the early stage of RRFSS at evaluation time, and practical limitations to breadth and depth of evaluation. Not all aspects of RRFSS processes, collaboration, utility and

costs were yet evaluable, nor could data sources chosen provide comprehensive information on these performance areas. As a result, modes of RRFSS data analysis, uses and impacts were not explored in-depth. Anticipated future evaluations will be better able to explore these issues.

Not all potential stakeholders were included. Inquiries to potential partner organizations indicated that RRFSS awareness among entities other than the MOHLTC was not sufficient at the time to warrant including them given the types of information to be collected. Local partners and audiences were also recognized stakeholders and informants on RRFSS use and impact in communities. However, at the time of evaluation, most participating health units were planning their first major release of RRFSS results in 2002, so studying community impact was premature.

Despite these limitations, the evaluation was successful in providing valuable information on use, functioning, effectiveness, strategic issues and areas for improvement in a young surveillance system. It also created opportunities for stakeholder input into RRFSS evaluation and planning. Finally, the evaluation provided a baseline and template for future evaluations.

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RÉSUMÉ

Contexte : Le Système rapide de surveillance des facteurs de risque est une enquête permanente sur la santé de la population menée collectivement par un groupe de services de santé publique de l'Ontario. Dans le cadre d'une évaluation formative, nous avons examiné l'efficacité du processus, la collaboration des intervenants, ainsi que l'utilité et la rentabilité du système au cours de sa première année de fonctionnement.

Méthode : Notre cadre d'évaluation a respecté les lignes directrices pour l'évaluation des systèmes de surveillance mises au point par l'Organisation mondiale de la santé et par les Centres américains de contrôle et de prévention des maladies (CDC). L'évaluation a porté sur les critères de rendement qu'il est possible d'évaluer pour un jeune système de surveillance et sur l'information nécessaire pour étayer les décisions des intervenants à propos de la participation future à l'enquête et des améliorations à apporter au système. Les données ont été recueillies à l'aide de questionnaires et d'entrevues avec des informatrices et des informateurs clés au sein des bureaux de santé (participant ou non au système), de la maison de recherches par sondages et du ministère provincial de la Santé.

Résultats : Nos constatations témoignent d'une utilisation et d'une diffusion précoces des données du Système rapide de surveillance des facteurs de risque dans les bureaux de santé moins d'un an après sa mise en œuvre, d'une perception générale de l'impact et de l'utilité des données chez les intervenants, ainsi que d'un fonctionnement satisfaisant du système dans l'ensemble. Nous avons documenté des problèmes d'efficacité liés à l'analyse des données, des obstacles à leur utilisation et des préoccupations quant à la viabilité du système. Nous avons cerné des stratégies d'amélioration du rendement pouvant s'appliquer à la mise en œuvre et au soutien des enquêtes, à l'utilisation des données, à la participation au système et à la réduction des coûts.

Conclusion : Au cours de sa première année, le Système rapide de surveillance des facteurs de risque s'est révélé un outil efficace pour recueillir des données démographiques utiles à la planification et à l'évaluation des programmes de santé publique. Notre évaluation a produit des données précieuses sur l'utilisation, le fonctionnement, l'efficacité, les enjeux stratégiques et les aspects à améliorer dans ce jeune système de surveillance. Les intervenants auront ainsi la possibilité de contribuer aux futurs exercices d'évaluation et de planification et auront en main des données de référence à partir desquelles évaluer le système.

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