Health Services
LOS ANGELES COUNTY

February 19, 2008

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TO: Each Supervisor

FROM: Bruce A. Chernof, M.D.
Director and Chief Medical Officer

SUBJECT: **UPDATE ON THE EMERGENCY DEPARTMENT AT HARBOR-UCLA MEDICAL CENTER**

This is to provide your Board with additional information in response to questions raised during the February 12, 2008 Board meeting, related to the Harbor-UCLA Medical Center Emergency Department Wait Times and related issues.

Analysis of What Leads to Different Wait Times at Each Facility

Patients in the Department of Health Services (DHS) Emergency Departments (ED) are treated according to their assigned level of acuity. When a patient enters an ED, they are seen by a Registered Nurse who, as part of the triage assessment, assigns a level from one to five (one being most urgent, five being least urgent). These levels of acuity dictate how long a patient may safely wait to be seen by a physician. For instance, level one or two patients are commonly those with chest pain, shortness of breath, heart attacks, and strokes, while levels four and five are typically patients with sore throats, cut fingers, and rashes. In addition to the acuity levels, the number of patients at each level must be prioritized. All patients with designations of one and two are further prioritized to determine how quickly they are seen within their queue. Changes in the queue may occur due to changes in patient's clinical status during their waiting times, as determined through regular reassessments.

Level one and two patients are also most likely to be admitted to an inpatient unit. The following data shows the percentage of patients admitted from the ED at each of our facilities in the third quarter of 2007:

Harbor-UCLA	LAC+USC	Olive View/UCLA
64%	69%	50%

This data suggests a large percentage of patients at DHS EDs have a high level of acuity (or sickness).

ED Wait Time Metrics

In order to improve the flow of patients through the ED, various metrics are used. Typically, hospitals break down each step in the ED process to observe the mean times of each process in order to identify opportunities to improve.

Each of our facilities is collecting data around its ED patient flow processes. For instance, Harbor-UCLA collects data from the time the patient is assigned a priority level (triage time) to the time the patient is placed in an ED bed. LAC+USC collects data from the time the patient arrives at the ED to the time the patient is seen by a physician. All of our facilities collect the time a patient arrives at the ED to the time the patient leaves the ED. The following table shows the time from arrival to discharge at each facility (in hours and minutes) (Source: Affinity and ATEMM).

Harbor-UCLA*	LAC+USC**	Olive View/UCLA**
12:14	9:13	10:14

*data period 01/07 to 12/07
**data period 10/07 to 12/07 (corrected)

The variation in this data reflects variations in the following:

- Number of beds available in the ED (the less beds available, the longer the wait from time of arrival to disposition or discharge)
- The turn-around times for obtaining results from radiology and other diagnostic tests
- The availability of inpatient beds for those patients being admitted (as noted above, greater than 50% of the patients admitted to the hospital come from the ED. If there is no inpatient bed immediately available, the patient waits in an ED bed until there is a bed available. This decreases the number of available ED beds for patients waiting to be seen).
- Ready availability of medications to ED patients
- Staffing levels and the number of arrivals per hour
- The acuity of patients per hour (trauma and critical patients arriving via ambulance are priorities)

Breakdown of Various ED Processes

In order to better understand the variations in time, we also need to breakdown each point of service in the ED to determine where bottlenecks are. Olive View-UCLA has an electronic system (ATEMM) which captures various points in patient service (e.g., arrival to triage time, arrival to time brought back time (into ED treatment area), brought back time to disposition and disposition to discharge). LAC+USC similarly collects data around the points of patient service, however, they collect the arrival to physician encounter time, the physician encounter time to discharge and the arrival to discharge time. Harbor-UCLA collects triage to ED bed time, physician to discharge time and arrival to discharge time. The variation in the data collected at each facility is a function of the information systems available to each facility. Olive View-UCLA's ATEMM system can collect discrete data points, while the Affinity system at the other facilities does not allow the same level of data point collection.

The following breakdowns are not comparable between facilities but provide some information on the various queues in each waiting point:

Measures in Minutes	Harbor-UCLA	LAC+USC	Olive View/UCLA
Period Data was collected	1/07 to 12/07 (10/07 to 12/07)	10/07 to 12/07	10/07 to 12/07
Door to Doctor	N/A	276*	96
Doctor to Discharge	447(471.6)	224	412
Door to Discharge	734 (774)	553	607

*admissions only

These variations reflect differences between each facility's physical capacity in the ED, the numbers and level of acuity of patients presenting to and treated by the ED and the availability of appropriate levels and numbers of staff. LAC+USC has implemented operational efficiencies in overall hospital bed management and has improved throughput within their facility. This improved throughput affects their ED wait times by freeing up inpatient beds, thus reducing the number of admitted patients "boarding" in the ED and improving ED flow.

ED Pharmacy Data

Medication availability also affects the overall ED wait time. Depending on the time of medication (whether it needs to be mixed or is stocked in the medication cabinet in the ED) the times can vary from less than 15 minutes to 30 minutes. This adds to the overall ED wait time.

Laboratory Result Turnaround Time

The time it takes to obtain laboratory results affect the overall ED wait time. Following is a summary of the various turn-around times (TAT) for "stat" or emergent results for some common laboratory tests (the complete blood count or electrolytes) ordered for ED patients. The times are generated from the time the test is ordered to the time the test is available to the clinician (except for Harbor's time, see asterisk). The figures reflect the time period October 1, 2007 through December 31, 2007:

Harbor-UCLA	LAC+USC	Olive View/UCLA
47 minutes*	51 minutes**	69 minutes**

* received in lab to reported
** ordered to reported

Various factors affect the TAT for laboratory testing. These include:

- The type of test ordered (some require manual processing others are electronically processed)
- Staff availability to obtain the specimen and complete the ordering process in the computer
- Availability of laboratory staff and the laboratory's efficiency

Radiology Studies Turn Around Time

The time it takes to complete radiological studies also affects how long a patient's length of stay is in the ED. There are two common types of radiographic studies done. The first is a plain x-ray. The second is a computerized tomography (CT) scan. The CT scans might also require injection of radiographic contrast.

If so, this may add an additional 60-90 minutes to the turn-around time due to the need to wait for laboratory results (to measure kidney function prior to use) and to wait for the contrast to either be ingested or injected. Average turn around times (time from order to completion) for these studies are as follows:

	Harbor-UCLA	LAC+USC	OVMC*
Chest x-ray	< 60 minutes	N/A**	30-40 minutes
CT Scan	3:04	N/A**	3:30

*analysis includes review of one day data snapshot;
other data reflects 3rd Quarter 2007 average
** LAC+USC data was not yet available by the time this report was completed

ED Staffing

ED staffing includes a combination of nurses, physicians and other health care providers, depending on the unique patient population and the scope of services (e.g., LAC+USC and Harbor-UCLA provide both adult and pediatric trauma services and are therefore required to have a full trauma team, which includes in-house surgeons and other trauma team members). The majority of the ED staff are nurses. Since 2007, the State has required all hospitals to meet a specific ED nurse/patient ratio. Based on the acuity of the actual patients in the ED, the State mandates a ratio of one registered nurse (RN) per every two patients if critical, one to three for moderate acuity and one to four for low-acuity. For planning purposes, DHS hospitals use the one RN to three patients' ratio to have sufficient RN staff to meet each patient's specific requirements. Each hospital also staffs Licensed Vocational Nurses (LVNs) in addition to RNs, who provide direct care to patients, but are not included in the staffing ratio requirements.

Next Steps

- Benchmarking: In order to more accurately compare our hospitals performance amongst each other, DHS has been planning to standardize ED points of service definitions. These standardized definitions will be completed by February 22nd, and a data collection methodology will be immediately developed that includes both a short-term (without IS support) and a permanent (with IS support) solution.

- Patient Flow: Because ED wait times are also a function of the inpatient hospital capacity, DHS formed a **Patient Flow Committee** in August of 2007. This group is comprised of senior management from each facility. This group recently received training from leaders in management of patient flow through the Institute for Healthcare Improvement (IHI). Metrics for benchmarking patient flow processes throughout DHS are being developed, which will include ED metrics. This group will report regularly to the Clinical Operations and Executive Team.

- Information Systems: DHS has completed a requirements document for an ED information system (EDIS) and is in the process of working with existing vendors to purchase and implement a useable EDIS. The purchase, installation, and implementation of a robust information system is critical to improving flow, enhancing patient safety, reducing medication errors, reducing duplicates services, and reducing costs.

LA County Hospitals Compared to Private Hospitals

Wait Times

A June, 2006 study of ED wait times across the U.S. identified an average wait of 222 minutes or 3.7 hours from registration to being seen by a physician (Kaisernetwork.org). The shortest wait time was 138.3 minutes. The longest in this study was 297.3 minutes.

Comparable data for LA County facilities are:

Harbor-UCLA	LAC+USC	Olive View/UCLA
307 minutes*	276 minutes	159 minutes

As a result of the recent CMS visit, Harbor restructured its triaging process to introduce a rapid medical evaluation (RME) process for patients with chest pain. This change in process will result in shorter wait times.

Wait times are also related to the *types* and *numbers* of patients presenting to the ED. Olive View-UCLA is not a trauma hospital, so the wait times at Olive View reflect ambulance and walk-in arrivals. Both LAC+USC and Harbor are trauma hospitals, which means that they may get multiple acute patients simultaneously as a result of trauma, and the acuity of individual trauma patients may impact the staff's available to care for other ED patients. LAC+USC lower wait times can be attributed to the following: Two points of entry for patients to be triaged, and urgent access diagnostic center for Level 4 and 5 patients, a 9-bed observation unit, a 6-bed chest pain unit, and orthopedic evaluation unit, and a short-stay unit for patients that require short hospital stays (48-72 hours). Harbor-UCLA does not have similar programs at this point, but is currently developing a plan with DHS leadership.

Impact of MLK Closure on Harbor UCLA

Harbor did experience an increase in patient volume after the closure of MLK, however after analysis of the time period three months prior to the closure compared to three months post closure yielded a net increase of 1.9% (from a monthly average of 6599 ED visits to 6,725 visits) The median wait time went from 5.43 hours to 5.24 hours; the mean wait time went from 6.7 hours to 6.56 hours for the same time period

Impacted Hospitals

There are 9 hospitals in the South Los Angeles area identified by the EMS agencies as hospitals that would be impacted by MLK's ED closure. The EMS agency contacted each of these hospitals regarding their wait times and the numbers of patients who left without being seen. Each of the hospitals indicated that they wanted to submit their data through the Hospital Association of Southern California (HASC), who is in the process of collating that data.

We were able to obtain left-without-being-seen (LWBS) data for 6 of the 9 hospitals from their self-reported data to OSHPD for the 2005 or 2006 reporting period. Wait times are not reported, but LWBS data is reported. The range reported was a low of 6.5% of total patients and a high of 18.5%. The LWBS rates for County hospitals for 2006 to 2007 are as follows: Harbor-UCLA 11% to 16.6%, LAC+USC 6.5% to 7.5% (General Hospital only), and OVMC 12.3% to 12.5%.

Emergency Medical Treatment and Active Labor Act (EMTALA) Requirements related to ED Wait Times

The federal EMTALA regulations do not include a specified hour requirement for time to triage or time to physician. Attached, for your information are the sections of the Act that address this issue.

Resources Required to Improve Wait Times and Conditions in County EDs

In order to fully understand patient flow within the County ED's and hospitals, DHS needs an accurate and robust information system to collect data that will help to identify queues and bottlenecks. DHS also needs to have an electronic health record to eliminate the need for duplicate patient care services and to better manage coordination of care across the continuum. Other suggestions include the use of bar-coding, establishing chest pain and observation units, improved patient flow processes, such as rapid medical evaluation by physicians, bed-side registration, stat labs in the ED, CT scans place in the ED, increased availability of skilled nursing beds and inpatient locked psychiatric beds, and social workers and/or case managers staffed in the ED. Both OVMC and Harbor have major ED expansion projects that have been funded, but construction has not yet begun. These issues are being critically evaluated and defined by the Patient Flow Committee, with specific recommendation to be presented to the DHS leadership.

The corrective action steps immediately undertaken by Harbor-UCLA in response to the State survey, and as outline in the Department's report to your Board on February 12, 2008, have been deemed effective by the State and led to the removal of the Immediate Jeopardy status at the hospital on February 14th.

If you have any questions, please let me know.

BAC:RS:rs

Attachments

c: Chief Executive Officer
County Counsel
Executive Officer, Board of Supervisors