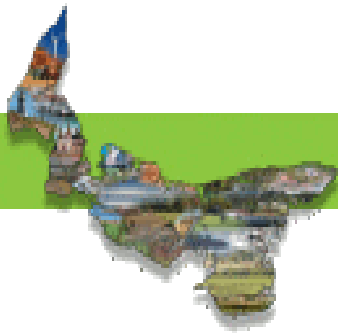


Prince Edward Island  
**Drug Information System**

*Evaluation Report*



ONE ISLAND HEALTH SYSTEM

Prince Edward Island  
**Drug Information System**

*Evaluation Report*

May 27<sup>th</sup>, 2010



*Prince Edward Island Drug Information System Evaluation Report*

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***Submitted to:***

Pharmaceutical Information Program Director

***Date:***

May 27<sup>th</sup>, 2010



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## ***Executive Summary***

The Prince Edward Island (PEI) Drug Information System (DIS) is a province-wide computer system through which a centralized medication profile can be accessed by pharmacists and select healthcare providers throughout the province. Design and implementation of the DIS took place through a series of stages, with roll out to community pharmacies, provincially-run pharmacies, and provincially-run family health centres that occurred between April and September of 2008. The DIS is now operational at these sites, and is being used by pharmacists, physicians at the four healthcare centres, and a number of other healthcare providers. The next focus for DIS is greater physician uptake.

An evaluation of the DIS was undertaken to review the process through which the DIS was developed and implemented and to assess whether the system is achieving the desired outcomes in relation to stakeholder benefits and patient outcomes. This is the second benefit evaluation that has been done; the first was performed in March of 2009.

## **Methodology**

It was recognized from the outset that benefits associated with implementation of new technology would likely accrue most fully over time, and that changes occurring during the early stages of implementation could affect efficiency, productivity and end-user satisfaction until new processes became more routine and system benefits start to become more fully realized.

This evaluation was focused on assessing outcomes achieved to date in relation to stakeholder benefits and patient outcomes to identify trends and to establish a base line for further comparison, as well as comparing the results of the 2009 benefit evaluation to current results.

The data collection process included a review of the administrative data for the full 24 month period that the DIS has been online, as well as an online survey for current DIS users.



## **Findings**

### ***Implementation and Change Management Processes***

The DIS project clearly met Canada Health Infoway (CHI) targets, and from that perspective, was ultimately successful. Since the 2009 benefit evaluation, physician uptake has been slow and, as a result, many of the benefits of the DIS have not been fully realized.

There is evidence in the 2010 benefit evaluation that end user satisfaction is being slowed by the lack of apparent benefits due to slow physician uptake, although improvements in the area of efficiency, information quality and relevance, and in quality of care have occurred at the end user level. There have been drops in satisfaction in training and on-going support, areas which should be addressed in 2010-11.

### ***DIS Outcomes***

A variety of administrative data is available from the DIS data warehouse which can inform patient outcome and service quality indicators. As was the case in the 2009 benefit evaluation, data in the following areas was reviewed; Patient Compliance; Multiple Prescribers; Senior's Medication Use; Most Common Medications Prescribed; Drug Utilization Reviews; Patient Profiles Viewed by Location; and Time Required by DeltaWare Systems Inc. to Resolve Tickets.

Unlike the 2009 benefit evaluation, now that implementation for the first stage of users is complete, we can observe early trends over the 24 month period that the DIS has been online. There are now baseline numbers that are required to track and control issues like poly-doctor and poly-pharmacy behavior, patient compliance, senior medication use, DUR messaging, patient profile views, and ticket resolution times in order to track achievements in patient and pharmacist outcomes. Furthermore, many of these baseline statistics will be used to track the effect of physician intake.

## **Conclusion**

In summary, the DIS continues to achieve CHI targets, has achieved good uptake among pharmacies,




and established baseline administrative data to guide and track performance monitoring, quality and safety activities, and patient outcomes.

The first tracking data indicates that end-user satisfaction with the DIS relies heavily on increased physician uptake, training and on-going support at the pharmacy level to ensure the users realize the benefits of the DIS now and into the future.

In the 2010 benefit evaluation survey, user satisfaction increased in the areas of efficiency, information quality, relevance, and quality of care, as the processes became more routine and streamlined. While there are grounds for confidence that the DIS will continue to accrue benefits over time, end-user satisfaction continues to lag as physician uptake has slowed. Additionally, an increased focus on training and on-going support, along with improvements in communication and role clarity, should help to further increase user satisfaction. These factors should guide the 2010-2011 mandate for the DIS and will help realize the goals of stakeholders and patient outcomes for the long run.

## **Recommendations**

1. Revisit business continuity planning, comprising of change management and review procedures, to ensure the DIS' long-term goals are met;
  2. Establish security standards, based on Attorney General's recommendations, which will ensure the soundness of the DIS into the future;
  3. Establish new communication procedures with respect to DIS end-users, allowing for better knowledge transfer and a better understanding of the DIS' features and updates;
  4. Renew focus on end-user training and support, through on-site visits and regular communications, to help alleviate concerns voiced in online survey, in collaboration with software vendors;
  5. Revisit project documentation and DIS information management structures and create formal information protocols for technical updates;
  6. Continue to prioritize provider efficiency and productivity with respect to DURs, response time and system stability.
- 

## 1.0 INTRODUCTION

The Prince Edward Island (PEI) Drug Information System (DIS) is a province-wide computer system through which a centralized medication profile can be accessed by pharmacists and select healthcare providers throughout the province. This system required considerable investment by the Province of Prince Edward Island, Canada Health Infoway, and community pharmacies.

To date, CHI targets have been met and DIS is in use in all pharmacies and community health centres across PEI. Work is ongoing to promote further physician uptake.

### 1.1 Evaluation

Implementation was completed in September 2008 for community and provincial pharmacies and implementation in healthcare centres and with physicians is ongoing. An evaluation is being conducted at this stage of the project life-cycle to consider the early benefits, improvements since the 2009 evaluation, and to find opportunities for further improvement. The purpose of this study is to evaluate the early outcomes of the DIS. An evaluation framework was developed in 2009 to guide this evaluation with four main evaluation questions:

#### *Implementation Questions*

- Was the DIS implemented according to plan?
- Was the change management process effective?

#### *Outcome Questions*

- Is the DIS achieving stated objectives in relation to stakeholder benefits?
- Is the DIS achieving stated objectives in relation to patient outcomes?

Implementation questions are answered as fully as possible through a description of the project history based on project documents and mandates in the 2009 benefit evaluation. Outcome evaluation questions are answered largely using a administrative data review and an end-user survey.



## **2.0 METHODS**

Data for this evaluation was collected two ways; a review of administrative data from the DIS data warehouse, and a survey of pharmacists, physicians and health care providers who use the DIS. The data collection approach is outlined below.

### **2.1 Administrative Data Review**

Data was collected from the DIS warehouse to study outcomes for patients, pharmacists, a limited number of physicians, and the system overall. As the DIS continues to be rolled out to physicians in a variety of contexts, outcomes for this target group will be further examined, however the current focus is largely on patient, pharmacist and system outcomes.

Simple descriptive statistics were used to analyze relevant data. Data was collected from the point of initial pharmacy roll-out, April 2008, until March 2010. As a contrast to the 2009 evaluation, data will not be represented by one month (at the time, a limited amount of information was available), but instead trending statistics will be used to represent typical monthly use.

### **2.2 Pharmacist, Physician and Health Care Provider Survey**

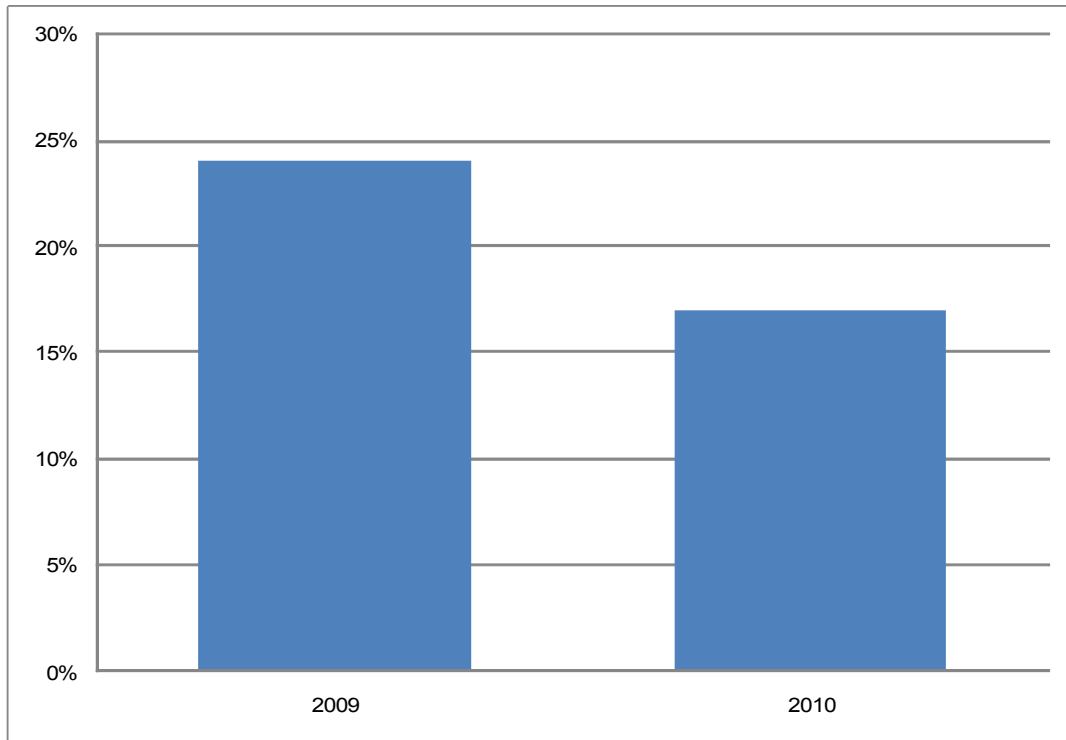
Pharmacists across PEI, as well as any physicians and health care providers currently using the DIS were surveyed on their experiences with the system. This survey was developed by CHI and covered a number of dimension including; respondents' satisfaction with the overall system functions, information, system and service quality, service use and improvements made since the 2009 evaluation (see Appendix B.)

An e-mail invitation (Appendix A) was sent to all PEI pharmacists through the PEI Pharmacy Association distribution list and participating physicians and healthcare providers through PEI government email. It was assumed that these pharmacists were using the DIS because all were practicing; any who contacted the administrator to report they were not using the DIS were removed from the database. Additionally, anyone whose email was not delivered on both the invitation and reminder was removed to ensure all members of the population were actively invited. Physicians and health care providers using DIS at the time of the survey were sent the same invitation as pharmacists. In total, 262 invitations were sent out.



The survey was live from February 21<sup>st</sup>, 2010 to March 20<sup>th</sup>, 2010. It was expected to take 25-30 minutes to complete. Multiple-choice questions were mandatory and open-ended questions were voluntary. As well, an optional registration for future study of DUR messaging was offered at the end of the survey.

In total, 44 surveys were completed; 33 pharmacists, 5 physicians and 6 health care providers responded. The overall response rate was 17%; down from 24% in 2009 (see Figure 1.) Question responses cannot be aggregated by profession in order to protect the identity of physicians and healthcare providers who responded. Data from the survey was analyzed using descriptive and statistical analysis. Non-response rates for relevant questions are presented. For ease of understanding, whole numbers are reported and in some cases, results in total percentages are slightly above or below 100% due to rounding.



**Figure 1: Pharmacist, Physician and Health-Care Provider Survey Response Rates**

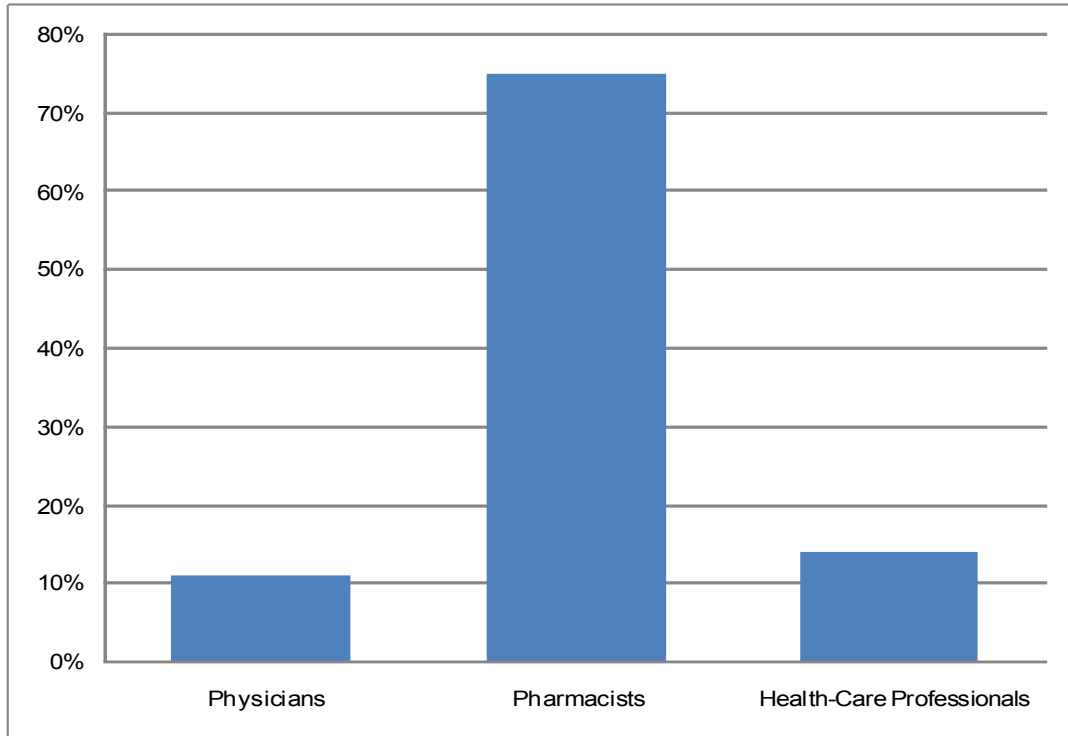
## 2.2a Sample

The survey sample can be described along a number of dimensions:



### Professions

Respondents were mostly pharmacists (75%) but there were also physicians (11%) and other health care professionals (14%) (see Figure 2.) All respondents answered this question.

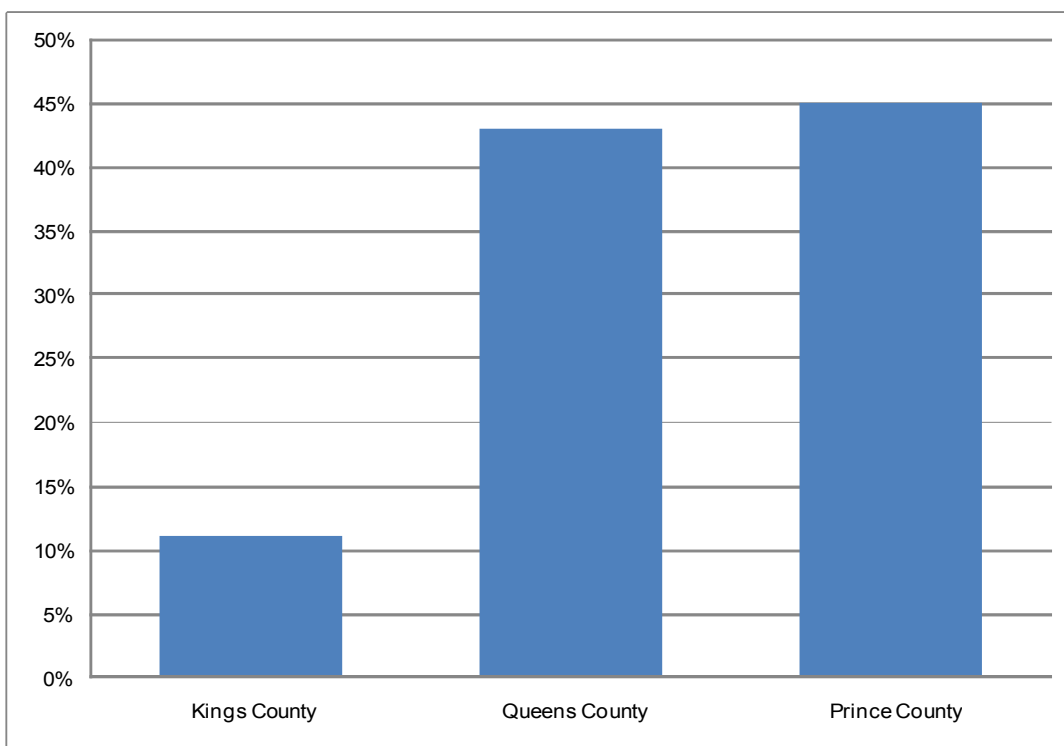


**Figure 2: Responses to “What is your profession?”**

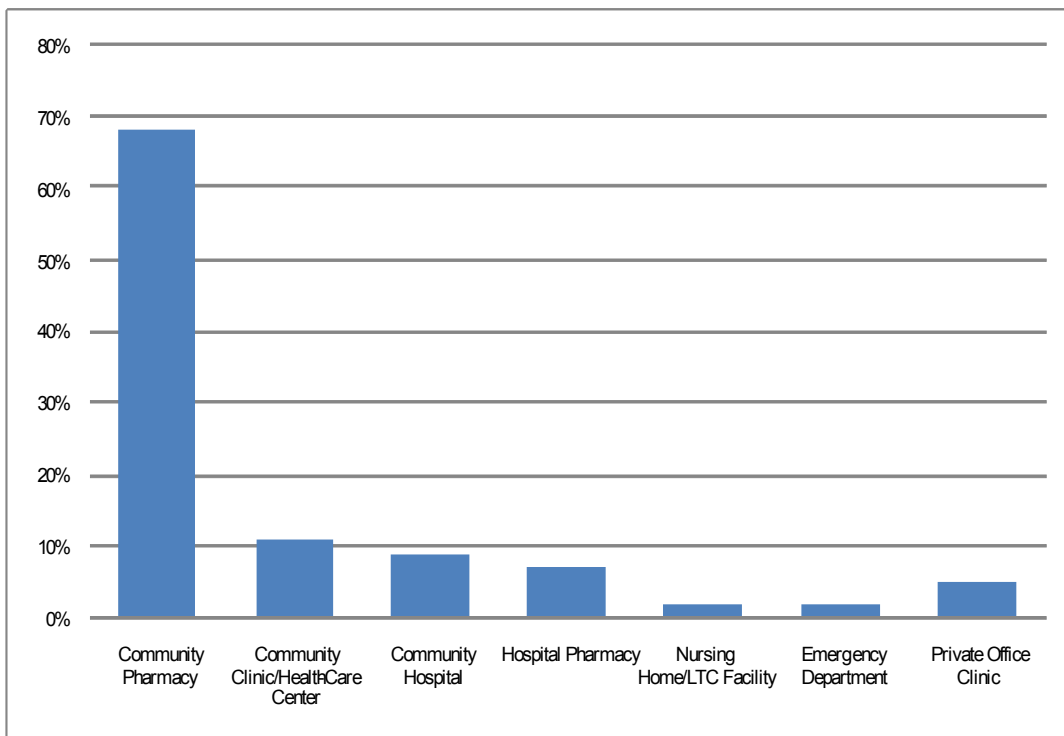
### Work Location

45% of respondents were from Prince County, but there were also respondents from Kings County (11%) and Queens County (43%) (see Figure 3.) All respondents answered this question.

When asked their location of work, the vast majority of respondents (68%) answered community pharmacy. The remaining responses for location of work included: community clinic/health care center (11%); community hospital (9%); hospital pharmacy (7%); nursing home/long-term care facility (2%); emergency department (2%) and private office clinic (5%) (see Figure 4.) All respondents answered this question.



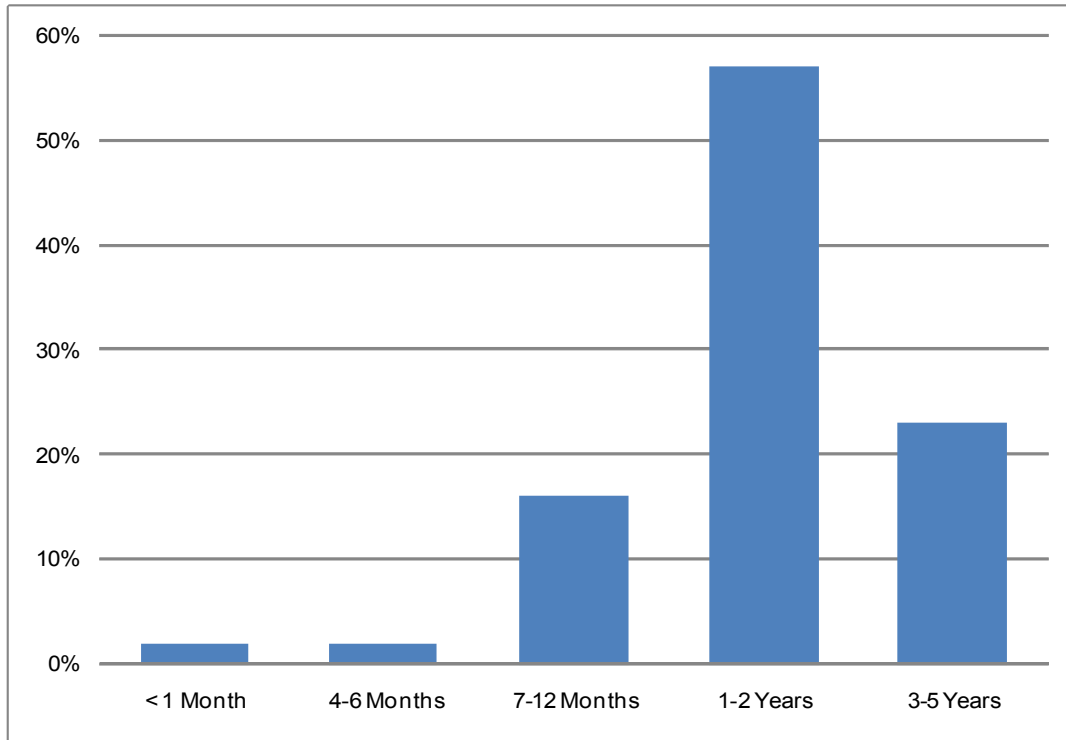
**Figure 3: Responses to “Where are you located?”**



**Figure 4: Responses to “ Please check the response(s) that best describe the settings where you work.”**

### Length of Use

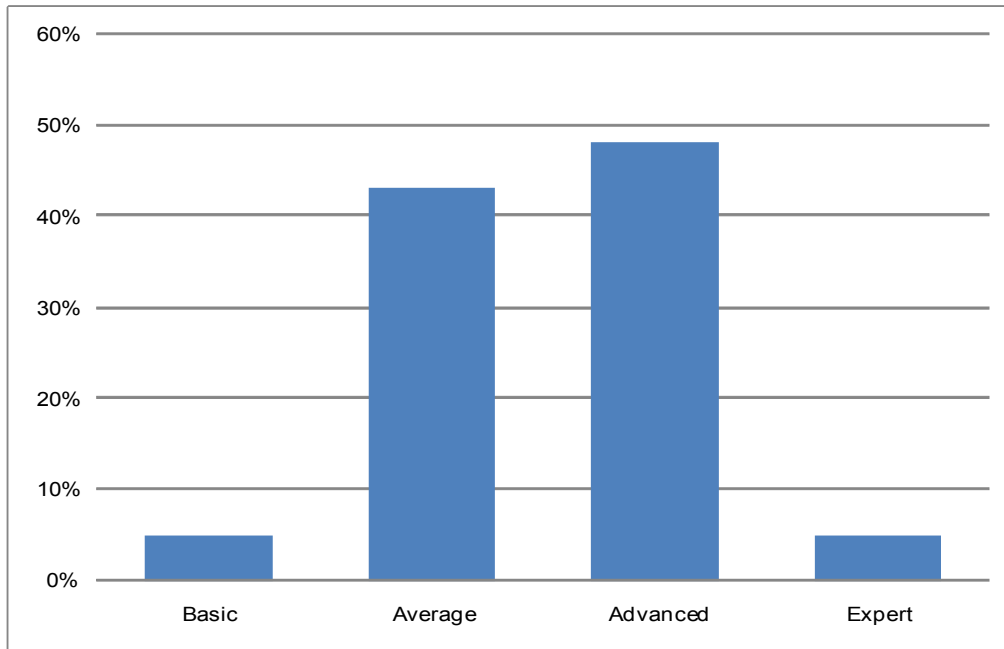
Most respondents have used the system for 1-2 years (57%); 23% have used it for 3-5 years, 16% used it from 7-12 months, 2% used it for 4-6 months and 2% had used it for less than a month (see Figure 5.) All respondents answered this question.



**Figure 5: Responses to "How long have you been using the system?"**

### Computer Proficiency

Survey respondents were asked to rate their computer proficiency of which (43%) identified themselves as having average, advanced (48%), or expert (5%) computer skills. Only (5%) classified themselves as having basic computer skills (see Figure 6.) All respondents answered this question.



**Figure 6: Responses to “How would you rate your computer proficiency?”**

### 2.3 Limitations

There were fewer limitations in the second benefit evaluation, many of which were alleviated due to the extended period of time that the DIS was online, allowing a longer period for analysis. This data will also be a baseline for future use in benefit evaluations of the DIS.

A pan-canadian survey from CHI was used to frame the benefit evaluation survey, which is a benefit as results can be compared across Canada, however it was extended to include data for baselines with respect to challenges in the local implementation of the DIS. Improvements from the last benefit evaluation include eliminating the use of paper surveys by partnering with the National Association of Pharmacy Regulatory Authorities (NAPRA) to submit surveys via email with individual tokens. This was a benefit as the tool we used to present the survey, LimeSurvey, includes functionality which tracks which tokens completed the survey and allows us to send reminders periodically to those who have not completed it.

The ability to compare data was limited by the size of the sample group; in the 2009 benefit evaluation, 44 surveys were completed out of 184 invited; in 2010, 44 surveys were completed out of 262 invited. This low participation rate continues to make it difficult to have a great deal of confidence in the accuracy of the survey data. While insight into the DIS' strengths and weaknesses through survey comments can be analyzed, future

work into getting greater participation in the feedback process at the user level is warranted.

## 3.0 FINDINGS

### 3.1 Project Plan<sup>1</sup>

The purpose of the DIS is to link healthcare sites across settings and across the province through a database of electronic patient records. The centralized medical profile accessible through the DIS provides information on prescribed medications, and drug allergies. It allows for healthcare professionals to view, record and manage patient drug information online; interact with decision-supporting tools online; and electronically prescribe medications. It is clear that the DIS has achieved implementation according to CHI requirements.<sup>2</sup>

#### 3.1.a Proposed Benefits

There were a number of proposed benefits to key stakeholders. Anticipated benefits as described in the document Change Management: Implementation Plan, Phase II from January 2006 (document #2) are outlined below.

##### Patients

- Improved patient health and satisfaction with the health system.
- Enhanced treatment through best practices provided by the DIS.
- Improved counseling through access to a shared view of the medication profile.
- Increased communication between health facilities and community health care providers.
- Reduced hospital stays and physician visits.

##### Pharmacists/Pharmacies

- Improved care for their patients and improve efficiencies through providing professional counseling and cognitive services.
- Improved management of drug therapy for patients under the care of multiple providers.
- Reduced risk of medication and dispensing errors.

<sup>1</sup> Three documents were used for this section of the evaluation: #1 Community Pharmacy Benefit and Impact Assessment (November 2006); #2 Change Management – Implementation Plan, Phase II (January 2006); #3 Change Management – Implementation Plan, Phase II Technical Document #1 (December 2005).

<sup>2</sup> CHI targets include; community pharmacies use DIS to view 80% of patient profiles; hospital pharmacies use DIS to view 40% of Medication Reconciliations; and physicians in two community health centres (Four Neighborhoods and Harbourside) view patient profiles for 20% of annual visits.

### Physicians

- Improved care for their patients and improve efficiencies through access to more complete information.
- Ability to detect and intervene in inappropriate drug utilization patterns.
- Access to information concerning discharge medications from health facilities.

Many of these outcomes are still in the process of being implemented (especially physician uptake) and cannot be evaluated at this time.

## **3.2 Administrative Data Review**

Administrative data from the DIS warehouse can provide insight into specific groups (e.g., patients and pharmacists) as well as the broad system as a whole. Since DIS is currently used by a handful of physicians, there is limited administrative data related to their use of the system.

### **3.2.a Patient Outcomes**

#### Patient Compliance

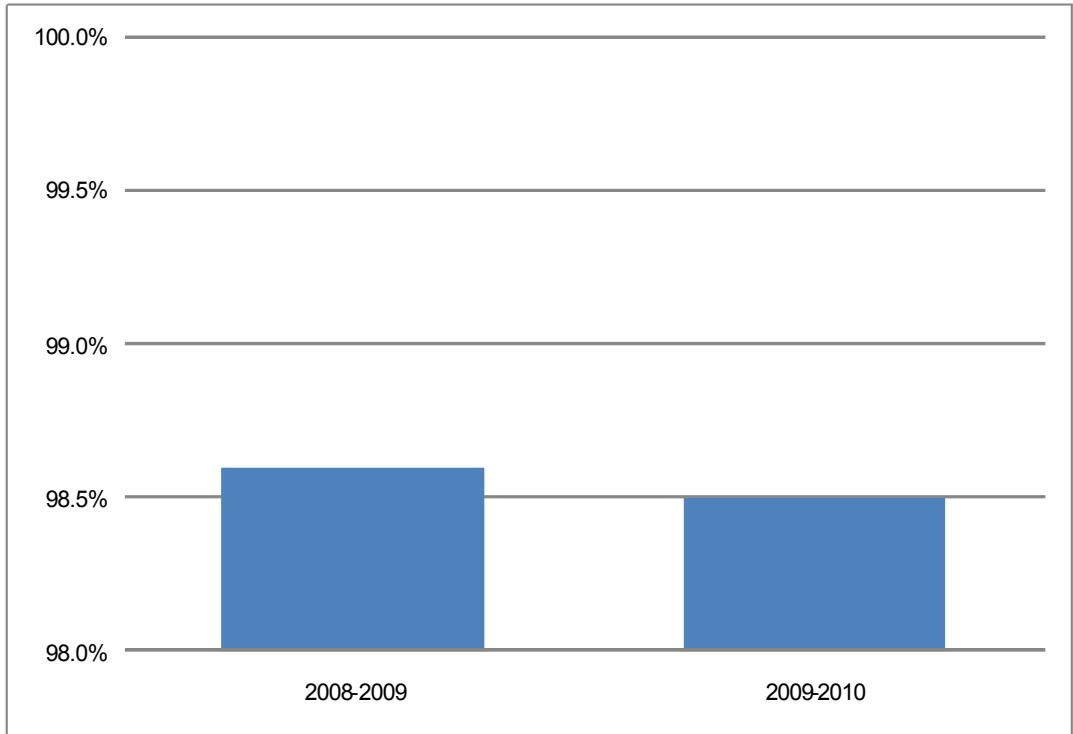
Patient compliance in filling prescriptions is important to ensure that patients receive the appropriate medications as prescribed by their physician. Patient compliance was determined by the number of prescriptions submitted for dispense compared to the number of prescriptions actually dispensed for a given month.

In the previous benefit evaluation, a sample month (November 2008) was chosen and used to gauge patient compliance.

Now that the DIS has been online for 24 months, more accurate annual data to gauge patient compliance can be used. For the year April 2008-March 2009, patient compliance was 98.6%: comparatively, patient compliance for the year April 2009-March 2010 was relatively close at 98.5% (see Figure 7.) These numbers indicate a high level of compliance.

#### Multiple Prescribers

Multiple prescribers are an area of key concern in healthcare. DIS allows the opportunity to monitor poly-doctoring. Using the DIS data warehouse, indicators were derived for the year April 2008-March 2009 and April 2009- March 2010.



**Figure 7: Patient Compliance (Dispenses Filled/Dispenses Entered) by Year**

From April 2008-March 2009, the average number of doctors prescribing per patient was 1.9. While this number is fairly low, 3,922 patients had an average number of doctors prescribing of 5 or more, with one patient receiving prescriptions from 21 different physicians.

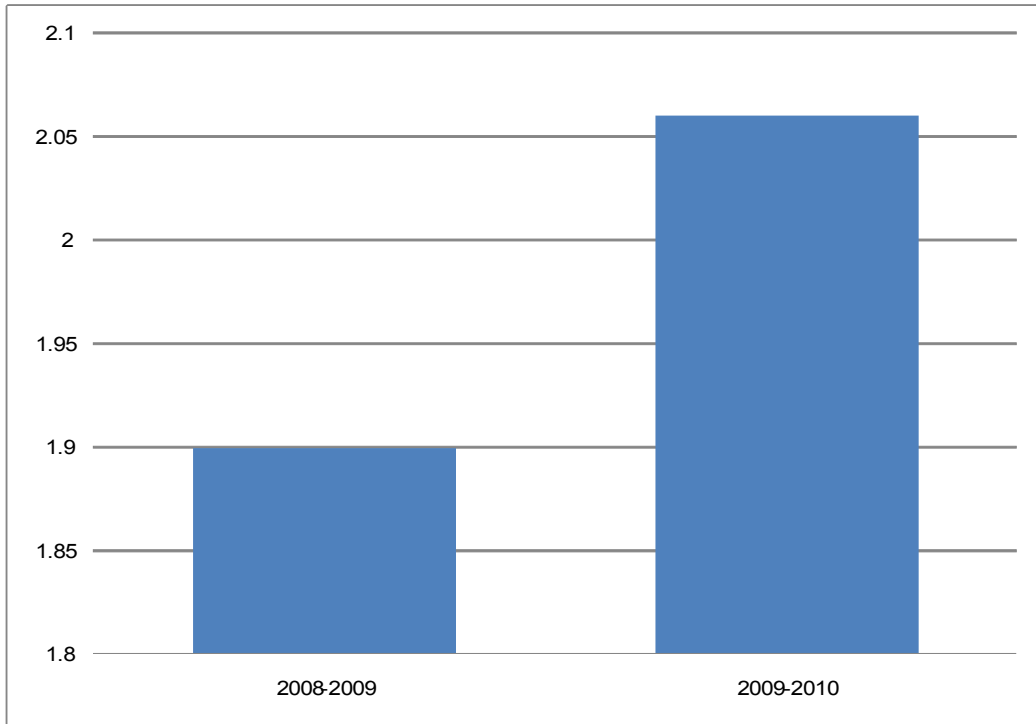
From April 2009-March 2010, the average number of doctors prescribing per patient was 2.06. While this number is again fairly low, it represents a rise from the 2008-2009 average. 6,304 patients had an average number of doctors prescribing of 5 or more, with one patient again receiving prescriptions from 21 different physicians (see Figure 8.)

This increase may be due to 2009-2010 being the first year where all 43 communities were compliant for the full period.

Seniors' Medication Use

One of the functions of the DIS system is to track seniors' (patients aged 65 years or older) medication use. These statistics will be provided in annual terms for the 24 months the DIS has been online.





**Figure 8: Average Number of Prescribers per Patient by Year**

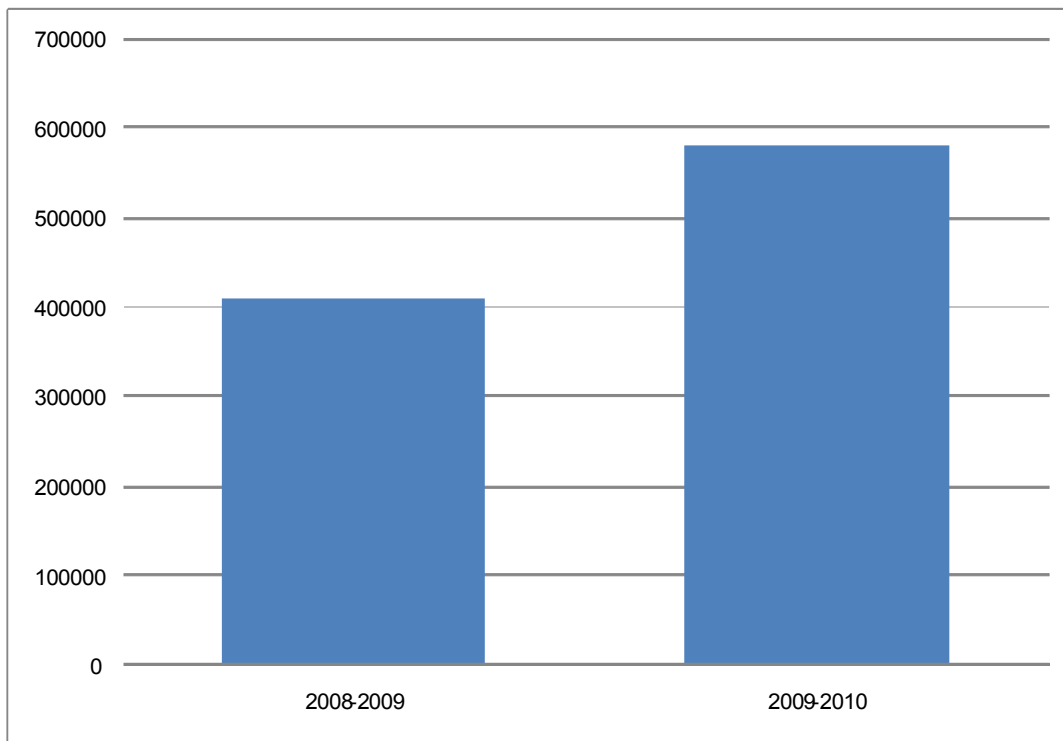
From April 2008-March 2009, patients 65 years of age and older received 410,627 dispenses, at an average of 34,219 dispenses per month (see Figure 9.) This average will skew low as many pharmacies were not online for this entire period.

From April 2009-March 2010, patients 65 years of age and older received 580,720 dispenses, at an average of 48,393 dispenses per month. This will allow us to track seniors' medication use in the future as it gives us a baseline comparison with all community pharmacies online.

The increase may be due to 2009-2010 being the first year where all 43 communities were compliant for the full period.

#### Most Common Medications Prescribed

Data on the most common medications prescribed provides a picture of prescription use by the Prince Edward Island patients, which may indicate illnesses of greatest burden for PEI.



**Figure 9: Annual Disburses for Patients >65 Years of Age entered into the DIS**

Then most frequently prescribed medications from April 2009-March 2010 are:

1. Lipitor
2. Crestor
3. Synthroid
4. Metadol
5. Plavix
6. RATIO-Salbutamol-HFA
7. APO-Ramipril
8. RATIO-Omeprazole
9. Celebrex
10. NOVO-Hydrazide

From the medication list we see that the illnesses of greatest burden are likely cardiovascular disease and asthma.



### 3.2.b Pharmacist Outcomes

The DIS allows the observation of system use by pharmacists, such as the number of patient profiles reviewed and actions from warnings. The former will be presented in section 3.3.c with system targets. Pharmacist compliance with the system can also be determined, in part, by examining the number of Drug Utilization Reviews<sup>3</sup> (DURs) and the action taken with these.

Between April 2008-March 2009, pharmacists entered 1,037,557 dispenses into the DIS (see Figure 10.) Of these dispenses, 418,607 returned no DUR message from the DIS (they may have received other messages from their local software or through payment related messaging) which represents 40.3% of the total dispenses entered into the DIS. The total number of DUR messages returned by the DIS was 1,611,985, which represents 1.55 DUR messages per dispense. If we eliminate the dispenses which did not return a DUR message at all, we find that the average number of DUR messages for dispenses which had a DUR message is 2.6.

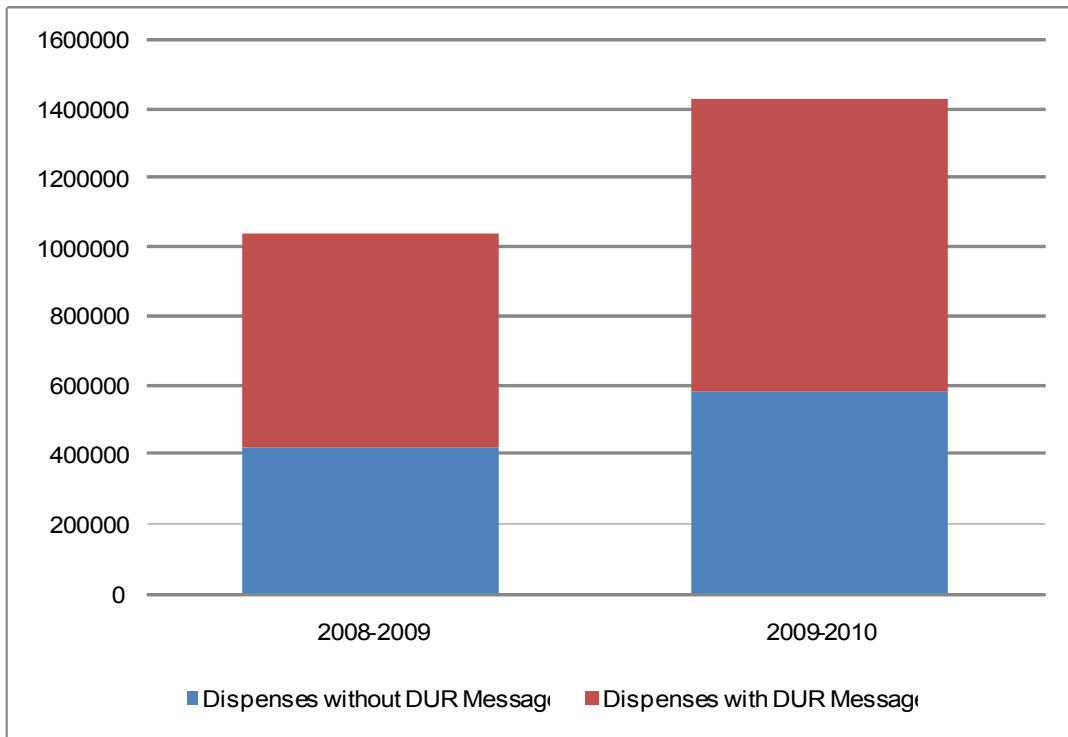
Between April 2009-March 2010, pharmacists entered 1,427,310 dispenses into the DIS (see Figure 10), representing a 37.6% increase from the previous year. Of these dispenses, 583,973 returned no DUR message from the DIS, which represents 40.9% of the total dispenses entered into the DIS (a slight increase from the previous year). The total number of DUR messages returned by the DIS was 2,185,232, which represents 1.53 DUR messages per dispense (a slight decrease over the previous year; however, since August 2009, the number has dropped to 1.18.) If we again eliminate the dispenses which did not return a DUR message at all, we find that the average number of DUR messages for dispenses which had a DUR message is 2.59, a slight decrease from the previous year. These indicate that DUR messaging has remained relatively the same from year to year, although significant decreases since August 2009 have been noticed.

### 3.2.c System Outcomes

The frequency of patient profiles viewed by pharmacies over time indicates the uptake of the DIS and the frequency of use. The table below shows an increase in patient profiles accessed over time.

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<sup>3</sup> Drug Utilization Reviews (DURs) refer to severity levels of interactions, in categories of low, medium and high, that are designed to alert users (e.g., pharmacists) to a possible issue with the prescription (e.g., allergy alert.)



**Figure 10: Number of Dispenses With/Without DUR Message by Year**

**Table 1: Patient Profile Views by Location between April 2008 and March 2010**

	<b>Community Pharmacies Profile Views</b>	<b>Hospitals Viewing Patient Profiles<sup>4</sup></b>
April 2008-March 2009	7477368	6271
April 2009-March 2010	8950397	33859

Patient profile views have increased from the 2008-2009 to 2009-2010 in both community pharmacies and hospitals, with community pharmacies continuing to view the vast majority of profiles.

An important aspect of the DIS is user support. This support is provided most often by DeltaWare Systems Inc. and to a lesser extent by the Department of Health and Wellness. The table below outlines the percent of support calls (tickets) resolved from August 2008 to March 2010:

It should be noted that these statistics relate only to calls relating to the DIS; vendor software calls go directly to the vendor and are not recorded here.

<sup>4</sup> Hospital Access to patient Profiles began in September 2008.

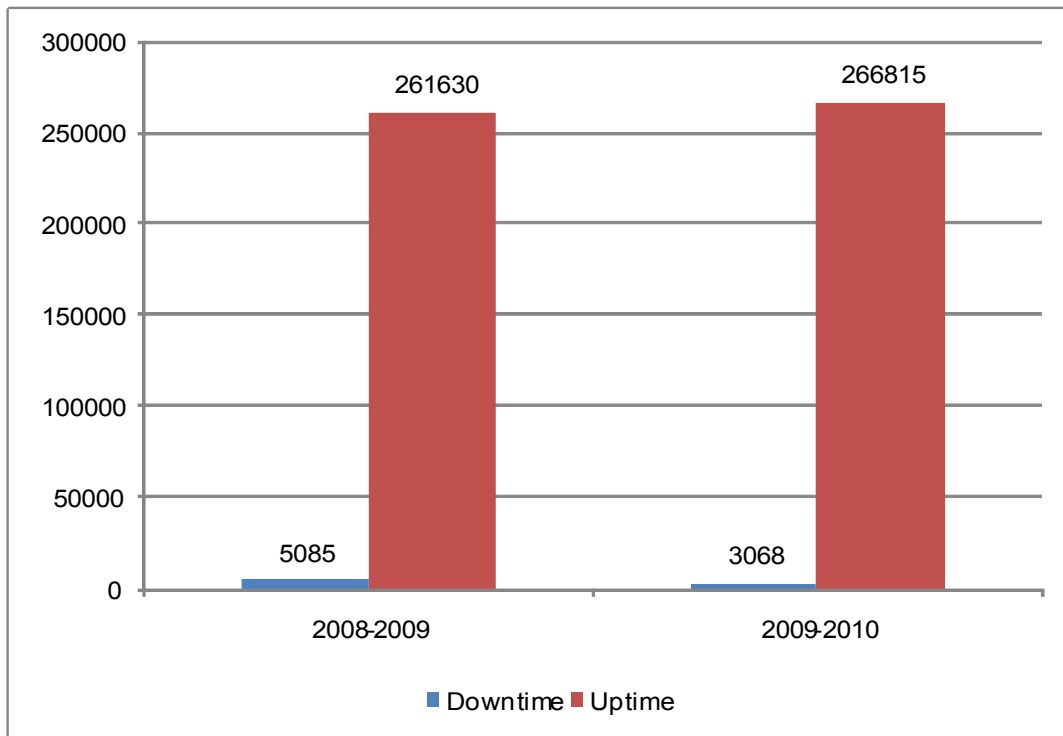


**Table 2: Time Required by DeltaWare Systems Inc. to Resolve Tickets between April 2008 and March 2010 (%)**

Time	Aug-Sep 2008	Oct-Dec 2008	Jan-Mar 2009	Apr-June 2009	Jul-Sep 2009	Oct-Dec 2009	Jan-Mar 2010
< 15 Min	92	89	88	92	90	92	90
15-30 Min	3	3	4	3	3	3	3
30-45 Min	1	2	3	1	1	1	2
45-60 Min	0	2	1	0	0	0	1
60+ Min	3	4	4	3	5	4	4

This table illustrates that the vast majority of calls are resolved within the first 15 minutes. The results suggest a good response time from the report to resolution in most cases and relative consistency.

Additionally, another key aspect of the DIS is system stability. In 2008-2009, total DIS uptime was 98.1%; 5,085 hours of downtime compared to 261,630 hours of uptime. In 2009-2010, total DIS uptime increased to 98.9%; 3,068 hours of downtime compared to 266,815 hours of uptime (see Figure 11.) The greatest savings in uptime occurred with respect to the Department of Health and Wellness hardware stability and vendor stability.

**Figure 11: Downtime and Uptime of DIS - Total Hours by Year**

**3.2.d Summary**

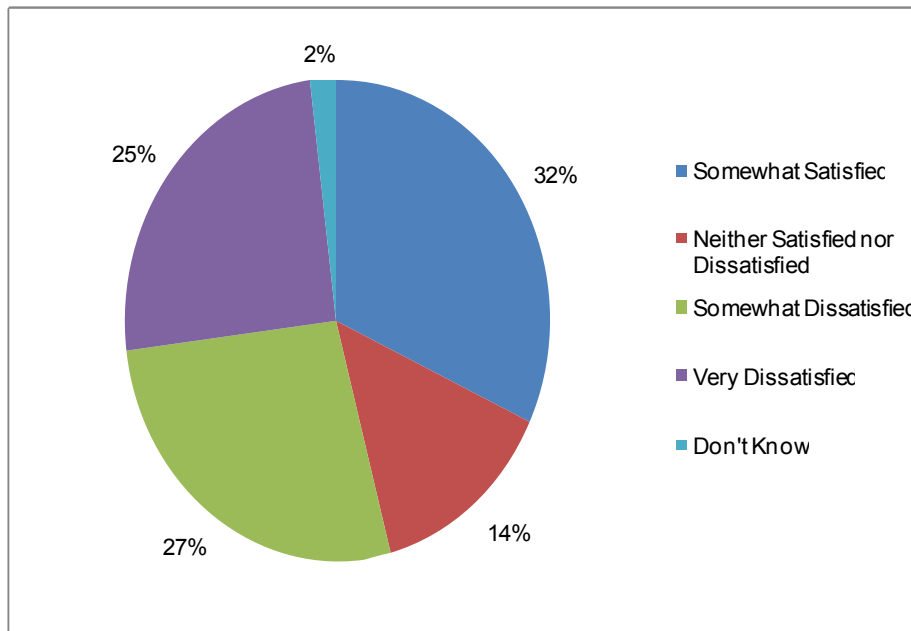
These indicators present a number of important findings. They serve as markers primarily for patient care (e.g., patient compliance, poly-doctoring.) These indicators also confirm the DIS' implementation and use across provincial pharmacies (e.g., DUR messages and action, profiles viewed, etc...) Finally, data collected as part of the DIS provides important evidence to inform decision making beyond the scope of the DIS (e.g., burden of illness.)

**3.3 Pharmacist, Physician and Health-Care Provider Survey**

Survey results from pharmacists, physicians and health-care providers have been combined to protect the confidentiality of low response groups (physicians and health care providers.) The survey covers a number of areas including: satisfaction; system, information and service quality; and service use.

**3.3.a Satisfaction**

When asked their satisfaction with the system, 32% of respondents were satisfied to some extent, 52% of respondents were dissatisfied to some extent and 14% were neither satisfied nor dissatisfied. 2% didn't know (see Figure 12.)



**Figure 12: Responses to “In general, how satisfied are you overall with the system you are currently working with?”**



The following table drills down further into this question:

**Table 3: Percent agreement regarding Satisfaction with the Drug Information System**

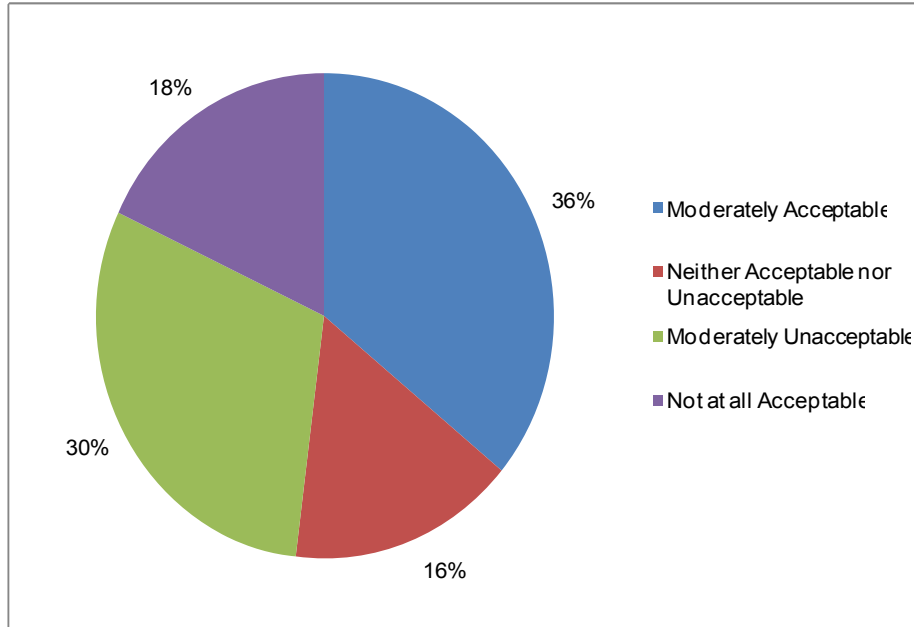
<b>The system...</b>	<b>Strongly Agree</b>	<b>Moderately Agree</b>	<b>Moderately Disagree</b>	<b>Strongly Disagree</b>	<b>Not Sure</b>	<b>Not Applicable</b>
Improves my productivity.	2	30	25	39	2	2
Improves the quality of care I can provide.	9	68	7	9	5	2
Makes my job easier.	5	27	30	32	5	2
Enhances our ability to coordinate care.	11	50	18	11	7	2
Improves our sharing of patient information amongst providers.	18	64	9	5	2	2
Enhances the efficiency of ordering lab test, etc.	2	5	7	23	20	43
The alerts, reminders and order set features (I.e, support tools) improve the quality of my decision-making.	0	16	20	30	25	9

In comparing this to the 2009 benefit evaluation, we find improvements in agreement with respect to productivity (+18%), quality of care (9%) and making the job easier (+14%). We find decreases in agreement with ability to coordinate care (-14%), sharing of information (-5%) and the quality of decision making (-9%).



**3.3.b System Quality**

When asked about the system quality, 36% of respondents found the system quality to be some extent acceptable, 47% of respondents found the system to be some extent unacceptable and 16% found it neither acceptable nor unacceptable (see Figure 13.)



**Figure 13: Responses to “ In general, when thinking about the quality of the information provided by the system, do you find the quality of the information to be”**

The following table drills down farther:

**Table 4: Percent agreement regarding the Drug Information System Quality**

The system...	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not sure	Not Applicable
Is easy to use.	5	48	25	16	5	2
Response time is acceptable.	2	25	34	34	2	2
Is integrated with my workflow.	7	32	32	25	2	2
Security is acceptable.	11	57	5	0	25	2

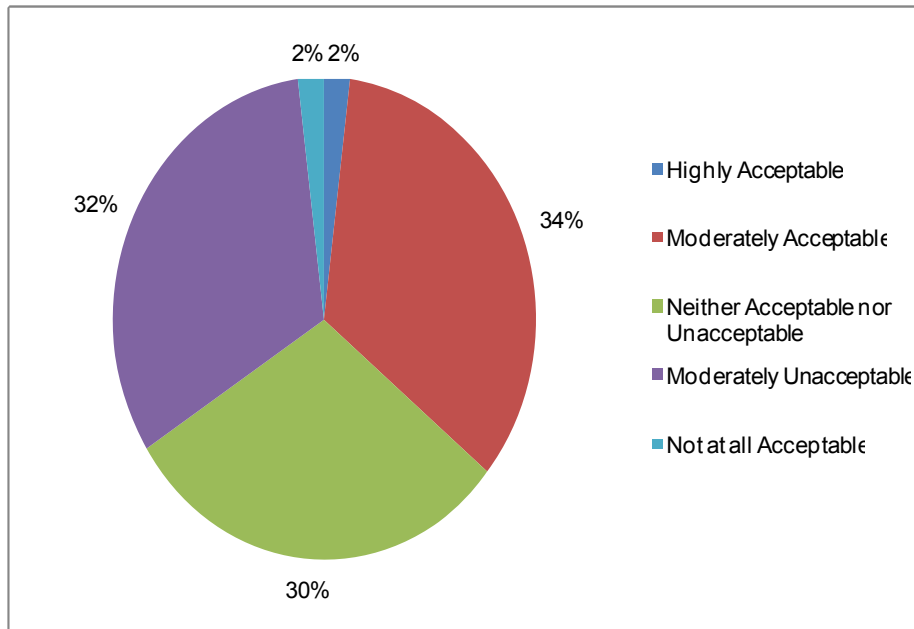


Features enable me to perform my work well.	2	25	36	27	7	2
Is reliable in its performance.	0	36	30	23	9	2
Quality is overall excellent.	0	20	45	27	5	2

In comparing this to the 2009 benefit evaluation, we find improvements in system security (+5%) and ease of use (+1%) and declines in integration with workflow (-6%) and features (-7%). The last two questions were not on the previous year's benefit evaluation. These differences are all small enough to question whether they are a result of small sample sizes or actual changes in perception.

**3.3.c Information Quality**

When asked about the information quality, 36% of respondents found the information quality to be some extent acceptable, 34% of respondents found the system to be some extent unacceptable and 30% found it neither acceptable nor unacceptable (see Figure 14.)



**Figure 14: Responses to “In general, when thinking about the quality of the information provided by the system, do you find the quality of the information to be”**

The following table drills down farther into this question:



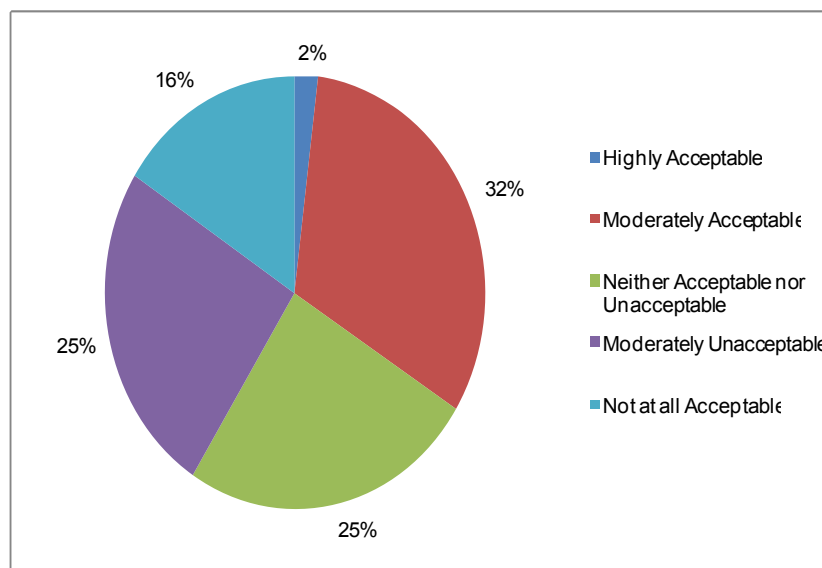
**Table 5: Percent agreement with statements regarding the Drug Information System Information Quality**

The information...	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not sure	Not Applicable
Is complete.	2	32	39	18	7	2
Is quickly provided.	2	36	36	20	2	2
Is accurate.	2	45	27	5	18	2
Is relevant.	2	66	23	0	5	2
Is available when I need it.	0	59	20	11	7	2
Format and layout are acceptable.	5	43	23	23	5	2

In comparing this to the 2009 benefit evaluation, we see improvements in the speed of information (+9%), relevance (+27%) and format (+2%) with declines in completeness (-2%) and accuracy (-3%).

### 3.3.d Service Quality

When asked their satisfaction with the service, 34% of respondents found the service acceptable, 41% found the service unacceptable and 25% found the service neither acceptable nor unacceptable (see Figure 15.)



**Figure 15: Responses to “In general, when thinking about the quality of the services provided for the system, do you find the quality of these services to be:**

The following table drills down further into this question:

**Table 6: Percent agreement with statements regarding the Drug Information System Service Quality**

	<b>Strongly Agree</b>	<b>Moderately Agree</b>	<b>Moderately Disagree</b>	<b>Strongly Disagree</b>	<b>Not Sure</b>	<b>Not Applicable</b>
The implementation process at location was Acceptable.	2	41	14	30	9	5
The current level of training is acceptable.	2	23	39	20	11	5
The level of on-going support is acceptable.	7	27	32	23	7	5

In comparing this with the 2009 benefit evaluation, we find improvements in implementation (+5%) and declines in current training (-17%) and on-going support (-26%).

### **3.3.e System Use**

To determine frequency of use, respondents were asked to estimate how often they used the system in a typical day. Respondents answered along the scale of always (50%), most of the time (23%), some of the time (18%) and never (9%) (see Figure 16.)

Respondents were asked to estimate the number of times per day they use the system. Respondents answered along the scale of 0 (11%), 1-5 (16%), 6-9 (11%) and 10+ (61%).

Respondents were also asked to estimate the number of days per week they use the DIS. Respondents answered along the scale of 0-2 days (18%), 3-5 days (45%) or 6-7 days (36%). Evidently, the system is used by most respondents most days.

When asked the percent of patients with whom they use the DIS, respondents answered along the scale 0-25% (23%), 26-50% (16%), 51-75% (5%) and 76-100% (57%) (see Figure 17.) Evidently, the majority of respondents use the DIS for the majority of their patients.



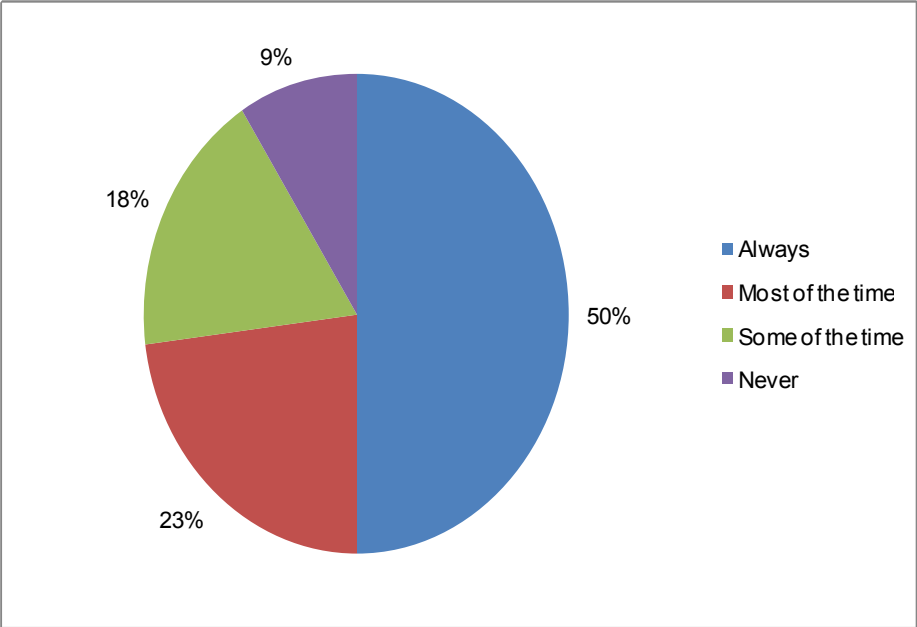


Figure 16: Responses to “How often, during a typical day, do you use the system?”

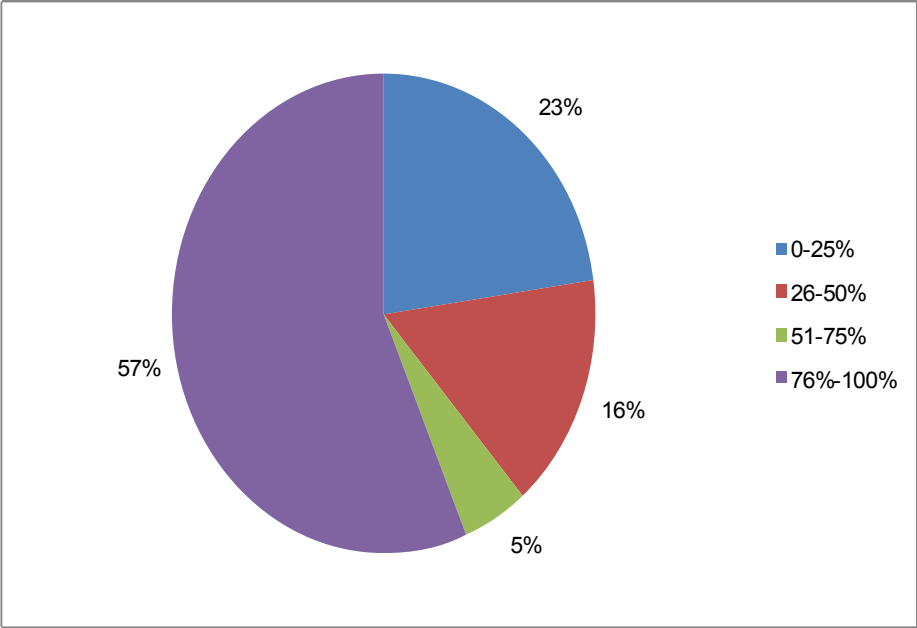
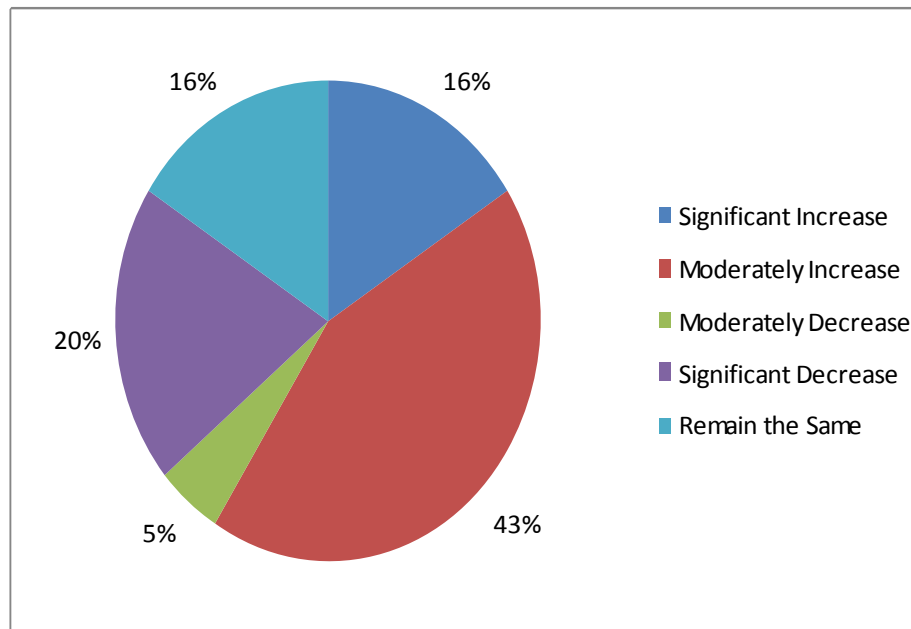


Figure 17: Responses to “Please estimate what percentage of your patients you use the system for”

Given these responses, it seems that the DIS is used intensely by a large number of respondents for a large proportion of their patients.



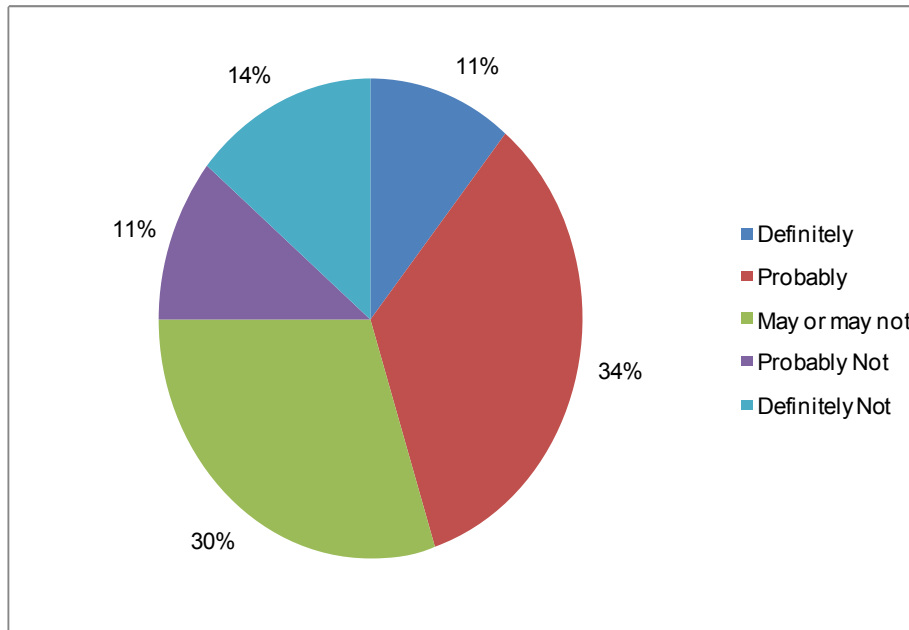
Respondents were also asked whether they would like to change their use of the system. Even with the drawbacks in the system identified, 59% of respondents would like to increase their use of the system to some extent; 25% would like to decrease their use of the system, and 16% would like their use of the system to remain the same (see figure 18.)



**Figure 18: Responses to “Given a choice, would you like to increase or decrease your future use of the system that you are currently working with? Would that be a significant or moderate increase / decrease, or would you like your future use to stay the same?”**

The higher proportion of respondents who would like to increase their use is somewhat surprising given the critical responses. This is perhaps due to a certain percent of respondents who do not find great issue with the system or who see the benefits are likely to outweigh the drawbacks.

A good measure of overall satisfaction is whether users would recommend the product. When asked if they would recommend the DIS to other providers and centres, respondents were split; 25% would not; 30% were undecided and 45% would recommend the system (see Figure 19.) These numbers have improved since the 2009 benefit evaluation, indicating that progress in user satisfaction may be developing.



**Figure 19: Responses to “How likely are you to recommend the system to other healthcare providers at other Hospitals or Centres?”**

When asked for final comments on the DIS, 19 of respondents provided a range of comments. These comments have been arranged below (spelling mistakes edited and names removed; otherwise, comments are intact):

**Table 7: Responses to “Do you have any other comments you would like to make regarding the system?”**

<b>Training</b>
I think we need more training on the system. I really don't feel that we are using the system to its full potential. The training provided at implementation was not useful at all. The visits this year by Kelly were great at solving some of our problems and question regarding the system. Some more visits and training would be very useful.
I think ongoing training and information is very important. Maybe mini monthly blurbs on what the system can do and examples on using it. I only use it for drugs warnings right now and will look into the other areas. I feel I need a valid reason to access DIS for a patient and am concerned too many accesses will infringe on privacy concerns.
This system is getting easier to use however I fail to see how it is "integrated " as software vendors are still not giving enough training are talking to one another about how each pharmacy views another's information especially if they have different software.
I am very surprised re all of the other areas we are able to access through the the system that I was not even aware of.
<b>Technical</b>
The system would be excellent and I would see it as very beneficial with more information if you could get your technical

act together. We deal directly with the public and have to answer to it every time the system slows down or crashes
I personally do not use the system as often anymore as I have had a few incidents where information was not accurate
yes, in earlier questions Re: Response times, its the inconsistency that is annoying, sometimes res time is fast, others slow!. Also the question of accurate Info:I don't believe outpatient info is on DIS for Eg, also Drs that gives out sample meds are not on DIS & so on so info could be far from complete.
I was optimistic at roll out of the utility of system, it is an example of how useless a system can be. Not sure if the current format is even worth trying to save. without major changes it will remain essentially useless to an end user group, Emergency departments that most needed it
The system is cumbersome to use. Most of the information that comes up at data input, is viewed by technicians and may not be reproducible when checked by a pharmacist at final check. Can this be changed? Also, we receive requests from hospital ERs for med profiles to be faxed to them. We are able to do this on our local system, can this be made as an option from the DIS? thinking of out of province requests eg Capital Health etc The system is still slow. The medicare database is inaccurate for addresses. It would be nice that once we have declined a change at our end because we have a recent address at our end that we would not need to see the same information again, until it changed at the other end. We are asked to update a change to name if our local system has a middle initial entered on our file. Again, once we have declined the change, it would save time if this request didn't repeat each time we went into the file. We need more training to enhance the use of this system. And better communication between vendors and government to fix any shortcomings.
In theory, DIS is wonderful. In practice, it is too slow and cumbersome. Too many DURs to respond to, and I feel that so many are pointless, that some important ones are getting missed. I do appreciate the latest update where drug strength is listed on profile. I don't find the "Help" Desk very helpful most times. It is definitely a patient care benefit to be able to view a full/complete profile.
<b>Adoption</b>
Better control of the irrelevant DUR and better integration with local pharmacy software will dramatically improve usefulness of system. Integration with physicians (e-prescribing, lab values, and accurate diagnosis) is a MUST for future enhancements.
Get the hospitals and doctors using it and teach us about all the questions earlier that I did not what you were even asking me. Sort out the issues with the software vendors and not the pharmacists using it.
get everyone to use it--does it have to be beaten into MD's heads??
I feel the system has the ability to help pharmacies greatly in providing greater care with other health professional...how many doctors access the system-- doctors still call to see last med given to patient from another doctor can they not see on the dis ... hospital er still calls to get patients records do they not have access to dis ...
Until Drs offices start accessing DIS, it will never be of any use. It will never be completely accurate as patients often take their medications differently than prescribed. It helps but it certainly isn't the answer.
All hospitals should have this. I was at a provincial quality meeting the other day and (name removed) and (name

removed) were wondering how to get this. Also I don't know why it takes so long to get the dose and frequency up on one page .This was a request 1 yr ago. Also it would be helpful for the pharmacies to clean up the clients active med page.

Thanks

We started to get training on the system, several staff had problems accessing system because of passwords. The situation was never resolved and no one at the centre currently uses the system. Not because of lack of interest. I think it would make out job a lot easier.

I had responded that I wanted my system usage to decrease. That is only partially true. If all the hospitals and doctors were using the system and I could access lab results and medical info. then I would like my system usage to increase. As the system is now, it has not enhanced patient care in my practice whatsoever and is a huge use of time. If the system remains as it is today, I would like to stop using it completely. Also, some pharmacies are still not putting all of their PEI patients thru the DIS. Also, a few weeks ago, I had a physician come into my pharmacy and refuse to give me her PHN. She said she had filled out a form to be exempt from the system. I asked her did she mean that she had a password to protect her information and she said no. I refused to fill her Rx but she said her regular pharmacy fills them without her PHN. I can see how a pharmacist would believe her. She was very condescending and very certain that I was mistaken. Perhaps a memo to pharmacies would help.

### 3.3.f System Improvements

When asked about changes since the 2009 benefit evaluation, 25% indicated that their satisfaction with the DIS had improved; 52% indicated their satisfaction neither improved nor declined; 18% indicated their satisfaction had declined and 5% didn't know (see Figure 20.)

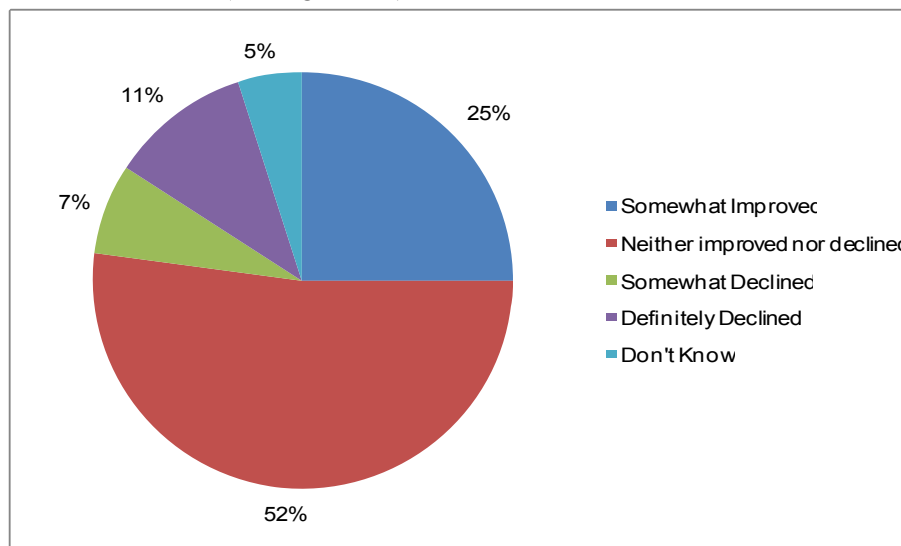


Figure 20: Responses to “In general, how do you feel your satisfaction with the system has changed in the past year?”

Additionally, respondents were asked several drill down questions related to their change in satisfaction:

**Table 8: Percent Agreement with Statements Regarding Changes since 2009 Benefit Evaluation**

<b>In general, how do you feel...</b>	<b>Definitely Improved</b>	<b>Somewhat Improved</b>	<b>Neither Improved nor Declined</b>	<b>Somewhat Declined</b>	<b>Definitely Declined</b>	<b>Don't Know</b>
The system quality has changed in the past year?	2	48	39	2	0	9
The information quality has changed in the past year?	2	45	36	2	0	14
The service quality has changed in the last year?	0	16	66	5	5	9

### **3.3.g Summary**

Results from the online survey show gains with respect to satisfaction have been made in productivity, quality of care, making the job easier, the speed of information and the relevance of information, indicating that the focus of work done on the DIS in the past year has helped to alleviate some of the concerns in the 2009 benefit evaluation.

Major drops in satisfaction with respect to training and on-going support provide a focal point for work in the 2010-2011 year, while marginal increases and decreases in other questions indicate that for the most part, the response to the DIS by end users is relatively unchanged. Additionally, the small sample size continues to provide a large level of variance with respect to the representation of the sample to the population, indicating that further work must be done to ensure a greater participation in the survey in the future.

This also indicates that progress with respect to satisfaction is slowed, likely due to lack of implementation by physicians and lack of coordination of information and training; confirmed in the user comments in Table 7 as many users speak to these two areas of concern. It is also possible that with an increased focus on training and the implementation of physicians into the DIS that other indicators which rely on these factors will improve subsequently.



That said, questions on system quality and information quality change resulted in over 80% of users saying they've noticed some improvements or no change, indicating that work with the DIS is achieving targets and, with an increased emphasis on physician implementation, training and information coordination, user satisfaction should increase greatly.

#### **4.0 FIT WITH PAN-CANADIAN INDICATORS**

The current study addresses a number of Pan-Canadian Indicator topic areas including; patient safety; provider efficiency; system performance; system functionality; service, ease, intention and actual use. Specific CHI indicators were not used at this stage in the evaluation, although this year's benefit evaluation included other indicators for specific local needs.


#### **5.0 CONCLUSION**

In summary, the DIS continues to achieve CHI targets, has achieved good uptake among pharmacies and has demonstrated that administrative data sets are able to support performance monitoring, quality and safety activities, and improved patient outcomes. The first bits of definitive impacts and trending have been captured in this benefit evaluation, with expanded tracking planned for future uses of the administrative data. As could be expected given the early stage of DIS implementation, health care providers expressed low but improving satisfaction with the DIS in relation to productivity and efficiency, and in the areas of information, service, and system quality.

Levels of provider satisfaction will likely continue to improve over time as changes in processes become routine and system benefits become more apparent. While there are grounds for confidence that the DIS will continue to accrue benefits over time, broader uptake by physicians continues to be an impediment in realizing the full benefits of the DIS. Levels of provider satisfaction will likely be influenced by enhancing communication and role clarity along with training and information sharing. Provider satisfaction may also be improved by reconfirming the long term vision of the DIS to ensure alignment of expectations with departmental plans and timelines.



## 6.0 RECOMMENDATIONS

- Revisit business continuity planning, comprising of change management and review procedures, to ensure the DIS' long-term goals are met;
  - Establish security standards, based on Attorney General's recommendations, which will ensure the soundness of the DIS into the future;
  - Establish new communication procedures with respect to DIS end-users, allowing for better knowledge transfer and a better understanding of the DIS' features and updates;
  - Renew focus on end-user training and support, through on-site visits and regular communications, to help alleviate concerns voiced in online survey, in collaboration with software vendors;
  - Revisit project documentation and DIS information management structures and create formal information protocols for technical updates;
  - Continue to prioritize provider efficiency and productivity with respect to DURs, response time and system stability.
- 

## **APPENDIX A: Invitation and Reminders to Online Survey**

Invitation to Participate in Drug Information System Survey

Reminder to Participate in Drug Information System Survey



**Dear Name,**

You have been invited to participate in a survey.

The survey is titled:  
"PEI Drug Information System Survey"

"The Prince Edward Island Department of Health is conducting an evaluation of the Drug Information System (DIS) to determine whether the program is achieving its intended results and to use that information to improve the program. Throughout the survey, you will notice the word "system"; please note that we do not mean your local pharmacy software (i.e, Propharm, Emergis, Kroll) but rather the integration of the DIS into your local pharmacy software.

We invite you to participate in a survey of end users across PEI. Your feedback is important to ensure the best possible system for PEI. The evaluation is comprised of multiple-choice and free-form questions and should take roughly 30 minutes to complete. You may save your progress and continue at a later point if you wish. The survey expires on March 19th 2010."

To participate, please click on the link below.

Sincerely,

David Fleming ([dmfleming@ihis.org](mailto:dmfleming@ihis.org))

Introduction:

The Department of Health and Department of Community Services, Seniors and Labour is circulating their annual DIS Benefit Evaluation Survey to all pharmacists practicing on PEI as well as other health care professionals that are using the DIS. Last year this evaluation was conducted to determine whether the DIS (program) was achieving its intended results. The feedback we received was extremely valuable and the results were used to guide our work plan for 2009/2010. A significant amount of work went into DIS stabilization and reduction of contraindications: by the end of February the DIS stabilization initiative should be completed. We continue to work on IT solutions to alleviate message fatigue, although improvements have been recognized, there is still work to be done in this area.

The results of this year's survey will be used in the same way and your recommendations will help us develop and prioritize our work plan for 2010/2011. By completing this survey online you have the flexibility to stop and resume your responses when time permits.

Sincerely,

Kelly Drummond  
Pharmaceutical Information Program Coordinator  
Pharmacy Division, Department of Community Services, Seniors & Labour



**Dear Name,**

Recently we invited you to participate in a survey.

We note that you have not yet completed the survey, and wish to remind you that the survey is still available should you wish to take part.

The survey is titled: "PEI Drug Information System Survey"

"The Prince Edward Island Department of Health is conducting an evaluation of the Drug Information System (DIS) to determine whether the program is achieving its intended results and to use that information to improve the program. Throughout the survey, you will notice the word "system"; please note that we do not mean your local pharmacy software (i.e, Propharm, Emergis, Kroll) but rather the integration of the DIS into your local pharmacy software.

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Sincerely,

Kelly Drummond  
Pharmaceutical Information Program Coordinator  
Pharmacy Division, Department of Community Services, Seniors & Labour



## **APPENDIX B: Online Survey**



# PEI Drug Information System Survey

The Prince Edward Island Department of Health is conducting an evaluation of the Drug Information System (DIS) to determine whether the program is achieving its intended results and to use that information to improve the program. Throughout the survey, you will notice the word "system"; please note that we do not mean your local pharmacy software (i.e, Propharm, Emergis, Kroll) but rather the integration of the DIS into your local pharmacy software.

We invite you to participate in a survey of end users across PEI. Your feedback is important to ensure the best possible system for PEI. The evaluation is comprised of multiple-choice and free-form questions and should take roughly 30 minutes to complete. You may save your progress and continue at a later point if you wish. The survey expires on March 19th 2010.

## Section 1: Overall User Satisfaction

\* g1q1: Please indicate your level of agreement with each of the statements below.

Please choose the appropriate response for each item:

	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not Sure	Not Applicable
The system improves my productivity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system improves the quality of care I can provide.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system makes my job easier.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system enhances our ability to coordinate the continuity of care.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system improves our sharing of patient information amongst providers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system enhances the efficiency of ordering lab tests, X-rays, prescriptions, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The alerts, reminders and order set features (i.e support tools) improve the quality of my decision-making.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* g1q2: In general, how satisfied are you overall with the system you are currently working with? By "system" we mean, the ease and functionality of the system itself, the quality of information given and the quality of the services provided for the system.

Please choose *only one*\* of the following:

- Very Satisfied
- Moderately Satisfied
- Neither Satisfied nor Dissatisfied
- Moderately Dissatisfied
- Very Dissatisfied
- Don't Know/Doesn't Apply

g1q3: Are there aspects of the system that you would change, and if so, which ones would they be? Please describe your comments.

Please write your answer here:

g1q4: Do you have any experiences with the system where it has supported the provision of care? Please describe your comments.

Please write your answer here:

## Section 2: System Quality

\* g2q1: Please indicate your level of agreement or disagreement with each of the statements below.

Please choose the appropriate response for each item:

	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not Sure	Not Applicable
The system is easy to use.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The response time is acceptable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system is integrated with my workflow.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system security is acceptable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system features enable me to perform my work well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The system is reliable in its performance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, the quality of the system is excellent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* g2q2: Based on your experiences to date with the system, how acceptable is the quality of the system itself (as described by the specific

characteristics listed above)? Would you say it is:

Please choose *\*only one\** of the following:

- Highly Acceptable
- Moderately Acceptable
- Neither Acceptable nor Unacceptable
- Moderately Unacceptable
- Not at all Acceptable

### Section 3: Information Quality

\* g3q1: Please indicate your level of agreement or disagreement with each of the statements below.

Please choose the appropriate response for each item:

	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not Sure	Not Applicable
The information is complete.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The information is quickly provided.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The information is accurate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The information is relevant.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The information is available when I need it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The format and layout of the information is acceptable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* g3q2: In general, when thinking about the quality of the information provided by the system, do you find the quality of the information to be:

Please choose *\*only one\** of the following:

- Highly Acceptable
- Moderately Acceptable
- Neither Acceptable nor Unacceptable
- Moderately Unacceptable
- Not at all Acceptable

### Section 3a: Allergy Module Information

\* g3aq1: How often do you view allergy information in the DIS?

Please choose *\*only one\** of the following:

- Always
- Most of the time
- Some of the time
- Never

\* g3aq2: How often do you input allergy information and submit it to the DIS?

Please choose *\*only one\** of the following:

- Always
- Most of the time
- Some of the time
- Never

\* g3aq3: When dealing with allergy information, is it clear how your local vendor software interacts with the DIS?

Please choose *\*only one\** of the following:

- Very Clear
- Somewhat Clear
- Neither clear nor unclear
- Somewhat Unclear
- Very Unclear

\* g3aq4: Do you see the sharing of allergy information amongst pharmacies and health care professionals as a benefit to patient safety and care?

Please choose *\*only one\** of the following:

- Definitely
- Probably
- May or may not
- Probably Not
- Definitely Not

g3aq5: What improvements need to take place in order for the allergy module to be fully utilised?

Please write your answer here:

### Section 3b: Immunization Module Information

\* g3bq1: How often do you view immunization information in the DIS?

Please choose \*only one\* of the following:

- Always
- Most of the time
- Some of the time
- Never

**\* g3bq2: How often do you input immunization information and submit it to the DIS?**

Please choose \*only one\* of the following:

- Always
- Most of the time
- Some of the time
- Never

**\* g3bq3: When dealing with immunization information, is it clear how your local vendor software interacts with the DIS?**

Please choose \*only one\* of the following:

- Very Clear
- Somewhat Clear
- Neither clear nor unclear
- Somewhat Unclear
- Very Unclear

**\* g3bq4: Do you see the sharing of immunization information amongst pharmacies and health care professionals as a benefit to patient safety and care?**

Please choose \*only one\* of the following:

- Definitely
- Probably
- May or may not
- Probably Not
- Definitely Not

**g3bq5: What improvements need to take place in order for the immunization module to be fully utilised?**

Please write your answer here:

### Section 3c: Medical Condition Module Information

**\* g3cq1: How often do you view medical condition information in the DIS?**

Please choose \*only one\* of the following:

- Always
- Most of the time
- Some of the time
- Never

**\* g3cq2: How often do you input medical condition information and submit it to the DIS?**

Please choose \*only one\* of the following:

- Always
- Most of the time
- Some of the time
- Never

**\* g3cq3: When dealing with medical condition information, is it clear how your local vendor software interacts with the DIS?**

Please choose \*only one\* of the following:

- Very Clear
- Somewhat Clear
- Neither clear nor unclear
- Somewhat Unclear
- Very Unclear

**\* g3cq4: Do you see the sharing of medical condition information amongst pharmacies and health care professionals as a benefit to patient safety and care?**

Please choose \*only one\* of the following:

- Definitely
- Probably
- May or may not
- Probably Not
- Definitely Not

**g3cq5: What improvements need to take place in order for the medical condition module to be fully utilised?**

Please write your answer here:

--

### Section 3d: Observation Module Information

\* g3dq1: How often do you view observation information in the DIS?

Please choose \*only one\* of the following:

- Always
- Most of the time
- Some of the time
- Never

\* g3dq2: How often do you input observation information and submit it to the DIS?

Please choose \*only one\* of the following:

- Always
- Most of the time
- Some of the time
- Never

\* g3dq3: When dealing with observation information, is it clear how your local vendor software interacts with the DIS?

Please choose \*only one\* of the following:

- Very Clear
- Somewhat Clear
- Neither clear nor unclear
- Somewhat Unclear
- Very Unclear

\* g3dq4: Do you see the sharing of observation information amongst pharmacies and health care professionals as a benefit to patient safety and care?

Please choose \*only one\* of the following:

- Definitely
- Probably
- May or may not
- Probably Not
- Definitely Not

g3dq5: What improvements need to take place in order for the observation module to be fully utilised?

Please write your answer here:

--

### Section 3e: Other Medication Module Information

\* g3eq1: How often do you view other medication information in the DIS?

Please choose \*only one\* of the following:

- Always
- Most of the time
- Some of the time
- Never

\* g3eq2: How often do you input other medication information and submit it to the DIS?

Please choose \*only one\* of the following:

- Always
- Most of the time
- Some of the time
- Never

\* g3eq3: When dealing with other medication information, is it clear how your local vendor software interacts with the DIS?

Please choose \*only one\* of the following:

- Very Clear
- Somewhat Clear
- Neither clear nor unclear
- Somewhat Unclear
- Very Unclear

**\* g3eq4: Do you see the sharing of other medication information amongst pharmacies and health care professionals as a benefit to patient safety and care?**

Please choose *\*only one\** of the following:

- Definitely
- Probably
- May or may not
- Probably Not
- Definitely Not

**g3eq5: What improvements need to take place in order for the other medication module to be fully utilised?**

Please write your answer here:

### Section 3f: Professional Services Module Information

**\* g3fq1: How often do you view professional services information in the DIS?**

Please choose *\*only one\** of the following:

- Always
- Most of the time
- Some of the time
- Never

**\* g3fq2: How often do you input professional services information and submit it to the DIS?**

Please choose *\*only one\** of the following:

- Always
- Most of the time
- Some of the time
- Never

**\* g3fq3: When dealing with professional services information, is it clear how your local vendor software interacts with the DIS?**

Please choose *\*only one\** of the following:

- Very Clear
- Somewhat Clear
- Neither clear nor unclear
- Somewhat Unclear
- Very Unclear

**\* g3fq4: Do you see the sharing of professional services information amongst pharmacies and health care professionals as a benefit to patient safety and care?**

Please choose *\*only one\** of the following:

- Definitely
- Probably
- May or may not
- Probably Not
- Definitely Not

**g3aq5: What improvements need to take place in order for the professional services module to be fully utilised?**

Please write your answer here:

### Section 3g: Record Notes Module Information

**\* g3gq1: How often do you view record notes information in the DIS?**

Please choose *\*only one\** of the following:

- Always
- Most of the time
- Some of the time
- Never

**\* g3gq2: How often do you input record notes information and submit it to the DIS?**

Please choose *\*only one\** of the following:

- Always

- Most of the time
- Some of the time
- Never

\* g3gq3: When dealing with record notes information, is it clear how your local vendor software interacts with the DIS?

Please choose *\*only one\** of the following:

- Very Clear
- Somewhat Clear
- Neither clear nor unclear
- Somewhat Unclear
- Very Unclear

\* g3gq4: Do you see the sharing of record notes information amongst pharmacies and health care professionals as a benefit to patient safety and care?

Please choose *\*only one\** of the following:

- Definitely
- Probably
- May or may not
- Probably Not
- Definitely Not

g3gq5: What improvements need to take place in order for the record notes module to be fully utilised?

Please write your answer here:

### Section 4: Service Quality

\* g4q1: Please indicate your level of agreement with each of the statements below.

Please choose the appropriate response for each item:

	Strongly Agree	Moderately Agree	Moderately Disagree	Strongly Disagree	Not Sure	Not Applicable
The implementation process at this Pharmacy, Hospital or Centre was acceptable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The current level of training is acceptable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The level of on-going support provided is acceptable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

\* g4q2: In general, when thinking about the quality of the services (i.e. technical support and training services) provided for the system, do you find the quality of these services to be:

Please choose *\*only one\** of the following:

- Highly Acceptable
- Moderately Acceptable
- Neither Acceptable nor Unacceptable
- Moderately Unacceptable
- Not at all Acceptable

### Section 5: System Usage

\* g5q1: How often, during a typical day, do you use the system?

Please choose *\*only one\** of the following:

- Always
- Most of the time
- Some of the time
- Never

\* g5q2: In a typical day, please estimate the number of times you use the system:

Please choose *\*only one\** of the following:

- 0
- 1-5
- 6-9
- 10+

\* g5q3: How many days in a typical week would you use the system?

Please choose *\*only one\** of the following:

- 0-2
- 3-5
- 6-7

\* g5q4: Please estimate what percentage of your patients you use the system for:

Please choose *\*only one\** of the following:

- 0-25%
- 26-50%
- 51-75%
- 76%-100%

**\* g5q5: How likely are you to recommend the system to other healthcare providers at other Hospitals or Centres?**

Please choose *\*only one\** of the following:

- Definitely
- Probably
- May or may not
- Probably Not
- Definitely Not

**\* g5q6: Given a choice, would you like to increase or decrease your future use of the system that you are currently working with? Would that be a significant or moderate increase / decrease, or would you like your future use to stay the same?**

Please choose *\*only one\** of the following:

- Significant Increase
- Moderately Increase
- Moderately Decrease
- Significant Decrease
- Remain the Same

### Section 6: System Improvements

**\* g6q1: In general, how do you feel the system quality has changed (in terms of ease of use, reliability and performance) in the past year?**

Please choose *\*only one\** of the following:

- Definitely Improved
- Somewhat Improved
- Neither improved nor declined
- Somewhat Declined
- Definitely Declined
- Don't Know

**\* g6q2: In general, how do you feel the information quality has changed (in terms of completeness, accuracy and relevance) in the past year?**

Please choose *\*only one\** of the following:

- Definitely Improved
- Somewhat Improved
- Neither improved nor declined
- Somewhat Declined
- Definitely Declined
- Don't Know

**\* g6q3: In general, how do you feel the service quality has changed (in terms of implementation, training and support) in the past year?**

Please choose *\*only one\** of the following:

- Definitely Improved
- Somewhat Improved
- Neither improved nor declined
- Somewhat Declined
- Definitely Declined
- Don't Know

**\* g6q4: In general, how do you feel your satisfaction with the system has changed in the past year?**

Please choose *\*only one\** of the following:

- Definitely Improved
- Somewhat Improved
- Neither improved nor declined
- Somewhat Declined
- Definitely Declined
- Don't Know

### Section 7: Other Comments

**g7q1: Do you have any other comments you would like to make regarding the system?**

Please write your answer here:

### Section 8: Demographic Information

**\* g8q1: What is your profession?**

Please choose **\*only one\*** of the following:

- Administrative support staff
- Imaging Technologist
- Laboratory technician
- Nurse
- Pharmacist
- Pharmacy Technician
- Family physician
- Specialist physician
- Other

**g8q2: How would you describe your use of the system?**

Please choose **\*all\*** that apply:

- I use the system for clinical decision making.
- I use the system to access patient information and support the clinical decision maker.
- I use the system to both access patient information and in clinical decision making.

**\* g8q3: How long have you been using the system?**

Please choose **\*only one\*** of the following:

- Less than a month
- 1-3 months
- 4-6 months
- 7-12 months
- 1-2 years
- 3-5 years

**g8q4: Currently, how do you receive your patient results?**

Please write your answer(s) here:

- % Fax:
- % System:
- % Other:

**\* g8q5: How would you rate your computer proficiency?**

Please choose **\*only one\*** of the following:

- None
- Basic
- Average
- Advanced
- Expert

**\* g8q6: How do you find the system integrates into your in-house system?**

Please choose **\*only one\*** of the following:

- Definitely integrates well
- Somewhat integrates well
- Somewhat doesn't integrate well
- Definitely doesn't integrate well
- Unsure

**\* g8q7: Please check the response(s) that best describe the settings where you work.**

Please choose **\*all\*** that apply:

- Academic/Teaching Hospital
- Community Clinic/Health Centre
- Community Hospital
- Community Pharmacy
- Hospital Pharmacy
- Nursing Home/Long Term Care Facility
- Private Office/Clinic
- Other:

**\* g8q8: Where are you located?**

Please choose **\*only one\*** of the following:

- Prince County
- Queens County
- Kings County
- Other

**Section 9: DUR Message Review**

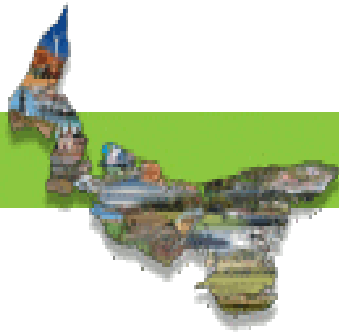
**g9q1: In the near future, we are going to be reviewing the system message alerts to determine if there are ways we can improve the clarity and content of our messaging system. Would you be interested in being contacted for this short questionnaire? If so, please type your email in the box below.**

**Please be advised your email will be used once and not permanently stored.**

Please write your answer here:

**Submit Your Survey.**

Thank you for completing this survey. Please submit by 2010-03-19.



ONE ISLAND HEALTH SYSTEM

