

**FACTORS IMPACTING AVAILABILITY OF EMERGENCY DEPARTMENT
ON-CALL COVERAGE IN CALIFORNIA**

By

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
POLICY RECOMMENDATIONS	3
LIST OF TABLES	4
I. INTRODUCTION	5
II. METHODOLOGY	6
III. FINDINGS	8
A. Existing data on severity of on-call problem in California	8
B. Existing data on emergency department utilization in California	16
D. Existing data on physician workforce	23
E. Existing data on managed care penetration, 1976-2001	25
F. Health service planning area data	26
G. Existing datasets on demographics in California	28
IV. RECOMMENDATIONS	30
A. Recommendations about Existing Data	30
1. Feasibility of linking data sets and conducting a statistical model	30
2. Feasibility of utilizing existing surveys for analysis	35
B. Recommendations about Data Collection	35
1. Incorporate Data Collection and Reporting from the Department of Managed Health Care	35
2. Encourage federal initiatives to streamline emergency department databases	36
C. Recommendations for Further Research	36
1. Identify the prevalence of the problem	36
2. ED nurse survey	37
3. Further studies on physician attitudes on leisure and liability concerns	37
APPENDIX A - 1998 CAL ACEP, CMA, CHA Survey On Hospital Emergency Back-Up	38
APPENDIX B - 2000 CMA Survey: Reimbursement for On-Call Services	43
APPENDIX C - 2001 Survey Of Emergency Department On-Call Coverage	45
List of Key Informants	51
References	52

EXECUTIVE SUMMARY

The California Senate Office of Research has identified a need to document and analyze factors that may be contributing to the problems of emergency department physician on-call coverage in California. This project identifies databases and methodologies that could provide a better understanding to the factors contributing to the on-call coverage crisis in the state.

A two-pronged method was used to identify and review data pertinent to the shortage in physician on-call coverage in California's emergency departments (EDs). The first approach consisted of identifying and reviewing all secondary databases, including publicly- and privately-supported data sets, throughout the nation and in California related to this issue. And secondly, the investigators identified and reviewed other secondary datasets that collected data on the above-mentioned factors as well as other factors that may be related to the shortage in on-call coverage. In addition, 21 key informant interviews were conducted with data managers and principal investigators of data sources on emergency room on-call coverage and other data sources related to on-call coverage.

The findings section discusses in detail each dataset including the sample, types of data fields, and a discussion of its' strengths and weaknesses in addressing the problem at hand. The recommendations section assesses the likelihood of linking particular datasets and also proposes statistical model for further analysis. Also, the investigators provide recommendations concerning data collection and future studies.

POLICY RECOMMENDATIONS

Recommendations about existing data

- Implement one or more statistical modeling approaches to link Cal-ACEP, CMA, CHA 1998 survey data of hospital emergency on-call problems with existing data sets containing information on hospital characteristics, physician workforce, managed care penetration, population demographics, and hospital market characteristics.
- Examine the 2001 UCI survey of emergency department on-call coverage once responses have all come in for possible statistical analysis and also linkage with existing datasets by zip code.

Recommendations about data collection

- Facilitate a reporting mechanism for the Department of Managed Health Care to report on data they are currently collecting. The Department of Managed Health Care is currently collecting information on health plan characteristics, however, this data is not currently available in a form that could be linked to other data.
- Encourage federal and state initiatives to streamline the collection of comparable datasets in hospital emergency department.

Recommendations about future studies

- Institute a study to examine the prevalence of physician on-call coverage shortage and to link the shortage to patient outcomes
- Conduct a study of emergency department nursing personnel to explore the factors and outcomes related to the on-call physician coverage shortage
- Further studies on attitudes about lifestyle and liability concerns of ED on-call coverage physicians.

LIST OF TABLES

Table 1. Existing data on severity of emergency department on-call problem in California, 1997-2001	9
Table 2. Existing data on emergency department utilization in California, 1997-2001	16

I. INTRODUCTION

The California State Office of Research's (SOR) working hypothesis is that problems, shortages and gaps in provision of emergency on-call coverage are the results of physician specialists who may be unwilling and/or unable to participate in on-call coverage arrangements. According to SOR, the supply of specialists who are willing to accept an emergency department on-call status position varies greatly by geographic area, type of hospital and type of specialty, and is a result of several interacting factors including the following:

- imbalance in the number of physician specialists in certain area of California
- physicians voluntarily eliminating or reducing their hospital privileges
- aging of physicians and subsequent cutbacks to on-call coverage
- disincentives for physicians to practice in certain areas
- changes in lifestyles and goals of physicians,
- liability issues surrounding emergency department on-call coverage
- increasing physician specialization
- imbalances in physician training
- conflict of duties on physicians who are managed care primary care providers
- growth in the number of insured
- inadequacy of Medi-Cal payments
- hospital concentration and hospital characteristics
- county limits of acceptance of transfers of no pay/uninsured patients
- managed care payment issues (e.g. requirements for referrals by primary care providers, rates, definitions of emergency)

II. METHODOLOGY

This project entailed a two-pronged method to identify and review data pertinent to the shortage in physician on-call coverage in California's emergency departments (EDs). The first approach consisted of identifying and reviewing all secondary databases, including publicly- and privately-supported data sets, throughout the nation and in California related to this issue. And secondly, the investigators identified and reviewed other secondary datasets that collected data on the above-mentioned factors as well as other factors that may be related to the shortage in on-call coverage. The California Senate Office of Research had already identified several of the datasets. The research team also identified other existing databases related to this issue. This review entailed identifying the types of methodology used, including the type of sample, and the scope and time period of the work and identifying a list of variables used. Moreover, the research team assessed the strengths and limitations of each datasets and whether or not datasets could be linked with other datasets.

Between July 1, 2001 to August 10, 2001, 21 key informant interviews were conducted with data managers and principal investigators of data sources on emergency department on-call coverage and other relevant data sources. The telephone interviews were approximately 20 to 30 minutes. These key informants represented individuals who had (See Appendix) recently completed studies (1997-2001) on on-call coverage problems and/or related issues (e.g. physician workforce, managed care penetration levels, etc.) at the county, state or federal levels. The questions investigators asked included the following: 1) What type of data source was used? 2) What type of sample was used? 3) At what level (federal, state or county) was this study conducted? 4) What, if any, were limitations of their study? 5) What were some key findings? 6) What variables were used in calculating on-call coverage

(e.g. categorical, financial, etc)? 7) What were the main variables used in this study? 8) Is this a public use data set? 9) How much would it cost to obtain a copy of this data set? 10) Can we get a copy of the questionnaire used for this study?

After identifying and reviewing the existing datasets, the investigators met to assess the likelihood that the datasets could be linked, and if so, the possibility a statistical model could be constructed to provide an explanatory model of why shortages of on-call physicians in the emergency departments in California exist. In addition, the investigators also provided other methodological recommendations for the study of this complex problem.

III. FINDINGS

A. Existing data on severity of on-call problem in California

Since 1997, a total of 7 studies have been conducted which explore the issue of the severity of on-call ED physician problems in California. Two of these studies include a national sample, four were focused on California, and one focused on county level data (See Table 1). Several health provider organizations have commissioned these studies including the California Chapter of the American College of Emergency Physicians, California Medical Association, and the Health Care Association of Southern California. Several emergency department physicians have also examined this issue including Dr. Susan Lambe at the University of California, San Francisco, and Dr. Scott Rudkin and his colleagues at the University of California, Irvine. In addition a private physician group, the Schumacher Group, and a health policy think tank, Center for Studying Health Systems Change, have also examined this issue. The focus of this review is to assess and highlight each dataset's strengths and weaknesses, data elements, and to determine the feasibility of matching and linking to other datasets.

Emergency Room Diversions: A Symptom of Hospitals Under Stress (Brewster et al., 2001)

The Center for Studying Health System Change (HSC) is a non-partisan policy research organization. HSC provides analyses about the effects of health system change to inform the thinking and decisions of policy makers in government and industry. HSC does not advocate policy positions but is a resource for decision makers on all sides of the issues. Between October 2000 and March 2001, HSC conducted site visits throughout the nation to examine how health care changes were affecting health care organization. They interviewed 50 to 80 health care leaders at each site. The 12 sites included the following cities: Boston;

Cleveland; Greenville, South Carolina; Indianapolis; Lansing, Michigan; Little Rock, Arkansas; Miami; Northern New Jersey; Orange County, California; Phoenix; Seattle; and Syracuse, New York. The interviews included representatives of hospital systems, employers, benefit consultants, health plans, medical groups, safety net providers and consumer groups. In their latest round of visits during 2001, investigators gathered qualitative data on the pressures facing hospitals. Focus groups with key constituents were conducted. In these focus groups, respondents most often cited emergency department overcrowding as a major concern. Site visits confirmed the ED overcrowding. A limitation of the data is that it is only based on specific sites across the nation and cannot be used for all of California, although the study includes Orange County. The data set is also not available to the public. HSC promised respondents confidentiality to ensure they would be as open and forthright in the interviews.

Table 1. Existing data on severity of on-call problem in California, 1997-2001

Name of Survey	Sample	Timeline	Method
National			
Emergency Room Diversions: A Symptom of Hospitals Under Stress (CHSC 2001)	National	10/00 –3/01	Face to Face Interviews Focus Groups
2000 Emergency Department Staffing Survey (Shumacher Group 2001)	National N=525	5/00 – 6/00	Mail-In Survey
Statewide			
Physician Backup in Hospital Emergency Departments (CHA, CMA, CAL-ACEP 1998)	Statewide N=364 hospital administrators	1998	Mail-In Survey
Payment for Emergency On-Call Services (CMA 2000)	Statewide N=338 physicians	Spring 2000	Mail-In Survey
Emergency department utilization (Lambe, forthcoming)	Statewide N=30 hospitals		Secondary Data Observation
University of California, Irvine (Rudkin et al., currently being conducted)	Statewide N=500 ED physicians as of 8/16/01	5/01 to present	Mail-in Survey
County			
On-Call Physician Coverage Study: Findings (Healthcare Association of Southern California 1999)	Los Angeles County N=45 hospital administrators	9/99 – 12/99	Face to Face Interviews Records review

2000 Emergency Department Staffing Survey (Schumacher Group 2001)

The Schumacher Group is owned and operated by Dr. William Schumacher, a board certified emergency medicine physician. As a hospital based physician-staffing organization their goal is to establish a core group of physicians within each hospital by focusing on developing an emergency medicine practice within each emergency department. They work in the areas of: operations; physician recruiting, credentialing, verification, and scheduling; ED management; patient relations; cooperation with hospital management; and performance improvement / risk management

To quantify and determine how hospital emergency departments are staffed and administered, 4,000 surveys were mailed to hospital administrators and emergency department heads in 40 states in May 2000. Five hundred twenty-five (13%) completed responses were received.

Some of the questionnaire domains included the following:

- Number of patients treated in ED per year
- Managed care impacted accessibility in ED
- ED medical specialty appropriate for hospital size
- Lack of specialty coverage in ED, a significant risk to patients
- Hospital been subject to EMALTA-related violations

Twenty percent of respondents indicated that specialty coverage in their ED was not appropriate for hospitals of their size, 13% indicated the lack of specialty coverage posed a significant health risk to patients, 10% said they would choose to go to an ED other than the one at their hospital if seriously injured, due to lack of specialty coverage in their own ED. Also, the study found some specialty physicians were reluctant to cover the ED due to poor or non-reimbursement from managed care, Medicare, and other payers and because of liability issues.

Limitations of the study include the voluntary responses, the small percentage of respondents, and the focus on Rhode Island. However, the study is available to the public. A new survey mailed to 4000 physicians this year focused on the incidence and implications ED diversions. Currently, they are analyzing the 658 responses and will publish their findings in the fall.

Physician Backup in Hospital Emergency Departments (CHA, CMA, CAL-ACEP Study 1998)

In late 1998, the On-call Task Force, representing California Healthcare Association (CHA), the California Medical Association (CMA), and the California Chapter of the American College of American Physicians (CAL-ACEP) surveyed key constituents regarding on-call coverage problems. Their purpose was to make a focused assessment of the scope of the on-call coverage problem for individual hospitals and a qualitative assessment of the magnitude of the problem for the healthcare system as a whole.

The CHA Task Force conducted a survey of hospital administrators, ED directors and medical staff chiefs in California in October of 1998. The survey was sent to 420 California hospitals. A total of 123 ED Directors, 111 Medical Staff Chiefs, and 130 Hospital Administrators responded to this survey.

The key questions revolved around the following domains:

- Severity assessment (measure the extent of the problem)
- Causative factors (what were the leading causes of the problem)
- Coverage arrangements (hospital contract for on-call coverage)
- Coverage problems by specialty
- Hospital demographics

The survey corroborates numerous factors leading to staffing problems in areas of managed care, public payers, medical staff issues, societal change, liability considerations,

and physician specialization. The survey suggests that the majority of California's hospitals have serious systemic weaknesses in the Emergency Department on-call backup system. These delays and deficiencies can result in patient harm and violations of state and federal transfer laws, which can subject hospitals to citations and delicensure, when can then shift the entire emergency care burden onto neighboring hospitals. They conclude that 60% of California's hospitals have at least a somewhat serious on-call coverage problem in their emergency department.

This dataset is particularly helpful because it asks hospital administrators the severity of the on-call specialist problem. Moreover, hospitals were identified, and therefore other data can be matched from other datasets by zip code including hospital characteristics (e.g. ownership), socio-demographic characteristics, market characteristics and physician workforce characteristics. In addition, the dataset can also be matched by the hospital's data from the Office of Statewide Health Planning and Development datasets which could illustrate the hospital's ED utilization and ED financial arrangements.

Payment for Emergency On-Call Services (CMA 2000)

The ability to ensure adequate on-call specialty physician coverage concerns many California hospitals and medical staffs. An inadequate number of physicians serving emergency on-call panels jeopardize patient safety and decreases the quality of care in California emergency departments. The purpose of this CMA study was to assess the problem and factors influencing a physician's willingness to serve on-call. The sample consisted of California Medical Association (CMA) physician members. In the spring of 2000, 338 CMA physician members responded to a mail-in survey.

Some of the domain variables from the questionnaire include the following:

- Significant payment problems
- Payment problems from major payer categories
- Geographic region
- Payment problems experienced by contracting vs. non-contracting physicians
- Stipend payments by hospitals
- Medical staff requirement requiring physicians to serve on-call
- Availability of voluntary call panels
- Physician willingness to serve “on-call” as a result of payment problems

Nearly 80% report significant difficulty obtaining payment for emergency on-call services despite the type of coverage a patient might have. More than half (54%) of physicians state they received no payment and another 42% reported underpayment and payment delay. Timely payment laws are not effective in addressing the problem. Payment problems impact physicians’ willingness to agree to volunteer to serve on-call panels. Of those who volunteer, 40% have reduced frequency with which they sign up for call duty, 20% report they are unable to continue volunteer services under these conditions. For physicians for whom call is voluntary, 40% continue to serve on-call despite significant payment difficulties. Despite no payment for services performed, most (70%) physicians continue to serve on call.

These results demonstrate that payment difficulties are a significant factor contributing to the availability of specialists who are able to afford to serve on-call. This survey is also particularly useful because it addresses the how reimbursements impact physicians decisions to serve on-call. There are 6 questions (See appendices), and each deals with payment issues. The weakness in this survey is that physicians list several hospitals where they have medical staff privileges, and as a result, hospital or zip codes cannot be identified which could help link the data from this survey with other datasets. However, the survey does ask for county. It is unclear, though whether this is the county of the physician’s

residence or the physician's practice. Despite these limitations, this small survey has a good response rate of 338 physicians and further analyses of the data could be done.

UCLA Study on Emergency Department Supply and Utilization (Lambe 2001)

Lambe's study was a statewide study conducted from December 15, 2001– May 15, 2001. Lambe studied 30 different hospitals, representing rural to urban settings, in California. The sample was conditionally stratified in order to make comparisons. Hospitals near other hospitals that have had ED closures within the last 5 years and those not located to a closed ED were chosen. Research assistants were sent to ED departments and timecards were used to track the time when patients went from check-in to discharge. They measured on-call responses by specialists, including the time the specialist arrived, and the time spent in triage and treatment. All thirty hospitals have a unique identifier and could be identified by name, however, Dr. Lambe promised hospitals anonymity and on conditions that their identities would not be made public. One limitation in this study is that the researcher was unable to identify patient characteristics. Moreover, the data has also not been published and therefore the findings are unable to be released.

Survey of Emergency Department On-Call Coverage (Rudkin et al., 2001)

Dr. Rudkin and his colleagues at the Division of Emergency Medicine at UCI are currently compiling data from a mail-in survey sent to approximately 2000 emergency department physicians throughout California in May of 2001. The purpose of this survey was to ascertain the degree of difficulty that emergency department physicians face in receiving prompt and appropriate specialty consultation.

The questionnaire contains the some of the following key domains:

- Demographics of the ED patient population
- Payer mix of the ED population

- Zip code
- Hospital characteristics
- Types of on-call specialists most difficult
- Hospital payment of specialists
- Types of insurances and difficulties of consult

Currently this study is being compiled. As of August 16, 2001, they have received 500 responses and are awaiting more responses for this survey. If the response rate is high, this survey also would be quite useful in understanding the on-call coverage problem.

Moreover, this is the most current survey as of date on this issue. In addition, this survey covers far more domains than in previous studies such as the racial and ethnic demographics of the ED population, payer mix of the ED population, and types of on-call specialists which are most difficult to reach (See appendices for questionnaire).

On-Call Physician Coverage Study: Findings (Healthcare Association of Southern California 1999)

The Healthcare Association of Southern California (HASC) was established in 1923 as the first hospital association west of the Mississippi. Over the years, HASC has influenced the way health care is organized, financed and delivered. This report presents the findings from interviews conducted with 45 hospital administrators from the five Los Angeles County Supervisorial Districts between September and December 1999. The interviews were semi-structured and administrators were encouraged to provide their own ideas and concerns.

The report presents findings from four distinct sections:

- Payments hospitals are making for on-call coverage.
- Payment models identified by the participating hospitals
- Shortages of particular specialists
- Difficulties hospitals face establishing and maintaining their on-call panels

The data is unavailable for public use as the respondents' anonymity needed to be maintained. Shortcomings from this study include the regional focus on Los Angeles County, the small number of administrators interviewed, and the ambiguity of whether the respondents were actual ED physicians or hospital administrators with ED experience.

B. Existing data on emergency department utilization in California

Table 2. Existing Data on Emergency Department Utilization in California, 1997-2001

Data source	Sample	Timeline	Method
National			
National Hospital Ambulatory Health Care Survey	N=500 hospitals	Yearly	ED Patient Form
American Hospital Association Survey	N=395 hospitals	Yearly	Mail-in Survey
Frequent overcrowding in US emergency departments (Derlet et al., 2001)	ED directors N=575	1999-2000	Mail-in Survey
Statewide			
Office of Statewide Health Planning and Development			
Hospital Financial Data	Hospital data (universe)	Yearly	Hospital Forms
Hospital Utilization Data	Hospital data (universe)	Yearly	Hospital Forms
Patient Discharge Data	Patient data (universe)	Semi-annually	Hospital Forms
Survey of directors in ED in California (Richards et al., 2000)	ED directors N=113	1999	Mail-in survey

2000 National Hospital Ambulatory Health Care Survey (NHAMCS)

The National Hospital Ambulatory Medical Care System (NHAMCS) is designed to collect data on the utilization and provision of ambulatory care services in hospital emergency and outpatient departments. Annual data collection began in 1992. Data obtained include the following:

- Demographic characteristics of patients
- Expected sources of payment
- Patients' complaints
- Physician's diagnosis
- Diagnostic/screening services

- Procedures
- Disposition
- Type of health care professionals seen
- Certain characteristics of the hospital
- Causes of injury

Findings are based on a national sample of visits to emergency departments and outpatient departments of non-institutional, general and short stay hospitals, exclusive of federal, military and Veterans Administration hospitals, located in the 50 states and the District of Columbia. The survey uses a four-stage probability design with samples of geographically defined areas, hospitals within these areas, clinics within hospitals, and patient visits within clinics.

This data source has several strengths. First, it has key information of emergency department visits such as source of payment, diagnosis and the time patients spend waiting to see a physician. However, a major weakness of this study is that a random sample was done nationally and not for California. Moreover, the sample was taken from 500 hospitals nationally, which means the sample for California cannot be representative of the state.

AHA Annual Survey Database (American Hospital Association 2001)

Since 1946, the American Hospital Association has conducted its Annual Survey of hospitals to assemble the most comprehensive and dependable health care provider database on the market. Through the cooperation of State and Metropolitan Hospital Associations, the AHA achieves a high response rate. This database contains hospital-specific data items on 6,200+ hospitals and health care systems, including more than 600 data fields, including the following:

- Organizational structure
- Facilities (including a question on whether ED services provided by health system, network or contractual arrangement)

- Community orientation
- Utilization (including number of ED visits)
- Personnel
- Financial performance

In 1999, only 395 hospitals in California responded to this survey. According to AHA, the response rate for California was quite small. A major weakness in this database is the sample size, and the limited data fields related to emergency departments. There are only two data fields, utilization and arrangements of emergency departments, which examine characteristics of emergency departments.

Frequent overcrowding in US emergency departments (Derlet et al., 2001)

Dr. Derlet, and his colleague designed a study to assess the state of emergency departments in California and the nation. Between 1998 and 1999, surveys were mailed to ED directors across the nation. Of the 836 ED directors, who were identified from a list by the American Hospital Association, 575 (69%) responded

The survey included questions concerning the following:

- Regional population demographics
- Annual ED census
- ED bed capacity
- ED overcrowding was ever a problem at the particular ED
- Causes of ED overcrowding

The limitation of this study is that the sample was randomly selected across 50 states, and therefore is not representative of California. However, they do address an important issue: the causes associated with overcrowding in emergency departments in California. Specialist consultant delays are identified in this study as a reason for overcrowding, but they do not explain factors contributing to the delay.

Office of Statewide Health Planning and Development Department Data, 1976-2000

The Office of Statewide Health Planning and Development Department of California carries three different types of information that describe emergency department utilization in California.

Hospital Annual Financial Data. Acute care hospitals are required to submit a Hospital Annual Disclosure Report to the Office within four months of the hospital's fiscal year end. Hospital Annual Disclosure Reports contain financial and utilization data pertaining to the hospital. The entire population of non-federal hospitals in CA is reported. The financial disclosure report period goes from June 30 through June 29 of the following year. The 1st available year of data is 1976-1977. The most recent available data covers 1999-2000.

The data available on emergency medical services (EMS) or emergency department utilization and financial condition include the following:

- Hospital Name
- HFPA/HSA
- Health Service Area
- Hospital Description (location, ownership)
- Financial arrangement of EMS (contracted, joint, independent)
- EMS utilization by source of payer
- ED revenue

Hospital Utilization Licensed Services Data. Acute care hospitals are required to submit an Annual Utilization Report of Hospitals by February 15th each year for the prior calendar year. The reports contain descriptive information on discharges, patient days, surgery utilization, licensed level of emergency service, and number of emergency rooms and visits. Also included are type of ownership, number of cardiac catheterizations, and reimbursement source for psychiatric and long-term care patients. The annual financial

disclosure report includes information about the financial operations and utilization associated with Emergency Services, but does not track the number on on-call specialists working in emergency rooms or other areas of a hospital. Also the Emergency Services data collected does not include ancillary services, such a medical supplies, laboratory and radiology. These functions are reported separately. Some of the data fields that are relevant to the on-call issue include the following:

- Hospital Characteristics (e.g. ownership, county)
- HSA/HFPA
- Total number emergency medical services visits
- Total number of treatment stations
- Total number of non-urgent EMS visits
- Total number of urgent EMS visits
- Total number of critical visits
- EMS visits resulting in admission
- EMS level (standby, basic or comprehensive)

Patient Discharge Data. The Patient Discharge Data Section (PDDS) of OSHPD is responsible for collecting data on all patients discharged from all licensed hospitals in California, correcting errors it finds in the data, and making the data available to the public through standard publications and electronic data files. Hospitals are required to submit discharge data semiannually, no later than six months after the end of each semiannual period commencing six months after January 1, 1986. Some of the data fields include the following:

- Principal diagnosis
- Principal procedure
- Source of admission
- Expected source of payment

A major difficulty with the datasets that OSHPD has is the difficulties of identifying on call coverage in the ED. The billing that occurs for specialists is not under EMS but under

their function (e.g. neuro-surgery). Moreover, the data on patients also poses some difficulties, in that patients admitted into inpatient care from the emergency department are not listed from the emergency department.

Survey of directors of emergency departments in California on overcrowding (Richards et al., 2000).

Dr. Richards and his colleagues from the University of California, Davis conducted a survey of directors of emergency departments in California to ascertain the extent to which overcrowding occurred in emergency departments. The survey was conducted in 1999 and 160 emergency department directors in California were randomly selected to receive the survey. Of the 160 surveyed, 113 (71%) responded.

The questions from the survey included the following:

- Demographic characteristics of the regional population
- Type of hospital
- Annual census
- Bed capacity
- Magnitude of overcrowding
- Frequency of overcrowding

This study does not address the on-call specialist issue, however, their findings on demographic characteristics, magnitude, and frequency of overcrowding may be useful in understanding overcrowding in emergency departments in California. It is unknown, however, whether the name of the hospital is identified and if this dataset is available for public use. Moreover, the sample size of 113 respondents is also small (yet it represents 1/3 of California EDs) and may be a problematic for any statistical analyses.

Existing data on EMTALA violations, 1995-2001

The Federal Emergency Medical Treatment and Labor ACT (EMTALA) require that hospitals provide services to emergency room patients where those services are available at the hospital. In terms of on-call physicians, EMTALA requires hospitals to post date specific roster physicians of the physicians who have volunteered to take emergency on-call on a specific day. Some medical staffs require physicians to serve on-call as a condition to medical staff privileges. However, on most medical staffs, physicians serve on-call voluntarily. Whether mandated by the medical staff or voluntary, once a physician is listed on the emergency on-call roster, they become obligated to respond when called and are subject to fines and penalties when they do not.

When EMTALA violations occur, the Department of Health Services (DHS) investigates. Patients, ambulance or emergency medical services, or hospitals that cannot work out emergency situations bring complaints to the attention of DHS, triggering an investigation. Sometimes, mandated investigations take place for accreditation purposes. DHS surveyors conduct interviews with hospital administrators, checks ambulance run sheets, and review emergency medical service policy to determine EMTALA violations. EMTALA is strictly a regulatory process

DHS has a list of the different types of EMALTA violations identified. Between 1995 and 2001, there have been a total of 170 EMTALA violations. The following are the numbers and types of violations that hospitals have been cited for in California since 1995:

- **70653(a3)**. Failure to assure that physician coverage is available within a reasonable length of time, relative to the patient's illness or injury (1)

- **A302** Failure to adequately provide medical and nursing personnel qualified in emergency care to meet the written emergency procedures and needs anticipated by the facility (16)
- **A406** Failure of hospital in offering services for the emergency medical conditions (21)
- **A404** Failure of hospital to keep a list of physicians who are on call to the ER. The interpretative guidelines state the hospital must have policies and procedures to be followed when a particular specialty is not available (132).

According to Freedom Information Act, after 90 days of citing an EMTALA violation, the identification of the hospital and type of violation is public information. Even though this information is public, it does not identify the number and types of complaints filed against a hospital. According to the US General Accounting Office (2001), not all EMALTA complaints result in a violation. Approximately, one-half of complaints result in a violation. In fact, only 28 physicians have ever been cited by the Office of Inspector General.

There are several limitations in utilizing EMTALA violations data for secondary data analysis. First, this process is driven by complaints, and not all complaints become a violation. Moreover, even if a hospital is cited for not having a list of on-call physicians, the data available does not elicit any other types of information such as type of specialty un available or whether hospitals with a list of on-call physicians have troubles locating an on-call physician.

D. Existing data on physician workforce

AMA Masterfile (American Medical Association 2000)

The California Workforce Initiative at the University of California, San Francisco has done extensive profiles of physician workforce in California. Their profiles are able to capture aggregate supply, specialty, and geographic distribution of physicians in California. The main data source for the UCSF study is the AMA masterfile.

The AMA tracks data on physicians from the medical school to residency, specialty, and into practice. The AMA has data on approximately 97 % of current practicing physicians. They survey ¼ million physicians every year about their practice and specialty. The data contains demographic and professional information on all active medical physicians. The key domains in the annual questionnaire include the following:

- Mailing Address
- Office Address
- Telephone, FAX, E-mail
- Hospital Staff Privileges
- Self Designated Practice Specialties
- Type of Practice
- Group Practice Affiliation
- Present Employment

The limitation of this dataset is that physicians self designate their specialty. However, the data from the American Board of Medical Specialist can verify the information and determine if they are board certified. Another the limitation is that the AMA cannot determine if the physician is practicing.

And Then There Were None - The Oncoming Physician Supply Problem (CMA 2001)

In February 2001, the CMA distributed 19,000 survey questionnaires to practicing physicians in California. The purpose this survey was to gather physician views on practicing medicine in California today. They received a 12 percent response rate (n=2,307). CMA believes the survey provides a snapshot of physician attitudes about medicine and their plans

for the future. Demographic data collected included gender, age, practice activity, and size of practice (solo/group-small, medium, large).

The following were some of the types of questions asked:

- Source of satisfaction
- Sources of dissatisfaction
- Immediate practice plans concerning patient care
- Physician time allocation
- Income loss
- Specialist shortages areas
- Time spent with patients
- Reimbursement levels and regulatory environment's impact on care

The study found 75% of physicians have become less satisfied with their medical practice in the past five years due to low reimbursements, managed care hassles and government regulations. Of the physicians responding, 43% plan to leave medical practice in the next 3 years. Another 12% will reduce their time spent in patient care. According to this study, the negative career and economic pressures of the California health care market are having their impact on physician recruitment. The problem is widespread, affecting rural and urban practices and low and high socioeconomic communities.

The survey sample was neither random nor stratified, but was sent to one-quarter and one-third of the states practicing physicians. A limitation of this study is that there is no information related to the ED on-call coverage issue, nor the shortage of on-call physician in the emergency department. Moreover, there is limited data on specialty shortages, and the regions in which these shortages occur.

E. Existing data on managed care penetration, 1976-2001

The most comprehensive data source on managed care penetration for California is available through InterStudy Publications. InterStudy Publications is a leading researcher and

publisher of data, directories and analyses for the HMO industry. For over 25 years, InterStudy has tracked trends in HMO services, enrollment, changes, and profitability. All full service HMO's are contacted for a survey on July 1/January 1 of any given year. InterStudy is able to achieve a 90% response rate of 550 active HMO's. Data collection is done in two ways, at the MSA and the county level. InterStudy provides county profiles which capture HMO industry information, county characteristics and estimated market composition. They are also able to identify all HMO plans for that county. Some of the data variables available include the following:

- Total HMO enrollment
- HMO penetration
- Medicare HMO enrollment
- Medicare managed care penetration
- Medicare HMO enrollment
- Number of HMOs
- HMO Medicaid (estimated market composition)

The InterStudy's county profiles would be quite useful in identifying market characteristics for the region for the proposed statistical model. The Health Care Financing Administration and Medi-Cal also carry information on Medicare and Medi-Cal managed care enrollment and penetration by county. However, InterStudy is one data source that captures a full range of data fields. The only limitation for this dataset is the expense. InterStudy charges \$195 per county profile.

F. Health service planning area data

Office of Statewide Health Planning and Development Department Data, 1976-2001

All hospital financial and utilization data housed at OSHPD contains data fields that identify both health services areas (HSA) and health facility planning areas (HFPA). These

designations were created for health planning purposes and represent a geographic boundary of approximately 100,000 people. These geographic boundaries are defined as areas, which are geographically the most accessible for patients.

In terms of conducting an analysis with the data field HFPA, the HFPA is best for use when conducting a county analysis or when the HFPA is the unit of analysis. The weakness of the HFPA code is that it is not contained within one zip code. Zip codes in the data organized by HPFA are not mutually exclusive and can be a problem when trying to link HPFA data with any zip code related data. In California, there are roughly 140 HFPA's and 14 HSAs and some zip codes overlap with different HFPA's. According to OSHPD, there exists no current demographic information by health facility planning areas that could be used. They do have information derived from Medical Service Study Areas (MSSAs) which has some demographic information but it is not (yet) linked to the HFPA codes. The MSSA data set is used to determine Medically Underserved Areas. Despite these weaknesses, further exploration of the numbers of emergency department visits by the level of the emergency department (basic, comprehensive, standby) in each health facility planning area (HFPA) might provide some information.

Dartmouth Atlas, 1999.

The *Dartmouth Atlas of Health Care Project* began at Dartmouth Medical School's Center for the Evaluative Clinical Sciences in 1933. It uses statistical data from the Medicare fee-for-service program to better understand variations in the distribution and utilization of medical resources across the nation. It uses "small area analysis" and population-based research to examine variations in the delivery of health care across the nation. This proven methodology focuses on the experience of a population rather on what happens at a specific

hospital. According to the Atlas, the hospital service areas (HSA) are local health care markets for hospital care. An HSA is a collection of ZIP codes whose residents receive most of their hospitalizations from the hospitals in that area. HSAs were defined by assigning ZIP codes to the hospital area where the greatest proportion of their Medicare residents were hospitalized. While, hospital referral regions (HRR) represent regional health care markets for tertiary medical care. Each HRR contained at least one hospital that performed major cardiovascular procedures and neurosurgery. In a similar fashion, HRRs were defined by assigning HSAs to the region where the greatest proportion of major cardiovascular procedures were performed, with minor modifications to achieve geographic contiguity, a minimum population size of 120,000, and a high localization index.

The different designations and definitions that are affiliated with the Dartmouth Atlas are a bit unclear to the investigators. However, the investigators are aware that these areas are available by zip code, and with further investigation as to the definitions and designations of the Atlas' codes, they could be used in the statistical analysis proposed.

G. Existing datasets on demographics in California

Demographic Research Unit of the California Department of Finance, 2001

The Demographic Research Unit of the California Department of Finance is designated as the single official source of demographic data for State planning and budgeting. Their data includes the following:

- Current population for the state and county,
- Population changes including by year
- City/county population and housing estimates

Depending on the types of socio-demographic variables one is interested in, the various data sources within this unit of the California Department of Finance can all be useful.

UCLA Center for Health Policy, 2001

According to the UCLA center for health policy research, county-level data is limited. The center utilizes the annual Current Population Survey (CPS), released every March, to identify the uninsured rates in California. In their latest study released in March 2001, The State of Health Insurance in California, uninsured rates for 22 counties are identified. The uninsured rates for the 22 counties are also available by zip codes for these counties. Unfortunately, not all 58 counties uninsured rates are identified due to statistical limitations. Sample sizes for rural counties and those with smaller populations are small and therefore not representative of that county. Currently, they are working on obtaining data for uninsured rates for each county. These estimates would be based on advanced statistical modeling and would not be available for some time.

IV. RECOMMENDATIONS

The issue of physician specialist on-call in EDs in the state of California is complex and multi-faceted. We have reviewed existing data sets, which have collected data on issues germane to this problem. While none of the data sets adequately describes the prevalence of this problem in the state, several data sets contain elements that may be used to answer some of the concerns related to this issue. We will discuss these here. In addition, we would like to propose some areas for further study and work in this important area.

A. Recommendations about Existing Data

1. Feasibility of linking data sets and conducting a statistical model

From our review of existing secondary datasets, the two studies by the California Medical Association on on-call specialist shortages seem most helpful in understanding the problem. The strength of both of these studies is that they rely on primary data collected about the issue at hand from physicians and hospital administrators in California. The CMA's 2000 study has a sample of 338 physicians, while the Cal-ACEP, CMA, CHA study of 1998 has a sample of 364 hospital administrators throughout California. The CMA study of 338 physicians does not have information identifying the hospital or the zip code of the hospital, which makes it difficult for it to match with any other existing dataset. However, the Cal-ACEP, CMA, CHA study of 1998 does identify the name of hospitals which allows for two different types of unit of analysis.

Our recommendation is to first consider hospital as the unit of analysis. If the identification of hospitals becomes unavailable, our next suggested recommendation is the zip code as the unit of analysis. However, as suggested below, there are several weaknesses associated with the later approach. Finally, if neither of these analyses sufficiently answers

the question at hand, other studies currently being conducted and the commissioning of new studies should be considered.

A. Hospital as a Unit of Analysis

Hospital as the unit of analysis is the most preferred type of analysis that could be used among the existing data sets. The Cal-ACEP, CMA, CHA study of 1998 of 364 hospital administrators can be linked accordingly with Office of Statewide Health Planning and Development Data and be examined by hospital. Since hospital is identified in the Cal-ACEP, CMA, CHA study, the identification of this hospital could be matched with data for that hospital from the OSHPD hospital financial and hospital utilization datasets. The Cal-ACEP, CMA, CHA study has a one item which asks hospital administrators to rate the extent of the problem (ED on-call coverage) in their emergency department on scale of 1 to 3, with 1 being serious, 2 being somewhat serious and 3 not serious. The dependent variable could be the severity of the problem (very serious/somewhat serious/not serious) by hospital as identified by the Cal-ACEP, CMA, CHA survey. The data from the OSHPD hospital financial and hospital utilization dataset would be matched from the Cal-ACEP, CMA, CHA survey through the name of the hospital. This would entail individual matching of cases, which entails a one-to-one exact match merge where the records in all data sets each have a unique identifier (Scerbo, 2001)

The following could then be the independent variables:

- *Hospital characteristic.* This would identify the type of ownership for the hospital (for profit or nonprofit)
- *Hospital-based geographic variable.* Geographic information about the particular hospital.
- *Emergency department volume (utilization).* The number of emergency department visits per year.

- *Emergency department payer source.* This variable would measure emergency department utilization by payer (Third party, County indigent programs, uninsured, Medicare, Medi-Cal)
- *Level of ED.* Standby, basic, or comprehensive service in the ED.
- *Type of ED visits.* This would be the number of visits the hospital had of urgent, non-urgent and critical visits.

Since the scale of the chosen response variable (dependent variable) is of an ordinal nature, rather than a nominal multiple category, ordinal logistic regression (Hosmer and Lemeshow, 2000) should be used to test the above model, i.e. the effects of the various independent factors the investigators have suggested contribute to the severity of the problem by hospital.

The general regression model can be represented as the following:

Hospital Characteristic + Hospital Geographics + ED volume + ED payer source + Level of ED + Type of ED visit = Severity of on-call specialist shortage

One possible limitation of this proposed approach may be that the size of the hospital population (number of hospitals) may not be enough to produce a satisfactory power of the analysis. Since only commonly matched hospitals across the study data sets are being considered, it is very clear that the size of total cases (number of hospitals) that can be considered for this model will be reduced. In order to address this issue, initial analysis should determine the size of the population once the process of matching all the data files have been completed. Then, a series of power analysis should be performed (Murphy et al., 1998; Cohen 1977) along with an ordinal logistic regression model. In addition, a run of any one of the non-standard statistical inference methods such as the Bootstrapping method or Monte Carlo tests (Davison and Hinkley, 1997; Efron, 1993; Manly, 1998; Mooney and Duval, 1993) to compare parameter estimates such as confidence intervals from different approaches should also be conducted.

Although we can consider the geographic information by hospital in our model, a possible limitation of this approach is that by considering an individual hospital as a unit of analysis, we may be limiting a number of study data sets available for analysis such as the U.S. census data and/or the AMA master file which might have important information on physician workforce and socio-demographic information. Unfortunately, these data sets require linkage through zip code and also would require a different unit of analysis (e.g. population or zip code). Moreover, our choice of predictors (independent variables) may be limited to whatever items are available by each hospital in the Office of Statewide Health Planning and Development datasets.

B. Zip Code as a Unit of Analysis

If the identification of the hospital becomes unavailable from the Cal-ACEP, CMA, CHA study of 1988, the next approach is the zip code as unit of analysis. However, this type of analysis has several limitations, but the only other option in terms of linking and analyzing existing datasets on this issue. Currently, the Cal-ACEP, CMA, CHA study of 1998 has the possibility of being linked with data sets from OSHPD, InterStudy, the US census, the American Medical Association in understanding how hospital characteristics, market characteristics (managed care penetration), socio-demographic characteristics, physician workforce characteristics impact the severity of the emergency department on-call specialist shortage. These variables were identified as important through reviewing existing datasets and also were identified as variables that could be used because of existing datasets. However, the key to linking these datasets is through the zip code of the hospitals identified in the Cal-ACEP, CMA, CHA study.

The zip code of the hospitals identified in the Cal-ACEP, CMA, CHA study may be used as the unit of analysis (Carlisle 1995) and the zip code specific rate of ED on-call

problems, derived from the Cal-ACEP, CMA, CHA survey of hospital administrators regarding severity of the ED on-call problem, would be used as the dependent variable. While the independent variables could be any zip code based information such as the rate of uninsured, the physician workforce characteristic by zip code and other zip code related information.

Although this approach can provide a link between different existing data sets, this approach suffers from several limitations. The most transparent one is that the model is based on secondary data of differing quality and quantity. For example, undercounts in the census and the variability of the Office of Statewide Health Planning and Development's Hospital Financial data. Another problem would be the lack of power to test a valid model. Another limitation is the number of zip codes available in the Cal-ACEP, CMA, CHA may be few which means the study's total number of zip codes would be too small to provide enough power to properly test the model. However, several non-standard analytic methods such as the bootstrap procedure or Monte Carlo method (Davison and Hinkley, 1997; Efron, 1993; Manly, 1998; Mooney and Duval, 1993) could be used to remedy this situation.

Although this proposed model uses zip code as a unit of measurement, there are inherent problems associated with this model. Zip code as a unit of analysis means that the findings are limited to a discussion of a certain geographical boundary. Limitations of this kind prevent this model from portraying a definitive casual relationship regarding the severity of the ED on-call problem in California. The investigators propose that if these two types of unit of analyses do not adequately the address this issue at hand that a comprehensive study, as suggested below, may need to be commissioned.

2. Feasibility of utilizing existing surveys for analysis

The current study under way by the University of California, Irvine Division of Emergency Medicine is promising. This is a mail-in survey of responses from emergency department physicians in California. The survey, which was mailed out on May 2001, seeks to understand the difficulties that emergency department physicians face in obtaining prompt and appropriate specialty consultation. Within this survey (See appendices), no hospitals are identified, however, the zip code of the hospital is mentioned. Depending on the response rate, this data set might be useful and, zip code, as mentioned above, could be the level of analysis. Moreover, the questions they ask in terms of different specialist availability is also quite useful since earlier studies in this area did not gather data on this domain. Currently, the investigators of this study have received 500 surveys from ED physicians throughout California and expect to receive a couple hundred more by October 1, 2001. They anticipate conducting data analysis in mid October of 2001.

Dr. Susan Lambe's (2001) study on emergency department utilization in California is also promising. Although her study is not yet available for public use, her findings on waiting time for an on-call specialist in the emergency department might be worth looking at and could part of a dependent variable in a statistical model, especially since the hospitals in her studied are identified, and then matched with variables in the OSHPD datasets.

B. Recommendations about Data Collection

1. Incorporate Data Collection and Reporting from the Department of Managed Health Care.

The California Department of Health Services, Department of Managed Health Care (DMHC) monitors managed care plans in the state of California and could play an expanded role in collecting and reporting data on managed care plans to policymakers. While DMHC routinely collects and monitors data on health plans, a refined, systematic collection, and

review of the data they collect could add to the data collected in other areas of ED on-call coverage. For instance, DMH could assist legislators in understanding statewide data on managed care plan characteristics, including payment patterns, plan arrangements for on-call coverage in EDs, geographical penetration of specific plans, plan responsibility, payment patterns and reimbursement plans for ED visits and physician specialty on-call coverage. Further, the DMHC may have access to data on patient outcomes.

2. Encourage federal initiatives to streamline emergency department databases.

There are approximately 4,800 Emergency departments in the US, but due to variations in how data is entered, barriers exist for those wanting to conduct secondary analyses on complex problems facing emergency departments. Currently, the National Center for Injury Prevention and Control (NCIPC) is coordinating a national effort to develop uniform specifications for data entered in emergency department (ED) patient records. The initial product is Data Elements for Emergency Department Systems, Release 1.0 (DEEDS). Individuals and organizations responsible for maintaining record systems in 24 hour, hospital-based EDs throughout the United States, are voluntarily using the recommendations in DEEDS, Release 1.0. Some of the data recommendations include collecting information on ED consultants and their type of specialty, the name of the insurance company, ED patient outcome, and patient satisfaction. Collecting and analyzing this type of information would provide clarity on the problem and consequences associated with the lack of availability of ED on-call specialists.

C. Recommendations for Further Research.

1. Identify the prevalence of the problem

Currently there are no existing datasets or studies underway to determine the prevalence of the problem in terms of health consequence to patients because of delayed care

by ED on-call specialists. From reviewing these studies, physicians and hospital administrators have stated in many of these reports that there is a problem obtaining specialty consultations. However, there is no data to determine if this results in an increased patient morbidity. Outcomes data would identify this causal relationship between delayed care to increased morbidity.

2. ED nurse survey

According to our key informant interviews, much more of an understanding about the factors relating to the on-call coverage shortage could be understood by speaking to the nurse care providers who provide round the clock care in every ED. Collecting data on nurses understanding of the problem, specifically what they define as related to the problem, could further strengthen the current understanding of factors related to this issue, and possibly, uncover other factors that may be attributing as much or more to the physician on-call coverage shortage in California.

3. Further studies on physician attitudes on leisure and liability concerns

Much of the discussion that exists on physician behavior and on-call coverage focuses on financial incentives as a factor to why physicians are unwilling to be on-call. However, there is no data as to understanding whether physician's attitudes towards a particular life style choice may also affect whether physicians want to be on-call. Moreover, there is limited information on physician's concerns regarding liability in the emergency department. Again this area needs further exploration.

APPENDIX A - 1998 CAL ACEP, CMA, CHA Survey On Hospital Emergency Back-Up

Contact:
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Managed Care & Medical Staff Issues
California Medical Association
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Survey on Hospital Emergency Call Back Up

1. At your hospital, how serious of a problem is lack of on-call physician backup for the Emergency Department? Please Circle One.

1. A very serious problem
2. A somewhat serious problem
3. Not a serious problem

Comments: _____

If you circled "Not a serious problem," skip questions 2 & 5.

2. What do you believe to be the reasons for your hospital's on-call backup problem?

Please indicate number 1, 2, or 3 to inform us as to whether the applicable reason is:

1. The (or one of the) most important reasons for inadequate backup
2. A somewhat important reason for inadequate backup
3. The (or one of the) least important reasons for inadequate backup

____ Increasing physician specialization (e.g. orthopedics, knees only).

____ Physicians resent not being paid for ED call, when they compare their incomes with the profits and salaries of corporate executives.

____ The aging of our medical staff, e.g. ED call is difficult for older physicians

____ Our hospital medical staff bylaws have a "grandfather clause" which exempts physicians of a certain age from providing ED call and/or exempts physicians who have provided this service for a certain number of years.

____ Lack of adequate payment or no payment for such services under managed care.

____ We have a mandatory medical staff requirement to serve ED backup call, but we have difficulty enforcing this requirement.

____ Our medical staff provides ED on call services on a voluntary basis and we do not have sufficient volunteers.

____ Managed care has a negative impact on specialty availability in our ED because so many specialists have been terminated from managed care panels.

- _____ Malpractice liability considerations: for example, in the recent Schug case *criminal* charges were brought against an on-duty emergency physician for potentially negligent patient care. Such risks could extend to physicians who respond or refuse to respond in an on-call capacity.
- _____ Many of our physicians are limiting their medical staff affiliations, thereby reducing the total number available in our hospital to take in a particular specialty. This is exacerbated by medical group/hospital affiliations.
- _____ Physician's goals and outlooks in general have changed: in years' past physicians at our hospital were willing to make sacrifices in order to serve in the emergency department as a way of building their practice. With managed care penetration at current levels, such service is not as relevant to practice growth.
- _____ Managed care contracting specialists are frequently not available for ED consultations because it is not part of their contractual arrangement
- _____ Physicians on our medical staff are not willing to spend as much time practicing as their predecessors, wishing to devote more time to their families.
- _____ Physicians do not equate hospital privileges with a duty to assist their hospital in fulfilling its public service responsibilities.
- _____ Other (please explain) _____
- Comments: _____
- _____
- _____

3. How does your medical staff currently provide on-call backup coverage for the E.D.? (Check more than one if applicable)

- _____ Voluntary on-call coverage
- _____ Mandatory on-call coverage as a condition of medical staff membership (Explain how this works in you hospital)
- _____ Contracting for on-call services. (Explain how this works in your hospital and which specialists are contracted.)
- _____ Insurance coverage for on-call physicians
- _____ Daily Stipends

How much is paid for stipends and for which specialties? _____

Who decides whether to pay stipends and how much to pay? _____

_____ Compensation for some portion of the uncompensated care is rendered by on-call physicians.

_____ Dual coverage for an HMO population

_____ Use of hospitalists to provide ED back up call

_____ Other (please explain) _____

Comments: _____

4. Please explain which efforts to secure call coverage have and have not worked well, and why:

5. If the problem of inadequate physician backups exists at your hospital's E.D., which medical specialties are implicated? (Please circle applicable specialties. If circled, indicate whether there is an adequate number of the specific types of specialists on staff to provide necessary daily coverage.)

Primary Specialists

	Adequate Number?	List # on Active Staff
1. Primary Care/Family Practice	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____
2. Pediatrics	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____
3. Internal Medicine/Critical Care	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____
4. OB-GYN	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____
5. Anesthesiology	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____
6. Radiology	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____
7. Other _____	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____

Medical Subspecialists

8. Cardiology	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____
9. Gastroenterology	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____
10. Neurology	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____
11. Other _____	Yes <input type="checkbox"/> No <input type="checkbox"/>	_____

Surgical Subspecialists

- | | | | | |
|-----|--------------------|------------------------------|-----------------------------|-------|
| 12. | Orthopedic Surgery | Yes <input type="checkbox"/> | No <input type="checkbox"/> | _____ |
| 13. | Neurosurgery | Yes <input type="checkbox"/> | No <input type="checkbox"/> | _____ |
| 14. | Hand Surgery | Yes <input type="checkbox"/> | No <input type="checkbox"/> | _____ |
| 15. | Oral Surgery | Yes <input type="checkbox"/> | No <input type="checkbox"/> | _____ |
| 16. | ENT | Yes <input type="checkbox"/> | No <input type="checkbox"/> | _____ |
| 17. | Urology | Yes <input type="checkbox"/> | No <input type="checkbox"/> | _____ |
| 18. | Ophthalmology | Yes <input type="checkbox"/> | No <input type="checkbox"/> | _____ |
| 19. | Other | Yes <input type="checkbox"/> | No <input type="checkbox"/> | _____ |

6. Please indicate your type of Hospital:

1. University Teaching Institution
2. County or Publicly Owned Hospital
3. Community Hospital with Tertiary Care & Specialized Services
4. Community Hospital with Basic Emergency Medical Services
5. Community Hospital or Rural Facility with Standby Emergency Services Only

Only aggregate data will be disclosed publicly. Individual survey responses will be kept confidential to the fullest extent authorized by law.

Name of Person Completing Survey

Phone Number

Name of Hospital

Thank you for your assistance. Please fax the completed survey to Cedric Tealer, CMA Executive Associate, at (415) 882-3349 by October 19, 1998. You may phone Mr. Tealer with questions at (415) 882-5106.

APPENDIX B - 2000 CMA Survey: Reimbursement for On-Call Services

Contact:
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CMA SURVEY: Reimbursement for On-Call Services

Your responses are entirely confidential. Fax to Reesa Wilkie: 800-355-5090

Name _____ Specialty _____

Address _____ Phone _____ Fax _____

Email _____ County _____

Hospitals with which you have Medical Staff Privileges:

Hospital Name	City
_____	_____
_____	_____
_____	_____

- Do you have difficulty obtaining payment for On-Call services? (select one)
 Never Rarely Half the time More than half the time Always
- If yes, what kind of payment difficulties are you having with reimbursement for On-Call Services (select one)
 No Difficulty Slow payment Underpayment Denial No response/No Payment

- Please indicate for **each payor category** the frequency with which you have difficulty obtaining payment for On-Call services (circle) 1=no difficulty 2=less than half the time 3=half the time 4=more than half the time 5=always

Health Plans	1 2 3 4 5	Medical Groups/IPAs	1 2 3 4 5
Managed Medi-Cal Plans	1 2 3 4 5	County Payors	1 2 3 4 5
Other Specify _____			1 2 3 4 5

- Do you have difficulty obtaining payment for On-Call services from payors that you are contracted with or that you are not contracted with? (select one)
 Contracted only Not Contracted only Both Equally Not contracted more that contracted

- Do you receive a stipend from the hospital for serving On-Call? Yes No
 If so, are the stipend and on-call requirements in a hospital contract? Yes No

- Have payment difficulties related to On-Call impacted you decision to serve on call?
 No: Hospitla mandates call as a condition of medical staff privileges
 No: I continue to take call regardless of payment difficulties
 Yes: I no longer serve on-call
 Yes: I have reduced the amount of call I take
 Other: _____

Fax Response to Reesa Willkie 800-355-5090

APPENDIX C - 2001 Survey Of Emergency Department On-Call Coverage

Contact:
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Survey of Emergency Department On-Call Coverage

1. What are the demographics of your ED patient population? (Responses add to 100%)

- | Latino/
Hispanic | African-American | Asian | Caucasian
(non-Hispanic) | Other |
|----------------------------|----------------------------|----------------------------|-----------------------------|----------------------------|
| <input type="radio"/> 10% | <input type="radio"/> 10% | <input type="radio"/> 10% | <input type="radio"/> 10% | <input type="radio"/> 10% |
| <input type="radio"/> 20% | <input type="radio"/> 20% | <input type="radio"/> 20% | <input type="radio"/> 20% | <input type="radio"/> 20% |
| <input type="radio"/> 30% | <input type="radio"/> 30% | <input type="radio"/> 30% | <input type="radio"/> 30% | <input type="radio"/> 30% |
| <input type="radio"/> 40% | <input type="radio"/> 40% | <input type="radio"/> 40% | <input type="radio"/> 40% | <input type="radio"/> 40% |
| <input type="radio"/> 50% | <input type="radio"/> 50% | <input type="radio"/> 50% | <input type="radio"/> 50% | <input type="radio"/> 50% |
| <input type="radio"/> 60% | <input type="radio"/> 60% | <input type="radio"/> 60% | <input type="radio"/> 60% | <input type="radio"/> 60% |
| <input type="radio"/> 70% | <input type="radio"/> 70% | <input type="radio"/> 70% | <input type="radio"/> 70% | <input type="radio"/> 70% |
| <input type="radio"/> 80% | <input type="radio"/> 80% | <input type="radio"/> 80% | <input type="radio"/> 80% | <input type="radio"/> 80% |
| <input type="radio"/> 90% | <input type="radio"/> 90% | <input type="radio"/> 90% | <input type="radio"/> 90% | <input type="radio"/> 90% |
| <input type="radio"/> 100% | <input type="radio"/> 100% | <input type="radio"/> 100% | <input type="radio"/> 100% | <input type="radio"/> 100% |

2. What is the payer mix of your ED population? (Responses add to 100%)

- | Medicare | MediCal | HMO
(capitated) | Kaiser | Contracted
DFFS/PPO | Indemnity | Uninsured |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| <input type="radio"/> 10% | <input type="radio"/> 10% | <input type="radio"/> 10% | <input type="radio"/> 10% | <input type="radio"/> 10% | <input type="radio"/> 10% | <input type="radio"/> 10% |
| <input type="radio"/> 20% | <input type="radio"/> 20% | <input type="radio"/> 20% | <input type="radio"/> 20% | <input type="radio"/> 20% | <input type="radio"/> 20% | <input type="radio"/> 20% |
| <input type="radio"/> 30% | <input type="radio"/> 30% | <input type="radio"/> 30% | <input type="radio"/> 30% | <input type="radio"/> 30% | <input type="radio"/> 30% | <input type="radio"/> 30% |
| <input type="radio"/> 40% | <input type="radio"/> 40% | <input type="radio"/> 40% | <input type="radio"/> 40% | <input type="radio"/> 40% | <input type="radio"/> 40% | <input type="radio"/> 40% |
| <input type="radio"/> 50% | <input type="radio"/> 50% | <input type="radio"/> 50% | <input type="radio"/> 50% | <input type="radio"/> 50% | <input type="radio"/> 50% | <input type="radio"/> 50% |
| <input type="radio"/> 60% | <input type="radio"/> 60% | <input type="radio"/> 60% | <input type="radio"/> 60% | <input type="radio"/> 60% | <input type="radio"/> 60% | <input type="radio"/> 60% |
| <input type="radio"/> 70% | <input type="radio"/> 70% | <input type="radio"/> 70% | <input type="radio"/> 70% | <input type="radio"/> 70% | <input type="radio"/> 70% | <input type="radio"/> 70% |
| <input type="radio"/> 80% | <input type="radio"/> 80% | <input type="radio"/> 80% | <input type="radio"/> 80% | <input type="radio"/> 80% | <input type="radio"/> 80% | <input type="radio"/> 80% |
| <input type="radio"/> 90% | <input type="radio"/> 90% | <input type="radio"/> 90% | <input type="radio"/> 90% | <input type="radio"/> 90% | <input type="radio"/> 90% | <input type="radio"/> 90% |
| <input type="radio"/> 100% | <input type="radio"/> 100% | <input type="radio"/> 100% | <input type="radio"/> 100% | <input type="radio"/> 100% | <input type="radio"/> 100% | <input type="radio"/> 100% |

3. What is the zip code of your hospital?

--	--	--	--	--

4. What is your practice setting? Which of the following best describes your hospital?

- HMO Hospital
- County Hospital
- University Based Hospital
- Community Hospital
- Veterans Administration Hospital

5. What is the approximate annual volume of your emergency department?

6. Do you have a posted ED call roster for:

	Yes	No	Don't Know
Cardiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cardiovascular Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dental	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ENT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family Practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal Medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interventional Radiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neurology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neurosurgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OB/GYN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ophthalmology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orthopedics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pediatrics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plastic Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pulmonary/ICU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychiatry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Renal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Urology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vascular Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7a. When you request physicians to come to the ED, how often do you have trouble getting certain specialists to respond?

	Never	25%	50%	75%	Always
Cardiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cardiovascular Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dental	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ENT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family Practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal Medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interventional Radiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neurology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neurosurgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OB/GYN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ophthalmology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orthopedics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pediatrics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plastic Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pulmonary/ICU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychiatry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Renal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Urology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vascular Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7b. To your knowledge, does your hospital pay certain specialists to take call?

	Yes	No	Don't Know
Cardiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cardiovascular Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dental	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ENT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family Practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal Medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interventional Radiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neurology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neurosurgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OB/GYN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ophthalmology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orthopedics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pediatrics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plastic Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pulmonary/ICU	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychiatry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Renal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Urology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vascular Surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8a. Do your medical staff bylaws or rules and regulations require that the medical staff provide call coverage for the ED?

- Yes No Don't Know
-

8b. If so, do they have provisions that the coverage be:

- Mandatory
- Determined by each department
- Mandatory for all members of the staff who are not otherwise exempted
- Voluntary
- Unknown

9. Does your hospital have residents who take call (with attending back-up/staffing)?

- Yes No Don't Know
-

10. Does your hospital have hospitalists who take ED call? (A hospitalist is a physician who contracts with a group to care for their inpatients).

- Yes No Don't Know
-

11. If you have on-call problems, are they worse at night? (between 10pm and 8am)?

- Worse Better Same
-

12. If you have on-call problems, are they worse on week-ends? (Friday after 10pm until Monday at 8am)?

Worse Better Same

13. To what extent does the patient's insurance appear to have an influence on the willingness of your on-call physicians to provide care in the ED?

Never 25% 50% 75% Always

14. What effect do the following insurances have on obtaining a consult if the patient has:

	Easier	Doesn't Matter	More Difficult
Champus Insurance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indemnity (FFS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PPO	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HMO	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kaiser	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medicare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MediCal/Medicaid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No Insurance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15a. Please cite the frequency of transfers from your ED to other types of hospitals. (Responses add to 100%)

	Never	25%	50%	75%	Always
teaching hospital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
another community hospital;	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tertiary referral service in your network	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
other tertiary hospital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
rarely transfer (not an issue)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15b. Of your transfer cases deemed "stable", what proportion are managed care transfers?

None 25% 50% 75% 100%

16. To what extent do each of the following factors affect your ability to transfer emergency patients to higher levels of care at another hospital?

	Never	25%	50%	75%	Always
Lack of transportation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of bed capacity at receiving facility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of nursing at receiving facility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of acceptance by physician specialists at receiving facility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. If you have had trouble finding an accepting physician to care for the patient, which three specialties are the most problematic? (Blank assumes no problem)

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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18. How often does the patient's insurance influence the willingness of on-call physicians to provide follow-up care?

- Never 25% 50% 75% Always

19. How often do you experience problems arranging follow-up care for patients who are stable for discharge, but require further care to insure that their condition is fully stabilized?

- Never 25% 50% 75% Always

20. Are you the Medical Director?

- Yes No

21. On average, how many hours per month do you work clinically?

- <80
 60-120
 >120

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