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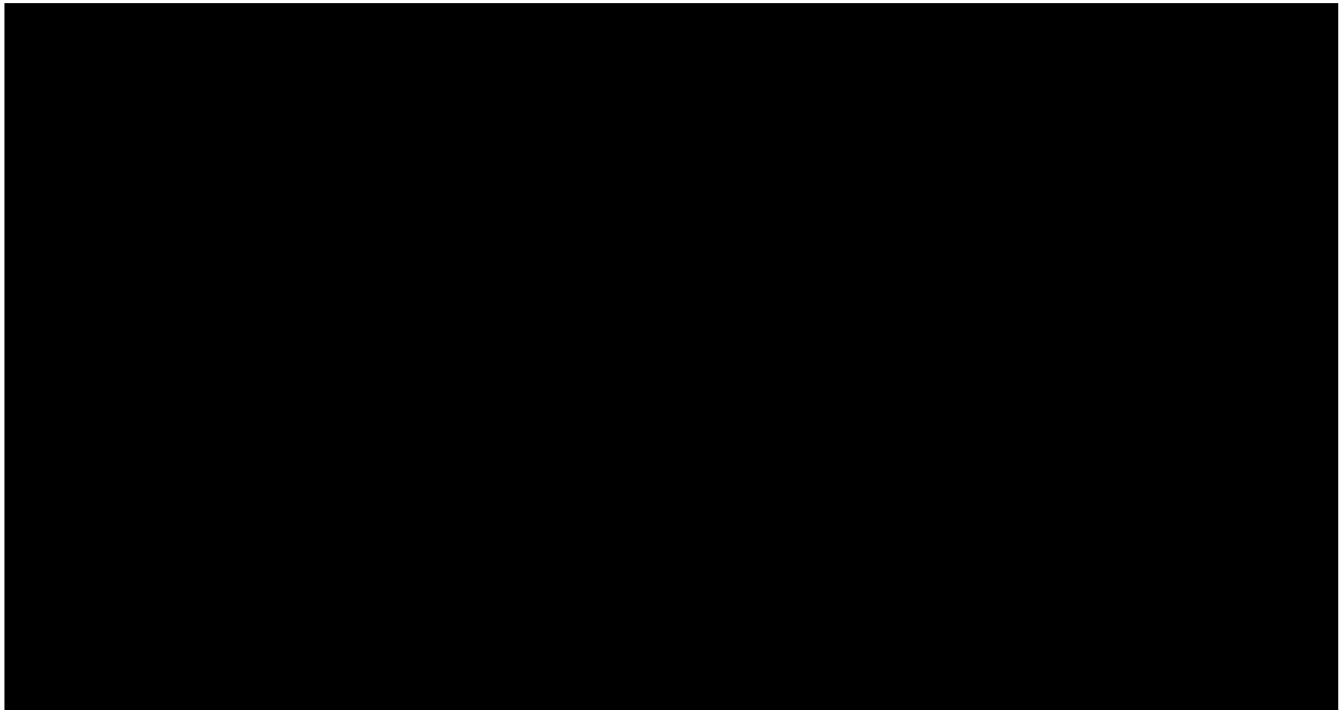
**Primary Care Use by Specialty Clinic Patients at a County Hospital:
Implications for Managed Care**

by

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A Thesis

Submitted in partial satisfaction of the
requirements for the M.D. with Thesis Program
of the
University of California, San Francisco



Abstract: As managed care begins to impact public health service systems, many county health departments are considering the development of more primary care-oriented models of delivering health services. We conducted a retrospective analysis of administrative and hospital chart data from San Francisco General Hospital and the San Francisco County Department of Public Health (DPH) to estimate the number of regular DPH specialty clinic patients receiving concurrent primary care in 1992. We found that slightly more than half (54.9%) of DPH specialty clinic patients received primary care concurrent with specialty care. Medical specialty patients were significantly more likely to have concurrent primary care than surgical specialty patients. Our results also suggested that the specialty clinic patients most in need of a primary care provider were the ones most likely to have established a relationship with a primary care clinic. The specialty clinic patients lacking concurrent primary care were largely younger men with lower rates of outpatient service use. During the design of more primary care-oriented systems, organizations such as the S.F. DPH will be challenged to enhance the availability of primary care services while efficiently delivering services to populations that seek sporadic care for acute problems.

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The importance of primary care providers in a cost-effective health care system has been widely emphasized. In the outpatient setting, primary care physicians are more likely than specialists to provide ongoing and comprehensive care, and these attributes have been associated with improved outcomes for many conditions and reduced rates of hospitalization (1-5). Other evidence demonstrates that generalist physicians use fewer resources than specialists caring for comparable patients (6). While many nations have organized health care systems based on strong foundations of generalist physicians (1,7), the United States has been relatively slow to embrace primary care-oriented models of care. Historically, many Americans have relied on a specialist physician as their usual source of care (8). Public hospital outpatient departments providing "safety net" services to poor and uninsured patients have emphasized specialty services and episodic acute care rather than a primary care model of longitudinal, comprehensive, and coordinated care (9).

Rising health care costs over the past two decades has resulted in a movement toward primary care-centered models of care in the U.S. Many managed care plans have adopted "gatekeeping" models in which primary care physicians are given the role of coordinating enrollees use of most services, including specialist referrals. More recently, state and federal policy makers have called for the adoption of primary care-centered models of care in public systems, and the rapid growth of Medicaid Managed Care Programs (MMCPs) in many states has been a major impetus for a transition toward alternative models of delivering publicly-financed health services (10). Many administrators now feel the expansion of public sector primary care services will be essential to maintain the quality and long-term financial

viability of publicly-administered health systems (11). In San Francisco County, the Department of Public Health (DPH) has envisioned the need for widespread implementation of a primary-care centered managed care system that would serve all of its patients, including thousands of MediCal recipients newly enrolled in a County-based MMCP (12). Threatened by annual budget crises in recent years and now facing direct competition for MediCal recipients from private sector MediCal managed care plans, the San Francisco County DPH will need to plan any expansion or restructuring of its primary care services carefully. If changes do not prove cost-effective in the short-term, serious financial difficulties could confront the DPH.

Although in comparison with other urban health departments the S.F. DPH operates a relatively extensive network of hospital- and community-based primary care clinics, many patients using the County system undoubtedly receive outpatient services only from specialty clinics at the county hospital (San Francisco General Hospital). However, the magnitude of the number of patients who rely exclusively on specialty clinics for their care within the DPH system is unknown. In its consideration of a strict gatekeeper versus less stringent models of providing primary care, the DPH will need to consider the number of active patients who would newly require primary care services under various models of managed care. Similar issues confront many other County health departments in the current movement toward managed care.

We analyzed DPH patient records retrospectively to estimate the percentage of adult patients seen regularly at San Francisco General Hospital specialty clinics who lack a primary care provider. Our analysis provides conservative estimates of the

number of patients who may need linkage with a primary care provider in a fully implemented County-based managed care system. We also characterize the specialty clinic population lacking primary care services on the basis of available data (age, gender, ethnicity, and rates of service use). We hypothesized that a large majority of patients seen regularly at the specialty clinics would lack a primary care provider and that individuals lacking primary care would more likely be younger and male. We also hypothesized, based on studies of ethnicity and access to care (13-16), that specialty clinic patients of non-White ethnicity, in particular African-Americans and Latinos, would be less likely to receive primary care services. We report the results of our case study of one county health department to illustrate the types of issues other public providers will likely face as they attempt to design more primary care-oriented systems.

The San Francisco County Public Health System. The S.F. DPH system has grown considerably since the 1950s when San Francisco General Hospital (SFGH) was its only clinical facility. The DPH system has since developed a system of community- and hospital-based clinics, providing a array of primary care and specialty services to poor and indigent patients in S.F. County. SFGH serves as the inpatient facility for the DPH system, and its Outpatient Department consists of over a dozen specialty clinics and three adult primary care clinics (Family Health Center, General Medical Clinic, and Refugee Clinic). The Emergency Department at SFGH also provides a range of acute care and basic medical services to poor San Franciscans, including level-one trauma services. Many users of emergency services at SFGH lack a primary care provider (14).

In addition to the hospital-based clinics at SFGH, the DPH has gradually developed a network of community-based primary care clinics throughout San Francisco over the past two decades. Recently, the DPH transformed several preventive health centers and a downtown acute care site into full-fledged primary care clinics. The DPH now directly operates eight comprehensive community-based primary care clinics in addition to the hospital-based clinics at SFGH. Together, DPH primary care clinics were the sites of approximately 240,000 adult patient visits by approximately 50,000 individual patients in fiscal year 1992. During the same time period, there were over 170,000 visits by approximately 40,000 patients to the specialty clinics at SFGH, and the Emergency Department had approximately 75,000 visits by over 37,000 patients.

Additionally, many low-income patients receive health services from not-for-profit community health centers in San Francisco that operate independently of the DPH. Organized as the San Francisco Community Clinic Consortium, seven community-based clinics provide a variety of health services to low-income San Franciscans, emphasizing primary care. All of the clinics in the Consortium target services to a specific low-income population, including the elderly, women, the homeless, and Latino, Asian, and Native American populations. In fiscal 1992, the Consortium clinics were the sites of approximately 230,000 patient visits. These clinics refer many patients in need of specialist consultation, particularly uninsured patients, to the SFGH specialty clinics.

Methods

Our analysis began with searches of SFGH databases for all adult patients seen regularly at SFGH specialty clinics. We limited our study to adults because pediatric specialty clinics are integrated into the main pediatric clinic. We then searched for computerized records of visits by specialty clinic patients to either hospital- or community-based primary care clinics operated by the DPH. From specialty clinic patients without any computerized record of primary care visits, we selected a random sample for chart review which enabled us to identify sources of primary care not recorded in DPH computerized records.

Search of computerized records. We searched the San Francisco General Hospital (SFGH) registration data base for all patients greater than 18 years of age seen regularly at Medical or Surgical specialty clinics in the fiscal year 1992 (7/92-6/93). We classified the following clinics as "medical specialty clinics": Cardiology, Dermatology, Endocrinology, Gastroenterology, Hematology, Infectious Disease, Neurology, Oncology, Pulmonology, Renal, and Rheumatology. We classified the following clinics as "surgical specialty clinics": General Surgery, Trauma Surgery, Breast, Neurosurgery, Otolaryngology, Ophthalmology, Orthopedic Surgery, and Urology. We defined "seen regularly" as those patients with two or more visits to any specialty clinic during 1992. Available demographic and health service data were extracted for eligible patients, and patients were categorized on the basis of whether they had received hospital-based primary care services. Patients with hospital-based primary care were defined as all persons with one or more visits in 1992 to one of the three hospital-based service sites which provide ongoing, comprehensive, and

coordinated primary health care to adults (17). Patients with visits to the Gynecology clinic or the HIV/AIDS clinic (SFGH Ward 86) were categorized separately to allow sensitivity analyses of broader definitions of primary care clinics.

We then searched the County Department of Public Health (DPH) computerized registration database to identify visits to DPH community-based primary care clinics by those patients with SFGH specialty clinic care who had no record of hospital-based primary care in our initial computer search. Patients were categorized as having community-based primary care if the DPH search revealed a visit to a community-based DPH primary care clinic in the calendar years 1992 or 1993. Our computer searches therefore allowed us to categorize the patients in our medical specialty and surgical specialty cohorts on the basis of their primary care status. Patients who had no computerized record of primary care at either hospital- or community-based DPH clinics were categorized as "No Computerized Record of Primary Care" and were eligible for chart review.

Chart review. We reviewed 110 randomly selected charts from the medical specialty and 107 from the surgical specialty cohorts to identify sources of primary care other than hospital- and community-based clinics. Chart review allowed us to determine the percentage of individuals with no computerized record of primary care who also had no record of primary care services from either not-for-profit clinics or private providers. During review of hospital charts, we looked for any reference to a primary care provider, including consultation requests, medical record requests, or references to primary providers in admission or progress notes. We classified a patient as "having primary care" if chart review indicated: 1) the patient had received

hospital-based primary care services during an 18-month window around fiscal year 1992 (4/92-9/93); 2) the patient had in fact received services at one of the DPH community-based clinics in the calendar years 1992 or 1993; 3) there was any indication that the patient had received primary care services from a private or non-profit clinic at any time since, during, or prior to fiscal 1992; or 4) the patient was a resident of a long-term care facility. The time periods we selected for primary care classification were less stringent for visits at not-for-profit, private, community-based DPH clinics because we felt the SFGH hospital chart was less likely to contain references to providers outside the hospital environment, while references to hospital-based primary care clinics seemed more likely.

Statistical Analysis. Extrapolating from the results of our chart reviews, we estimated the numbers of medical and surgical specialty patients previously classified as having "No Computerized Record of Primary Care" who actually had a primary care provider and calculated 95% confidence intervals around these estimates. We then estimated the overall number of medical and surgical specialty patients who had concurrent primary care by adding the estimates based on chart review to the numbers of specialty patients identified as having primary care during computerized searches. A 95% confidence interval was calculated for this overall estimate based on the potential sampling error in estimating primary care by chart review for the patients with "No Computerized Record of Primary Care." We used similar methods to estimate the number of patients with primary care for the pooled cohort of patients seen regularly at either medical or surgical specialty clinics. The 1231 individuals who were regular patients of both medical and surgical specialty clinics were counted

only once in the pooled analyses.

For comparison of specialty clinic patients lacking primary care with those having primary care, we compared demographic and service use characteristics of: 1) the pooled sample of specialty clinic patients found at chart review to have no documented source of primary care (N=165); with 2) all individuals with computerized or chart review records of primary care, with the characteristics of individuals found to have primary care at chart review weighted based on the inverse of the sampling fraction. Weighting of characteristics of the individuals in each specialty clinic population found to have primary care only at chart review allowed us to account statistically for the demographic and service use characteristics of individuals who received primary care outside the SFGH and County systems but were not included in the sample for chart review. In this case, the characteristics of the 52 individuals found to have primary care at chart review were weighted to represent the estimated 1821 individuals with primary care individuals who were eligible but were not selected for chart review. In addition to age, gender, and ethnicity, we compared mean rates of service use at different DPH outpatient sites, including total specialty visits. We also compared total visits to all DPH outpatient sites, which included visits to primary care clinics, specialty clinics, and the SFGH emergency department. Characteristics of individuals and visit data for patients with and without primary care were compared with Chi-square or two-tailed t-tests. Similar tests were repeated with the data disaggregated according to type of specialty clinic (medical vs. surgical) to assess agreement with the pooled analysis.

Characteristics that predicted primary care status in bivariate analyses were

tested for independence using logistic regression. We began by fitting regression models to include the variables age, sex, and ethnicity, following which we tested the interaction of sex with ethnicity. We performed these initial steps with the data disaggregated by ethnicity (African-American, Asian, Latino, and White). When we examined the results of the second regression, it was evident that each non-White ethnicity interacted similarly with sex. We therefore fit a final model that tested the interaction of non-white ethnicity (African-American, Asian, and Latino) with sex. In each regression, the characteristics of individuals found to have primary care at chart review were weighted by the same factor in the regression model as in earlier bivariate analyses.

Results

Estimates of specialty clinic patients lacking primary care.

Medical specialty clinics. 4943 individuals had two or more visits to a SFGH medical specialty clinic in 1992 (Table 1). Of these, 51.2% also had a computerized record of a visit to either an hospital- or community-based primary care clinic operated by the DPH. Review of hospital charts of a random sample of 110 of the remaining 2410 patients without a computerized record of DPH-based primary care revealed that 29 (26%) of these individuals received services from primary care providers outside the DPH system. Extrapolating from the chart review findings, we calculated that 12.9% [95% Confidence Interval (CI): 9.1%, 16.7%] of the entire population of 4943 regular medical specialty clinic patients were receiving primary care from sources outside the DPH system of clinics. Thus, a total of 64.1% [95%

CI: 60.3%, 67.9%] of regular medical specialty patients were receiving concurrent primary care. When visits to the SFGH Women's or HIV/AIDS clinics were included in our count of primary care services, the percentage of medical specialty patients with primary care increased to 71.0% [95% CI: 67.2%, 74.8%].

Surgical specialty clinics. 9045 individuals visited a SFGH surgical specialty clinic twice or more in 1992 (Table 1). Of these, 38% also had a computerized record of a visit to a hospital- or community-based primary care clinic operated by the DPH. Review of hospital charts of a random sample of 107 from the remaining 5600 patients with no record of DPH-based primary care revealed that 23 of these individuals (21%) received primary care from providers outside the DPH system. Extrapolating from the chart review sample, we estimate that 13.3% [95% CI: 8.6%, 18.0%] of the entire population of 9045 regular surgical specialty clinic patients were receiving concurrent primary care from a source outside the DPH system. Thus, a total of 51.3% [95% CI: 46.6%, 56.0%] of regular surgical specialty patients had some concurrent source of primary care. When visits to the SFGH Women's or HIV/AIDS clinics were included in our count of primary care services, the percentage of surgical specialty patients with primary care increased to 56.8% [95% CI: 52.1%, 61.5%].

Combined specialty clinics. When the cohorts for medical and surgical specialty clinics were combined, 1231 individuals had two or more visits to both SFGH medical specialty clinics in 1992, giving a total of 12757 patients who had two or more visits to any specialty clinic during fiscal 1992. An estimated 54.9% [95% CI: 51.6%, 58.2%] of the entire cohort of 12757 regular specialty clinic patients

received concurrent primary care. When visits to the SFGH Women's or HIV/AIDS clinics were included in our count of primary care services, the percentage of specialty patients with primary care increased to 60.9% [95% CI: 57.6%, 64.2%].

Characteristics of specialty clinic patients with and without primary care.

We compared demographics, total specialty visits, and total DPH visits among specialty clinic patients known to have primary care and patients who had no record of primary care during chart review. As shown in Table 2, regular specialty clinic patients without evidence of primary care were significantly younger, more likely to be men, had significantly fewer specialty clinic visits, and fewer total outpatient visits to DPH clinics than patients who had record of primary care. There was no significant difference in mean total emergency visits between patients with and without primary care (data not shown). Similar mean differences in patients with and without primary care were present when the data was disaggregated according to specialty clinic type (medical vs. surgical). Non-white specialty clinic patients were slightly more likely than whites to have primary care ($p=.015$). However, logistic regression analysis revealed significant interaction between non-white ethnicity and female sex in predicting concurrent primary care. Non-white women were significantly more likely than white men to have primary care [Odds Ratio with 95% Confidence Interval: 2.71 (1.72, 4.26)]. The likelihoods of having primary care for non-white men and white women did not differ significantly from the likelihood for white men. We noted interactions of similar magnitude in regression models that included separate variables for women of each non-White ethnicity (African-

American, Asian, and Latino) (data not shown). As expected, increasing age remained an independent predictor of concurrent primary care in each regression model.

Discussion

Our study raises several issues concerning the design of cost-efficient public health systems. We found that nearly half of adult patients regularly using specialty clinics at SFGH lacked a source of primary care. From a planning perspective, the primary care cup in the S.F. DPH may be considered either half full or half empty. On the one hand, 5700 adults use specialty clinics without also visiting primary care clinics. If a policy were implemented that required all SF DPH patients to have a primary care gatekeeper, these 5700 patients would represent an increase of approximately 11% over the existing volume of 50,000 patients who now use the DPH primary care clinics. The increase in demand for primary care clinic services would be even greater if patients with only a single specialty clinic visit, patients with only emergency department visits, and patients in need of primary care who had no recent encounters with DPH outpatient clinics were to be added to the pool of specialty clinic patients we used to estimate the number of patients lacking primary care. This magnitude of influx of new patients into primary care clinics would almost certainly require an infusion of additional resources to expand primary care clinic capacity within the S.F. DPH. On the other hand, the observation that over half of patients regularly using specialty clinics already have an established site for primary care may be considered an encouraging sign that the public health system in S.F. has

avoided a completely fragmented approach to care. Many specialty clinic patients already have been linked with primary care clinics that have the potential to coordinate overall care for these patients.

In addition, our results suggest that the specialty clinic patients most in need of a primary care provider are the ones most likely to have established a relationship with a primary care clinic. The specialty clinic patients lacking primary care were largely younger men with lower rates of outpatient service use. The need for an ongoing relationship with a primary care provider may be less compelling for young male adults, many of whom appear to have only an episodic need for acute care services and, by dint of age and sex, are not eligible for many routine health care maintenance services such as cancer screening.

Specialty clinic patients used relatively high rates of outpatient services, whether they did or did not have primary care. Though the population lacking primary care was largely younger and male, the mean annual number of visits for this cohort was still quite high (7.2 total visits). The relatively high rates of outpatient service use for specialty clinic patients regardless of primary care status raises the possibility that rates of use of outpatient services in a County-based managed care system will persist at similarly high rates. A challenge of any County-wide managed care system would then be the cost-effective coordination of outpatient service use by the specialty clinic population. If specialty clinic patients are linked to primary care services without ensuing drops in use of specialty services, cost savings may be difficult to realize.

Medical specialty patients were approximately 25% more likely than surgical

specialty patients to have a primary care provider. We expected that a greater percentage of surgical specialty patients would lack primary care because SFGH surgical specialists care for many trauma patients, many of whom are younger males. However, since the gender and age distributions of the specialty clinic patients lacking primary care were similar for both the medical and surgical specialty clinics, other factors may explain the disparity in primary care status between medical and surgical specialty patients. Surgical specialists may be less likely to recognize the indications for referral to primary care providers. Planners of managed care systems may need to develop special means of facilitating referral to primary care from surgical specialty clinics.

Our chart reviews suggested other reasons specialty patients may have lacked primary care. Commonly, a specialist or emergency physician did not recognize the need or potential benefit of a primary care provider for a patient with complex or multisystem disease. Specialty clinic staff education and facilitation of referral to primary care clinics may increase patient access to primary care services when they are indicated. In other cases, patients with chronic illness complicated by psychosocial or substance abuse problems were referred by specialists or emergency room staff to primary care clinics, but follow-up appointments were apparently missed. Increasing the use of primary care by patients with psychosocial problems may be challenging regardless of organizational or systemic changes. Case management or community-oriented primary care approaches might increase use of primary care services for these populations (18).

Analysis of ethnicity data by primary care status refuted our hypothesis that

non-White ethnicity would be associated with a greater likelihood of lacking primary care. Indeed, non-White women patients of specialty clinics were more likely to have primary care than White men, while non-White men were no more likely than white men to lack a primary care provider. While we remain uncertain about the reasons for these associations, our data indicate that minority specialty patients do not appear to encounter disproportionate barriers to primary care within the public health care system in S.F. It remains possible that minority patients using DPH specialty clinics may have less access to sources of primary care outside the public system -- resulting in higher use of public primary care services compared with White specialty clinic patients -- although chart review did not detect these alternative sources of primary care.

Several weaknesses of our study should be noted. In particular, the records we used to classify individuals by primary care status are not gold-standard means of determining whether an individual has actually received a process of health care fully satisfying the elements of good primary care. Because our computer searches merely identified individual contacts at clinics equipped to provide a full spectrum of primary care services, we could not characterize the services received during individual visits. In other cases, patients may have been misclassified as lacking primary care merely because there was no reference to their provider in their hospital chart. Furthermore, because the computerized registration database did not contain data on insurance status, income, and education, we could not conduct analyses on these important variables. Lastly, our study only examined computerized data from one fiscal year, but there have been no major systemic changes since 1992 that would lead us to

believe our results do not apply to the present in San Francisco County.

We conclude that approximately one-third to one-half of patients seen regularly at specialty clinics at San Francisco General Hospital in fiscal 1992 lacked a primary care provider. Surgical specialty clinic patients were approximately 25% more likely than medical specialty patients to lack primary care. The patients who lacked a primary care provider tended to be younger men with lower rates of outpatient service use compared to specialty clinic patients having primary care. Regardless of primary care status specialty clinic patients had seemingly high rates of outpatient service use. All systems of health care must decide how much effort and resources they should devote to routing all first contact care through a designated primary care provider. Many managed care plans in the US have adopted strict, gatekeeping policies that require every patient to identify a primary care provider at the time of enrollment and initiate all care but true emergencies through that provider. However, other systems have taken a more flexible approach to primary care. For example, some of the more established group and staff model HMOs in the US (eg., Kaiser-Permanente) encourage patients who desire continuity of care to select a "personal physician," while at the same time triaging many patients to urgent care centers for first contact care for acute problems. Some of these HMOs have in fact been criticized for not sufficiently emphasizing continuity of care from a primary care clinician. The value of a primary care clinician providing longitudinal, comprehensive care and coordinating specialty consultations may be most obvious for a 55 year old woman with diabetes, osteoarthritis, and depression who requires annual Pap tests and breast examinations. A 35 year old, generally healthy man who tears his knee cartilage

playing basketball may find the need for a comprehensive, primary care provider less pressing than the need for the temporary services of an orthopedic surgeon. Our analysis suggests that the former type of patient is presently more likely than the latter patient to receive primary care services concurrently with specialty care within the S.F. DPH system. In the design of more primary care-oriented systems, organizations such as the S.F. DPH will be challenged to enhance the availability of primary care services while efficiently delivering services to populations that seek sporadic care for acute problems.

Table 1. Primary care status of regular adult specialty clinic patients at San Francisco General

Hospital

	Medical Specialty Patients N=4943	Surgical Specialty Patients N=9045	All Specialty Clinic Patients N=12757 ¹
SFGH-based Primary Care	1939 (39.2%)	2287 (25.2%)	3562 (28.0%)
Primary Care at Community-Based DPH Clinic	594 (12.0%)	1158 (12.8%)	1606 (12.6%)
Other Primary Care²	636 (12.9%)	1203 (13.3%)	1821 (14.3%)
<i>(95% Confidence Interval)</i>	448- 825 (9.1%, 16.7%)	775-1632 (8.6%, 18.0%)	1401-2241 (11.0%, 17.6%)
Total with Primary Care	3169 (64.1%)	4648 (51.3%)	6989 (54.9%)
<i>(Totals with 95% Confidence Intervals)</i>	2981-3358 (60.3%, 67.9%)	4220-5077 (46.6%, 56.0%)	6569-7409 (51.6%, 58.2%)

¹ The 1231 patients who had two or more visits to both medical and surgical specialty clinics are considered only once in combined calculations.

² Extrapolated from a random sample of individuals lacking computerized records of primary care at SFGH or community-based DPH clinics

Table 2. Demographic and service use characteristics of specialty clinic patients by primary care

status

	Mean Age	Gender (% Male)	Ethnicity (% Non-White)	Total Specialty Visits (Mean)	Total Visits (Mean)
Primary Care	51.2	48.6	75.6	5.4	11.6
No Primary Care	41.1	67.3	66.1	4.4	7.2
P-value	<0.0001	<0.0001	0.015	0.017	<0.0001

Table 3. Results of logistic regression model predicting lack of primary care among specialty clinic patients.

Independent Variables	Coefficient	Odds Ratio (95% CI)
Intercept	1.22	--
Age (per ten years)	0.50	1.65 [#] (1.47-1.86)
Female Sex * Non-White Ethnicity [^]	1.00	2.71 [#] (1.72-4.26)
Female Sex * White Ethnicity [^]	0.18	1.19 (0.65-2.18)
Male Sex * Non-White Ethnicity [^]	0.05	1.05 (0.71-1.56)

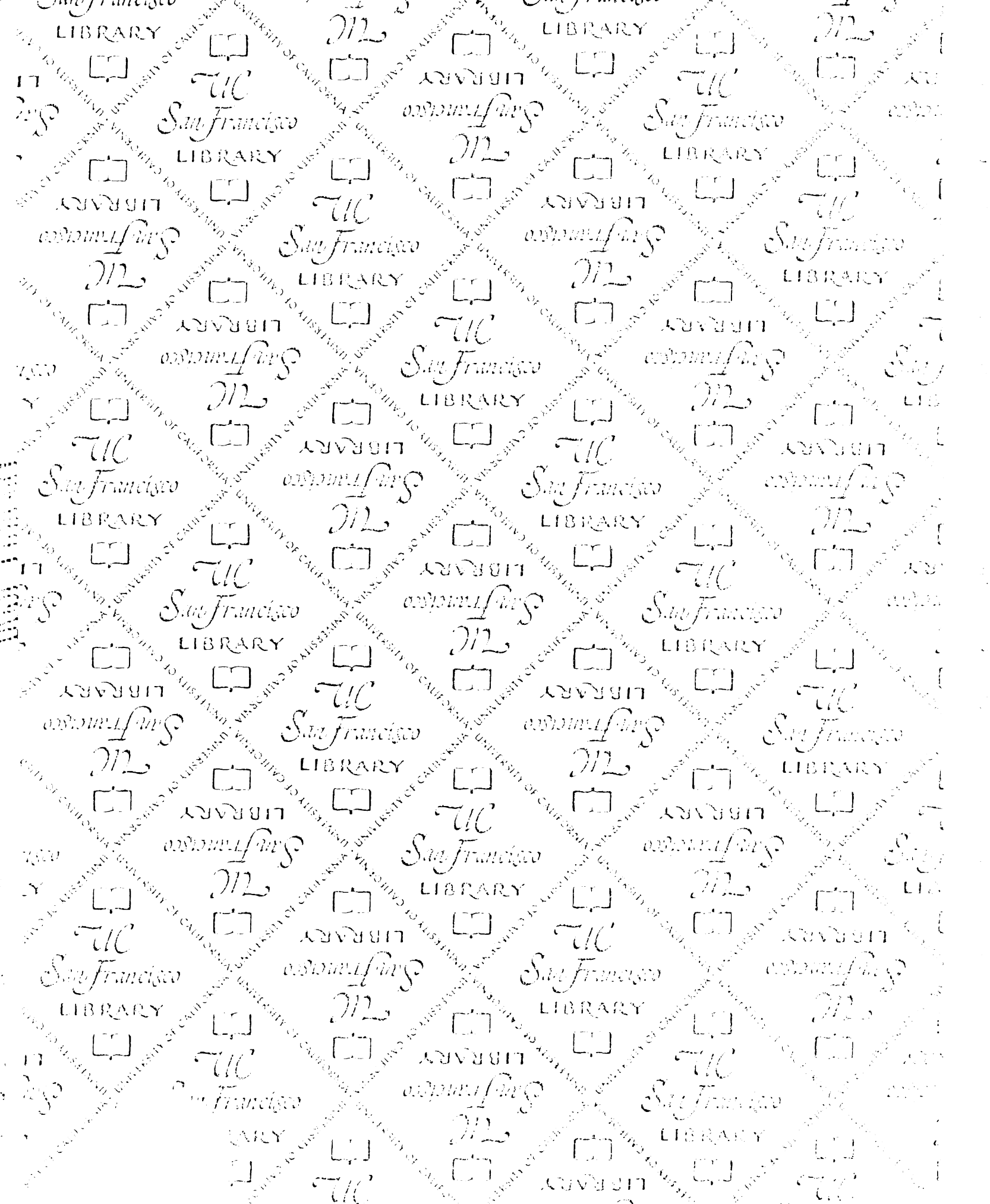
[#] p < 0.0001

[^]Referent is Male Sex * White Ethnicity

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