

# The Information Management Strategy Cascade: Strategy-Based Performance Management of a Flu Recall Practice

Juliana Jackson, Karen Born, Jamie Read and Adalsteinn Brown

## Abstract

The Health Results Team for Information Management (HRT-IM) was formed at the Ontario Ministry of Health and Long-Term Care in the fall of 2004 to engage and work collaboratively with the healthcare community to implement change in health system information management. The information management strategy focused on producing better data, supporting accountability and quality improvement through performance measurement and supporting evidence-based decision-making. This paper reviews how an IM strategy framework was applied in a health service provider setting to support linking flu recall practice data to broader organizational strategy and accountability at the Sherbourne Health Centre in Toronto.

## Understanding Health System Information Management

Health system information management is increasingly acknowledged as fundamental to healthcare planning, management and decision-making. There is sufficient experience in other public sector jurisdictions at the government level and within healthcare systems to use information management (IM) best practices

and realize benefits for the broader health system. Formalized health information management has been implemented in jurisdictions such as British Columbia, Alberta, the United States (Department of Veterans Affairs), United Kingdom (National Health Service), Australia and New Zealand. These areas emphasize the establishment of a formal approach to information management and the strategic use of health information management as critical success factor in the transformation of healthcare (Smith 2002; Young 2000).

The evidence of ongoing problems in the quality, timeliness and access of data in Ontario (Ontario Ministry of Health and Long-Term Care 2005), compounded by the growing demand for integrated, high-quality and comprehensive information makes improving the way health system data and information is managed a significant priority in healthcare. The IM strategy is focused on producing better data, supporting accountability and quality improvement through performance measurement and supporting evidence-based decision-making (Table 1). These components of the strategy reinforce each other and turn information management into a form of asset- or value-based management – the vision is a system that provides objective, timely

**Table 1. The IM strategy**

Strategy Components	Description
1. Producing better data	Making the data that describes cost, quality, outcomes and resources in the health system more accurate, readily available and comprehensive, while reducing the overall costs of data collection
2. Measuring performance for change	Transforming the data into measures that will enable monitoring against key goals and integrating the system around key strategies
3. Supporting evidence-based decisions	Integrating the data and measures into decision support structures that enable the Ministry of Health and Long-Term Care to provide timely responses to priority requests for information, identify risks and plan accordingly, inform Local Health Integration Network decisions
4. Strengthening system accountability and sustainability	Developing policies and processes to ensure that data and measures flow along clear lines of reporting and responsibility to support continuous improvement of performance and foster trust in an accountable system

Source: Health Results Team for Information Management.

more about Sherbourne’s mission, vision and core purpose, please see its website at <http://www.sherbourne.on.ca/about/about.html>.)

In late 2006, Sherbourne expressed interest in cascading the IM strategy at the provincial level to an organizational level to support the centre’s practice activities with a strategic and practical approach to performance management. The HRT-IM’s work on developing a health system strategy

and accurate information as the basis for sound decisions. The information management strategy is ensuring high quality data are available to manage and monitor the healthcare system.

The Health Results Team for Information Management (HRT-IM) was formed at the Ministry of Health and Long-Term Care in the fall of 2004 to engage and work collaboratively with the healthcare community to implement change in health system information management. Throughout its mandate the HRT-IM’s approach in implementing the IM strategy has been provincial in scale and was developed to address improvements at system-wide, local and provider levels, and emphasize the cascade and modelling of processes inside and outside of government. This paper outlines how the work of IM strategy was modeled in a health service provider setting with the Sherbourne Health Centre to support linking flu recall practice data and indicators to a broader organizational strategy and accountability.

**About Sherbourne Health Centre**

Sherbourne Health Centre (Sherbourne) is an urban primary healthcare centre and a Family Health Team site serving diverse communities within southeast Toronto. Programs and services are provided with a special emphasis on local residents, homeless and under-housed individuals, the lesbian, gay, bisexual, transsexual and transgender (LGBTT) community and new Canadians. The health centre offers a comprehensive range of integrated primary healthcare programs and services including primary health clinics, culturally responsive care for recent immigrants, LGBTT primary healthcare and health promotion, LGBTT youth health and mentoring, mental health counselling, wellness workshops and support groups, homeless programs and on-the-spot nursing care, as well as naturopathic and chiropractic services (Sherbourne Health Centre 2006). (To read

map and scorecard provided a framework for modelling performance measurement and management in Sherbourne’s practices.

**Cascading System Performance Measuring to a Health Setting: The Ontario Health System Strategy Map and Ontario Health System Scorecard**

The Ontario Health System Scorecard is an instrument to both measure and guide strategic health system performance improvement initiatives – it allows the testing of hypotheses and

**Figure 1. More about Sherbourne Health Centre**

<p><b>Mission</b> Our mission is to reduce barriers to health by working with the people of our diverse urban communities to promote wellness and provide innovative primary health care services.</p> <p><b>Vision</b> Our vision is a healthy urban community in which all individuals are supported by wellness programs and health services including primary healthcare services that are welcoming, inclusive and accessible.</p> <p><b>Core Purpose</b></p> <ul style="list-style-type: none"> <li>• Innovative models of promoting urban health</li> <li>• Ease of access to primary healthcare services that meet the needs of the communities we serve</li> <li>• Integrated, interdisciplinary services that include complimentary and alternative therapies</li> <li>• Specialized expertise in serving particular communities of focus who are currently under served and face barriers in accessing care, namely LGBTT healthcare, homeless and underhoused people, and newcomers to Canada</li> </ul>
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Source: <http://www.sherbourne.on.ca/about/about.html>.

builds off the principles of the balanced scorecard. The HRT-IM developed the scorecard as part of an ongoing effort to improve data collection and performance measurement across the health system. The scorecard uses the Ontario Health System Strategy Map as the framework for assessing performance; together these tools link how our health system performs on key strategic themes (performance measurement) directly to actionable indicators supporting strategies for improving the system's performance (performance management). As performance management tools, they link what we are or should be doing in healthcare in Ontario today to what we hope to achieve by providing a means of evaluating, validating and reorienting health system strategies according to how well they produce or fail to produce expected benefits.

The Ontario Health System Scorecard helps to identify the strengths and limitations in health system functioning in Ontario, and supports the quality improvement efforts needed to meet the challenges facing the provincial healthcare system. It ensures the performance of the health system is measured, managed and oriented towards achieving better outcomes. One of the fundamental aspects of the scorecard methodology is the identification of the strategic goals and priorities needed to direct sound healthcare system renewal. The strategy map achieves this through the articulation of strategic goals to help guide the healthcare system's current performance improvement efforts. These goals are then linked to actionable performance measures and then grouped into the quadrants of health system performance examined in detail in the scorecard. The 2006/2007 Ontario Health System Scorecard contains 30 performance indicators that measure the performance of the health system against 14 strategic objectives or dimensions of performance to improve Ontario's healthcare system (described in the Ontario Health System Strategy Map). The scorecard measures the indicators for Ontario as well as at a Local Health Integration Network level in the Local Health System Scorecards. Results of this work have already been published in the Ontario Health Quality Council report (Ontario Health Quality Council 2007).

To illustrate the cascade of performance measurement and management interrelationships at the provincial, local and service provider levels, our project with Sherbourne began with a review of the Local Health System Strategy Map and Scorecard, in combination with a review of Sherbourne's primary healthcare programs and services. (The Local Health System Scorecard is derived from the Ontario Health System Scorecard and provides a linkage between provincial health system strategies and LHIN contribution toward their achievement. Wherever possible, performance indicators are cascaded from the Ontario Health System Scorecard to the Local Health System Scorecard.) Of the 14 local health system strategic dimensions contained in

the Strategy Map, Sherbourne identified the goal to "Improve healthy behaviours, health promotion and disease prevention" as the dimension in which to apply a performance management focus. The emphasis of this strategic goal is on keeping the population's health status high throughout the lifespan to improve clinical outcomes, reduce prevalence of certain diseases and prevent hospitalization and physician visits.

Immunization against influenza is one means of disease prevention as vaccination can prevent the incidence of influenza in the population. One of the measures for this strategic dimension in the 2007 Primary Health System Scorecard (developed specifically for the primary healthcare sector) was the percentage of the population which reported receiving an influenza vaccination during the past year. The indicator is stratified by gender (male or female), geography (rural or urban) and age group (<65 years of age or 65+ years of age). This indicator contains data for 2001, 2003 and 2005 and notes that there has been an incremental increase in overall vaccination rates in Ontario from 33% in 2001 to 41% in 2005. This increase correlates with the introduction in 2000 of the Ontario Universal Influenza Immunization Program (discussed further below) (PublicHealthOntario.ca 2007).

Sherbourne pointed to their participation in a recent University of Toronto Performance Indicators and Benchmarks in Primary Care study as a basis for recent performance assessment information. The study applied clinical and organizational indicators to assess performance in a number of Ontario family practices and determine their use as internal performance measures and benchmarks within individual practices for ongoing monitoring and improvement. Sherbourne participated as a pilot site and received positive performance results regarding their patient record system, prevention and promotion activities, follow-up care, management of acute and chronic conditions and practice organization and management.

To build on the performance information obtained from the benchmarking study, Sherbourne selected influenza immunization and, specifically, their flu recall processes as the focus for the project. The flu recall practice linked well with the strategy map and scorecard dimension of health promotion and disease prevention through primary care and thus was selected to examine the cascade of strategic dimensions between the broader health system and provider organization levels. The objective of our work with Sherbourne was to use strategy-based performance management approaches from the IM strategy to assess the flu recall practice and provide performance feedback to enhance the management of flu prevention practice. Interviews with the health centre's physicians, nurses and data analysts were conducted to describe and discuss the current flu prevention practice (looking at related flu recall processes in particular) and possible chart-based data sources for review at Sherbourne.

### Flu Prevention at Sherbourne Health Centre

Influenza has been a reportable disease in Ontario since 1923 and it continues to be a major cause of preventable morbidity and mortality in Ontario. It is estimated that annually influenza and community-acquired pneumonia account for 60,000 hospitalizations and 8,000 deaths, most of which occur among elderly persons (Ontario Ministry of Health and Long-Term Care 2007). Occurring annually and affecting up to 20% of the Canadian population each year, influenza places a burden on the health system in terms of hospital admissions, outpatient visits, sick leave and antimicrobial use (Langley and Faughnan 2004). While all Canadian jurisdictions offer annual influenza immunizations to the segments of the population deemed high risk, only the province of Ontario offers universal, annual immunization free of charge through the Universal Influenza Immunization Program to provide the population with protection against influenza, reduce the volume and severity of cases and reduce demand on the health system for influenza.

During the influenza season Sherbourne undertakes a comprehensive influenza vaccination program to ensure that all clients, in particular those identified as being high risk<sup>1</sup> are offered the influenza vaccine, which is mostly administered between October and March. As with other urban centres, reaching homeless and under-housed clients with no permanent address (especially high risk clients) and seeing clients who continue to decline the vaccine, usually owing to perceived concerns or suspicions about the flu vaccine are significant concerns for Sherbourne.

High-risk groups for influenza include individuals with chronic pulmonary/cardiac disorders; residents of chronic care facilities and nursing homes; people who are above 65 years of age; adults and children with chronic diseases such as diabetes, other metabolic conditions, cancer, immunodeficiency, immunosuppression, renal disease, anemia and hemoglobinopathy; children and adolescents on long-term treatment with acetylsalicylic acid; people at high risk for influenza complications travelling to areas where the virus is likely to be active; people who are at high risk for aspiration; and healthy children aged 6 to 23 months (Sherbourne Health Centre 2006b).

Several activities and tools are regularly coordinated as part of Sherbourne's flu vaccination practice, including a medical directive for influenza immunization, health education and promotion to clients, client care appointments and walk-in clinics (specific flu shot clinics are run one day a week), flu vaccine supply from Toronto Public Health and an Electronic Medical Record (EMR) system. The flu recall program acts

as a reminder system for providers and clients. It relies upon providers to consistently document recalls in the clients' chart to alert the health centre to send reminder notices to clients who are due for influenza immunization the following year. The EMR-based recall program for influenza is one of many chart-based recall systems at Sherbourne; recalls are also used for chest radiography, routine blood work, hepatitis immunization, childhood immunizations, physicals, mammograms, pap smears, protocols for HIV/AIDS care, protocols for diabetes care and mental health counselling follow-ups.

At Sherbourne, when a client receives a flu shot at either a regular client visit or through a walk-in clinic, the provider, usually the RN or the RPN, records the details of the immunization in the client's EMR and at this point, the provider posts a new recall and deletes last year's recall in the chart. There is no standard process or format for recording the immunization and not all providers enter documentation of the flu shot being given. The EMR system tracks various flu recall data (Table 2).

**Table 2. 2006–2007 flu season immunization statistics, Sherbourne Health Centre**

247 general flu recalls posted for 2006–2007 and sent recall reminders
108 general flu shots delivered and received recall reminders
41 high-risk recalls posted for 2006–2007 and sent recall reminders
22 high-risk flu shots delivered and received recall reminders
335 total flu shots delivered

The ability to use reminder systems to alert and prompt providers is an important element in primary care practice capacity towards providing high quality care management. The use of EMR-based patient clinical information and office systems for alerts, prompts and patient reminders among primary care physicians supports the monitoring of patients for preventive and ongoing essential care. A study of primary care physicians in seven countries shows that the use of different practice elements (such as electronic clinical information systems, coordinating care and medical information over time and across settings, the use of multidisciplinary teams and involvement of nurses and other non-physician providers, access to office hours and waiting times and participation in quality initiatives) to support better quality, coordination and efficiency varies and highlights the importance of policies on outcomes and performance (Schoen et al. 2004, Schoen et al. 2006).

<sup>1</sup>The Ontario Ministry of Health and Long-Term Care notes that "in the event of a temporarily limited vaccine supply, priority should be given to the immunization of the highest priority groups; these include: (i) persons at high risk of influenza-related complications (ii) persons capable of transmitting influenza to those at high risk of influenza related complications and (iii) others" (Ontario Ministry of Health and Long-Term Care 2006).

## Discussion

Modelling a performance management framework to the health centre's flu recall practice supported important critical thinking about the flu recall system as it relates to strategy, data management and decision support. We present some preliminary observations and recommendations to enhance the flu prevention practice at Sherbourne with a performance measurement and management orientation.

1. Make the EMR data that describes the flu prevention practice, including flu recalls more accurate, readily available and comprehensive, while reducing the overall costs of data collection. Build on current data systems to track, analyze and report on flu prevention measures and indicators. Enhance EMR charting practices to facilitate charting consistency and completeness.

Producing better flu immunization data for the organization should address charting documentation practices as well as data collection and reporting specifications for the EMR. A specific charting section in the EMR to document immunization status, recalls and comments would help to improve the consistency and completeness of documenting immunization records across different providers who meet with patients. In order to accurately track flu information towards ensuring its availability for retrieving recalls and other statistics purposes, information about each immunization and recall should be recorded in a standardized manner – this EMR documentation forms the basis of data that is used to make critical planning decisions regarding immunization services at the facility.

Sherbourne has already made progress on upgrading the EMR software to improve the collection, reporting and use of flu-related immunization data. The upgraded system will be able to generate protocol compliance reports to track the number of eligible patients, ineligible patients, patients who received flu shots, patients who declined flu shots, recall patients who did not visit and incomplete data entry for patients who received flu shots. It is also important to track recalls and vaccination rates according to client status (e.g., general, high risk). Additional modifications to the current recall system should capture more complete information about the client's response to the flu vaccine offer, such as whether the flu shot was offered [yes or no], and if yes [accepted or declined], or if declined [received elsewhere and where, or reason for decline]. This is important both for tracking physician procedures and for developing key health education messages for clients.

2. Articulate flu prevention and recall strategies for Sherbourne Health Centre. Transform the flu prevention practice data into measures to enable tracking progress against key goals and integrate the practice around key strategies. Bring

together clinical, data and administrative champions to develop a flu prevention strategy, goals and baseline targets for the health centre.

The first step in performance management is the definition of goals and the measurement of efforts to achieve them. Flu prevention and recall practices/processes at Sherbourne become a significant derivative of an articulated organizational strategy and related objectives/priorities for flu prevention. Preliminary strategic statements cited from Sherbourne to guide this strategy include the following:

- Offer flu shots to all high risk clients, people capable of transmitting influenza to those at high risk of influenza complications, staff and volunteers at Sherbourne, as well as the general client population on an annual basis
- Increase proportion of high risk clients who receive flu shot
- Help clients understand what the flu shot is and how to get it (emphasis on client communication and education)
- Consistently record all data around the flu vaccine (e.g., is the client offered vaccine, response)

Against this definition of strategic objectives, it is also recommended to develop a core set of measures or indicators to track progress against key goals (Table 3).

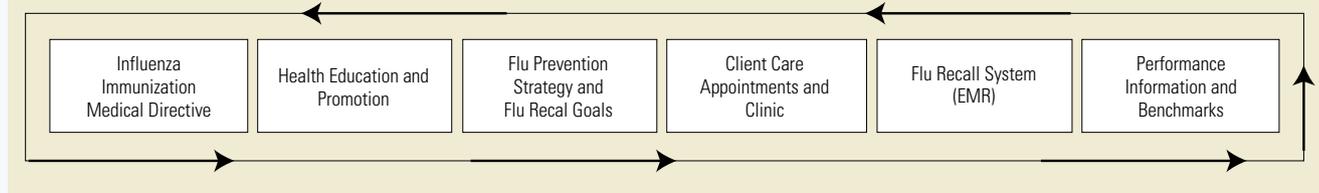
3. Integrate flu prevention practice data and measures into decision support structures to enable Sherbourne to plan accordingly regarding client communication and education and identify risks regarding vaccine supply. Information which could be captured through the EMR, such as why patients decline the flu vaccine, ought to be integrated into patient education and outreach tools around the flu.

**Table 3. Proposed flu recall indicators**

- Percentage of recall clients (high risk and general) who receive flu shots at Sherbourne that year
- Percentage of recall clients (high risk and general) who report receiving flu shots elsewhere that year
- Percentage of recall clients (high risk and general) who did not receive flu shots at Sherbourne that year
- Percentage of non-recall clients (e.g., other care visits and walk-in clinics) who receive flu shots at Sherbourne that year
- Percentage of influenza cases being treated at Sherbourne
- Sherbourne clients treated in emergency department or admitted to hospital for influenza (Admittedly this indicator would probably be more difficult to measure, but is identified here as a good outcome indicator to assess gaps that still exist)

Alignment between strategic objectives and data collection/measurement supports immunization planning and program

Figure 2. Evolutionary development of flu practice tools at Sherbourne



decisions in a number of areas. As examples this alignment supports Sherbourne's vaccine procurement processes (based on reported usage from the previous year), the development of health prevention education for clients (based on data collected client data) and the assessment of the effectiveness and quality of ongoing flu prevention and recall activities (including the evaluation of the flu recall program as a template for expanding other recall programs related to hepatitis, mammograms, protocols for HIV/AIDS care or protocols for diabetes care).

4. Develop policies and processes to ensure that flu prevention practice data and measures flow along clear lines of reporting and responsibility among practitioners and analysts to support continuous improvement of flu prevention practice performance (Figure 2).

Flu prevention activities at Sherbourne involve a series of accountability relationships, including but not limited to the following: external relationships between Sherbourne and its clients, between Sherbourne and the ministry (including for example the Public Health Department), between Sherbourne and other community agencies and service providers, as well as internal relationships between practitioners. These diverse relationships involve everything from the delivery of care, the use of resources, adherence to standards and service planning. These relationships become strengthened by a number of factors including mutual co-operation and clear performance expectations among the care providers; adherence across the organization to a common set of priorities, goals and measures; creating, collecting and using high quality data as part of a routine function; and ensuring all participants are working from the same set of data for planning and decisions.

### Conclusion

Modelling performance measurement and management of flu recall processes to an overall organizational flu prevention strategy should also take into account health promotion and disease prevention strategies at the local and broader health system levels. Cascading strategies and goals from the system level, to local system level, to the health service provider level ensures strategic alignment and performance improvement across the health system.

The health system information management agenda is spreading with great momentum across the province. Initiatives led by the Health Results Team for Information Management have resulted in reduced waste, improved timeliness and quality of data, innovation in long-range planning and new methods to measure the progress of our health system against key strategic goals. While the mandate has been completed and team behind the HRT-IM disbanded in March 2007, many HRT-IM initiatives and projects continue under the new Health System Strategy and Health System Information Management divisions of the Ontario Ministry of Health and Long-Term Care.

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### About the Authors

**Juliana Jackson** is a senior policy analyst/project lead in the Health System Strategy Division at the Ontario Ministry of Health and Long-Term Care and previously worked with the Health Results Team for Information Management, Ontario Ministry of Health and Long-Term Care.

**Karen Born** is currently studying at the University of Toronto and previously worked with the Health Results Team for Information Management, Ontario Ministry of Health and Long-Term Care.

**Jamie Read** is the medical director, Sherbourne Health Centre and lead physician, Sherbourne Family Health Team.

**Adalsteinn Brown** is Assistant Deputy Minister, Health System Strategy Division at the Ontario Ministry of Health and Long-Term Care and previously led the Health Results Team for Information Management, Ontario Ministry of Health and Long-Term Care.

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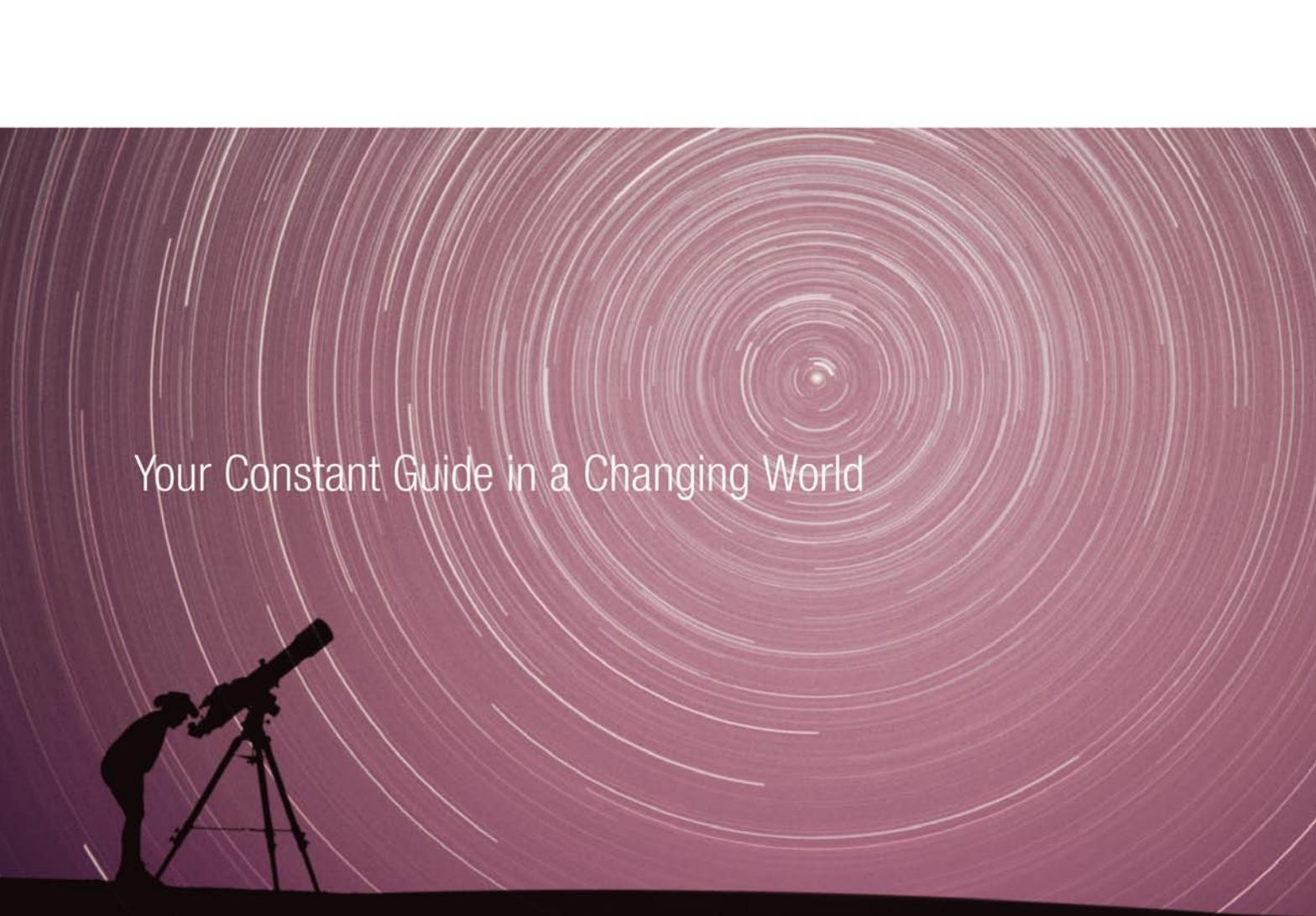
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