HQCA
Health Quality Council of Alberta

EXPERIENCES WITH HEALTHCARE BY SELF-REPORTED HEALTH STATUS

2011 Commonwealth Fund International Health Policy Survey

July 2015

Promoting and improving patient safety and health service quality across Alberta

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EXECUTIVE SUMMARY

The Health Quality Council of Alberta (HQCA) has a legislated mandate to measure, monitor, assess, and report on the quality and safety of healthcare services in Alberta. This mandate is achieved partly by surveying Albertans on their experience with the health system and the services it provides. In 2011, the HQCA co-sponsored a *Commonwealth Fund International Health Policy Survey of Sicker Adults*. As co-sponsor, the HQCA funded a larger sample size for Alberta, and used the survey data to examine health-related quality of life among Albertans, Ontarians, and Quebecois, as well as international individuals. Individuals self-reported their diagnoses for all chronic conditions in the survey. Subsequently, the HQCA examined individuals' perceptions of the healthcare system in terms of performance and quality of care, as well as their experiences with selected areas of healthcare including regular doctor care, specialist care, surgery, hospitalization, emergency care, medical errors, healthcare coverage and costs, and prescription medication. Specifically, the HQCA determined whether these experiences vary by burden of chronic health condition and how experience or burden of illness impacted their functional health status.

Health status and healthcare experiences of sicker individuals in Alberta, Ontario, and Quebec (combined)

The HQCA's analysis revealed that sicker individuals constitute a heterogeneous group of healthcare users who differ in terms of their health status, their ratings of healthcare, and their experiences with various healthcare services. These differences are likely moderated by the burden of disease. Following are some of the key findings from the HQCA's analysis:

Prevalence of chronic conditions

- 61% of individuals in Alberta, Ontario, and Quebec reported having joint pain or arthritis, which was the most prevalent chronic condition among the eight conditions analyzed.

Quality of life profile

- The frequency of problems with EQ-5D dimensions (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression) was significantly higher in people with three or more chronic conditions compared with those with one or two chronic conditions.
- Quality of life decreased significantly with increasing burden of disease. Participants with three or more chronic conditions had significantly poorer health compared with those with one or two chronic conditions.
- The top two prevalent disease combinations included joint pain/arthritis with chronic back pain (8.3%) and hypertension with joint pain/arthritis (7.7%).

Healthcare system performance

- 58% of individuals perceived the health system as needing fundamental changes.
- Half (50%) of individuals who perceived the health system as needing a "complete rebuild" were people with three or more chronic conditions.

Individuals who perceived the health system as needing a complete rebuild had significantly poorer health status compared with those who perceived the system as working well or needing fundamental change.

Rating of quality of care

Over 80% of individuals rated the quality of care received in the past year as excellent/very good. There was no difference in the rating of care by number of chronic conditions.

Individuals who reported no problems within any of the EQ-5D dimensions had higher ratings of excellent/very good quality of care compared with those with problems.

Individuals who rated quality of care personally received as fair/poor had poorer health status (index score=0.71) compared with those who rated care as excellent/good (index score=0.80).

Having a regular doctor or place of care

92% of individuals reported having a family doctor or place of care. There was no difference by number of chronic conditions.

Experiences with specialist services

74% of individuals needed to see or saw a specialist in the past two years.

There were significant differences in the need for specialist services: 41% of those that saw or needed to see a specialist were people with three or more chronic conditions as compared with 29% and 30% for one and two chronic conditions.

There was a marginal difference in health status between participants who waited more than eight weeks to have a specialist appointment (index score=0.76) and those who had an appointment within four weeks (index score=0.79).

Experiences with surgery or hospitalization

Approximately one-third (33%) of individuals reported having had surgery or hospitalization in the past two year. There was no difference in frequency of surgery/hospitalization by number of chronic conditions.

Among participants who had surgery or were hospitalized, those with three or more chronic conditions had the poorest health status (index score=0.71) as compared with one (0.86) or two (0.81) conditions.

10% of those who had surgery/hospitalization reported they had infections aftersurgery or hospitalization.

13% of those who had surgery/hospitalization were readmitted after discharge.

Experiences with emergency department services

More than half of individuals (57%) used emergency department services in the previous two years.

Frequency of use of emergency department services was highest for people with three or more chronic conditions (42%) as compared with one (31%) and two (27%) chronic conditions.

There were significant differences in morbidity for users of emergency department services versus non-users. Over half of those reporting problems within any of the EQ-5D dimensions were users of emergency department services.

Similarly, 43% of repeat users of emergency department services (two or more times) had three or more chronic conditions compared with one (29%) and two (28%) chronic conditions.

Repeat users of emergency department services had significantly worse health status compared with one-time users.

Experiences with medical errors in care

22% of individuals reported they had experienced an error in their care (of any type) in the past two years. Among them, 47% had three or more chronic conditions as compared with one (27%) or two (26%) chronic conditions.

Individuals who reported having experienced errors in their care had significantly poorer health status compared with those who had not experienced an error in their care.

Private insurance and healthcare costs

42% of individuals did not have private health insurance coverage in addition to public insurance. Nearly half of these individuals (46%) had three or more chronic conditions compared with the people who had one (27%) or two chronic conditions (27%).

38% of individuals reported additional out-of-pocket expenditures above $1,000 in the past year. The largest group of these individuals (42%) had three or more chronic conditions compared with one (28%) and two (30%) chronic conditions.

People who incurred over $1,000 in out-of-pocket expenses had significantly poorer health status compared with those who spent less.

Use of prescription medication

About 90% of individuals reported taking prescription medication on a regular basis.

52% of individuals on prescription medication had four or more medications. A greater proportion (59%) of these individuals had three or more chronic conditions compared with two (25%) and one (16%) chronic conditions.

Over half of people reporting problems within any of the EQ-5D dimensions were taking four or more prescription medications on a regular basis.

Individuals taking four or more prescription medications had significantly poorer health status (index score=0.74) compared with those taking one to three prescription medications (index score=0.82).

Unmet healthcare needs

13% of individuals did not fill a prescription or skipped doses due to cost in the past year.

7% of individuals had a specific medical need but did not visit a doctor due to cost in the past year.

8% of individuals skipped or did not have a needed medical test due to cost in the past year.

Over 50% of individuals reporting unmet healthcare needs were those with three or more chronic conditions.

65% of individuals found it somewhat or very difficult getting care in the evenings, on weekends, or during holidays without going to the emergency department in the past year. This view did not differ significantly by number of chronic conditions.

Individuals who reported difficulty accessing after-hours care had poorer health as measured by the EQ-5D index, compared with those who did not; however, the difference was not statistically significant.

Alberta compared with other provinces and countries

Acceptability

Perceived health system performance

33% of sicker adults in Alberta perceived the healthcare system as working well. This is similar to Ontario (27%) and higher than Quebec (19%).The health system performance rating "working well" was highest among individuals from Switzerland (65%) and lowest from individuals in the United States (29%).

Across provinces and countries, individuals' healthcare system performance rating "working well" decreased with increasing burden of illness but the difference was not significant..

Accessibility

Having same regular doctor or place of care

64% of sicker adults in Alberta had the same doctor or place of care for more than five years. This is similar to Ontario (69%) and Quebec (70%).

Across countries, individuals in France (82%) were more likely to report having the same doctor or place of care for more than five years, whereas individuals in Sweden were the least likely (49%).

The percentage of individuals who reported having the same doctor or place of care for more than five years was similar for those with one, two, and three or more chronic conditions across Alberta, Ontario, Quebec and other countries (except for the United Kingdom where the likelihood of being with same doctor for more than five years increased with morbidity).

Use of emergency department services

A greater proportion of users of emergency department services in all three provinces were repeat users: 56% of sicker adults in Alberta used the emergency department two or more times in the past two years as compared to Ontario (55%) and Quebec (59%).

In contrast, in all other countries (except Australia) the majority of emergency department users were one-time users.

Avoidable use of emergency department services

40% of individuals in Alberta used emergency department services for a condition that they perceived could have been treated by their regular doctor similar to individuals in Ontario (38%) and Quebec (40%).

Waiting for an appointment to see a specialist

48% of sicker individuals in Alberta waited less than four weeks to have an appointment, similar to Ontario (53%) and Quebec (49%).

In Switzerland, the greatest proportion of individuals waited less than four weeks (94%) as compared with individuals in Norway, where the lowest proportion of individuals (50%) waited less than four weeks.

Availability of medical history to specialist

In Alberta, 86% of individuals who saw a specialist reported that their medical history information was available at the time of appointment, similar to Ontario (85%) and significantly higher than Quebec (63%).

The United Kingdom had the highest percentage of individuals (96%) report that medical history information was available when they saw a specialist compared with individuals in France, where the lowest percentgage of individuals (65%) reported their medical history information was available.

Regular doctor had knowledge about visit to specialist

84% of individuals in Alberta who saw a specialist reported that their regular doctor had knowledge about their visit to a specialist, similar to Ontario (85%) and Quebec (81%).

Across countries, reports of a regular doctor having knowledge of a individual's visit to a specialist were highest in the United Kingdom (95%) and lowest in Sweden (69%).

Appropriateness

Co-ordination of medical care

82% of individuals in Alberta reported that test results, medical records, or reasons for referral were available for scheduled medical appointments, similar to Ontario (79%) and Quebec (80%). Across countries, a high of 92% was observed in Switzerland versus a low of 79% in Norway.

11% of individuals in Alberta felt that their regular doctor ordered tests that were unnecessary, similar to Quebec and Ontario (10%) respectively. Across countries, this was highest in the United States (15%) and lowest in Sweden (5%).

15% of individuals in Alberta believed that information about their medical history or treatment was not shared with other professionals, similar to Ontario and Quebec (17%) respectively. This contrasts with a high in Germany of 33% and a low in the United Kingdom, where only 8% of individuals reported that information was not shared.

Discharge planning post-surgery/hospitalization

In Alberta, 85% of individuals who had surgery or were hospitalized reported they received information about symptoms to watch for and when to seek further care prior to their discharge from hospital, similar to Ontario (85%) and Quebec (79%). This contrasts with a high of 92% in the United States versus a low of 65% in Norway.

93% of individuals in Alberta reported they knew whom to contact in case of questions about their health after discharge from hospital, similar to Ontario (92%) and significantly higher than Quebec (83%). This compares with a high of 96% in the United Kingdom versus a low of 83% in France.

80% of individuals in Alberta reported they were provided with a written plan for care prior to discharge from hospital, similar to Ontario (73%) and significantly higher than Quebec (62%). This contrasts with a high of 92% in the United States versus a low of 51% in Sweden.

70% of individuals in Alberta reported that proper arrangements were made for follow-up visits prior to discharge from hospital, similar to Ontario (78%) and significantly higher than Quebec (70%). This compares with a high of 91% in the United Kingdom versus a low of 52% in France.

89% of individuals in Alberta reported they were given clear instructions (prior to discharge) about medication they should be taking, similar to Ontario (89%) and Quebec (86%). This compares with a high of 95% in the United States versus a low of 70% in France.

Effectiveness

Medication management

75% of individuals in Alberta taking four or more prescription medications reported their medication was reviewed by a pharmacist or doctor, similar to Ontario (76%) and significantly higher than Quebec (61%). This compares with a high of 83% in the United Kingdom versus a low of 38% in France.

73% of individuals in Alberta reported they had a written list of medications they were taking on a regular basis, similar to Ontario (81%) and Quebec (74%). This contrasts with a high of 88% in Sweden versus a low of 59% in Norway.

Individuals in Ontario with three or more chronic conditions were more likely to report not having a written list of medications compared with those with one chronic condition. This trend was not observed in Alberta or Quebec, but existed in the Netherlands, New Zealand, Switzerland, the United Kingdom, and Sweden.

Preventive care

There were significant differences between provinces in aspects of care for individuals with diabetes: 49% of individuals with diabetes in Alberta reported having had foot examinations for sores or irritation in the past year, similar to Ontario (64%) and significantly higher than Quebec (26%). Across countries, foot examinations were most prevalent in the United Kingdom (77%) and least prevalent in France (34%).

66% of individuals in Alberta who saw a healthcare professional for their chronic condition reported the professional discussed main goals or priorities in caring for their conditions, similar to Ontario (72%) and Quebec (66%). This contrasts with a high of 82% in the United Kingdom and Switzerland respectively, versus a low of 38% in Sweden.

65% of individuals in Alberta who saw a healthcare professional for their chronic condition reported they received clear instructions about symptoms to watch for and when to seek further care or treatment, similar to Ontario (69%) and Quebec (65%). This contrasts with a high of 85% in Switzerland versus a low of 44% in Norway.

Efficiency

Unmet healthcare needs due to cost

13% of individuals in Alberta with at least one chronic condition reported that, in the past year, there was a time when they did not fill their medication prescription or skipped doses because of the cost, this is similar to Ontario (16%) and Quebec (10%). This compares with a high of 26% in the United States versus a low of 4% in the United Kingdom.

65% of individuals in Alberta found it somewhat or very difficult getting care in the evenings, on weekends, or during holidays without going to the emergency department, similar to Ontario (62%) and Quebec (69%). Overall, more Canadian individuals reported having difficulty getting evening, weekend, or holiday care, as compared with individuals in all other countries, and in contrast with the United Kingdom, where only 23% reported this difficulty.

Safety

Medical errors in treatment or care

19% of individuals in Alberta believed they experienced an error[i] in their treatment or care in the past two years, similar to Ontario (20%) and Quebec (24%). Across countries, perceived errors were most prevalent in Norway (26%) and the least prevalent in the United Kingdom (9%).

Individuals in Alberta and Quebec who had three or more chronic conditions were more likely to report an error in their treatment or care, than were individuals with one chronic condition. A similar trend was observed in the United States and Switzerland.

Summary

The HQCA's findings corroborate previous work by the Health Council of Canada (HCC), which found that sicker Canadians had less confidence in the healthcare system, were less likely to feel that they received high-quality care, used more healthcare services, and experienced problems with affordability and coordination of care (HCC, 2011).

In addition to the HCC's work, the HQCA's analysis categorized sicker individuals by burden of disease, thereby allowing quantification of the extent to which being sicker impacts health and individual experiences with care. For the most part, significant differences were found in the ratings of health status, quality of care, and experiences with healthcare services among individuals with three or more chronic conditions compared with those with one or two chronic conditions.

Ideally, a better rating of quality of care is expected from those who use the system the most. This is not the case, suggesting that the system is not fully meeting the needs of those who need it most. As a corollary, those who have the most experience with and need for the health system appear to have the

[i] Note: "An error" included a wrong medication or dose, a medical mistake, or a mistake with laboratory diagnosis.

most negative perception of it. These negative perceptions and experiences vary across the different jurisdictions surveyed by the Commonwealth Fund.

The HQCA's analysis has quantified differences in self-reported health status and experiences with care by burden of disease. As well, the analysis highlights significant differences in perceptions and experiences with the healthcare system across the different jurisdictions captured in this survey process. One question stands out: *What is it about being sicker that influences a patient's healthcare experience?* This has been partly answered in this report. However, it is important to understand these issues in more detail from sicker patients themselves, in order to improve healthcare services for this disease-burdened group.

INTRODUCTION

Purpose

Health-related quality of life (HRQoL) is a multidimensional measure that emcompases aspects of functioning and well-being related to physical and mental health, and are used to quantify the degree to which a chronic medical condition(s), disability or disorder and/or its treatment impacts the individuals' or population's lifeChronic conditions not only reduce quality of life but pose a major financial burden to the healthcare system given that Canadians with chronic conditions use the healthcare system frequently. High co-morbidity (presence of three or more chronic conditions) is associated with high healthcare service use, less likelihood of reporting health status as good or better, and high prescription medication use in Canadian seniors.[1] Similarly, use of healthcare services has been shown to increase with increasing co-morbidity in the general Canadian population.[2] In 2011, the Health Council of Canada reported that ratings of the healthcare system and quality of care received were lower among sicker Canadians compared with the general public.[3] Sicker individuals often have difficulty getting needed medical care, experience poor coordination of care,[4] and often see multiple providers at different locations.[5]

Aside from being a major driver of health system use, the the direct and indirect costs of chronic illness continues to grow. In its 2005 report "Preventing Chronic Diseases: A Vital Investment" the World Health Organization projects chronic disease to account for 89% of deaths among all Canadians.[6] The report predicts direct costs for healthcare and indirect costs of productivity loss due to chronic conditions to rise by 15% over the subsequent 10 years. Furthermore, while Canada lost about $500 million in national income from premature deaths due to heart disease, stroke, and diabetes, these losses were projected to increase to about $9 billion over 10 years. Finally, the Conference Board of Canada recently ranked Canada tenth among 17 other countries in terms of health – where chronic conditions contributed most to the poor ranking.[7]

In 2009, the HQCA reported that 30% of Albertaans, those individuals with significant chronic conditions accounted for 61% of total healthcare expenditures in 2006/2007,[8] suggesting the burden of chronic disease in Alberta is notable and concerning, and highlights the need to effectively tackle chronic illnesses. Continually assessing the functional health status of the population and individuals' experiences with care is vital for determining how well the system is performing and to flag areas of care that need improvement. The HQCA is mandated to monitor and report on quality of care for Albertans. The HQCA surveys Albertans and also collaborates with other agencies to achieve this task. The 2*011 Commonwealth Fund International Health Policy Survey of Sicker Adults* is an example of such collaboration. The HQCA analyzed data from that survey to assess HRQoL among sicker individuals in three Canadian provinces (Ontario, Quebec, Alberta) to examine individuals' perceptions of care as well as the impacted of their own health status. Subsequently, for selected aspects of care the HQCA compared the experiences of individuals in the three provinces with those of individuals in other countries.

EQ-5D descriptive system

EQ-5D is a standardized measure of health status that can be used in the clinical and economic evaluation of healthcare as well as in population health surveys.[9] The EQ-5D 3-level version (EQ-5D-3L), introduced in 1990, consists of the EQ-5D descriptive system and a visual analogue scale (EQ VAS).[ii] The descriptive system comprises five dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each dimension has three levels: 1-no problems, 2-some problems, 3-extreme problems. When administered, the individual is asked to indicate his/her health state by selecting the most appropriate statement in each of the five dimensions. Subsequently, a unique health state, referred to in terms of a 5-digit code, is defined by combining one level from each of the five dimensions. For example, state 11111 indicates no problems on any of the five dimensions, while state 11223 indicates no problems with mobility and self-care, some problems with performing usual activities, moderate pain or discomfort, and extreme anxiety or depression. EQ-5D health states are then converted into a single summary index using a scoring algorithm based on the preferences of the general public. The DI valuation model developed in the United States was used for the HQCA analysis.[10] Canadian valuation studies are have been completed recently, but only for the new EQ-5D 5-level version (EQ-5D-5L).

Preliminary data analysis revealed similar EQ-5D health states between Alberta, Ontario, and Quebec. In subsequent analysis for this report data was pooled to explore relationships between multi-morbidity and functional health status and healthcare experiences of individuals diagnosed with any chronic condition. Comparisons between provinces and other countries are made later in the report where differences are notable (see Section B).

Study Sample

Two samples were analyzed for the two sections of this report. In Section A, the HQCA derived a sample of Canadian individuals (N=2,384) from Alberta, Ontario, and Quebec, uniquely comprising those who self-reported diagnosis for any of eight chronic health conditions (hypertension, heart disease, diabetes, joint pain or arthritis, asthma/COPD, depression/anxiety, cancer, chronic back pain), and who had complete data on the EQ-5D-3L responses. A total of 110 individuals were excluded due to missing data on the EQ-5D-3L. Data was also excluded from other provinces and territories due to the small number of survey participants.

In Section B, showing how Alberta compares with other jurisdictions, a sample for 13 jurisdictions (three Canadian provinces and 10 countries) was derived based on self-reported diagnoses for any of

[ii] This VAS as an individual measure of Health was not assessed in the 2011 Commonwealth Survey of Sicker Adults, and therefore does not contribute to this report.

the eight chronic conditions. Presence of EQ-5D data was not a criterion given that only Canada and Australia participated in this element of the survey. The final study sample for this section included 12,490 adults, distributed as follows: 901 in Ontario, 802 in Quebec, 791 in Alberta, 1,117 in Australia, 668 in France, 854 in Germany, 711 in the Netherlands, 521 New Zealand, 553 in Norway, 2,959 in Sweden, 1,008 in Switzerland, 615 in the United Kingdom, and 990 in the United States.

SECTION A: HEALTH STATUS AND EXPERIENCES WITH CARE

Healthcare experiences of sicker individuals are likely to vary due to the type of service or frequency of use. Variations in healthcare experiences have been documented between Canadians with chronic conditions and the general public.[2] Given that sicker individuals use healthcare services often, and that use increases with co-morbidity, this section of the analysis examines whether healthcare experiences vary substantially by number of chronic conditions. The findings are based on a combined sample of individuals in the provinces of Alberta, Ontario, and Quebec, who self-reported diagnosis of at least one chronic health condition in the Commonwealth Survey.

1.0 Illness categories

1.1 Prevalence of chronic conditions

This indicator measures the proportion of the sample who reported that they were diagnosed as having one or more of eight chronic conditions examined in the survey: hypertension, heart disease, diabetes, arthritis, asthma/COPD, depression/anxiety, cancer, and chronic back pain (Table 1). Often referred to as high prevalence or high-impact chronic conditions, they affect about one-third of the Canadian population.[2]

- Joint pain or arthritis was the single most reported chronic health condition when reported singularly (10%) or in combination with other conditions (61%).

Table 1: Prevalence of selected chronic health conditions in individuals, for Alberta, Ontario, and Quebec, 2011

Self-reported chronic conditions	One condition only		One or more conditions	
	Freq.	%	Freq.	%
Hypertension	172	7	1,076	45
Heart disease	35	2	384	16
Diabetes	62	3	484	20
Joint pain or arthritis	245	10	1,451	61
Asthma/COPD	76	3	536	22
Depression/anxiety	119	5	638	27
Cancer*	35	2	196	8
Chronic back pain**	-	-	770	33

Note: Broad descriptive definitions were used for some conditions to optimize self-reporting of these conditions. These include for example: heart disease including angina or heart attack, asthma/COPD or other chronic lung problems, depression/anxiety or mental health problems.

*All cases with cancer in remission at time of survey were coded as not having cancer.

**Study sample included only people who reported 'yes to any' chronic health condition except chronic back pain. Thus, prevalence of chronic back pain was captured as co-morbidity and should be interpreted with care.

1.2 Disease specific prevalence by health profile

The prevalence of chronic conditions impacts self-reported health status. Here, health-related quality of life was assessed for individuals with chronic conditions, by comparing reported problems versus no problem with each EQ-5D measure of health status.

- Problems with pain/discomfort was the single most reported EQ-5D dimension for all chronic conditions, ranging from 65% for hypertension to 91% for chronic back pain.

- Problems with mobility were most prevalent in individuals diagnosed with chronic back pain (54%).
- Over half (51%) of people diagnosed with anxiety/depression reported problems with usual activities; similarly, 54% of individuals with chronic back pain reported problems with usual activities.

Table 2: Percentage of individuals who self-reported no problems or some/extreme problems for EQ-5D dimensions, by chronic health condition, 2011*

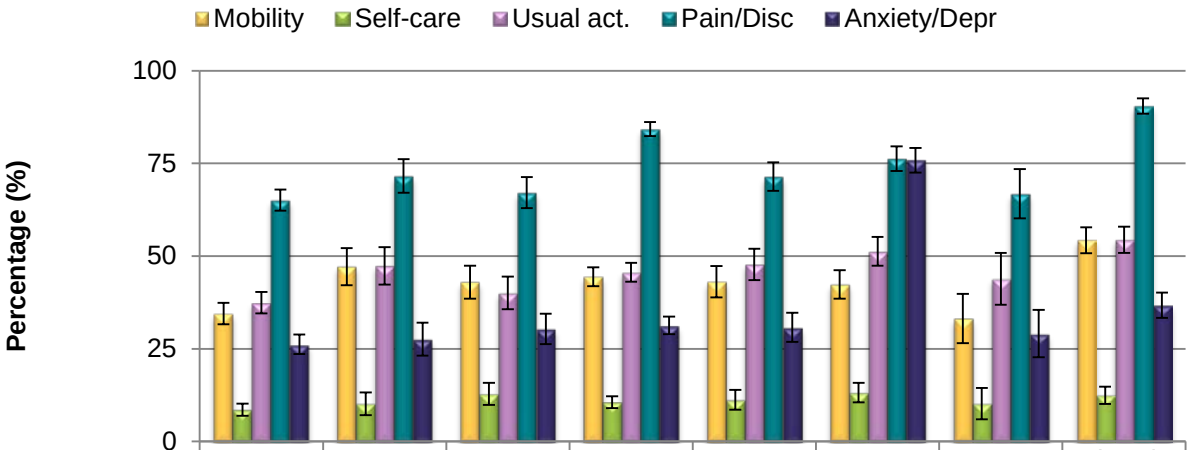
EQ-5D DIMENSION		Hyper-tension (%)	Heart disease (%)	Diabetes (%)	Joint pain or arthritis (%)	Asthma / COPD (%)	Anxiety / depression (%)	Cancer (%)	Chronic back pain (%)
Mobility	**No problem**	63	53	57	56	57	58	67	46
	Problem	35	47	43	45	43	42	33	54
Self-care	**No problem**	92	90	87	89	89	87	90	88
	Problem	9	10	13	11	11	13	10	13
Usual activities	**No problem**	61	53	60	54	52	49	56	46
	Problem	38	47	40	46	48	51	44	54
Pain / discomfort	**No problem**	35	28	33	16	29	24	33	10
	Problem	65	72	67	84	72	76	67	91
Anxiety / depression	**No problem**	74	72	70	69	69	24	71	63
	Problem	26	28	30	31	31	76	29	37

Note: Broad descriptive definitions were used for some conditions to optimize self-reporting. For example: heart disease including angina or heart attack, asthma/COPD or other chronic lung problems, depression/anxiety or mental health problems.

*Study sample included only people who reported 'yes to any' chronic health condition except chronic back pain. Thus, prevalence of chronic back pain was captured as a co-morbidity and should be interpreted with care. Total prevalence of each condition was used for the HQCA analysis.

Figure 1 shows the frequency of problems in EQ-5D dimensions for reported diagnosis with chronic conditions. The impact of chronic conditions on health status was strongest for individuals reporting problems with pain/discomfort and weakest for those reporting problems with self-care. The overlapping confidence intervals reveal that the extent of the impact on health states was similar across chronic conditions (except for joint pain/arthritis, which seem to correlate with reported problems for pain/discomfort. A similar association was observed between diagnosis with anxiety/depression and reported problems for anxiety/depression).

Figure 1: Percentage of individuals who self-reported problems for EQ-5D dimensions, by chronic health condition, 2011



	Hypertension	Heart disease	Diabetes	Joint pain/Arth	Asthma/ COPD	Anxiety/ Depr	Cancer	Chronic back pain
Mobility	34	47	43	44	43	42	33	54
Self-care	9	10	13	11	11	13	10	12
Usual act.	37	47	40	46	48	51	44	54
Pain/Disc	65	72	67	84	71	76	67	91
Anxiety/Depr	26	28	30	31	31	76	29	37

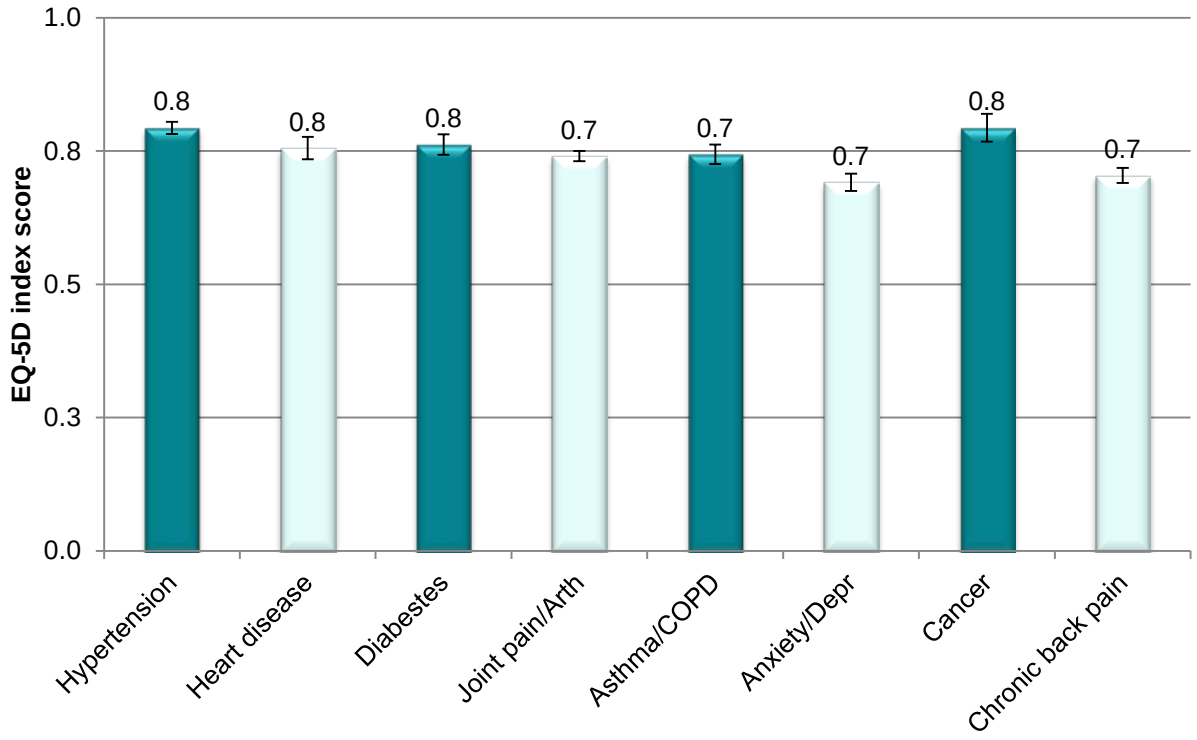
1.3 Health status by chronic health condition

The EQ-5D index is used to assess the extent to which self-reported diagnosis with a specific chronic condition impacts overall health status. An index value of less than 0.8 is considered less optimal health status for this sample.

- Health status was below optimal (<0.8) for all categories of chronic conditions.
- Worst health status was observed for individuals diagnosed with anxiety/depression.

Figure 2 shows that the negative impact of chronic conditions on health status is strongest for people diagnosed with anxiety/depression (index score: 0.7) and chronic back pain (index score: 0.7).

Figure 2: Mean EQ-5D index score of individuals by chronic health condition, 2011



Note: The EQ-5D index score is weighted using the U.S. valuation model. This algorithm rates different health states according to how the population studied valued these different health states. These are aggregate measures of self-assessed health. Given that the HQCA did not look at comparisons by geography (province), no adjustment was made for potential differences in age and sex.

2.0 Quality of life profile

2.1 Health profile by number of chronic health conditions

The presence of multiple conditions impacts overall quality of life. In this section, EQ-5D data was used to assess self-reported health status, comparing across levels of morbidity. Results are presented for individuals reporting no problem, some problems, or extreme problems with EQ-5D health status.

- Of the 2,384 individuals, 31% (744) reported having one chronic condition, 28% (655) two chronic conditions, and 37% (889) three or more chronic conditions. Four per cent of the individuals (96) did not specify.
- Health-related quality of life as measured by EQ-5D dimensions decreases with co-morbidities (number of chronic conditions) – see Table 3.
- Individuals with three or more chronic conditions had significantly worse health status compared to those with one or two chronic conditions – see Table 3.
- The impact of chronic conditions on EQ-5D dimensions was strongest with pain/discomfort and weakest with self-care – see Figure 3.

Table 3: Percentage of individuals who reported no problem, some problems, or extreme problems with EQ-5D dimensions, by number of chronic conditions, 2011

EQ-5D DIMENSION		One condition % problems	Two conditions % problems	Three or more conditions % problems	TOTAL % problems
Mobility	**No problem**	84	70	47	**65**
	Some problems	15	30	52	**34**
	Extreme problems	1	1	1	**1**
Self-Care	**No problem**	96	92	87	**92**
	Some problems	3	7	11	**8**
	Extreme problems	1	1	2	**1**
Usual Activities	**No problem**	78	67	46	**62**
	Some problems	21	31	47	**34**
	Extreme problems	1	3	7	**4**
Pain / Discomfort	**No problem**	54	30	16	**32**
	Some problems	43	63	67	**58**
	Extreme problems	3	7	17	**10**
Anxiety / Depression	**No problem**	78	76	59	**70**
	Some problems	21	21	35	**27**
	Extreme problems	1	3	6.5	**4**

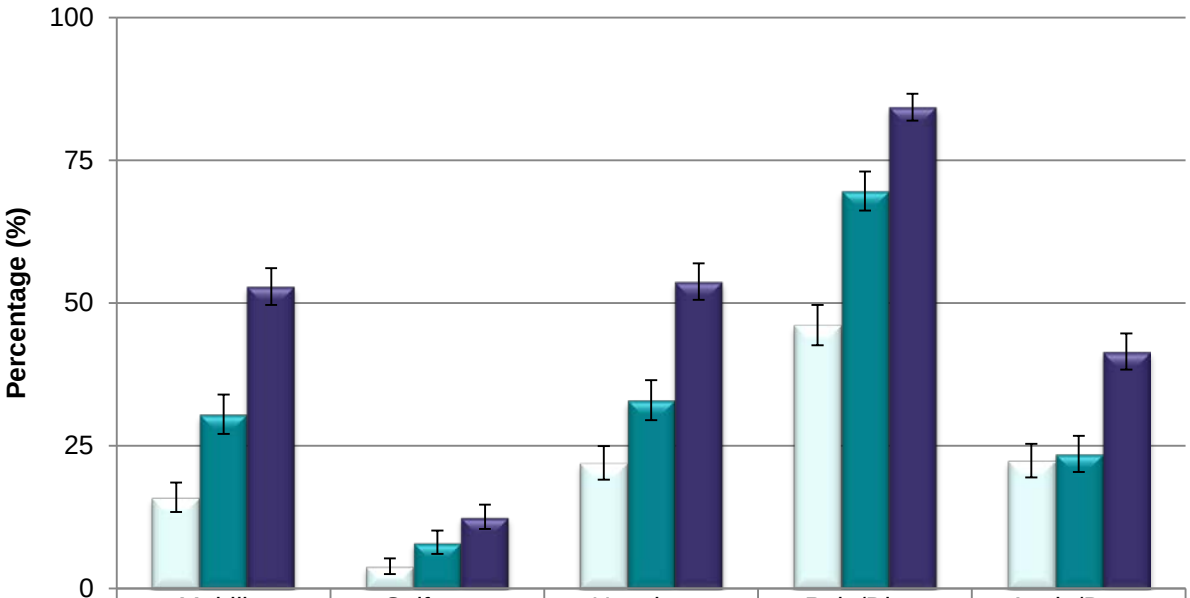
Note: The table gives an overview of the proportions of reported problems on each of the EQ-5D dimensions. These are aggregate measures of self-assessed health. Given that the HQCA did not look at comparisons by geography (province), adjustments were not made for potential differences in age and sex.

Table 3 shows a direct relationship between reported problems and levels of morbidity. The highest percentage of some (level 2) or extreme (level 3) problems with the EQ-5D dimensions was reported by individuals with three or more chronic conditions, followed by two chronic conditions. Those individuals with one condition reported the least problems. Note that while a majority of individuals with three or more chronic conditions reported no problems with self-care (87%) or anxiety/depression (59%), the proportion reporting some or extreme problems increases with the number of chronic conditions.

For individuals who reported either some problems or extreme problems for each of the EQ-5D dimensions, Figure 3 shows the proportion of individuals with one, two, or three or more chronic conditions. The proportion of individuals with problems increased with co-morbidity for all dimensions. Problems with mobility (+37%) and pain and discomfort (+38%) increased the most with comorbidity

(i.e. one chronic condition versus three or more chronic conditions), whereas problems with self-care increased the least (Table 3).

Figure 3: For individuals reporting problems with each EQ-5D dimension, percentage of individuals with one, two, or three or more chronic conditions, 2011



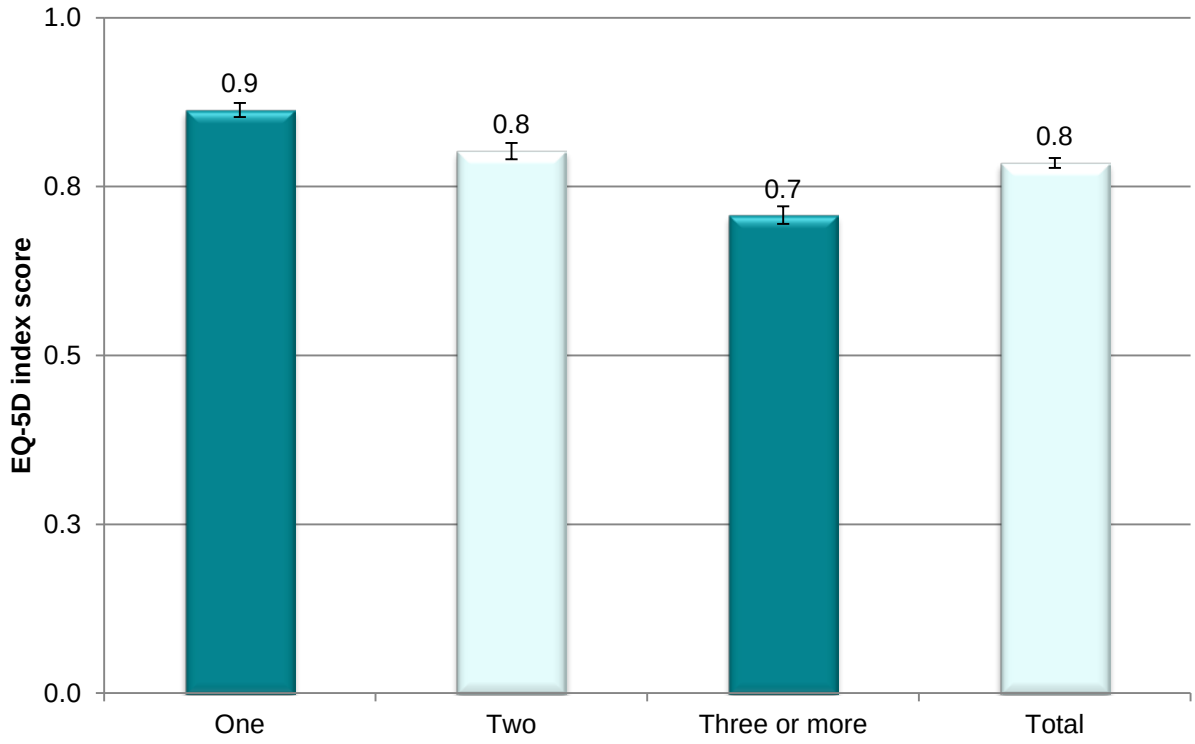
	Mobility	Self-care	Usual act.	Pain/Disc.	Anxie/Depr.
One	16	4	22	46	22
Two	31	8	33	70	24
Three	53	13	54	84	42

2.2 Health status by number of chronic health conditions

The EQ-5D index score is a summary index of health status derived from EQ-5D health states, and approximates a value for the health of the invidivudal (1 indicating full health). Though often used in cost utility analysis, the EQ-5D index score is used in this analysis to illustrate the impact of chronic conditions on health status.

Figure 4 shows the mean EQ-5D index score by level of morbidity. The mean weighted health status is seen to decrease with level of co-morbidity. The non-overlapping confidence intervals demonstrate how different the co-morbid groups are in terms of health status.

Figure 4: Mean EQ-5D index score of individuals by number of chronic conditions, 2011



Note: The mean preference weighted health status (EQ-5D index) was calculated based on value sets developed for the United States. At present these do not exist for Canada but are being developed for the new EQ-5D-5L.

2.3 Multi-morbidity and health status

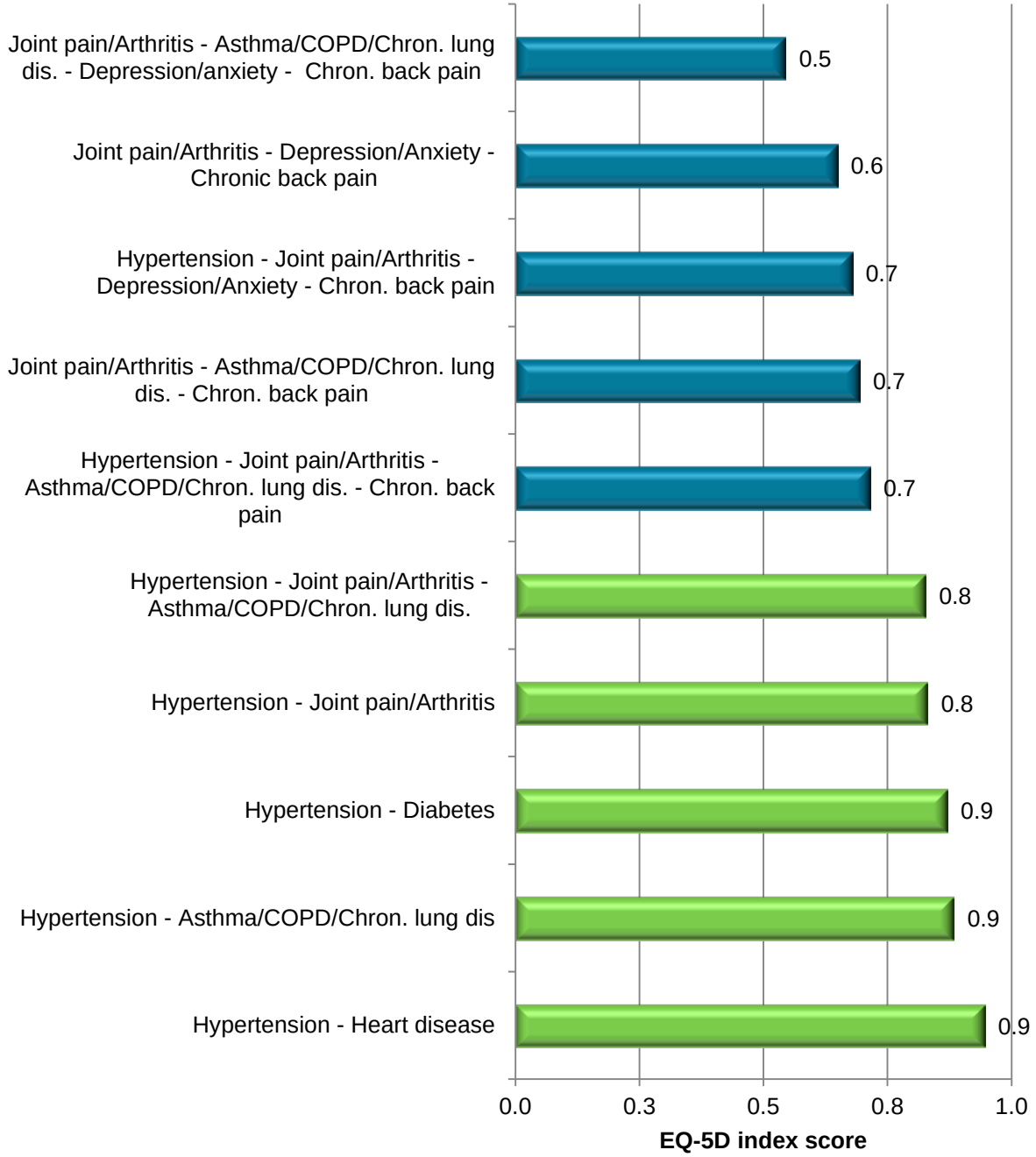
In total, 1,621 (68%) of 2,384 participants had multiple chronic conditions.

Table 4: Multi-morbidity: Top 20 prevalent disease combinations among individuals, 2011

Rank	Disease combination (N=1621)	Frequency	Per cent
1	Joint pain/arthritis - chronic back pain	135	8.3
2	Hypertension - joint pain/arthritis	125	7.7
3	Joint pain/arthritis - depression/anxiety - chronic back pain	70	4.3
4	Hypertension - Joint pain/arthritis - chronic back pain	69	4.3
5	Joint pain/arthritis - depression/anxiety	59	3.6
6	Hypertension – diabetes	51	3.2
7	Hypertension - diabetes - joint pain/arthritis	49	3.0
8	Joint pain/arthritis - asthma/COPD/chronic lung disease	37	2.3
9	Joint pain/arthritis - asthma/COPD/chronic lung disease – chronic back pain	36	2.2
10	Hypertension - heart disease - joint pain/arthritis	28	1.7
11	Hypertension - joint pain/arthritis - depression/anxiety - chronic back pain	27	1.7
12	Hypertension - heart disease - joint pain/arthritis - chronic back pain	26	1.6
13	Hypertension - diabetes - joint pain/arthritis - chronic back pain	26	1.6
14	Hypertension - asthma/COPD/chronic lung disease	26	1.6
15	Hypertension - joint pain/arthritis - asthma/COPD/chronic lung disease - chronic back pain	25	1.5
16	Hypertension - heart disease	24	1.5
17	Hypertension - joint pain/arthritis - asthma/COPD/chronic lung disease	23	1.4
18	Heart disease - joint pain/arthritis	23	1.4
19	Joint pain/arthritis - asthma/COPD/chronic lung disease - depression/anxiety - chronic back pain	23	1.4
20	Depression/anxiety - chronic back pain	23	1.4

Note: There were 160 disease combinations, with the frequency ranging from 1 to 135. Only those with a frequency of at least 23 are listed; based on a combined sample of individuals in Alberta, Ontario, and Quebec.

Figure 5: Impact of multi-morbidity on health: top five and bottom five ranked disease combinations impacting individual health as measured by EQ-5D index score, 2011



Note: Based on the top 20 prevalent combinations with a frequency of at least 23. Mean EQ-5D index score (sample=0.8, multi-morbidity=0.8).

3.0 Healthcare system performance

The following section presents individuals' perception of healthcare system performance as impacted by presence of chronic conditions, health profile and health status.

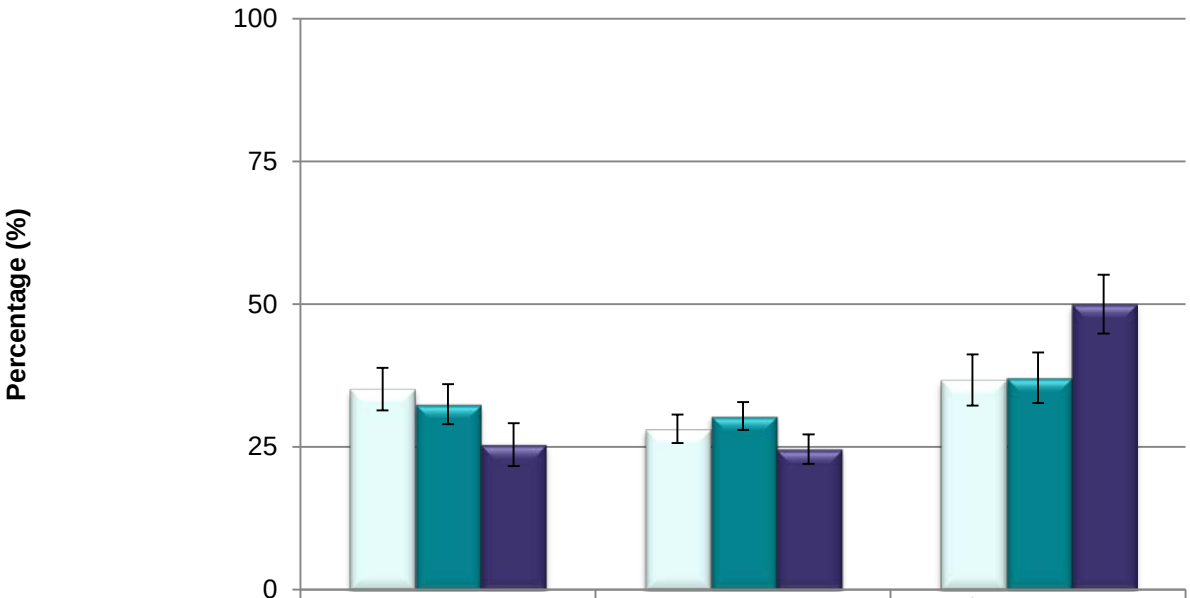
3.1 Perceived health system performance by number of chronic conditions

Variation was seen among individuals with chronic health conditions on how well the healthcare system was performing. Overall, only 27% of individuals reported that their healthcare system was working well, 58% reported that fundamental changes were needed, and 15% reported a complete rebuild was required.

- The percentage of individuals who reported the need for a "complete rebuild" (data not shown) was higher among those with three or more chronic conditions (20%), compared to those with one chronic condition (12%).

Figure 6 shows that individuals who either rated the healthcare system as working well, or as needing fundamental change; are equally distributed by number of chronic conditions. In contrast, 50% of individuals who perceived the healthcare system as needing a complete rebuild were those with three or more chronic illnesses.

Figure 6: Individual perception of how well the healthcare system performs (% for each category), by number of chronic conditions, 2011



	One	Two	Three or more
Works well	35	28	37
Needs fund. change	32	30	37
Needs comp. re-build	25	25	50

3.2 Perceived health system performance by health profile

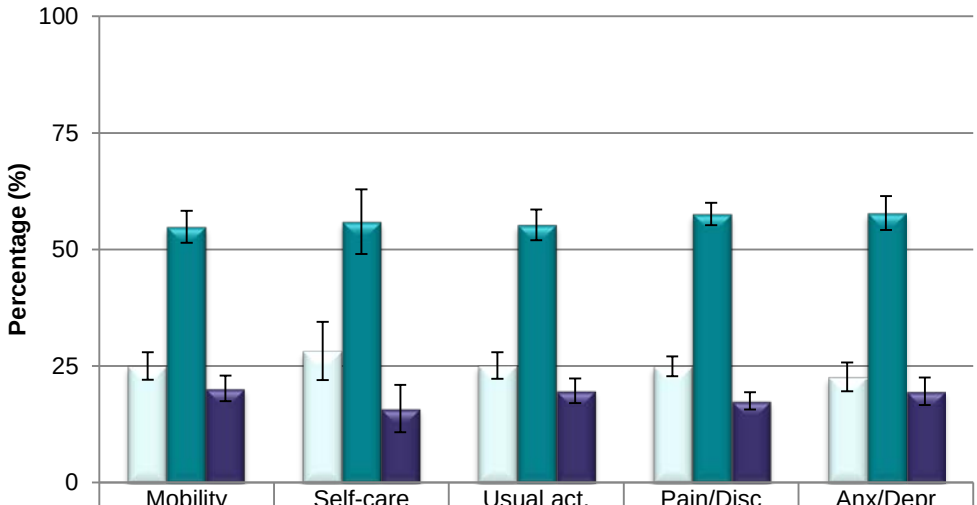
People reporting no problems within any of the EQ-5D dimensions generally perceived the healthcare system as working well. Table 5 and Figure 7 show that for individuals reporting a problem in an EQ-5D dimension, the majority report that the health system needs either a fundamental change or a complete rebuild.

- Over half of people reporting problems within any EQ-5D dimension felt that the system needed fundamental change. This finding is similar across EQ-5D dimensions.
- For all EQ-5D dimensions, only 25% of individuals reporting a problem, report that the health system works well.

Table 5: Frequency and percentage of individuals who reported problems within any EQ-5D dimension, by health system performance rating, 2011

EQ-5D	Works well		Needs fundamental change		Needs complete rebuild	
	Freq.	%	Freq.	%	Freq.	%
Mobility (n=813)	203	25	446	55	164	20
Self-care (n=202)	57	28	113	56	32	16
Usual activities (n=885)	222	25	489	55	174	20
Pain/discomfort (n=1,594)	397	25	918	58	279	18
Anxiety/depression (n=711)	161	23	411	58	139	20

Figure 7: For individuals who reported problems within any EQ-5D dimension: individual ratings of how well the healthcare system performs (% for each category), 2011

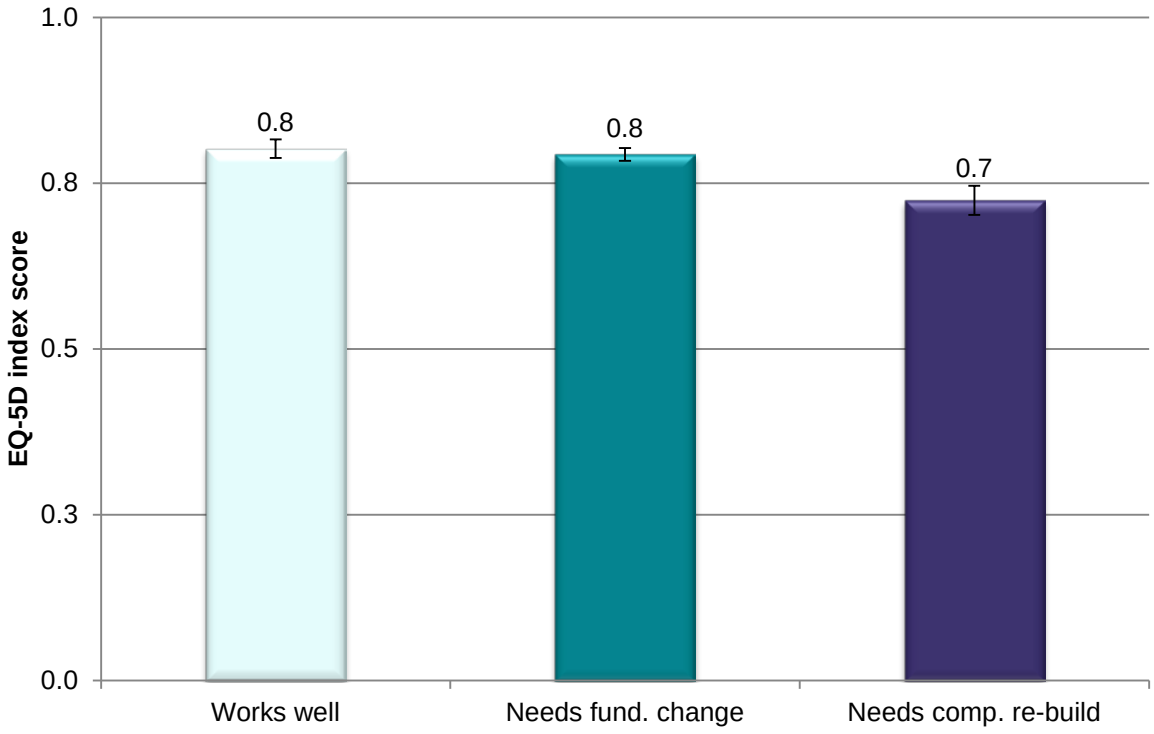


	Mobility	Self-care	Usual act.	Pain/Disc	Anx/Depr
Works well	25	28	25	25	23
Needs fund. change	55	56	55	58	58
Needs comp. re-build	20	16	20	18	20

3.3 Perceived healthcare system performance by health status

Figure 8 shows that individuals who either perceived the healthcare system as working well or needing a fundamental change were similar in health status as measured by the index score. In comparison, those who felt that the system needed a "complete rebuild" had significantly worse health status as measured by the EQ-5D index score.

Figure 8: Mean EQ-5D index scores for individuals, by perceived healthcare system performance category, 2011



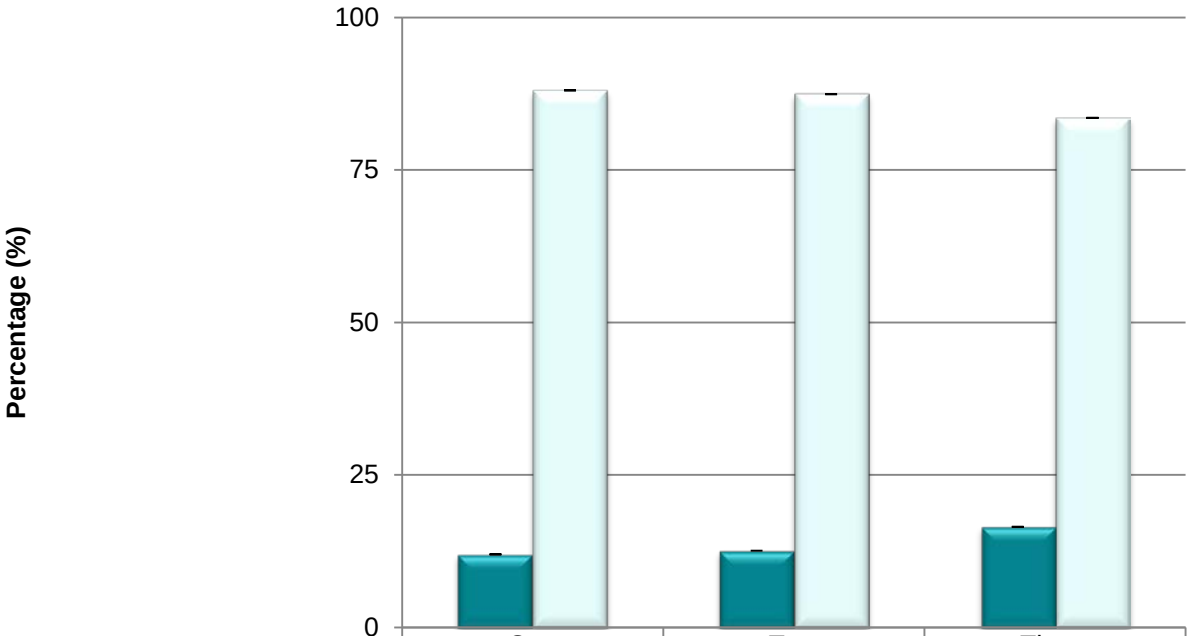
4.0 Rating of quality of care

Individuals' rating of the quality of care received is a commonly used measure of the healthcare system. Overall, individuals with chronic conditions rated the quality of care they received in the past 12 months as excellent or very good (Figure 9).

4.1 Quality of care by number of chronic conditions

- Over 80% of individuals rated quality of care received as excellent/very good (Figure 9).
- The largest proportion rating fair/poor (16%) was observed for individuals with three or more chronic conditions, significantly more than those with two (13%) and one (12%) chronic conditions.

Figure 9: Self-rated quality of care received by individuals, by number of chronic health conditions, 2011



	One	Two	Three
Fair/poor (n=312)	12	13	16
Excellent/very good (n=1,952)	88	87	84

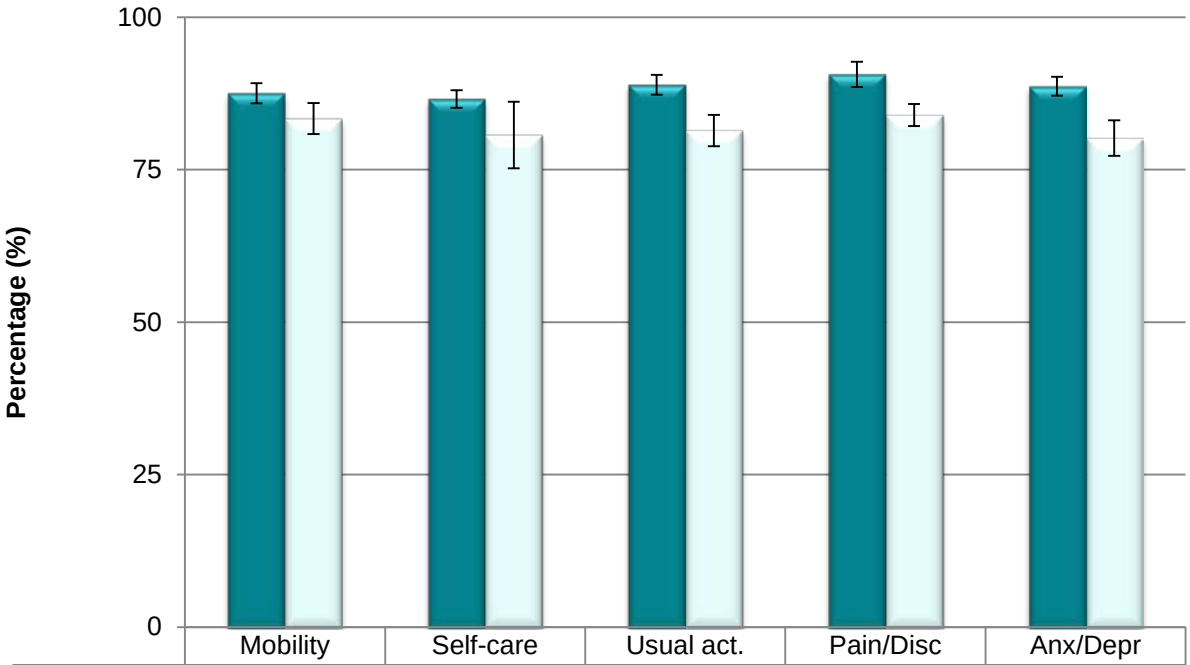
Note: Confidence intervals were too narrow to be visible.

4.2 Quality of care by health profile

- There were no major differences in the rating of quality of care received by those reporting problems for any EQ5D dimension.
- Over 80% of individuals felt that care received was excellent/very good.

Figure 10 illustrates the rating of quality of care received as excellent/very good by individuals reporting problems versus no problems within any EQ-5D dimension. As can be seen, people reporting no problems in any of the EQ-5D dimensions had a higher proportion of excellent or very good ratings of care received, compared to those with problems. The most significant difference between those reporting problems versus no problems was observed for the dimension ”anxiety/depression” (9%) and the least significant difference was for the dimension “mobility” (4%).

Figure 10: Percentage of individuals rating quality of care received as excellent/very good, by EQ-5D dimension, problems versus no problems, 2011

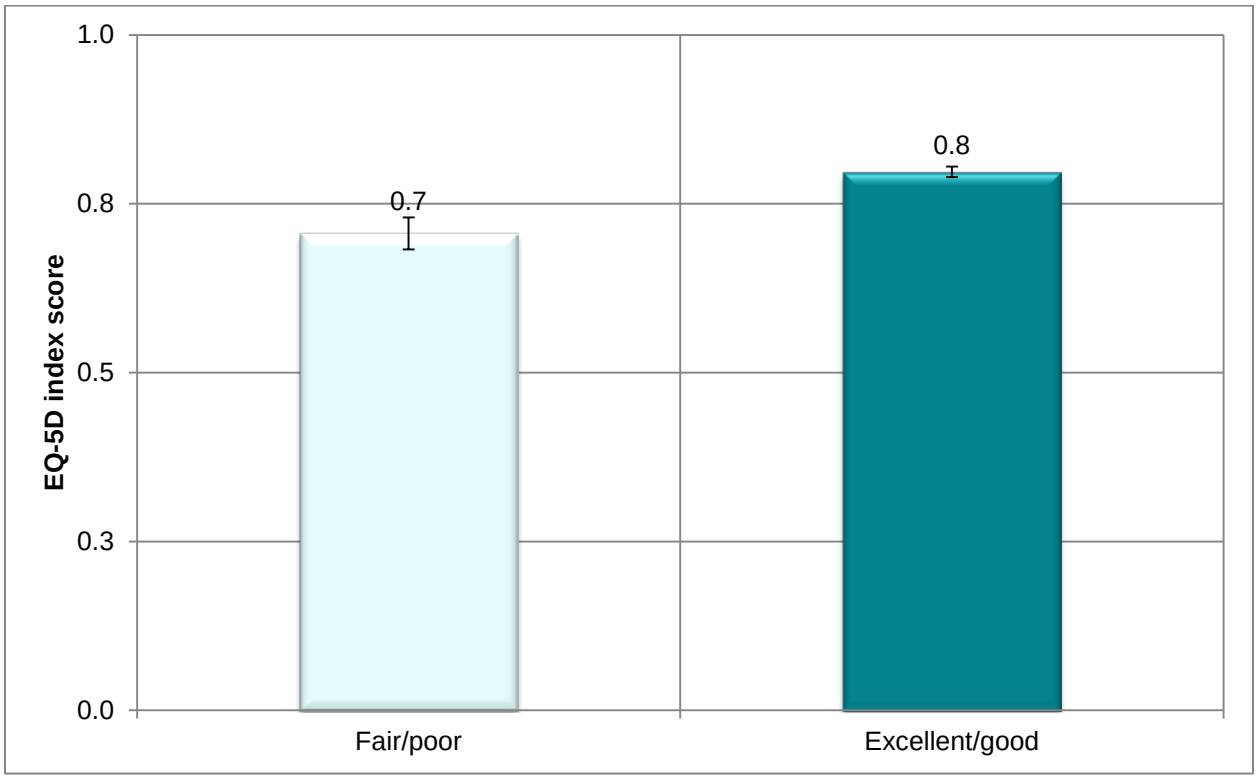


	Mobility	Self-care	Usual act.	Pain/Disc	Anx/Depr
No problem	88	87	89	91	89
Problem	83	81	81	84	80

4.3 Health status by perceived quality of care

- Individuals who rated the quality of care they personally received as fair/poor were those with the worst health status.

Figure 11: Mean EQ-5D index score, by individual rating of quality of care received, 2011



Note: Despite the wide confidence interval for fair/poor, confidence intervals for those reporting fair/poor health versus excellent/very good health are non-overlapping, indicating a significant difference.

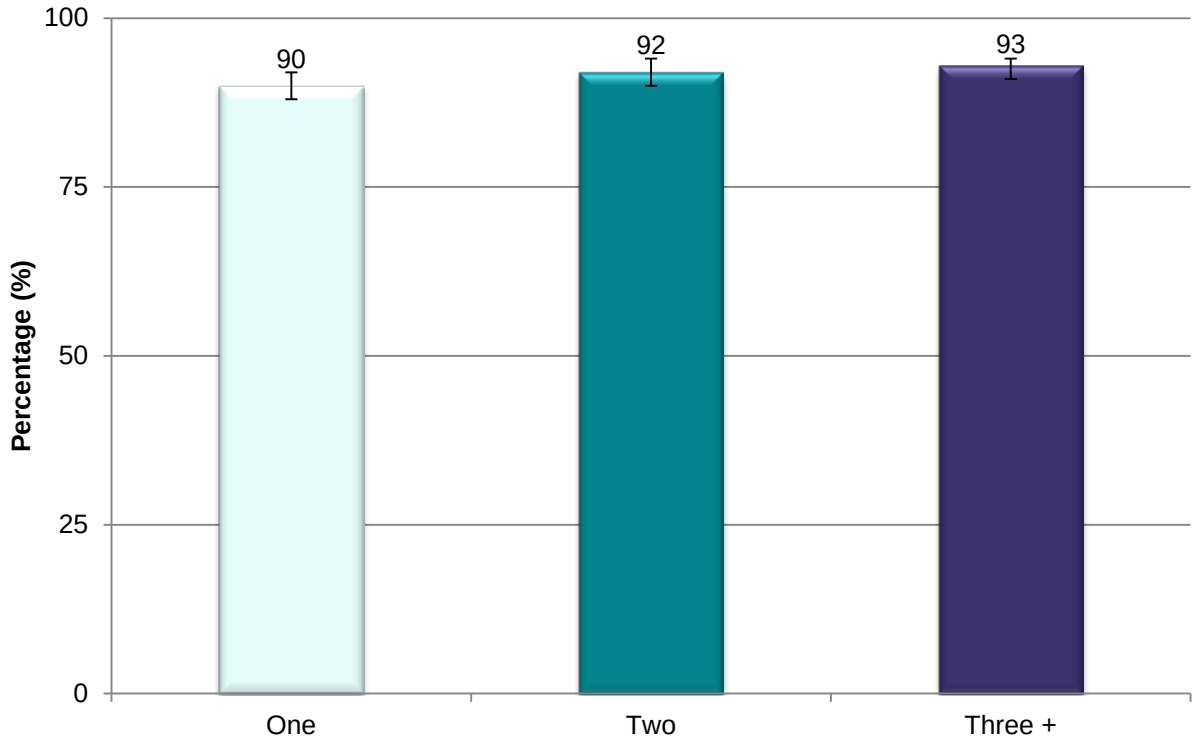
5.0 Having a regular doctor or place of care

5.1 Regular doctor by number of chronic conditions

In Canada, care from a regular family doctor constitutes individuals' first line of contact for medical care. Persons with a regular doctor are most likely to participate in preventive care and to manage chronic health conditions,[11,12] to use less secondary and tertiary care,[13] and to have positive experiences within the healthcare system.[14] Participants in the 2011 Commonwealth Survey were assessed on whether they had a regular doctor or place of care.

- On average, 92% of individuals had a regular doctor. There was no difference by number of chronic conditions.
- The proportion of individuals who had a regular doctor or place of care did not differ substantially by level of morbidity.

Figure 12: Proportion of individuals with regular doctor or place of care, by number of chronic conditions, 2011

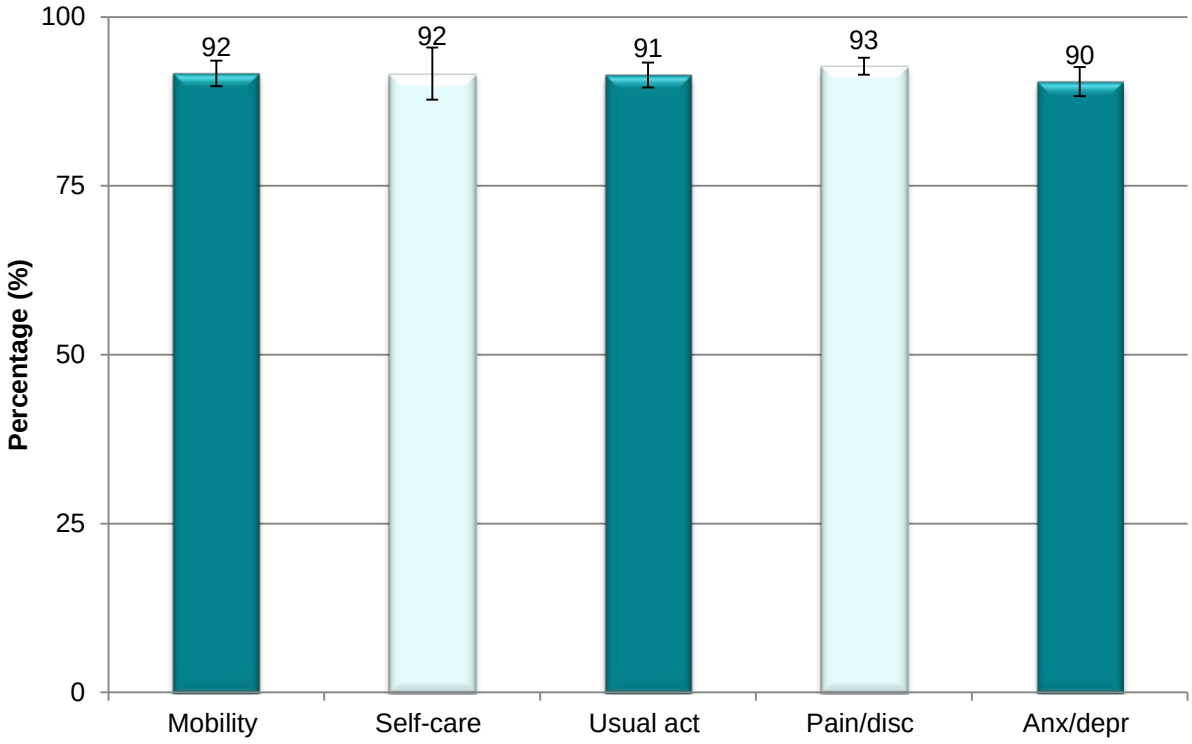


Note: Regular doctor or place of care included: general practitioner, doctors' group, health centre or clinic. Data should be interpreted with care given large confidence intervals.

5.2 Regular doctor by health profile

- Over 90% of individuals reporting problems (levels 2 & 3) within any EQ-5D dimension reported having a regular doctor or place of care.
- A similar pattern was observed in all EQ-5D dimensions.

Figure 13: Proportion of individuals reporting problems within any EQ-5D dimension who have a regular doctor or place of care, 2011

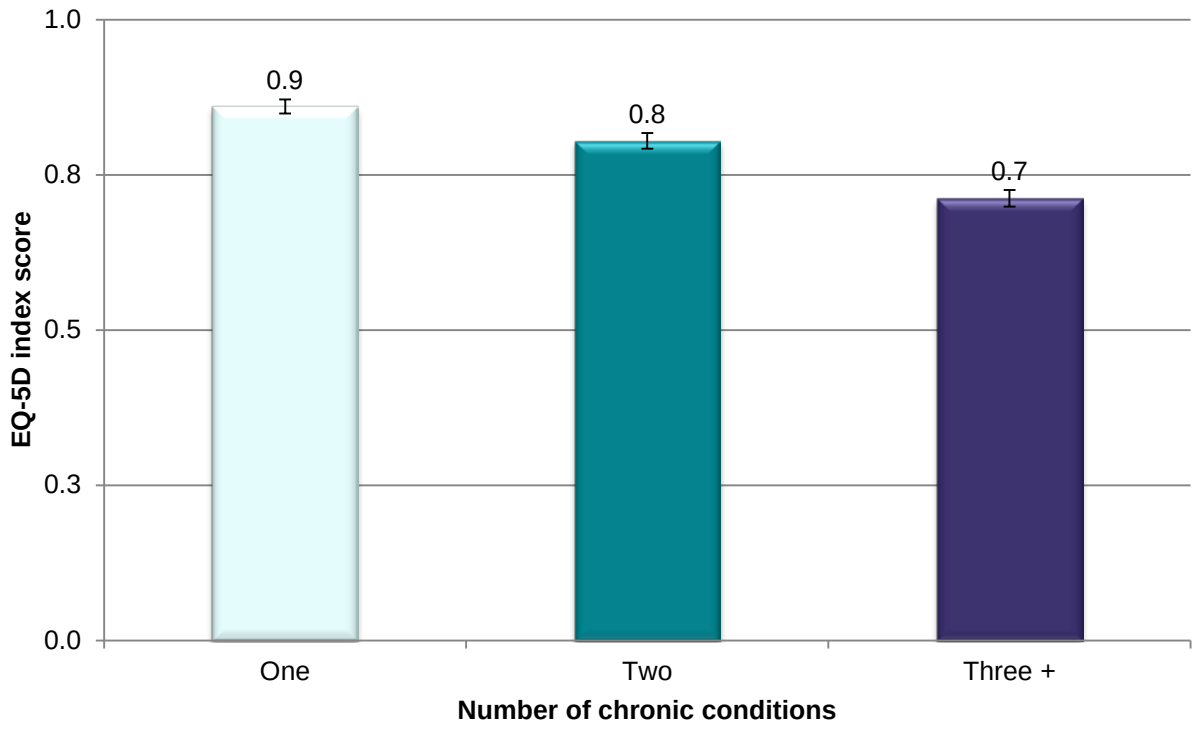


Note: Overlapping confidence intervals depict similarities across dimensions.

5.3 Mean weighted health status and morbidity

- There were significant differences in health status as measured by the mean EQ-5D index score by level of morbidity, among individuals with a regular doctor or place of care.

Figure 14: Mean index score of individuals with a regular doctor or place of care, by number of chronic conditions



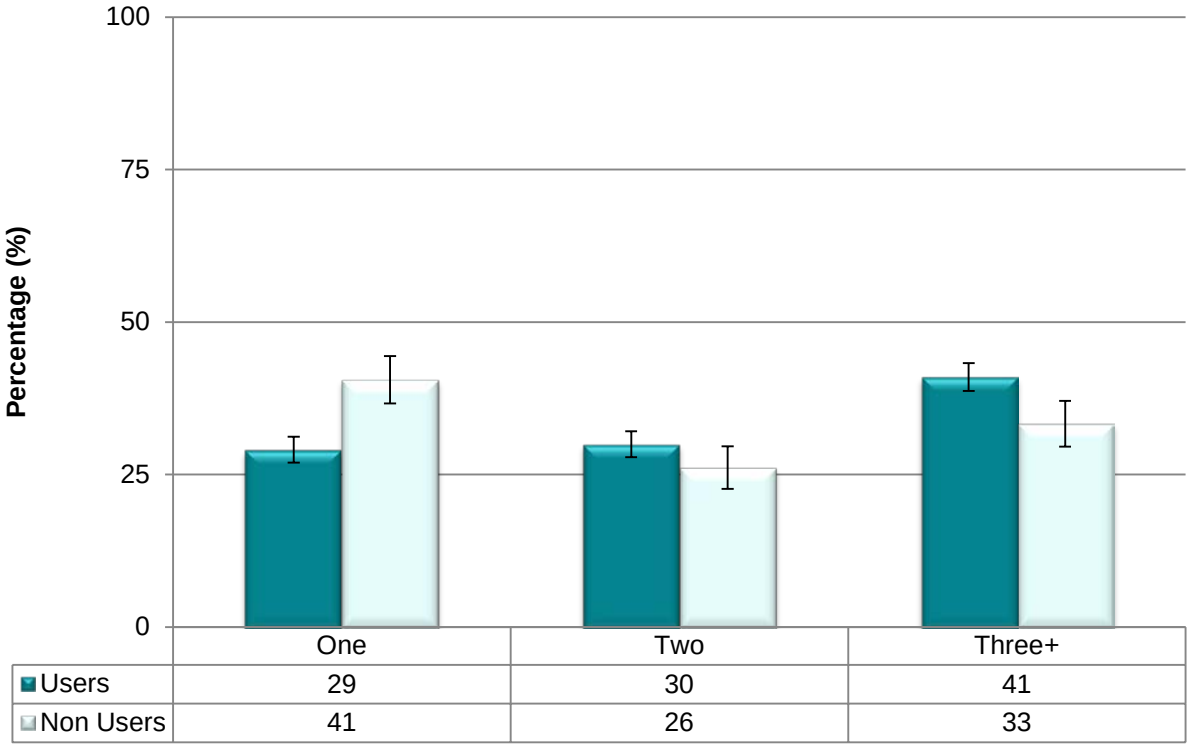
6.0 Experiences with specialist services

6.1 Users and non-users of specialist services by number of chronic conditions

Users of specialist services were defined as individuals who reported seeing a specialist in the previous two years.

- On average, 74% (1,696) of participants reported having used specialist services.
- There were significant differences in the use of specialist services by level of morbidity. A greater proportion (41%) of users of specialist services were people with three or more chronic health conditions.
- A significantly higher proportion of individuals with one chronic condition were non-users of specialist services, versus users of specialist services.

Figure 15: Users and non-users of specialist services, by number of chronic conditions, 2011



	One	Two	Three+
Users	29	30	41
Non Users	41	26	33

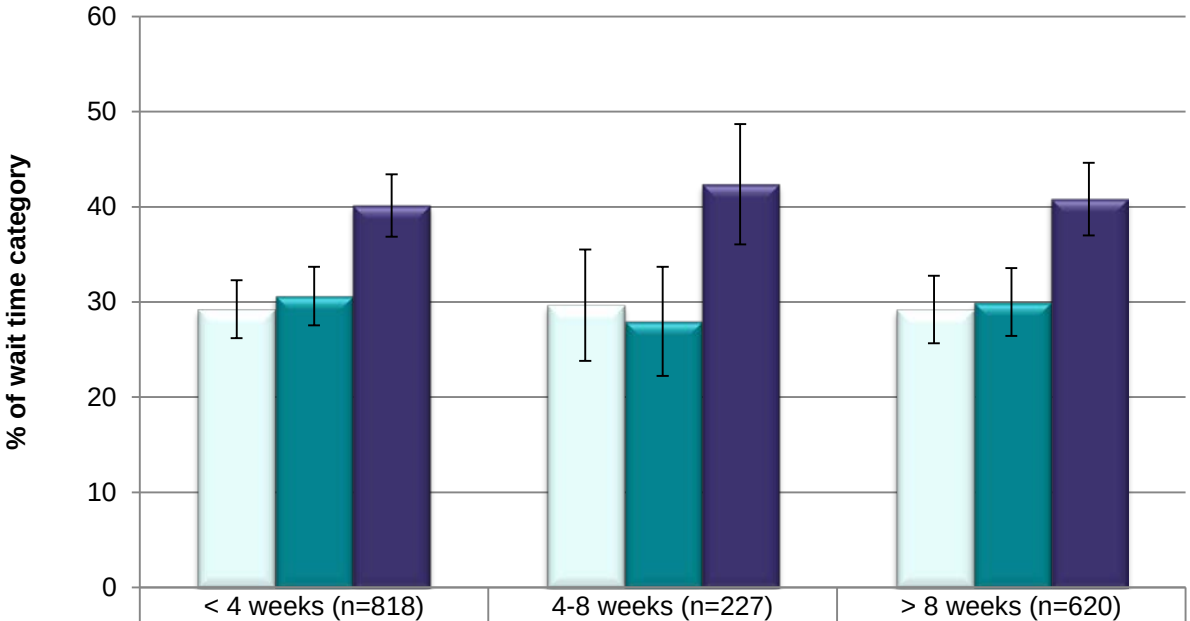
Note: Individuals with one or two chronic conditions show a similar pattern for frequency of use of specialist services.

6.2 Wait times by number of chronic conditions

Individuals were asked how long they waited from the time they were advised to see a specialist to when they actually had an appointment. For all categories of wait time (less than four weeks, four to eight weeks, greater than eight weeks), a greater proportion of those waiting for an appointment with a specialist were people with three or more chronic conditions.

- Within each wait time category, the distribution by number of chronic conditions is similar.
- Within all wait time categories, the proportion of individuals with three or more chronic conditions is larger than that of individuals with one or two chronic conditions.

Figure 16: Percentage of individuals with one, two, or three or more chronic conditions, by category of time waited for a specialist, 2011



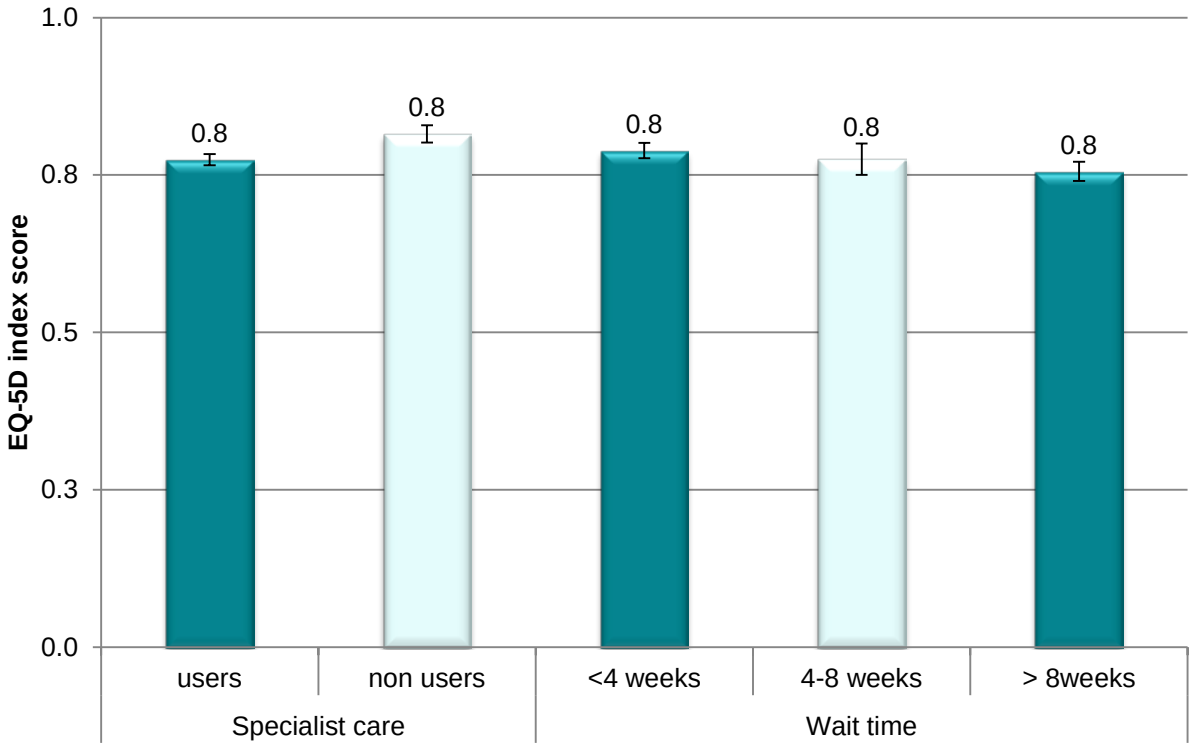
	< 4 weeks (n=818)	4-8 weeks (n=227)	> 8 weeks (n=620)
One	29	30	29
Two	31	28	30
Three +	40	42	41

Note: Wait time was assessed with the question: "After you were advised to see or decided to see a specialist, how many days, weeks, or months did you have to wait for an appointment?" Wait time should be interpreted with care, as it is a general estimate that does not take into account the health condition for which the individual was referred to the specialist.

6.3 Health status in relation to wait times for specialist care

- Users and non-users of specialist services were significantly different in health status as measured by the EQ-5D index score. Users of specialist services had significantly lower health status (EQ-5D index 0.8) compared with non-users (EQ-5D index 0.8).
- As health status decreases, reported wait times to see a specialist increase.

Figure 17: Mean individual EQ-5D index scores by use of specialist, and time waited, 2011



Note: Wait time was assessed with the question: "After you were advised to see or decided to see a specialist, how many days, weeks, or months did you have to wait for an appointment?" Wait time is a general estimate and should be interpreted with care, as it does not take into account the health condition for which the individual was referred to the specialist.

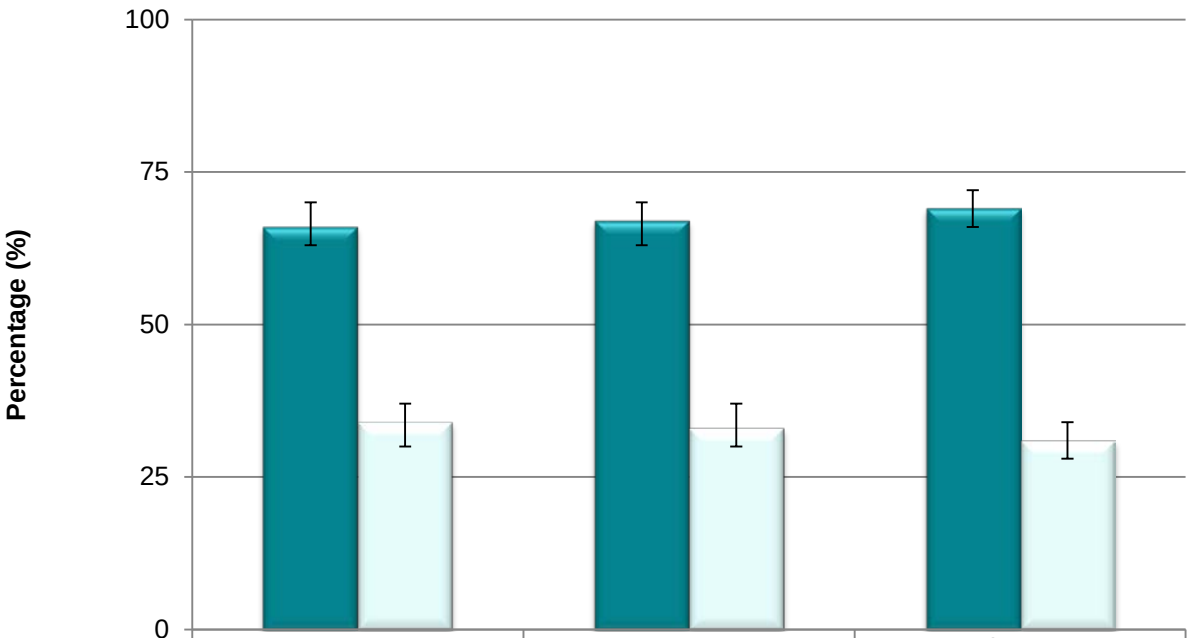
7.0 Experiences with surgery or hospitalization

Hospital infections and readmission rates are indicators of the quality and safety of care received. These were assessed by asking participants if they developed an infection during or shortly after their hospital stay or surgery. Readmission was assessed by asking participants if they were readmitted to a hospital or had to go to an emergency room within a month of their discharge from hospital as a result of complications that occurred during their recovery.

7.1 Surgery or hospitalization by number of chronic conditions

- In total, 747 participants (33%) reported having had surgery or having been hospitalized in the past two years.
- People with three or more chronic conditions were more likely to have been hospitalized or to have had surgery than those with one or two conditions. However, the difference was not significant.

Figure 18: Percentage of individuals who either had surgery or were hospitalized in the past two years, by number of chronic conditions, 2011



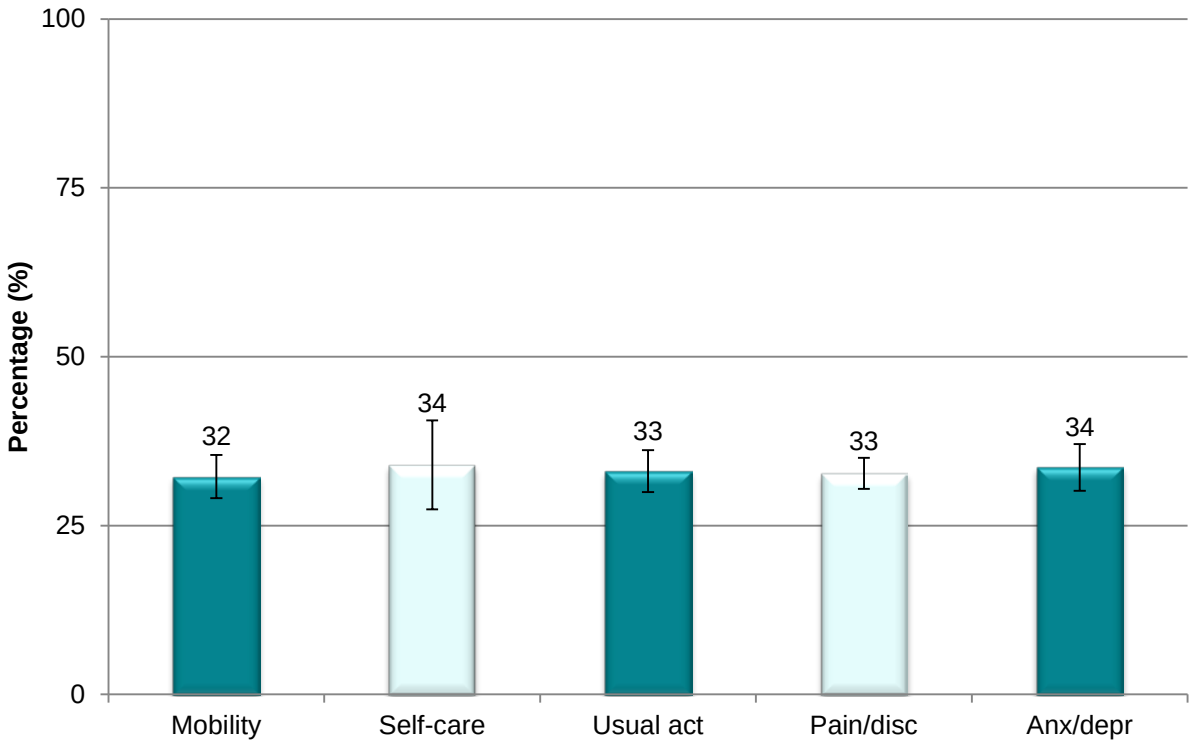
	One	Two	Three +
No surgery	66	67	69
Had surgery	34	33	31

Note: Includes individuals who were hospitalized or who had surgery but were not hospitalized.

7.2 Surgery/hospitalization in relation to health profile

- In general, less than 35% of individuals who reported problems within any EQ-5D dimension had surgery in the past two years.
- This pattern was similar across dimensions.

Figure 19: Percentage of individuals who had surgery in the past two years and reported problems within any EQ-5D dimension, 2011

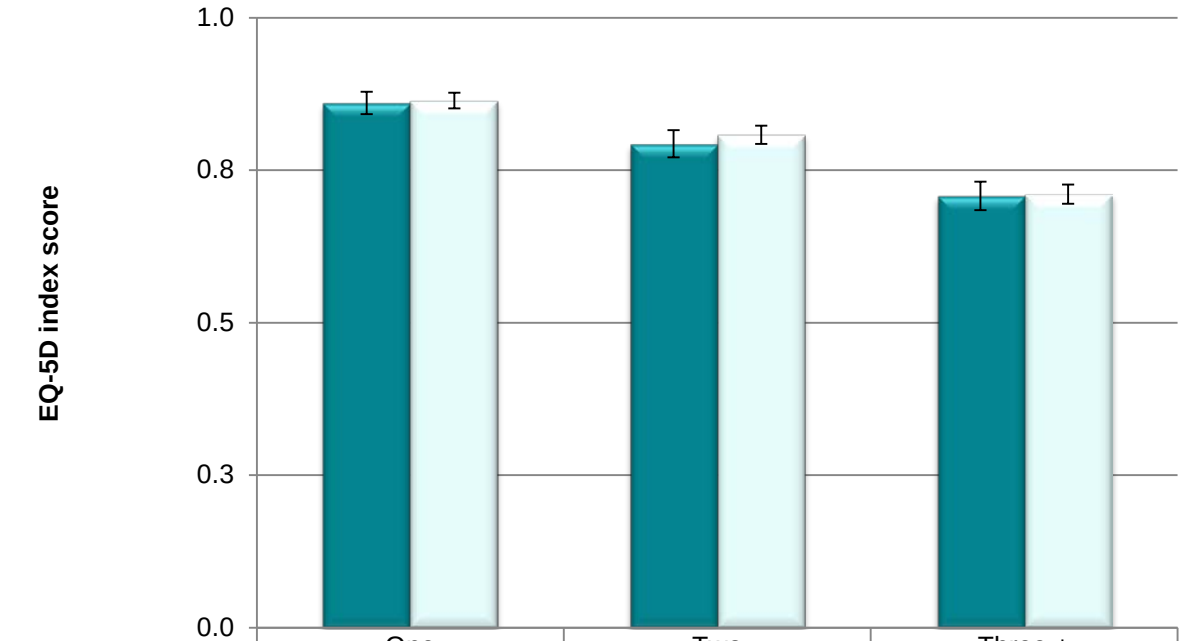


Note: Includes individuals who were hospitalized or who had surgery but were not hospitalized. The overlapping confidence intervals demonstrate no difference in reported surgeries by EQ-5D dimension.

7.3 Surgery/hospitalization and health status

- Health status (as measured by the EQ-5D index score) decreases significantly with the number of chronic conditions.
- For individuals with the same number of chronic conditions, there is no difference between the health status of those who had surgery and those who did not (as measured by the EQ-5D index score).

Figure 20: Mean EQ-5D index score of individuals who had surgery or who were hospitalized compared to those who did not, by number of chronic conditions, 2011

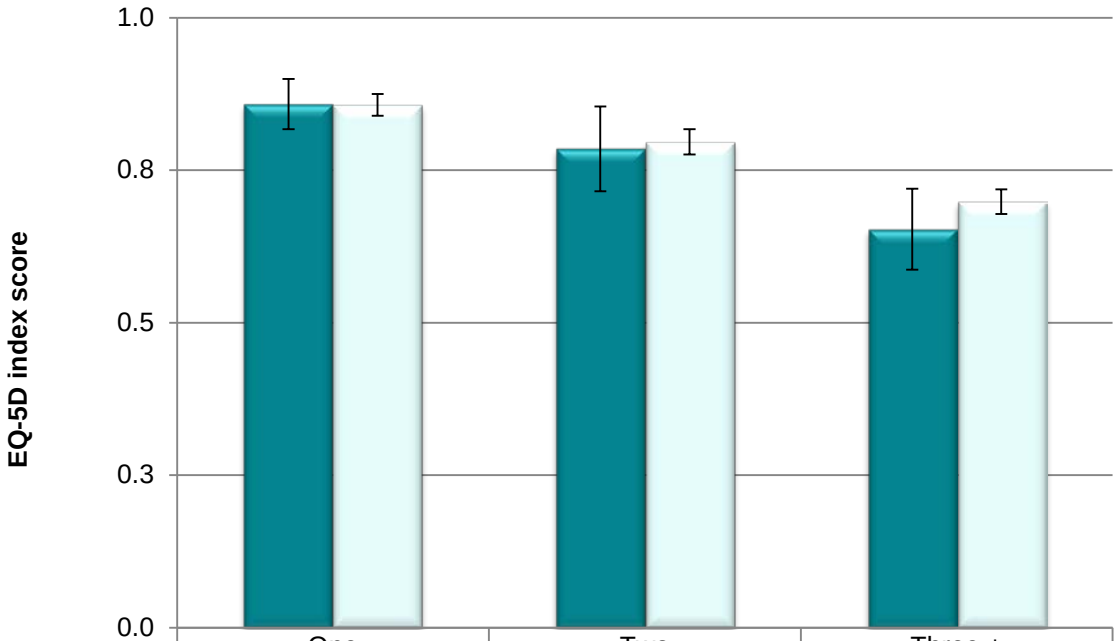


	One	Two	Three +
Had surgery/hosp.	0.9	0.8	0.7
No surgery/hosp.	0.9	0.8	0.7

7.4 Perceived infections during surgery/hospitalization

- For one, two, and three chronic conditions, there is no significant difference in health status between those who reported post hospital infections versus those who did not.
- The health status of those with three or more chronic conditions appears to be slightly worse for those who reported having an infection; however, overlapping confidence intervals show this difference is not statistically significant.

Figure 21: Mean EQ-5D index score of individuals who believe they had infections from surgery/hospitalization, by number of chronic conditions, 2011

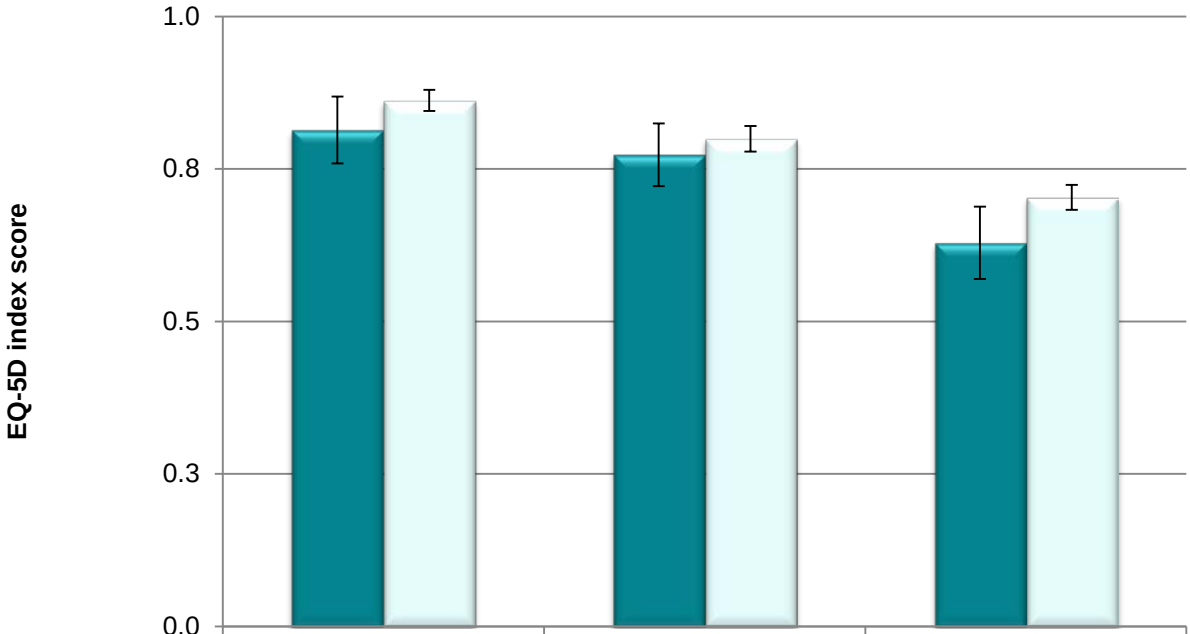


	One	Two	Three +
Yes to infections	0.9	0.8	0.7
No to infections	0.9	0.8	0.7

7.5 Readmissions after hospital discharge

- 13% of those who had surgery/hospitalization were readmitted after discharge.
- While those readmitted to hospital appear to have lower health status than those who were not readmitted, overlapping confidence intervals show that this difference is not statistically significant.
- A similar pattern is observed for those with one, two, and three or more chronic conditions.
- Again, health status as measured by the EQ-5D index score diminishes with the number of chronic conditions.

Figure 22: Mean EQ-5D index score of individuals who were readmitted to hospital after being discharged from surgery/hospitalization, by number of chronic conditions, 2011



	One	Two	Three +
Readmitted	0.8	0.8	0.6
Not readmitted	0.9	0.8	0.7

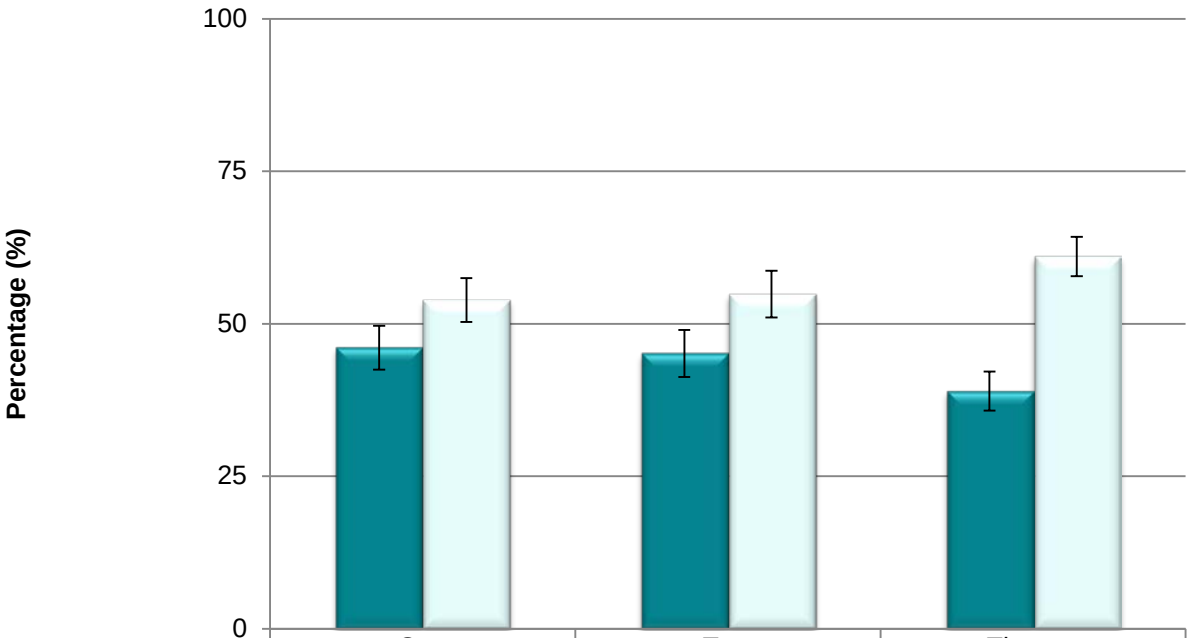
8.0 Experience with emergency department services

8.1 Users of emergency department services by number of chronic conditions

- 57% of individuals used an emergency department in the previous two years.
- 42% of individuals who used an emergency department reported having three or more chronic conditions, significantly different from those reporting two conditions (28%) and one condition (30%).

Figure 23 shows significant differences in the use of emergency department services by level of morbidity. The proportion of individuals with three or more chronic conditions who used emergency department services was significantly greater than the proportion of individuals with three or more chronic conditions who did not use emergency department services.

Figure 23: Percentage of users versus non-users of a hospital emergency room by number of chronic conditions, 2011



	One	Two	Three +
Non-users (n=978)	46	45	39
Users (n=1,272)	54	55	61

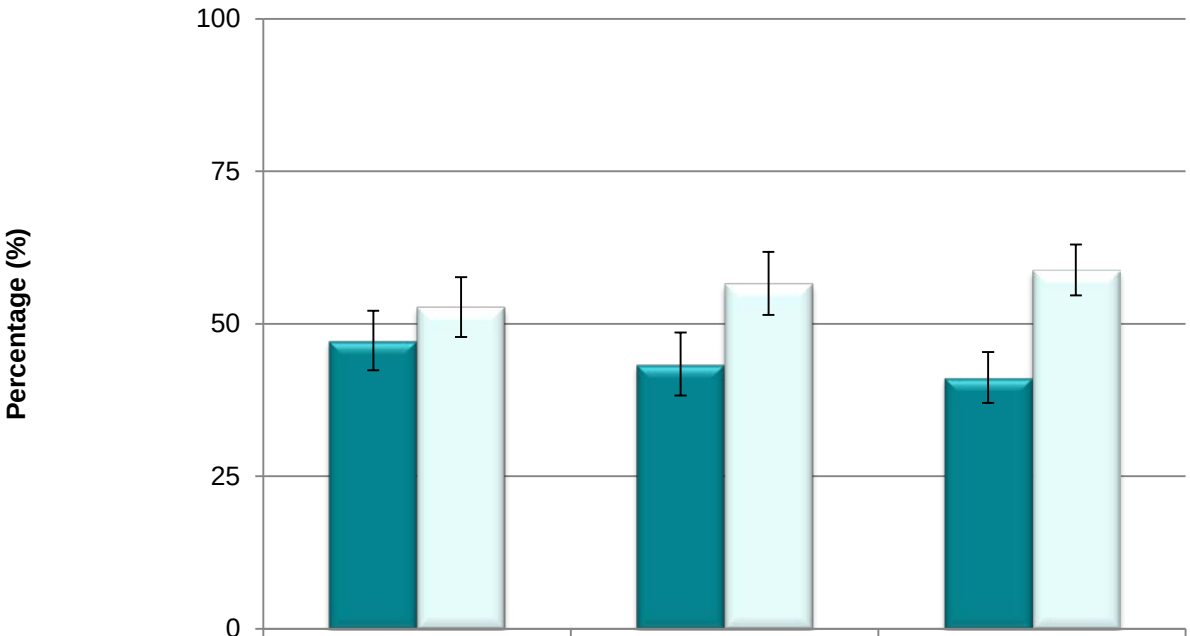
Note: Use of emergency services was assessed for the previous two years (2009 and 2010).

8.2 One-time and repeat users of emergency room services

Of note, 43% of repeat users of emergency services had three or more chronic conditions (not shown); the pattern of use was similar for people with one or two chronic conditions.

- While the percentage of individuals who used the emergency department multiple times increased with the number of chronic conditions, overlapping confidence intervals indicate this difference is not statistically significant those with one and two chronic conditions.
- For those individuals with three or more chronic conditions, the percentage who used the emergency department multiple times was significantly greater than the percentage who used the emergency department only once.

Figure 24: Percentage of emergency department users who report one visit as opposed to multiple visits, by number of chronic conditions, 2011

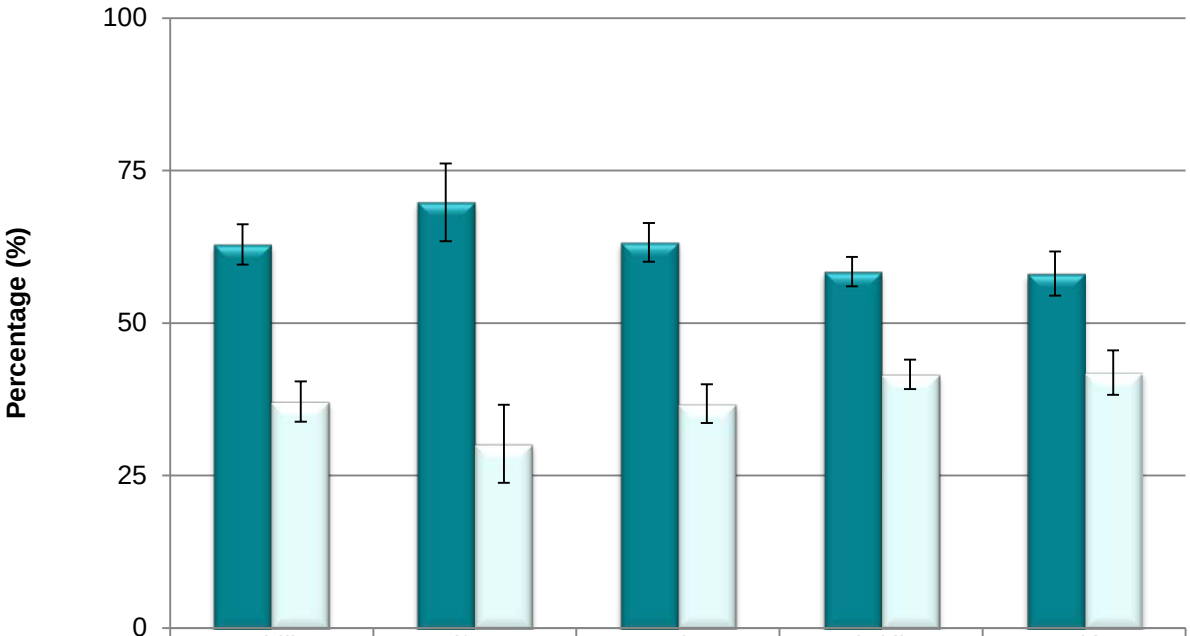


	One	Two	Three +
One visit	47	43	41
Two or more visits	53	57	59

8.3 Health profile of users of emergency department services

- A significantly greater percentage of those with problems in each of the EQ-5D dimensions were users of emergency department services as opposed to non-users.
- Individuals reporting problems with self-care (69.8%) were the most frequent users of emergency services relative to those with problems in other dimensions.
- The difference between users and non-users ranged from 16% for anxiety and depression (and pain and discomfort) to 40% for self-care.

Figure 25: For individuals with problems in EQ-5D dimensions, percentage of emergency department users versus non-users by dimension, 2011

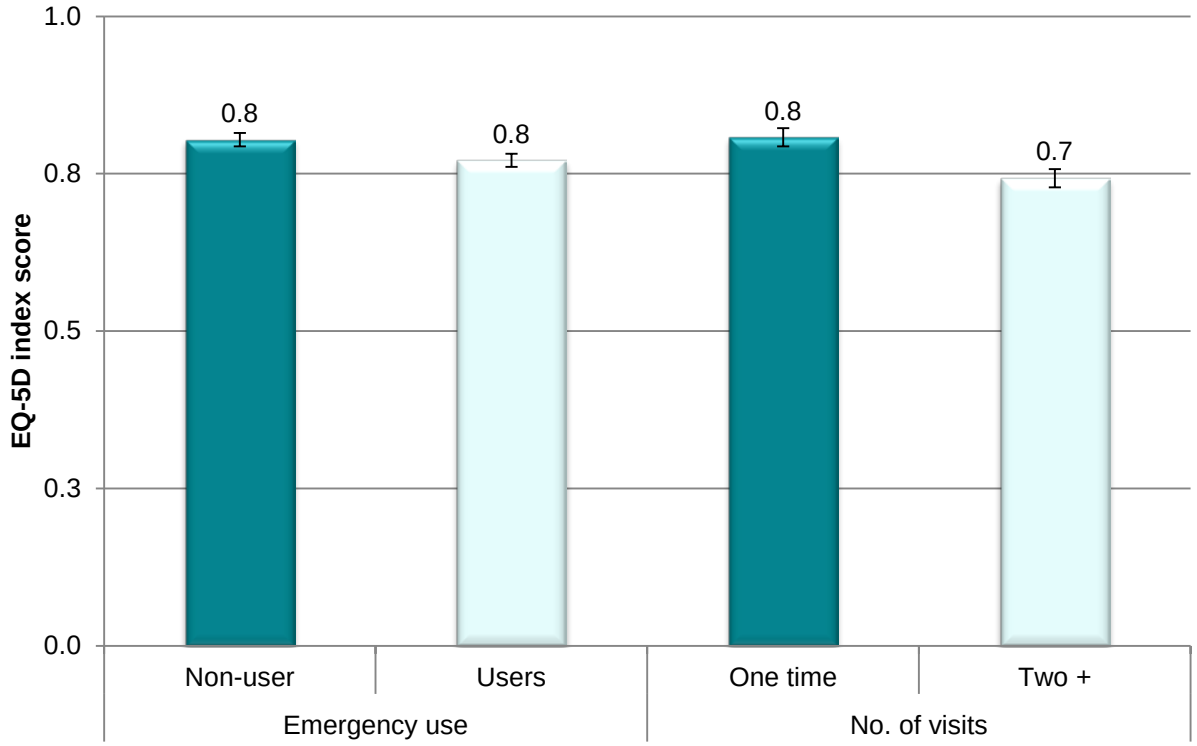


	Mobility	Self-care	Usual act.	Pain/disc.	Anx./depr.
Users	63	70	63	58	58
Non-users	37	30	37	42	42

8.4 Health status of users of emergency services

- Users of emergency department services had statistically worse health status than did non-users, as measured by the EQ-5D index score.
- Repeat users of emergency services had significantly worse health status than did one-time users and non-users, as measured by the EQ-5D index score.

Figure 26: Mean EQ-5D index score: comparison of users to non-users, and one-time versus repeat users, 2011



Note: The relationship between use of emergency services and health status should be interpreted with caution as use does not imply causality.

9.0 Experiences with medical errors in care

9.1 Medical errors in care

Medical errors sometimes occur in the course of treatment, and the extent to which medical errors occur is a useful indicator of the quality and safety of care. This indicator examines participants' perception of whether a medical error was made in their treatment or care in the past two years. Of the individuals, 22% reported that they experienced an error in care of any type (not shown).

As shown in Table 6 and in Figure 27, reports of errors in care are highest for those with three or more chronic conditions:

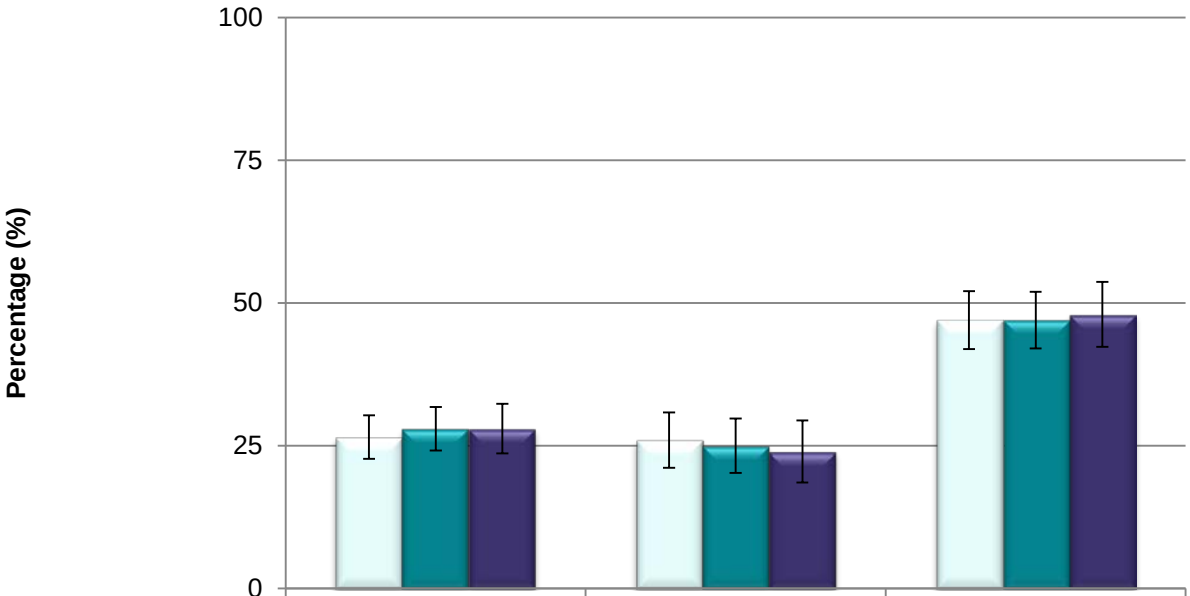
- Almost half (47%) of those who reported an error in care, had three or more chronic conditions – see Table 6.
- 24% of individuals reported that they experienced a diagnostic or medical error – see Table 6. This was most prevalent in people with three or more chronic conditions (47%) – see Figure 27.
- 13% of individuals reported that they experienced a laboratory error in their care – see Table 6. This group was mostly people with three or more chronic conditions (48%) – see Figure 28.

Table 6: Percentage of those individuals with one, two, or three or more chronic conditions who perceived errors in care, 2011

CATEGORY OF ERROR	One		Two		Three or more		**Total**	
	Freq.	%	Freq.	%	Freq.	%	**Freq.**	**%**
Yes to any error in care	134	27	126	26	233	47	**493**	**22**
Yes to either error (medical or diagnostic)	88	28	80	25	148	47	**316**	**24**
Yes to any lab error	79	28	67	24	135	48	**281**	**13**

Note: "Medical error" included an error made by a doctor, nurse, hospital, or healthcare professional. These results should be interpreted with caution as the data were not corroborated by actual hospital or lab data.

Figure 27: Percentage of individuals with one, two, or three or more chronic condition, by errors in medical care reported, 2011



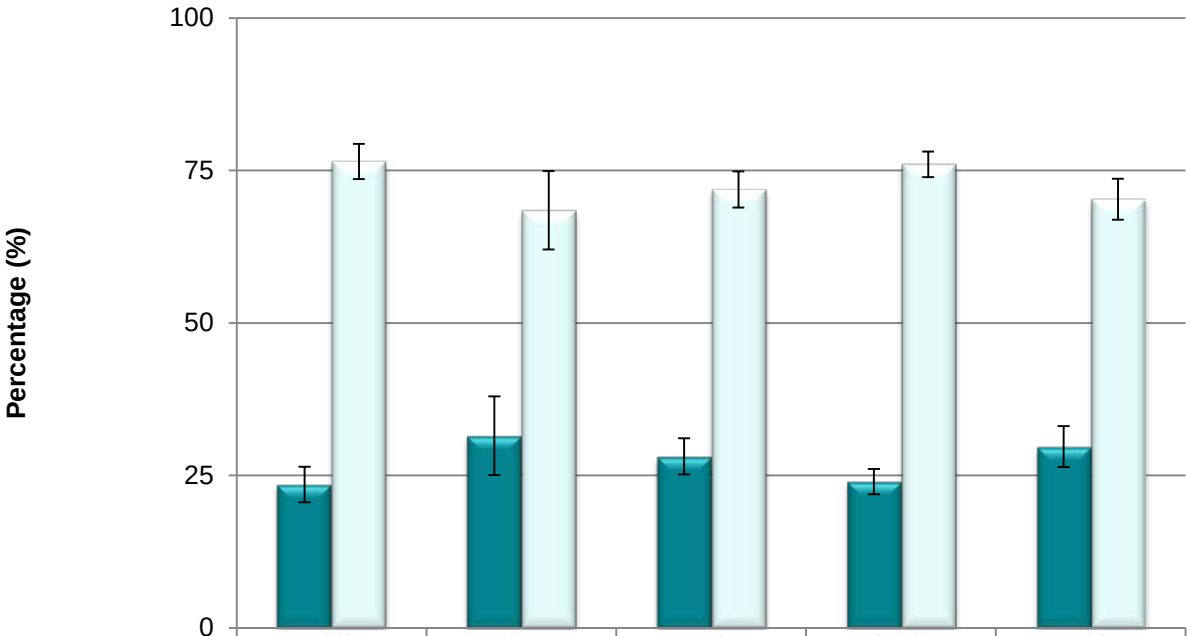
	One	Two	Three +
Yes to any error	27	26	47
Yes to medical error	28	25	47
Yes lab error	28	24	48

Note: "Any error" included a wrong medication or dose, a medical mistake, or a mistake with laboratory diagnosis. "Medical errors" include an error made by a doctor, nurse, hospital, or healthcare professional. These results should be interpreted with caution as the data were not corroborated by actual hospital or lab data.

9.2 Reported medical errors by health profile

About one-quarter of people reporting problems within any EQ-5D dimension reported they experienced an error of any type in their treatment. This pattern was similar across the five EQ-5D dimensions.

Figure 28: For individuals reporting problems within any EQ-5D dimension, percentage of individuals who reported any error in their care, by dimension, 2011



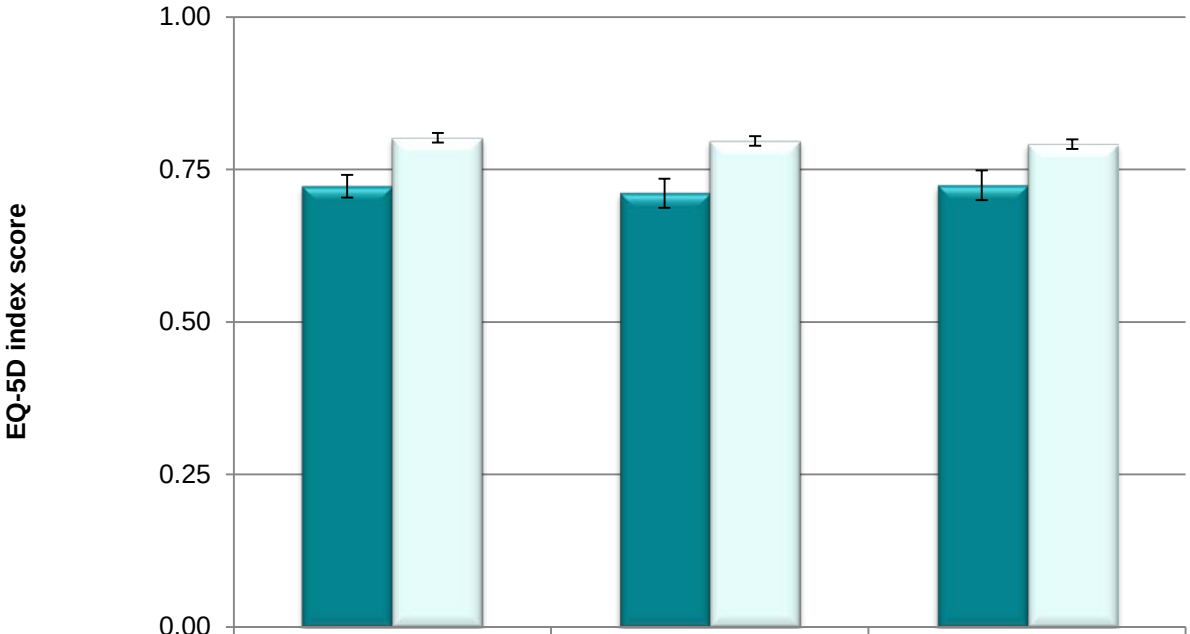
	Mobility	Self-care	Usual act	Pain/disc.	Anx/depr
Yes to any error	24	32	28	24	30
No	76	68	72	76	70

Note: "Any error" included a wrong medication or dose, a medical mistake, or a mistake with laboratory diagnosis. "Medical errors" include an error made by a doctor, nurse, hospital, or healthcare professional. These results should be interpreted with caution as the data were not corroborated by actual hospital or lab data.

9.3 Health status of those reporting errors in care

- People who reported that an error occurred in treatment had significantly worse health status as measured by the EQ-5D index score compared to those who did not report an error.
- The same pattern was observed across type of error.

Figure 29: Mean EQ-5D index score of individuals who reported errors in their care compared to those who did not, 2011



	Any error	Medical error	Lab error
Reported errors	0.72	0.71	0.72
No errors	0.80	0.80	0.79

Note: "Any error" included a wrong medication or dose, a medical mistake, or a mistake with laboratory diagnosis. "Medical errors" include an error made by a doctor, nurse, hospital, or healthcare professional. These results should be interpreted with caution as the data were not corroborated by actual hospital or lab data.

10.0 Private insurance and healthcare costs

Healthcare services in Canada are primarily publicly funded. Additional healthcare costs may arise when people have expenses for non-funded procedures that may or may not be covered by private insurance. The following findings are presented for individuals with one or more chronic conditions, and who were covered by government-funded health services as well as private insurance coverage.[iii]

- Reports of not having private insurance were most prevalent in people with three or more chronic conditions (46%) – see Table 7.
- Similarly, people with three or more chronic conditions most frequently reported out-of-pocket healthcare costs greater than $1,000 – see Table 7.
- Out-of-pocket healthcare costs were most often reported by people reporting problems with pain/discomfort (56%) and least often for those reporting problems with self-care (41%) – see Figure 31.
- The health status of individuals without additional private insurance was worse than those with such insurance (mean EQ-5D index score: 0.8 vs. 0.8) – Figure 33.
- The health status for individuals with out-of-pocket costs over $1,000 was worse than those who spent less than $1,000 (mean index score: 0.8 vs. 0.8) – Figure 33.

[iii] Private insurance includes any private health insurance for hospital or physician services, or for specific benefits such as prescription drugs or dental care.

10.1 Private insurance coverage and out-of-pocket costs by number of chronic conditions

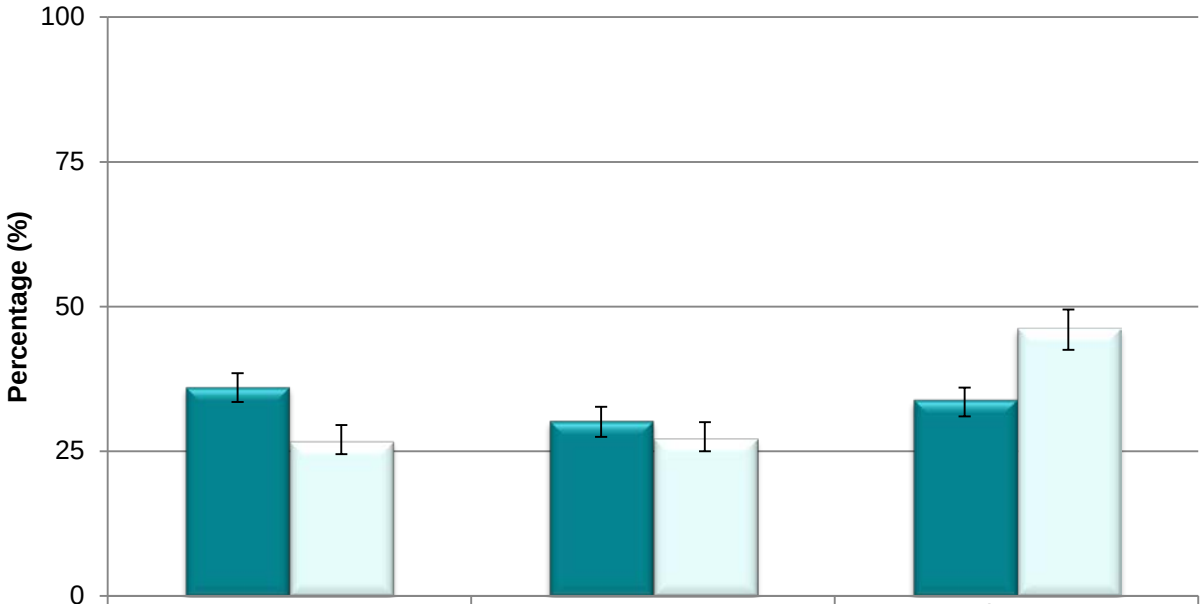
Table 7: Self-reported private insurance coverage and out-of-pocket healthcare costs, by number of chronic conditions, 2011

CATEGORY		One		Two		Three or more		**Total**	
		Freq.	%	Freq.	%	Freq.	%	**Freq.**	**%**
Has private insurance	**Yes**	494	36	414	30	464	34	**1,372**	**100**
	No	267	27	272	27	463	46	**1,002**	**100**
Out of pocket costs	**none**	157	33	128	27	192	41	**479**	**100**
	<$1,000	394	34	333	29	421	37	**1,148**	**100**
	>$1,000	193	28	206	30	290	42	**689**	**100**

Note: Private insurance coverage is defined as coverage paid for by self, family, employer, or association. This included any private health insurance for a hospital or physicians, or for specific benefits such as prescription drugs or dental care.

- The percentage of individuals without private insurance is significantly greater among those with three or more chronic conditions (46%) than those with one (27%) or two (27%) chronic conditions respectively.

Figure 30: Percentage of individuals with one, two, or three or more chronic conditions, by having private insurance or not, 2011

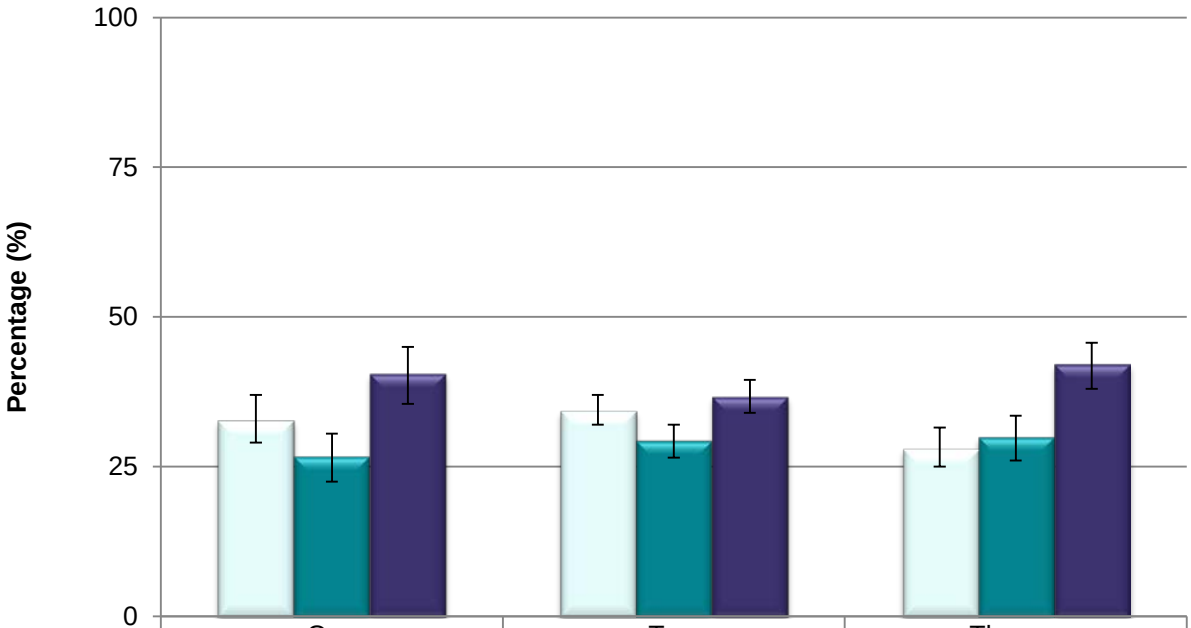


	One	Two	Three +
Yes	36	30	34
No	27	27	46

Figure 31 shows no major difference by level of morbidity in terms of out-of-pocket healthcare expenditures less than $1,000 in the past year. However, there were significant differences by level of morbidity for expenditures above $1,000.

- Of those individuals who spent more than $1,000, 42% had three or more chronic diseases.
- As previously mentioned, individuals with three or more chronic conditions were less likely to have private insurance coverage, compared to those with one or two conditions.

Figure 31: Percentage of individuals with different levels of out-of-pocket costs, by number of chronic conditions, 2011



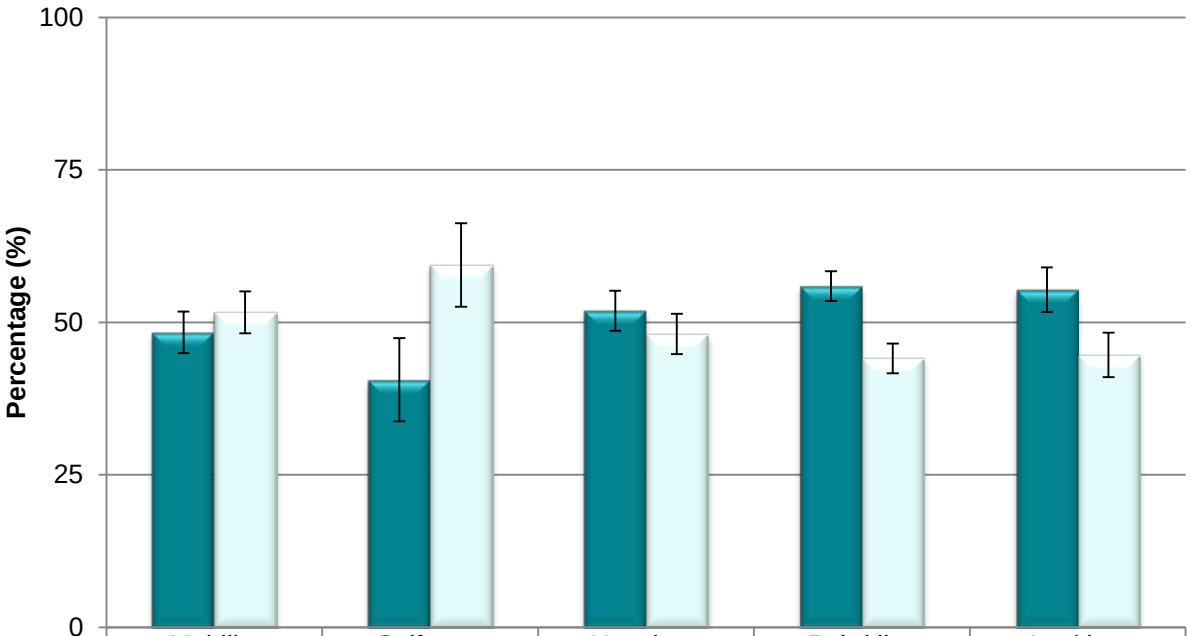
	One	Two	Three +
None	33	34	28
< $1000	27	29	30
> $1000	41	37	42

Note: Private insurance coverage is defined as coverage paid for by self, family, employer, or association. This included any private health insurance for a hospital or physicians, or for specific benefits such as prescription drugs or dental care. Out-of-pocket expenditures in the past 12 months included medical treatment or services that were not covered by public or private insurance.

10.2 Private insurance coverage by health profile

Figure 32 illustrates the proportion of individuals reporting problems within any EQ-5D dimension who had private health insurance coverage. As shown, private insurance coverage was highest among individuals reporting problems with pain/discomfort and anxiety/depression. Notably those individuals with self-care problems had the lowest proportion of insurance coverage (41%).

Figure 32: For individuals reporting problems within any EQ-5D dimension, the percentage of those who had private insurance, 2011

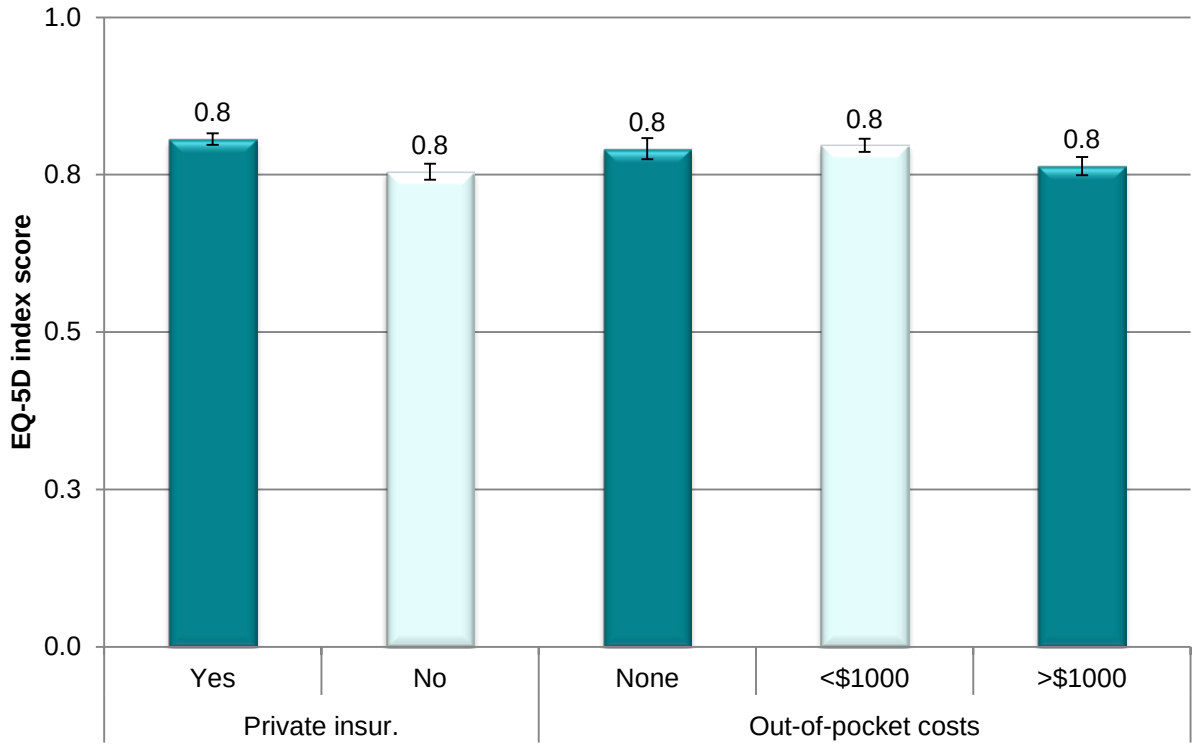


	Mobility	Self-care	Usual act	Pain/disc	Anx/depr
Yes	48	41	52	56	55
No	52	59	48	44	45

10.3 Health status by private insurance coverage and out-of-pocket costs

Figure 33 shows that the health status of individuals without private insurance coverage is significantly worse than those with private insurance (with health status measured by the EQ-5D index score). Similarly, those spending over $1,000 in additional out-of pocket costs have significantly worse health status than those spending less than $1000.

Figure 33: Mean individual EQ-5D Index score, by private insurance coverage and level of out-of-pocket health expenditures, 2011



Note: Caution should be exercised in interpreting this finding as there is no direct relationship between the two variables. The observed findings are likely due to the fact that individuals who spend the most also have the greatest burden of disease. The HQCA reports crude estimates without any adjustment for age, sex, or confirmation that expenditures occurred.

11.0 Use of prescription medication

The number of prescription medications a person takes regularly is indicative of the burden of illness. This indicator assessed the number of prescription medications individuals reported taking on a regular or ongoing basis.

- Individuals who reported the use of one to three prescription medications were most prevalent among those with one chronic condition (42%). Meanwhile, over half (59%) of individuals diagnosed with three or more chronic conditions reported taking four or more prescription medications.
- A greater proportion of individuals reporting problems within any EQ-5D dimension were taking four or more prescription medications on a regular or ongoing basis (Figure 35).
- Individuals taking four or more prescription medications had the worst health status as measured by the mean EQ-5D index score (Figure 36).

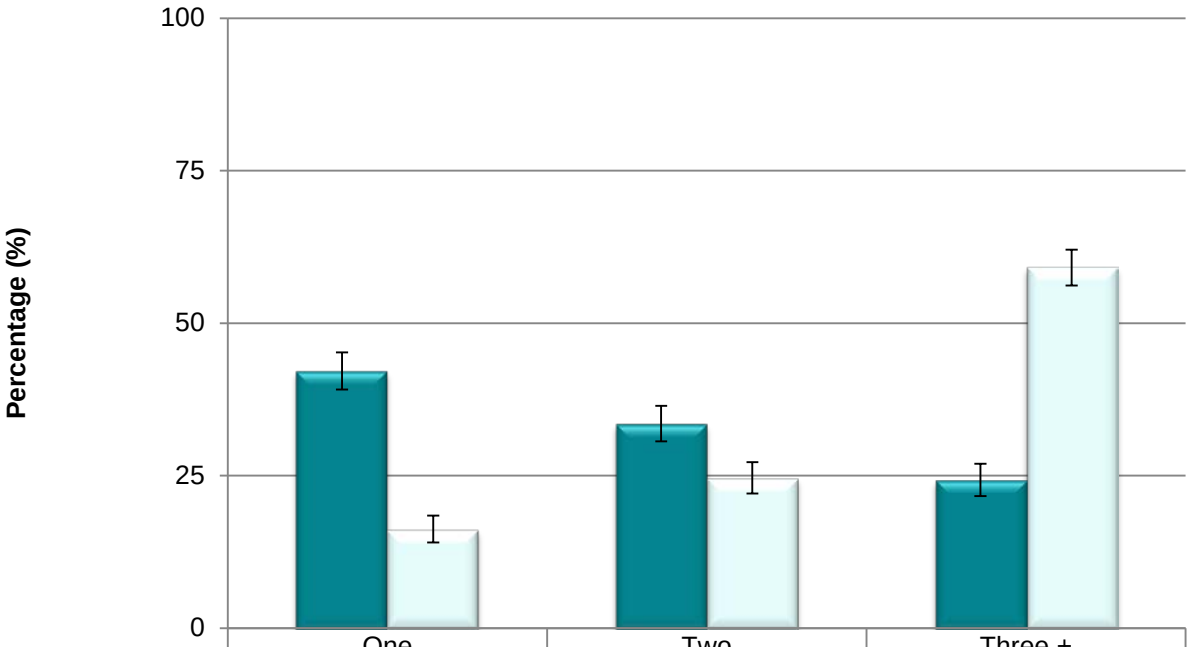
11.1 Number of prescription medications by number of chronic conditions

Table 8: Self-reported use of prescription medications, by number of chronic conditions, 2011

Number of prescription medications currently taking	Chronic conditions						Total	
	One		Two		Three or more			
	Freq.	%	Freq.	%	Freq.	%	**Freq.**	**%**
1-3 prescription medications	425	42	338	34	245	24	**1,008**	**100**
4 + prescription medications	176	16	267	25	640	59	**2,091**	**100**

Figure 34 shows the proportion of individuals with one, two, or three or more chronic conditions, by number of prescription medications. Individuals with three or more chronic conditions are significantly more likely to have four or more prescription medications. As might be expected, the proportion of individuals with four or more prescription medications increases with the number of chronic conditions.

Figure 34: Percentage of individuals with one, two, or three or more chronic conditions, by number of prescription medications, 2011

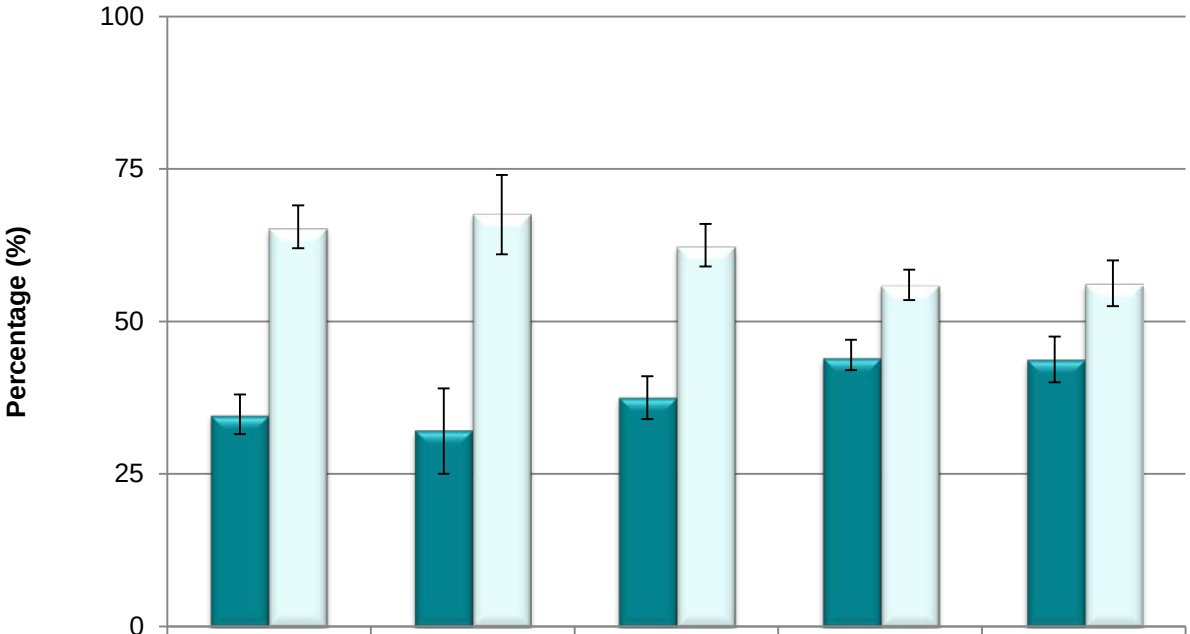


	One	Two	Three +
1-3 pres.	42	34	24
4 or more pres.	16	25	59

11.2 Number of prescription medications by health profile

Figure 35 shows disparities in the use of prescription medication for those individuals with reported problems within any EQ-5D dimension. A greater proportion of individuals reporting problems in any of the five dimensions reported taking four or more prescription medications on a regular or ongoing basis. However, there were differences across dimensions. For those with mobility problems or self-care problems, over 60% were taking four or more prescription medications (65% and 68% respectively). This contrasts with those who have problems with pain/discomfort (56%) or anxiety/depression (56%).

Figure 35: For those reporting problems withjin any EQ-5D dimension, percentage of individuals by number of prescription medications, 2011

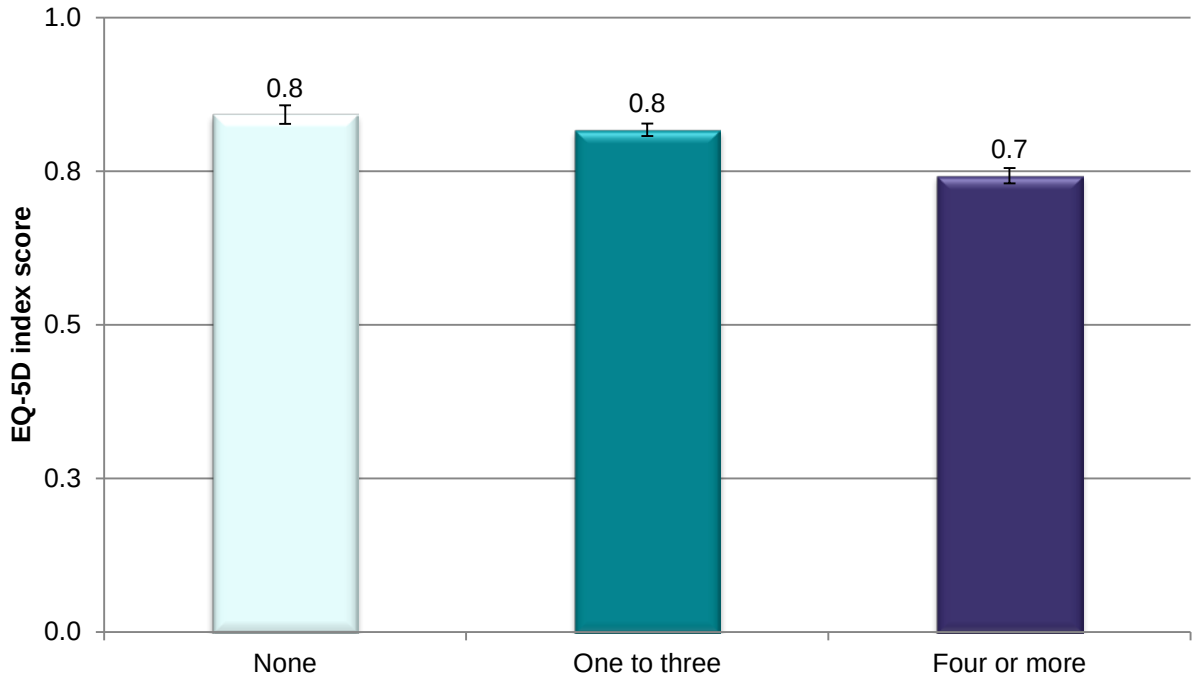


	Mobility	Self-care	Usual act	Pain/disc	Anx/depr
1 - 3 pres.	35	32	38	44	44
4 or more	65	68	62	56	56

11.3 Health status by number of prescription medications

Figure 36 shows that prescription medication use rose as health status (as measured by the mean EQ-5D index score) decreased. The health status of individuals taking one to three prescription medications was marginally similar to that of individuals not taking any prescription medications. However, the health status of individuals taking four or more prescription medications on a regular basis was significantly worse (0.74 compared with 0.82 and 0.84).

Figure 36: Mean EQ-5D index score for individuals, by number of prescriptionmedications taken, 2011



12.0 Unmet healthcare needs

Unmet healthcare needs may be related to cost, system-level factors, or individual circumstance. This analysis assessed unmet healthcare needs of sicker individuals by examining individuals who:

- in the past year, did not fill a medication prescription or skipped doses because of the cost of the medication;
- had a specific medical problem but did not visit a doctor; and/or,
- because of cost, skipped or did not get a medical test, treatment, or follow-up that was recommended by a doctor.

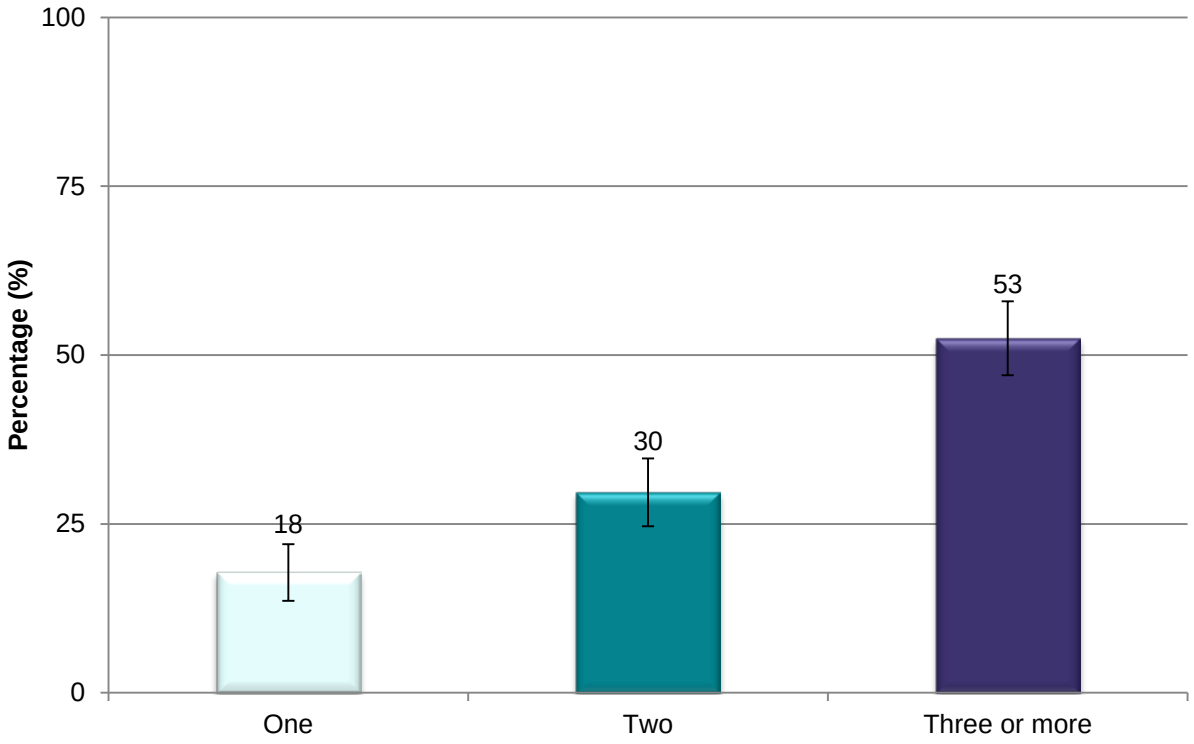
The analysis also looked at the ease or difficulty with which sicker individuals had access to care in the evenings, weekends, or holidays without going to the emergency department.

- 53% of individuals who did not fill a medication prescription or skipped doses because of cost were those with three or more chronic conditions – see Figure 37.
- Over half (51%) of individuals who reported having had a specific medical need but did not go to a doctor were those with three or more chronic conditions – see Figure 38.
- Over half (53%) of individuals who reported having skipped or not had a needed medical test because of cost were those with three or more chronic conditions – see Figure 39.
- There was no difference with the reported ease or difficulty getting care in the evenings, weekends, or holidays by number of chronic conditions – see Figure 40.
- Individuals who experienced unmet healthcare needs had worse health status (EQ-index <0.8) compared to those who had not – see Figure 41.

12.1 Unfilled prescription medications or skipped doses because of cost

As shown in Figure 37, there were significant differences in not filling medication prescriptions or not taking medications because of cost, by level of morbidity. The likelihood of individuals not filling or not taking prescription medications because of cost increased significantly with the number of chronic conditions.

Figure 37: For individuals who did not fill a medication prescription or skipped doses because of cost, percentage with one, two, and three or more chronic conditions, 2011

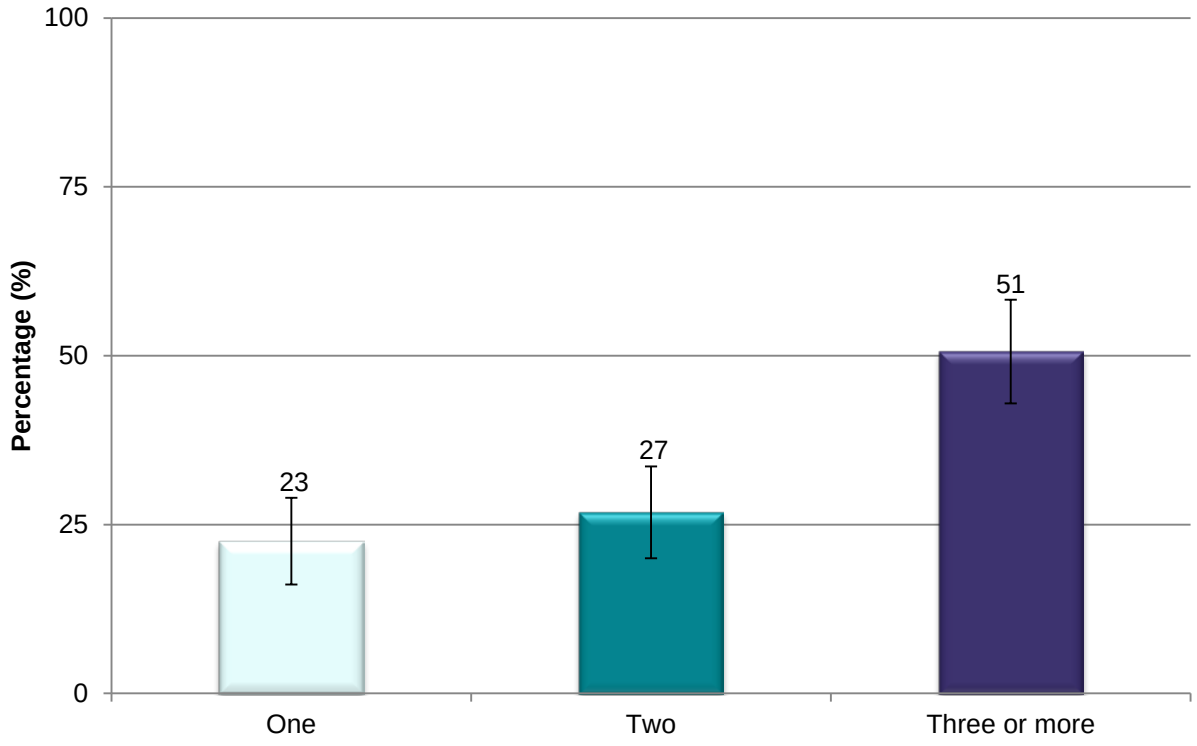


Note: Several reasons may explain unmet healthcare needs, including individual factors. These were not independently assessed in the survey. Thus, the findings presented here should be interpreted with caution.

12.2 Had a medical need but did not visit a doctor

Figure 38 shows that over half of those who had a medical need but did not visit a doctor were individuals with three or more chronic conditions. This represents a significant difference from individuals with one or two chronic conditions who had the same experience.

Figure 38: For individuals who had a medical need but did not visit a doctor, percentage with one, two, or three or more chronic conditions, 2011

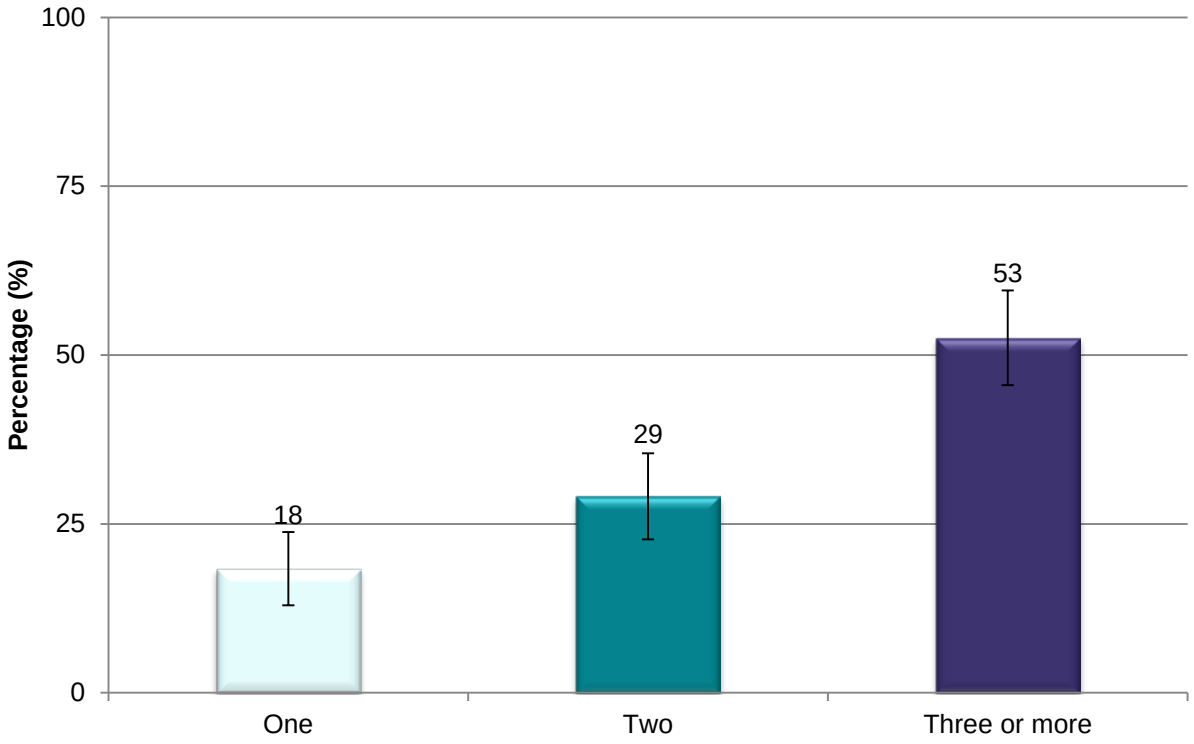


Note: Several reasons may explain unmet healthcare needs, including individual factors. These were not independently assessed in the survey. Thus, the findings presented here should be interpreted with caution.

12.3 Skipped or did not get medical test or treatment

Figure 39 shows that the likelihood of skipping or not having a medical test or treatment because of cost increased with the number of chronic diseases, and was significantly greater for those with three or more chronic conditions. More than half of individuals who experienced this unmet need were individuals with three or more chronic conditions.

Figure 39: For individuals who skipped or did not get a medical test or treatment because of cost, percentage with one, two, or three or more chronic conditions, 2011

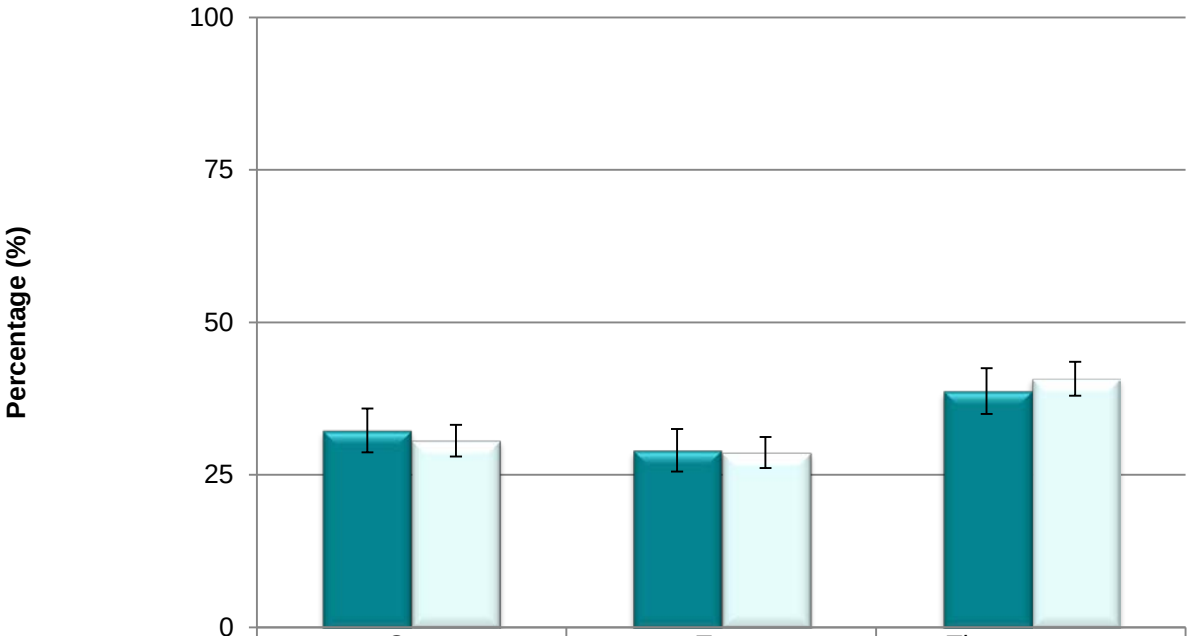


Note: Several reasons may explain unmet healthcare needs, including individual factors. These were not independently assessed in the survey. Thus, the findings presented here should be interpreted with caution.

12.4 Ease/difficulty accessing after-hours care

Overall, 35% of individuals rated access to care in the evenings, weekends, or holidays without going to an emergency department in the past year, as easy/very easy, whereas 65% of individuals rated access as somewhat/very difficult (not shown). Figure 40 shows that ease of access to care in evenings, weekends, or holidays did not differ by number of chronic conditions.

Figure 40: For individuals rating after-hours care as easy or difficult, percentage with one, two, or three or more chronic conditions, 2011

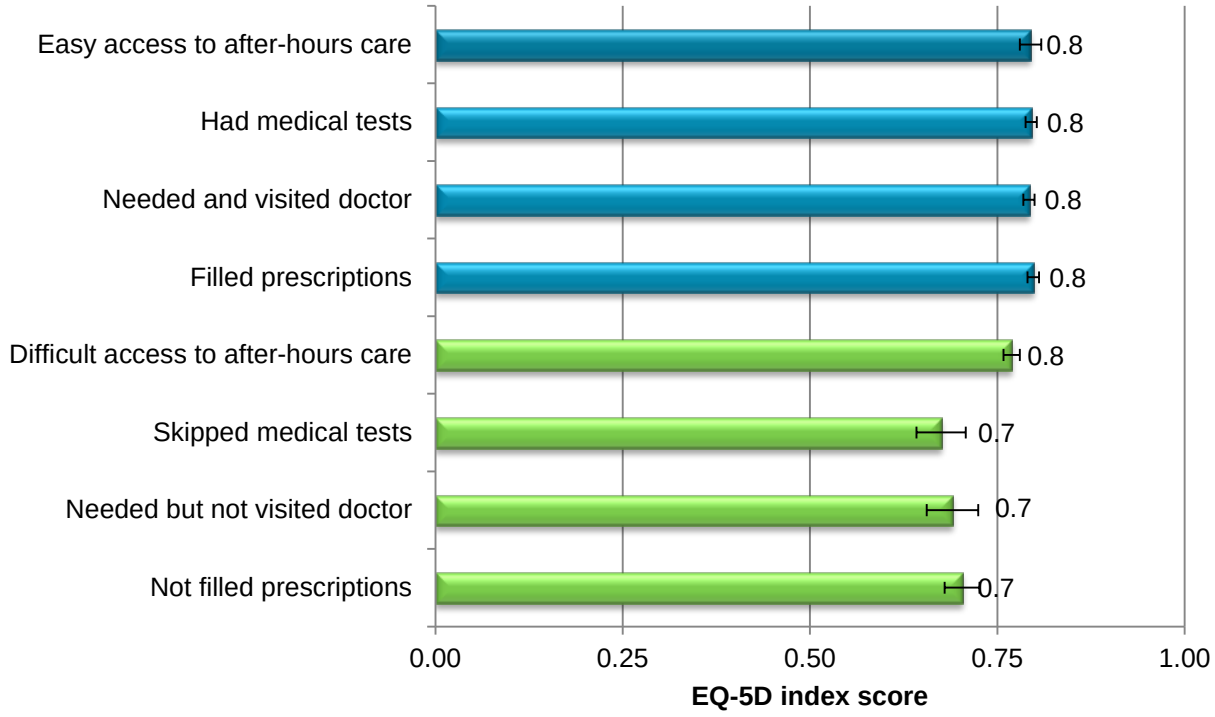


	One	Two	Three or more
Easy (n=627)	32	29	39
Difficult (n=1,175)	31	29	41

12.5 Comparison of unmet needs and health status

Figure 41 shows significant differences in health status (as indicated by mean EQ-5D index score) between sicker individuals with unmet healthcare needs, compared with those who did not have unmet healthcare needs. The only exception was with after-hours care where the health status of those reporting difficulty in accessing after-hours care was marginally similar to the health status of those reporting easy access to after-hours care.

Figure 41: Mean EQ-5D index score: individuals with unmet healthcare needs compared with those who did not have unmet healthcare needs, 2012



Note: All individuals who 'did not fill prescription medications, needed but not visited doctor, skipped or did not get medical test, difficult getting after-hours care' were classified as having unmet needs.

SECTION B: HOW ALBERTA COMPARES WITH OTHER JURISDICTIONS

The HQCA used the six dimensions of quality: acceptability, accessibility, appropriateness, effectiveness, efficiency, and safety, as defined in the *Alberta Quality Matrix for Health,* to guide a comparison of sicker individuals in Alberta with those in other jurisdictions.

ACCEPTABILITY

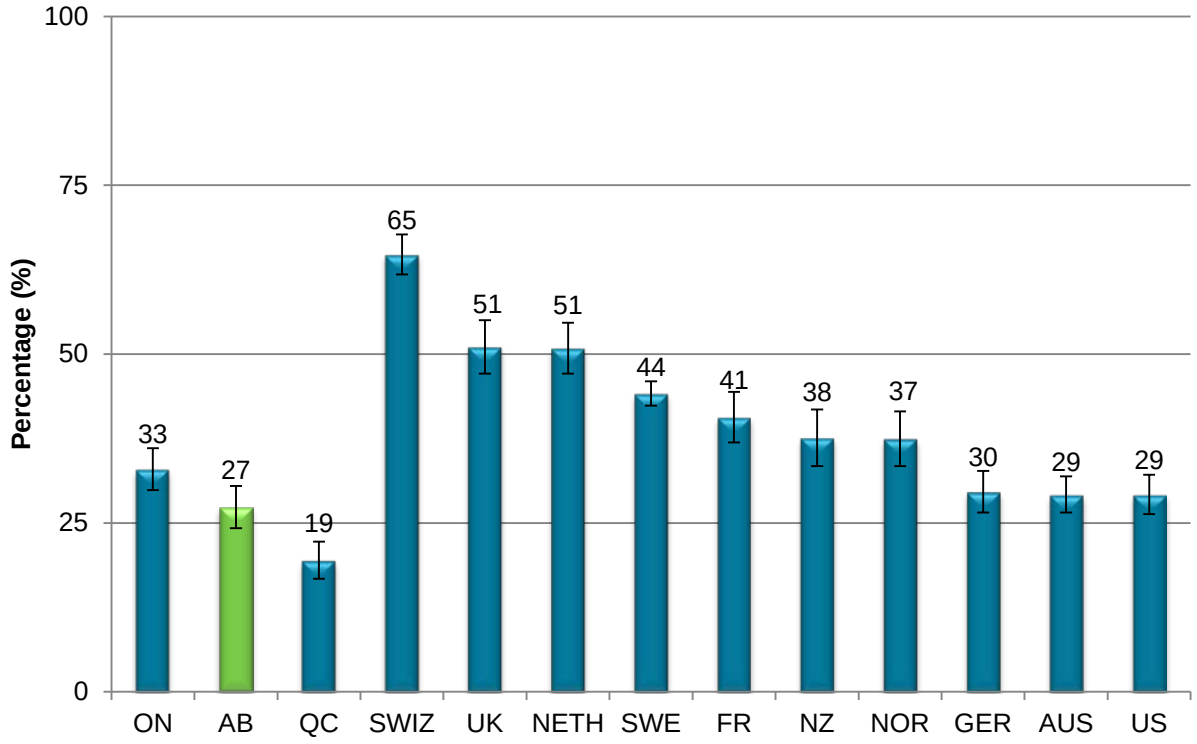
Health services are respectful and responsive to user needs, preferences, and expectations.

13.0 General perceptions of care

13.1 Health system performance

- 33% of sicker adults in Alberta perceived the healthcare system as working well. This is similar to Ontario (27%) and higher than Quebec (19%).
- Across countries, 65% of individuals in Switzerland, and 51% of individuals in the United Kingdom and in the Netherlands, perceived the healthcare system as working well.

Figure 42: Percentage of individuals with at least one chronic condition who reported the healthcare system 'works well', by province/country, 2011



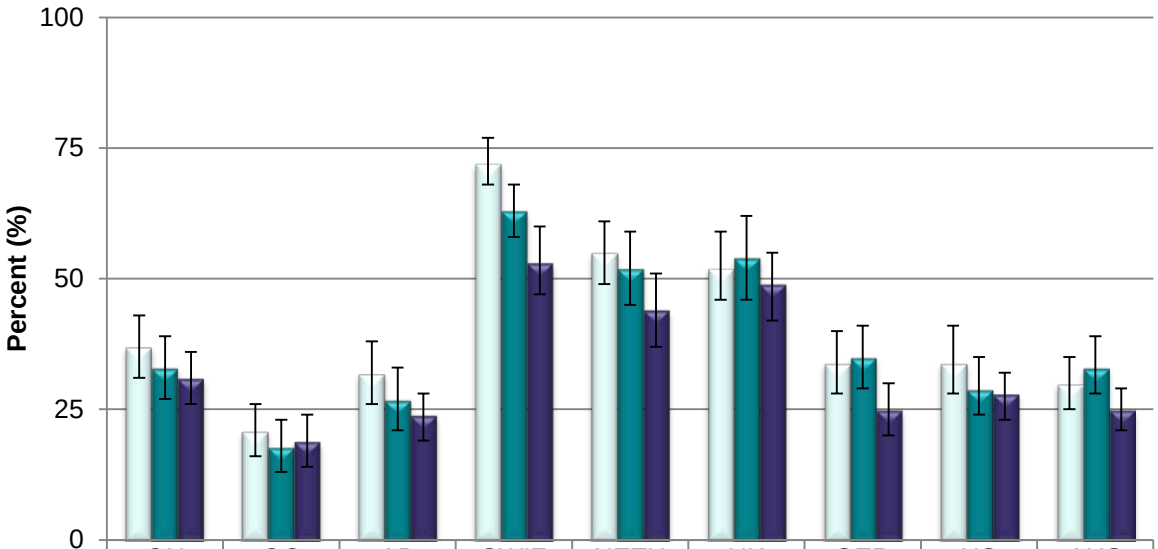
Base: All qualified individuals.

An examination of the likely impact of morbidity on the perception of healthcare system performance revealed a general trend:

- Perception of the healthcare system was less impacted by morbidity – reports of the system 'working well' tended to decrease with increasing morbidity but the difference was not significant.

- Across countries, the only significant difference was observed in Norway, where individuals with three or more chronic conditions were less likely to perceive the system as working well compared to those with one chronic condition (not included in chart).

Figure 43: Percentage of individuals with one, two, or three and more chronic conditions who reported the healthcare system 'works well', by province/country, 2011



	ON	QC	AB	SWIZ	NETH	UK	GER	US	AUS
One	37	21	32	72	55	52	34	34	30
Two	33	18	27	63	52	54	35	29	33
Three +	31	19	24	53	44	49	25	28	25

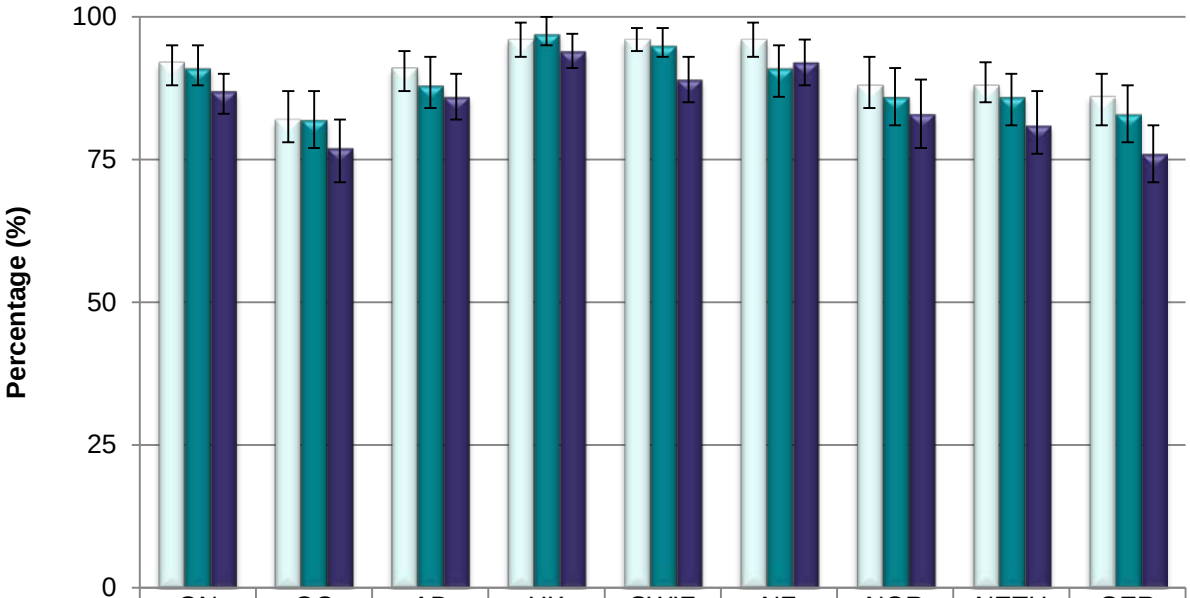
Base: Individuals who reported the healthcare system "works well".

13.2 Rating of quality of care received

Q1480: *Overall, how do you rate the quality of medical care that you have received in the past 12 months?*

- Overall, over 75% of individuals rated the quality of medical care personally received as excellent or good.
- Individuals' ratings of the quality of medical care they personally received were not significantly impacted by morbidity, as indicated by the overlapping confidence intervals.

Figure 44: Percentage of individuals with one, two, or three and more chronic conditions who rated the quality of medical care personally received as "excellent/good", by province/country 2011



	ON	QC	AB	UK	SWIZ	NZ	NOR	NETH	GER
One	92	82	91	96	96	96	88	88	86
Two	91	82	88	97	95	91	86	86	83
Three +	87	77	86	94	89	92	83	81	76

Base: Individuals who rated the quality of medical care that they received as "excellent/good".

ACCESSIBILITY

Health services are obtained in the most suitable setting in a reasonable time and distance.

14.0 Regular doctor or place of care

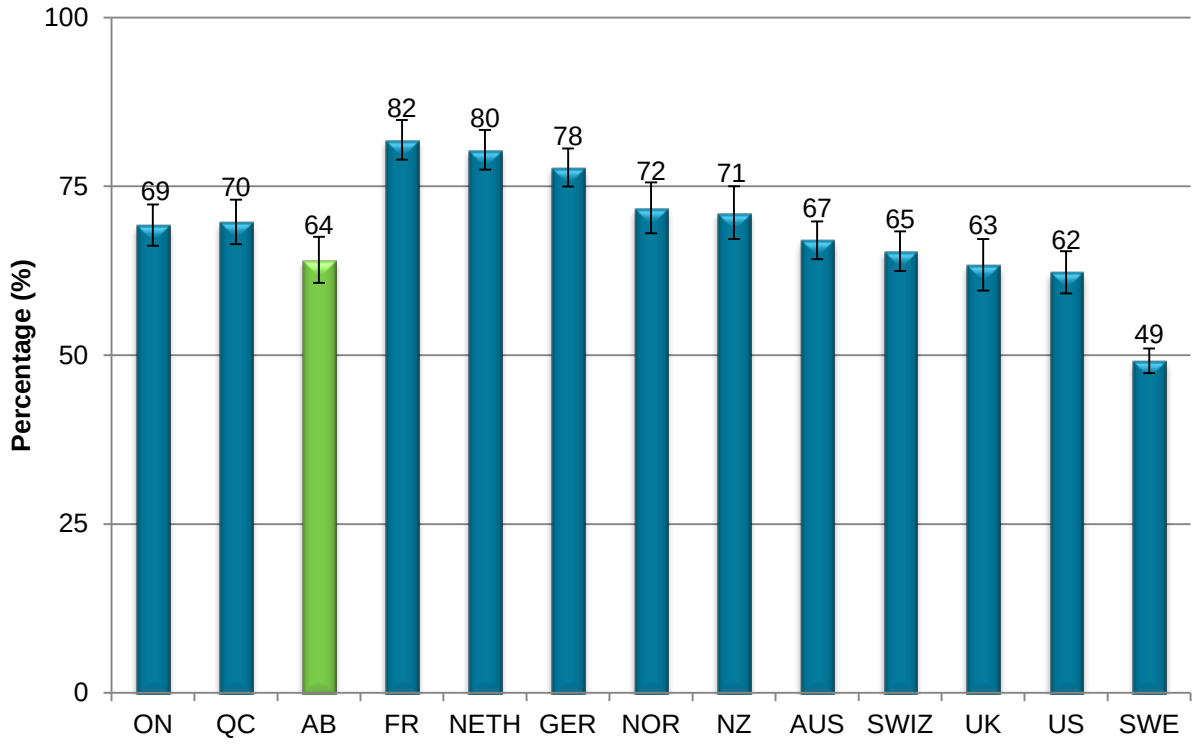
All qualified individuals were asked if they had a regular doctor or place of care. Those who answered "yes" were questioned further to assess their relationship with their regular doctor or place of care.

14.1 Having same regular doctor or place of care

Q925: *How long have you been seeing your regular doctor (or going to your regular place of care) for your medical care?*

- A greater proportion of Alberta individuals with one or more chronic conditions had been with the same doctor or place of care for more than five years.
- A similar trend was observed in Ontario and Quebec and across many other countries.

Figure 45: Percentage of individuals with at least one chronic condition who had the same doctor or place of care for more than five years, by province/country, 2011

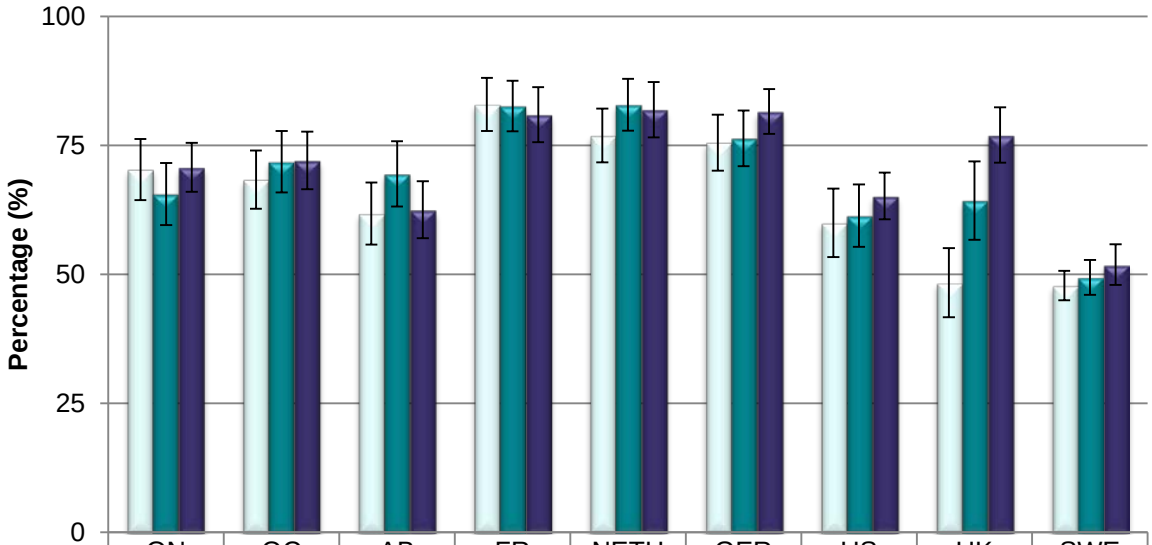


Base: Individuals with regular doctor or place of care.

Individuals who reported having had the same doctor or place of care for more than five years were examined to determine whether this was associated with morbidity.

- The percentage of Alberta individuals who reported having the same doctor or place of care for more than five years was statistically similar for those with one, two, and three or more chronic conditions (Figure 46).
- A similar trend was observed in Ontario, Quebec, and other countries (except for the United Kingdom where the likelihood of being with same doctor for more than five years increased with morbidity).

Figure 46: Percentage of individuals with one, two, or three and more chronic conditions reporting the same doctor or place of care for more than five years, by province/country, 2011



	ON	QC	AB	FR	NETH	GER	US	UK	SWE
One	70	68	62	83	77	76	60	48	48
Two	66	72	69	83	83	76	61	64	49
Three +	71	72	63	81	82	82	65	77	52

Base: Individuals with regular doctor or place of care.

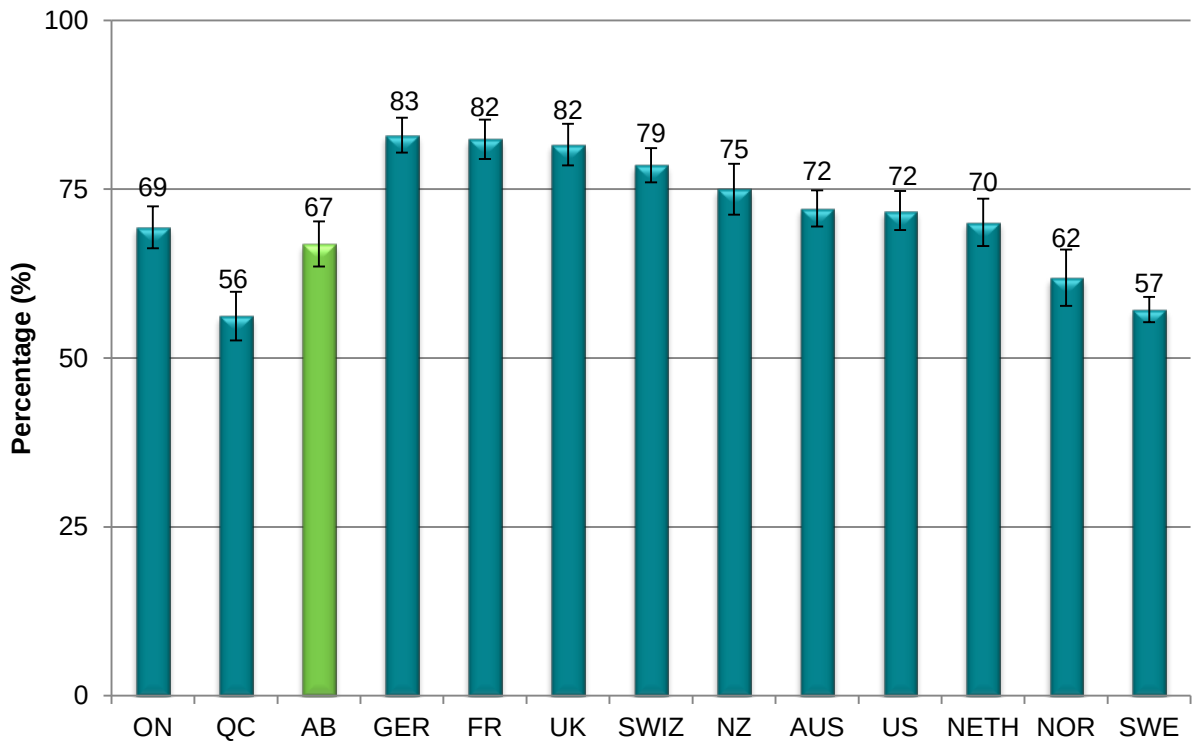
14.2 Perception of regular doctor or place of care

The following four questions examined how individuals perceived their regular doctor or place of care, using four dimensions to assess how care was being delivered.

Q941_1: *When you receive care or treatment, how often does your regular doctor or someone in your doctor's practice know important information about your medical history? Would you say always, often, sometimes, rarely, or never?*

- A greater proportion of sicker individuals in Alberta (67%) reported that their regular doctor or someone in their doctor's practice 'always' knew important information about their medical history, compared with Quebec where a lower proportion (56%) was observed.
- Across countries, sicker individuals in France, Germany, and the United Kingdom were most likely to report that their regular doctor or someone in their doctor's practice 'always' knew important information about their medical history (over 80%). In contrast, among Swedish individuals with one or more chronic conditions, 57% reported their regular doctor 'always' knew important information about their medical history.

Figure 47: Percentage of individuals with at least one chronic condition who reported that their regular doctor 'always' knew important information about their medical history during treatment, by province/country, 2011



Base: Individuals with regular doctor or place of care.

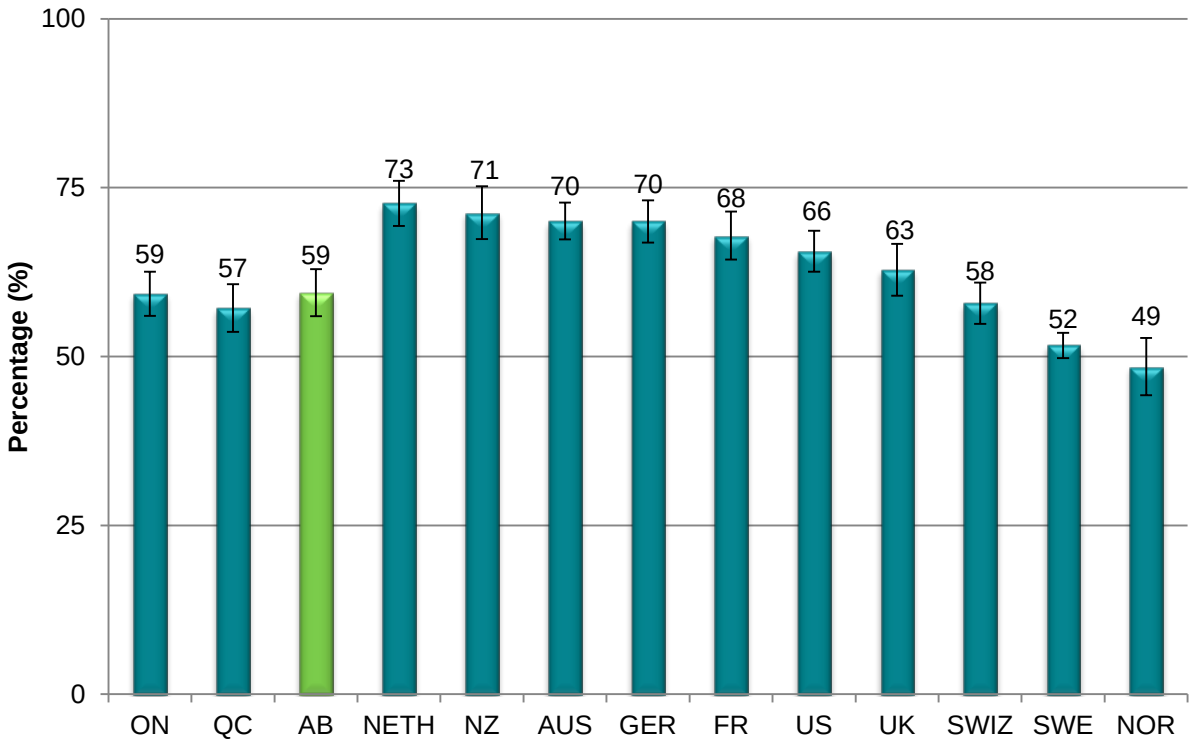
Note: A further assessment of those who reported rarely/never revealed no significant difference by level of morbidity.

14.3 Time spent with a regular doctor

Q941_2: *When you receive care or treatment, how often does your regular doctor or someone in your doctor's practice spend enough time with you?*

- Considering Albertans with one or more chronic disease, 59% reported that the time spent with their regular doctor when they received care or treatment was 'always' enough. A similar finding was observed in Ontario and Quebec.
- Across countries, individuals in Norway with one or more chronic disease were the least likely to report that their time with a regular doctor was 'always' enough (49%); and individuals in the Netherlands were most likely (73%).

Figure 48: Percentage of individuals with at least one chronic condition who reported their regular doctor 'always' spent enough time with them during treatment, by province/country, 2011



Base: Individuals with regular doctor or place of care.

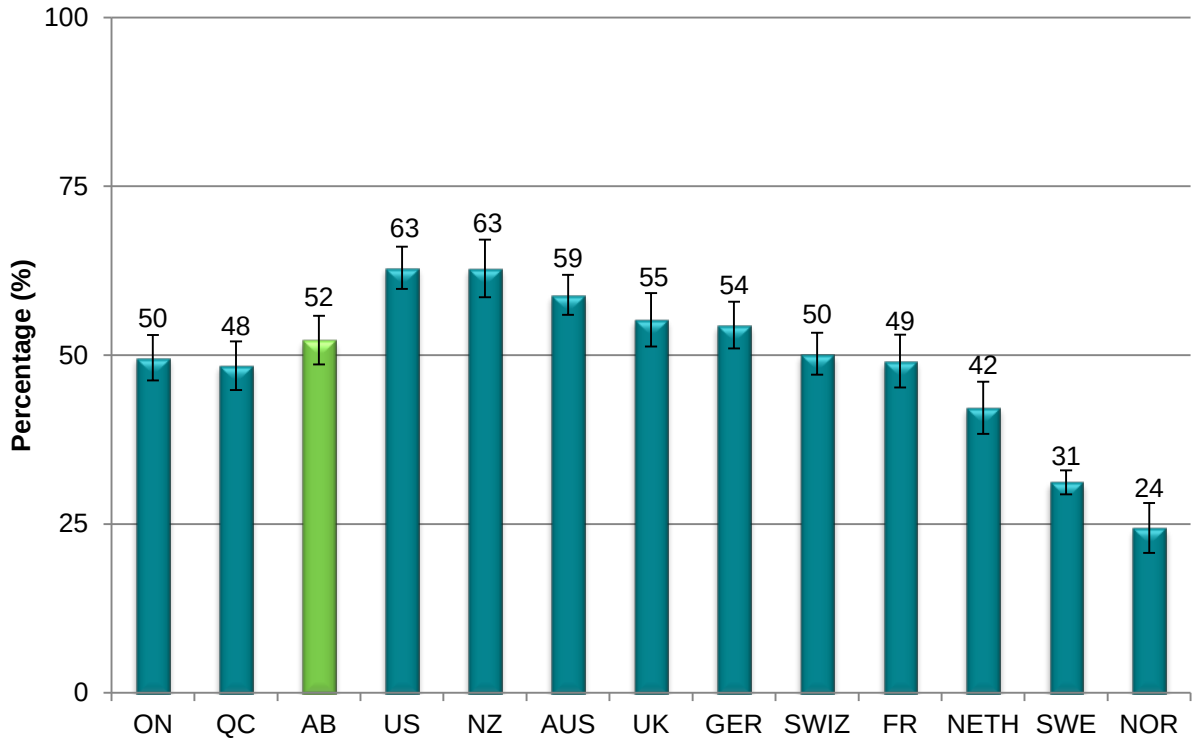
Note: A further assessment of those who reported their time spent with a regular doctor was 'rarely or never enough' revealed no significant difference by level of morbidity.

14.4 Being encouraged by your regular doctor to ask questions

Q941_3: *When you receive care or treatment, how often does your regular doctor or someone in your doctor's practice encourage you to ask questions?*

- About half (52%) of Albertans with one or more chronic conditions reported they were 'always' encouraged to ask questions compared to Ontario (50%) and Quebec (48%).
- Norwegian individuals were least likely to report that they were always encouraged to ask questions during treatment (24%), whereas individuals from the United States or New Zealand were most likely (63%).

Figure 49: Percentage of individuals with at least one chronic condition who reported their regular doctor 'always' encouraged them to ask questions during treatment, by province/country, 2011



Base: Individuals with regular doctor or place of care.

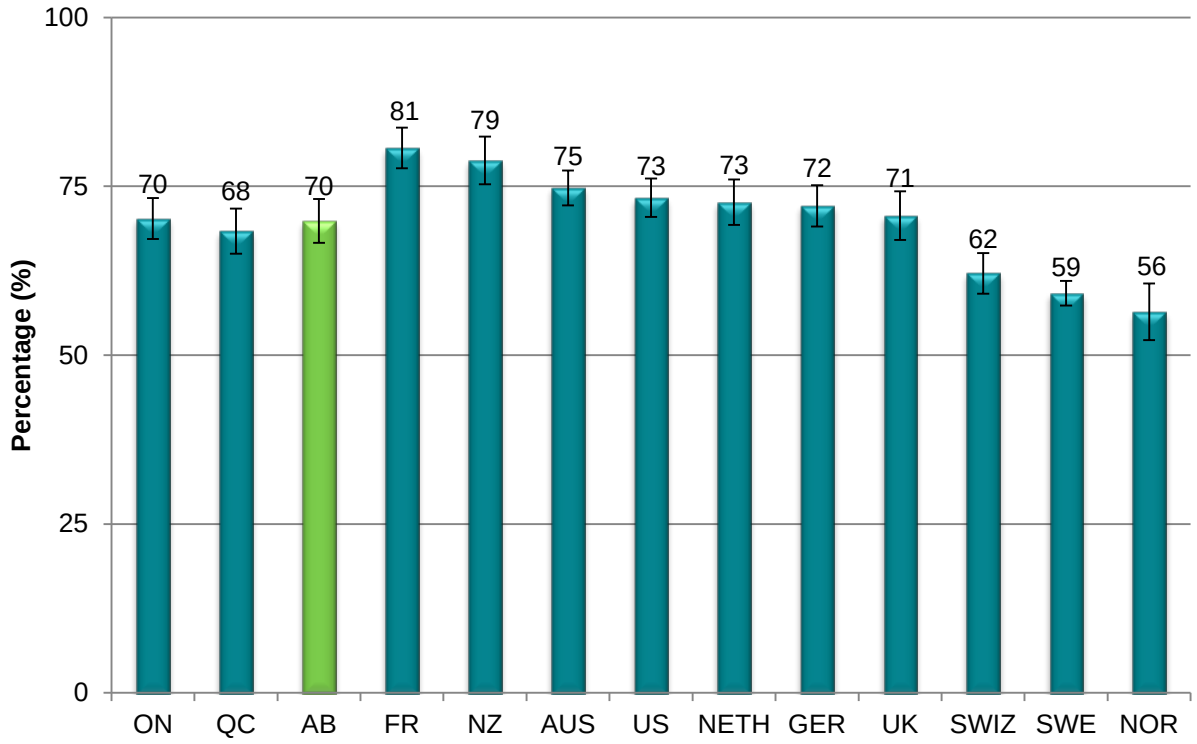
Note: An examination of individuals reporting 'rarely' revealed no significant difference by level of morbidity.

14.5 Regular doctor explaining things in a way that is easy to understand

Q941_4: *When you receive care or treatment, how often does your regular doctor or someone in your doctor's practice explain things in a way that is easy to understand?*

- 70% of Albertans with one or more chronic condition reported that their doctor 'always' explained things in a way that is easy to understand.
- Across countries, individuals from France with one or more chronic conditions were most likely (80%) to report that their doctor always explained things in a way that was easy to understand, compared with individuals from Norway, who were least likely (56%).

Figure 50: Percentage of individuals with at least one chronic condition who reported their regular doctor 'always' explained things in a way that is easy to understand, by province/country, 2011



Base: Individuals with regular doctor or place of care.

Note: An examination of individuals reporting 'rarely' revealed no significant difference by level of morbidity.

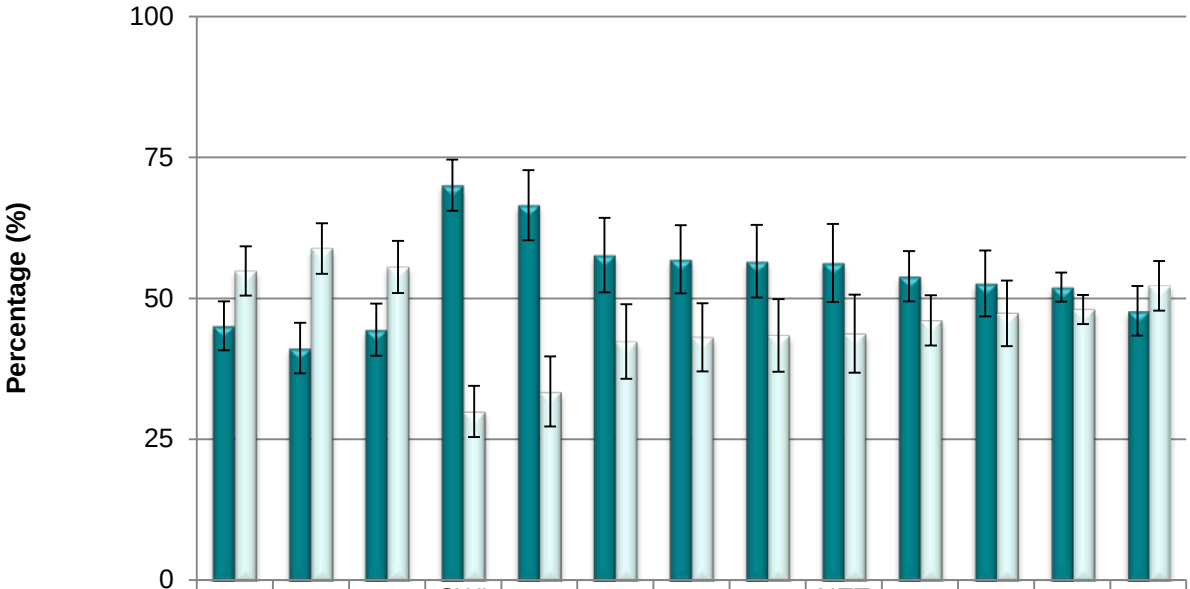
15.0 Emergency Department Services

15.1 Emergency department use

Q1405: *How many times have you personally used a hospital emergency department in the past two years?*

- 56% of Alberta individuals with one or more chronic conditions used an emergency department two or more times in the past two years. A similar pattern of use was observed for Ontario and Quebec.
- In all other countries, except for Australia, individuals with one or more chronic conditions reported having used an emergency department only once. The frequency of repeat emergency department use (two or more visits) was lowest in Switzerland (30%) and France (33%).

Figure 51: Percentage of individuals using emergency department services once versus two or more times: Canadian provinces versus highest and lowest three countries, 2011



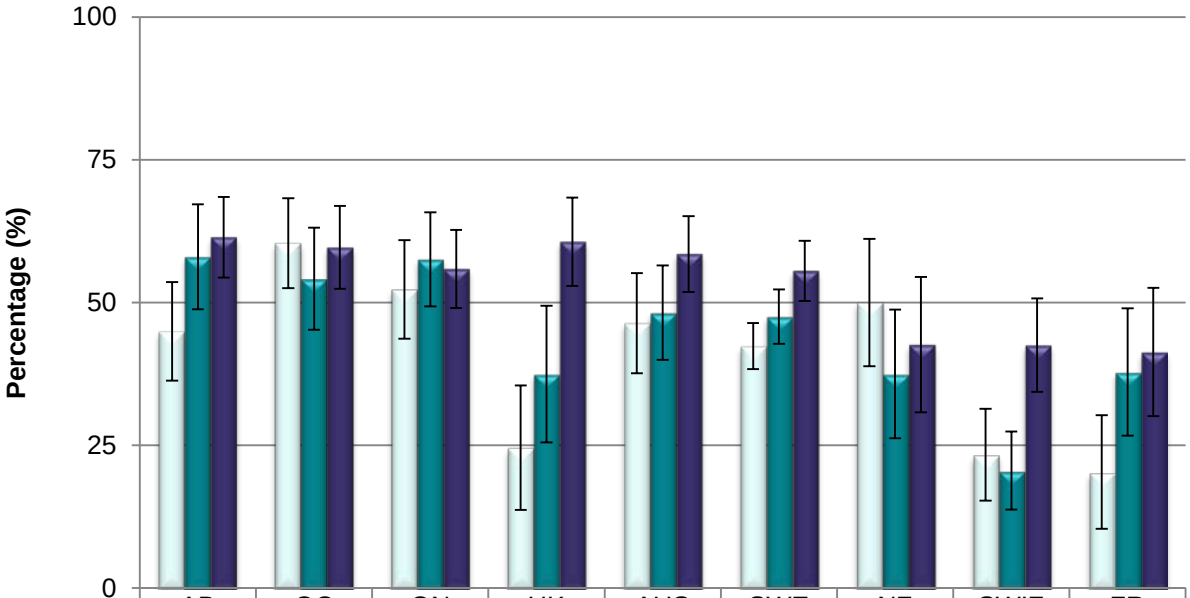
	ON	QC	AB	SWIZ	FR	NOR	GER	NZ	NETH	US	UK	SWE	AUS
Once	45	41	44	70	67	58	57	57	56	54	53	52	48
Two or more	55	59	56	30	33	42	43	43	44	46	47	48	52

Base: All qualified individuals.

The HQCA further examined the potential impact of morbidity on multiple use of the emergency department by individuals (Figure 52).

- The pattern of use of emergency departments did not vary significantly across Ontario, Quebec, and Alberta. Alberta individuals with three or more chronic conditions (61%) were significantly more likely than those with one chronic condition (45%) to use the emergency department more than one time in the last two years.
- For most countries, emergency department use increased with the number of chronic conditions, as observed for France, Sweden, Switzerland, the United Kingdom and the United States.

Figure 52: Percentage of individuals with two or more emergency department visits, by number of chronic conditions: Provinces versus highest and lowest three countries, 2011



	AB	QC	ON	UK	AUS	SWE	NZ	SWIZ	FR
One	45	60	52	25	46	42	50	23	20
Two	58	54	58	38	48	48	38	21	38
Three +	61	60	56	61	58	56	43	43	41

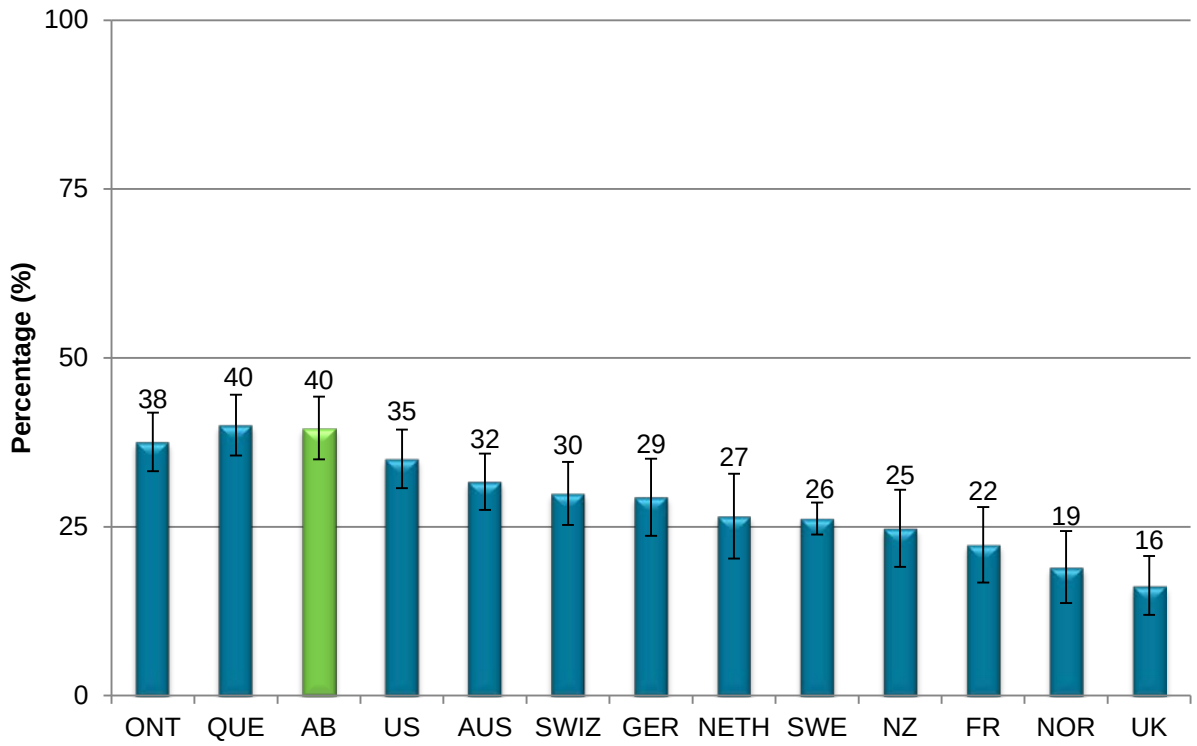
Base: All users of emergency department services.

15.2 Avoidable use of emergency department

Q1410: *The last time you went to the hospital emergency department (accident and ER or ER room) was it for a condition that you thought could have been treated by your regular doctor if he or she had been available?*

- For individuals with one or more chronic conditions, the highest percentage of emergency department use for something that could have been treated by their regular doctor was observed in Canadian provinces. More than one-third (40%) of Alberta individuals reported using an emergency department for such an issue. A similar pattern was observed in Ontario and Quebec.
- Across countries, the percentage of individuals using an emergency department for something that could have been treated by their regular doctor was lowest in the United Kingdom (16%) and highest in the United States (35%).

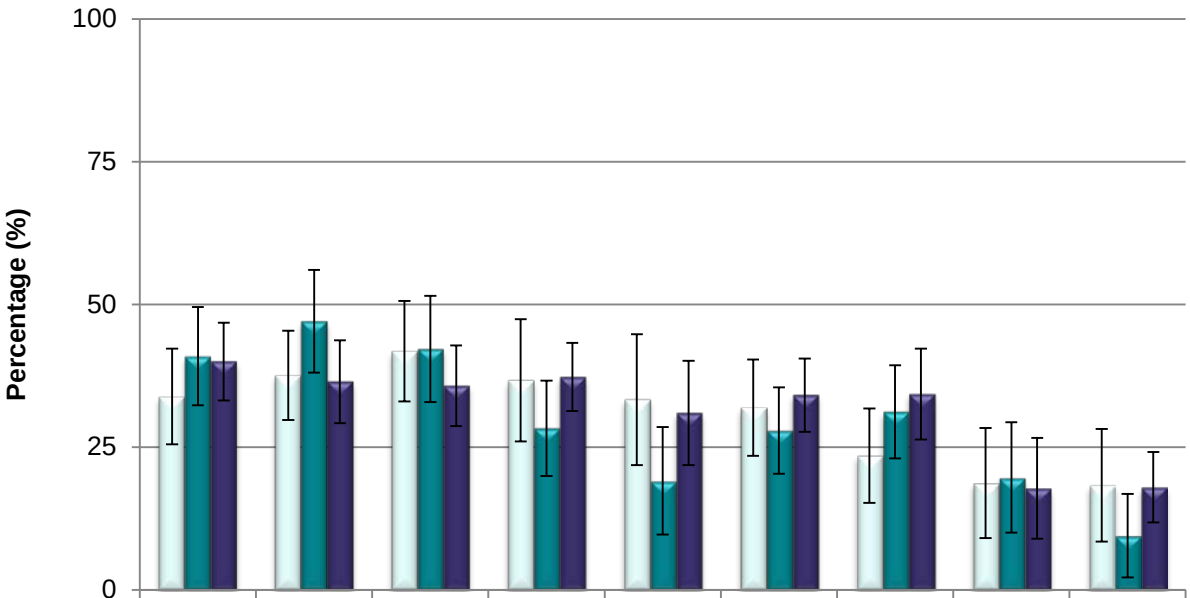
Figure 53: Percentage of individuals with at least one chronic condition who used a hospital emergency department for something that could have been treated by their regular doctor, 2011



Base: Used an emergency department in the past two years.

A further examination of the possible impact of morbidity on use of emergency department services for something that could have been treated by a regular doctor found no significant difference across provinces or countries, and no significant relationship with the number of chronic conditions (see Figure 54).

Figure 54: Percentage of individuals using a hospital emergency department for something that could have been treated by their regular doctor by number of chronic conditions: Canadian provinces versus highest and lowest three ranked countries, 2011



	ON	QC	AB	US	GER	AUS	SWIZ	NOR	UK
One	34	38	42	37	33	32	24	19	18
Two	41	47	42	28	19	28	31	20	10
Three +	40	36	36	37	31	34	34	18	18

Base: Used an emergency department in the past two years.

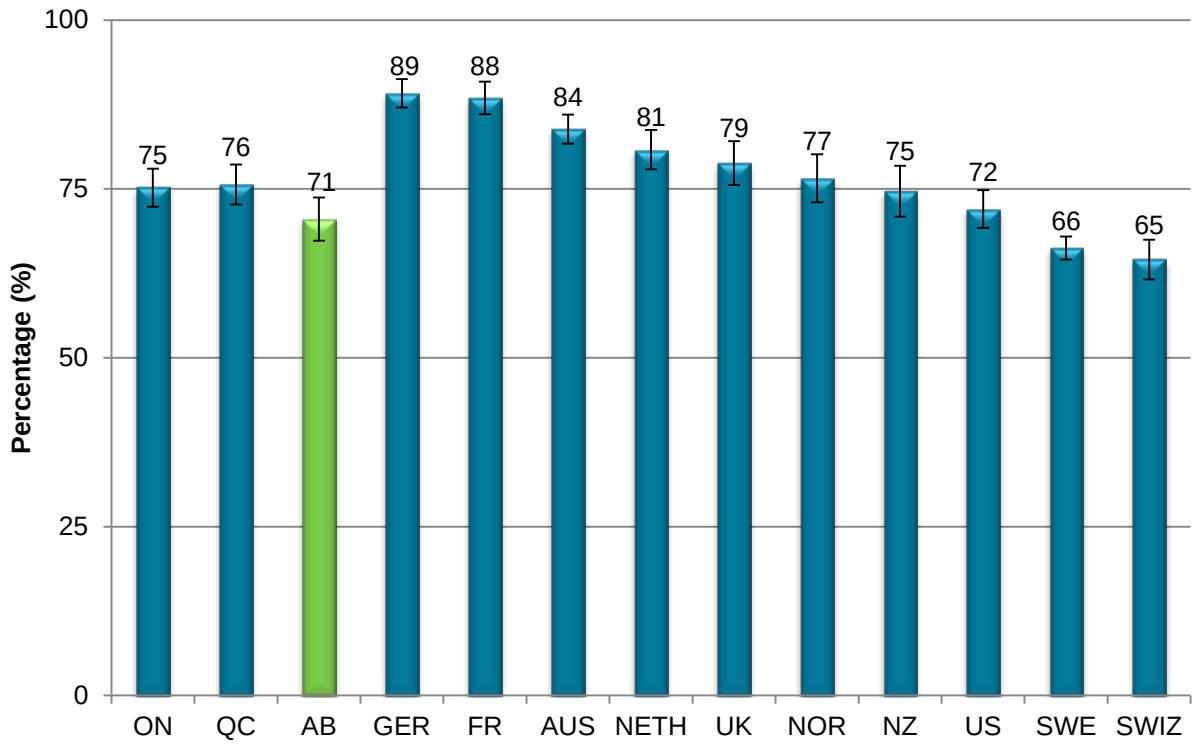
16.0 Specialist services

16.1 Reported use or need of a specialist doctor

Q1020: *In the past two years, have you seen or needed to see any specialist doctors?*

- Over 70% of individuals with one or more chronic conditions in Alberta, Ontario, and Quebec saw or needed to see a specialist in the past two years.
- Seeing or needing to see a specialist was greatest for individuals with one or more chronic conditions in Germany (89%) and France (88%); this contrasts with a low of 65% in Switzerland.

Figure 55: Percentage of individuals with at least one chronic condition who saw or needed to see a specialist in the last two years, by province/country, 2011

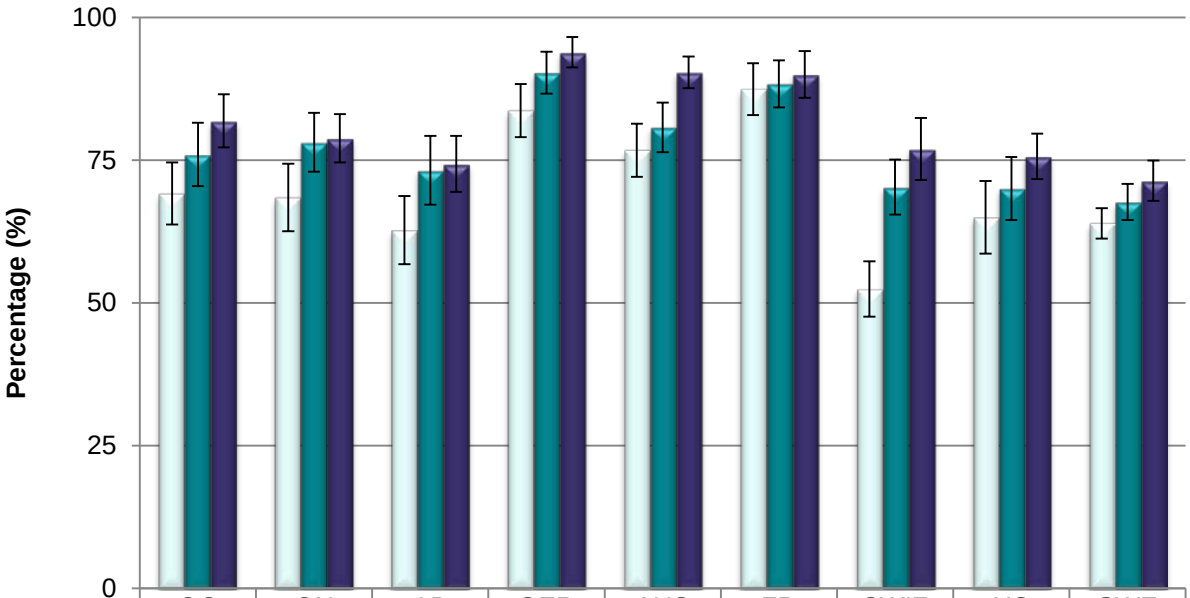


Base: Individuals who saw or needed to see a specialist in past two years.

The impact of morbidity on a individuals' need or use of a specialist was evident across provinces and some countries:

- As shown in Figure 56, individuals with three or more chronic conditions were more likely to need or see a specialist compared with those with one chronic condition. Thus, the need for specialist care increased with morbidity.
- Across countries, individuals with three or more chronic conditions in Australia, Norway, Switzerland, the United Kingdom (not shown), and the United States were more likely to need or see a specialist than those with one chronic condition.
- The impact of having three chronic diseases as compared with one, on seeing or needing to see a specialist, was greatest in Switzerland and least in France.

Figure 56: Percentage of individuals who saw or needed to see a specialist in the past two years by number of chronic conditions: Alberta versus top three and bottom three ranked countries, 2011



	QC	ON	AB	GER	AUS	FR	SWIZ	US	SWE
One	69	68	63	84	77	87	52	65	64
Two	76	78	73	90	81	88	70	70	68
Three +	82	79	74	94	90	90	77	76	71

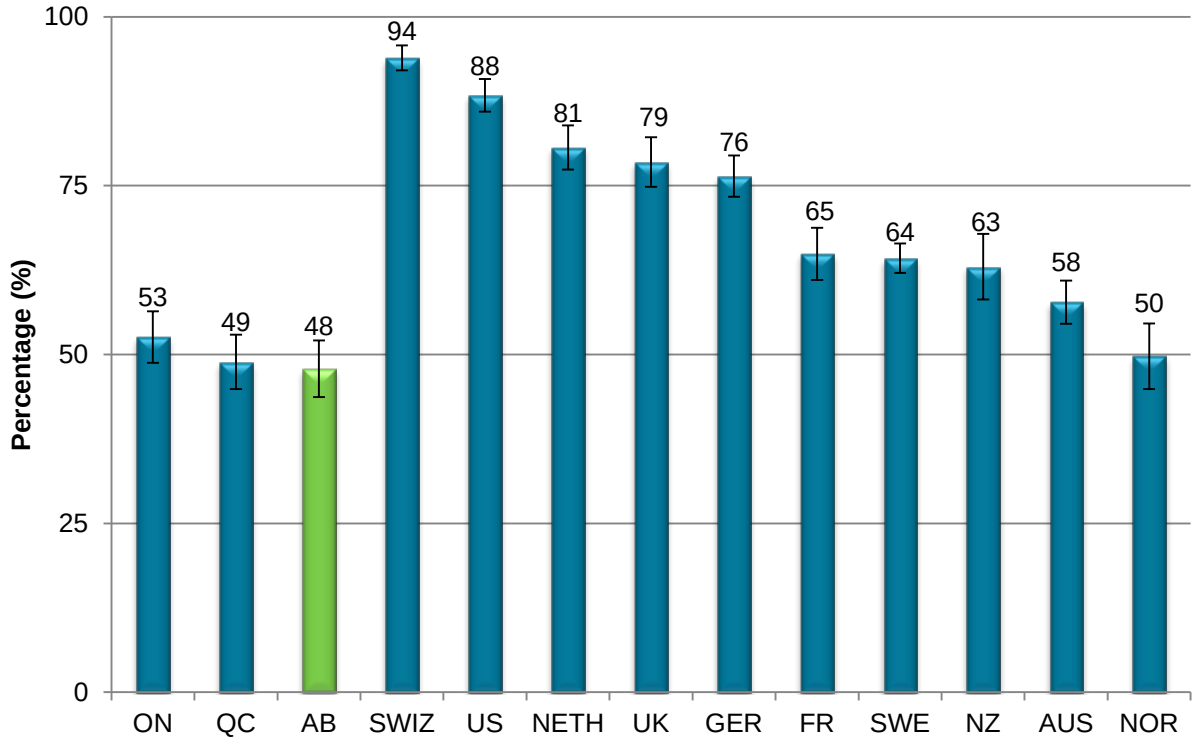
Base: Individuals who saw or needed to see a specialist in past two years.

16.2 Wait times to see specialist

Q1030: *After you were advised to see or decided to see a specialist, how many days, weeks, or months did you have to wait for an appointment?*

- Alberta individuals with one or more chronic conditions waited the longest to see a specialist. Fewer than half (48%) of those who needed to see a specialist reported getting an appointment within four weeks, as compared with individuals in Quebec (49%) and Ontario (53%).
- Across countries, the highest percentage of individuals waiting less than four weeks was reported in Switzerland (94%) and the United States (88%).
- There was no difference by number of chronic conditions.

Figure 57: Percentage of individuals with at least one chronic condition who waited less than four weeks to see a specialist, by province/country, 2011



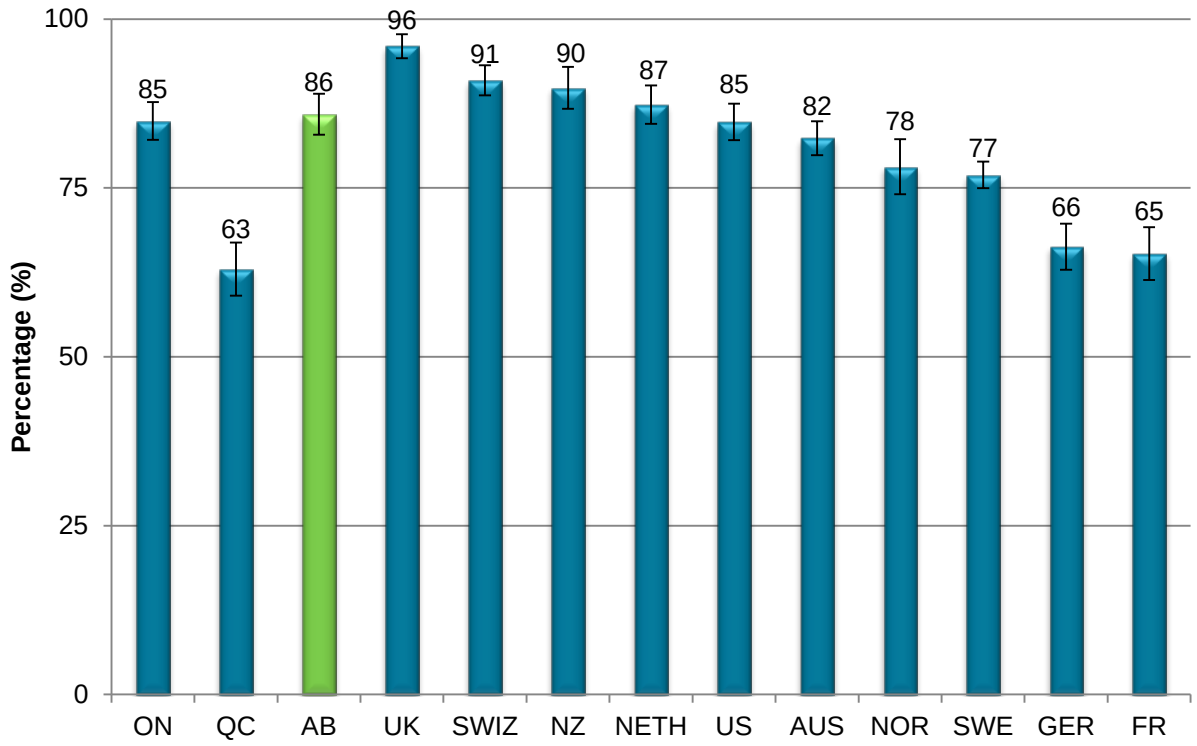
Base: Individuals who saw or needed to see a specialist in past two years.

16.3 Availability of medical information to specialist

Q1050: *When you saw the specialist did he or she have information about your medical history?*

- 86% of Alberta individuals with one or more chronic conditions reported their specialist had information about their medical history when they visited. This percentage was significantly lower for Quebec (63%).
- Across countries, the highest percentage was observed for the United Kingdom (96%) and the lowest for France (63%).

Figure 58: Percentage of individuals with at least one chronic condition who reported their specialist had information about their medical history at the time of appointment, by province/country, 2011



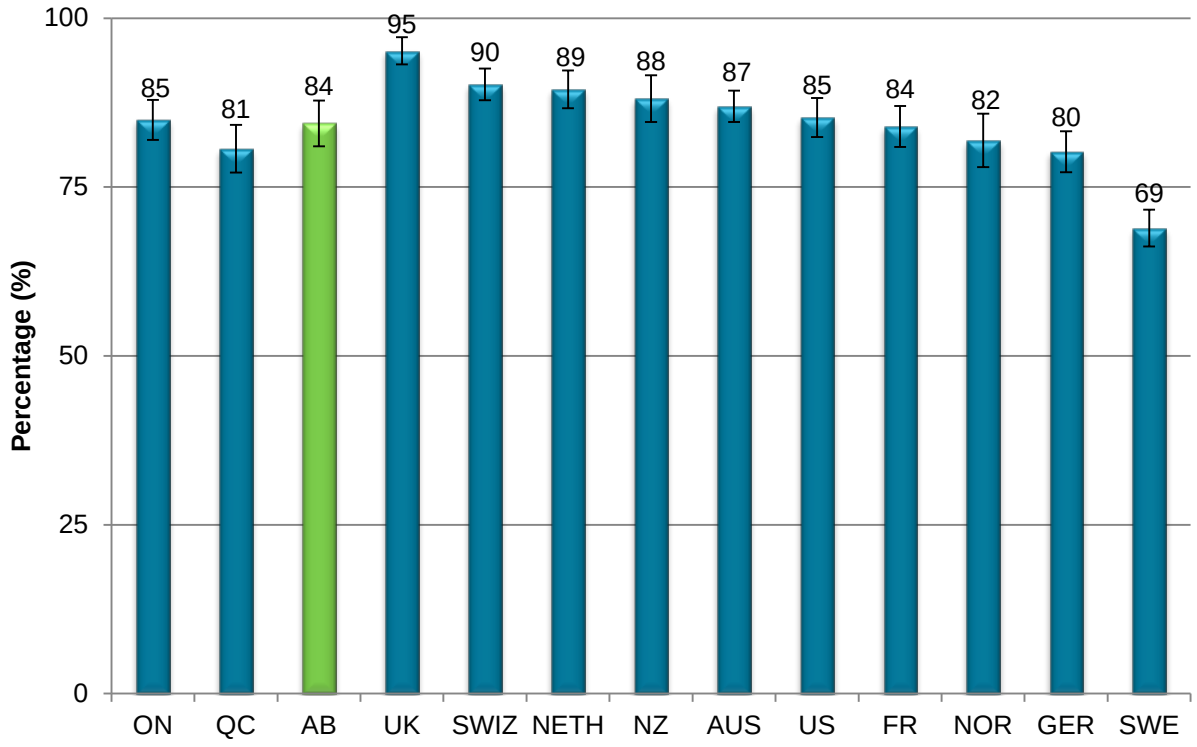
Base: Individuals who saw or needed to see a specialist in past two years.

16.4 GP knowledge about visit to specialist

Q1055: *After you saw the specialist, did your regular doctor seem informed about the care you got from the specialist?*

- Over 80% of Alberta individuals with one or more chronic conditions felt that their regular doctor was informed about their visit to a specialist.
- In the United Kingdom, almost all (95%) individuals with one or more chronic conditions reported their regular doctor was informed about their specialist care. This contrasts with Sweden where only 69% reported their regular doctor seemed informed.

Figure 59: Percentage of individuals with at least one chronic condition who reported their regular doctor was informed about the care received from a specialist, by province/country, 2011



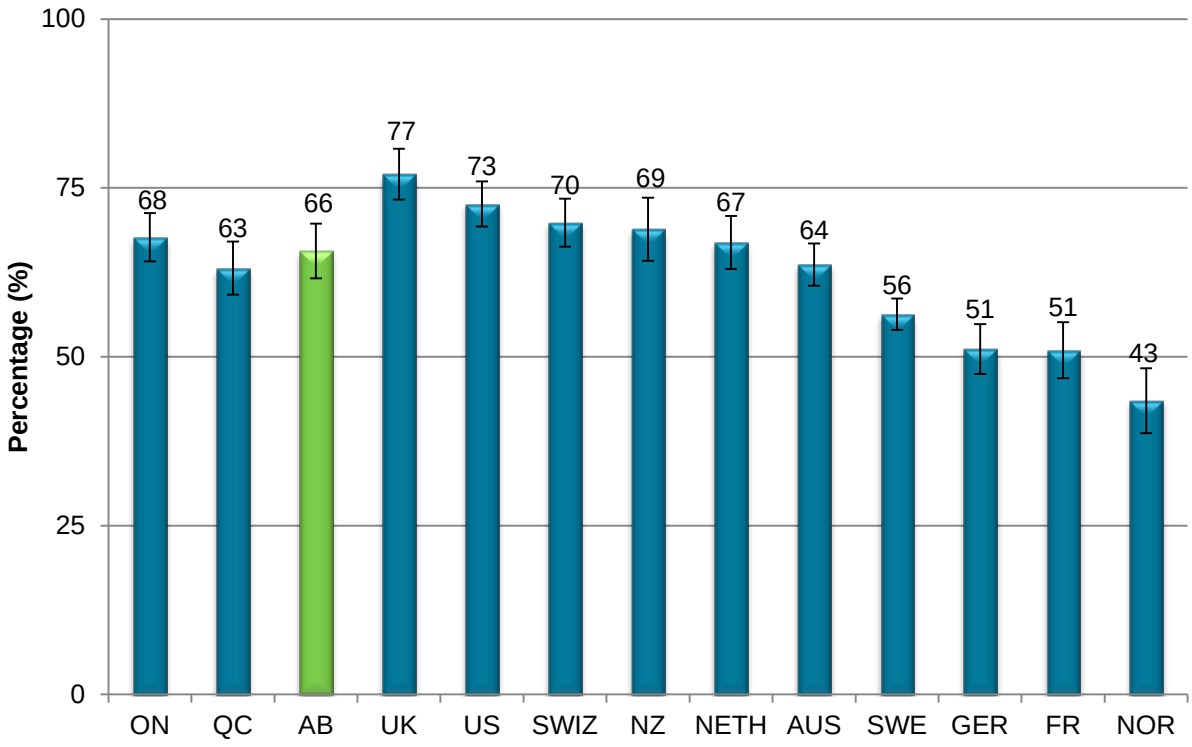
Base: Individuals who saw or needed to see a specialist in past two years.

16.5 Given opportunity by specialist to ask questions

Q1065_1: *When you have received care or treatment from specialists, how often did they give you an opportunity to ask questions about recommended treatment?*

- 66% of Alberta individuals with one or more chronic conditions reported they 'always' had opportunities to ask questions about treatment recommended by the specialist .
- Across countries, in Norway, fewer than half (43%) of individuals with one or more chronic condition reported that they always had opportunities to ask questions about recommended treatment. This contrasts with 77% in the United Kingdom.

Figure 60: Percentage of individuals with at least one chronic condition who reported they were 'always' given opportunities by the specialist to ask questions about recommended treatment, by province/country, 2011



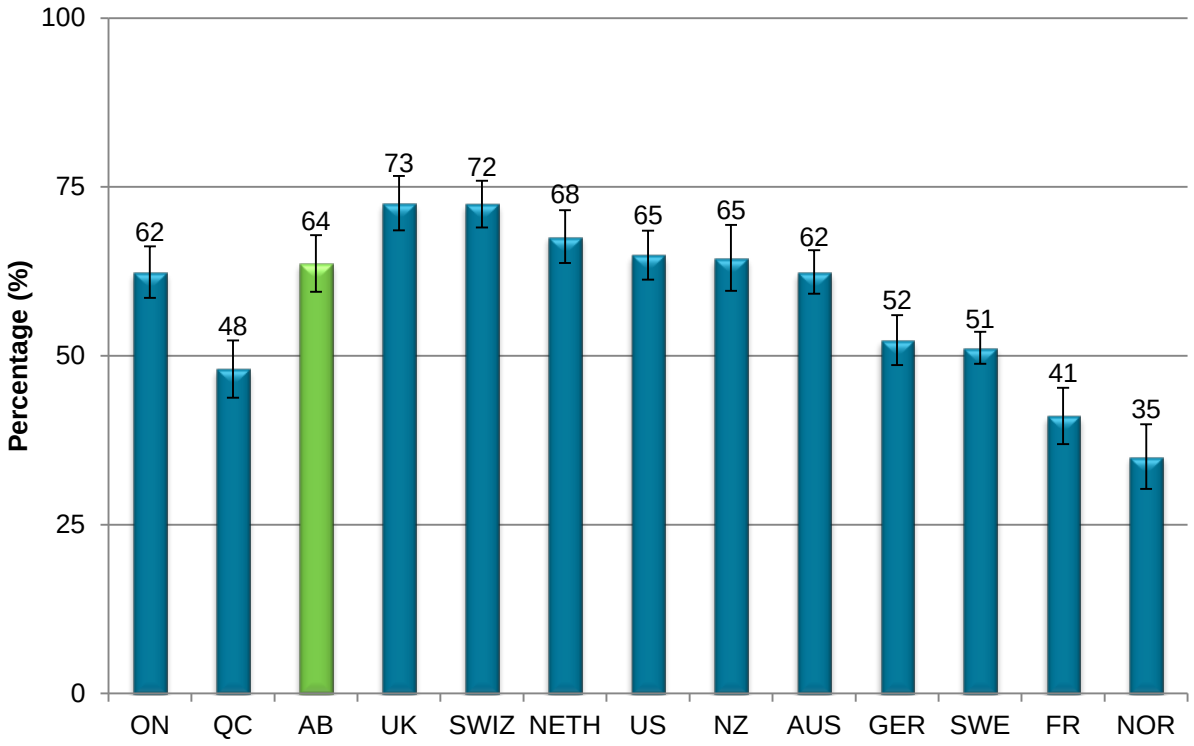
Base: Individuals who saw or needed to see a specialist in the past two years.

16.6 Informed about treatment choices

Q1065_2: *When you have received care or treatment from specialists, how often did they tell you about treatment choices?*

- 64% of Alberta individuals with one or more chronic condition reported 'always' being told about treatment choices when they received care from specialists. This was similar for Ontario and Quebec, though fewer than half (48%) reported always being told about treatment choice in Quebec.

Figure 61: Percentage of individuals with at least one chronic condition who reported specialist 'always' told them about treatment choices, by province/country, 2011



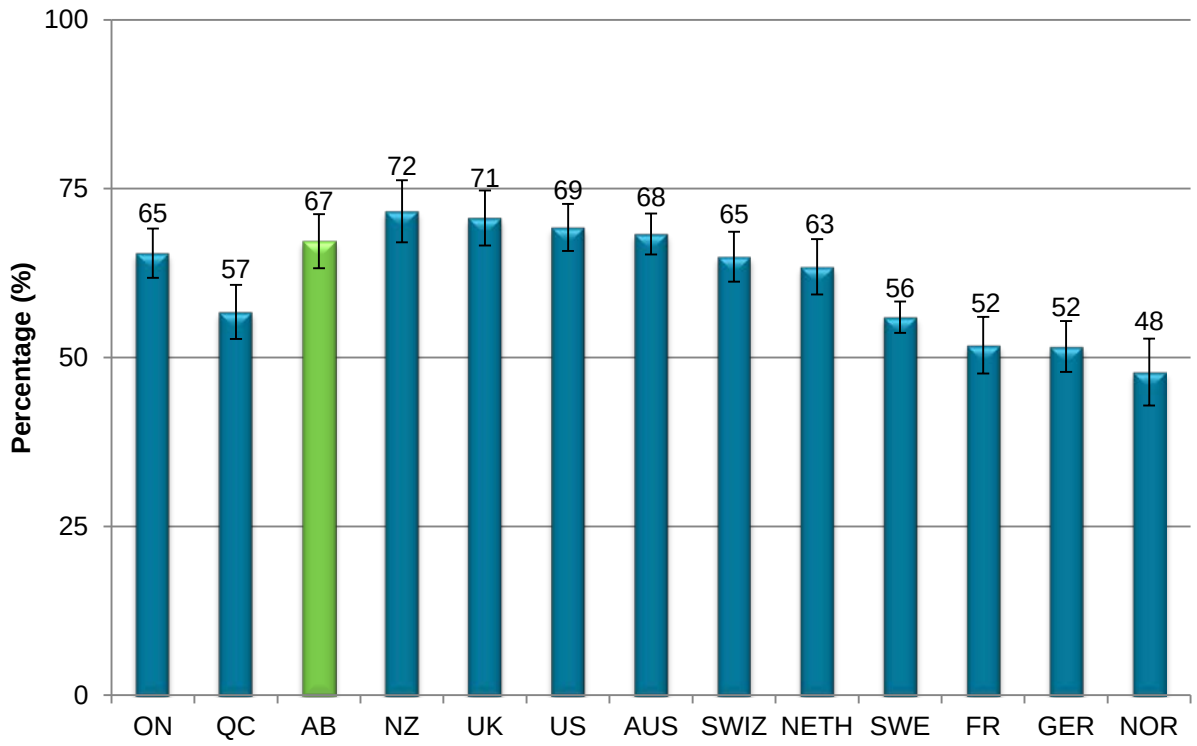
Base: Individuals who saw or needed to see a specialist in the past two years.

16.7 Involvement in decisions about care

Q1065_3: *When you have received care or treatment from specialists, how often did they involve you as much as you want to be in decisions about your treatment or care?*

- 67% of individuals in Alberta with one or more chronic conditions reported they were 'always' involved as much as they wanted in decisions about treatment. This is slightly higher than in Quebec, where 57% reported they were always involved.
- Across countries, in New Zealand, 72% of individuals with one or more chronic conditions reported they were always involved as much as they wanted. This contrasts with a low of 43% in Norway.

Figure 62: Percentage of individuals with one or more chronic condition who reported the specialist 'always' involved them as much as they wanted in decisions about care, by province/country, 2011



Base: Individuals who saw or needed to see a specialist in the past two years.

APPROPRIATENESS

Health services are relevant to user needs and are based on accepted or evidence-based practice.

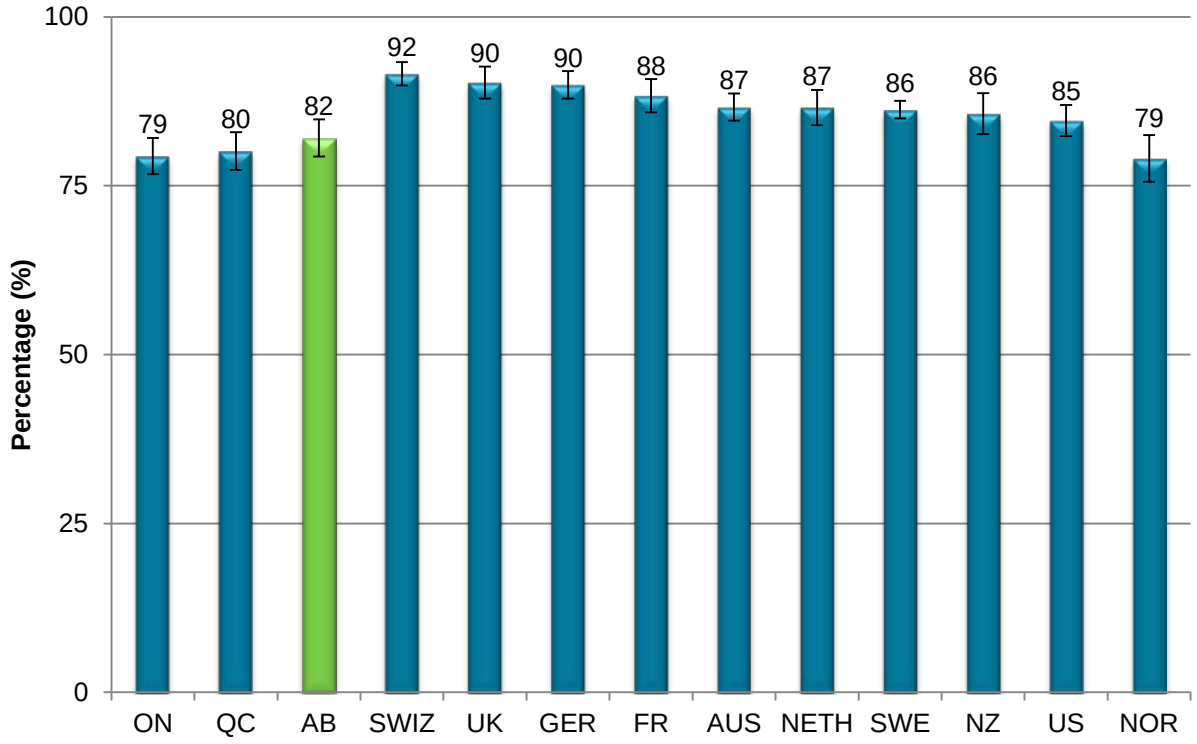
17.0 Coordination of care

17.1 Availability of test results and medical records

Q1005_1: *In the past two years, when getting care for a medical problem, was there ever a time when test results, medical records, or reasons for referrals were not available at the time of your scheduled doctor's appointment?*

- In Alberta, 82% of individuals with one or more chronic conditions reported that test results, medical records, and reasons for referrals were available during scheduled appointments.
- A similar finding was observed in Ontario (79%) and Quebec (80%).
- Across countries, the highest percentage was observed for Switzerland (92%) and the lowest for Norway (79%).
- An examination of individuals reporting 'rarely' revealed no significant difference by level of morbidity.

Figure 63: Percentage of individuals with at least one chronic condition who reported that test results, medical records, or reasons for referral were available at time of scheduled doctor's appointment, by province/country, 2011



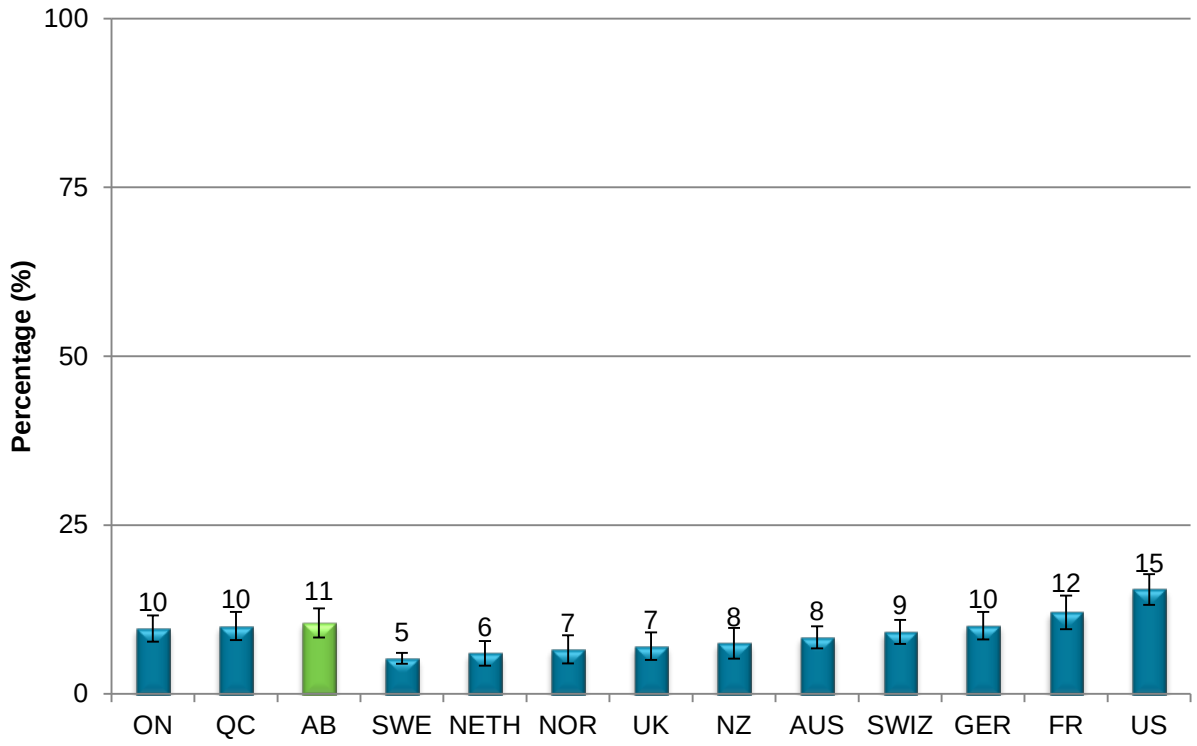
Base: All qualified individuals.

17.2 Unnecessary medical tests

Q1005_2: *In the past two years, when getting care for a medical problem, was there ever a time when doctors ordered a medical test that you felt was unnecessary because the test had already been done?*

- 11% of Alberta individuals with one or more chronic conditions felt that their doctor ordered tests that were unnecessary because the test had already been done. This compares with 10% in both Ontario and Quebec.
- Across countries, 15% of individuals in the United States with one or more chronic conditions felt that their doctor ordered unnecessary tests. This contrasts with 5% in Sweden.
- There were no observed differences by level of morbidity.

Figure 64: Percentage of individuals with at least one chronic condition who felt that their regular doctor ordered tests that were unnecessary because they had already been done, by province/country, 2011



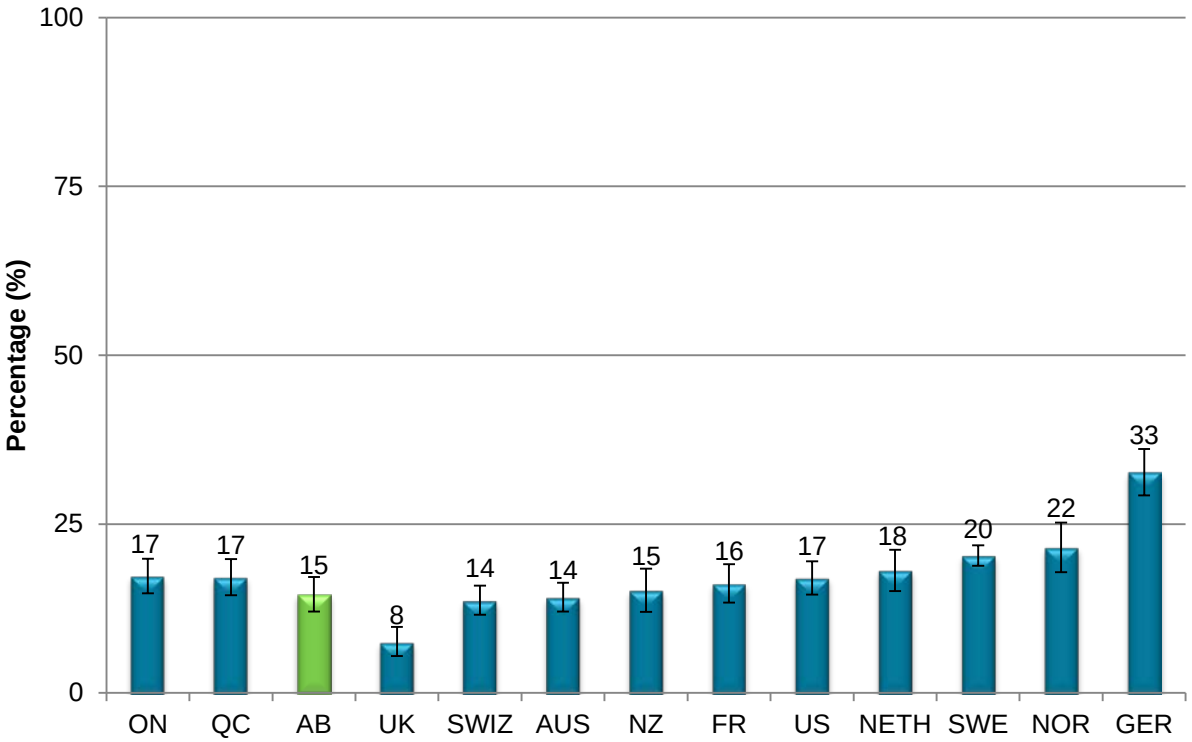
Base: All qualified individuals.

17.3 Sharing of medical record information

Q1010: *In the past two years, was there ever a time when doctors or other healthcare professionals failed to share important information about your medical history or treatment with each other?*

- In Alberta, 15% of individuals with one or more chronic conditions reported that doctors or healthcare professionals failed to share important health information with each other. This compares with 17% in both Ontario and Quebec.
- Across countries, the highest percentage was observed in Germany (33%) and the lowest in the United Kingdom (8%).
- There were no observed differences by level of morbidity.

Figure 65: Percentage of individuals with at least one chronic condition who reported that doctors or healthcare professionals failed to share important information about the individuals' medical history with each other, by province/country, 2011



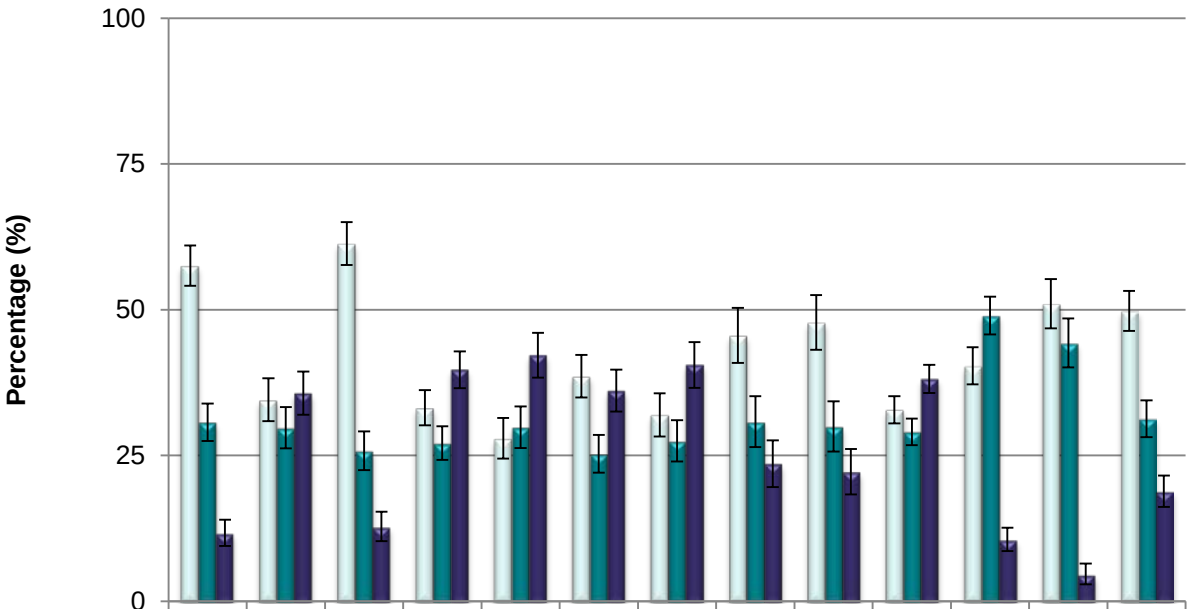
Base: All qualified individuals.

17.4 Planning care from other doctors

Q1060: *How often does your regular doctor/GP or someone in your doctor's/GP's practice help coordinate or arrange the care you receive from other doctors and places, such as make appointments?*

- Sicker adults in Alberta (61%)were most likely to report that care received from other doctors and places was "always" coordinated from their regular doctor's office.
- In contrast, 35% of individuals in Quebec reported that care was "always" coordinated compared with 58% in Ontario.
- Across countries, individuals reported that care was not often coordinated from a regular doctor's office. Sicker adults in Switzerland and the United Kingdom reported the lowest rates of coordination of care from a regular doctor's office.

Figure 66: For individuals with one or more chronic conditions, percentage who reported regular doctor (always, often/sometimes, or never) coordinated healthcare from other providers, 2011



	ON	QC	AB	AUS	FR	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
Always	58	35	61	33	28	39	32	46	48	33	40	51	50
Often/some	31	30	26	27	30	25	28	31	30	29	49	44	31
Rarely	12	36	13	40	42	36	41	24	22	38	11	5	19

Base: Individuals with a regular doctor.

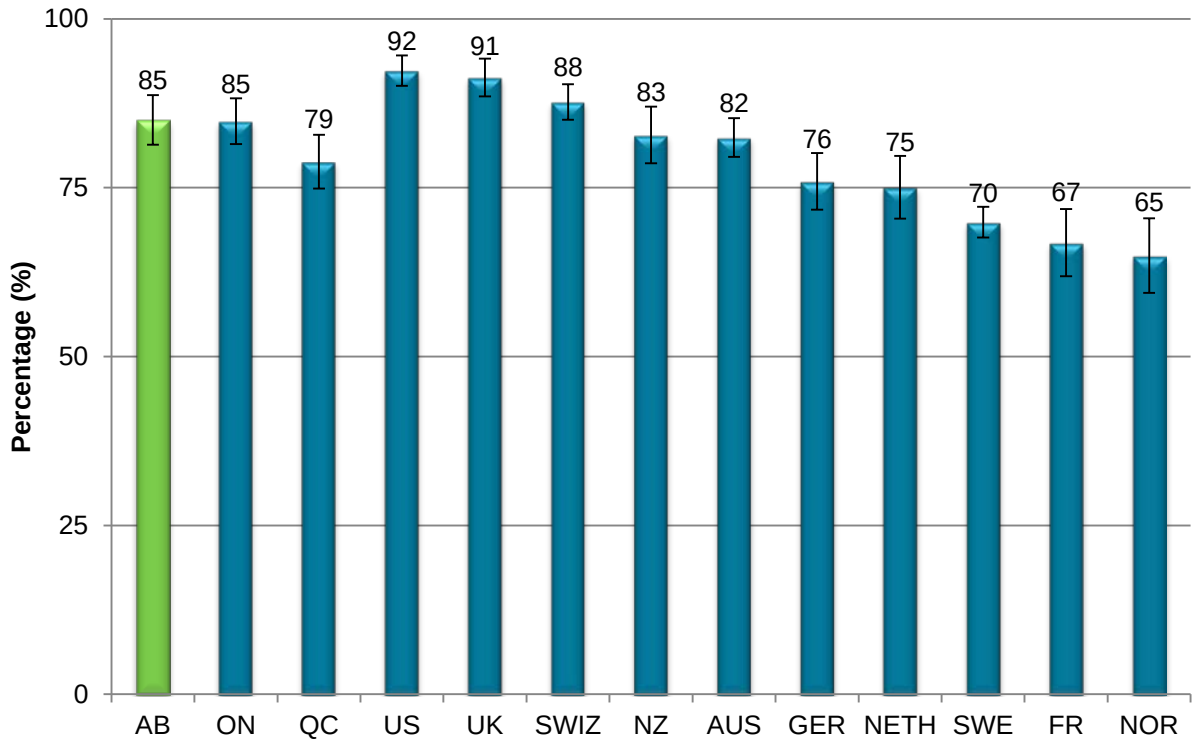
18.0 Hospitalization and surgery

18.1 Informed about symptoms to watch for

Q1311_1: *Did you receive clear instructions about symptoms to watch for, and/or when to seek further care?*

- For those with one or more chronic conditions who were hospitalized, 85% of Alberta individuals received clear instructions (before discharge) about symptoms to watch for and when to seek further care.
- This compares with 85% in Ontario and 79% in Quebec.
- Norway had the smallest percentage (65%), compared with 92% in the United States (largest).

Figure 67: Percentage of individuals with at least one chronic condition who reported they received clear instructions about symptoms to watch for and when to seek further care, by province/country, 2011



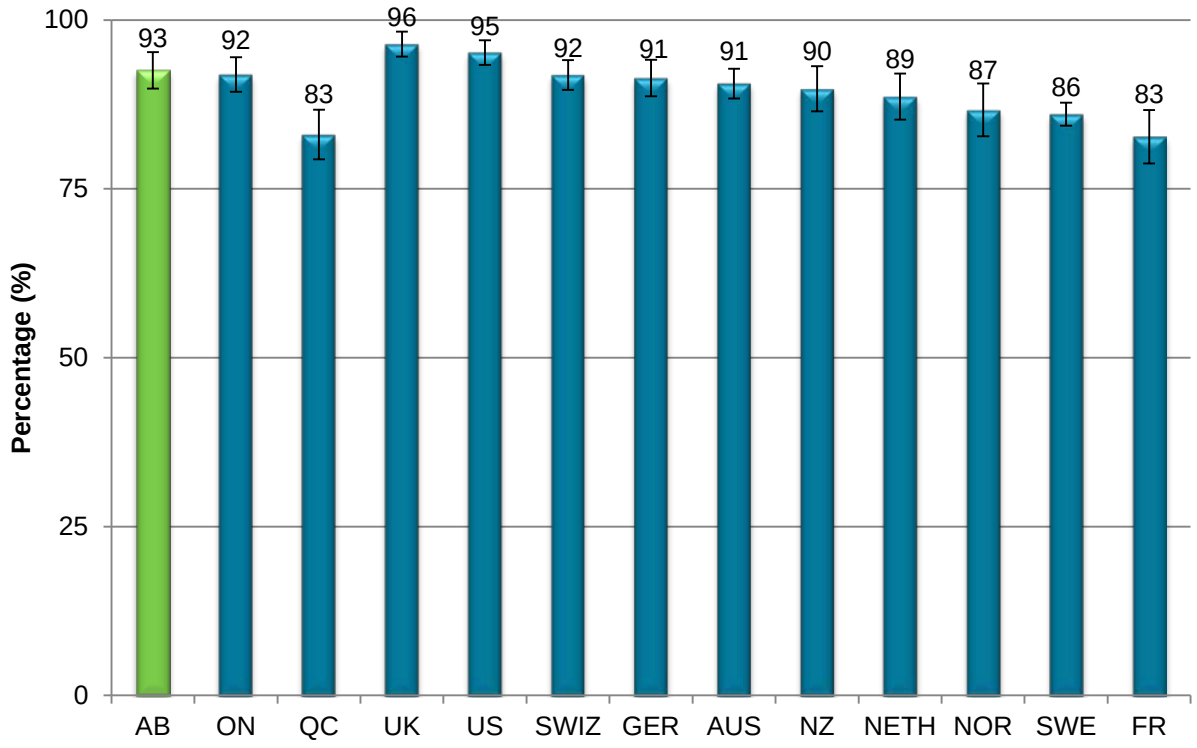
Base: Individuals who had been hospitalized or had surgery in the past two years.

18.2 Knew who to contact in case of questions about health

Q1311_2: *Did you know who to contact if you had a question about your condition or treatment?*

- Individuals who were hospitalized were well informed about whom to contact when they had questions about their health.

Figure 68: Percentage of hospitalized individuals with at least one chronic condition who, upon discharge, knew whom to contact with questions about their health, by province/country, 2011



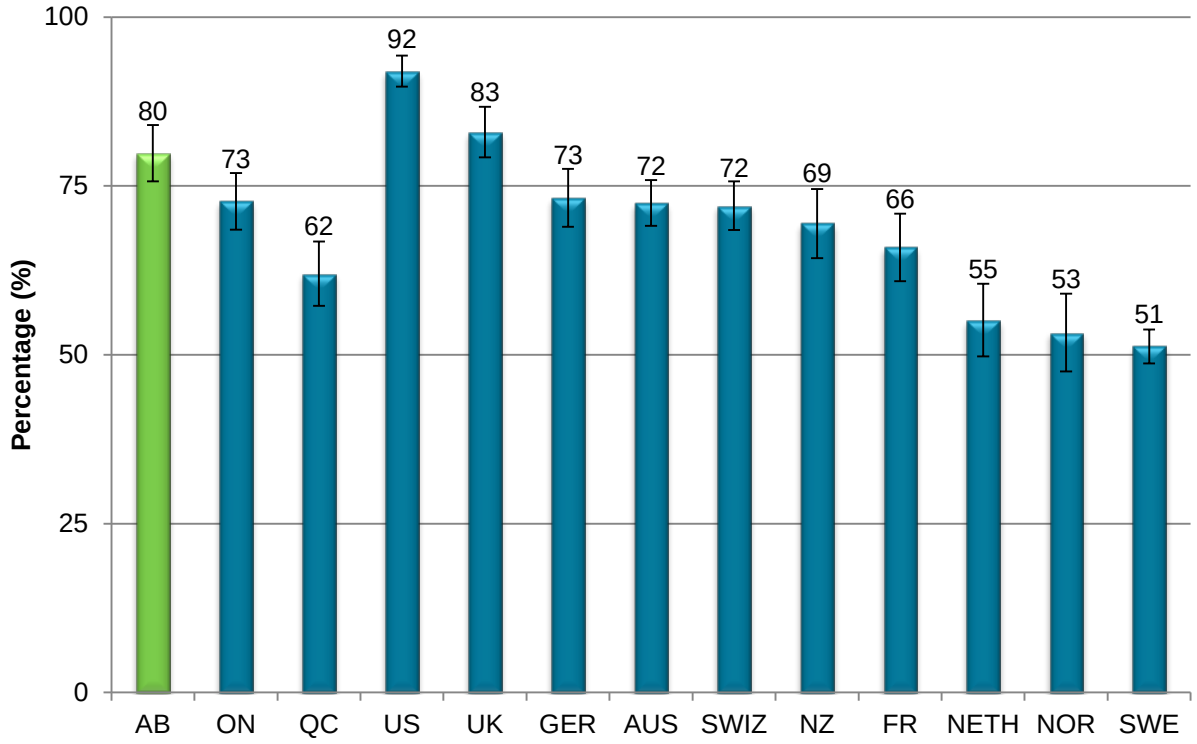
Base: Individuals who had been hospitalized or had surgery in the past two years.

18.3 Provided with written plan for care

Q1311_3: *Did the (hospital) staff provide you with a written plan for your care after discharge?*

- For Alberta, 80% of individuals with one or more chronic conditions who were hospitalized reported being provided with a written plan for care after discharge, compared with Ontario (73%) and Quebec (62%).
- Across countries, 92% of those hospitalized in the United States reported they received a written plan for care (highest percentage), in contrast with 51% in Sweden (lowest percentage).

Figure 69: Percentage of hospitalized individuals with at least one chronic condition, who were provided with a written plan for care after discharge, by province/country, 2011



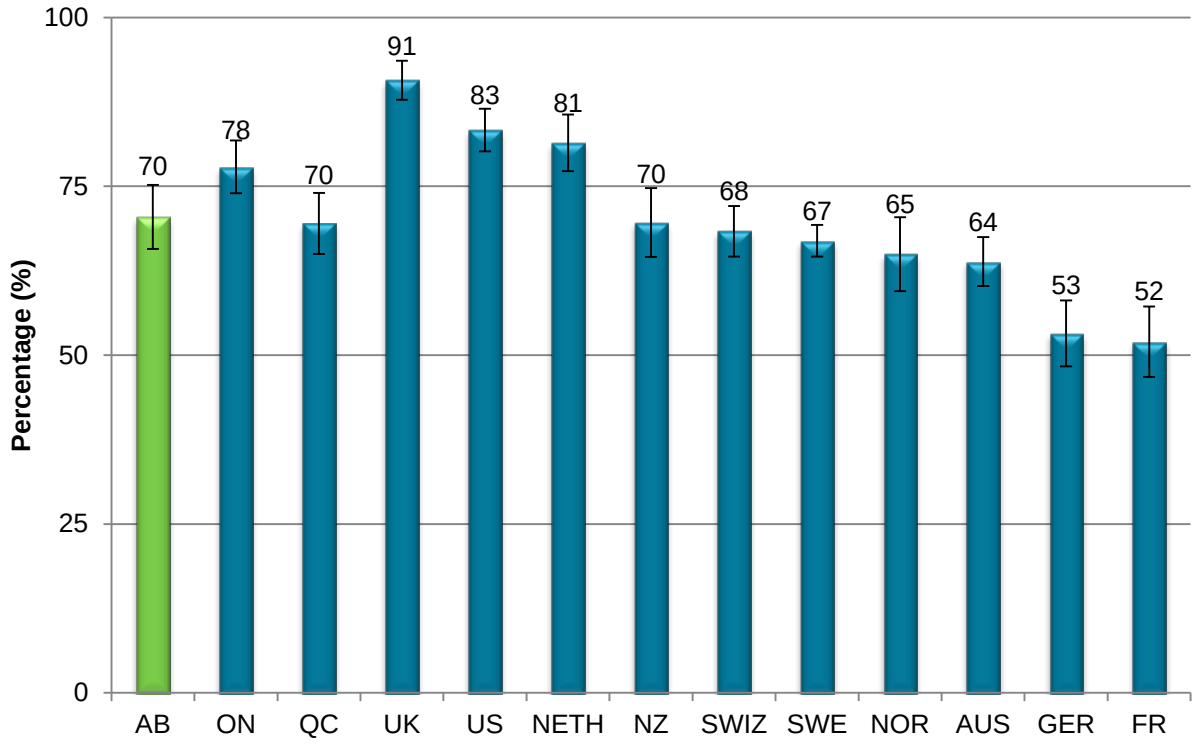
Base: Individuals who had been hospitalized or had surgery in the past two years.

18.4 Arrangements made for follow-up visits

Q1311_4: *Did the staff make arrangements for you to have follow-up visits with a doctor or other healthcare professional?*

- For those with one or more chronic conditions who were hospitalized, 70% of individuals in Alberta and Quebec reported that arrangements were made for follow-up visits with a doctor or other healthcare professional (compared with 78% in Ontario).
- Across countries, the highest percentage was seen in the United Kingdom (91%) as compared with the lowest in France (52%).

Figure 70: Percentage of hospitalized individuals with at least one chronic condition who reported staff made arrangements for follow-up visits with a doctor or other healthcare professional, by province/country, 2011



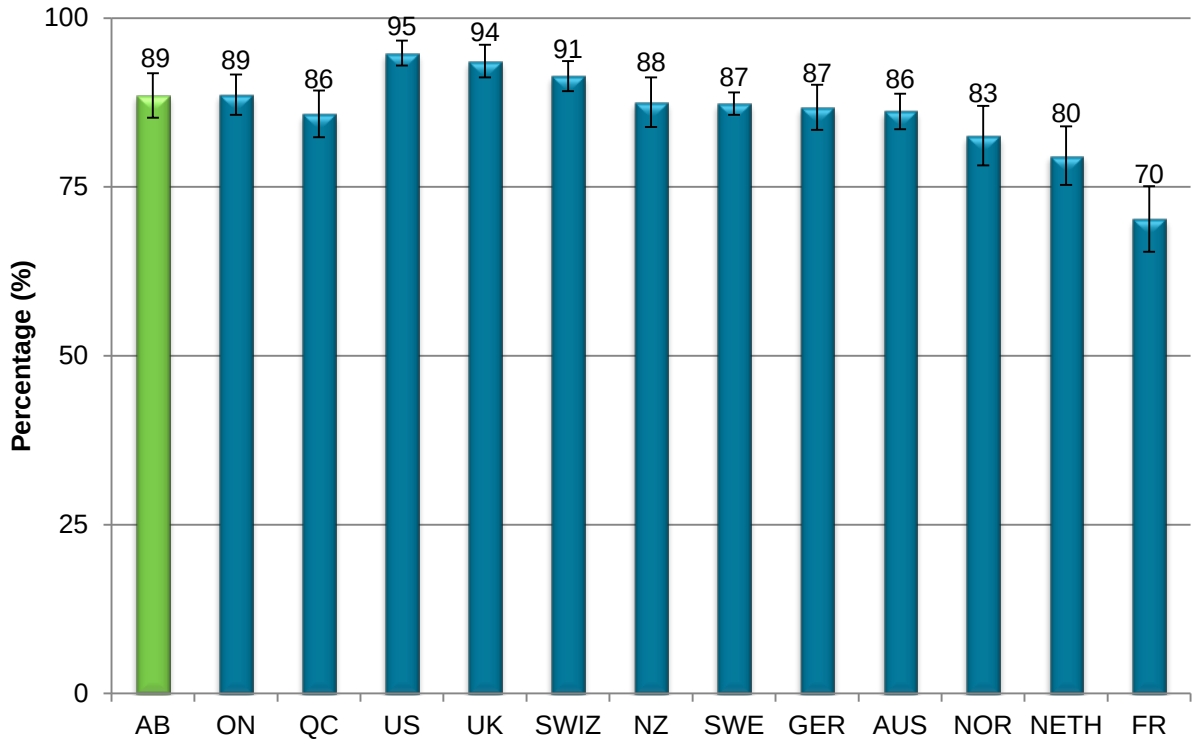
Base: Individuals who had been hospitalized or had surgery in the past two years.

18.5 Received clear instructions about medication

Q1311_5: *Were you given very clear instructions about what medicines you should be taking?*

- For those with one or more chronic conditions who were hospitalized, 89% of Alberta individuals reported they received clear instructions about what medication they should be taking after discharge. This is similar to Ontario (89%) and Quebec (86%).
- Across countries, the highest percentage is seen in the United States (95%) as compared with the lowest in France (70%).

Figure 71: Percentage of hospitalized individuals with at least one chronic condition who received clear instructions about what medication they should be taking after discharge, by province/country, 2011



Base: Individuals who had been hospitalized or had surgery in the past two years.

EFFECTIVENESS

Health services are provided based on scientific knowledge to achieve desired outcomes.

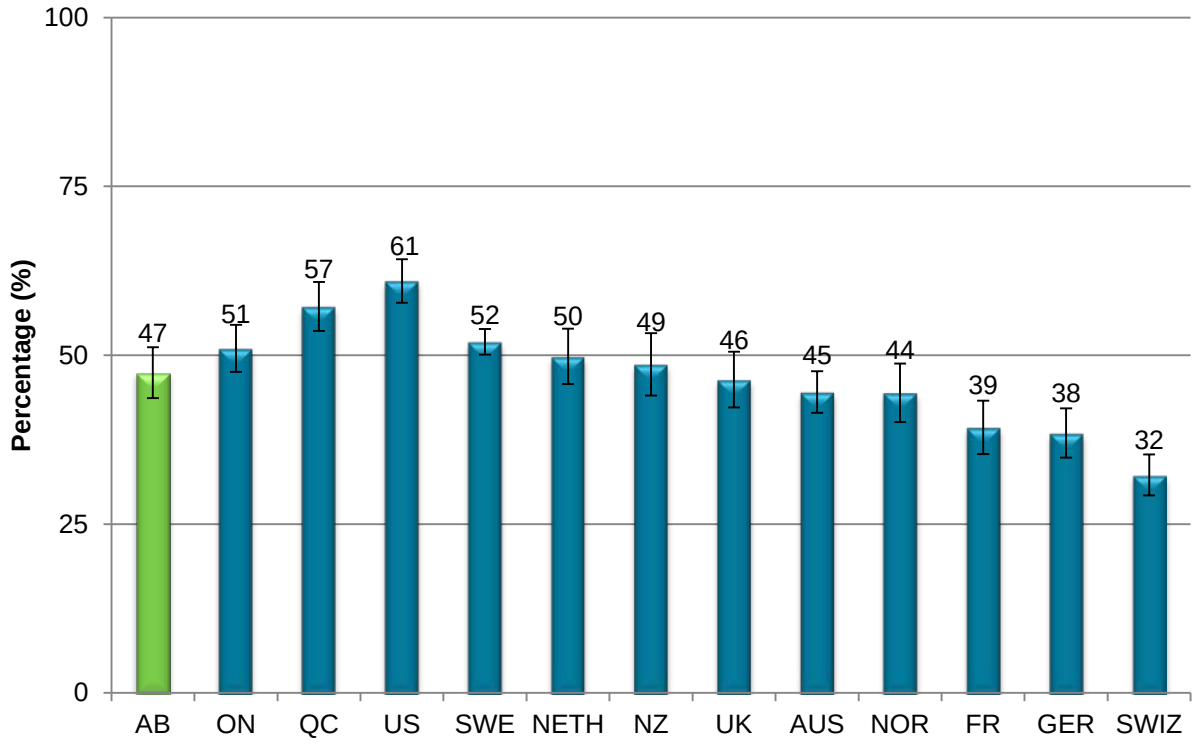
19.0 Medication management

19.1 Prescription medication currently taking

Q1105: *How many <u>different</u> prescription medicines are you taking on a regular or ongoing basis?*

- More than half (53%) of all Alberta individuals were taking one to three prescription medications (not shown); and 47% of Alberta individuals with at least one chronic condition were taking four or more prescription medications.
- In contrast, 57% of individuals in Quebec and 51% of those in Ontario were taking four or more prescription medications.
- Across countries, 68% of all individuals in Switzerland were taking one to three prescription medications (not shown), whereas 32% of those with at least one chronic condition were taking four or more prescription medications.
- This contrasts with the 61% of individuals in the United States with one or more chronic conditions who were taking four or more prescription medications on a regular basis.

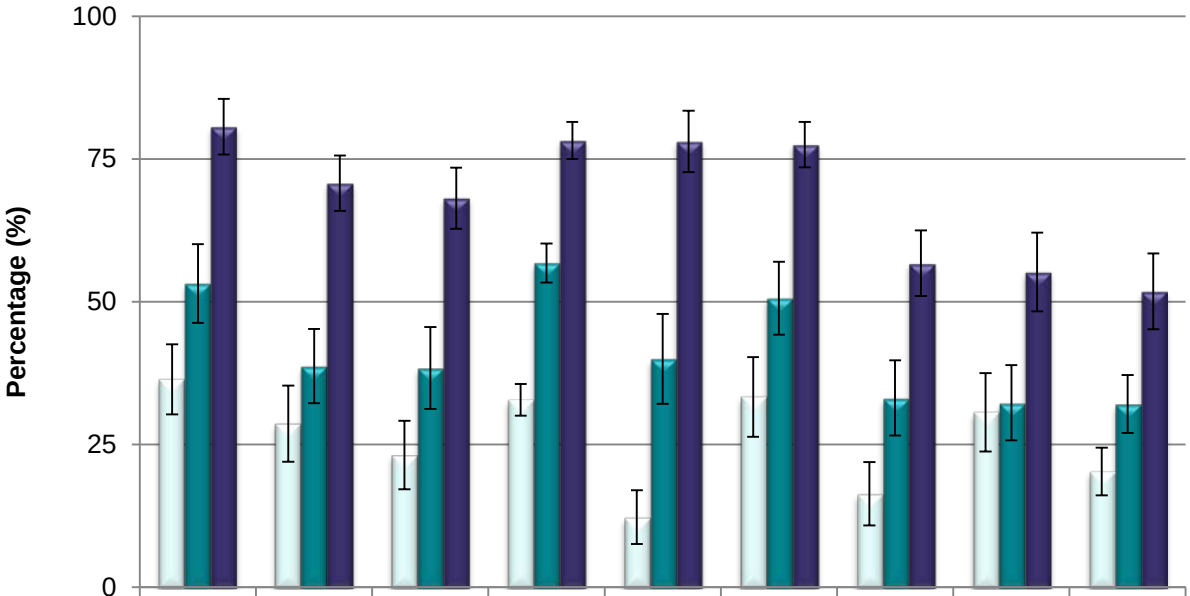
Figure 72: Percentage of individuals with at least one chronic condition who reported taking four or more prescription medications on a regular basis, by province/country, 2011



Base: All qualified individuals.

An examination of a subsample of those taking four or more prescription medications revealed significant differences across province or country. Overall, individuals with three or more chronic conditions were significantly more likely to be taking four or more prescription medications compared with individuals with one or two chronic conditions.

Figure 73: For individuals taking four or more prescriptions on a regular basis, percentage with one, two, or three or more chronic conditions, by province and top/bottom three countries, 2011



	ON	QC	AB	SWE	UK	US	GER	FR	SWIZ
One	36	29	23	33	12	33	16	31	20
Two	53	39	38	57	40	51	33	32	32
Three +	81	71	68	78	78	78	57	55	52

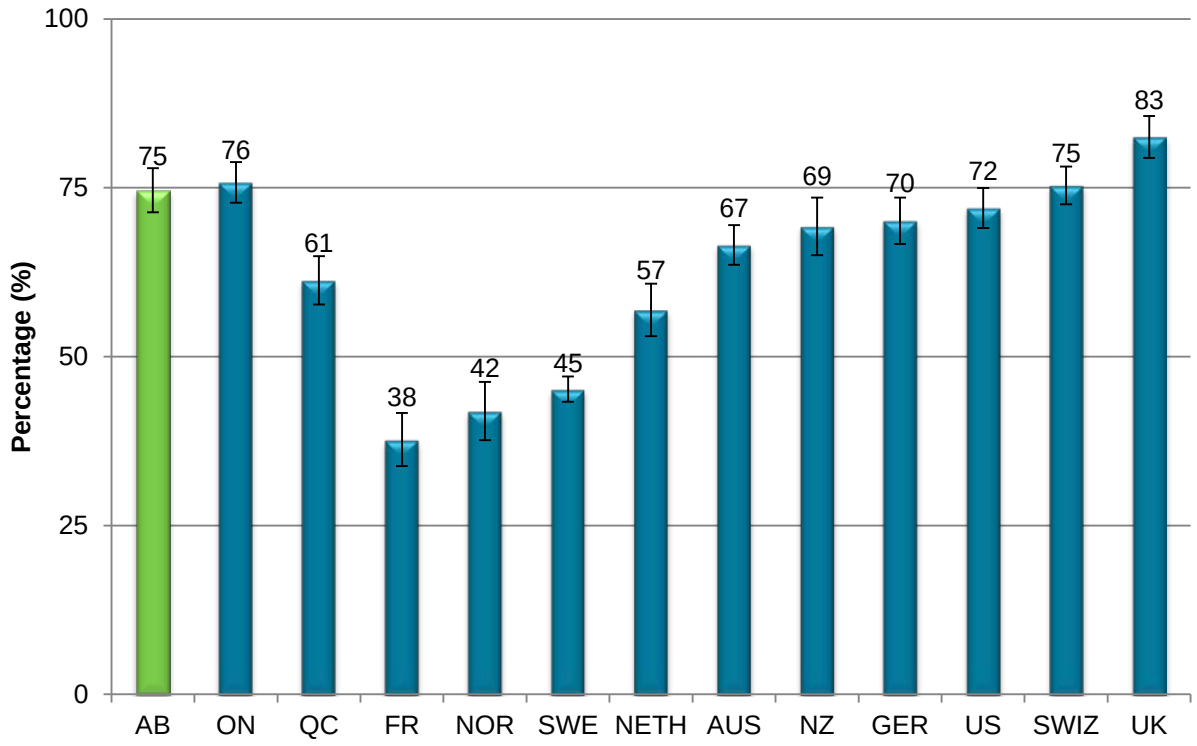
Base: All qualified individuals.

19.2 Medication review

Q1110: *In the past year, has a pharmacist or any doctor reviewed and discussed all the different medicines you are using?*

- 74% of Alberta individuals with one or more chronic conditions reported that a pharmacist or doctor reviewed and discussed all of their different medications. This compares with Ontario (76%) and Quebec (61%).
- Across countries, the highest percentage was reported in the United Kingdom (83%) and the lowest in France (38%).
- For Alberta, Ontario, and Quebec, and for most countries, there were no significant differences by level of morbidity in the percentage of individuals who reported their medications were reviewed.
- Across countries, individuals in Switzerland with three or more chronic conditions were less likely to report their medications were reviewed by a pharmacist or doctor than those with one or two chronic conditions.

Figure 74: Percentage of individuals with at least one chronic condition whose medications were reviewed and discussed by a pharmacist or doctor, by province/country, 2011



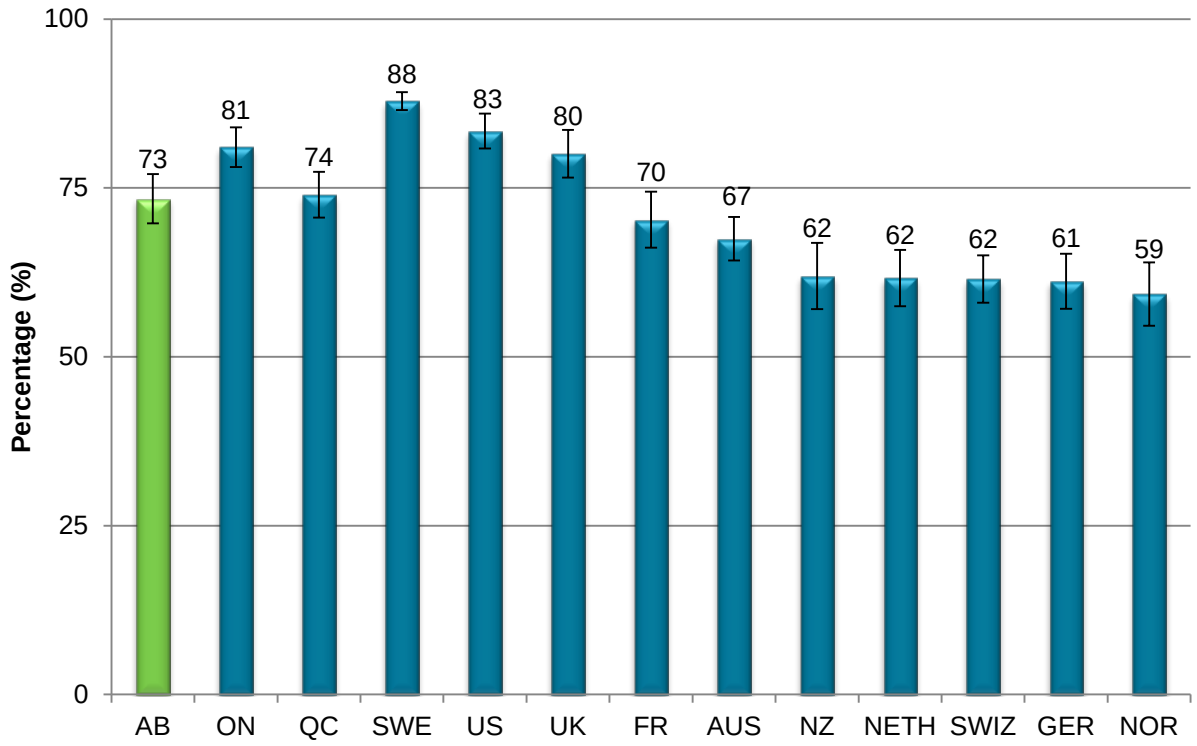
Base: Individuals taking a prescription medication.

19.3 Has written list of medications

Q1115: *Do you have a written list of all the medications that you are currently taking?*

- Of those Alberta individuals with at least one chronic condition, 73% reported having a written list of all the medications they were currently taking. This is similar to Quebec (74%) and significantly less than Ontario (81%).
- Across countries, reports of having a written list of medications by those with at least one chronic condition were highest in Sweden (88%) and lowest in Norway (59%).

Figure 75: Percentage of individuals with at least one chronic condition who reported having a written list of prescription medications they were currently taking, 2011



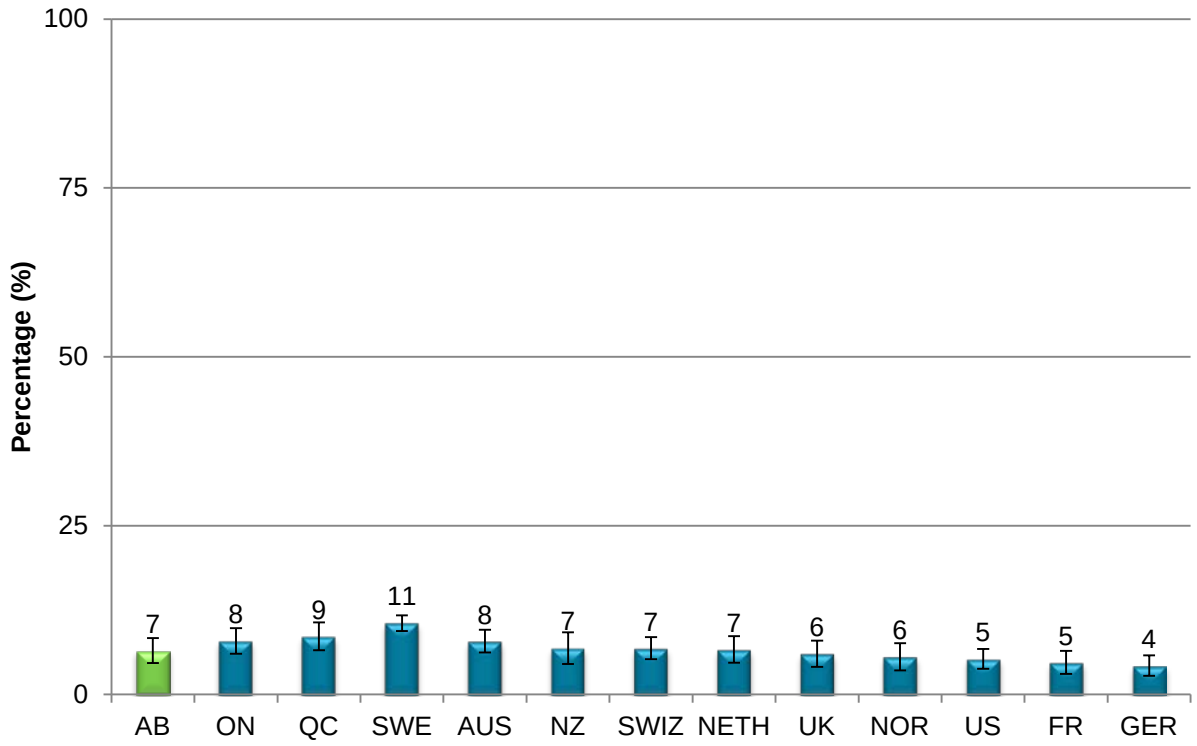
Base: Individuals taking more than one prescription medication.

19.4 Negative reaction to medication

Q1130: *In the past two years, have you had a negative reaction to any medicine that resulted in you going to the hospital?*

- Few individuals in Alberta (7%) with one or more chronic conditions reported having a negative reaction to medication, not significantly different from Ontario (8%) or Quebec (9%).
- There are few significant differences between countries, which range from 11% for Sweden to 4% for Germany.

Figure 76: Percentage of individuals with at least one chronic condition who went to hospital as a result of a negative reaction to medication, by province and country, 2011



Base: Individuals taking at least one prescription medication.

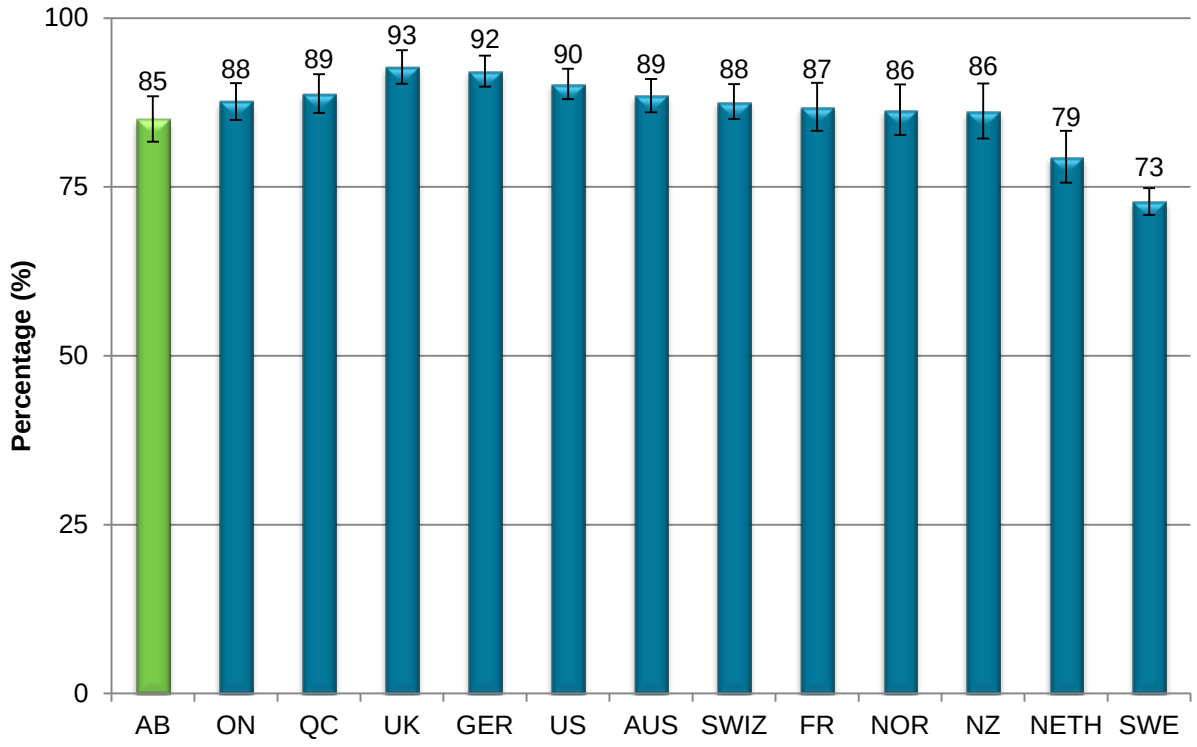
20.0 Preventive care

20.1 Screening for cholesterol

Q1420: *Have you had your cholesterol checked in the past year?*

- Across provinces, the percentage of individuals with at least one chronic condition who reported having their cholesterol checked ranged from 85% in Alberta to 89% in Quebec, but this difference is not statistically significant.
- Across countries the highest percentage was observed for the United Kingdom (93%) and the lowest for Sweden (73%).

Figure 77: Percentage of individuals with at least one chronic condition who reported having their cholesterol checked in past year, by province/country, 2011



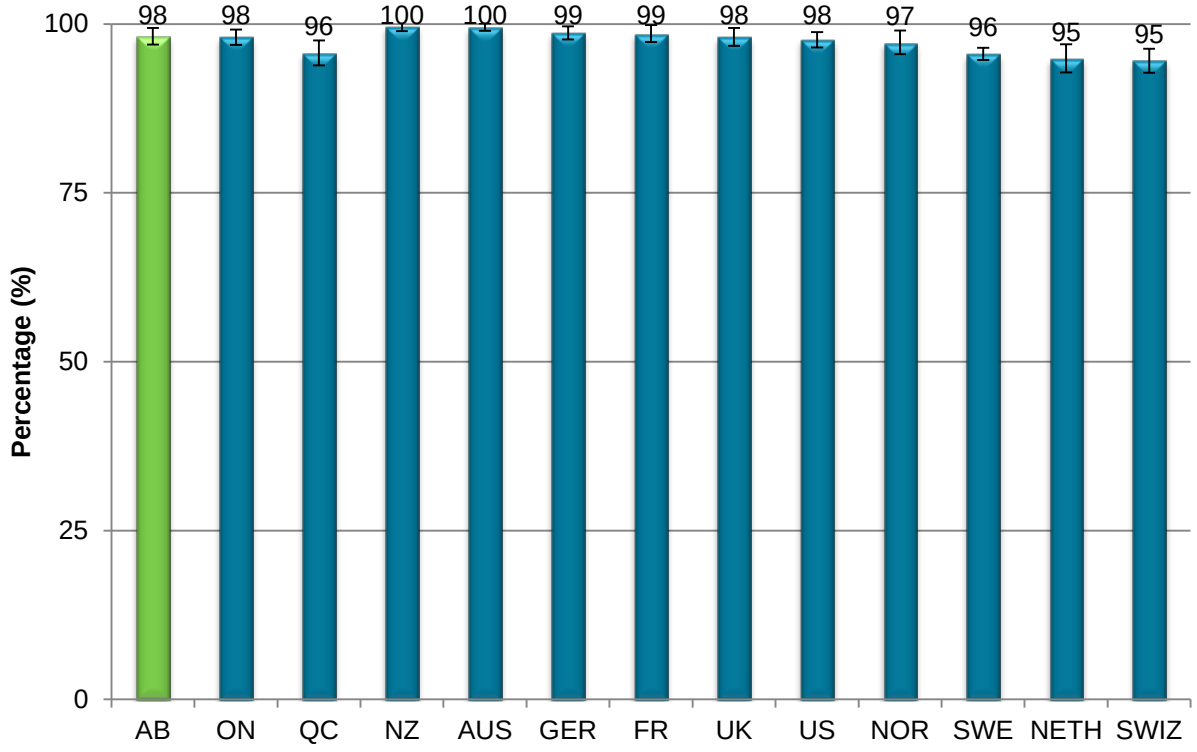
Base: Individuals with hypertension, heart disease, or diabetes.

20.2 Screening for high blood pressure

Q1425: *Have you had your blood pressure checked in the past year?*

- Close to 100% of individuals with at least one chronic condition reported having their blood pressure checked in the past year.

Figure 78: Percentage of individuals with at least one chronic condition who reported having their blood pressure checked in past year, by province/country, 2011



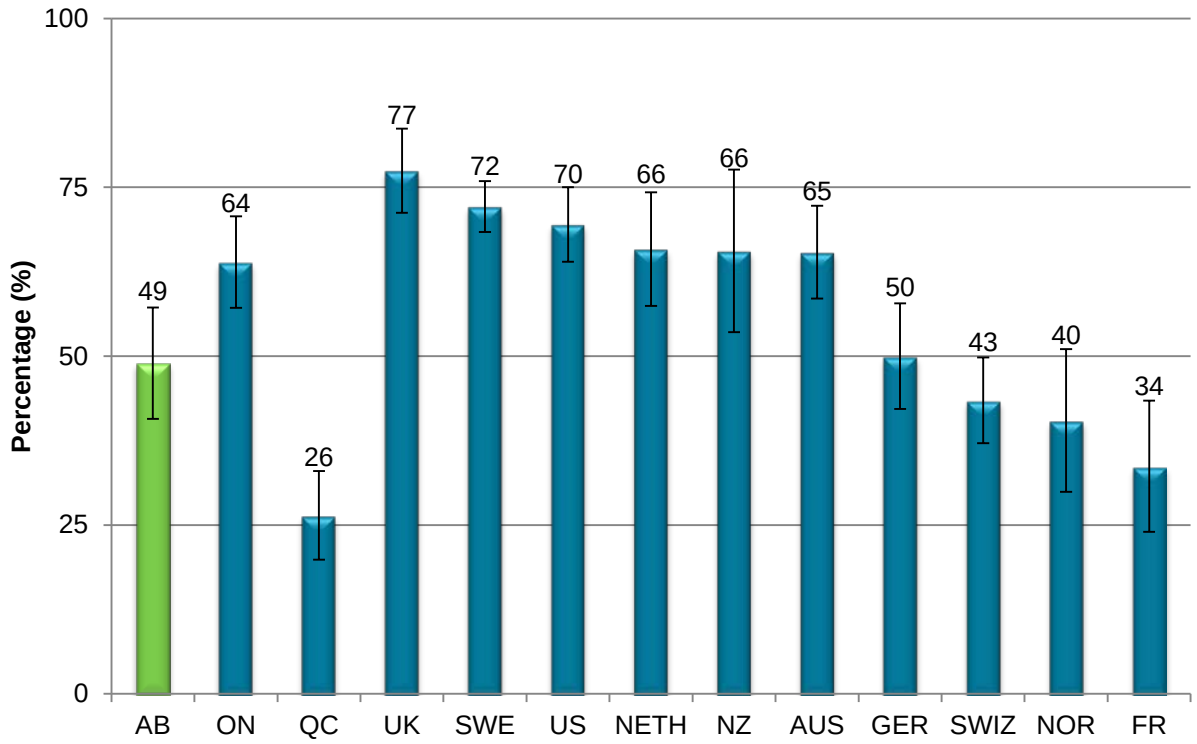
Base: Individuals with hypertension, heart disease, or diabetes.

20.3 Diabetic foot examination

Q1445_1: *Have you had your feet examined by a health professional for sores or irritations in the past year?*

- For Alberta individuals with diabetes, 49% reported having their feet examined by a health professional in the past year. This compares with Ontario (64%) and Quebec (26%).
- Across countries, the highest percentage was observed for the United Kingdom (77%) and the lowest for France (34%), although the margin of error is relatively large due to small sample sizes for diabetics.

Figure 79: Percentage of individuals with diabetes who reported having a foot examination by a health professional in the past year, by province/country, 2011



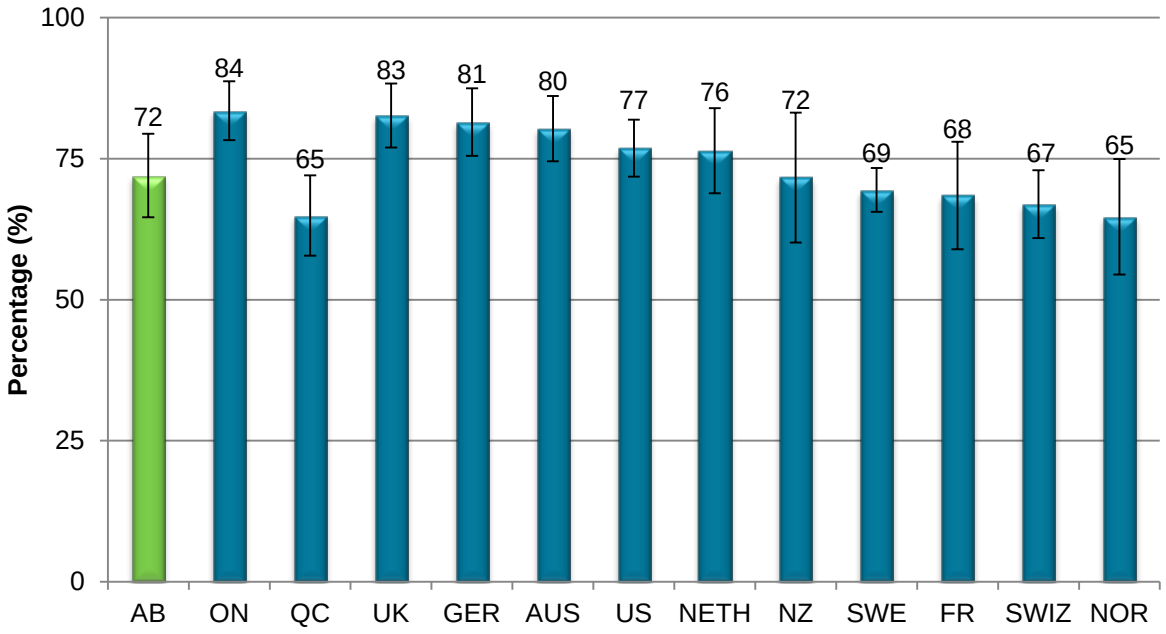
Base: Individuals with diabetes.

20.4 Diabetic eye examination

Q1445_2: *Have you had an eye examination for your diabetes in the past year?*

- 72% of Alberta individuals with diabetes reported having an eye examination in the past year. This compares with Ontario (84%) and Quebec (65%).
- Across countries the highest percentage was observed for the United Kingdom (83%) and the lowest for Norway (65%), although the margin of error is large due to the small sample of diabetics.

Figure 80: Percentage of individuals with diabetes who reported having had an eye examination in past year, by province/country, 2011



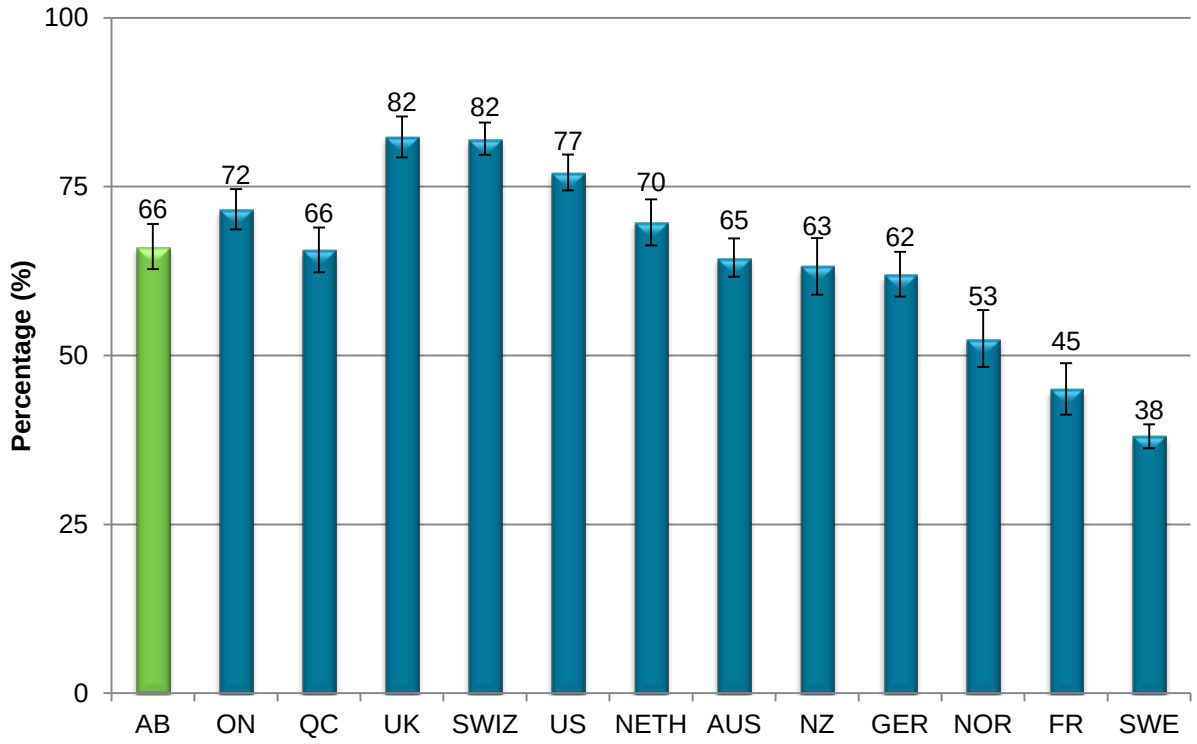
Base: Individuals with diabetes.

20.5 Discussing goals or priorities for care with healthcare professionals

Q1451_1: *During the past year, when you received care, has any healthcare professional you see for your condition(s) discussed with you your main goals or priorities in caring for your condition(s)?*

- 66% of individuals from Alberta and Quebec with at least one chronic condition reported having discussed main goals about care for their chronic conditions with a care professional. This contrasts with 72% in Ontario.
- Across countries, a high of 82% was observed for the United Kingdom and Switzerland, and a low of 38% for Sweden.
- There was no difference by level of morbidity.

Figure 81: Percentage of individuals with at least one chronic condition who reported a healthcare professional discussed main goals or priorities for care, by province/country, 2011



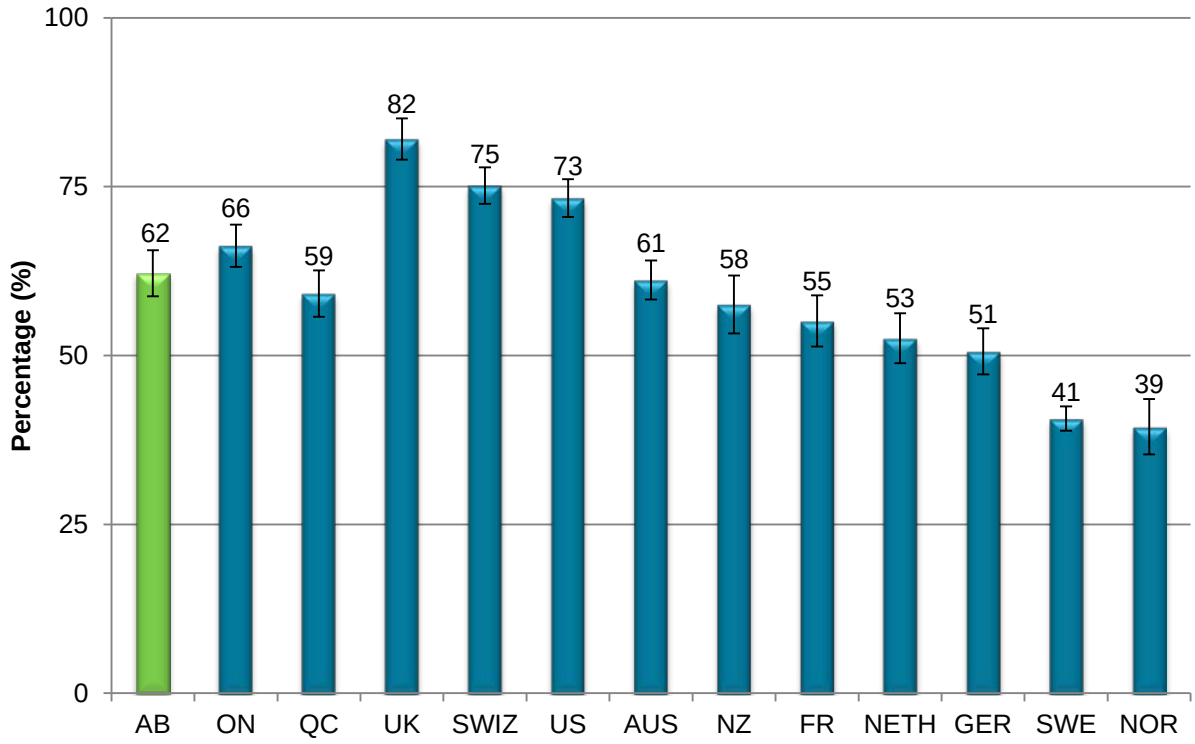
Base: Individuals with at least one condition.

20.6 Healthcare providers helping to make a treatment plan

Q1451_2: *During the past year, when you received care, has any healthcare professional you've seen for your condition(s) helped you make a treatment plan that you could carry out in your daily life?*

- 62% of Alberta individuals with at least one chronic condition reported a healthcare provider helped them to make a treatment plan in the past year. This compares with Quebec (59%) and Ontario (66%).
- Across countries, having a treatment plan was reported the most frequently in the United Kingdom (82%) and the least frequently in Norway (39%).
- There was no difference by level of morbidity.

Figure 82: Percentage of individuals with at least one chronic condition who reported a healthcare professional helped them make a treatment plan in the past year, by province/country, 2011



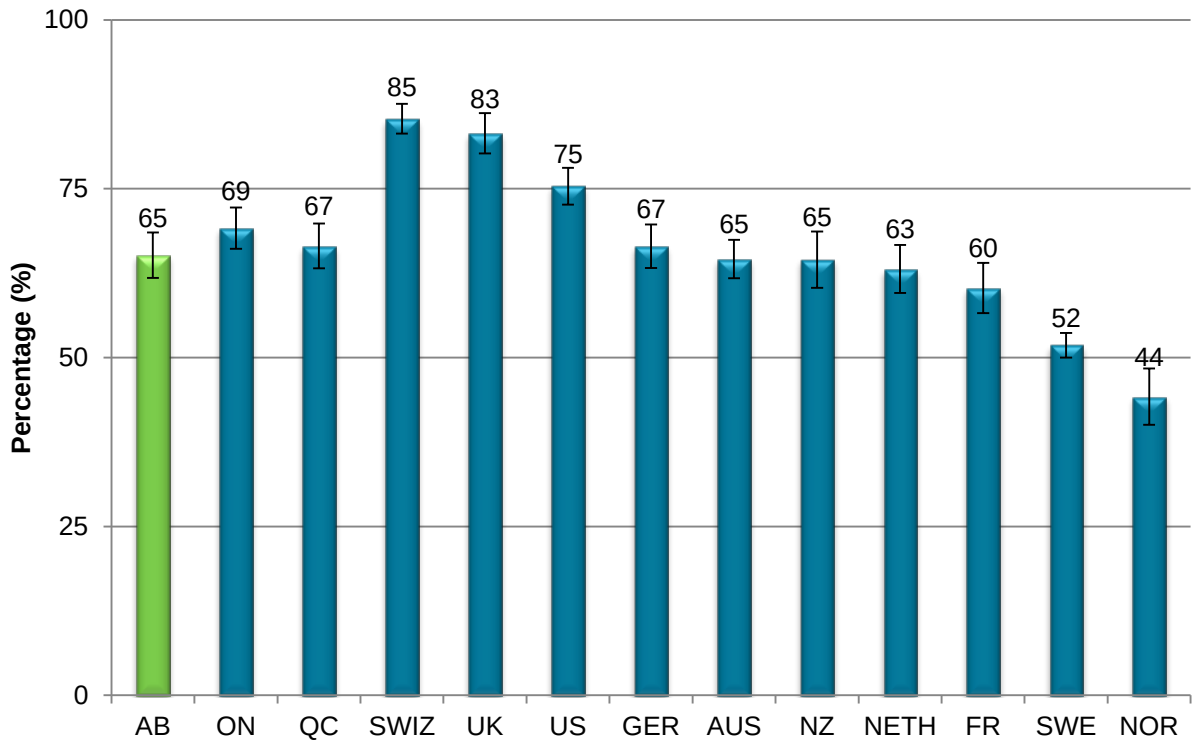
Base: Individuals with at least one chronic condition.

20.7 Getting clear instructions about symptoms to watch for

Q1451_3: *During the past year, when you received care, has any healthcare professional you see for your condition(s) given you clear instructions about symptoms to watch for and when to seek further care or treatment?*

- 65% of Alberta individuals with at least one chronic condition were given clear instructions regarding what symptoms to watch for and when to seek further care. This compares with Quebec (67%) and Ontario (69%).
- Across countries, the highest percentage was observed in the United Kingdom (83%) and the lowest in Norway (44%).
- There was no significant difference by number of chronic conditions.

Figure 83: Percentage of individuals with at least one chronic condition who were given clear instructions about symptoms to watch for and when to seek further care or treatment in the past year, by province/country, 2011



Base: Individuals with at least one condition.

EFFICIENCY

Resources are optimally used in achieving desired outcomes.

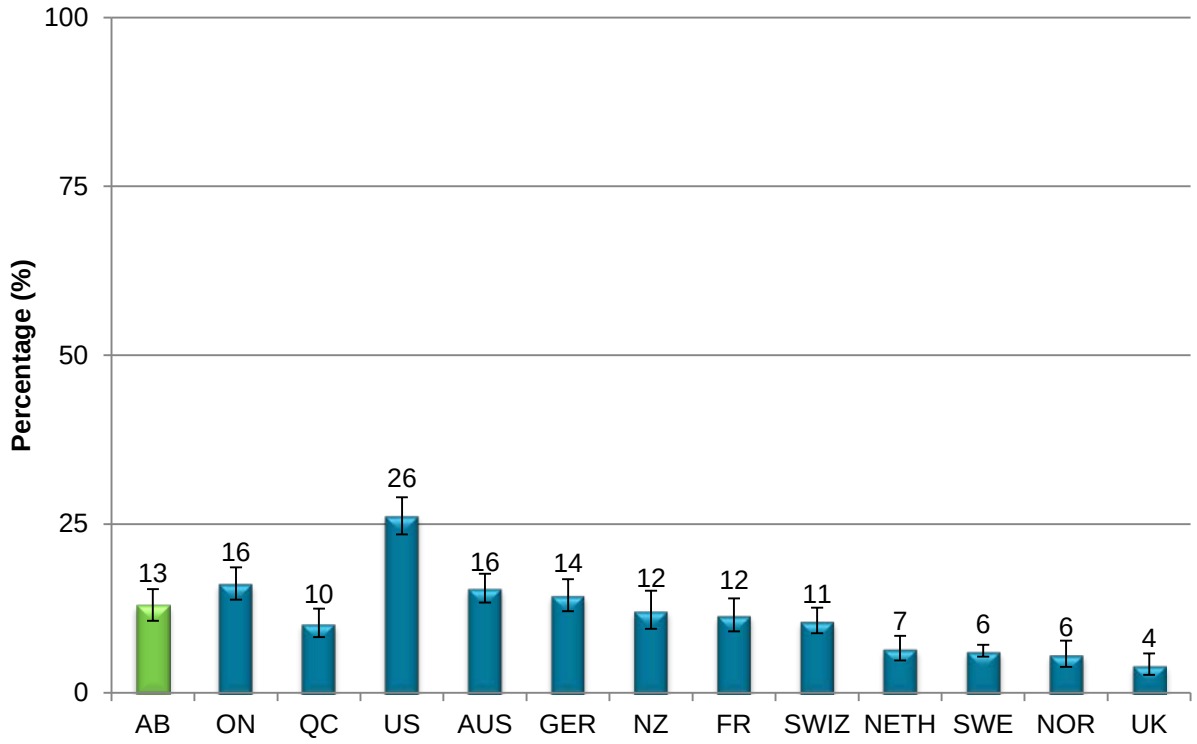
21.0 Cost-related access problems

21.1 Unfilled prescription or skipped doses because of cost

Q811_1: *Was there a time when you did not fill a prescription for medicine or skipped doses because of the cost in the past year?*

- 13% of individuals in Alberta with at least one chronic condition reported they did not fill a prescription for medication or skipped doses because of cost in the past year. This compares with Ontario (16%) and Quebec (10%).
- Reports of not filling medication prescriptions or skipping doses because of cost were most prevalent in the United States (26%) and least prevalent in the United Kingdom (4%).

Figure 84: Percentage of individuals with at least one chronic condition who did not fill a prescription for medication or skipped doses because of cost in the past year, by province/country, 2011



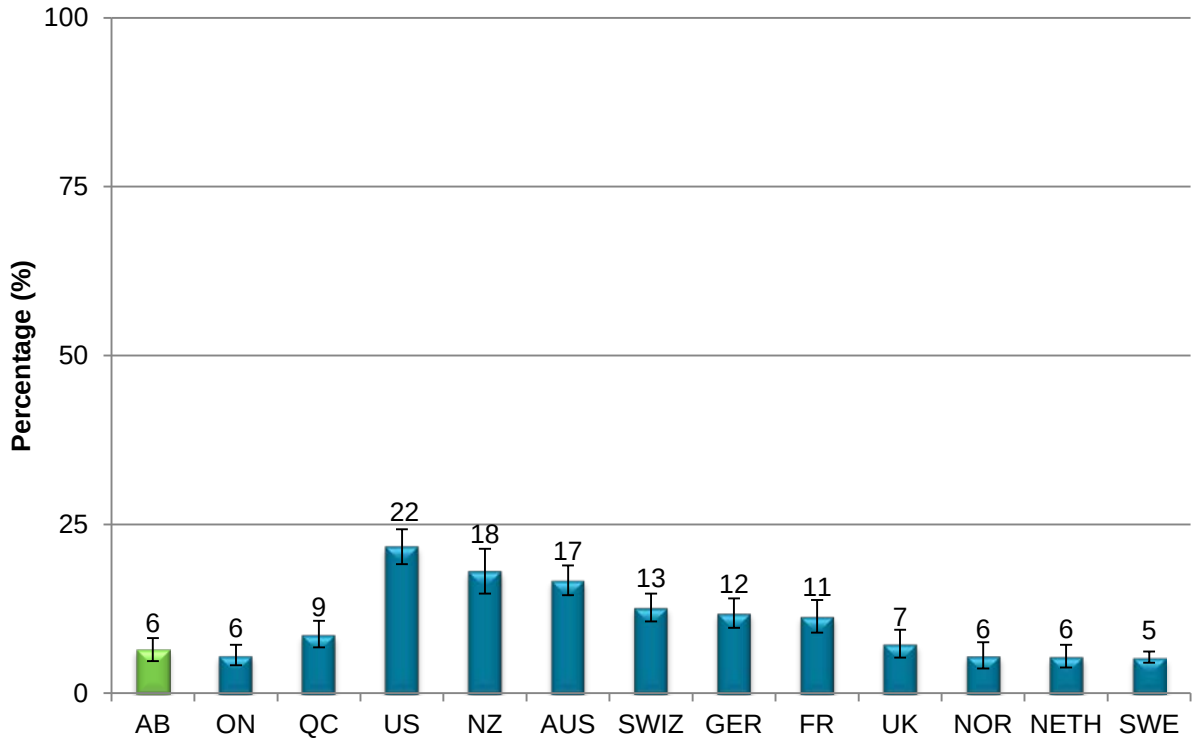
Base: All qualified individuals.

21.2 Did not visit doctor because of cost

Q811_2: *Was there a time when you had a specific medical problem, but did not visit a doctor because of the cost in the past year?*

- In the past year, 6% of Alberta and Ontario individuals with at least one chronic condition reported not visiting a doctor because of cost, when they had a specific medical problem.
- Not visiting a doctor because of cost was most often reported in the United States (22%) and least often in Sweden (5%).

Figure 85: Percentage of individuals with at least one chronic condition who did not visit a doctor because of cost when they had a specific medical problem) in the past year, by province/country, 2011



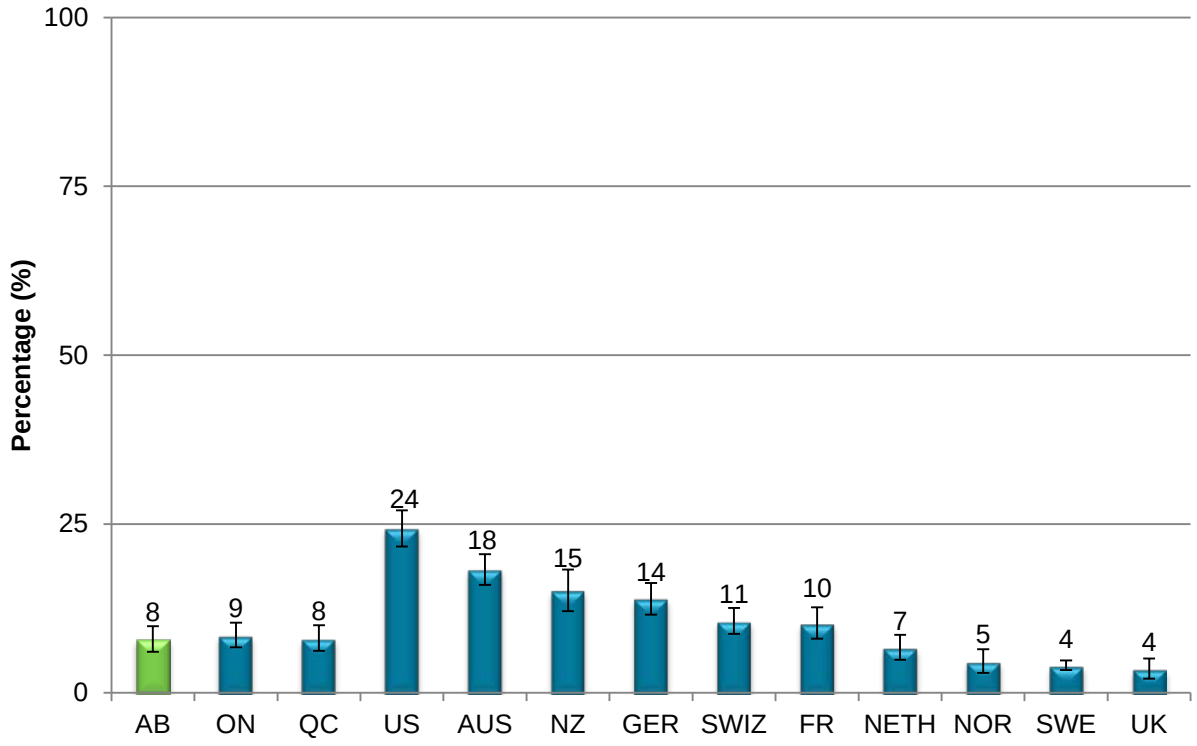
Base: All qualified individuals.

21.3 Skipped medical test because of cost

Q811_3 *Was there a time when you skipped or did not get a medical test, treatment, or follow-up that was recommended by a doctor because of the cost in the past year?*

- Fewer than 10% of individuals in Alberta, Ontario, and Quebec with at least one chronic condition reported skipping or not getting medical tests, treatment or follow-up because of cost (in the past year).
- Skipping medical tests, treatments, or follow-up because of cost was most prevalent in the United States (24%) and least in the United Kingdom (4%).

Figure 86: Percentage of individuals with at least one chronic condition who did not get a medical test, treatment or follow-up because of cost in the past year, by province/country, 2011



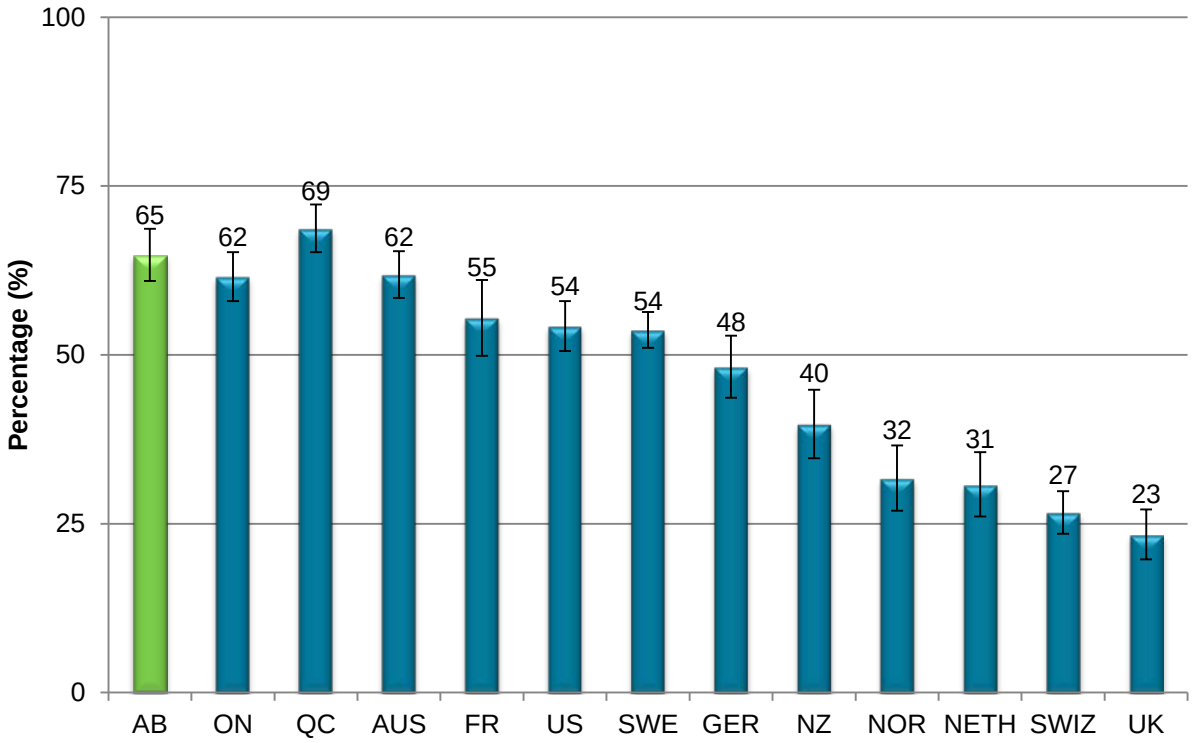
Base: All qualified individuals.

21.4 Difficulty getting after-hours care

Q815: *Last time when you needed medical care in the evening, on a weekend, or on a holiday, how easy or difficult was it to get care without going to the emergency department?*

- Access to care in the evening, on holiday, or on a weekend is a problem for individuals with one or more chronic conditions. In Alberta, 65% found it somewhat or very difficult to get care in the evening, on a weekend, or on a holiday. A similar pattern was observed for Quebec (62%) and Ontario (69%).
- Across countries, 62% of individuals in Australia and 23% in the United Kingdom found it somewhat or very difficult to get care in the evening, weekends, or holidays without going to an emergency department.

Figure 87: Percentage of individuals with at least one chronic condition for whom it was 'somewhat or very difficult' to get after-hours care, by province/country, 2011



Base: All qualified individuals.

SAFETY

Mitigate risks to avoid unintended or harmful results.

22.0 Errors in treatment or care

22.1 Laboratory and medical errors

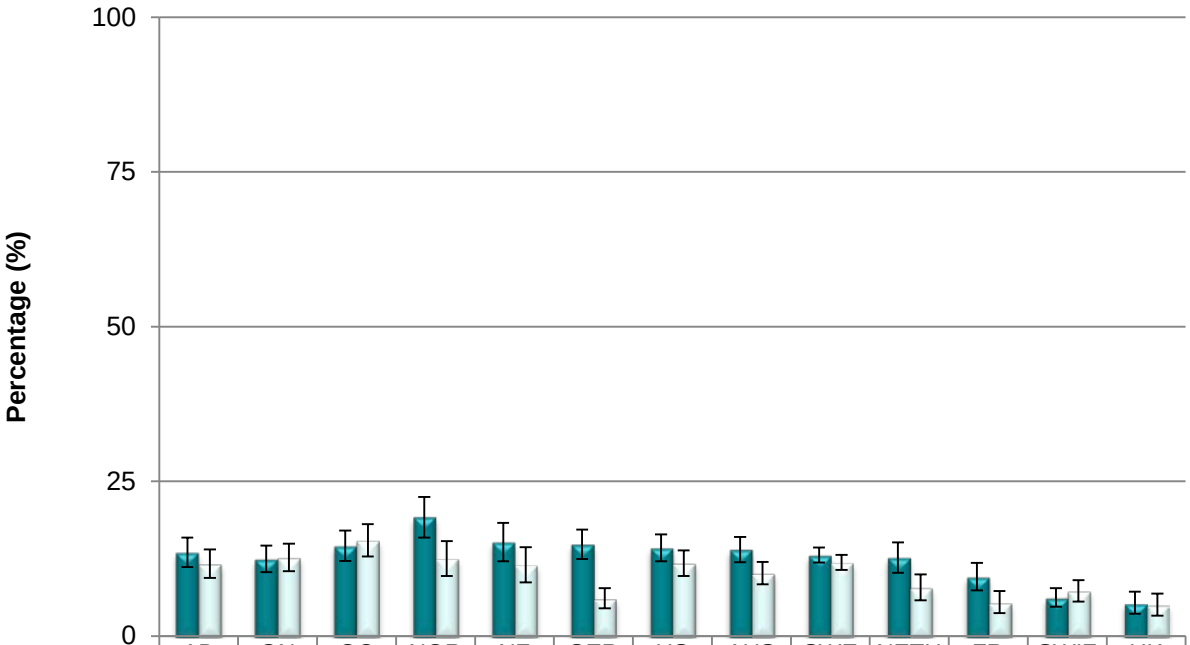
Perceived laboratory and medical errors were determined from the following questions:

Q1210: *In the past two years, do you believe a medical mistake was made in your treatment or care?*

Q2020: *In the past two years, have you been given incorrect results for a diagnostic or lab test?*

- Just over 10% of Alberta individuals with at least one chronic condition perceived they had experienced medical, diagnostic or laboratory errors in their treatment in the past two years. Similar results were observed in Quebec and Ontario.
- Across countries, there were significant variations in the reported perception of medical, diagnostic or laboratory errors. The lowest percentages were observed for the United Kingdom, where only 5% reported medical or laboratory errors.

Figure 88: Percentage of individuals with at least one chronic condition who perceived a medical, diagnostic or laboratory mistake was made in their care in the past two years, by province/country, 2011



	AB	ON	QC	NOR	NZ	GER	US	AUS	SWE	NETH	FR	SWIZ	UK
Medical	14	12	15	19	15	15	14	14	13	13	10	6	5
Laboratory	12	13	15	13	12	6	12	10	12	8	5	7	5

Base: The medical error question included all qualified individuals. The diagnostic or laboratory error question included only individuals who had tests in the past two years.

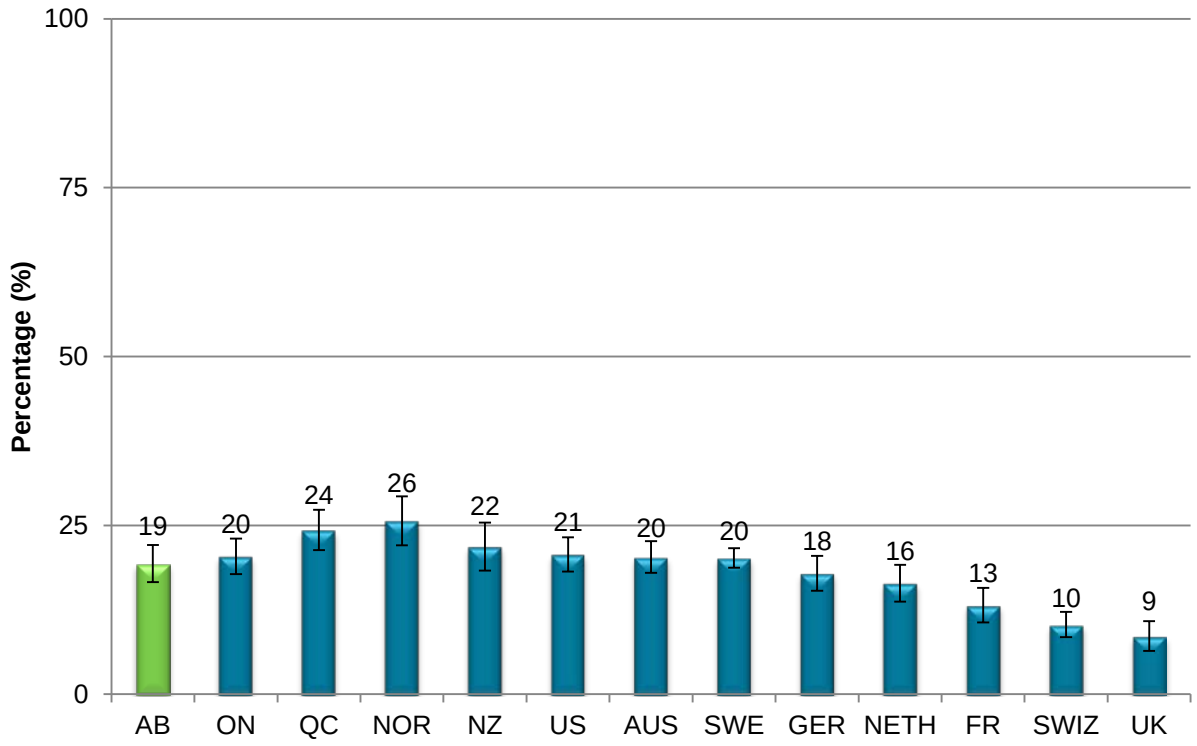
Note: Medical mistake is defined as an error made by a doctor, nurse, hospital, or healthcare professional.

22.2 Any type of perceived error

This quality of care indicator comprised individuals who experienced any of the following three types of error in their care: medical, diagnostic or laboratory errors, or being given wrong medication.

- About one in five Alberta and Ontario individuals with at least one chronic condition reported any one of the three types of error in their care (19% and 20% respectively). Rates were higher in Quebec (24%), but this difference is not statistically significant.
- Across countries, Australia had the highest prevalence with 26% of individuals having experienced any one of three types of error in care. The lowest prevalence was observed for the United Kingdom (9%).

Figure 89: Percentage of individuals with at least one chronic condition who reported any of the three perceived errors in their care, by province/country, 2011

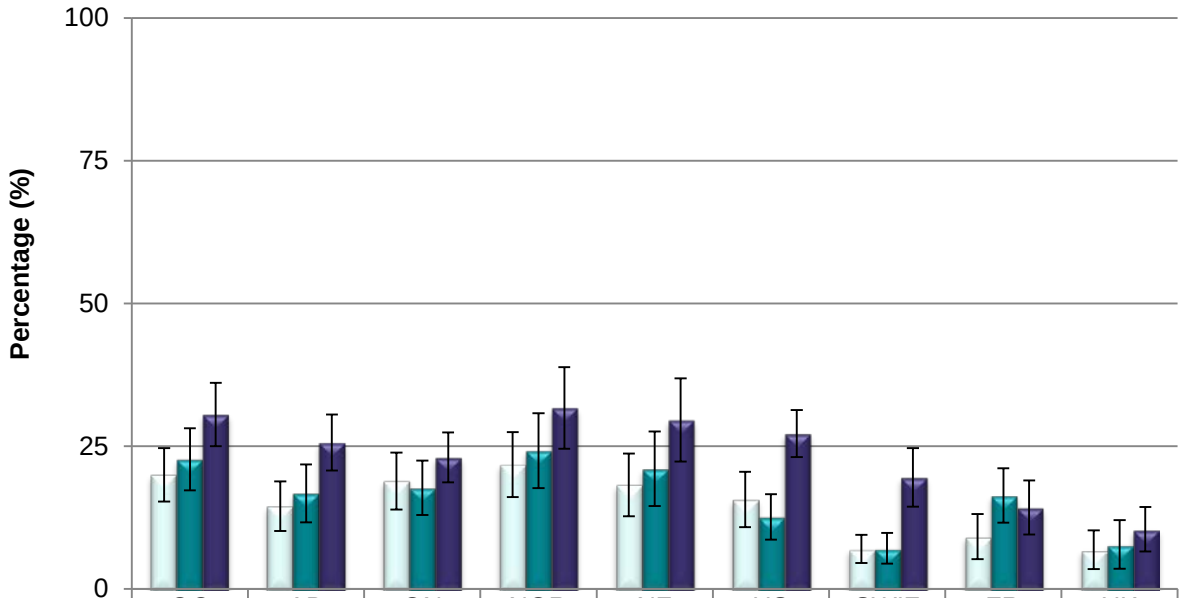


Base: All individuals who experienced any error (medical, diagnostic or laboratory, given wrong medication).

Individuals who reported any of the three types of error were compared by the number of chronic conditions.

- Overall, the proportion of those who perceived having experienced one of three types of error in their medical care increased with the number of chronic conditions.
- Significant differences existed between individuals with three versus one chronic condition in Alberta, Quebec, the Netherlands, Sweden, Switzerland, and the United States.

Figure 90: Percentage of individuals who perceived any of the three errors in their care, by number of chronic conditions, by province and top/bottom three countries, 2011



	QC	AB	ON	NOR	NZ	US	SWIZ	FR	UK
One	20	15	19	22	18	16	7	9	7
Two	23	17	18	24	21	13	7	16	8
Three +	31	26	23	32	30	27	20	14	10

Base: All individuals who experienced any error (medical, diagnostic or laboratory, given wrong medication).

SUMMARY

In this analysis, the Health Quality Council of Alberta (HQCA) derived a sample of sicker adults based on self-reported diagnosis for any of eight chronic health conditions. For simplicity, a number of chronic conditions (one, two, three or more) was used to distinguish between individuals, which enabled an assessment of the extent to which 'being sicker' impacted health, healthcare experiences, and health services utilization. For all comparisons in this report, non-overlapping confidence intervals were used to indicate a significant difference.

The HQCA's findings corroborate previous work by the Health Council of Canada (HCC), which found that sicker Canadians had less confidence in the healthcare system, were less likely to feel that they received high-quality care, used more healthcare services, and experienced problems with affordability and coordination of care (HCC, 2011).

In addition to the HCC's work, the HQCA's analysis categorized sicker individuals by burden of disease, thereby allowing quantification of the extent to which being sicker impacts health and individual experiences with care. For the most part, significant differences were found in the ratings of health status, quality of care, and experiences with healthcare services among individuals with three or more chronic conditions compared with those with one or two chronic conditions, and specifically included the following:

- Individuals reporting three or more chronic conditions had significantly poorer health compared with those reporting one or two chronic conditions
- Half (50%) of individuals who perceived the health system as needing a "complete rebuild" were people with three or more chronic conditions.
- There were significant differences in the need for specialist services: 41% of those that saw or needed to see a specialist were people reporting three or more chronic conditions as compared with 29% and 30% for those reporting one and two chronic conditions, respectively.
- 42% of individuals who used an emergency department reported having three or more chronic conditions, significantly different from those reporting two conditions (28%) and one condition (30%).
- 47% of individuals with three or more chronic conditions reported they had experienced an error in their care (of any type) in the past two years, significantly more than those reporting one (27%) or two (26%) chronic conditions.
- The percentage of individuals without private insurance is significantly greater among those with three or more chronic conditions (46%) than among those reporting one (27%) or two (27%) chronic conditions, respectively.
- 59% of individuals with three or more chronic conditions were on four or more prescription medications; significantly more those with those individuals reporting one (16%) or two (25%) chronic conditions.
- Significantly more individuals with three or more chronic conditions reporting unmet healthcare needs (i.e. unfilled prescription medications or skipped doses because of cost; having a medical need but not visiting a doctor; and skipping or not getting a medical test or treatment) as compared to individuals with one or two chronic conditions.

Ideally, a better rating of quality of care is expected from those who use the system the most. This is not the case, suggesting that the system is not fully meeting the needs of those who need it most. As a corollary, those who have the most experience with and need for the health system appear to have the most negative perception of it. These negative perceptions and experiences vary across the different jurisdictions surveyed by the Commonwealth Fund. Specifically, in examining Alberta as compared to other jurisdictions (Ontario, Quebec and other countries) the following significant differences were observed:

- 80% of individuals in Alberta reported that they were provided with a written plan for care prior to discharge from hospital. This percentage was similar to Ontario (73%) and significantly higher than Quebec (62%). This contrasts with a high of 92% in the United States versus a low of 51% in Sweden.
- 70% of individuals in Alberta reported that proper arrangements were made for follow-up visits prior to discharge from hospital. This percentage was similar to Ontario (78%) and significantly higher than Quebec (70%). This compares with a high of 91% in the United Kingdom versus a low of 52% in France.
- 75% of individuals in Alberta taking four or more prescription medications reported their medication was reviewed by a pharmacist or doctor. This percentage was similar to Ontario (76%) and significantly higher than Quebec (61%). This compares with a high of 83% in the United Kingdom versus a low of 38% in France.
- There were significant differences between provinces in aspects of care for individuals with diabetes: 49% of individuals with diabetes in Alberta reported having had foot examinations for sores or irritation in the past year. This percentage was similar to Ontario (64%) and significantly higher than Quebec (26%). Across countries, foot examinations were most prevalent in the United Kingdom (77%) and least prevalent in France (34%).
- 19% of individuals in Alberta believed they experienced an erroriv in their treatment or care in the past two years. This percentage was similar to both Ontario (20%) and Quebec (24%). Across countries, perceived errors were most prevalent in Norway (26%) and the least prevalent in the United Kingdom (9%).

The HQCA's analysis has quantified differences in self-reported health status and experiences with care by burden of disease. As well, the analysis highlights significant differences in perceptions and experiences with the healthcare system across the different jurisdictions captured in this survey process. One question stands out: *What is it about being sicker that influences a patient's healthcare experience?* This has been partly answered in this report. However, it is important to understand these issues in more detail from sicker patients themselves, in order to improve healthcare services for this disease-burdened group.

[iv] Note: "An error" included a wrong medication or dose, a medical mistake, or a mistake with laboratory diagnosis.

APPENDICES

APPENDIX I: METHODOLOGY

About the Commonwealth Survey

The *2011 Commonwealth Fund International Health Policy Survey of Sicker Adults* was conducted in 11 countries, including Canada. A random sample of adults age 18 or older who met at least one of four criteria was generated:

1) Rated their health as fair or poor
2) Had surgery in the past two years
3) Had been hospitalized in the past two years, or
4) Reported receiving medical care for serious chronic illness, injury, or disability in the past year.

A final sample of 3,958 adults was generated for Canada. The survey was administered by telephone over a four month timeframe from March to June 2011. Topics covered in the survey include health system and access to care, relationship with regular doctor, co-ordination of care and experience with specialists, prescription medication use, medical errors/safety issues, experiences with hospital care and surgery, use of emergency department, chronic illness, healthcare coverage, out of pocket costs, and demographics.

The core study was funded by the Commonwealth Fund. Supplementary funding came from the Health Quality Council of Alberta along with the Health Council of Canada, Health Quality Ontario, and the Quebec Health and Welfare Commissioner (Commissaire à la santé et au bien-être du Québec).

Details about the survey design and sampling methodology are available from the Commonwealth Fund at www.commonwealthfund.org/Surveys.aspx.

Study sample

Two samples were analyzed for the two sections of this report. In Section A, a sample of Canadian individuals (N=2,384) was derived from three participating provinces comprising only those who self-reported diagnosis of any one of eight chronic health conditions (hypertension, heart disease, diabetes, joint pain or arthritis, asthma/COPD, depression/anxiety, cancer, chronic back pain), and had complete data on the EQ-5D-3L responses. A total of 110 individuals, with missing data on EQ-5D-3L, were excluded. Data was excluded from other provinces and territories due to a small number of survey participants.

In Section B – how Alberta compares with other jurisdictions –a sample for 13 jurisdictions (three Canadian provinces and 10 countries) was derived based on self-reported diagnoses of any one of the eight chronic conditions. Presence of EQ-5D data was not a criterion given that only Canada and Australia participated in this element of the survey. The final study sample for this section included 12,490 adults, distributed as follows: 901 in Ontario, 802 in Quebec, 791 in Alberta, 1,117 in Australia, 668 in France, 854 in Germany, 711 in the Netherlands, 521 in New Zealand, 553 in Norway, 2,959 in Sweden, 1,008 in Switzerland, 615 in the United Kingdom, and 990 in the United States.

Analysis and interpretation

The HQCA used the software StataMP 12 to conduct descriptive analyses. Frequencies, means, proportions, and confidence intervals were used to assess individuals' self-reported health status, rating

of quality of care and experiences with care. In this analyses, cases with "not sure", "decline to answer", and missing responses were excluded. These cases accounted for fewer than 1.5% of individuals, and were deemed insignificant.

Statistical significance is based on a probability value less than or equal to 0.05 ($p \leq 0.05$). As all figures include confidence intervals, these can be used by the reader to gauge statistically significant results (or "significant" throughout the report). A rule of eye for 99% confidence intervals is that where they do not overlap, the difference between the measured proportions is significantly different. If the confidence intervals overlap, the proportions denote non-statistical differences.[v]

Given that this study uses derived samples (from the broader sample of sicker adults); population sampling weights were not applied in the analysis to adjust for sampling design. Hence, the HQCA cautions against generalizing findings to represent the Canadian population, likewise other countries. Due to rounding, some frequencies and proportions may not sum to 100%.

Assessment of health-related quality of life focused on individuals reporting problems for any of the EQ-5D dimensions, given that the HQCA was looking at sicker individuals. As is usually the case with general population surveys, the number of people reporting severe problems is typically very small. In this report the sum of the proportions of reported level 2 and level 3 problems is used. This essentially changes the 3-level EQ-5D dimensions into 2-level dimensions, with categories 'no problems' and 'problems'.

To calculate mean weighted health status, EQ-5D health states are converted into a single summary index by applying weights to each of the levels in each dimension. The index is then calculated by deducting the appropriate weights from 1, the value for full health (state, 11111). Value sets developed for the United States population was used for this analysis.

Study limitations

The sampling design for the Commonwealth Survey was aimed at capturing experiences of a relatively sick group of individuals, in a cross-sectional/point-in-time approach. Some of the responses are subject to recall bias by the individual . Being sicker might have negatively perception bias which could impacted study findings – especially rating of quality of care and health system performance. Self-reported diagnosis could not be validated as the individual's clinical information was not available to the HQCA.

Terminology used in this report

One chronic condition: Individuals who reported being diagnosed with only one of any chronic condition (except chronic back pain) – and no other chronic condition.

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[v] In the article *Interval estimates for statistical communication: Problems and possible solutions* (2005), by Cumming and Fidler, the authors came up with a "rule of eye" for judging significance for two independent means with confidence intervals.

Two chronic conditions: Individuals who reported being diagnosed with one of any chronic condition and another chronic condition.

Three or more chronic conditions: Individuals who reported being diagnosed with one of any chronic condition and two or more other chronic conditions.

Multi-morbidity: Denotes presence of two or more chronic conditions in an individual.

Self-reported health status: A health status recorded by an individual on the EQ-5D descriptive system.

Burden of disease: Used interchangeably with number of chronic conditions to characterize the extent of disease.

APPENDIX II: ADDITIONAL EQ-5D-3L TABLES AND FIGURES

Table 9: EQ-5D-3L index values, median, percentiles, by number of chronic conditions

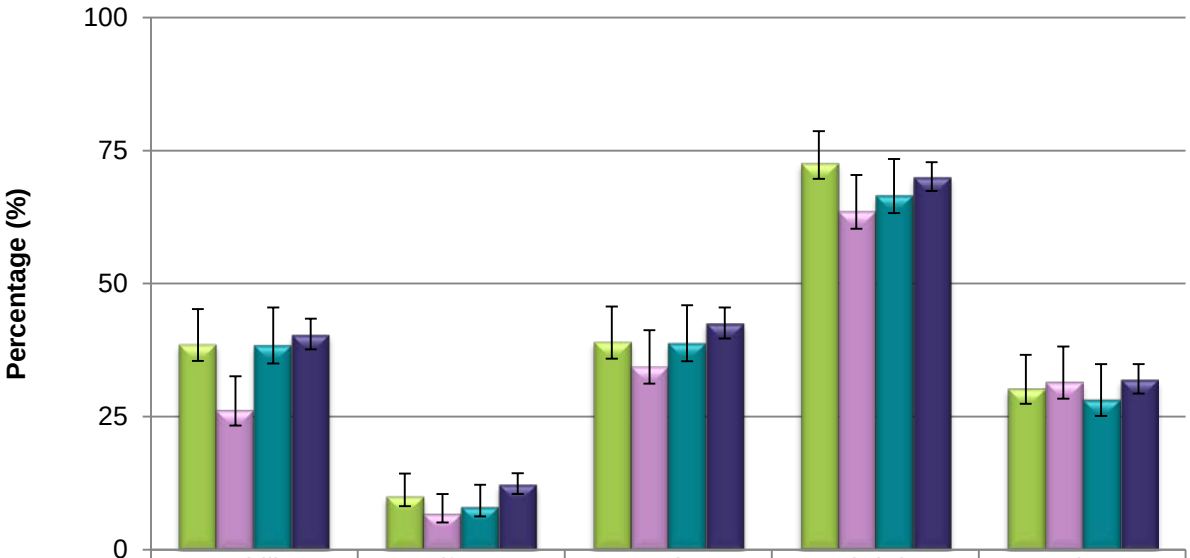
EQ-Index	All sample	One condition	Two	Three or more
Frequency	2,384	763	691	930
Mean	0.7850	0.8634	0.8027	0.7076
Std. dev.	0.1869	0.1466	0.1620	0.2030
Median	0.8163	0.8432	0.8271	0.7778
25th percentile	0.7676	0.8163	0.7778	0.6193
75th percentile	0.8438	1.00	0.8438	0.8271

Table 10: EQ-5D-3L index values, median, percentiles, by age group and province

		AGE GROUPS					
	EQ INDEX	**18-29**	**30-39**	**40-49**	**50-64**	**65+**	**TOTAL**
Ontario	**Mean**	0.778	0.766	0.76	0.749	0.775	0.766
	Std dev	0.229	0.197	0.211	0.201	0.181	0.204
	Median	0.827	0.8	0.816	0.8	0.816	0.812
	25th	0.778	0.761	0.708	0.708	0.761	0.743
	75th	0.844	0.844	0.844	0.827	0.827	0.837
	N	29	60	145	318	308	860
Quebec	**Mean**	0.805	0.818	0.788	0.799	0.79	0.800
	Std dev	0.144	0.17	0.187	0.182	0.187	0.174
	Median	0.8	0.827	0.816	0.827	0.816	0.817
	25th	0.768	0.778	0.768	0.778	0.765	0.771
	75th	0.844	1	1	0.86	0.86	0.913
	N	27	81	127	288	261	784
Alberta	**Mean**	0.827	0.8	0.807	0.779	0.758	0.794
	Std dev	0.129	0.193	0.185	0.182	0.209	0.180
	Median	0.827	0.827	0.827	0.81	0.81	0.820
	25th	0.8	0.768	0.778	0.708	0.708	0.752
	75th	0.86	1	1	0.843	0.854	0.911
	N	31	68	108	252	281	740

Data source: 2011 Commonwealth Fund International Health Policy Survey of Sicker Adults (a cohort of individuals reporting at least one chronic condition).

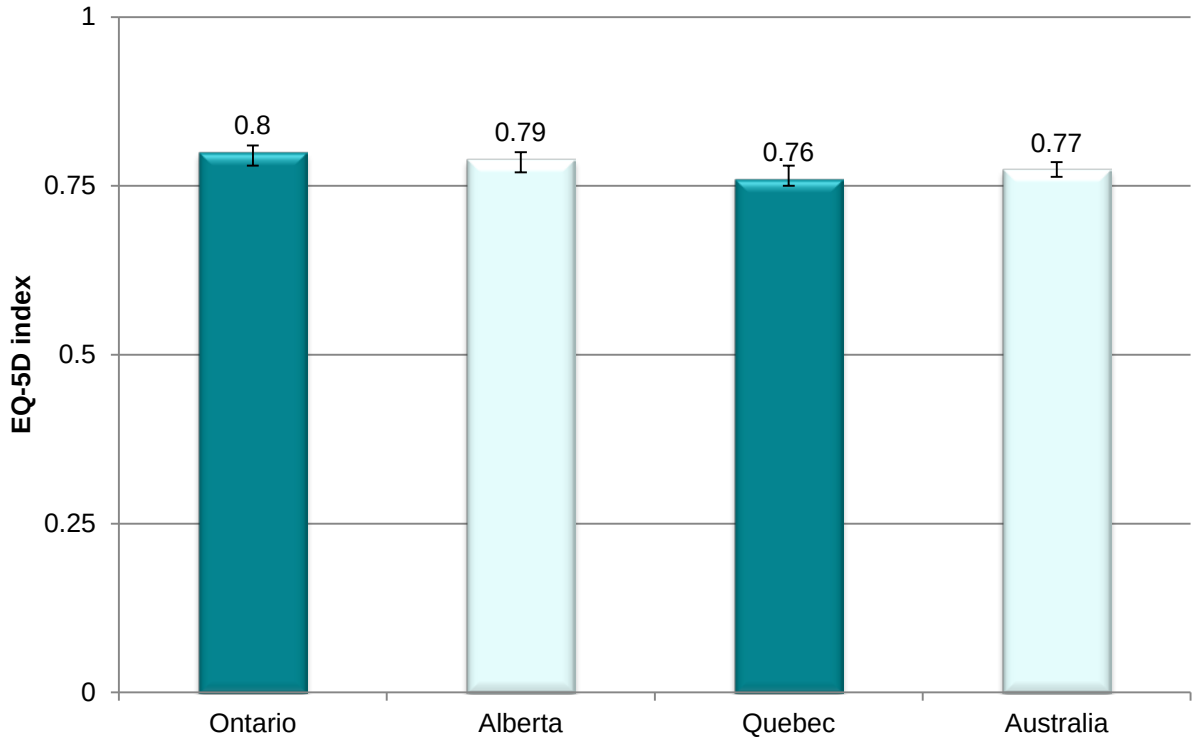
Figure 91: Frequency of self-reported problems for EQ-5D dimensions: Canadian provinces compared to Australia



	Mobility	Self-care	Usual act	Pain/Disc	Anx/Depr
Quebec	39	10	39	73	30
Ontario	26	7	35	64	32
Alberta	39	8	39	67	28
Australia	41	12	43	70	32

Note: Australia, only country besides Canada where EQ-5D was reported.

Figure 92: Mean EQ-5D index values, by province compared with Australia



Note: Australia, only country besides Canada where EQ-5D was reported.

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Please note that the analyses and conclusions in this report do not necessarily reflect those of the reviewers and the organizations with which they are affiliated.

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