

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

Exploration of Factors Leading to Increased Emergency Department Overcrowding in California

After the Passage of the Affordable Care Act

A graduate project submitted in partial fulfillment of the requirements

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Health Administration

By

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## Abstract

# Exploration of Factors Leading to Increased Emergency Department Overcrowding in California After the Passage of the Affordable Care Act

By

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Master of Public Administration, Health Administration

Given that the Affordable Care Act (ACA) broadly increased insurance coverage to the population of California, has increased coverage resulted in enhanced access to care? With a demonstrable trend in the increase in Emergency Department (ED) utilization and overcrowding in recent years, has the ACA impacted the utilization of ED's within the state?

Many studies have been conducted that highlight the impact of the ACA on various population groups utilizing the ED and why this may affect patient volumes. Not least of these are homeless populations, patients requiring behavioral health services and those who are struggling to engage with primary care providers. Many authors have suggested that with better insurance coverage, patients could be diverted from using the ED, yet relevant data does not

overwhelmingly seem to support this. Ambulance patient offload delays (APOD), have been recognized as one of the few objectively quantifiable metrics associated with ED overcrowding. According to Los Angeles County EMS in 2017, ambulances and crews held up at EDs negatively impact response times to 911 calls. This would suggest that policy attempts to reduce ED visits have perhaps not been as successful as initially hoped.

ED overcrowding, at its core, is a mismatch of patients needing care to the space and staff needed to provide it. With hospital resources typically being fixed, the variable is high ED visit volumes. This leads to a need to understand why patients are still seeking care in the ED even after significant progress has been made in providing insurance coverage to California's most in need populations. Several policy holes can be identified that are contributing to the seemingly intractable overcrowding of California EDs including chronic underfunding of the primary care establishment, mandated nurse to patient ratios and ambiguous regulation regarding the management of ambulance diversion.

To effect meaningful change in these areas, it will require effective policy maneuvers and an increase in funding to primary care. At a time when social injustice, racial inequality and access to care are at the forefront of public sentiment, these policy issues seem to be gaining momentum within the issue attention cycle.

This study is a qualitative analysis of archival data of peer-reviewed journal articles. It explores the complexities of California care access following the implementation of the ACA exposing causative factors of emergency department overcrowding. While large parts of the California population have been brought under the umbrella of some form of insurance coverage in the last decade, the predicted drop in emergency department usage has failed to materialize.

Emergency department overcrowding, as indicated by the practical problem of entangling ambulances when attempting to transition the care of their patients or worse, rerouting them and delaying care to the most vulnerable of populations, is steadily worsening. Chronic and ineffective funding to the primary care sector, lack of regulatory clarity in the transition of care from emergency services to hospitals and longstanding staffing regulations are all contributors to this issue. The use of the emergency department by large swaths of the California populace to fill the gap that remains in obtaining accessible, convenient and high-quality primary care remains the greatest contributor to emergency department over use. At a time when equality & access to care are rapidly rising within the Downs attention cycle, an international pandemic threatens the sustainability of the primary care establishment by starving it of funding. Governmental interventions in this space have been largely ineffective to date and planned initiatives will need to be adjusted given the current public health crisis. As the country stands at the cusp of perhaps its most contentious election cycle, it seems plausible that the issue of appropriate primary care funding may become important enough to a public in need, that it gains traction in the coming months.

## Introduction

Much has been written about access to care in the time since the implementation of the ACA, especially in California. Barakat et al. (2017) wrote about the anticipated reduction in Emergency Department (ED) visits as the ACA was signed into law and rolled out in staged fashion after 2010. They discuss the fundamental thesis that high ED volumes are a consequence of large uninsured populations depending on them for a full spectrum of care provision. They highlight the Emergency Medical Treatment & Labor Act (EMTALA) law, enacted in 1986, as the primary driver for the uninsured relying on ED care. Barakat et al (2017) go on to make the argument that since the advent of the ACA, while ED visit volumes remain high, it is the payer mix that has been impacted. The same patients are seeking the same care, but how it is being reimbursed has evolved. In 2018, Hsia led a group in a study of overcrowding in California EDs and what the causal factors might be. They broadly identified two main issues as contributing to overcrowding: high volume within the ED and high hospital census. They bring to the fore the problem of ambulance patient offload delays as a logical sequelae of ED overcrowding and highlight the consequent care access issues. The California Healthcare Foundation (CHF) highlighted a study in 2009 suggesting that the national average wait time for handing over ambulance patients had doubled from 20 minutes to 45 minutes in the preceding three years. This was a problem deemed significant enough by the California Hospital Association (CHA), that they commissioned a task force in 2013 to develop mitigative solutions. They produced a toolkit document in partnership with California Emergency Medical Services (EMS) in 2014, intended to assist in assuring quality and patient safety during the transition from ambulance to hospital personnel. This focused on the principles of lean & six sigma, encouraging hospitals to devise strategies aimed at quick and safe patient offload. This initiative focused largely on how to

address throughput and efficiencies in both the ED and main hospitals, with a view to increasing the availability of resources to receive patients from incoming ambulance crews. They also recognized that variations in data collection made this a challenging topic to solve. They advocated four key objectives for hospitals working to address ambulance diversion hours.

1. Develop standardized nomenclature, definitions, metrics and reporting for ambulance patient transfer (of care) in policies for local EMS agencies and EMS receiving hospitals.
2. Prioritize known practices that are most likely to impact delays in problem areas.
3. Assist local jurisdictions in developing measurable and sustainable goals to reduce the incidence of patient offload delays using short, intermediate, and long-term strategies.
4. Contribute to State (EMSA) and Federal discussions/efforts to examine the core issues and develop solutions such as alternative patient destinations, community paramedic programs, patient case management and alternatives for care of mental health patients.

This work coupled with local regulatory pressure aimed at hospital emergency departments, resulted in some progress in reducing off load delays, however this led to an increase in the diversion of ambulances away from busy departments. A study conducted in 2017 by Hsia et al, reviewed data that ultimately indicated hospitals serving predominantly black communities in California were more likely to suffer from overcrowding, divert ambulances and delay service for patients. They linked this to a higher instance of cardiac related mortality in black compared to white communities. Such studies highlight that access to care remains an unresolved issue with significant impacts on the very populations the ACA sought to support. Despite the

interventions of the CHA, LA county EMS services report persistently problematic ambulance patient offload delays in their 2019 data.

If ambulance delays continue to indicate progressively worsening ED overcrowding, then the question as to whether the ACA has had any material impact on how California populations seek and receive care needs to be considered. In reviewing available literature, the problem of access to care rather than just having insurance coverage begins to come into focus. What are the drivers adding to ED visit volume and overcrowding and could this be resolved if access to primary care were improved?

Tuller (2016) summarizes the development of ambulance diversion as a temporary strategy for EDs to cope with unpredictable surges in patient arrival and act as a safety valve. He goes on to suggest that over time, while this practice may assist one hospital, it does not stop the flow of patients, rather pushing them to other facilities. The unintended consequences have therefore borne out causing delays in care, unexpected costs to ambulance services, and congestion in other facilities. Hospitals generally make their own decisions and set their own thresholds regarding diversion. Title 22 of California regiments the ‘at all times’ nurse to patient ratios that must be adhered to within ED’s. Increasing a hospitals ambulance receiving capacity therefore becomes a costly venture, especially when allowing an ambulance to wait for offload mitigates potential revenue that might be lost if an ACLS ambulance is diverted to another facility. There are currently no state or federal mandates that put limits on ambulance offload times, holding patients in the ED or the optional diversion of ambulances. This variation has led to unpredictable impacts elsewhere in healthcare systems, disproportionately affecting patient populations that already experience reduced access to health care services (Tuller, 2016).

Without significant change in these areas, it seems reasonable to conclude that offload

delays, ambulance service impacts and limited care access will continue persist while significant groups of Californians continue to favor ED use over primary care.

While much has been written about the individual topics of ED overcrowding, ambulance delays and diversion, access to primary care and effective ED resource management, these studies commonly conclude by recommending further research to the community on how these problems might be addressed. It is undoubtedly true that EDs may work to become more efficient, and future pressures may require the revision of nurse to patient ratios in California. The chronic underfunding of primary care however is rapidly becoming a public health crisis that threatens to collapse the existing pre-hospital establishment and overwhelm the California emergency department network at a time when the population will need it the most.

By conducting a macroscopic review of the interdependence of each of these problems, this work seeks to provide context & direction to future research. Policy makers, with or without the attention that electoral cycles may bring, will need to confront these issues. Meaningful data & research quantifying increased access to primary care and its impact on ED usage have the potential to impact the success of the broader EMS and acute care establishments within the state.

## **Background**

### **Policy to fund the uninsured**

In reviewing the work of Zelman et al (2018), it is fascinating to consider California's strong belief that coverage would alleviate ED overcrowding, and their consequent journey to provide health care to the uninsured. Between 1979 and 2001, the percentage of uninsured adults rose from 11% to almost 20%, with uninsured workers peaking at nearly 25%. Since the advent of the EMTALA law in 1986, ED visits in California have steadily increased year on year (Hsia, 2017). Between 2001 and 2014, Zelman chronicles the repeated attempts to legislate coverage for uninsured Californians, highlighting the successive political attempts to move toward a single payor system of some sort. Multifaceted support and resistance produced numerous initiatives that attempted to impact this problem until finally, with intervention and support from the federal government, the incidence of uninsured Californians began to decrease with the advent of the ACA. In considering Anthony Downs' (1972) attention cycle model, it is possible to see all four stages playing out within this topic.

While the pre-problem stage outlined by Downs in his 1972 paper may have occurred as the uninsured numbers began to rise, the alarmed discovery phase seems to have peaked in the early 2000's as people began to table the issue as a political agenda item. California seems to have become stuck in the 'Realizing the cost of significant progress phase' for some time. Zelman et al in 2018, highlight several pertinent topics in evaluating the numerous attempts to solve the stubborn insurance coverage problem. They first raise the importance of finance. The proportion of the population that needed to be included in any kind of health coverage initiative has been a significant consideration. Resolving this prior to the implementation of the ACA

presented insurmountable barriers both economically and politically. Historically, a two thirds majority vote needed to pass legislation had prevented any significant progress while local businesses were not inclined to support proposed initiatives. The term ‘job killer’ was often used in reference to any employer-based mandates that would have seen an increase in employee health coverage. Zelman et al (2018) also highlighted that during the years leading up to the ACA, Republican governors were in office for thirty one of the fifty-two years since 1966. They point out that except for Governor Schwarzenegger, none were prepared to support any significant expansion of insurance coverage.

Significant resistance from differing groups that would either sacrifice their own status, financial income or societal structure meant that until the advent of the ACA, insurance coverage for a large segment of Californians remain an elusive goal. While the ACA did not provide complete coverage, it certainly increased. The three years since the ACA was implemented saw uninsured rates drop from 17% to 7%, with a large proportion of those remaining uncovered being because of immigration status issues.

What then of access to care issues? Will the prevailing sentiment of racial and social inequality bring the issue of access to care from the pre-problem stage into the alarmed discovery and potential euphoric enthusiasm stage of the Downs attention cycle? The need to increase funding and reimbursement in the primary care sector is a contentious issue. Meserve (2016) authored a fascinating body of work considering political motivations in distributive policy making. He surmises that politicians are likely to favor incentives to use health funds as a form of distribution. This pressure to provide welfare style service, fundamentally from voters, who are experiencing perceived threats to their personal health and security, will likely be increased

at times of electoral decision making. In the current climate the access to care issues, coupled with the general societal inequality focus is likely to bring this issue more in to the public domain. As outlined by Downs in 1957, voters must be able to connect improvements in their well-being due to the enacted policies of a given politician for the issue to translate into voter momentum. The use of health spending as a vote earning mechanism may well become a ‘useable’ topic in upcoming political & election debates.

While insurance coverage for a greater proportion of the population may have been established, California has not yet addressed access to primary care or alternatively enforced a policy structure that would reduce ambulance diversion.

### **The ACA and the Emergency Department**

One of the foundational tenets of the ACA was to provide insurance coverage and better access to care for large populations of the United States (Oilove, 2014). Increased insurance coverage was intended to alleviate the use of ED’s as primary care centers (Barakat, 2017) and Peikes et al in 2020 highlight that bolstering primary care was one of the ACA’s many policy goals. It seems strange that ED overcrowding, represented by the persistent and increasing problems of ambulance offload delays, should continue to increase (Hsia, 2017) since the ACA’s implementation.

The academic community seems divided about whether the ACA has increased or decreased visits to emergency departments. The studies cover broad groups. Some conclusions seem more conceptual than factual but interestingly and perhaps logically, a common theme is the topic of primary care. It seems reasonable to suggest that ineffective primary care structures would drive some patients into the emergency department. This does not necessarily seem to

hold true in the other direction, however. Patients who might forego primary care without coverage may engage once they have insurance. This does not necessarily equate to either an increase or reduction in ED visits, however. According to the California Health Care Foundation Health Care Almanac in 2018, Between 2006 and 2016, the number of emergency department visits increased by 44%, while the state's overall population increased by 9%. The number of visits per 1,000 residents increased by 33%.

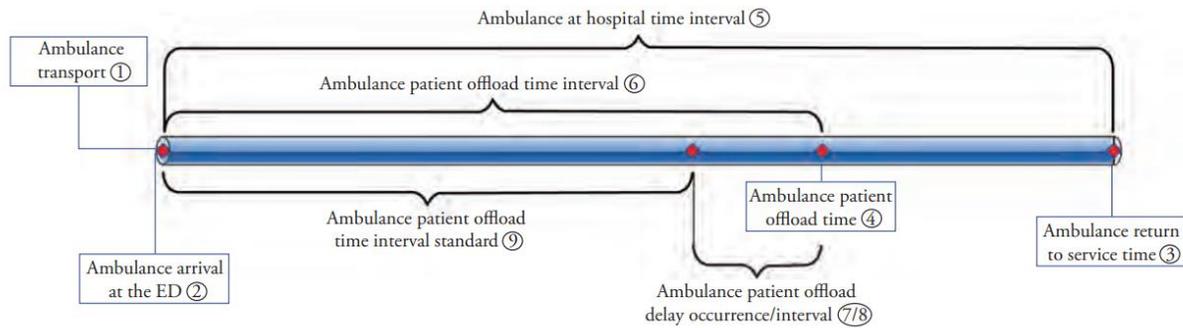
### **Ambulance patient offload times**

To begin to explore the literature of this topic, it may be prudent to first borrow some definitions from the LA county EMS agency in 2019, also illustrated in Figure 1.

*'Ambulance Patient Offload Time (APOT) - the time interval between the arrival of an ambulance patient at an ED and the time the patient is transferred to the ED gurney, bed, chair or other acceptable location and the emergency department assumes the responsibility for care of the patient.'*

*'Ambulance Patient Offload Delay (APOD) - the occurrence of a patient remaining on the ambulance gurney and/or the emergency department has not assumed responsibility for patient care beyond the LEMSA approved APOT standard.'*

*'Transfer of Patient Care - the transition of patient care responsibility from EMS personnel to receiving hospital ED medical personnel.'*



*Figure 1*

They go on to define standard and non-standard APOT times for LA County while summarizing a great deal of work which has been done to source and evaluate strong performance data. From the wealth of information and policy available through the LA County EMS services, it seems reasonable to infer that this remains a high-profile topic for EMS agencies. The California Hospital Association in 2014 point to data which suggest a significant impact on costs to ambulance services and delays in response times when ambulances and their crews experience APOD.

Interestingly, while the EMTALA Act of 1986 requires that anyone seeking care at an emergency department must be screened and provided with emergent treatment, it does not provide any guidance on how long an ambulance crew can be made to wait before a receiving hospital accepts the patient into their care.

It is also pertinent in reviewing this topic to consider ambulance diversion. This is described by LA County EMS in 2017 as the process by which a hospital may request Advanced Cardiac Life Support (ACLS) ambulances be diverted to another hospital based on pre-defined criteria. This means that ambulances must drive to the next available ED, increasing the time it takes to reach a treatment center. This potentially delays ambulance turnaround and treatment of

patients. This in turn has the potential to increase both short- and long-term patient mortality rates (Hsia et al, 2017).

Most commonly, the CHA in 2014 suggests that this is caused by ED saturation. According to a study completed by the California HealthCare Foundation as early as 2009, ambulance diversion is a problem nationwide and has become used increasingly by hospitals as a relief valve when they experience situations where they are unable to bring enough staff, beds or resources to bare in a department experiencing high volume or acuity. Much has been written about this topic. Thematically, it seems that different states handle this problem in different ways. As there is no national guidance on when and if diversion should be employed, individual states have provided guidance and hospitals are permitted to develop internal thresholds as to when diversion should be employed. In 2012, Hsia et al noted that very few states have removed the option for hospitals to utilize ACLS Diversion. They highlight that in Massachusetts in 2009, a legal case driven by a poor patient outcome led to the statewide ban on ambulance diversion. Of note, this ban did not result in a significant increase in waiting times for emergency department patients. Instead it became the catalyst for hospitals to effectively develop and deploy strategies to reduce overcrowding. California does not prohibit the use of ACLS diversion; however, much work has been done recently on the standardization and collection of relevant data in this area. Although it has not been possible to find scholarly or peer reviewed articles which suggest that hospitals over or underuse of this facility, it is possible to infer from the abundance of EMS literature that this is a perceived problem. According to LA County EMS reports, there is an increasing appetite for forcing hospitals onto ACLS diversion if they do not take this step themselves. CA OSHPD statistics suggest that 40% of ACLS ambulance patients are converted to inpatient services. Delgado et al in 2013 suggest that one of the reasons

hospitals might be reluctant to invoke ACLS diversion is the perceived link between high acuity ambulance arrivals and the consequent revenue potential of patients that might be admitted.

Although an older study, McConnel et al in 2006, reviewed hospital admissions generated through a sampled group of Emergency Departments over a multi-year period and calculated the average hospital revenue within their study group was 4,492 dollars per ED admission. They further calculate that each hour spent on diversion was associated with 1,086 dollars in forgone hospital revenues from ambulance patients. They concluded that ambulance diversion is a lose-lose, increasing time to service for patients, reducing the number of available ambulance units to respond to emergencies and depriving hospitals of revenue.

Perhaps the most emotive evidence of this practice directly impacting EMS services in Los Angeles County is the 2018 enactment of local policy that empowers EMS services to force hospitals onto diversion if in the judgement of senior EMS leaders the hospital is allowing ambulances to attend a hospital and become entrapped due to the emergency department lacking the resources to offload their patients.

### **Emergency department overcrowding**

ED overcrowding has been extensively researched and remains a problematic topic. The literature reviewed seems to support the relationship between overcrowding and ambulance offload delays. In general, it is accepted that ED overcrowding is not isolated to being an ED problem, with several authors suggesting the importance of a whole hospital approach to combatting issues. The use of ACLS diversion remains controversial. The sentiment in California seems to be focused more around its lack of appropriate use contributing to offload delays rather than a suggestion that it should be prohibited. It is however interesting to consider

that in Massachusetts, banning it was the factor that forced the hospital wide change that corrected delays. It does seem to be generally agreed within the literature that an increase in hospital and emergency department utilization is the main causative factor in increasing offload times (Hsia et al 2018).

The parameters of overcrowding remain notoriously subjective, as do response and surge control algorithms. Cooney et al in 2013, explored the efficacy of various measurement tools, most notably the National Emergency Department Overcrowding tools (NEDOCS). While they champion the efficacy of using such tools, they can be used subjectively and do not provide a defensible data set indicating how overcrowding impacts access to care. Ambulances being held at the point of care transition however has been recognized as a dual care access indicator. Firstly, as a measure of an inability to accept patients requiring emergency care into an ED and secondly as a barrier to providing rapid 911 response when ambulances are held out of service (Hsia et al, 2018).

## **Primary Care**

Perhaps surprisingly, given the logical assumption that an increase in persons insured would lead to a decrease in emergency department traffic was the consistent inclusion of primary care discussion in many of the reviewed articles. Ruben et al in 2014 make a strong argument that solid Primary Care structures and referrals can reduce emergency room visits. A similar study by Warner et al. (2015) concluded that if emergency department staff can assist patients identifying and connecting with appropriately linked primary care resources, they can be prevented from leaning on the emergency department for routine care in the future. They cited several causal factors including availability of providers, selective intake of new patients and clinic hours that were a challenge for those working full time. Pina et al. (2016) came to similar

conclusions, citing data that indicated uninsured adults between the ages of 18 to 65 were more likely to utilize emergency departments not because of a lack of insurance, but because of a lack of availability of primary care providers.

## Methodology

This study is a qualitative analysis of archival data of peer-reviewed journal articles. Articles were reviewed in consideration of the 2015 PRISMA guidelines. In recognizing that the author is currently employed by a hospital operating an emergency department it is possible to identify a potential personal bias in information source selection. The author acknowledges a personal involvement in the management of patients being delivered to emergency departments by local EMS agencies and the subsequent management of these patients within a hospital setting. Consequently, an inclusion and exclusion criteria protocol has been developed as below.

- Articles must have been published within the last 10 years, unless exploring historic policy & related theory.
- Articles must have been published in peer reviewed journals.
- Articles must be in English.
- Articles must be available in a full PDF text, rather than a simple abstract.
- Articles must be directly applicable to the topics of:
  - Relevant policy & policy making
  - Emergency room over-crowding
  - Ambulance diversion
  - Ambulance patient offload times
  - ACA implementation and its impact on Emergency Room visits
  - Data obtained from a published government source
  - Primary care access

Searches were configured initially using the keywords of

- Ambulance diversion
- Emergency department
- Overcrowding
- ACA implementation
- Increased coverage
- Ambulance patient offload times
- Emergency department volume
- Emergency department throughput
- Primary care access
- Emergency Departments and primary care
- Availability of primary care appointments
- Primary Care homes
- Primary Care Reimbursements
- CMS / CMMI Primary Care initiatives

Information sources were primarily identified by searching within electronic databases through the CSUN Oviatt Library, using google scholar and reviewing the reference lists of reviewed articles. The information repositories of the Emergency Nursing Association, American College of Emergency Physicians and the California Hospital Association were also leveraged.

Searches were conducted primarily using the Pro-Quest search engine and then through Google Scholar. Searches were also conducted using the OSHPD, LEMS, CHA, ENA and ACEP websites. Searches were conducted between the 1<sup>st</sup> of October 2019 and 3<sup>rd</sup> July 2020.

A total of 92 articles and documents were evaluated. 19 of these were excluded on the following basis:

11 articles could not be demonstrated to be from peer reviewed publications.

7 articles were initially relevant by title, but upon evaluating the full text were found to be inconsequential to the topic of the study.

1 article was found to be a poor translation into English from Turkish and hence was excluded.

This left a total of 73 articles which met the inclusion criteria.

## Literature Review

### Primary Care funding in California

According to Peikes et al (2020), the affordable care act was implemented at a period representing the culmination of years of primary care underfunding. They suggest that while insurers and health care institutions had moved heavily toward supporting technical interventions and specialist referrals, despite mounting evidence that increasing the strength of primary care could reduce premature mortality rates in many pre-existing conditions that it remained significantly underfunded. Further they suggest that inadequate reimbursement structures have stifled development in this space in addition to promoting a migration of providers away from the primary care discipline. With much work having been conducted in this space, it is unsurprising that the Center for Medicare / Medicaid (CMS) has directed much of its resources toward addressing the issue of reinforcing primary care. CMS's center for Medicare and Medicaid Innovation (CMMI) was created to test new care delivery models and payment reforms (Peikes et al 2020). CMMI's two strongest programs in the last decade have been Comprehensive Primary Care and Comprehensive Primary Care + (CPC and CPC+).

Basu and colleagues (2020) recently published a study evaluating the impact of the SARS Cov-2 outbreak on primary care practices. They tie together the fragility of current reimbursement systems and incentives, highlighting the potentially catastrophic reduction in revenue for most primary care institutions. Using real data, and an analytical structure based around CPT codes and associated payments, they concluded that primary practices are likely to experience large, meaningful, and impactful reductions in revenue. They further go on to consider the potential consequences in access to care, emergency department use and the potential societal impact of a primary care system collapse. Emergency measures enabling

enhanced payments for remote access and telemetry based services have gone a long way to fortify these services but these measure are temporary and they raise the question of how the current policy structure will need to be adjusted if these practices are unable to secure sufficient funding through either fee for service or capitated payment mechanisms.

### **Emergency department overcrowding as a concept**

There seems to be a consensus in published literature that overcrowding is caused by a combination of factors. The Center for Medicare & Medicaid Services themselves have recognized the importance of ED throughput and reducing overcrowding by including performance metrics tied to this in the Value Based Purchasing propositions in 2017. This by its nature has led to an increased focus by hospitals in addressing this issue.

The argument that overcrowding in emergency departments may be subjective has been well documented. Many tools have been developed with varying results and levels of efficacy. A study conducted by Cooney et al in 2013 examined the relationship between one of the most common ED saturation scoring tools, the National Emergency Department Overcrowding Score (NEDOCS) score and hospital requests for saturation diversion. They observed a significant correlation between high scores and the occurrence of diversion. The CHA in their 2014 toolkit for reducing diversion highlight the need for implementing meaningful triggers that allow for appropriate ACLS diversion requests. This would suggest that much work has already been completed on how to objectively measure ED overcrowding. Interestingly both the American College of Emergency Physicians and the Emergency Nurse Association have authored position statements on staffing, resources, and ED overcrowding. Given that a wealth of research and information exists supporting what constitutes overcrowding, it seems possible to infer that the standardization of responding to these triggers or preventing them with appropriate resource

allocation would be more of a causal factor than initial identification. Cooney et al. (2013) conclude that overcrowding is not at all subjective if an institution subscribes to research-based measures in its quantification and prevention.

The CHA highlights several strategies to help hospitals reduce ED overcrowding. Their position is that if the following can be achieved, overcrowding can be reduced.

- Reduce patient boarding times – If patients get stranded between the point of a decision to admit being made and then actually getting a bed within the main hospital then this reduces functional ED capacity.
- Develop and implement hospital-wide full capacity plans – If the hospital has no available beds, but there is a build up of boarding patients in the emergency Department, a hospital wide response involving relevant actors needs to be activated.
- Remove inefficiencies in patient processing – If parallel processing is not being utilized, every health care professional who has a task to perform for a patient needs to wait for their turn in the chain. This serial processing of patients greatly expands the time a patient needs to spend in an emergency department and hence contributes to overcrowding.

Despite this and similar guidance in other states, it seems that many hospitals struggle to enact these strategies effectively. Delgado et al in 2013 conducted a study seeking to evaluate ways to reduce ambulance diversion hours. They concluded, much as the California Hospital Association suggested, that hospitals employing the same strategies were able to reduce legitimate diversion hours by reducing the incidence of overcrowding. It seems reasonable to infer that these same strategies would be effective at curbing the incidence of APOD.

Interestingly, they also suggested that hospitals which were most in need of the outlined

strategies were not always the same as those who successfully enacted them. Warner (2015) also suggests that the hospitals at most significant risk of overcrowding, tend also to be the ones that struggle to implement change. In their conclusions they suggest that the absence of a national strategy to address emergency department overcrowding is contributing to this problem being perpetuated. They acknowledge the requirement for hospitals to report relevant metrics to CMS but again highlight the lack of a national strategy. A key point raised by the CHA is that reducing APOD due to emergency department overcrowding is a hospital wide endeavor, not simply the remit of the emergency department. This opens the door to the need to explore inpatient utilization, discharge delays and all the associated complexities of the reimbursement system. At this time, the author deemed this beyond the scope of this work.

### **Ambulance offload times as a concept**

In 2014, the California Hospital Association (CHA) summarized an escalating problem burdening Emergency Medical Services (EMS) in several areas of California. Ambulance patient offload delays, a time period within which an encumbered ambulance crew has arrived at a hospital but is unable to transfer care of their patient to the hospital emergency staff, effectively removes an ambulance and crew from service until they can be released. According to LA County EMS in 2017, ambulances and crews held up at emergency departments (ED) negatively impacts response times to 911 calls. The CHA also goes on to suggest that patients waiting on ambulance gurneys to be bedded have a negative impact on patient satisfaction and has the potential to increase the risk of adverse care events.

Protracted APOT times have been linked in many studies to ED overcrowding and the non-judicious application of ambulance diversion strategies. Despite much work between the CHA and local EMS agencies, the problem of protracted APOT times escalated to the point

where several local agencies amended their operating procedures to allow EMS Captains to attend hospitals themselves and if necessary to place the ED on 911 diversion even if the hospital administrators disagreed with the decision (La County EMS Policy 503.1, 2019).

Hidden within this area is potential cost shifting from hospitals to ambulance crews, a reluctance to activate diversion when genuinely needed for fear of lost revenue (i.e., a patient may not be admitted) or this practice being used as a relief valve that prevents hospitals from committing the resources that would otherwise be needed to reduce overcrowding.

In 2013 Delgado et al suggest a strong link between ED overcrowding and increased APOT time. This was supported by work done in 2009 by the California Healthcare Foundation. These studies directly connect overcrowding in the emergency department to a lack of available offload treatment spaces. This conclusion is supported by the sentiments and work of the California Hospital Association. The combination of mandated nurse to patient ratios and physical space constraints ultimately have been linked to both an increase in diversion hours and protracted APOT.

### **Hospital throughput as a causal factor of overcrowding**

While this may make logical sense, reviewing the work of the ACEP as recently as 2016, it becomes evident that their position also highlights the bigger issues of efficient throughput, patient boarding, early discharge, and appropriate inpatient service utilization. This links the causal factors of APOT to a broader discussion than just emergency department staffing. Topics such as general physician and hospital reimbursement, barriers to discharge and even primary care service availability begin to become causal factors in ED overcrowding.

Superimposed against the backdrop of ED throughput, overcrowding, appropriate staffing is the history of ambulance diversion. According to the CHA, it has been a practice since the 1990's to divert ACLS ambulances away from ED's that are under pressure. While much has been written about this strategy being used by hospitals to shunt their own problems into other facilities, it is still a practice that is legitimized by the State of California. Hidden within this area is potential cost shifting from hospitals to ambulance crews, a reluctance to activate diversion when genuinely needed for fear of lost revenue (i.e. a patient may not be admitted) or this practice being used as a relief valve that prevents hospitals from committing the resources that would otherwise be needed to reduce overcrowding.

Hsia et al (2018) explored empirical evidence to help identify factors that play a significant role in ambulance diversion. They suggest that patient throughput in whole health systems, rather than just in emergency departments is intrinsically linked to ambulance diversion or off load delays. They point out that studies have shown certain practices within hospitals (such as bed control meetings, bed crisis or surge models, and more restrictive diversion policies) could result in decreased time on diversion but have not been widely adopted. Hospitals cannot free up bed space for the ED unless the flow illustrated in Figure 2 is maintained.

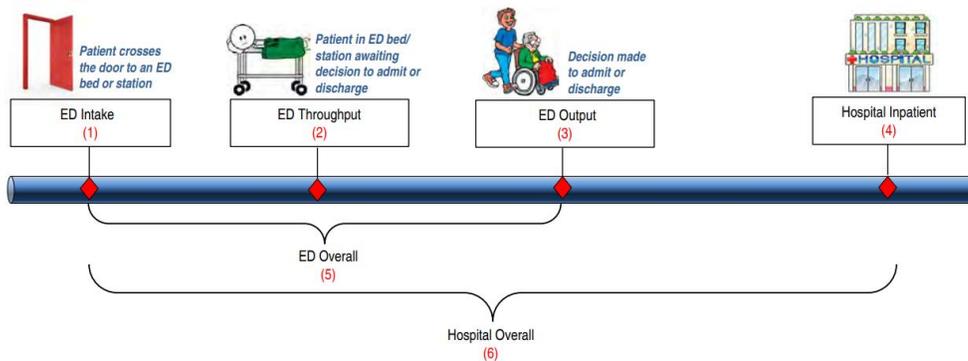


Figure 2

## **Nurse Staffing in Emergency Departments**

Title 22 of California mandates that ED Registered Nurses (RNs) must be either in a ratio of 1:4 or 1:2 for patients in active treatment. This regulation, which does not exist in many other states, provides a limit on how many patients a nurse can care for at any given time. By its nature, this limits the amount of available treatment spaces that an ambulance can offload their patient into. As the CHA points out in 2014, supported by both the ENA and ACEP as outlined in their position statements, if there are not enough RNs to maintain the ratios while offloading a patient, then that patient will need to be held by the paramedic crews until an available treatment space is resolved. In this way it has been suggested that hospitals are forcing a cost shift to paramedic crews rather than employing additional emergency department staff.

Hospitals are constrained by both nurse shortages and the legal structure within which they are mandated to schedule nursing staff. California's Office of Statewide Health Planning and Development (OSHPD) 2017 data on annualized ED visits suggests that volumes have consistently increased year on year for the last decade. The American College of Emergency Physicians (ACEP) has authored Position statements outlining its belief that emergency Departments need to be staffed in such a way as to anticipate and manage patient demand. The Emergency Nurses Association (ENA) has highlighted the potential gap between hospital budgets, standardized productivity metrics and the danger of impacting nurse to patient availability in providing safe care to patients. Both these organizations attest that overcrowding is a department state consequent to a mismatch of staff, space, or resource to patient volume & acuity. These organizations suggest that their carefully considered and research-based positions can at times be at odds with staffing budgets and hospital policies. In 1999, California became the first state to pass into law mandated nurse to patient ratios in acute care hospitals. This highly

controversial experiment came to fruition after years of lobbying and speculation on whether fixing the number of nursing staff caring for a limited number of patients could reduce nursing workforce shortages and improve quality. According to Coffman et al. (2002), similar bills had been proposed in and rejected in 1996 and 1998. Proposition 216 by voters and A.B. 695 in a veto by the then State Governor, Pete Wilson. They go on to detail how bill A.B. 394 was finally passed with the assistance of Governor Grey Davis, who had been heavily endorsed for office by several of the health care worker unions at the time.

Previous legislation dating all the way back to 1976, had required a nurse to patient ratio of 1:2 in intensive care and subsequent regulation in the early 90's had required a system of patient acuity be used to determine how many nurses were assigned to each unit. AB 394 however pushed into force mandated nurses to patient ratios in a way that had not previously been seen in the United States. It brought into law specific verbiage that removed a great deal of flexibility that had previously been utilized by acute care hospitals.

Hertel (2012) details the complexity of the Nurse staffing & scheduling problem, highlighting 36 separate variables which need to be accounted for, to meet the goals of efficient, patient centered care. Fixing the nurse to patient ratios at a minimum level was an attempt to address the much studied and researched nurse scheduling challenge.

AB-394 was a stand-alone piece of legislation, however it built upon previous regulations that already existed within title 22. (Title 22, Division 5, Chapter 1, Article 6, Section 70495(e)).

Previous regulation had required that:

- In ICU & Coronary Care units a minimum of 1 nurse to 2 patients must be present.
- In these same units at least half of the scheduled nurses must be RN's vs LVN's.

- Hospitals use a patient classification system to determine nurse staffing needs on a shift by shift basis and to schedule accordingly.

According to the bill analysis on the California Legislative information website, the objective of the bill was as follows:

‘Establishes specified nurse to patient staffing ratios in specified health facilities and limits the nursing-related duties that may be performed by unlicensed personnel.’

Specifically, with regards to nurse to patient ratios:

‘Requires general acute care hospitals, psychiatric hospitals, as defined, to allocate specified numbers of RNs to provide nurse to patient ratios, as specified, and to adopt written policies and procedures for training and orientation of nursing staff. Allows for a waiver of the nurse to patient ratio provisions for rural general acute care hospitals, as specified.’

### **The case for reduced or similar ED volumes**

As emotive as the case is for an increase in ED usage being driven by the ACA in 2010, many studies seem to call this into question.

Pines et al (2016) suggested that the increase in coverage achieved by Medicaid expansion in 28 states was predicted to increase ED visits. The results of their work however pointed to a different outcome. They noted little to no change in aggregate visit volumes. They did however note a significant difference in payor mix. They therefore concluded that patients utilizing the ED before 2010 would continue to use it, irrespective of coverage changes. Thus, the expansion of Medicaid coverage strongly affected payer mix but did not significantly affect overall ED use. They observed this even though more people gained insurance coverage in expansion states than in non-expansion states. This suggests that expanding Medicaid may not significantly increase or decrease overall ED visit volume.

Vargas et al. (2018) examined how health care coverage in Hispanic and Latino populations has evolved since 2010. They suggested that while coverage had improved since the ACA, many other factors such as socioeconomic status and cultural beliefs played an important part in how people seek care. They did not observe a reduction or increase in ED visits for these populations, concluding that the decision to attend the ED was driven much more by the perception of acuity and associated cultural beliefs than the possession of insurance coverage.

Pourat et al. (2013) challenged the assumption that undocumented immigrants, allowed to purchase health insurance would result in an increase in ED visits. They found that undocumented immigrants in California used less services than their insured counterparts. This included a mix of both insured and uninsured individuals. They outlined a propensity toward primary care and argued that greater insurance coverage would drive greater primary care usage in preference to emergency department utilization. Hernandez-Boussard et al in 2014 conducted a study involving three states, concluding that post ACA, emergency department visits for young adults decreased after the implementation of the ACA.

An interesting study by Gruber et al in 2016 reviewed the breakdown of insurance claims since 2010 for employee sponsored health plans. They concluded that on the whole emergency department costs are decreasing when looking at submitted reimbursement claims. They argued that this was a proxy for reduced emergency department usage and hence concluded that the Affordable Care Act had indeed reduced visits. Zhou et al. suggest that in 2017, the temptation is to assume that uninsured people are not using the emergency department. The next logical assumption they outline is that the advent of the ACA, providing more people with insurance would have the immediate effect of driving volume into the emergency departments across the country.

## **The case for increased volume**

Perhaps the most emotive information for the state of California is the OSHPD data which shows year on year increases in emergency department visits since 2010. It is not possible to easily deduce from this data however whether this is due to the advent of the ACA in 2010, or simply reflective of a general trend. Hsia et al conducted a study in 2012 which suggested correlations between hospitals serving low income populations and the likelihood of becoming overcrowded. As there are high concentrations of low-income families within California this might indeed be relevant. Prina et al in 2016 reviewed ED visits in Kentucky and noted an increase from 30.2% to 46.9% for those covered by Medicaid between 2012 and 2015.

Perhaps one of the most interesting suggestions is that since the advent of the ACA, the mental health care landscape has changed in such a way that it has driven many patients into emergency departments as opposed to the effective use of community resources. Okafor in 2016 suggests that the overuse of ED's by patients requiring mental health care, or facilities struggling to manage them, is an increasing US problem. They suggest that this significantly contributes to ED visits and that strategies are needed to address this. McConville et al. (2017) analyzed ED 'frequent flyers', those who will repeatedly attend emergency departments for treatment. They found that this group was a significant contributor to emergency department volumes. They also determined that substance abuse and mental health needs were the strongest predictors of ED usage pre and post ACA.

Finally, in an alternatively focused, yet still relevant study Kocher et al in 2013 examined the frequency of ED visits for those who had recently had significant surgeries in the period between 2010 and 2013. They concluded that 17.3% of patients who had undergone significant surgery in their study hospital would visit the ED at least once in their immediate post-operative

period. This again raises interesting questions about the segmentation of care, hospital inpatient utilization and the impact that this has on a potential increase of emergency department since the advent of the ACA.

## Findings / Analysis

### Cost shifting

A study Li et al (2018) explored the reasons for ambulance offload delays and its impact on care delivery. In addition to reinforcing the similar themes of preventing ambulance availability to respond to emergency calls, they outline some of the costs involved to the ambulance operators. While their data is based primarily out of Ontario, Canada, it is interesting to consider how this could be extrapolated to the problem in California. They discuss the catch-22 situation faced by ambulance operators. If their crews get caught up in emergency departments the reduces the number of available rigs to respond to 911 calls. Ambulance operators are often contracted by their operating cities or counties with time and quality targets which can be tied to hefty fines if missed. Less rigs means longer response times and hence they often resort to paying crews overtime to stretch the number of responders available to meet demand. Rabin et al (2012) studied the concept of emergency department boarding and highlighted that acute care hospitals have been known to ‘game’ admission types to maximize reimbursement. By operating the hospital to seek maximum reimbursement from elective surgical cases, capitulated admissions and incoming emergency department admits, the latter often get ‘boarded’ in the emergency department while waiting for available beds on the main hospital floors. This absorbs treatment bay capacity and especially in California, receiving RN capacity. Hospitals can continue to receive incoming ACLS ambulance runs (which Rabin points out generate significant hospital income) if the paramedic crews ‘hold’ the patient until a treatment bay becomes available. Rather than bare the cost of additional nursing staff to expand ED receiving capacity, the hospitals are in effect shifting the cost of emergency care of these patients to the EMS agencies. Li et al. (2018) pegged this practice as costing ‘millions of pounds per

year' in the United Kingdom, 840,000 CAD per month in Canada and suggest that the same concept is likely applicable in all similar systems.

### **The primary care discussion**

Many authors have suggested that with better access to primary and preventative care, patients could be diverted from using the emergency room. Ruben et al in 2014 make a strong argument that solid Primary Care structures and referrals can reduce emergency room visits. A similar study by Warner et al concluded in 2015 that if emergency department staff can assist patients identifying and connecting with appropriately linked primary care resources, that they can be prevented from leaning on the emergency department for routine care in the future. They cited several causal factors including availability of providers, selective intake of new patients and clinic hours that were a challenge for those working full time. Pina et al in 2016 came to similar conclusions, citing data that indicated uninsured adults between the ages of 18 to 65 were more likely to utilize emergency departments not because of a lack of insurance, but because of a lack of availability of primary care providers.

One of the most compelling conclusions was drawn by Zhou et al in 2017. They believe that the patients using the ED was really a constant irrespective of the ACA implementation. They concluded that the variable factor was the use of primary care. The uninsured will use primary care less than the insured, but acuity of need will drive a consistent use of emergency services irrespective of insurance.

## **What does Primary Care mean to Enrollees rather than policy makers?**

Rambur (2017) conducted a study exploring the complexity of obtaining coverage under the ACA. While considering the potential consequences of moral hazard and the impact on society that mandatory coverage would bring, they spent some time lamenting the fact that for the majority of low income users of the new health coverage system enrollment was a daunting process. They describe a system so complex as to require an army of navigators, assisters, and application counsellors whose sole responsibility is to engage the public in what is available to them and how to take advantage of it. They consider the interesting statistic that 63.4% of health care is government funded with a projection to increase to 67.1% by 2024. While they do not break out how much of this is allocated to the administrative overhead of managing the enrollment, authorization and reimbursement processes, Oilove et al (2014) allude to a significant proportion of the cost of healthcare being diverted to its non-clinical administration. Given the labor requirements to manage the administrative aspect of insurance coverage, is it any wonder that the very groups that the ACA was attempting to assist would encounter barriers in its effective use?

Rambur et al (2017) went on to highlight the vast array of subsidies and benefits that simply go unclaimed by many who are eligible. While the Department of Health & Human Services has a clear agenda to shift the risk bearing of health care costs more squarely onto health care structures other than straight fee for service (Zuveckas & Cohen, 2016) the populations they are attempting to service may not even understand the concept of primary and preventative care.

An emotive study conducted by Saluja et al (2019) explored the implementation of the MyHealthLA program, designed to increase enrollment in the heavily subsidized California Medical program post ACA implementation. While they do detail impressive increases in the

number of enrollees, they lay out an interesting narrative surrounding the behavior of the enrollees.

For many of the workers targeted by these initiatives, the concept of primary care is completely alien. From a cultural perspective, if you are used to only seeking medical care when there is something noticeably wrong, then preventative care is an unfamiliar concept. Bustamente's 2018 work highlights the care seeking practices of Latino communities in California, pointing out that it is not uncommon for adults to work every day, including late into the evening. Culturally they highlight the reluctance of those who fit this profile to make appointments or seek preventative care. The 'only when it is needed' approach to seeking medical care, especially if there are financial consequences to taking time off work, does not lend itself to the primary care model. They went on to suggest that the Emergency Department in this setting is the optimal solution. EMTALA law (1986) prevents anyone being turned away. It is open 24/7 and while waiting times may be a challenge at times, attendees know that they will likely receive care. Saluja in 2019 went on to argue that while 'Medical care homes', a central hub designated to facilitate preventative and ongoing care needs, work well in principle, they do not offer the same convenience and availability of Emergency Departments. The literary consensus seems to be that people tend to follow the path of least resistance when needing to obtain care, especially when starting with the expectation that you will be treated so that you can return to normal and work. If this means a choice between risking income, taking a lengthy trip on public transportation or even having to endure multiple visits when a specialist or investigation is needed then a simpler and quicker option is often favored. As an interesting consideration, Barakat's work in 2017 seems to support that the same people demographic attending the ED prior to ACA are still attending now. They are simply being enrolled in

emergency assistance programs by diligent administrative staff within the ED and the end difference is that the hospital is now being reimbursed through governmental programs rather than writing off unpaid bills. While venturing out of the scope of this assignment somewhat, Rosenbaum, et al in 2015 detailed exactly this impact while considering the benefits of for profit and not for profit hospital operation.

### **Is Primary Care Available if sought?**

Pourat conducted a study in 2015 that demonstrated a reduction in ED visits within a low income and previously uninsured population. They argued that an improved level of primary care provider adherence, where a patient maintains a relationship with a primary care provider, led to better management of patients' health care needs, especially in those with care sensitive and complex chronic conditions. Bakar et al (2017), Bhandari et al (2016) and Sonali et al (2019) all allude to significant hurdles for the enrollee to effectively maintain primary care provider adherence. Collectively, they outline the following barriers:

- Understanding what primary care is
- Finding a PCP or PCC
- Switching PCP's or PCC's
- Wait times for primary care appoint
- Location and transportation
- Using ED/UC as primary care
- Cost or coverage

Bhandari et al (2016) in particular, highlighted the problems with being accepted by a primary care provider. They conducted interviews of primary care participants and detailed the

personal experiences of patients being refused appointments, not knowing who their covering physician was supposed to be and exceptionally long clinic wait times. They argued that the difficulty in service utilization often makes the Emergency Department a more attractive proposition.

### **Availability of providers**

McConville et al in 2018 discuss the challenges faced by EDs following the implementation of the ACA and specifically the surge times within which patients visit. They speculate that the lower reimbursement offered to primary care physicians for Medicaid incentivizes against out of hours primary care services. This is echoed by O'Malley in 2013 who suggest that failing to have a provider familiar with a patient's medical history or who has access to their records inherently leads to reduced standards of care and unnecessary investigations or admissions. The concept that the very provider behavior which would reduce unnecessary emergency department visits is not being incentivized seems illogical. If a Primary Care Provider does seek to deliver more accessible preventative or aftercare out of hours the current Medicaid fee for service does not reward them.

McLelland et al in 2014 summarized statistics indicating that a chronic lack of primary care funding had led to providers favoring employment in acute care hospitals or specialist practice with more lucrative compensation. Tipirneni et al in 2015 explored the impact of increased funding to primary care in the era of the ACA. They interviewed many providers that were engaged in accepting new patients but noted that the increased case load led to logistical challenges and an inability to meet the increase in volume.

## **Availability of appointments**

One of the concepts outlined above that perhaps deserves its own exploration is the concept of 24/7 or out of hours primary care. Although an older study, Geisen in 2011 outlines an emotive shift in primary care within a Dutch medical practice. A specific consideration was given to being able to meet patient primary care needs at all times of the day. This aligned clinical and provider staff in shifts and allowed for access to providers 24/7 when needed. The study demonstrated significant reduction in emergency room visits and hospital admissions for the population being served. They also noted that provider workloads were decreased and that the medical staff involved developed better patient bonds and work satisfaction. They comment that such a system would be difficult to effect however within the American fee for service model. This perhaps aligns with the Department of Health and Human Services push into capitated health care models and cost redistribution.

Within California much has been written about the dearth of primary care providers and available appointments. As mentioned above, Saluja et al in 2019 highlight the benefits of creating easy to understand and use enrollment and care access services for those being enrolled in medical coverage. They suggest that such systems can bridge the gap, matching need to available service and as an effective way to drive behavioral change. While notably an older study, it may be worth noting that much work has been completed on the potential for effectively utilized primary care to reduce emergency department usage (Lowe et al 2005).

### **Multiple visits to multiple places with associated co-pays**

Saluja's study in 2019 conducted qualitative interviews with many Californians who had been enrolled in low income insurance products following the implementation of the ACA. They sought to determine the personal experiences and preferences of this demographic, when understanding why they had a propensity to use the Emergency Department to obtain care. Two themes, both centered around convenience were discernable from these interviews. Firstly, it became clear that primary care appointments, if available, were often just the first step in being evaluated, investigated, and treated. Multiple visits to primary care providers, imaging centers and lab draw facilities were perceived as time consuming, frustrating, and often came with multiple co-pays. Secondly, the emergency departments never refuse to see patients, and this was seen as particularly favorable in situations where the ED was a part of the hospital that they are most familiar with.

### **Payer mix shifting**

Work conducted by Pines et al in 2019, as mention above, explored the impact of seventeen million Americans obtaining health care coverage in 2014 when Medicaid eligibility was expanded. They sought to understand the impact this would have on emergency departments. Would this increase or reduce the number of visits per year in areas where enrollment was significant? Proponents of the ACA felt that increased coverage should reduce ED usage, whereas opponents reasoned that those with new insurance coverage would attend hospitals more readily. While they observed that emergency department visits did increase across the board, there was no relevant difference between those states studied who had increased Medicaid eligibility and those who had not. What they did observe was a significant shift in how these visits were reimbursed. They concluded overall that while volume had not been impacted

by the advent of the ACA, that in those states where Medicaid expansion had been heavily deployed, that the proportion of reimbursement tied to emergency department care increased. This led them to form that hypothesis that patients who would have sought emergency department care prior to the ACA were still doing so now, that volumes were little impacted and that all the ACA had achieved was to shift how this care was reimbursed. Thus, the expansion of Medicaid coverage strongly affected payer mix but did not significantly affect overall ED use, even though more people gained insurance coverage in expansion states than in no expansion states. This suggests that expanding Medicaid did not significantly increase or decrease overall ED visit volume.

### **Effecting change in Primary Care**

In reviewing the current initiatives being undertaken by CMMI, there is a renewed push to engage primary care providers and practices in a newly developed model that seeks to increase engagement and service provision within the space. The Primary care first model has been developed to address some the issues outlined above. With stated goals of increased access and continuity, consistent care management, comprehensive and coordinated care delivery, patient, and caregiver engagement and making headway with planned care and population health, this initiative represents the evolution of previous CPC and CPC+ initiatives (Fast facts, 2020).

‘Primary Care First aims to be transparent, simple, and hold practitioners accountable by:

- Providing payment to practices through a simple payment structure, including:
  1. A payment mechanism that allows care to be driven by clinicians rather than administrative requirements and revenue cycle management.

2. A population-based payment to provide more flexibility in the provision of patient care along with a flat primary care visit fee.
  3. A performance-based adjustment providing an upside of up to 50% of revenue as well as a small downside (10% of revenue) incentive to reduce costs and improve quality, assessed, and paid quarterly.
- Providing practice participants with performance transparency, through practitioner identifiable information on their own and other practice participants' performance to enable and motivate continuous improvement.'

This initiative is designed to incentivize the expansion of primary care practices with enhanced hours, services, and networks to give ownership of care management back to the patient and their PCP. It is also designed to capture the inclusion and management of chronic conditions. This program is slated to be offered in 26 states, including California and seeks to engage practices in assuming financial risk for the populations in their care, including high risk groups (see Figure 3).

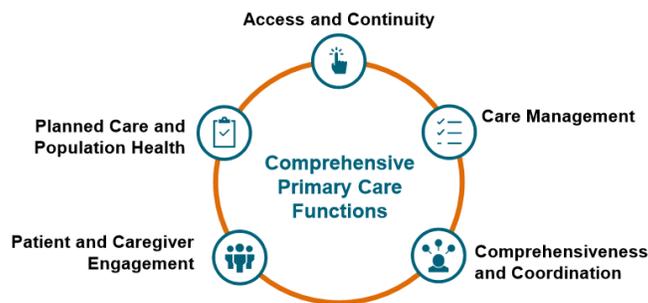


Figure 3

While this seems to be a promising development, it has been working its way through to actual deployment for several years and has yet to begin. Peikes et al in 2018 raise the questions as to whether the reimbursement system can be self-sustaining, pointing toward the failure of previous initiatives to draw funding away from the fee for service models they are trying to supplant.

## **Reimbursement**

CPC and CPC + along with other CMMI initiatives did not increase the reimbursement for primary care service delivery but offered incentives for patient and population health outcomes. Anticipated savings meant that the scale of incentive reimbursement reduced over time. Peikes et al in 2018 highlighted that these anticipated savings were in the large part not realized and the reduction in reimbursement provided a poor incentive to facilitate ongoing primary care practice changes. They highlight the need for capital investment alongside a significant need for training of staff to begin implementing new practices. In the cases studied, practices were unable to cover the costs of needed technology upgrades and staff training with the scaled and reduced reimbursements from the PCP and PCP+ programs. Most primary care reimbursement is still derived from fee for service. Pines et al make the case in 2018 for increased primary care provider reimbursement to address the access to care issues they discuss in Los Angeles County.

Capp et al in 2018 outline a comprehensive study designed to establish a bridge for Medicaid patients seen in the emergency room, directly into multidisciplinary care services into the community. In a similar fashion to the Peikes & Pines work however, they highlight the gap in service reimbursement tied to this work. They called specifically for a way to reimburse providers and hospitals for providing hot hand off services within the ED to the community.

These bridge referrals (called bridge to care or B2c in their study) require the real time involvement of allied health care professional that can initiate and facilitate meaningful hand off to the services needed in order to be effective and as they highlight. This is not a common ED function. Within the Capp study, they saw reduction in ED visits by up of 29.7% in certain populations.

Ongoing CIMMS initiatives such as the PCF model mentioned above are slated to come into effect in 2021 and will continue the attempted shift away from fee for service to capitated health as illustrated in Figure 4, offering incentives and penalties around population health and quality targets (Peikes et al 2020).

They are quick to point out that while innovations such as a flat rate 40USD fee for face to face encounters represents significant innovation, that reimbursement changes will not be effective unless they also target parallel initiatives within hospital and specialist reimbursement. If primary practices are limited to referral horizontally within owner systems or to specific within network specialists, then they may be unable to achieve the savings which CMMI are hoping for. While CIMMS are suggesting that this is an integral part of their plan, details of how this may be achieved are still thin.



Figure 4

While CIMMS initiatives continue to show promise, these were all in the works prior to the current COVID-19 insult. Basu et al recently authored a strong 2020 study which looked at financial modeling of revenue impacts in the first 2 quarters of 2020. They concluded that even in a best-case scenario, mitigative strategies and tele-health initiatives would be unable to close the revenue shortfall gap created by the reduction in evaluation and treatment visits in most primary care practices. They are raising the alarm regarding the ongoing viability of these institutions and outline the knock-on consequences to the nation's health system if the primary care structure is permitted to fail.

## **Policy Implications**

This review of available peer reviewed material has ultimately highlighted three significant policy gaps. The first, and perhaps most pressing is the chronic underfunding of primary care institutions. Without finding a way to correct the intrinsic diffusion gradient of medical services into areas that are currently seen as more profitable, the access to care issue will persist. What is interesting here, is to consider that this topic is highly likely to become a political talking point in the run up to the presidential elections, especially if COVID-19 impacts begin to force current primary care institutions into closure. It also raises the question about the structure and viability of the CIMMS strategy to address the current primary care need. Perhaps moving this issue further along in the public attention cycle will allow relevant players to execute on needed policy change to enable further funding. At a policy level, broadening Medicaid-managed care networks and increasing reimbursements for PCPs will be necessary to incentivize engagement and practice change. Health systems might also consider enhancements which may make care more accessible for certain populations such as expanded hours, transportation options and greater choice.

The second is the issue of ambulance diversion and ED waiting times. The current structure does nothing to incentivize hospitals to expand access to care within the ED. It is in fact in their interest to allow ambulance offload delays, keep patients in the ED and capture additional revenue from other sources. This ‘over-booking’ of hospital beds is a large and separate topic which has not been deeply explored in this work. Nevertheless, without a policy or regulatory push to effect change in this area, it is unlikely that ED overcrowding can be reduced. The direct impact of such a policy would force increased labor costs and require stronger

partnerships between hospitals and providers in the rapid disposition of patients from the main hospital to create more receiving space in for the ED. Hospitals and providers have demonstrated over time that without a mandate, they are unlikely to solve this problem independently.

Thirdly and somewhat obliquely is the issue of California nurse to patient ratios. The specific 'at all times' clause removes any ability of the ED to accept more patients with the same number of nurses. While a repealing of AB 394 may well become a tabled issue in the future, current union strength within California and the potential public pushback in undoing mandated nurse to patient ratios will likely be an issue that is politically very difficult to address.

## **Recommendations for Future Research**

In Los Angeles, enthusiastic adoption of the ACA, and additional programs providing health care for undocumented people, opened the door to health care for millions. While these changes are a critical first step, additional steps are needed to ensure meaningful health care access for all. Ultimately, targeted interventions and comprehensive policy solutions could lead to improved primary care access and utilization.

While much has been written about barriers to accessing primary care, overuse of the ED and even how once people are in the ED how they can be referred to PCPs more effectively, there is a dearth of research on how the current institutions can be modified in partnership to effect the desired outcomes. Perhaps a multiyear study activating several groups in sequence could demonstrate how a gradient of transition could be created leading to the desired outcomes.

Perhaps more importantly, the potential reduction of pressure in emergency departments and EMS services by increasing effective access to primary care may form the basis of emotive cost saving initiatives. As one of the core reasons for the dearth in public health and primary care funding seems to be the need to somehow meet the cost with corresponding savings, future research in this area may prove critical to informing actual policy change.

## Conclusion

Continual increases in ambulance patient offload times are an effective indicator of emergency department overcrowding. While the reasons for this are multifactorial, the implementation of the ACA has yet to reduce ED overcrowding by reducing ED visits for those who recently received coverage in California. This review of literature highlights that there are still many reasons why the targeted demographics are still favoring the ED to obtain care. Taken in this context, CMMI's desire to reduce costs, improve care and ultimately decrease the use of the ED as a primary care center, represent strong progress. The current pandemic crisis however is threatening to impede the effective development of these initiatives. As the issue of primary care funding begins to impact the lives of many Americans, perhaps this may become a politicized topic and push incumbent leaders to examine funding change and rescue initiatives.

Given that the share of health spending on primary care is reported to be a fraction of that seen in similarly developed nations, it is difficult to envisage how change will occur without an increase in funding. While some gains may be made in regulating ED boarding times, ambulance diversion and nurse to patient ratios, ED overcrowding and by extension APOD will only be reduced when preventable ED traffic is reduced. To Achieve this CMMI need to experiment in ways that can effectively redistribute resource to incentivize better access to primary care in a way that works for both patients and providers.

The Affordable Care Act (ACA) did not include specific provisions about ambulance diversion or the allocation of hospital resources. What it has done is place an increased demand on the primary care system, which so far has not adjusted to meet the needs of newly insured people with a more attractive service in California than that offered by current EDs. Although the rise in urgent care centers could mitigate the impact, a recent post-ACA survey conducted by the

American College of Emergency Physicians revealed a concerning statistic: 70 percent of respondents stated that their ED would not be adequately prepared for substantial increases in patient volume. Further research on the ACA's impact on ED usage should help health care officials and administrators develop comprehensive policies to improve patient flow and reduce ambulance diversion appropriate for our new and developing environment.

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