

An Introduction to Hospitals in Southern California - Hospitals 101 – There are a limited number of hospital resources available to meet crisis obligations – pandemic, MCI or earthquake. The partial purpose of Hospital 101 is to provide a better understanding of hospital resources, how those resources are distributed, and how hospitals are funded to allow for implementation of the regulatory emergency preparedness requirement and to develop some “situational awareness” regarding same. There are approximately 4,900 acute care hospitals in the 3007 counties of the United States. In comparison there are over 14,000 McDonalds in the United States. The acute care hospital is the basic get sick, get well model of hospital. There are also rehabilitation, psychiatric and other models of specialty hospitals in the United States. There are approximately 17,000 hospitals in the world. There are 439 hospitals in California, of which 343 are acute care hospitals. The 343 acute care hospitals in California total less than seven (7) percent of acute care hospitals in the United States. Thirty-three (33) of these 343 acute care hospitals in California are KP hospitals. In comparison, New Hampshire has a total of twenty six (26) hospitals. KP has more hospital capacity in California than the entire state of New Hampshire.

Hospitals are ranked by many different metrics. Number of births, number of surgeries, number of Intensive Care (ICU) Beds and number of emergency department visits are just some hospital metrics. The most common metric is number of inpatient care beds. An inpatient care bed is similar to a hotel room bed. You have a specific number of beds that can help that many patients spend a night in hospital. The largest hospital in the US is New York City’s Presbyterian Hospital, with 2,236 inpatient beds. While there are very large hospitals, most hospitals are two hundred beds or less. Of the ten largest hospitals in the US, two are located in New York City, two in Orlando and two in San Antonio. Below is a list of the ten largest hospitals in US by size:

1. New York-Presbyterian Hospital/Weill Cornell MC (New York City) — 2,236 beds.
2. Florida Hospital Orlando (Fla.) — 1,972 beds.
3. Jackson Memorial Hospital (Miami) — 1,756 beds.
4. University of Pittsburgh (Pa.) Medical Center Presbyterian — 1,602 beds.
5. Methodist Hospital (Indianapolis) — 1,450.
6. Montefiore Medical Center – Moses Division Hospital (Bronx, New York) — 1,427 beds.
7. Methodist Hospital (San Antonio) — 1,414 beds.
8. Baptist Medical Center (San Antonio) — 1,402 beds.
9. Orlando (Fla.) Regional Medical Center — 1,367 beds.
10. Methodist University Hospital (Memphis, Tenn.) — 1,273 beds.

Only one hospital in California is ranked in the top fifty hospitals in the US by number of beds. Cedars-Sinai of Los Angeles with 947 beds is ranked thirty-first (31) in the US. The largest hospital in San Diego County is Sharp Memorial with 675 beds, in Riverside County the largest hospital is Eisenhower Medical Center with 540 beds, in Orange County the largest hospital is St. Joseph with 525 beds, in San Bernardino County the largest hospital is Loma Linda with 719 beds and in Kern County the largest hospital is Bakersfield Memorial with 418 beds. The largest KP hospital currently in Southern CA is LAMC Sunset with 396 beds.

Not all hospitals have emergency departments or are structured to support external patients during a disaster. Hospitals that are inclusive of emergency preparedness activities related to external patients and / or have certified emergency departments are classified as 911 receiving hospitals. Approximately nine (9) percent of 911 receiving hospitals in Southern California are KP facilities. The summary of 911 Receiving Hospitals is:

KERN COUNTY – TEN 911 HOSPITALS – NO KP HOSPITALS
LOS ANGELES COUNTY – SEVENTY SIX 911 HOSPITALS – SEVEN KP HOSPITALS
ORANGE COUNTY – TWENTY SEVEN 911 HOSPITALS – TWO KP HOSPITALS
RIVERSIDE COUNTY – EIGHTEEN 911 HOSPITALS – TWO KP HOSPITALS
SAN BERNARDINO COUNTY – SIXTEEN 911 HOSPITALS – TWO KP HOSPITALS
SAN DIEGO COUNTY – EIGHTEEN 911 HOSPITALS – ONE KP HOSPITAL

Another metric of hospitals is trauma centers. Trauma centers are ranked as level one, two or three. Level one is the most sophisticated, typically with 24-hour in-hospital surgical coverage for everything from orthopedics to open heart to neurological surgery. Trauma centers are key resources for patient care in Multi Casualty Incidents (MCI) and disasters. A summary of trauma centers by name and location is posted on the KPARN web page. All California Trauma Centers are listed at (http://www.emsa.ca.gov/systems/files/trauma/trma_ctr.pdf). Adult Trauma Centers in Southern California are:

KERN COUNTY – LEVEL TWO (1)
LOS ANGELES COUNTY – LEVEL ONE (4) – LEVEL TWO (9)
ORANGE COUNTY – LEVEL ONE (1) – LEVEL TWO (2)
RIVERSIDE COUNTY – LEVEL TWO (3)
SAN BERNARDINO COUNTY – LEVEL ONE (1) - LEVEL TWO (1)
SAN DIEGO COUNTY – LEVEL ONE (2) – LEVEL TWO (3)

There are also pediatric-specific trauma centers –pediatric trauma centers in Southern California are:

KERN COUNTY – no pediatric trauma centers
LOS ANGELES COUNTY – LEVEL ONE PEDS (2) – LEVEL TWO PEDS (3)
ORANGE COUNTY – no pediatric trauma centers
RIVERSIDE COUNTY – no pediatric trauma centers
SAN BERNARDINO COUNTY – LEVEL ONE PEDS (1)
SAN DIEGO COUNTY – LEVEL ONE PEDS (1)

Related to emergency preparedness is the number of certified burn centers. Most disasters may result in a significant number of burn patients. Ideally a burn center is certified by the American Burn Association (ABA), though in California some are certified by the state. The burn centers in Southern California:

KERN COUNTY – CA BURN CERTIFIED (1)
LOS ANGELES COUNTY – ABA BURN CERTIFIED (1) – CA BURN CERTIFIED (2)
ORANGE COUNTY - ABA BURN CERTIFIED (1) – CA BURN CERTIFIED (1)
RIVERSIDE COUNTY – no certified burn centers
SAN BERNARDINO COUNTY – CA BURN CERTIFIED (1)
SAN DIEGO COUNTY - ABA BURN CERTIFIED (1)

Five (5) of the twenty (20) largest pediatric (children's) hospitals in the US are located in California. Three of the five largest are located in Southern California. The largest children's hospital in the United States is Children's Hospital of Los Angeles (CHLA) with 603 beds. CHLA is located across the street from KP LAMC (Sunset) and is part of the "tri hospital" disaster coalition with KP LAMC. Millers Children's Hospital of Long Beach is the tenth largest in the US with 324 beds. Rady's Children's Hospital in San Diego is ranked twentieth largest in the US with 272 beds.

In 2011 KP had thirty-five (35) hospital facilities (9 percent of California Hospitals) and eleven (11) percent of the 47,429 licensed medical/surgical in-patient care beds in California. Nationally KP has over 421 Medical Offices, 14,000 physicians and over 159,000 employees. KP performs over 558,000 surgeries per year, delivers over 91,000 babies, fills 129 million prescriptions on an annual basis and in a year typically has over 36 million physician office visits. Fifteen (15) percent of the 5,845 Adult ICU beds, fifteen (15) percent of the 3,389 Newborn Intensive Care (NICU) beds, and ten (10) percent of the 3,005 pediatric acute care beds in California are in KP facilities. KP has about 2100 acute care in-patient beds in LA County or about 8% of the total beds in LA County. The three largest healthcare systems in California, in order, are Catholic Healthcare West, KP and Sutter Health. Together they have almost 90 hospitals and 19,000 inpatient beds – comprising almost 25% of all California hospitals and hospital beds.

All KP hospitals are critical to the KP mission and health of the community and patients they serve. However, based on volume, size and acuity KP LAMC Sunset, KP Downey, KP San Diego Zion and KP Fontana are unique. KPARN infrastructure and operators are designed and implemented to support all KP hospitals, but specifically these four hospitals. With over 100,000 visits per year, KP San Diego Zion has the busiest emergency department of KP hospitals in Southern California. KP Fontana and Downey are the next busiest emergency departments. KP LAMC Sunset with 112 Intensive Care Unit (ICU) beds is the largest of KP Southern California hospitals. Most KP hospitals have thirty (30) or fewer ICU beds. KP San Diego Zion and KP Downey have the most births with almost 12 births per day per hospital. LAMC Sunset has the highest acuity Neonatal ICU (NICU). KP San Diego, Fontana, Downey, Pan City and OC-Anaheim all have high level acuity NICU's. KP Downey NICU has the most beds with 49.

Hospitals are also unique in the various funding mechanisms. Most hospital income is from one of five sources: Federal Medicare, California State Medicaid, Private Insurance Companies (Blue Cross, etc.), self-funded – the patient pays the bill, just like at any store—and uncompensated. Uncompensated (or charity) care is not reimbursed as the patient has no means of payment. Currently about twenty (20) percent of Californians have no health insurance. By federal law, any patient who requests assistance at the Emergency Department must be evaluated. While the hospital must evaluate and treat the patient, there is no federal mandate that the hospital will be reimbursed for the care provided. In 2007, California hospitals spent almost 1.9 billion dollars supporting charity care and bad debts. Also in 2007, about half of all hospitals in California did not operate with a positive balance sheet.

Hospitals are funded by approximately six different methods. The federal government manages and funds Military and Veterans Affairs (VA) Hospitals. The Department of Defense and the Department of Veterans Affairs are two different federal organizations. While these military and veterans hospitals are unique, they are frequently part of the local emergency planning activities. The VA has a strong national emergency preparedness activity complete with caches, etc. VA hospitals in Southern California include Loma Linda (San Bernardino County), Los Angeles (West LA), Long Beach and San Diego. Military hospitals in Southern California include Camp Pendleton Naval Hospital in Northern San Diego County, Naval Hospital San Diego, Twenty-nine Palms Naval Hospital in San Bernardino County and Weed Army Hospital at Fort Irwin in San Bernardino County.

The other four forms of hospital funding are more common and include non-profit, investor-, public- and district-owned hospitals. About sixty (60) percent of hospitals in California are non-profit (including KP). About twenty (20) percent of hospitals in California are for-profit, investor-owned hospitals. District hospitals are typically in rural areas, a group of residents agree they need a hospital and then tax themselves in a local area (county, etc.) to fund the hospital. District hospitals also typically elect community members to oversee the hospital operation. In 2007, district hospitals were about twelve (12) percent of the hospitals in California, but only about seven (7) percent of the hospital beds. Public hospitals are unique. Typically public hospitals are state owned or financed hospitals that more often than not are trauma centers, teaching hospital, and other specialty services. Typically these hospitals provide a significantly higher percentage of charity care than other hospitals. Due to the unique services these hospitals provide, state ownership and high level of charity care they are typically referenced as “safety net” hospitals. In 2007 in California about eight (8) percent of hospitals were public hospitals, but they provided thirteen (13) percent of the state’s hospital beds. The public or “safety net” hospitals in Southern California include:

- a. Kern Medical Center – Kern County – Adult Level II Trauma Center – Teaching Hospital
- b. University of California-Irvine Medical Center – Orange County – Adult Level I Trauma Center – Teaching Hospital – ABA Certified Burn Center
- c. Riverside County Regional Medical Center – Riverside County – Adult Level II Trauma Center
- d. Arrowhead Regional Medical Center – San Bernardino County – Adult Level II Trauma Center – Teaching Hospital – CA Certified Burn Center

- e. University of California-San Diego Medical Center – San Diego County – Level I Trauma Center – Teaching Hospital – ABA Certified Burn Center
- f. LAC+USC Medical Center – Los Angeles County – Adult Level I, Pediatric Level II Trauma Center – Teaching Hospital – ABA Certified Burn Center
- g. Harbor UCLA Medical Center – Los Angeles County - Adult Level I, Pediatric Level II Trauma Center – Teaching Hospital – South Bay Area of LA
- h. Ronald Regan UCLA Medical Center – Los Angeles County – Adult Level I, Pediatric Level I Trauma Center – Teaching Hospital – UCLA Campus
- i. Olive View UCLA Medical Center – Los Angeles County – Teaching Hospital – Sylmar (San Fernando Valley) of LA

Hospitals include many different functions. Basically a hospital is a small city or a large hotel. Most hospitals refer to a good portion of what is done in the hospital as the “hotel function”. This includes, but is not limited to, laundry, heat, lighting, food service, telephone service, etc. Of course the standards and requirements for this level of service are significantly different in that food is delivered to every patient daily and the menu is reviewed and approved by nutritionists. Hospitals consist of multiple departments – many of these are common – some may be unique to a specific hospital. Some hospital departments include:

Administration	Emergency Department	Surgical Suite - Operating Rooms
Morgue	Nuclear Medicine	Pharmacy – Inpatient and Outpatient
Engineering	Material Management	Post Anesthesia Care Unit – Recovery Room
Mail Room	Physical Therapy	Cardiology – Includes Cath Lab, Stress Lab, ECG
Hemodialysis	Respiratory Care	Imaging – Includes CT, MRI, Angio, Radiology, Ultrasound
Linen Service	Sterile Processing	Medical Surgical – Orthopedics, Medicine, Post Partum, Telemetry
Cafeteria	Nursery	Intensive Care Units – Adult, Pediatric, Neonatal, Respiratory, Medical, Cardiac
Pathology	Pediatrics	Patient Transportation
Laboratory	Anesthesiology	Labor and Delivery
Admitting	Social Work	

Hospital Emergency Preparedness – Based on a decade of responses post 9/11, FEMA developed a new motto (The State of FEMA - 2012) which I believe is appropriate for all emergency responders at every level – including KPARN:

Leaning forward: Go Big, Go Early, Go Fast, Be Smart.

Personally I believe this simple phrase symbolizes emergency management and how it has changed in the past decade. Many of us preached this long ago, but actual crisis events have proven that we need to be prepared to respond to what may occur (Lean Forward), we need to be involved quickly with all the correct resources – if we have too many resources – that is OK, we can send them home. And finally we need to not be tied up in bureaucracy and paperwork – we need to use common sense, be transparent and “Be Smart” to assure the situation and the people affected are appropriately managed in a timely manner.

Specific response imperatives for KPARN include – leaning forward. Many members saw this in 2011 with the significant rains we had and the KPARN Yahoo Group notices being sent out regarding weather, being prepared, etc. We all know the common disaster scenarios in Southern California – specifically wild fires and earthquakes to which I add weather as if it is not sunny mobility becomes a significant issue in Southern California. KPARN also needs to plan Big and respond Big. If one hospital has an issue, KPARN operators need to staff up the other hospitals in its immediate vicinity – we need to assure our technical infrastructure, operators and training are geared toward responding to a significant earthquake. We need to go fast – I do not mean drive fast – we want everyone to drive safely – when you think there may be an issue – take the time to validate or respond based on that “gut” feeling. We always need to remember the big picture or what is the outcome goal for the specific

event. For most KPARN activations the overall goal is well being of patients (and families) being treated at the medical centers. KPARN needs to continuously plan for the worst case scenario and within funding minimize the risks determined. KPARN requires a “Unity of Effort” to accomplish the overall region wide communications strategy. This has not been an issue – KPARN radio operators are very dedicated to the KPARN mission and supporting KP Emergency Preparedness. Everyone consistently works together with team work, professionalism and occasionally laughter – Thank You. Last, we always have to be smart, we need to set priorities, be innovative and creative – during our planning and during KPARN response to a crisis.

Hospital Response to Disasters - Hospital emergency communications are unique initiating with the hospital as an entity. Hospitals are open continuously 24 by 7 by 365. As hospitals are always open, they are involved very early in the disaster – typically much sooner than Emergency Management, Health Departments and other support staff and resources which typically must activate, stage, etc. (This was recently reconfirmed with the Joplin tornado in which hospital was damaged and evacuated prior to significant outside support.) Hospitals are also a beacon of light offering warmth, food, and comfort to the community – basically a safe haven. Hospitals are unlike most other emergency responders as the planning and response to disasters is not only practiced per state and federal regulations, but these responses are reviewed and critiqued and hospital revenue and state license is dependent on appropriate performance. The California Code of Regulations Title 22 Section 70741 – Disaster and Mass Casualty Program summarizes these regulatory requirements and is posted on the KPARN web page.

Hospital disaster response training and planning is based on hospitals performing a self-assessment of disasters likely to affect the community. This self-assessment is called a Hazard Vulnerability Analysis (HVA). The top five scenarios typically included in HVA for hospitals in Southern California are:

1. EARTHQUAKE
2. WILDLAND FIRE
3. MCI (MULTI CASUALTY INCIDENT)
4. UTILITY FAILURE (WATER, IT or PHONE NETWORK, POWER)
5. PANDEMIC

KPARN also uses this information for our infrastructure planning, education and redundancy planning. An earthquake has capacity to cause significant communications failures over large areas. KPARN technical and infrastructure planning is based on large earthquake and maintaining communications based on the earthquake scenario.

Hospital disaster response and planning has created additional verbiage and terms to support the mission. One common term that is discussed is Surge Capacity.

Surge Capacity - “A healthcare system’s ability to expand quickly beyond normal services to meet an increased demand for medical care in the event of bioterrorism or other large scale public health emergencies”. - Agency for Healthcare Research and Quality (AHRQ)

While this definition includes bioterrorism, an earthquake or any form of transportation or other disaster in the LA Basin / Southern California region with its population of about twenty two (22) million may simply impact any one hospital or hospital region to have sufficient capacity to deal with the crisis – hence surge capacity. Surge capacity encompasses the capabilities of the entire hospital.

BEDS - Surge capacity includes how many beds a hospital has available and then what category of patient that these beds support. Hospital beds are classified including: Intensive Care, Pediatric, General Acute Care, Mental Health and Isolation. In the LA Basin there is a

potential significant shortage of burn care beds and resources. LA County Health (as the lead agency) has worked with hospitals to improve this burn surge capacity – as a specific example.

STAFF - In addition to the beds, there is a requirement for staffing – staffing is simply not physicians and nurses, but pharmacists, respiratory therapists, mental health practitioners, epidemiologists, laboratory, housekeeping, food and other additional and specialized patient care and support staff.

MEDICAL SUPPLIES and EQUIPMENT – In addition to the appropriate beds and appropriate staff there is need for additional and appropriate supplies such as pharmaceuticals, masks, gloves, ventilators, linens, and so much more. Many hospitals have additional storage of pharmaceuticals, masks, ventilators, etc in off-site warehouses or even in containers on the hospital campus. There is also the Strategic National Stockpile (SNS) which may be deployed to support local health emergencies. (<http://www.cdc.gov/phpr/stockpile/stockpile.htm>)

The Federal Government has categorized fifteen (15) Emergency Support Functions (ESF) for response to disasters (<http://www.phe.gov/preparedness/support/esf8/pages/default.aspx>). The Health Emergency Support Function is ESF-8. ESF-8 is all encompassing for health related items – including, but not limited to:

- Acute Care (Hospitals are in this group)
- Long Term Care
- Shelter Support
- Patient Movement
- Mental/Behavior Health (including substance abuse)
- Mass Casualty
- Public Health Surveillance
- Food and Water Safety
- Environmental Monitoring (Heat, Chemical, Radiation, etc)
- Infectious disease

Typically the county health department is the lead agency for ESF-8. As can be determined from this list, hospitals and acute patient care is but one component of several for which the Health Department is responsible. Assuring safe drinking water at the moment in the crisis may be more important than evacuation of a hospital – these are all factors that hospitals must consider during planning and response to disaster situations.

Hospital Emergency Communications –Hospital emergency radio communications are unlike any other emergency radio communications response and activity. Amateur Radio support of hospital communications is unique. Hospital communications are not Shelter, Storm Watch or a once a year public service race event. The criticality of the information is significant. Every patient in a hospital is sick and the hospital infrastructure and staff are responsible for those patients' safety, well-being and also not being made sicker by their location. The timeliness of the message is critical. Physicians and medical professionals are used to the routine request being very quick and the need for quick (the famous "stat") being even more expedient. I have been paged "stat" to an event. Basically you are wanted prior to the page. Customers in a hospital environment are different than in most other emergency communications activities. Hospital customers are highly educated, most administrators have masters or higher degrees, physicians have over ten years of education. Many medical professionals have multiple degrees including PhD's, Master Health Administration (MHA), and even engineering degrees. Additionally hospitals have been practicing emergency response to significant crisis events since the 1970's due to regulatory (and financial) pressures. My first involvement supporting amateur radio in a hospital disaster drill was shadowing the administrator of a VA hospital in Northern Michigan with my Motorola HT220 portable in 1977. Since 9/11 many hospitals have

employed emergency planners. Many of these hospital based emergency planners are specifically trained, have master or other advanced degrees and have years of experience. Hospital administrators who have been practicing emergency preparedness activities since the 1970's also have significant experience as they have performed multiple drills and probably several actual crisis events.

Changes in Healthcare – The legislation commonly referred to as Obamacare will have significant impacts on all aspects of healthcare, including Kaiser Permanente. Obamacare will become much more integrated in healthcare in 2014. A short and informative video outlining the basics of healthcare reform is available for the Kaiser Foundation. (<http://healthreform.kff.org/the-animation.aspx>) This video was completed prior to the Supreme Court decision so some questions that are raised have since been answered by the legal ruling. The economic constraints will continue to affect not only healthcare, but also governmental emergency preparedness resources at health, local, county and state levels. Roles and responsibilities within KP (including mine) will continue to change due to these external factors.

Cedars-Sinai Medical Center	Los Angeles	Los Angeles	ACS Level I Trauma Center
Cedars-Sinai Medical Center	Los Angeles	Los Angeles	CA Level II Pediatric Trauma Center
Children's Hospital of Los Angeles	Los Angeles	Los Angeles	ACS Level I Pediatric Trauma Center
LAC + USC Medical Center	Los Angeles	Los Angeles	ACS Level I Trauma Center + ABA Burn
LAC + USC Medical Center	Los Angeles	Los Angeles	CA Level II Pediatric Trauma Center
Ronald Reagan UCLA Medical Center	Los Angeles	Los Angeles	ACS Level I Trauma Center
Ronald Reagan UCLA Medical Center	Los Angeles	Los Angeles	CA Level I Pediatric Trauma Center
LAC/Harbor/UCLA Medical Center	Torrance	Los Angeles	ACS Level I Trauma Center
LAC/Harbor/UCLA Medical Center	Torrance	Los Angeles	CA Level II Pediatric Trauma Center
University of California, Irvine Medical Center	Orange	Orange	ACS Level I Trauma Center + ABA Burn
Loma Linda University Medical Center	Loma Linda	San Bernadino	CA Level I Trauma Center
Loma Linda University Medical Center	Loma Linda	San Bernadino	CA Level I Pediatric Trauma Center
Rady Children's Hospital	San Diego	San Diego	ACS Level I Pediatric Trauma Center
Scripps Mercy Hospital	San Diego	San Diego	ACS Level I Trauma Center
University of California San Diego Medical Center	San Diego	San Diego	ACS Level I Trauma Center + ABA Burn

Kern Medical Center	Bakersfield	Kern	CA Level II Trauma Center
Antelope Valley Hospital	Lancaster	Los Angeles	ACS Level II Trauma Center
Long Beach Memorial	Long Beach	Los Angeles	CA Level II Trauma Center
Long Beach Memorial	Long Beach	Los Angeles	CA Level II Pediatric Trauma Center
St. Mary Medical Center	Long Beach	Los Angeles	CA Level II Trauma Center
California Hospital Medical Center	Los Angeles	Los Angeles	ACS Level II Trauma Center
St. Francis Medical Center	Lynwood	Los Angeles	ACS Level II Trauma Center
Providence Holy Cross Medical Center	Mission Hills	Los Angeles	ACS Level II Trauma Center
Northridge Hospital Medical Center	Northridge	Los Angeles	ACS Level II Trauma Center
Huntington Memorial Hospital	Pasadena	Los Angeles	ACS Level II Trauma Center
Henry Mayo NewHall Memorial Hospital	Valencia	Los Angeles	ACS Level II Trauma Center
Western Medical Center Santa Ana	Santa Ana	Orange	ACS Level II Trauma Center + CA Burn
Mission Hospital	Mission Viejo	Orange	ACS Level II Trauma Center
Riverside County Medical Center	Moreno Valley	Riverside	CA Level II Trauma Center
Desert Regional Medical Center	Palm Springs	Riverside	CA Level II Trauma Center
Riverside Community Hospital	Riverside	Riverside	CA Level II Trauma Center
Arrowhead Regional Medical Center	Colton	San Bernadino	ACS Level II Trauma Center + CA Burn
Palomar Medical Center	Escondido	San Diego	ACS Level II Trauma Center
Scripps Memorial Hospital	La Jolla	San Diego	ACS Level II Trauma Center
Sharp Memorial Hospital	San Diego	San Diego	ACS Level II Trauma Center