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Lesson From Canada's Universal Care: Socially Disadvantaged Patients Use More Health Services, Still Have Poorer Health

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ABSTRACT Lower socioeconomic status is commonly related to worse health. If poor access to health care were the only explanation, universal access to care should eliminate the association. We studied 14,800 patients with access to Canada's universal health care system who were initially free of cardiac disease, tracking them for at least ten years and seven months. We found that socially disadvantaged patients used health care services more than did their counterparts with higher incomes and education. We also found that service use by people with lower incomes and less education had little impact on their poorer health outcomes, particularly mortality. Countries contemplating national health insurance cannot rely on universal health care to eliminate historical disparities in outcomes suffered by disadvantaged groups. Universal access can only reduce these disparities. Our findings suggest the need to introduce large-scale preventive strategies early in patients' lives to help change unhealthy behavior.

Socioeconomic status—or the combination of income and education levels—remains an important determinant of health status and mortality in most, if not all, industrialized nations.[1–4] For example, compared to other patients, socially disadvantaged patients have a higher incidence of cardiovascular disease[4–7] and a poorer prognosis once cardiovascular disease has become clinically apparent.[8–11]

Social scientists use the term *socioeconomic gradients* for associations between disease and socioeconomic status. In explaining these gradients, it is important to identify the contributions of risk factors for disease and to distinguish them from the contributions of poor access to health services, both preventive and therapeutic.

Health And Socioeconomic Status

In some countries, access to health services is heavily dependent on socioeconomic status, which might be expected to lead to increased morbidity and mortality through inadequate care for treatable or preventable disease. Studies have shown that differences in how people seek and use care—as well as other behavior, such as smoking—are important in explaining variations in disease prognosis across socioeconomic groups. Research has also demonstrated that the benefit of interventions to change diet, exercise, and other behavior among the socially disadvantaged is partly mediated through patients' access to medical services and the intensity of health counseling that they receive.[12–16]

However, other studies point to the persistence of disparities in health by socioeconomic status in countries with universal access to care. This research suggests that free access does not necessarily change behavior and lead to better health.[17]

The assumption that access to prompt, affordable health care improves the health of socially disadvantaged groups is a core belief for those

who support systems of universal health care. These advocates further assume that if preventive and therapeutic care is made universally available, people who need the care will use it, and the care will mitigate the disadvantages that result from low socioeconomic status.

However, no study has carefully examined how patients seek out and obtain medical care by considering the types of health services that patients use around the time of disease onset. If, for example, health care–seeking behavior is predominantly reactive—that is, if patients seek care chiefly when a disease manifests itself—then universal health insurance alone might not be able to reverse the worse health status associated with low socioeconomic status.

We examined the health service use, disease progression patterns, and survival experiences of a cohort of Canadians who were initially free of cardiovascular disease, following them for at least ten years. Canada is an ideal setting in which to examine this topic because all patients are entitled to publicly financed medical care at no out-of-pocket cost and without copayments for insured services, including those studied here.

We tracked every health service encounter for each person in our study cohort and paid particular attention to the types of health services used at the onset of cardiovascular disease. Therefore, the analysis controlled for a major potential confounder: the timing of the use of services relative to cardiovascular events. In other words, we were able to examine the use of health services across income and education groups both before and after the onset of disease and disease-related complications.

Study Data And Methods

DATA SOURCES Our analysis relied in part on the Ontario Health Survey, part of the 1996–97 National Population Health Survey of all Canadian provinces.[18] The survey excluded people living in Indian reserves, on Canadian military bases, in some remote areas of Ontario, and in institutions or collective dwellings such as long-term care facilities.

We excluded people younger than age twenty. To ensure a cohort initially free of cardiovascular disease, we excluded anyone who reported heart, cerebrovascular, or peripheral vascular disease; took cardiac medications; or had undergone a coronary angiogram, coronary bypass surgery, or angioplasty. We used self-reported data to determine whether patients were receiving medications for ischemic heart disease risk factors, such as hypertension and diabetes. We relied on self-reported medication data, available for all

study participants, because medication claims data were available only for people age sixty-five and older.

For patients who gave us permission to do so, we linked their health card numbers (which Canadians use whenever they receive health care services) to administrative databases (for example, databases that track health care services and death) in order to track health services use and mortality. Although 90 percent of the initial survey sample provided permission, only 62 percent gave us valid card numbers. Patients whose health cards we were able to use were older and more affluent and had more illnesses than the others in our sample. However, the absolute differences between the linked and unlinked samples were small (Appendix Table 1).[19]

We used the following sources for information: the Ontario physician claims databases maintained by the Ontario Health Insurance Plan for physician visits; the Canadian Institutes of Health Information's hospital discharge abstracts for cardiac procedures and hospitalizations; and the Registered Persons Database, a vital statistics register, for mortality.[20] We used "most responsible" diagnosis codes to identify causes of hospitalizations.

We tracked the development of diabetes and hypertension after the study period began using the Ontario Diabetes and Ontario Hypertension Databases.[21,22]

SOCIOECONOMIC, DEMOGRAPHIC, AND PSYCHOSOCIAL FACTORS Survey respondents reported on total annual household income, which we divided into three categories. To mitigate confounding by retirement, we also stratified the sample into two groups: people age sixty-five and older, and those younger than sixty-five.[4] For the younger group, we defined *low income* as under $30,000 per year; *intermediate income* as $30,000–$49,999; and *high income* as $50,000 or more (all figures are in Canadian dollars, not adjusted for inflation). For the older group, the low, intermediate, and high categories were as follows: under $20,000 per year, $20,000–$39,999, and $40,000 or more. These divisions approximated the taxation thresholds for low, medium, and high income for Canadian citizens in the workforce.

We also divided self-reported education levels into three categories: low, meaning that patients had not finished high school; intermediate, meaning that they had finished high school; and high, meaning that they had earned a bachelor's degree or trade school certificate.

These categories for income and education were correlated with both health services use and outcomes.[23] We found no interactions between socioeconomic status, sex, and out-

comes, so we did not stratify income and education by sex.

We aggregated data about race or ethnicity into a binary variable of Caucasian or non-Caucasian. When we used the twelve categories of race or ethnicity defined by the Canadian census,[18] our results were unchanged.

Because outcome differences according to socioeconomic status may be mediated by variations in psychosocial factors—such as psychological distress—and social support,[24] we evaluated three psychosocial domains, using the scales for distress, depression, and social support derived by the Ontario Health Survey.[18] This survey's validity has been described elsewhere.[25]

RISK PROFILES, HEALTH CARE USE, AND DEVELOPMENT OF DISEASE Our cardiovascular risk profile included having diabetes or hypertension, smoking and the number of years smoked, and self-reported levels of physical activity. Previous research has demonstrated good to excellent agreement between self-reported risk factors and those obtained independently through administrative databases.[15,26,27] Both self-reported data and administrative data may underidentify cardiovascular risk factors.[27–29] Thus, we also identified risk factors through secondary data from hospital discharge abstracts beginning in 1988—the first year in which administrative data about them were available for research purposes.

We obtained information about patients' noncardiovascular accompanying medical conditions through self-reported or administrative data, also using secondary hospitalization data for any hospital admissions dating back to 1988. We derived a health status index for all patients based on self-reported data. Such an index has been shown to be an important correlate of population outcomes.[30]

In Ontario, patients generally see specialists only after being referred by primary care physicians. Visits to a general practitioner served as our measure of health care–seeking behavior. We subdivided physician visits according to billing codes into two groups. One was "preventive," which served as a surrogate for more-proactive health care–seeking behavior; an example of this kind of visit would be an annual physical exam. The second was "other," which served as a surrogate for more-responsive or -reactive health care–seeking behavior, such as a visit in response to an illness or symptoms.

We also tallied the timing of all such visits in relation to the initial survey interview. Other measures of health services use included the number and timing of specialty visits, coronary angiography, percutaneous coronary interventions, and coronary artery bypass surgery.

We tracked the development of hypertension, diabetes, and disease-related complications— defined as cardiac or noncardiac hospitalizations—using administrative data to mark the onset of new disease or disease-related complications.

STUDY OUTCOMES Health care–seeking behavior, as defined by the patterns of primary care use, served as our primary outcome measure. Secondary outcome measures included the use of specialty care, such as visits to a cardiologist and cardiovascular procedures. We also measured the use of other care according to composite outcome events, which we defined as consisting of one or more of the following: onset of diabetes or hypertension; hospitalization; and mortality from any cause. We tracked all outcomes from the study onset—defined as the date of our first patient's participation in the national survey, which occurred in May 1996— until March 2008.

ANALYTIC TECHNIQUES We tested crude—or directly observed—differences in patients' characteristics at the baseline and in outcomes across categories of income and education using the Mantel-Haenszel test for trend for categorical data and analysis of variance for continuous data.[31] To determine whether a primary care visit was for preventive or some other type of care, we analyzed each visit according to the patient's age and the type of visit, as well as the time between the visit and the development of a new event— such as the onset of diabetes or a new hospitalization.

By calculating how the inclusion of each variable changed the slope of the relation associated with income or education, we tested the ability of several variables to explain the relation between mortality and socioeconomic status.[32] Those variables were psychosocial factors; race or ethnicity and other demographic factors; preexisting cardiovascular risk profiles; preexisting noncardiovascular conditions; cardiovascular disease progression, including the development of diabetes and hospitalizations for cardiovascular disease; noncardiovascular disease progression; and health services use.

For a more detailed description of our analytic techniques, see the Appendix.[19]

LIMITATIONS Our study has several important limitations. First, patients may have underreported the severity of their symptoms. Second, the National Population Health Survey contained no information about the presence or absence of hyperlipidemia (high cholesterol) or about family history of cardiovascular disease. Third, we had no information on how long risk factors were present.

In addition, we could not analyze all preventive measures and types of disease management.

Nonetheless, we tallied all of the encounters that each patient had with a health care provider and distinguished visits to a specialist from visits to a primary care provider. Additional limitations are discussed in the Appendix.[19]

Results

BASELINE CHARACTERISTICS OF SAMPLE The mean age of our sample was 44.57 years, plus or minus 15.99 years. Women made up 54.3 percent of the sample.

Poorer patients and those with less education were statistically more likely, and significantly so, to be distressed and depressed, compared with other patients. Similarly, they were also more likely to have fewer social supports, a higher prevalence of baseline cardiovascular risk factors, more noncardiovascular conditions, and poorer baseline health status. With few exceptions—asthma among them—the distribution of socioeconomic status and cardiovascular and noncardiovascular clinical factors across income categories was similar to their distribution across education categories (Appendix Table 2).[19]

SOCIOECONOMIC STATUS AND PRIMARY CARE Our study consisted of 159,709 person-years of follow-up to the 1996–97 National Population Health Survey. The number of primary care visits strongly correlated with the development of adverse outcomes, regardless of socioeconomic status.

Patients of lower socioeconomic status had significantly more primary care visits during the study than patients of higher socioeconomic status (data not shown). The mean number of visits among low-income patients was 62, compared to 47 visits in the high-income group ($p < 0.001$). For patients with a low level of education, the mean number of primary care visits was 68.5, compared to 48.8 visits for those with a high level ($p < 0.001$).

Exhibit 1 presents data on the frequency of primary care visits in a different way, corresponding to a patient's "daily exposure risk" of a visit, and calculated as visits per thousand patients per day. Although there was an inverse relationship between socioeconomic status and nonpreventive primary care visits overall, preventive care visits such as annual physical exams did not vary significantly across income or education before the first composite outcome event.

SOCIOECONOMIC STATUS AND SPECIALTY CARE Exhibit 2 shows that, compared to patients with high levels of education, patients with low levels had significantly more visits to internists and cardiologists, as well as more coronary angiography and coronary artery bypass surgery.

However, when we compared patients according to income status, the differences in the use of specialty services were less pronounced and often not statistically significant.

SOCIOECONOMIC STATUS AND HEALTH OUTCOMES Although the length of time before a patient developed diabetes did not vary significantly across socioeconomic groups, patients of low socioeconomic status developed diabetes and hypertension more often than patients of high status. This was the case whether we compared patients by income or education.

We found similar differences for hospitalizations, whether or not they were for cardiovascular disease. Socially disadvantaged patients had both higher and earlier mortality than patients of higher socioeconomic status.

High-income patients had only 35 percent as much risk of dying during the study period as low-income patients, and highly educated patients had only 26 percent of the mortality risk of the less educated (Exhibit 3). Adjusting for race or ethnicity, age, sex, and cardiovascular risk factors accounted for the majority of the income-mortality and education-mortality gradients.

Preexisting cardiovascular risk factors on their own accounted for 23.1 percent and 8.1 percent of the income-mortality and education-mortality associations, respectively—thus explaining more of these associations than any other factor except age and sex. Health care services use by itself had little explanatory effect on the income-mortality association (4.3 percent) and no explanatory effect on the education-mortality association.

Exhibit 3 also illustrates how the mortality gradients change as additional factors affecting all-cause mortality are taken into account sequentially, instead of one at a time. The income-mortality gradient becomes steadily flatter—that is, the difference between richer and poorer patients becomes smaller—as more factors are considered, until there is only a 15 percent difference between the highest and lowest income classes.

By contrast, the education-mortality gradient behaves differently, with respect to progression of both cardiovascular and noncardiovascular disease as well as health service use. The mortality risk difference widens slightly as those factors are adjusted for. The effect of any one risk factor also varies according to whether it is associated with the income or the education gradient. The income gradient is less steep than the one for education, when no other factors are considered, but it is also easier to explain by the addition of other factors, particularly including disease progression.

EXHIBIT 1

Socioeconomic Status And Primary Care Visits Among Canadians

	Mean number of primary care visits per 1,000 individuals per day							
	Income level				Education level			
	Low (n = 4,274)	Intermediate (n = 4,507)	High (n = 6,019)	p value	Low (n = 2,795)	Intermediate (n = 6,309)	High (n = 5,696)	p value
ALL CAUSES								
Before first event	10.9	9.5	8.0	< 0.001	11.8	9.1	8.2	< 0.001
After first event	9.8	8.6	6.8	< 0.001	13.2	7.7	6.3	< 0.001
Total	20.7	18.0	14.8	< 0.001	25.0	16.8	14.6	< 0.001
PREVENTIVE VISITS								
Before first event	0.9	0.9	0.9	0.57	1.0	0.9	0.9	0.24
After first event	0.7	1.0	0.9	0.70	1.7	0.8	0.6	< 0.01
Total	1.7	1.9	1.8	0.66	2.7	1.7	1.5	< 0.01
OTHER VISITS								
Before first event	10.0	8.5	7.0	< 0.001	10.8	8.2	7.3	< 0.001
After first event	9.0	7.6	5.9	< 0.001	11.5	6.9	5.8	< 0.001
Total	19.1	16.1	13.0	< 0.001	22.2	15.1	13.1	< 0.001

SOURCES National Population Health Survey (see Note 18 in text); Ontario Health Insurance Plan; Canadian Institutes of Health Information; and Registered Persons Database. **NOTES** p values were calculated by Poisson regression. Event is composite outcome event (see Study Outcomes section). For explanations of income and education categories, see Socioeconomic, Demographic, and Psychosocial Factors section.

Appendix Tables 3 and 4[19] show how much of the respective gradients can be explained by sequential combinations of risk factors. Details of these calculations are given in the Appendix.

Full details of the extensive sensitivity analyses are available from the authors; none had any significant effect on the results. Demographic and preexisting cardiovascular risk factors remained the dominant explanatory factors in associations between socioeconomic status and mortality, and patterns of health services use had only a negligible impact on them.

EXHIBIT 2

Socioeconomic Status And Specialty Care Visits Among Canadians

	Income level				Education level			
	Low (n = 4,274)	Intermediate (n = 4,507)	High (n = 6,019)	p value	Low (n = 2,795)	Intermediate (n = 6,309)	High (n = 5,696)	p value
INTERNAL MEDICINE VISIT								
Percent	72.2	72.2	68.6	< 0.001	77.0	69.3	69.2	< 0.001
Mean number	9.6	9.05	6.9	< 0.001	11.2	8.1	7.2	< 0.001
CARDIOLOGY VISIT								
Percent	48.2	49.3	48.5	0.89	54.5	46.9	47.7	< 0.001
Mean number	2.3	2.4	2.2	0.05	3.0	2.1	2.1	< 0.001
CORONARY ANGIOGRAPHY								
Percent	3.4	3.3	3.0	0.18	4.8	2.9	2.8	< 0.001
Mean number	0.04	0.05	0.04	0.59	0.07	0.04	0.04	< 0.001
PERCUTANEOUS CORONARY INTERVENTION								
Percent	1.3	1.2	1.0	0.14	1.4	1.1	1.0	0.16
Mean number	0.01	0.02	0.01	0.16	0.02	0.01	0.01	0.23
CORONARY ARTERY BYPASS SURGERY								
Percent	0.7	0.9	0.8	0.61	1.6	0.6	0.6	< 0.001
Mean number	0.01	0.01	0.01	0.61	0.02	0.01	0.01	< 0.001

SOURCES National Population Health Survey (see Note 18 in text); Ontario Health Insurance Plan; Canadian Institutes of Health Information; and Registered Persons Database. **NOTES** Percentages are of patients using care. Mean numbers are of events per patient during the study. For explanations of income and education categories, see Socioeconomic, Demographic, and Psychosocial Factors section. p values were calculated by the Mantel-Haenszel chi-square test for proportions (percentages) across income and education categories, and by one-way analysis of variance, or ANOVA, for continuous variables (mean numbers).

EXHIBIT 3

Cumulative Effects Of Socioeconomic And Other Factors On Mortality Among Canadians

Factor	Mortality risk ratio between highest and lowest classes of baseline case (95% confidence interval)	
	Gradient defined by income category	Gradient defined by education category
Income alone (baseline case)	0.35 (0.30, 0.40)	—
Education alone (baseline case)	—	0.26 (0.22, 0.31)
ADDITIONAL RISK FACTORS[a]		
Education (affecting income gradient)	0.46 (0.39, 0.54)	—
Income (affecting education gradient)	—	0.33 (0.28, 0.39)
Psychosocial factors	0.41 (0.31, 0.54)	0.32 (0.24, 0.41)
Demographic factors	0.52 (0.38, 0.69)	0.76 (0.57, 1.00)
Preexisting cardiovascular risk factors	0.66 (0.47, 0.92)	0.84 (0.61, 1.17)
Preexisting noncardiovascular conditions	0.68 (0.47, 0.97)	0.75 (0.52, 1.08)
DISEASE PROGRESSION[b]		
Diabetes	0.68 (0.48, 0.97)	0.75 (0.52, 1.08)
Hypertension	0.68 (0.48, 0.97)	0.75 (0.52, 1.07)
Cardiovascular disease[c]	0.73 (0.50, 1.05)	0.72 (0.50, 1.04)
Noncardiovascular disease[d]	0.81 (0.56, 1.18)	0.65 (0.45, 0.95)
Health care–seeking behavior and health service intensity	0.85 (0.58, 1.24)	0.64 (0.43, 0.94)

SOURCES National Population Health Survey (see Note 18 in text); Ontario Health Insurance Plan; Canadian Institutes of Health Information; and Registered Persons Database. [a]The number shown for each factor is the income-mortality or education-mortality gradient when that factor plus all of the factors listed above it are taken into account. The income gradient when education is added shows the combined effect of income and education on the difference between the high and low income classes. The income gradient after including psychosocial factors shows the combined effect of income, education, and psychosocial factors on the difference between high and low income classes, and so on. The education gradient when income is added shows the combined effect of education and income on the difference between high and low education classes. Including education's effect on the income gradient does not have the same effect as including income's effect on the education gradient because the two gradients have different slopes. [b]Progression for the four diseases was noted as time from inception of disease to the event indicating worsened disease and was adjusted using time-varying covariance analysis. [c]Cardiovascular disease progression was defined as hospitalization for acute myocardial infarction, unstable angina, congestive heart failure, revascularization, diseases of the circulatory system, peripheral vascular disease, and stroke or transient ischemic attack. [d]Noncardiovascular disease progression was defined as hospitalization for any noncardiovascular cause.

Discussion

We explored the long-term relationships among socioeconomic status, use of health services, and outcomes among patients who were free of cardiovascular disease at the outset of the study. We found that in Canada's health care system, which provides publicly financed access to insured health services at no out-of-pocket cost for patients, socially disadvantaged patients used health care services more than did their counterparts who had higher levels of income and education. We also found that the use of primary care services was associated over time with clinical outcomes—that is, patients made more primary health care visits as their health outcomes were worse.

However, there were no significant differences among socioeconomic groups in health care–seeking behavior: Across the groups, we found that most visits to physicians were in response to disease or disease-related complications, rather than preventive.

Overall, patients' use of health services had little cumulative explanatory impact on the associations between mortality and socioeconomic status. These disparities were largely explained by differences in age, sex, and cardiac risk factors present at the beginning of the study. In other words, the greater use of services by disadvantaged patients simply reflected their worse health status and did not make up for the effects of their lower socioeconomic status.

ROLE OF BEHAVIOR Many studies have suggested that differences in behavior related to health strongly influence the associations between socioeconomic status and mortality. For example, poorer diets, lower levels of physical activity, and smoking probably account for the increased risk of coronary artery disease and its complications among socially disadvantaged patients.[13,14] Behavioral lifestyle interventions have been shown to improve outcomes among socially disadvantaged patients.[16]

Although we did not examine these behaviors directly, our findings were consistent with this body of evidence: The presence of cardiovascular risk factors at the start of the study explained 23.1 percent and 8.1 percent of the associations

between income and mortality and education and mortality, respectively, over time.

To our knowledge, our study is the first to examine the types of health care used around the time that disease becomes apparent. Socioeconomic association with mortality has been equally strong in countries that provide universal health care and in countries that do not.[33] However, some scholars have hypothesized that financially unrestricted access to medical care may lead people to proactively seek health care, instead of waiting for the onset of disease or complications.[34]

ROLE OF GOVERNMENT HEALTH CARE There is evidence to suggest that Canada's Medicare program has improved access to health services for poorer Canadians and has consequently flattened the slope of the relationship between wealth and health.[35,36] However, our findings suggest that universal access alone cannot eliminate historical health and social disparities. The positive correlation in time between the use of health care and adverse outcomes suggests that patients in all socioeconomic groups sought health services more reactively, after the onset of diseases or complications, rather than proactively, for preventive care. Indeed, primary care visits for preventive reasons such as annual physical exams did not vary significantly according to socioeconomic status, despite the fact that socially disadvantaged patients had higher risk profiles when our study began, compared to other patients.

There also is evidence to suggest that health care–seeking preferences for preventive care vary widely across patients.[37] Other studies have suggested that preventive health care–seeking behavior may have positive consequences on outcomes in the population, partly because of increased use of cardiovascular screening, prevention, and counseling initiatives.[38,39]

In our study, the use of primary and specialty care services was consistently greater among socially disadvantaged patients than among people of higher socioeconomic status. Nonetheless, cumulative health care use had little or no explanatory effect on associations between socioeconomic status and mortality. Our findings are consistent with studies undertaken among patients hospitalized with acute myocardial infarction.[15,40,41]

ROLE OF USUAL CARE SETTINGS The minimal impact of health care use on outcomes suggests that usual care settings—such as office visits to primary care providers—may not provide effective prevention and cannot reverse the effects of baseline cardiovascular risk factors on outcomes. In contrast to usual care settings, self-management behavioral interventions provide

Income level was more likely than education level to affect a patient's use of services.

intensive lifestyle education and counseling.[42] Such programs promote the use of evidence-based guidelines and track patients' and physicians' compliance through the use of integrated reporting and feedback mechanisms.

These programs have also been shown to reduce mortality among socially disadvantaged patients. In conjunction with previous work on the programs, our findings suggest the need for large-scale randomized trials to examine the real-world effectiveness of lifestyle interventions that are delivered outside of usual care environments.

ROLES OF INCOME AND EDUCATION We determined that the association of income with health service use and outcomes was independent of, and different from, the association of education. Specifically, the use of primary care services after the onset of disease or complications and the use of specialty care services differed between the two socioeconomic indicators, with income level being more likely than education level to affect a patient's use of services. Moreover, income had a modestly greater effect than education on the relation between mortality and both health services use and preexisting cardiovascular risk factors.

Although such differences may be attributable to the simplicity of the socioeconomic indicators used in this study and the potential for misclassification of our subjects, our findings also support the view that income and education may represent distinct domains, leading to different interactions with the health care system, awareness of and responsiveness to educational messages, lifestyles, and outcomes.[43]

CONCLUSION We determined that patients of lower socioeconomic status made greater use of health services than did patients of higher status. This increased use was correlated over time with disease progression. It did not meaningfully account for the association between socioeconomic status and mortality among patients who were free of cardiovascular disease at the beginning of our study. This means that in

In spite of increased use of services, socially disadvantaged patients still had worse outcomes than other patients.

socioeconomic status—are more likely to seek health care in reaction to the onset of a disease or complications than they are to seek preventive services. Thus, to mitigate health inequities in the population, we need to take additional steps beyond expanding access to primary care medical services.

Our findings do not argue against universal health care. But they indicate that rich countries planning to improve insurance coverage, such as the United States, and emerging countries that are contemplating national health insurance, such as South Africa, should not rely on this approach alone to eliminate the inequities that disadvantaged sectors of their populations continue to experience today. Rather, these countries need to pay additional attention to preventive strategies that can be introduced early in patients' lives to help change unhealthy behavior. ∎

spite of increased use of services, socially disadvantaged patients still had worse outcomes than other patients.

Even with universal health care, socially disadvantaged patients—as well as those of higher

NOTES

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19 To access the Appendix, click on the Appendix link in the box to the right of the article online.

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David Alter and three colleagues from the Institute for Clinical Evaluative Sciences in Toronto used physician claims, health surveys, discharge records, and other sources to study long-term determinants of health among Canadians. In this issue of *Health Affairs*, the authors show that the poor and disadvantaged have higher rates of cardiovascular disease than those who are better off—despite the fact that they seek health care more aggressively, and obtain it, in Canada's system of universal access.

The study, however, found that the poor usually see doctors in response to an acute illness rather than for prevention. The deeper problem is health behavior, which largely drives the higher disease rates among the poor. "This is not a dagger in [the heart of] universal health care," Alter says. "Things could have been worse without a social safety net, but our system is not up to the task of really making a difference in the health of socially disadvantaged people."

Alter, a senior scientist at the Institute for Clinical Evaluative Sciences, is also a cardiologist at the Toronto Rehabilitation Institute and research director of its cardiac rehabilitation and secondary prevention program. His research interests cross many disciplines, including chronic vascular disease, cardiovascular outcomes, and physician decision making. He earned his medical degree and a doctorate in philosophy at the University of Toronto.

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