

Determinants of Access to Care and Subsequent Emergency Department Use: The
Experience of Latino Participants in Durham County's LATCH Program

By

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ABSTRACT

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Introduction: The health care sector has become the focal point of health and is increasingly viewed as the necessary factor for decreased morbidity and mortality. As several studies have linked increases in health care costs to poor access to ambulatory care and subsequent utilization of the Emergency Department (ED), programs have been implemented to increase access to ambulatory care and reduce inappropriate utilization of the ED. Despite the existence of these programs, it is unclear from existing literature what factors determine access to ambulatory care and subsequent utilization of the ED, particularly for Latino persons with low levels of ambulatory care access and poorer health outcomes when compared to non-Latino whites. In this report, we evaluate factors associated with access to ambulatory care for Latino participants of Durham County's LATCH program and determine whether access to care is associated with utilization of the ED.

Methods: We collected community-based data from 448 participants in the LATCH program. We evaluated the individual associations between patient

characteristics (age, gender, duration lived in the U.S., birthplace, language concordance with a health care provider, satisfaction with health care, existence of a usual source of care, perceived racial discrimination, self-rated health status, insurance status, and care management status) and access to ambulatory health care. We then evaluated these patient characteristics in relation to utilization of the ED. Analyses were performed for a subgroup of participants with at least one ambulatory sensitive condition (asthma, diabetes, hypertension) and for participants without a condition.

Results: For participants without an ambulatory sensitive condition, care management and language discordance with a health care provider were significantly associated with access to ambulatory care. For those with a condition, self-rated health status and insurance status were significantly associated with access to health care. For those without an ambulatory sensitive condition, self-rated health status was significantly associated with use of the ED. No factors were significantly associated with use of the ED among those with an ambulatory sensitive condition.

Conclusions: In both persons with ambulatory sensitive conditions and those without, the factors that mediate access to ambulatory care do not appear to be similar to those that mediate visits to the emergency department. A larger study is needed to clarify these important questions.

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INTRODUCTION

The existing literature on access to health care has arisen from the sentinel work of medical sociologist, Dr. Ronald Andersen, from the 1960s. His behavioral model was initially developed “to assist the understanding of why families use health services; to define and measure equitable access to health care; to assist in developing policies equitable access.”(1)(p1). In his model, population characteristics, the health care system, and the external environment are access variables that work to influence health behavior, including use of health services. In turn, these forces influence health outcomes of perceived and evaluated health status. Andersen suggests that efficient access leads to increased use of health services, which in turn, leads to better outcomes.

Despite Dr. Andersen’s work and the forty years that have followed, evidence indicates that little headway has been made concerning improving health care access. Accordingly, results from the National Access to Care Surveys in 1982, 1986, and 1994, indicated that approximately 6% of the American population reported unmet health needs.(2) Additionally, in a 1997 publication by the Robert Wood Johnson Foundation, authors Berk and Schur noted, it is “disturbing to find that access for vulnerable subpopulations may be deteriorating.”(2)

As the health disparities field has come to the forefront of health policy and public health discourse, the concept of health care access has appeared more pertinent than ever. Research has indicated the existence of “racial and ethnic disparities across a broad spectrum of health conditions”(3) and “similar disparities have been observed for health insurance, access to health care, and the use of health services.”(3)(p37).

Descriptive Epidemiology

Not surprisingly, access to ambulatory health care has often been examined within the context of ambulatory care sensitive conditions, chronic conditions shown to be controllable when detailed management protocols are followed within the ambulatory care setting, but may lead to significant morbidity and/or mortality if left untreated or inadequately managed through the Emergency Department or other urgent care centers. Among the diseases classified as ambulatory sensitive, asthma, diabetes, and hypertension are among the most common and severe in the absence of proper management.

Asthma

Statistics indicate that the burden from asthma in the United States has increased over the past two decades, with the most recent national data on asthma from the National Center for Health Statistics indicating that in 2002, 30.8 million people had ever been diagnosed with asthma during their lifetime. Of these, 21.9 million diagnoses occurred in adults. Statistics also indicate that non-Hispanic blacks and American Indians are approximately 25% more likely to have been

diagnosed with asthma than non-Hispanic whites. While overall, Hispanics, have the lowest rates of asthma diagnoses, Puerto Ricans have the highest rate of lifetime asthma diagnosis, being 80% more likely than non-Hispanic whites to have been diagnosed with asthma.(4)

Current estimates of asthma prevalence in the United States approach 72 per 1,000 people. While these estimates of prevalence are in part, a function of improvements in diagnosis and longevity, statistics also indicate that the incidence of asthma is also on the rise.(4) Perhaps more importantly, however, asthma attack prevalence, an indicator of how many people have uncontrolled asthma and are at risk for a poor outcome, has been estimated at 43 cases per 1000 persons, with Puerto Ricans having the highest attack prevalence at 100% that of non-Hispanic whites. According to a survey in 2002, these attacks led to approximately 11.8 missed days of work for those who were employed and over age 18, and 67 visits to the Emergency Department per 10,000 people. Furthermore, while Hispanics exhibit the lowest prevalence of asthma when compared to other racial/ethnic groups, rates of asthma-associated hospitalizations and mortality have been shown to be increased among Hispanics as compared to non-Hispanic whites.(5, 6)

Diabetes

Statistics also indicate that the number of diabetes cases is on the rise, with the number of new cases of diabetes diagnosed in adults ages 18 to 79 increasing by 54% from 1997 through 2004.(7) Of note, rates of new disease diagnoses in Hispanic populations increased by 34% from 1997 to 2004. According to the

Centers for Disease Control in 2005, the prevalence of diabetes in the United States approaches 20.8 million people, with the great majority of these cases occurring in persons 20 years of age or older. While there is an astounding rate of diabetes cases among non-Hispanic whites, evidence suggests that Mexican Americans are approximately 1.7 times as likely as non-Hispanic whites to have diabetes, while Puerto Ricans are 1.8 times as likely as non-Hispanic whites to be diagnosed with diabetes. (8)

Uncontrolled diabetes contributes to a significant amount of morbidity and mortality, increasing the risk of heart disease, stroke, disease of the nervous system, periodontal disease, and amputations, as well as serving as the leading cause of both blindness and kidney failure in the United States in 2002. Notably, studies have shown that Latino populations are developing diabetes-related complications, including kidney disease and retinopathy, at two times the rate of non-Hispanic whites.(8-10)

Hypertension

According to the National Health and Nutrition Examination Survey III conducted in 1999 and 2000, 28.4% of the adult population in the United States has hypertension. Age adjusted prevalence rates suggest that the rate of hypertension among Hispanics is lower than that among blacks or non-Hispanic whites. However, in 2002, the age-standardized rate of hypertension-related deaths was 127.2 per 100,000, which is similar to that of non-Hispanic whites. Also of note, while rates of hypertension-related mortality increased substantially

overall in the United States, the greatest increases have been seen among members of the Hispanic population.(11)

The significant racial and ethnic disparities in morbidity and mortality related to asthma, diabetes, and hypertension are troubling. This is particularly so among Hispanic populations given projections that the Hispanic population in the US is expected to increase by 2% every year until 2030 and approach 25% of the total population by 2050.(11) This phenomenal increase in population coupled with current trends in incidence, and prevalence of ambulatory sensitive conditions and their complications could mean an extraordinary financial burden on the U.S. health care system, damage to the labor force and economic well-being of the nation, and most importantly, an incredible loss of productive life.

Ambulatory sensitive conditions such as asthma, hypertension, and diabetes, are conditions whereby adequate ambulatory control should eliminate most of the risk for complications and the need for emergency care or hospitalizations related to these conditions. Given this, discrepancies in access to care may help to explain the observed disparities in health outcomes between Hispanic patients and those of other races/ethnicities. Accordingly, evidence indicates that Hispanic Americans are nearly twice as likely to not have a usual source of care as white Americans, and Hispanic adults are considerably more likely to report major problems accessing specialty care than are white Americans.(3) Furthermore, ambulatory care use is lower among Hispanics than among non-Hispanic whites.(3) These difficulties are further evident in the health status of Mexican Americans with hypertension, for example, for whom evidence

indicates that only 17% of Mexican Americans have their hypertension under control, as compared to 30% of non-Hispanic whites.(11)

In addition to the costs and burdens of uncontrolled disease among racial and ethnic minorities, some have suggested that inadequate access to ambulatory health care services results in inappropriate utilization of the Emergency Department. In turn, this inappropriate utilization is presumed to lead to poor continuity of care for patients and ultimately, great cost to the patient, the health care system, and society as a whole.

Despite much discourse on the growing need for ambulatory health care access, health care access has remained inconsistently defined,(2) and it is unclear from empirical evidence what factors actually determine ambulatory health care access, particularly for Latino populations who so desperately need it. Furthermore, it is unclear what conditions of ambulatory health care access are necessary for this factor to translate into the reduction of inappropriate utilization of the emergency department. Ultimately, this knowledge is necessary for forward movement in the health arena.

Health Insurance, Out-of-Pocket Medical Expenses, and Usual Source of Care: Empirical Evidence of Effects on Access to Care and Health Outcomes

Health insurance as an access-defining variable has been a particularly poignant topic for political circles. This poignancy has been accelerated by current evidence that approximately forty-five million people are without health insurance as well as knowledge that racial and ethnic disparities make up a disproportionate percentage of the uninsured population, (12) and that uninsured

African Americans and Hispanics fare worse than whites in obtaining access to care.(13) As inadequate health insurance rests the burden of health care financing on the shoulders of individuals and their families, it is not surprising that much of the existing literature examines potential financial barriers to health care access.

Some studies have specifically found that financial factors may be central determinants of utilization of health services and associated medical instruction. Accordingly, a large survey of chronically ill VA and non-VA adult patients found that cost-related medication underuse was lower among VA patients (12%) than among patients with Medicare, Medicaid (25% $p = .00004$), or no insurance(35%; $p < 0.0001$). Multivariate analysis found that patients with Medicare or no insurance were more likely than VA patients to forego medication at least once per month due to cost (adjusted OR: 3.4 and 3.9, $p < 0.0001$). (14)

Following increases in Medicaid and SCHIP premiums and patient cost-sharing and stricter payment processes from 1997 to 2004, some states evaluated the effects on patient access to ambulatory care. In 2003, Oregon policy called for an increase in Medicaid and SCHIP premiums from \$6-\$20 per person depending on income level, disenrollment for one missed payment, and no waivers for those with extenuating circumstances such as homelessness. In addition, the plan called for increases in copayments to \$3-\$250 based on services received. Analysis of the effects of these changes found that of those patients reporting unmet medical needs, 35% reported that they could not obtain care because of costs, 24% reported they didn't have the copayment and 17% reported they did not obtain

needed medical care because they owed a physician money.(15) In addition to this measure of perceived inadequacy in health care access due to financial burdens, an analysis conducted by the Center on Budget and Policy Priorities used different models and assumptions for projected utilization and found that realized health care access was also affected, as increased copayments led to decreased utilization of services, including hospital admissions, physician visits, prescription drugs, and outpatient hospital clinic visits. (16)

Analysis of adult Medicaid policy changes in Utah also provided discrepant results regarding realized ambulatory care access, depending on models of analysis used. In one model, when actual utilization of services was compared with modeled expectations, investigators found that the new imposition of copayments on those in the Medicaid Waiver Program did not have a statistically significant association with utilization of most services; however, they did find statistically significant decreases in utilization of some services such as prescription drugs. An analysis conducted by the Center on Budget and Policy Priorities used different models and assumptions for projected utilization and found that increased copayments led to decreased utilization of services, including hospital admissions, physician visits, prescription drugs, and outpatient hospital clinic visits.(17)

These studies suggest that financial factors are indeed important determinants of both perceived and realized ambulatory health care access; however, the discrepancies in results based on analysis model or analysis in comparison to different projected models of healthcare utilization used in the

Medicaid studies bear testament to the complexity of this issue. Discrepancies may also display limitations in research design, including the fact that each of the above-mentioned studies were cross-sectional in nature and largely depended upon self-reported indicators of health care access and utilization (data on Utah serves as a notable exception, which included documented utilization from official records, survey, and focus group data). Furthermore, different indicators of health care access were used between the studies, ranging from medication utilization and health services utilization to report of “unmet needs.” That is to say that some studies examined realized health care access, through measures of utilization of ambulatory care services, while other studies examined perceived ambulatory access. Additionally, these studies may not be generalizable to Latino populations given the demographic differences between the states from which Medicaid data was obtained, differential state policies in Medicaid eligibility and benefits that may differentially affect one’s actual or perceived ability to pay for medical care, and the use of an online questionnaire in the VA study which presents the potential for selection bias for those who have access to the internet.

Recognizing the potentials for systematic bias associated with studies that are cross-sectional in nature, a 1994 randomized control trial also sought to gain insight into the determinants of health care access. The study examined whether or not co-payment and deductible costs associated with mammogram screening served as a barrier to screening inner-city, low-income Medicare recipients, consisting mostly of African American women. In this study, women in the intervention group were given vouchers for mammograms, while the control

group received no vouchers and were therefore subject to Medicare co-payment and deductible costs. Results showed a significant difference in the number of voucher recipients who received a mammogram (44%) compared to controls (10%).(18) While these results are consistent with those found in the abovementioned cross-sectional studies -- that health care finances are important determinants of realized access to health care -- the large discrepancies between those who received a voucher and voucher-recipients who received a mammogram, suggests that personal out-of-pocket expenditures is not the sole factor that serves as a barrier to health care access and appropriate utilization of ambulatory health care services.

A study by Jones, Cason, and Bond also supports this finding as it analyzed a population of low-income immigrant Hispanic women who entered the healthcare system for childbirth. They found that though only one-fourth of participants returned to the healthcare system for purposes of preventive care, that the amount one had to pay out of pocket was not a factor in identifying those who returned.(19)

Results of the randomized control trial (RCT) and the study by Jones, Cason, and Bond not only question the validity of general assumptions made in literature and public health discourse on access to health care, but they also suggest possible mitigating factors in discrepant results. As both the randomized control trial and the study by Jones, Cason, and Bond occur within populations containing homogeneity of racial and ethnic minorities, the interplay of race and ethnicity with factors other than insurance status or out-of-pocket health care

expenditures may be important to consider when addressing health care access issues for these populations. Additionally, the studies regarding changes in Medicaid eligibility criteria do not identify the specific reasons for medical service utilization. Comparatively, results of the randomized control trial and the study by Jones, Cason, and Bond, which examined preventive care service utilization, suggest that determinants of healthcare access may also vary by disease condition and/or need for a particular health care service within the ambulatory care setting. As such, a study by Nelson, Chapko, Reiber, and Boyko examined the association between health insurance coverage and diabetes care in a large, nationally representative sample of patients reporting a diagnosis of diabetes. According to their findings, when compared to those with private insurance, the uninsured were less likely to report recommended preventive services, including annual dilated eye exams, foot examinations, or hemoglobin A1C tests. They were also less likely to perform daily blood glucose monitoring than those with private health insurance.(20)

While the results of this investigation in a large, nationally representative sample may suggest the importance of health insurance for the care of diabetic patients, the study results were determined from self-report of the variables and was not able to control for all potential confounders. Thus, our interpretation of this study for intervention purposes is somewhat limited. Nonetheless, it is likely, that insurance coverage is an important determinant of ambulatory health care access.

Examination of the health disparities literature may also provide important insight into insurance as a determinant of health care access because of the reported differences in health outcomes and ambulatory care access between whites and other races and ethnicities. Accordingly, studies by Weinick et al, Waidmann and Rajan, Zuvekas and Taliaferro, and Hargraves and Hadley all found that health insurance consistently explained a significant proportion of the Hispanic-White difference in access to care and in three of the four studies (exception is by Wienick et al), it was the largest contributor to the Hispanic-White differences in health care access. Similarly, the studies found that Black-White disparities in health care access could be explained by differences in health insurance coverage. (3, 21-23)

While these studies generally exhibit good internal validity and therefore lead us to believe that insurance coverage may in fact be the major determinant of health care access in these populations, the use of “having a usual source of care” as one proxy for “health care access” may be problematic. The evidence for “having a usual source of care” as a predictor of health care access has produced mixed results. Accordingly, a study by Lambrew et al found that “persons with a regular health provider are less likely to report delays in getting medical care, more likely to visit their provider, and less likely to use the emergency rooms for ambulatory care.”(24) Additionally, a study of breast and cervical cancer screening among Hispanic and Black women living in New York City found that having a regular source of care significantly predicted all screening use for both elderly and nonelderly persons when other factors were controlled.(25) In a study

of 1893 adult Hispanic respondents, investigators Schur and Albers found that having a usual source of care consistently predicted use of health care services.(26) Comparatively, in another study, an urban academic medical center implemented an intervention to provide a usual source of care to 1676 US citizens or legal residents with income below 235% of the poverty level and who were ineligible for any state or federal insurance plan. Participants were assigned a primary care provider and received prescription drug coverage, diagnostic tests, and outpatient visits for sliding scale copayments. Emergency visits, inpatient hospitalizations, and outpatient specialty clinic use were evaluated for participants in the program and other study participants, including uninsured and commercial patients. Evaluation of the program revealed that use of emergency, inpatient, and outpatient specialty clinics did not significantly change for any of the groups.(27) These results suggest that provision of a usual source of care may not be the definitive factor for ensuring healthcare access and it may not be completely accurate to use this as the sole proxy for access to care. However, it likely contributes to a myriad of forces that determine access to ambulatory care, and the two studies including Hispanic respondents suggest that it may be a particularly important determinant of realized ambulatory health care access in this population. Of note, however, these results may not be generalizeable to our population of interest who are not only Hispanic, but also, low income, largely without health insurance, and with potentially deadly chronic disease.

While the use of “having a usual source of care as an access variable may be problematic, the studies by Weinick et al, Waidmann and Rajan, Zuvekas and

Taliaferro, and Hargraves and Hadley also used other indicators that help to strengthen their results that insurance status is the major determinant of health care access. However, one must note that in these studies, differences in insurance status between Hispanics and Whites, and African Americans and Whites, did not account for all of the differences in observed access to care. Rather, insurance explained only 23-33% of the gap in health care access in these studies.(3, 21-23)

While insurance may be an important contributor to health care access, given the above findings it would be difficult to assume that sole alleviation of the lack of health insurance would be adequate to produce the desired results in health outcomes, particularly for racial and ethnic minorities. Research on the direct link between insurance status and health outcomes is sparse, but provides an adequate picture for some conditions. According to the IOM's report, *Care Without Coverage, Too Little, Too Late*, uninsured patients with cancer are generally in poorer health and are more likely to die prematurely than persons with insurance. Additionally, they found that uninsured adults living with chronic diseases, including diabetes, cardiovascular disease, end stage renal disease, HIV infection, and mental illness, uninsured patients have consistently worse clinical outcomes than insured patients.(28) Despite these findings from the IOM and their conclusions from their study that "providing health insurance to uninsured adults would result in improved health, including greater life expectancy, and increased rates of health insurance coverage would especially improve the health of those in the poorest health and most disadvantaged in terms of access to care and thus

would likely reduce health disparities among racial and ethnic groups,”(28)(p5) some argue that the question still remains of whether or not providing insurance for the uninsured will definitely result in improved health outcomes, particularly for racial and ethnic minorities. Alternatively, must we consider the other potential contributors to health and health care access as Dr. Andersen suggests. Furthermore, we believe that these factors of perceived and realized ambulatory health care access must be more closely examined within populations of largely minority participants if we desire truly to gain insight into the importance of these factors specifically for these populations. Unfortunately, much of the existing literature fails to do such.

Socioeconomic Determinants of Health Care Access: Empirical Evidence

We believe the discrepant findings in the literature suggest that we must examine potential determinants of ambulatory health care access and subsequent health outcomes beyond insurance status and related out-of-pocket costs, and beyond whether or not a patient has a usual source of care. Ironically, this idea has also been supported by the Institute of Medicine. In its 1993 report, the IOM developed a broad definition of access to care as, “the timely use of personal health services to achieve the best possible health outcomes.”(29) The report continues, saying,

Access is a shorthand term for a broad set of concerns that center on the degree to which individuals and groups are able to obtain needed services from the medical care system. Often because of difficulties in defining and measuring the concept, people equate access with insurance coverage or with having enough doctors and hospitals in the geographic area in which

they live. But having insurance or nearby health care providers is no guarantee that people who need services will get them. Conversely, many who lack coverage or live in areas that appear to have shortages of health care resources do, indeed, receive services they need.(29)

Unfortunately, beyond the financial and “usual source of care” indicators, the literature is limited in its ability address and differentiate other potential barriers to health care access. Nonetheless, those such as Theodore Pincus argue that social factors may be the most important determinants of health outcomes.(30) These may include socioeconomic status, perceptions of health and the healthcare system, and ethnic and cultural barriers to care.

In medical and public health literature, socioeconomic status often includes personal income, education level, or occupation. While numerous studies have documented the difficulties in measuring socioeconomic status and its relationship to health status,(31) some have suggested that variables related to socioeconomic status, such as transportation and education may be particularly relevant for measures of health care access.

Few studies have examined the direct relationship between transportation and health care access. However, in the 1994 RCT that evaluated costs as a barrier to mammogram screening in inner city, low-income female Medicare recipients, women in the intervention group revealed that the main reason for not receiving a mammogram despite eliminated financial costs of mammogram screening, was lack of transportation.(18) Additionally, a survey of over 1,000 households in rural Western North Carolina revealed that those who had a driver's license had over two more health care visits for chronic care and nearly two more visits for regular checkup care than those who did not. Respondents who had family or

friends who could provide transportation had 1.58 times more visits for chronic care than those who did not.(32) As these associations were adjusted for effects of personal characteristics, health characteristics, and distance to health care provider, transportation may indeed serve as an important independent contributor to health care access; however, more studies are needed to more closely evaluate its effects on health care access and subsequent health care outcomes. Furthermore, it is likely that transportation as a barrier to access is dependent on where one lives in relationship to health care services.

Education is at least two faceted. It provides the wherewithal to purchase ambulatory health care access and therefore, its effects might be reflected in analysis of financial barriers to health care access. Additionally, education provides access to knowledge about the dangers of chronic and other diseases and thereby may help to dictate health seeking behavior and subsequent realized ambulatory health care access. However, our study of the literature has not discerned these possible connections.

Ethnicity, Acculturation, and Patient Satisfaction with Care as Determinants of Health Care Access: Empirical Evidence

As numerous studies have documented that when compared to non-Hispanic whites, minorities face increased barriers to accessing necessary health care, and non-citizen, Spanish-speaking Latinos face the most significant access problems, experts have considered that ethnic and cultural barriers to care as well as patient satisfaction may significantly impede health care access for the growing population of Latino immigrants in the United States. Specifically, numerous

studies have examined the effects of acculturation on perceived and realized ambulatory health care access. The concept of acculturation has been heavily debated, particularly regarding the factors that should be used to define “acculturation.”(33) However, most current measures use either language, duration of years lived in the United States, or some combination of these two factors. Much of the literature regarding ambulatory health care access focuses specifically on language. As with other potential determinants of health care access, the results are somewhat discrepant.

Language discordance

To demonstrate the potential of language to serve as a barrier to realized health care access, a study conducted in the emergency departments of five teaching hospitals in the Northeastern United States found a significant difference in the percentages of non-English speakers (14%) compared to English-speakers (9.5%) who stated they would not return to the same ED if they had another problem requiring emergency care (OR 0.57; 95% CI 0.34, 0.95).(34) In comparison, Derose and Baker also examined patients with limited English proficiency and their use of physician services as compared to English-speaking patients. They found that lack of a physician visit in the three months prior to the study was unassociated with English proficiency; however, of those who saw a physician at least one time in the three months prior to study enrollment, Latinos with fair and poor English proficiency reported 22% fewer physician visits than non-Latinos whose native language was English, even after adjusting for other determinants of physician visits.(35)

Another study evaluated breast and cervical cancer screening rates in a multiethnic population as related to English-proficiency. This study found that reading and speaking only a language other than English and reading and speaking another language more fluently than English were significantly and negatively associated with receipt of breast and cervical cancer screening in unadjusted models. When using adjusted models, the results were attenuated, but limited English proficiency remained negatively associated with cancer screening.(36)

To gain understanding of the effects of language on realized access to ambulatory care services, a study by Jacobs, Lauderdale, Meltzer, Shorey, Levinson, and Thisted examined the effect of using a comprehensive interpreter services in the delivery of healthcare to limited English-proficient patients versus standard healthcare delivery in a comparison group.(37) Interestingly, this study also aimed to study a possible solution to the potential problem of language barriers. This study found that clinical service use increased significantly in the intervention group versus that of the comparison group for office visits, prescriptions written, and prescriptions filled. Additionally, rectal examinations increased significantly more in the intervention group than in the comparison group, and differences in rates of FOBT, rectal exams, and flu immunizations significantly decreased between Portuguese and Spanish-speaking patients and those in a comparison group. (37)

These studies suggest that language discordance between provider and patient may play a significant role as a barrier to realized access to health care.

These findings are unlikely due to chance alone since the studies had different study designs and study populations. Specifically, the studies examined utilization of different services, including preventive services or emergency department services. Additionally, the study by Carrasquillo et al examined the patient's self-projected utilization of future services based on the level of patient reported satisfaction with care they had received, while the study by Jacobs, Lauderdale, Meltzer, Shorey, Levinson, and Thisted examined associations through an intervention.

Studies have also examined the interplay between language and patient satisfaction or physician discrimination against patients. This interplay may have a significant effect on realized access to ambulatory care as well as complicate our abilities to examine the effects of language on access to health care. For example, in the study by Carrasquillo et al, multivariate analysis adjusting for hospital site, age, gender, race/ethnicity, education, income, chief complaint, urgency, insurance status, Medicaid status, ED as the patient's principal source of care, and presence of a regular provider of care, non-English speakers were significantly less likely to be satisfied with care(odds ratio [OR] 0.59; 95% confidence interval [CI] 0.39, 0.90).(34)

A study of approximately 700 Spanish speaking patients presenting to the Harbor-UCLA medical center ED with non-emergent problems found that language barriers affected referral but not compliance with referral for follow-up appointment.(38) This suggests that discrimination at the system's level, whether overt or covert, is problematic and may be a significant barrier to access to

ambulatory health care among those with language discordance from that of the health care system.

Acculturation

Other studies have examined components of acculturation in addition to language. Accordingly, a study by Solis, Marks, Garcia, and Shelton found that of acculturation variables used in the study, language, but not ethnic identification predicted use of preventive services.(39) This finding is consistent with abovementioned studies that have examined language as a potential barrier to health care access. However, any inconsistencies in the use of “acculturation” as a determinant of perceived and/or realized access may be attributable to the potentially complicated nature of this variable and resultant difficulties in comparing measures of acculturation across populations and studies, given our lack of understanding of this measure.(33) For example, Arcia et al document the inabilities of current models of acculturation to truly differentiate between cultural factors and socioeconomic factors, as low levels of acculturation are likely to also be accompanied by low levels of education and income.(33)

The existing literature regarding acculturation and its effects on health care access is both limited and somewhat lacking. The abovementioned studies suggest a need to further investigate these effects as well as potential remedies, particularly in populations resembling our study population: Hispanic, low income, largely uninsured, with chronic disease. With these goals, we may help to ensure that we help support improvements in health status of this population.

Inappropriate utilization of the Emergency Department

As explained, inadequate access to ambulatory health care is problematic in itself, exposing persons with ambulatory sensitive conditions particularly, to inadequate continuity of care necessary for management and control of potentially life-threatening diseases. Moreover, inadequate access to ambulatory health care has also been linked to “inappropriate” utilization of the emergency department.(40) Utilization of the emergency department in the United States has been estimated to have increased from 18 million visits in 1958(41) to 110 million in 2002.(42) Additionally, this utilization has mirrored an increase in emergency health care expenditures, rising to a cost of approximately 3% of US health care expenditures in 1987.(43) Given these factors, “inappropriate” utilization of the emergency department has become an important topic for medico-political circles. Furthermore, there are numerous documented difficulties with ambulatory health care access for racial and ethnic minorities. Thus, we believe that a positive association between inadequate access to ambulatory health services and “inappropriate” utilization of health care services might highlight the importance of addressing access to health care for the alleviation of racial and ethnic disparities as well as the alleviation of significant financial and societal burdens potentially caused by the “inappropriate” utilization of the Emergency Department. Unfortunately, the literature has seldom closely examined this potential relationship, particularly as it pertains to racial and ethnic minorities.

“Inappropriate” utilization has been deemed a potential target for reduction in health care expenditures and improvement in overall quality of health care delivery, even prompting policies across the nation for denial of care in the emergency department in situations in which ED visitation is deemed “inappropriate”.(44) Many have highlighted potential dangers and difficulties with these practices, largely based on important deficits in the literature.(45) Primarily, definitions of “inappropriate” utilization of emergency services are alarmingly inconsistent, thereby precluding an accurate measure of the magnitude of this issue.(45)

While in the 1980’s, “non-urgency” began to define inappropriate visits to the Emergency Department, the literature has yet to agree on subsequent definitions of “non-urgency.” Accordingly, the US General Accounting Office based its 1990 approximation of a 43% rate of non-urgent ED visits on the opinion of the hospital official who responded to the survey, and non-urgent was defined as “not life or limb threatening or did not require immediate care and probably could have been treated in a doctor’s office or clinic.”(46)

Comparatively, the National Center for Health Statistics derived an approximated figure of 55% non-urgent ED visits in 1992, using data from patient record forms completed by hospital staff. In this case, non-urgent visits were defined as “those made by patients who did not require immediate attention or attention within a few hours.”(47) The 1997 National Ambulatory Medical Care Survey estimated that only 9.7% of ED visits are nonurgent. They used data based on the immediacy with which a patient should be seen, a categorization assigned when

patients arrived in the ED. Categories included emergent, urgent, semiurgent, or nonurgent, where nonurgent classification was defined by needing to be seen within 2-24 hours of arrival in the ED.(48)

While these studies took place in different years and may pool from different patient populations, all three of the studies attempted to gather a wide range of nationally representative hospitals. Additionally, barring significant variations from one year to the next in the pool of patients presenting to these emergency departments, it is more likely that the different methods of classification of non-urgency are reflected in the vast differences in the percentages of ED visits identified as “non-urgent.”

Lowe and Bindman have further explored the differences in classification of “appropriateness” of emergency department visitation, depending not only on criteria for classification, but also, on the person performing classification. Furthermore, their study addresses another important contributor to the problem of classification discrepancy according to Richardson and Hwang: whether or not studies have determined urgency prospectively or retrospectively.(49) In their study, Lowe and Bindman identified seven different indicators of inappropriate ED visits. Two assessments of appropriateness were made each from the patient questionnaire and nursing triage form, and three assessments were made retrospectively from chart review. These assessments were largely based on patient acuity. According to these different indicators, Lowe and Bindman found a wide range of visits classified as “inappropriate,” with percentages ranging from 10 to 90%. Perhaps not surprisingly, the highest value of appropriate visits, 90%,

was obtained by patient self-assessment of urgency. Agreement assessments were performed for each visit, on the multiple methods used for classification, indicating that there was poor agreement between the indicators for each visit, and thereby suggesting that in this study, there is truly a wide range of discrepancy between persons and methods of classification of appropriate and inappropriate visits to the ED. This discrepancy of course, is problematic, and calls into question the ethical basis of any effort to divert “inappropriate” visits from the emergency room, at least until we can consistently define what constitutes “inappropriate” use.(45)

While the presumed association between access to health care and “inappropriate” utilization of the emergency department is potentially an important one for allocation of limited health care resources and assurance of adequate quality of care, numerous questions remain, notwithstanding the lack of consistency in definitions of “inappropriate” use of the Emergency Department. Among these questions is, “what factors are associated with “inappropriate” utilization of the Emergency Department, particularly for racial and ethnic minorities?” We believe that the answer to this question is an important step towards finding a solution to problems of inappropriate utilization of health services and just allocation of health care resources as well as potentially improving racial and ethnic disparities. We also believe that to answer this question and to derive the potential for increases in ambulatory access to health care to alleviate inappropriate utilization of the Emergency Department, we must develop stringent criteria as what constitutes “inappropriate utilization of the

Emergency Department.” We suggest using a measure that takes into account the benefits of ambulatory care and control for ambulatory sensitive conditions such that “inappropriate utilization” includes that for which one utilizes the Emergency Department for help with an ambulatory sensitive condition or an associated complication.

Inappropriate utilization of the Emergency Department and Access to Ambulatory Care services

Few studies have closely examined health care access as a factor that influences “inappropriate” utilization of the emergency department, despite the widely presumed association between utilization and access to care. Among these is a study by Liu, Sayre, and Carleton, which examined data from the National Hospital Ambulatory Medical Care Survey and sought to determine the factors related to “nonurgent” visits. Non-urgent visits were classified as those in which a “patient does not require attention immediately or within a few hours” and this definition was mandated for hospitals prior to their participation in the study. The study found that nonurgent visits varied by demographics, geography, and health insurance coverage statuses. Accordingly, older patients, males, and urban areas had a lower proportion of nonurgent visits. The northeastern region had the lowest risk of nonurgent visits, followed by the midwest, south, and west. Furthermore, those with Medicare coverage had a 25% lower risk than those with private insurance, while those with Medicaid or “other” insurance had 14% and 6% higher risks of nonurgent visits, respectively.(50) These findings suggest the relationship between access to care and inappropriate utilization of the

Emergency Department is weak if indeed there is an association. Alternatively, though this study evaluated presumed determinants of health care access – insurance status, demographics, and geography – these factors may not be the important determinants of ambulatory access to health care for this population of people.

Oktaç, Çete, Eray et al have examined the relationship between “inappropriate” utilization of the emergency department and aspects of access to health care in the Turkish health system. In this study, “inappropriate” utilization was defined first by three emergency medicine residency trained physicians according to a predetermined classification scheme ranging from category 1 to category 3. Category 2 described a patient who needed evaluation within 6 hours while a category 3 patient needed evaluation only after 6 hours. Those in categories 2 and 3 were then retrospectively classified as “appropriate” or “inappropriate” visits to the ED based on the availability of care at the outpatient facility at the time of first emergency department presentation (i.e., was the clinic open and operating?). Using this schema, investigators found that of those who were classified as “inappropriately” utilizing the ED, proximity of the Emergency Department, satisfaction with care at the ED, and the unavailability of clinic care were among the top reasons patients presented to the ED for care. Interestingly, insurance status was also significantly associated with seeking care in the ED as those with government insurance, which covered 100% of care in the ED, made significantly more inappropriate visits as compared to those who were self-paying. Also interestingly, patients in the highest income group made

significantly more inappropriate visits to the ED than those in lower income groups. Investigators suggested that for care for minor health problems, lower income patients preferred less expensive public health clinics or government hospital emergency departments as opposed to the university hospital examined in this study. They also suggested that those with insurance had the freedom to visit the emergency department whenever they wanted, regardless of the seriousness of their conditions.(44) The results found in this study may differ from results in the United States as a function of the differences in patient populations and attributes of the health care systems. Nonetheless, these results suggest that determinants of health care access, including insurance and socioeconomic status, may not be associated with “inappropriate” utilization of the ED in the expected manner – that those with less access to ambulatory care because of inadequate insurance or lower socioeconomic status are more likely to inappropriately utilize the emergency department.

In support of this hypothesis, authors, Gill and Riley conducted a cross-sectional study in the Emergency Department of an urban, U.S. teaching hospital and found no association between having no regular source of care and utilization of the ED for problems patients rated as nonurgent. Furthermore, investigators found that of the access factors assessed in the study, including having health insurance, having a higher income, having a telephone, and living close to health care facilities, none were associated with patient-rated urgency. Additionally, non-urgent visits were not more common on the weekend or during weekend hours where ambulatory care would not be available. Investigators concluded

therefore, that “providing patients with a regular source of care is unlikely to have a significant impact on nonurgent ED utilization without efforts to manage utilization and ensure adequate access to primary care.”(51)

In a relatively large, nationally representative study by Sarver, Cydulka, and Baker, the relationship between usual source of care and nonurgent use of the ED was explored. Investigators found that dissatisfaction with the usual source of care or the usual source of care’s staff, lack of confidence in the usual source of care’s ability, difficulty scheduling an appointment, difficulty reaching the usual source of care by phone, and long waiting times with an appointment were all significantly associated with having had a nonurgent visit to the ED within the study period, even when adjusted for age, sex, race, education status, health status, employment status, income, insurance, region of residence, and rural vs. urban residence. Of note, classification of “urgency” was based on pre-published criteria, based on the participants’ reporting about the visit and his or her perception of the visit. Authors concluded that improvements in patient satisfaction with and access to their usual source of care may help to decrease nonurgent visits. (52)

A study by Guttman et al sought specifically to identify the factors associated with medically nonurgent visits to the emergency department. In a 408 person sample, composed mostly of pediatric patients (81%), investigators found that 11% of adult patients identified no usual source of care, while 10% identified the emergency department as their usual source of care. Additionally, 25% of adult patients identified that they had no health insurance. Though further results

are not classified by age, and results were qualitative and not quantitative, investigators concluded that insurance and the presence of a usual source of care, which are regarded as access issues are not the primary driving forces for nonurgent visits to the ED. Instead, investigators discovered that perception of need, belief of appropriateness because of a worrisome condition or perception that primary care services were unavailable, or preference for the Emergency Department were driving forces for use of the ED. Given these results, Guttman et al recommend that expanded access to primary care may not be the best solution to reduce use of the ED.(53)

As a result of the discrepancies in information regarding the “usual source of care,” some studies have examined ambulatory care physician practice characteristics and their relationships with utilization of the Emergency Department. Among these is a large study by Lowe et al, which specifically looked at this association, based on the assumption that inadequate access to health care leads to increased use of the emergency department. In this study of a Medicaid population assigned to 353 physician practices, investigators found that patients from practices with more than 12 evening hours per week used the ED twenty percent less than patients from practices without evening hours. Additionally, a higher ratio of the number of active patients per clinician-hour of practice time was associated with more ED use, as was a higher proportion of Medicaid patients.(54) Thus, this study showed that characteristics of physician practices, particularly hours of operation and patient population, may be important considerations if the goal is for health care access to impact inappropriate

utilization. Additionally, others have speculated that physician characteristics may be particularly pertinent for low income populations who, if working, are unlikely to have flexibility or negotiating power to leave their jobs for medical appointments.(26)

The abovementioned studies display markedly different results despite their efforts to answer a similar question. While studies by Oktay, Cete, and Eray, Guttman et al, and Lowe et al found that perceptions of unavailable clinic care appeared to be driving forces for non-urgent visits to the Emergency Department, Gill and Riley found that non-urgent visits were not more common at times when ambulatory care was unavailable. Furthermore, while Gill and Riley and Guttman et al both found that there was no association between having a usual source of care and non-urgent visits to the ED, the study by Sarver, Cydulka, and Baker found that dissatisfaction with the usual source of care was associated with non-urgent visits to the Emergency Department. Finally, while Gill and Riley and Guttman et al found no association between having health insurance and non-urgent visits to the Emergency Department, Oktay, Cete, and Eray found that those with insurance or higher income were more likely to visit the Emergency Department for non-urgent reasons than those without insurance or those with lower income. However, the study by Oktay, Cete, and Eray was foreign.

The differences in findings likely stem from the wide array of differences in the studies. Primarily, each had a different method of classifying “urgency” or “inappropriate,” whether classification was done by medical personnel or the patient and prospectively or retrospectively. Secondly, the populations studied

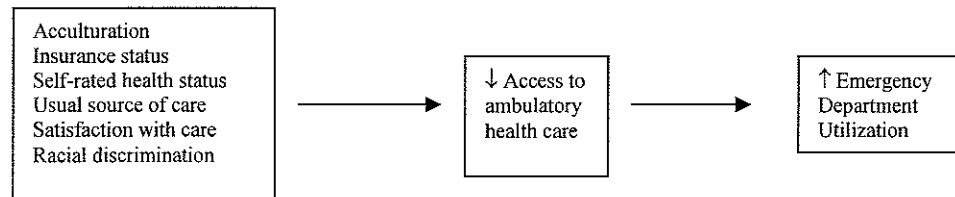
varied greatly, ranging from northeastern urban hospitals in Guttman's study to Turkish hospitals in that by Oktay, Cete, and Eray, to presumed nationally representative populations in studies by Sarver, Cydulka, and Baker and Liu, Sayre, and Carleton. Clearly, more work is to be done concerning the topic of access to ambulatory care and inappropriate utilization of the emergency department.

Summary

As indicated above, the literature on health care access and inappropriate utilization of the emergency department has considerable deficiencies. Not only are these concepts inconsistently defined, but it is also difficult to compare the studies relating to ambulatory access and inappropriate utilization of the emergency department in order to closely examine the determinants of both health care access and inappropriate utilization. Hence, this has led to difficulty in improving appropriate utilization of the Emergency Department. Furthermore, while studies have been conducted, few have examined these concepts within populations consisting largely of racial and ethnic minorities -- the very populations with not only poorer perceived and realized access to ambulatory care services, but also, with substantial use of the emergency department and significantly poorer health outcomes. Implementing interventions among racial and ethnic minorities will require a concerted effort to determine pathways by which access to health care influences Emergency Department utilization and

thereby come closer to eliminating health disparities and meeting the goals of Healthy People 2010.

Figure 1: Conceptual Model



Latino Access to Coordinated Health Care (LATCH), a program funded by the US Bureau of Primary Health Care since 2002, is a community-based health care access program for Durham County residents who self-describe as being under or uninsured. This program offers general or specialty ambulatory care, open STD and psychiatric clinics, health education related to chronic and acute disease prevention, information regarding navigation of the United States health care system, and care management to some participants in an ethnically and culturally competent manner. Given this multidimensional approach to health care access, the LATCH program provides quasi-natural experimental conditions where amelioration of barriers to access for Latino populations could be assessed in relation to utilization of the Emergency Department.

We report here results of analyses conducted to estimate chronic disease-related inappropriate use of health care (Emergency Room use for complications or problems relating to ambulatory sensitive conditions) by Latino participants in the LATCH program and determine aspects of health care access associated with inappropriate utilization of health care services. Findings from these analyses will

help clarify these important questions in order to decrease suffering and decrease health-related costs.

METHODS

LATCH Participants and Study Population

Participants included in this study are 448 men and women selected using a stratified random sampling scheme, with the stratum being the level of case management received. Participants were selected from nearly 20,000 uninsured or underinsured inhabitants living in the Durham County between 2002 and 2006. As the LATCH program aims particularly to meet the health service needs of the growing Latino population, LATCH workers identified El Centro Hispano, Lincoln Health Center, Planned Parenthood and/or Catholic Social Ministries of Durham County as places frequented at least once per month by many members of the Durham Latino population (approximately 10,000 persons). Hence, workers identified these sites as the main recruiting sources for participation in the LATCH program.

To be eligible, potential participants had to come into contact with one of these enrollment sites, self identify as uninsured or underinsured to a LATCH worker, and agree to enroll in the program when invited by a LATCH worker. To date, (between the years 2002 and 2006) LATCH has enrolled nearly 7,500 Latino participants, with the majority of these participants enrolled through outreach by El Centro Hispano.

In LATCH year 1, 2,447 persons were enrolled into the LATCH program, while in years 2 and 3 enrollment was 1,937 and 1,929 in each year, respectively. All who were enrolled were eligible for information regarding general or specialty ambulatory care, open STD and psychiatric clinics, health education related to chronic and acute disease prevention and information about qualifying for public health insurance in a culturally competent manner. Upon enrollment in the LATCH program, a care manager attempted to contact participants for care management. If managers were not able to contact a participant, the participant did not receive care management. Alternatively, those who were contacted received information concerning how to access the ED versus urgent care versus a clinic and appropriate times for accessing each, difficulties paying hospital bills, access to specialty care, letters and forms assistance, transportation to health-related appointments and social services, Medicaid assistance and referral, medication/doctor order compliance, translation services, mental health and substance abuse aid, help with kids' needs, appointment facilitation, pregnancy-related referrals, and dental access. These particular participants were either heavily case managed (four or more visits by a case manager), or less case managed (less than four visits by a case manager, depending on a combination of participant assertiveness, medical need, and serious access difficulties).

The original evaluation was intended to determine the prevalence of ED in this largely immigrant, largely uninsured population, and determine whether improving access to care (by increasing access to health care through provision of care for common ailments such as depression, STD testing and treatment, and

increasing physician work hours to cover evenings at Duke and Durham Regional Hospitals) would decrease ED visits. To meet this goal, for each year following the initial implementation of the LATCH program in 2002, investigators identified the group of enrollees who had had at least one contact with LATCH workers in the previous year. Of this group of people, investigators aimed to derive a sample of approximately 500 LATCH enrollees per year. To obtain this sample size, investigators stratified participants on the basis of level of care management. Men and women with high utilization patterns (those with 4 or more LATCH contacts per year) were first selected and then investigators selected a random computer generated sample¹ of an equal number of LATCH enrollees with low utilization patterns (less than 4 contacts with LATCH care managers per year, including initial LATCH contact).

Participants included in the current study were made eligible for this study by virtue of being selected in years two or three using the stratified randomization process. From research year 2, we obtained 447 eligible participants, including 231 heavily care managed persons and 216 less care managed persons. From research year 3, eligible participants were numbered at 519 persons, including 248 heavily care managed persons and 237 less care managed persons. Sample participants from year two were independently derived from those in year three such that sample participants in year two remained eligible for inclusion in the sample from year three as long as they remained enrolled in the LATCH program by the end of year three.

¹ Random sample generated using random number generator in SAS, version 9.0 (Cary, NC)

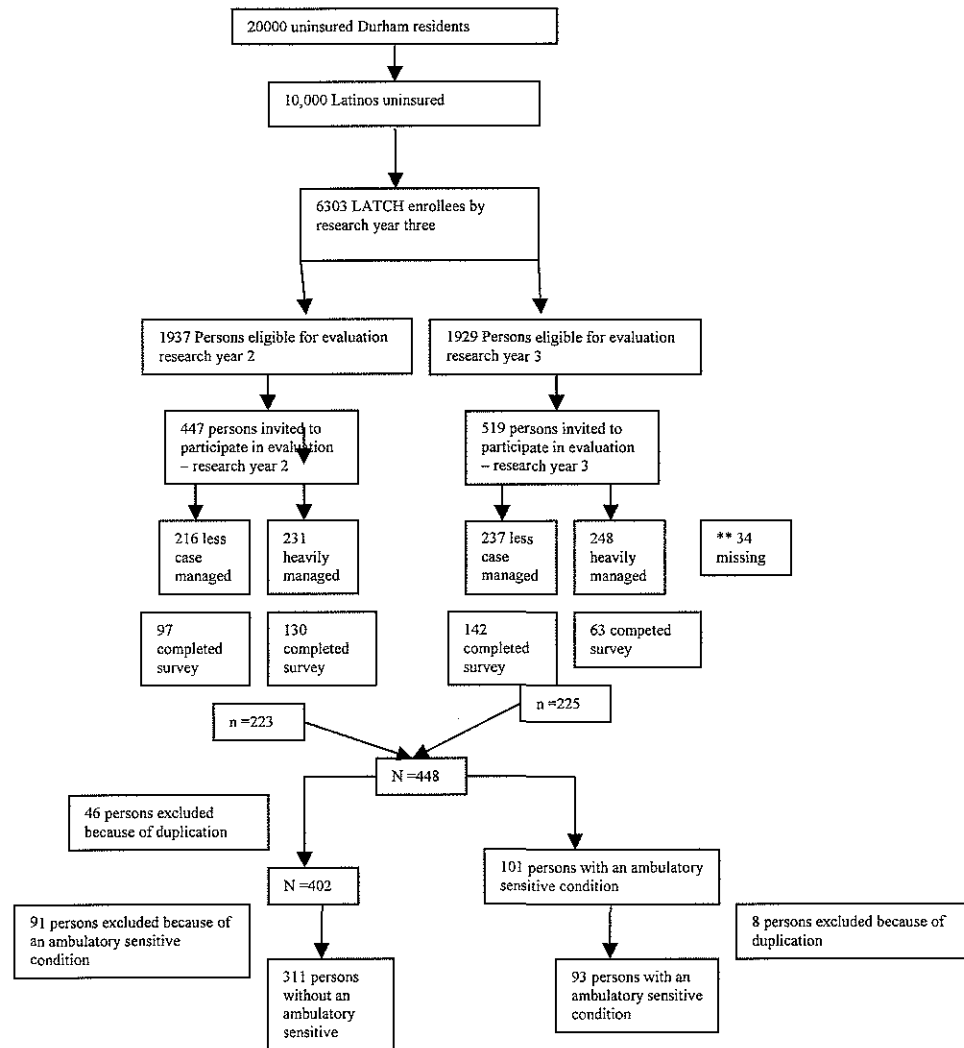
From the total 1066 persons eligible for inclusion in the current study, persons who did not agree to participate in a survey were then excluded, resulting in a final eligible population of 448 persons, with 223 from year 2 and 225 from year 3. Of the 223 persons in year 2, 130 were heavily care managed while 97 were less care managed. Of the year 3 participants, 63 were heavily care managed, while 142 were less care managed.

Of the 448 persons eligible for inclusion in this study, two populations were identified. The first group aims to represent those non-diseased participants enrolled in the LATCH program by research year three and serves as a comparison group for our main population of interest – those with at least one ambulatory sensitive condition. Given the independently derived samples from years two and three, the 448 persons eligible for inclusion in this study included forty-six duplicates. We randomly selected half of these duplicates and placed them in year two. The other half was placed in year three, thereby reducing the sample size to 402 persons. Those reporting at least one ambulatory sensitive condition were excluded, thereby reducing the size of this comparison group to 311 persons.

In order to determine whether ED use was appropriate, we initially restricted analyses to the 101 individuals with at least one ambulatory sensitive condition (asthma, diabetes, or hypertension). To derive this group, persons without one of these chronic diseases were excluded from the abovementioned sample of 448 persons. This reduced the sample size to 101 persons. Tracking techniques using birth date together with name were also performed for this group

of people, resulting in the exclusion of an additional eight persons from the study population (four persons eliminated from year 2 and four eliminated from year 3 because they were duplicates).² This reduced this final study population to 93 persons among whom analyses of inappropriate ED use were conducted.

Figure 2: LATCH Participants/Study Population



² exclusion proceeded as follows: identification numbers known to represent the same person in research years 2 and 3 were matched and the first four persons from year two were eliminated, while the last four persons from year 3 were eliminated.

Data Collection

Once participants were identified for the LATCH database, LATCH workers conducted telephone interviews with those from the sample cohort who agreed to participate in the interview process. Participants were given the option of having the interviews conducted in either English or Spanish. Prior to conducting the interviews, LATCH workers completed identical training sessions on how interviews were to be conducted, and each interview was conducted according to a standard written survey instrument.

Survey Instrument

The survey instrument was developed by LATCH investigators in 2002. The survey included questions about questions about personal demographics, six comorbid conditions and health service use related to these, insurance status, and personal habits.

Of the many questions asked by the LATCH survey, we chose a number to serve as factors for purposes of investigating our research questions. We sought to 1) investigate the prevalence of Emergency Department use among LATCH participants 2) identify the correlates of inappropriate utilization of the Emergency Department among those with at least one ambulatory sensitive condition and 3) to identify the correlates of perceived and realized access to ambulatory care and determine whether access was related to Emergency Department utilization.

Measures of access to ambulatory care

Participants were asked if they had experienced a time in the year prior to completing the survey where they had needed care and had been unable to get care. Participants were also asked whether they had had a checkup in the year prior completing the survey. These questions served as proxies for perceived and realized access to ambulatory health care. These questions have also been used by and suggested by the Robert Wood Johnson Foundation National Access Survey Analyses.(2) The questions of unmet health need and visits to a health professional within the last 12 months are also modeled after questions used in both the National Health Interview and Behavioral Risk Factor Surveillance Surveys. Questions on these surveys must undergo cognitive and validity testing before appearing on the surveys and the majority of which have been shown to be at least moderately reliable and valid. Furthermore, these questions have been repeatedly used in national surveys regarding health care accessibility.(55-58)

Ambulatory care access variables

Insurance Status: Participants reported whether or not they had health insurance in year prior to participating in the survey.

Usual Source of Care: Participants were asked whether or not they had a “usual source of care”. Having a usual source of care has been used as a proxy for ambulatory care access in many studies and has therefore been associated with better health outcomes.

Care Management: Participants were considered to have had heavy care management if they had had four or more contacts with a LATCH worker in the

previous year and less care management if they had fewer than four contacts with a LATCH worker in the previous year.

Satisfaction with Care: Participants indicated how often they were satisfied with the health care they received. Participants chose from the following responses: always, often, sometimes, rarely, never, not applicable. For purposes of analysis, this factor was dichotomized, with those responding “rarely” or “never” classified as not being satisfied with care and those responding “sometimes,” “often,” or “always” classified as being satisfied with care. Satisfaction with care has been associated with realized ambulatory care access, as those who are less satisfied with care have been shown to be less likely to appropriately use care.

Perceived racial discrimination: Participants indicated how often they believed they were discriminated against at their usual source of care because of their race. Participants chose from the following responses: always, often, sometimes, rarely, never, not applicable. For purposes of analysis, this factor was dichotomized, with those responding “never” classified as not being satisfied with care and those responding “rarely,” “sometimes,” “often,” or “always” classified as perceiving racial discrimination. Perceived racial discrimination has shown to be associated with not seeking care and plausibly seeking usual care in the Emergency Department.

Years in the U.S.: Some have suggested “years in the U.S.” as a proxy for level of acculturation. Acculturation has been viewed as a factor that may influence health care seeking behavior and thus, health care access.(33)

Language discordance: Participants were asked how often they experienced difficulty communicating with a health care provider at their usual source of care as a result of different languages. These factors have also been closely linked with realized ambulatory care access and may affect utilization of the Emergency Department.

Measures of Inappropriate Emergency Department Utilization

Participants with at least one ambulatory sensitive condition were asked about visits to the emergency department specifically for complications or problems related to their ambulatory sensitive condition. Ambulatory sensitive conditions are those for which care in an ambulatory setting can provide better continuity of care and therefore, higher quality and more efficient care. Thus, care received in the emergency room for ambulatory sensitive conditions is considered to be both preventable and of lower quality, thereby “inappropriate.”

Statistical Analysis

Descriptive statistics were performed to separately describe the group of persons with ambulatory sensitive conditions and the population of non-diseased persons. We then investigated the associations between each of the participant’s characteristics (gender, age, duration in us, birthplace, language, language concordance, satisfaction with care, usual source of care, perceived racial discrimination, self rated health, care management status) and access to care by creating two by two tables and deriving risk ratios, 95% confidence intervals, and chi squares. We also investigated the relationships between each of these patient

characteristics and inappropriate utilization of care (ER visit for chronic disease-related complication, similarly deriving risk ratios and 95% confidence intervals.) We then examined the relationship between access to care and inappropriate utilization of health care services. Finally, we performed multivariate analysis to determine whether independent patient characteristics and the two outcomes of interest (access to care and inappropriate utilization) were associated. Included in these analyses were all variables whose individual relationship with the outcomes provided a chi squared result of equal to or less than 0.2.³ The most parsimonious model was selected.

³ a chi square of 0.2 or less was chosen to account for the limited sample size that may affect statistical significance of the results.

RESULTS

Univariate analyses indicate that the majority of persons in both the diseased and non diseased groups were female (77% and 72% respectively), young (less than 35 years of age) (59% and 80% respectively), being born in Latin America (87% and 96% respectively), speaking Spanish as their primary language (89% and 98% respectively), and having lived in the United States no more than 8 years (74% and 78% respectively).

Incidence of Emergency Department Use per year

Of those in the group without an ambulatory sensitive condition, 25% report utilization of the emergency department at least once in the year preceding the interview. The average number of visits was .43 per person per year. This proportion is lower than the ED use rate of .53 visits per person per year reported among individuals with at least one ambulatory sensitive condition (asthma, diabetes, hypertension). Approximately 13% of this population reports use of the emergency department specifically for a help with their chronic disease or for a disease-related complication.

Factors associated with perceived and realized poor access to care

Approximately 74% of the non-diseased population and 75% of the individuals with at least one ambulatory sensitive condition reported experiencing needing health care and being unable to get it or not having had a checkup at least one time in the year preceding the interview.

Upon investigation of the factors associated with health care access among those without a chronic condition, only care management was significantly associated with access to care in unadjusted and adjusted analyses. Those with two or more visits by a care manager had a 20% less chance of not having access to care as compared to those with no care management (RR=.80; 95%CI=.65-.99). Language discordance with a health care provider also showed an association with access to ambulatory care in analysis adjusted for care management, presence of a usual source of care, and satisfaction with care. Those who experienced language discordance with a health care provider had a .38 odds of having had difficulties with health care access in the year preceding the survey as compared to those with language concordance with a healthcare provider (OR=.38; 95%CI=.13 – 1.00). Neither gender, age, duration in the United States, birthplace, language, satisfaction with care, existence of a usual source of care, perceived racial discrimination, self reported health status, nor insurance status were significantly associated with not having had a check up in the year prior to taking the survey or having experienced some point in that year, where they needed healthcare and were unable to obtain it.

Among the 93 participants with chronic ambulatory conditions, self-rated health and insurance status were significantly associated with having had a checkup in the year prior to the survey or having experienced time in that year when they needed health and couldn't obtain it. Those with self-rated fair, poor or terrible health were 40% more likely to have problems with health care access as compared to those who reported good, very good, or excellent health (RR=1.43; 95%CI = 1.05-1.93). As expected, those with no insurance were nearly two times as likely to report problems with health care access (RR=1.85; 95%CI=1.07-3.17). Interestingly, those with self-rated poor or terrible health were approximately 25% more likely to have problems with health care access than those reporting fair, good, very good, or excellent health; however, this association was of borderline significance in unadjusted analysis (RR=1.25; 95%CI=.95-1.65). When adjusting for duration in the U.S., language discordance, self-rated health status, and insurance status, self rated health status and insurance status remained statistically significant.

Of note, when analyses were performed on the group of persons containing both those with an ambulatory sensitive condition and those with no condition, only insurance status appeared to be statistically significant in bivariate analysis, as those without insurance had a 58% chance of having problems with access to health care as compared to those with insurance. (RR=.58; 95%CI=.41-.83). When satisfaction with care, existence of a usual source of care, self reported health status, care management of 2 or more visits by a LATCH worker, duration of five years or less in the United States, and insurance status were placed into a

model, insurance status remained statistically significant (OR = .25; 95%CI= .08 - .77).

Factors associated with Emergency Department utilization

In the population without an ambulatory sensitive condition, self reported health status and the existence of a usual source of care were significantly associated with use of the ER in unadjusted analysis. Those with self reported fair, poor, or terrible health had a 52% greater chance of using the ER as compared to those with self reported good, very good, or excellent health status (RR=1.52; 95%CI = 1.03-2.23). Those who reported no usual source of care were less likely to have used the ED as compared to those who reported no usual source of care (RR=.56; 95%CI=.30-1.05). The association between use of the ED and self-reported health status remained significant (OR=1.80; 95%CI=1.06-3.08) in a model adjusted for birthplace and care management (2 or more visits by a LATCH worker). The presence or absence of a usual source of care became of borderline significance in this adjusted model.

Among individuals with at least one ambulatory sensitive condition, neither gender, age, duration in the US, birthplace, language, language discordance with a health care provider, satisfaction with care, existence of a usual source of care, perceived racial discrimination, self rated health status, insurance status, nor the level of case management appeared to be significantly associated with use of the ED in unadjusted analysis. There also was no

significant association between ED visits and satisfaction with care or self-rated health status when these characteristics were placed into a model.

Furthermore, in this population, gender, age, duration in the US, birthplace, language, language discordance with a health care provider, satisfaction with care, existence of a usual source of care, perceived racial discrimination, self rated health status, insurance status, nor care management were significantly associated with inappropriate utilization of health care services in unadjusted analysis. While age, birthplace, language, and self-rated health status were of borderline significance in unadjusted analysis, none were significant in adjusted model.

Table 1. Study Population

	At least one ambulatory sensitive condition	
	Yes	No
Gender		
Female	77%	72%
Male	23%	28%
Age		
Under 35	59%	80%
35+	41%	20%
Years in US		
<=8yrs	74%	78%
>8 yrs	26%	22%
Birthplace		
Latin America	87%	96%
Other	13%	4%
Primary Language		
Spanish	89%	98%
Other	11%	2%

Table 2. Factors associated with perceived and realized poor access to care among those without an ambulatory sensitive condition

	Problems with access to care #(%)		Analysis			
	Yes	No	RR	95%CI	Pr chi2	
Gender						
Female	162	60	.94	.82 1.08	.3737	
Male	67	19				
Age						
<=35 yrs	180	67	.91	.79 1.06	.2845	
>35 yrs	47	12				
Duration in US						
<=5 yrs	140	48	1.01	.88 1.16	.8518	
>5 yrs	86	31				
<=8 yrs	192	67	1.00	.83 1.21	.9752	
>8 years	34	12				
Birthplace						
Latin America	222	75	.85	.54 1.34	.4073	
Other	7	4				
Language						
Spanish	224	78	1.12	.78 1.62	.6109	
English	5	1				
Language						
Concordance	70	13	.83	.67 1.03	.0565	
Discordance	33	14				
Satisfaction with care						
Satisfied	133	56	1.13	.96 1.32	.1824	
Unsatisfied	46	12				
Usual source of care						
No usual source of care	49	11	1.12	.97 1.29	.1560	
Usual source of care	179	67				
Perceived racial discrimination						
Some racial discrimination	60	27	.92	.78 1.09	.3249	
no racial discrimination	116	39				
Self rated health						
Good, v. good, excellent	132	47	1.02	.89 1.16	.7736	
Fair, Poor, Terrible	97	32				
Fair, Good, v. good, excellent	222	7	.85	.54 1.34	.4073	
Poor, terrible	7	4				
Insurance Status						
No insurance	202	66	1.12	.89 1.40	.2875	
Some insurance	27	13				
Care management (LATCH 2 or more)						
2 or more contacts	36	22	.80	.65 .99	.0174	
Less than 2 contacts	190	56				
Care management (LATCH 4 or more)						
More care management	17	5	1.04	.82 1.32	.7438	
Less care management	209	73				

Table 3: Factors associated with perceived and realized poor access to care among those with an ambulatory sensitive condition

	Problems with access to care #(%)		Analysis			
	Yes	No	RR	95%CI	Pr chi2	
Gender						
Female	50	14	1.07	.77 1.50	0.6752	
Male	20	7				
Age						
<=35 yrs	37	18	1.10	.84 1.43	0.5076	
>35 yrs	28	10				
Duration in US						
<=5 yrs	40	12	1.29	.95 1.75	0.0774	
>5 yrs	22	15				
<=8 yrs	47	19	1.09	.78 1.53	0.5902	
>8 years	15	8				
Birthplace						
Latin America	53	8	.97	.66 1.44	0.8882	
Other	22	3				
Language						
English	8	2	1.16	.82 1.63	0.4780	
Spanish	56	25				
Language concordance	16	12	1.43	.94 2.19	0.1483	
Discordance (exposed)	9	2				
Satisfaction with care						
satisfied	45	22	1.24	.92 1.68	0.2620	
Unsatisfied (exposed)	10	2				
Usual source of care						
No usual source of care	9	4	.98	.66 1.45	0.9254	
Usual source of care	55	23				
Perceived racial discrimination						
Some racial discrimination	16	4	1.17	.88 1.55	0.3240	
no racial discrimination	39	18				
Self rated health						
Good, v. good, excellent	23	18	1.43	1.05 1.93	0.0140	
Fair, Poor, Terrible	40	10				
Fair, Good, v. good, excellent	54	26	1.25	.95 1.65	0.2121	
Poor, terrible	11	2				
Insurance Status						
No insurance	56	16	1.85	1.07 3.17	0.0025	
Some insurance	8	11				
Care management (LATCH 2 or more)						
More care managed	19	7	1.06	.80 1.41	0.6767	
Less care managed	46	21				
More care managed	9	2	1.20	.87 1.64	0.3613	
Less care managed	54	25				

Table 4. Factors associated with Emergency Department utilization among those without an ambulatory sensitive condition

	Emergency Department Utilization		Analysis			
Gender						
Female	59	161	1.27	.80	2.02	.3092
Male	18	67				
Age						
≤35 yrs	65	180	.75	.44	1.30	.2967
>35 yrs	12	48				
Duration in US						
≤8 yrs	65	191	1.06	.62	1.85	.8316
>8 yrs	11	35				
≤5 yrs	46	30	.98	.66	1.46	.9340
>5 yrs	138	88				
Birthplace						
Latin America	72	222	1.86	.94	3.66	.1161
Other	5	6				
Language						
Spanish	76	223	.66	.11	3.97	.6251
English	1	5				
Language concordance	21	63	1.13	.63	2.04	.6858
Discordance	13	33				
Satisfaction with care						
Satisfied	50	139	1.19	.76	1.87	.4483
Unsatisfied	18	39				
Usual source of care						
No usual source of care	9	49	.56	.30	1.05	.0542
Usual source of care	68	177				
Perceived racial discrimination						
Some racial discrimination	24	62	1.01	.66	1.54	.9781
no racial discrimination	43	112				
Self rated health						
Good, v. good, excellent	37	141	1.52	1.03	2.23	.0338
Fair, Poor, terrible	40	87				
Fair, Good, v. good, excellent	75	220	.79	.22	2.76	.6978
Poor, terrible	2	8				
Insurance status						
No insurance	65	201	.79	.47	1.33	.3952
Some insurance	12	27				
Care management (LATCH 2 or more)						
More care managed	18	40	1.32	.85	2.07	.2306
Less care managed	57	186				
Care management (LATCH 4 or more)						
More care managed	6	16	1.10	.54	2.25	.7907
Less care managed	69	210				

Table 5. Factors associated with Emergency Department utilization among those with an ambulatory sensitive condition

	ER		Analysis			
	Yes	No	RR	95%CI	Pr chi2	
Gender						
Female	22	48	.83	.43 1.6	.5687	
Male	8	13				
Age						
<=35 yrs	21	34	.76	.42 1.4	.3568	
>35 yrs	11	27				
Duration in US						
<=5 yrs	17	35	.93	.52 1.7	.8101	
>5 yrs	13	24				
<=8 yrs	21	45	.81	.44 1.51	.5229	
>8 yrs	9	14				
Birthplace						
Latin America	25	50	.92	.29 3.13	.8426	
Other	4	7				
Language						
Spanish	27	54	.9	.33 2.44	.8325	
English	3	7				
Language						
Concordance	14	14	1.09	.57 2.10	.7983	
Discordance	6	5				
Satisfaction with care						
Satisfied	21	46	1.60	.82 3.11	.2095	
Unsatisfied	6	6				
Usual source of care						
No usual source of care	5	8	1.2	.56 2.57	.6490	
Usual source of care	25	53				
Perceived racial discrimination						
Some racial discrimination	5	15	.75	.32 1.74	.4888	
no racial discrimination	19	38				
Self rated health						
Good, v. good, excellent	26	54	1.42	.73 2.77	.3365	
Fair, Poor, terrible	6	7				
Fair, Good, v. good, excellent	17	24	.72	.41 1.26	.2545	
Poor, terrible	15	35				
Insurance status						
No insurance	24	48	1.05	.50 2.21	.8849	
Some insurance	6	13				
Care management (LATCH 2 or more)						
More care managed	7	19	.72	.36 1.46	.3439	
Less care managed	25	42				
Care management (LATCH 4 or more)						
More care managed	3	8	.80	.29 2.20	.6490	
Less care managed	27	52				

Table 6. Factors associated with inappropriate utilization of the Emergency Department

	Inappropriate Utilization of the Emergency Department		Analysis			
	Yes	No	RR	95%CI	Pr chi2	
Gender						
Female (exposed)	10	60	.6	.23 1.56	0.3022	
Male	5	16				
Age						
<=35 yrs	9	42	.45	.13 1.54	0.1827	
>35 yrs (exposed)	3	35				
Duration in US						
<=5 yrs (exposed)	8	42	1.4	.46 4.29	0.5514	
>5 yrs	4	31				
<=8 yrs (exposed)	9	54	1.05	.31 3.52	0.9400	
>8 yrs	3	19				
Birthplace						
Latin America	12	59			0.1400	
Other (exposed)	0	11				
Language						
Spanish	12	65			0.1788	
English	0	10				
Language						
Concordance	7	21	1.56	.46 5.35	0.4863	
Discordance (exposed)	3	5				
Satisfaction with care						
Satisfied	11	55	1.29	.32 5.20	0.7213	
Unsatisfied (exposed)	2	9				
Usual source of care						
No usual source of care (exposed)	1	12	.52	.073 3.68	0.4891	
Usual source of care	11	63				
Perceived racial discrimination						
Some racial discrimination (exposed)	4	15	1.62	.53 4.94	0.3966	
no racial discrimination	7	47				
Self rated health						
Good, v. good, excellent	11	68	2.14	.67 6.80	0.2092	
Fair, Poor, terrible (exposed)_	3	9				
Fair, Good, v. good, excellent	6	34	.85	.30 2.43	0.7633	
Poor, terrible (exposed) selfhealth2	6	41				
Insurance status						
No insurance (exposed)	10	58	1.40	.33 5.84	0.6404	
Some insurance	2	17				
Care management (LATCH 2 or more)						
More case managed	3	21	.90	.27 3.06	0.8689	
Less case managed	9	56				
LATCH 4 or more						
4 or more	2	9	1.36	.34 5.42	0.6647	
Less than 4	10	65				

DISCUSSION

Inappropriate utilization of the emergency department has been deemed a potential target for health care policy revision and cost containment strategies given its presumed costs to the health care system and to society as a whole. Many believe that inadequate access to ambulatory health care is a major contributing factor to high numbers of inappropriate utilization of the emergency department, particularly among racial and ethnic minorities. Hence, improvement in ambulatory access nationwide has been viewed as a solution to inappropriate utilization of the Emergency Department. However, some have failed to find an association between access to care and inappropriate utilization. Furthermore, “inappropriate” utilization of the Emergency Department has remained inconsistently defined throughout the literature, thereby precluding our ability to compare and hence estimate the magnitude of inappropriate utilization.

In cases where “inappropriate utilization” has been more stringently defined, access to ambulatory health care has been linked to inappropriate utilization of the Emergency Department. However, it is unclear what factors contribute to perceived and realized ambulatory access and which, if any, of these factors are relevant to inappropriate utilization of the Emergency Department. This is particularly true for members of Latino populations who have been found to experience poor access to ambulatory care,(3) poor health outcomes,(59) and significant utilization of the Emergency Department.(60)

In this study of Latino immigrants with an average of 1.8 years living in the US, we found that the prevalence of emergency department use was approximately 28% or about .43 visits per person during the study year. While this number represents a significant rate of utilization in this population, those with an ambulatory sensitive condition were more likely to use the ED (32%) and also used the ED more often (.53 visits per person per year). Among those with an ambulatory sensitive condition, 13% inappropriately used the Emergency Department, i.e., visited the Emergency Department specifically for an ambulatory sensitive condition-related problem or complication.

These findings of ED use in the study's general population are consistent with national estimates, approximated at .38 visits per person in 2002.⁴ Previous studies have also indicated that frequent utilization of the emergency department is associated with greater prevalence of chronic illness.(61) Thus, our findings of higher rates of utilization among those with ambulatory sensitive conditions as compared to those of the general population are consistent with previous findings.

The high rates of utilization found in this study and previous studies may be due at least in part to problems with access to ambulatory health care. This study revealed significant problems with access to ambulatory health care in both those with at least one ambulatory sensitive condition and those without an ambulatory sensitive condition. However, in our study, no factors of access to ambulatory care (including presence of a usual source of care, language discordance with a provider, birthplace, insurance status, care management, or

⁴ Approximate visits per person calculated using estimated total visits to the ED in 2002 (McCraig and Burt, National Hospital Ambulatory Medical Care Survey 2002) and estimated national population according to U.S. Census Bureau, 2002.

self-reported health status) appeared to be significantly associated with general use of the emergency department in adjusted or unadjusted models among those with an ambulatory sensitive condition. This finding held true for “inappropriate” utilization of the emergency department as well.

Comparatively, in our sample of those without an ambulatory sensitive condition, self reported health status and usual source of care were significantly associated with ED use. Those with poorer health status were more likely to use the emergency department than those who were reporting better health, while those without a usual source of care were less likely to have made an ED visit as compared to those with a usual source of care. These findings are consistent with those reported by Weber et al,(54) as they reported that health status was positively and significantly associated with use of the Emergency Department. Participants with poorer health status were more likely to use the emergency department than those reporting good health. Also in Weber’s study, those without a usual source of care were less likely to have made an ED visit as compared to those with a usual source of care. Other studies have found result opposing those found in the current study and that by Weber et al.(62) Inconsistent findings may be due to differences in the definitions of usual source of care.

A third finding in this study was that participants experienced significant problems with access to ambulatory care. Accordingly, 74% of the population without an ambulatory sensitive condition and 75% of those with an ambulatory sensitive condition reported not having an annual checkup in the past year or

experiencing some point when they felt they needed health care but could not get it. Of those who had an ambulatory sensitive condition, only self-rated health was significantly associated with access difficulties in both adjusted and unadjusted models. For those without an ambulatory sensitive condition, language discordance with a healthcare provider and care management appeared to be significantly associated with health care access difficulty in adjusted analyses.

Self-rated health in relation to access to ambulatory health care has been the subject of study only a few times. Of the studies available, one by Gulliford, Mahabir, and Rocke found that diabetic study patients were less likely to have good or very good self-rated health as compared to the non-diseased control group. They were also more likely to have financial barriers to access, including low income and lack of health insurance.(63) As we found no association between lack of health insurance and access to ambulatory care in our population with ambulatory sensitive conditions, we presume that the association between self-rated health and access to ambulatory care is independent from the lack of insurance in this population. This discordance in results may be due at least in part, to different definitions of health care access. Whereas Gulliford, Mahabir, and Rocke presumed that low income and lack of insurance produced financial barriers to health care access, we more closely examined these associations and used a measure of health care access that took into account whether or not a patient felt they had needed health care and had not been able to obtain it. Given this definition, it is plausible that those with lower self-rated health might perceive a need for health care more often than those with high self-rated health

Thus, those with lower self-rated health would potentially be more likely to have higher rates of difficulties with ambulatory access as compared to those with higher self-rated health.

In our study, we also found that when we dichotomized self-rated health such that fair, good, very good, or excellent health was compared to poor and terrible health status, no significant association was apparent. It is possible that this difference may have been a function of our small sample size. Alternatively, finding that self-rated health status (when dichotomized as good, very good or excellent versus fair, poor, or terrible health), was associated with access to ambulatory care, may be a function of measurement error occurring during the process of translation. Finally, these results may also reinforce ideas suggested by Arcia, who questions the use of “self-rated health” in Latino populations. While “self-rated health” tends to correlate highly with other health status measures such as those used in behavioral risk factor surveillance survey, Arcia et al and others have noted that there may be some interplay between levels of acculturation and self-rated health.(33) Investigators have found that those who are less acculturated tend to have lower self rated health than more acculturated peers, even though the lower ratings of self-rated health are not generally suggested by medical examination. The lack of concordance between self-rated health and actual morbidity has been explained by “culturally based definitions of health that in part, take into account resolved medical problems when evaluating current health status.(64,65) Our findings coupled with those of Arcia and others may suggest that cultural differences do in fact exist between Latino persons and others, and

may require us to specifically tailor our methods of gathering health information such that the information we gather is accurate and useful.

We found some associations between access to care and acculturation in those who were without an ambulatory sensitive condition. These findings are similar to previous findings in the literature. Accordingly, Carrasquillo, et al investigated the impact of language barriers on use of health services. They found that non-English speakers were less satisfied with their care and were less likely to return to the same health care facility for health care, when these persons were compared with those who spoke English. Similarly, in our study, those with language discordance were significantly more likely to have difficulties with access to ambulatory care. Alternatively, a study by Sarver and Baker found that language barriers affected referral patterns, but not compliance with referral for follow-up appointments. Differences between our study and that by Sarver and Baker may be the result of differences in study design. Specifically, Sarver and Baker's study examined differences in compliance to a follow-up appointment, indicating that patients were given some incentive to go to the doctor: they had recently visited the hospital for a medical concern and follow-up appointments were arranged for them, giving them some indication that these follow-up appointments were important for their health. Comparatively, in our study, patients were largely responsible for visiting a doctor on their own, without prompting as to the necessity of a checkup or incentive of a recent visit to an emergency room.

We found that when analysis was performed on a group containing both those with an ambulatory sensitive condition and those without a condition, insurance status was significantly associated with access to ambulatory health care. Surprisingly, however, this relationship was the inverse of what we expected and what has been found in the literature. Those with no insurance were less likely to have difficulties with health care access as compared to those with insurance. Previously, insurance has been considered an important contributor to ambulatory care access, often precluding those without insurance from receiving care they needed.(14, 15, 17) There could be a number of reasons for the inverse relationships seen in this study. Among these, perhaps those without insurance perceived less need for health care and therefore, had lower measures of perceived health care access. Alternatively, those without insurance may also be more knowledgeable about places where they may obtain medical services for little or no cost, as compared to those with insurance which may ultimately be inadequate for actual costs of their health care.

Strengths and Limitations

We believe our study has significant strengths over previous studies. Primarily, this study is the first to our knowledge that investigates in detail, the concepts of access to ambulatory care and inappropriate utilization of the emergency department in a population of low income, Latino persons, who are largely uninsured. By examining these concepts within this population, findings are unlikely to be confounded by cultural practices, income, or insurance status.

Secondly, this study seeks to separately investigate the aspects of concepts of access to ambulatory care, insurance status, and socioeconomic status. Too often, these concepts are identified as equivalent, thereby precluding our abilities to identify facets of health care access that may actually be alleviated by changes in health policy.

We also recognize that this study has some limitations. Among these, the study measures were based on self-reported use of the emergency department and check-up within the year prior to the interview. Self-report may introduce recall bias or participants likely to provide socially acceptable answers, and therefore, may produce inaccurate results. However, these limitations are unlikely to change the results we found since the number of visits per person is similar to those tallied by the hospital. Furthermore, the low response rate to complete the survey (42% among those invited to complete survey) and the small sample size may limit generalizability of the results, particularly as we are unsure how representative our sample is of the population of LATCH enrollees, or of low income Latino persons with chronic disease. Furthermore, the method of sampling oversampled those who were heavily care managed. Given the criteria for heavy care management, based partly on patient assertiveness and need, there is a possibility that the health seeking behavior patterns of at least part of the sampled population differ from that of the general Latino population due to need or to some other factors not measured in this study. However, some sampling of LATCH enrollees for this study was done in a random fashion, and that the sites for recruitment of LATCH enrollees were chosen because of their frequent

contact with a large percentage of Latino residents of Durham, NC. Additionally, inclusion criteria for participation in the LATCH program was minimal. Given these factors, it is likely that our sample of LATCH enrollees is not particularly different from enrollees not included in the present study.

Other potential limitations in this study include our inability to characterize the nature of visits to the emergency department by “appropriateness” of the visit within the population of non-diseased study participants. Because of the varying definitions of “inappropriate” utilization of the emergency department, and the variable methods of measurement found in the literature, this task would have been quite difficult and subject to much criticism. However, having a value of “inappropriate” utilization of the emergency department for this group would have potentially made this group a stronger comparison group for those who were diseased. Alternatively, we could have attempted to locate another comparison group of persons with ambulatory sensitive conditions but who were not members of the LATCH program. While more ideal, the unique population LATCH serves would have made finding an alternative comparison group quite difficult to interpret and likely would have precluded our abilities to investigate these questions in a key demographic area.

Some may also question some measures used in the study. For example, we combined measures of perceived and realized health care access into one access measure. That is to say that persons were identified as having difficulties with health care access if there had been a time when they felt they needed health care and couldn’t get it or if they did not receive a checkup in the previous year.

Arguably, those who are without disease do not need to have yearly checkups. Thus, the accuracy of our measure of healthcare access in the population without an ambulatory sensitive condition is debatable. However, the United States Preventive Task Force as well as many other medical entities recognize yearly health examinations as integral to prevention of disease and health maintenance. Certainly, management protocols for diabetes, asthma, and hypertension all mandate much more frequent health examinations.

In summary, among low income Latino persons included in this study, rates of utilization of the emergency department and problems with access to ambulatory care were significant despite efforts to improve access to ambulatory care for these patients. Many of these visits to the emergency department appear inappropriate, presumably preventable through increased access to ambulatory care for those with ambulatory sensitive conditions. However, it is unclear for this population which factors that mediate access to ambulatory care are amenable to intervention. In both persons with ambulatory sensitive conditions and those without, the factors that mediate access to ambulatory care do not appear to be similar to those that mediate visits to the emergency department. A study with a larger number of low income, Latino participants may help to clarify the questions raised by this study.

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