

Summer internship at Stanford University

Memorial



July 1 – August 31, 2015

Universitat de Girona

Col·legi Oficial de Metges de Girona

Iñaki Larracochea Inchausti

Egina Vilatimó Pablos



Stanford was for me *the right person, at the right moment,*
the luck of this summer and the house of my dreams.
Thanks to all who made it happen.



Contents

1.	STANFORD UNIVERSITY.....	4
2.	HOUSING.....	5
3.	SCHOOL OF MEDICINE AND STANFORD HEALTH CARE	6
	Stanford School of Medicine:	6
	Stanford Health care:	7
	Stanford Children’s care:	7
4.	MEDICAL DEGREE AT STANFORD UNIVERSITY	8
	Introduction: EDUCATION IN THE UNITED STATES	8
	APPLICATION PROCESS FOR MEDICAL SCHOOL.....	9
	DEGREE MEDICAL PROGRAM	10
	THE MATCH: NATIONAL RESIDENT MATCHING PROGRAM (NRMP).....	13
	THE RESIDENCY	15
5.	DEPARTAMENT OF CARDIOTHORATHIC SURGERY	17
6.	VISITORS AT STANFORD	18
	ORGANIZATION AND SERVICES:	19
7.	SUMMER INTERNSHIP: Cardiothoracic Surgical Skills and Education Center Stanford.....	23
	Program Schedule	24
8.	CONTACT: Department of Cardiothoracic Surgery	25
9.	CONTACT: Surgery – General Surgery	25
10.	PERSONAL EXPERIENCE ESSAY: (in catalan)	26
11.	Acknowledgements.....	30

1. STANFORD UNIVERSITY

Stanford University is a private research university founded in 1885 by former California Governor and Senator Leland Stanford and his wife, Jane, to memorialize their son, who died of typhoid fever at age 15.

The University is considered one of the top universities in the United States and is ranked second in the world (Academic Ranking of World Universities, 2015). It boasts a world-renowned faculty, consisting of **22 Nobel laureates** among other important prizes, such as 5 Pulitzer Prize winners, 27 MacArthur Fellows and 20 recipients of the National Medal of Science. Admitted students are at the top of their respective fields with an impressive acceptance rate of just 5.7%. Notable alumni include the founders of **Google** and **Yahoo**.

The California based campus is located in the heart of **Silicon Valley**, between San Francisco and San Jose, and is regarded as one of the most intellectually dynamic and culturally diverse areas of the nation. There are an estimated 192.000 living Stanford degree holders, and an addition 15.470 undergraduate and postgraduate students are currently studying at Stanford, of which 23% are international.

The 3.310 hectare campus is home to **seven schools** (Business, Earth Sciences, Education, Engineering, Humanities and Sciences, Law, and Medicine), as well as several other holdings located outside the main campus, including laboratories, nature reserves, a linear accelerator and a business park with the world headquarters of Hewlett – Packard. Moreover, the university also includes one of the nation’s top hospitals, **Stanford Health Care and Clinics**, which is a leading academic health system, specializing in the treatment of rare, complex disorders in such areas as cardiac care, cancer, neuroscience, surgery and organ transplants.

Stanford offers its students and faculty a unique multidisciplinary environment in both research and teaching that is pivotal to future advances in human health, sustainability, technology, arts and international affairs.



2. HOUSING

As of autumn 2014, 6,503 undergraduates and 5,478 graduate students live in university-provided housing. Housing is guaranteed for four years for entering freshmen. Approximately 96% of all undergraduates registered and residing at the home campus live in on-campus housing.

Living on campus is the best way to be connected to all the opportunities that Stanford has to offer and to live the real Stanford experience. Nearly all undergraduate students and more than half of graduate students live in R&DE Student Housing.

There are several options: Undergraduate Housing, Graduate Housing, Housing for couples... from single housing to small group houses or Suites.

The ways to find a place are two: applying directly for housing from the Housing and Dining portal or find for a Sublicense.

For the first option students have to send the confirmation of the acceptance at Stanford and after signing and agreeing the conditions and terms, a place will be found for you in any point of the campus depending your request.

For the second option and the best one for a short-term room, graduate students may sublicense their rooms/apartments under certain circumstances so visitors can be renting a place directly to other student almost always for less than the real housing renting price. For Sublicensing, it would be need to check the advertisements and look the best place to fit on in the following link: <https://web.stanford.edu/dept/rde/cgi-bin/drupal/housing/sublicense>. Students will get in contact, provide the contract with the price and conditions and make an agreement in order to formally rent their place.

Below are the various housing options available, but not limited to visiting student at Stanford University School of Medicine.

Online Housing Postings

- <http://sfbay.craigslist.org/>
- [RotatingRoom.com](#) (recommended by the AAMC)
- [Places4Students.com](#): Helping Students Find A Home Away From Home!
- [Physicians by Owner](#) (real state listings by doctors for doctors)

On-Campus Housing

- **Housing on campus is available during the summer quarter only.** Information and application for this housing can be found at the Stanford's Community Housing Services website.

For any questions, emails can be sent to summerhousing@stanford.edu

3. SCHOOL OF MEDICINE AND STANFORD HEALTH CARE

Stanford Medicine, leader in the biomedical revolution through discoveries that result in practical improvements to human health such as the discovery of immune response genes, is an organization located in the north-east area of the campus which comprises three organizations:

Stanford School of Medicine:

It is one of the premier teaching and research medical schools thanks of its creative educational protocols and its distinguished faculty, such as Roger David Kornberg who awarded a Nobel Prize in Chemistry in 2006 for his studies of the process by which genetic information from DNA is copied to RNA, "the molecular basis of eukaryotic transcription.

This Medical School not only offers degrees programs such as medical, PhD and master programs, but also a professional training (postdoctoral scholars, residencies and fellowships...) in order to continue the medical education, and summer and youth programs to encourage and prepare the pre-medical and high school students.

Its pedagogical program is based on the interactive learning, which employs online and classroom strategies in order to reinvigorate the learning process for faculty and students, and the immersive and simulation-based learning, which provides the integration of the knowledge acquired in the classroom and real-life clinical experience.

There are 462 students currently enrolled at Stanford School of Medicine, which is roughly 17% less than the average for all Medical Schools. 102 new students matriculated in the most recent first-year medical school class. Stanford School of Medicine has 873 total faculty members. Of these, 55 are full-time faculty members while 3 are part-time. This is a smaller faculty than the average medical school, which has 948 total faculty members.



Stanford Health care:

It is the Hospital of Stanford, one of the top Hospitals in the nation, leader in the academic health system and world renowned for their innovative programs in cardiovascular medicine and surgery, neurology, orthopedic surgery, organ transplantation and cancer diagnosis and treatment. Among its many achievements, Stanford Health Care was the first hospital in the world that completed a successfully combined heart-lung transplant (1981) and it is being crucial in the development of the Da Vinci surgical robot, a sophisticated instrument which uses articulating arms to perform procedures with a minimum of recovery time and blood loss.

This Hospital has 613 licensed beds, 49 operating rooms, 1,450 faculty physicians and 1,016 interns and residents.



Stanford Children's care:

It is also known as *Lucile Packard Children's Hospital*, it is the only network in the area dedicated to pediatric and obstetric care and the primary teaching hospital of Stanford Medicine. It provides excellence services in the areas of brain & behavior, cancer, heart, pregnancy & newborn, pulmonary and transplant.

4. MEDICAL DEGREE AT STANFORD UNIVERSITY

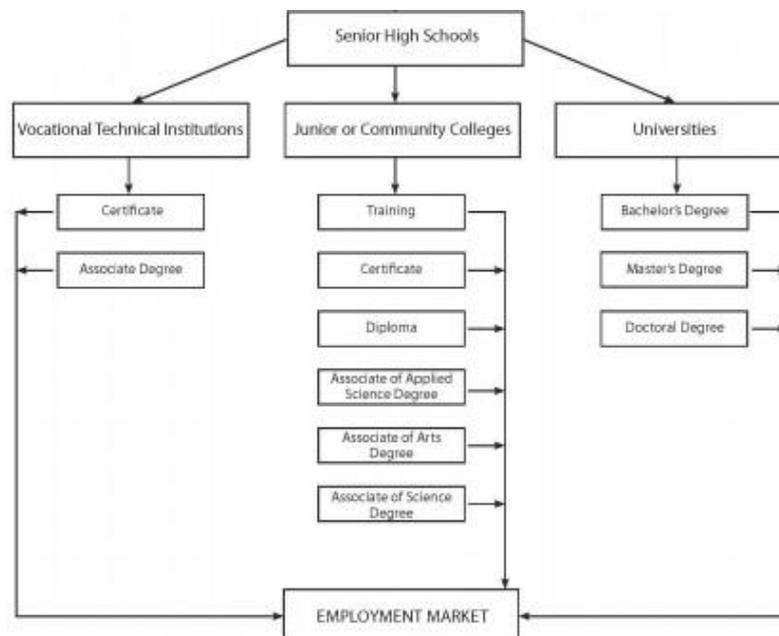
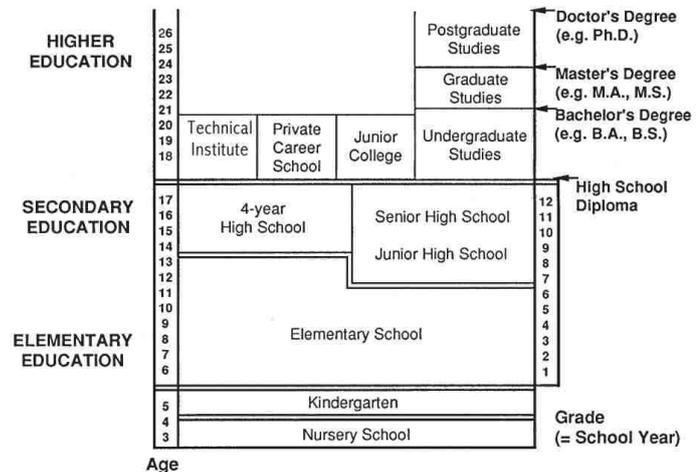
Introduction: EDUCATION IN THE UNITED STATES

Formal education in the United States is divided into different educational stages encompassing the 13 years between ages 5 and 18. Between the ages of 3 and 5, many children also elect to attend pre-school, which focuses mainly on the development of social skills and the introduction of the children to the world of education. They begin with learning the alphabet and counting numbers as early as age 2.

At the age of 5, children begin in Kindergarten, where they spend one year before primary school. After this year, they attend 5 years of primary or Elementary school and then they move on to a secondary level of schooling that is divided into 3 years of Middle school and 4 years of High school. It is common in USA for high school students to partake in extracurricular activities such as sports, volunteer work, and afterschool clubs (ex Theater, chess, robotic, etc.), in order to be a more well rounded applicant for the competitive college admissions process.

At the age of 18, students earn a diploma and become high school graduates, who are eligible for admission to a system of higher education consisting of Colleges and Universities. Colleges offer undergraduate degrees such as Associates (2 years) and Bachelors (4 years), whereas universities offer bachelors and postgraduate degrees such as masters and doctorates. Typically, students take a variety of coursework in the first two years of study in order narrow the focus of their degree to a single subject termed 'major' (ex biology, chemistry, economics, etc.) that is further pursued in the latter two years of study. Some students may choose to continue on to pursue graduate degrees such as a masters or doctorate, or to professional schools like medicine, law, or business school.

The System of Education in the U.S.A.



APPLICATION PROCESS FOR MEDICAL SCHOOL

Stanford School of Medicine is an extremely selective medical school. Last year, of the 7,341 people who applied for admission, 534 (7%) were granted interviews; of those interviewed and accepted, 102 chose to enroll as first-year medical students.

All applicants to Stanford School of Medicine are required to complete and submit a standardized application through the American Medical College Application Service (AMCAS), as well as some required supplemental applications. Admission requirements are strict, and applicants should make sure to follow all requirements closely:

1. AMCAS application:
All applicants must hold an undergraduate degree from an accredited university. Every applicant must complete one full year of biological science, two years of chemistry (including organic chemistry), and one year of physics. Stanford also recommends taking a foreign language, behavioral science, calculus, physical chemistry and biochemistry. All courses must be accompanied by the required labs.
2. Course work in advanced biology such as biochemistry, molecular biology, or genetics and the behavioral sciences is recommended because of their importance in understanding health care. Breadth of interests and depth of experiences play an important role in the selection of students from among those applicants having superior academic records.
3. All applicants must take the Medical College Admissions Test (MCAT) before applying. The MCAT test is a standardized, multiple-choice examination designed to assess the problem solving, critical thinking, and knowledge of natural, behavioral, and social science concepts and principles prerequisite to the study of medicine. The test consists of 3 mandatory sections, such as Biological Sciences, Physical Sciences and Verbal Reasoning, and an optional section including basic science or psychology, sociology, and biology. The average or median MCAT scores reported by the Stanford University School of Medicine is 37 out of 45, which is 5 higher than the average for all Medical Schools.
4. Stanford also requires three to six letters of recommendation. Letters should be from professors who can attest to your academic achievements and your potential as a physician. Letters of recommendation can also come from advisers, supervisors, and clinical and volunteer professionals.

Once Stanford receives the AMCAS application to Stanford University School of Medicine, all undergraduate students are invited to submit a Stanford Supplemental Application, which consists of doing an application fee of 85\$ and adding information completing series of essay questions with information about applicants' personal background and professional experience.

With all this data, all applications are reviewed for consideration of an interview. Stanford uses the multiple mini interview system, which exposes candidates to multiple interviewers in a short amount of time instead of doing a 30min-1h speech with a faculty member.

After all this process, the admissions decisions are made by the Committee on Admissions and are final.

DEGREE MEDICAL PROGRAM

Stanford Medicine offers professional medical education for a Doctor of Medicine (MD) degree.

The Stanford MD curriculum provides education in basic and biomedical sciences, clinical instruction and investigation and independent research throughout 4 years of medical school, which are divided in 13 quarters. There is the option of doing an extra year, depending on student's interests, but normally, completion of the M.D. degree must be achieved within six years.

The first 2 years of the degree are focus in basic and biomedical science, such as Genetics, Biochemistry and Molecular and Cells Biology, as well as organ systems including pulmonary, cardiac, renal systems. The knowledge acquired by this time will be evaluated at the first board exam, called USMLE Step 1. The score of this exam is one of the most relevant qualifications to apply, later on, to residency programs.

In this first two years, students also receive clinical practice being exposed to patient care and practice of medicine throughout the immersive and simulator labs and pursue the Scholarly Concentrations:

1. Doctor-Patient Communication and Clinical Skills instruction: it is the practical part of the first two years of the medical degree. It is designed for getting skills in exposure to patient care. Students attend to the simulation labs, including standardized patients, OR simulation... to develop this skills.
2. The Scholarly Concentration is a required and structured program that combines course work and research activities in elected basic science and clinical areas such as bioengineering, biomedical ethics and medical humanities, biomedical informatics, clinical research, community health, health services and policy research, and the molecular basis of medicine. The SC's provide medical students with faculty-mentored scholarly to get a more in-depth education in areas of individual interest and to develop critical thinking, skills in evaluation of new data, and hands-on experience

The last two years are the most practical ones and students begin the clinical clerkships (June of 2nd year). However, classroom and experiential learning are combined in order to understand the socioeconomic determinants of the health of patients and communities.

- Clerkships: The clinical clerkships are rotations through different medical and surgical specialties with a duration of minimum of 15 month. Students work full-time job and they may also be required to work on weekends and to be on call, generally similar to that of residents. The main goals of this training is not only learning about different types of patient care and how best to care for them, but also getting skills in how elicit patient histories, complete physical examinations, write progress notes, and assist in surgeries and medical procedures. This training is mandatory and will be evaluate assessing three domains: Patient Care, Professionalism and Interpersonal Communication, and knowledge. In additional, students may do a final written exam.

- Reflections, Research & Advances in Patient Care: During the 2 years of clerkships, students also attend to sessions structured independently of clinical training in order to promote both reflection on and reinforcement for learning in the clinical environment. Every 8 weeks, students participate in interactive discussions on “hot topics” in medicine (including Sexuality in medicine, Biomedical ethics...), continue developing the four core values of medical profession debriefing and reflecting on critical experiences and explore advances in biomedical sciences and medical practice, faculty career pathways, reflections on doctoring, and the broader context of medicine in society.

During the last year of medical school, students typically take USMLE Step 2, which is an exam divided in two parts designed to evaluate medical knowledge, skills and understanding of clinical science essential for provision of patient care under supervision.

Other major themes on the curriculum are:

1. Educators-4-care: this is a program that cultivates and fosters the development of some of our core values – Compassion, Advocacy, Responsibility, and Empathy – from the beginning and throughout medical school. Each incoming medical student is matched with an Educators-4-CARE faculty, who serves as a teacher, mentor, and colleague for the duration of the student’s time at the School of Medicine. Each Educator-4-CARE teaches and guides five to six students per class year as an advising community.
2. Medical Scientist Training Program (MSTP): This program is designed for students with interests in medical research and equip them for careers in academic investigative medicine. It is an opportunity that allows medical students to pursue an individualized plan of research, in consultation with a preceptor and other advisers, and course work leading to both the M.D. and Ph.D. degree.
3. Collaborates with the University of California, Berkeley (masters, phd...)
4. Individual opportunities: from basic courses in physics, chemistry, and biology, arts and humanities for undergraduate students, to a fifth or sixth year of study pursuing interests in laboratory research, public health, or community service. Second degree, such as an M.P.H., M.B.A., Master's of Science in Epidemiology or Health Services Research, or a Ph.D. and MD/PhD, MD/MPH, and MD/MBA dual degree programs, are also offered to those who want to continue their studies.
5. Blocks of unscheduled time allow for individual or group study, participation in elective courses, research, and reflection.

	Autumn	Winter	Spring		
Year 1	<ul style="list-style-type: none"> • Cells to Tissues • Molecular Foundations of Medicine 	<ul style="list-style-type: none"> • Applied Biochemistry • Genetics • Development & Disease Mechanisms • Basic Cardiac Life Support 	<ul style="list-style-type: none"> • The Nervous System • Immunology • Gross Anatomy of Head & Neck • Microbiology 	<ul style="list-style-type: none"> • Pulmonary System • Cardiovascular System • Microbiology 	
	Gross Anatomy				
	PRACTICE OF MEDICINE I		PRACTICE OF MEDICINE II	PRACTICE OF MEDICINE III	
	SCHOLARLY CONCENTRATIONS				
Year 2	<ul style="list-style-type: none"> • Renal/Genitourinary System • Gastrointestinal System • Skin/Endocrine Systems • Reproduction/Women's Health • Microbiology 	<ul style="list-style-type: none"> • Brain and Behavior • Hematology • Systemic Diseases • Microbiology 	TRANSITION TO CLINICAL CLERKSHIPS		
			3-Weeks	USMLE Step 1 Study	
	PRACTICE OF MEDICINE IV		PRACTICE OF MEDICINE V		
	SCHOLARLY CONCENTRATIONS				
Year 3, 4, [5]	CLINICAL CLERKSHIPS				
	8 Weeks Internal Medicine Pediatrics Surgery	6 Weeks Obstetrics & Gynecology	4 Weeks Family Medicine Psychiatry Neurology Critical Care Ambulatory Med	2 Weeks Capstone Clerkship <i>(required for students matriculating 2015 or later)</i>	Selectives Ambulatory Practice (8 weeks) Subinternship
	Electives				
	RESEARCH, REFLECTIONS AND ADVANCES IN PATIENT CARE Advanced Cardiac Life Support				
	SCHOLARLY CONCENTRATIONS				

THE MATCH: NATIONAL RESIDENT MATCHING PROGRAM (NRMP)

The Match process is a uniform system by which residency candidates and residency programs simultaneously “match” to fill first-year and second-year post-graduate training positions accredited.

During the clinical clerkship, students have an overview of most of medical and surgical specialties, which allows them to decide the specialty they would like to pursue. In addition, students may also decide which residency program offered of all the USA hospitals fit them best. For that reason, many students not only research and collect information about the programs, but also do rotations at different hospitals in order to compare and identify the programs that are most likely to meet their needs.

The vast majority of residency programs participate in Electronic Residency Application Service (ERAS) for applications. Students can visit program websites to learn about their requirements and application mechanism (ERAS or outside), as well as if they have any additional requirements or requests that fall outside of this application system.

Generally, students apply at the 3rd year and are interviewed during the beginning of 4th year of medical school. Application materials consist of a curriculum vitae, a copy of the universal residency application form, the number of attempts on the USMLE allowed, a cover letter addressed to each residency program director, evidence of graduation from medical school and letters of recommendation from U.S. physicians along with a one-page personal statement detailing the unique qualifications of the applicant.

Medical graduates can apply to as many programs as they want considering their academic or test scores and the ratio of candidates to open position for the specialty they want to train. A typical applicant will apply to 5-10 programs with the knowledge that the more applications they send out, the better the chances are of receiving an interview and ultimately being accepted to a program.

Upon review of the applications, residency program directors invite selected applicants to interview. The residency interview is a critical stage in the process of residency selection. Approximately 14% of applicants are granted an interview and only 8% of the entire applicant pool will be hired by any given hospital. Once invited to interview, the applicant needs to prepare in order to make the best possible impression due to the fact that the interviewers seek to confirm and expand the information that it is provided in the application. Interviewers also try to determine how compatible the candidate would be with the residents and faculty in the program. However, the representatives of the residency program also want to show their program in the best possible light.

So, in short, like students do, the interviewers attempt to shape their rank order list of their candidates for the Match.

MAY	JULY	SEPTEMBER	SEPTEMBER-DECEMBER	JANUARY	MARCH
Students finalize their specialty choice and begin to research residency programs.	Students create a personal profile in the Electronic Residency Application Service (ERAS®) system.	Students submit an application to residency programs of interest to them.	Residency programs receive student applications and select candidates for interview.	Students rank their preferred programs in ERAS.	Match Day <i>(3rd Friday in March)</i>
	-		-	-	Students "match" to residency programs as they receive invitations from residency programs via ERAS.
	Residency programs create a profile in ERAS.		Onsite interviews are conducted.	Residency programs indicate how many residency positions they will fill for the next academic year.	

After completion of the interview process, the residency programs submit a "rank order list" with the most desirable applicant they want in their program on top and down the list to the least desirable. Students do the same, listing their respective choices in order of preference. Applicants may submit a list of up to 15 programs, with the option of adding more for an additional fee. Based on the preferences of both the applicants and the programs, On "Match Day" (middle of March) each year, the NRMP matches each applicant to a program and the results are announced via the Internet.

THE RESIDENCY

Duration of most residency training in USA can range from 3 years for general fields such as internal medicine, family medicine or pediatrics, 5 years for most surgery such as thoracic surgery, to 7 years for more specialized fields such as neurosurgery. When physicians finish their residency, often decide to further their education in fellowships for additional subspecialty training, increasing the duration of their programs. For example, Internal medicine residency (3 years) followed by a Cardiology fellowship (3 years) or plastic surgery (5 years) followed by a hand surgery fellowship (1 year).

In the USA, the first year residents are called *interns* and begin the residency programs late June or early July. The first year of residency is normally the most intense one, with lots of hours (80 to 120 hours per week) and a heavy call schedule (every 4th night stayed at the hospital - for up to 36 hours at a time). However when 90% of knowledge needed is acquired and when residencies get their licensee.

Interns become *junior residents* when they complete their first year but have not completed half their residency. *Senior residents* or *chief residents* (typically in surgical branches) are residents in their final year of residency and they are normally involved in teaching the more junior ones and often some medical students as well. At the end of residency, the last board exams USMLE Step 3 is normally taken for board certification in their specialty.

If physicians are doing a fellowship are referred to as fellows and if they are post-residency physicians are called *attending physicians*, or *consultants*.

Residencies and specialties vary greatly in their intensity and time commitment. Some residencies are 45 hours per week (dermatology, oncology, etc.) with little or no call. Others are brutal, like most surgical, internal medicine, or other inpatient residencies with 80 hours or more a week.

Physicians are paid a salary during residency. The salary ranges from about \$35,000 to \$45,000 per year, depending on specialty, location and years of residency experience. However, at the military school, the salary can get close to \$60,000 per year.

The medical specialties at USA are organized into 3 groups:

- **MEDICAL:** such as anesthesiology, ophthalmology, dermatology, emergency medicine, family medicine, internal medicine (Cardiology, Endocrinology, Nephrology, Hepatology, etc.), neurology and many other specialties.
- **SURGICAL:** which has many sub-specialties including general surgery, cardiovascular surgery, colorectal surgery, oncologic surgery, orthopedic surgery, podiatric surgery, transplant surgery, trauma surgery, etc.
- **DIAGNOSTIC:** focus more purely on diagnosis of disorders, such as clinical laboratory, pathology, radiology, nuclear medicine or clinical neurophysiology.

For example, Stanford University Medical Center currently sponsors over 90 residency and fellowship programs:

Residency Programs	
Anesthesia	Otolaryngology
Child Neurology	Pathology
Dermatology	Pediatrics
Emergency Medicine	Physical Medicine & Rehabilitation
Internal Medicine	Plastic Surgery (Integrated)
Neurology	Psychiatry
Neurological Surgery	Radiation Oncology
Nuclear Medicine	Radiology
Obstetrics/Gynecology	Surgery (General)
Ophthalmology	Thoracic Surgery (Integrated)
Orthopaedic Surgery	Urology
	Vascular Surgery (Integrated)

Fellowship Programs	
Addiction Medicine	Neuromuscular Medicine
Adolescent Medicine	Neuropsychiatry
Adult Cardiothoracic Anesthesia	Neuroradiology
Adult Reconstruction	Neurotology
Allergy/Immunology	Obstetric Anesthesia
Advanced Heart Failure & Transplant Cardiology	Oncology
Anesthesia Critical Care Medicine	Orthopedic Sports Medicine
Blood Banking/Transfusion Medicine	Pain Medicine
Clinical Cardiac Electrophysiology	Pediatric Anesthesia
Clinical Informatics	Pediatric Cardiology
Clinical Neurophysiology	Pediatric Critical Care Medicine
Cardiovascular Disease	Pediatric Endocrinology
Child Psychiatry	Pediatric Gastroenterology
Congenital Cardiac Surgery	Pediatric Hem/Onc
Critical Care Medicine	Pediatric Infectious Diseases
Cytopathology	Pediatric Nephrology
Dermatopathology	Pediatric Otolaryngology
Developmental-Behavioral Pediatrics	Pediatric Pulmonology
Endocrinology, Diabetes and Metabolism	Pediatric Radiology
Female Pelvic Medicine & Reconstructive Surgery	Pediatric Rheumatology
Gastroenterology & Hepatology	Pediatric Surgery
Geriatric Medicine	Pediatric Urology
Geriatric Psychiatry	PM&R Sports Medicine
Gastrointestinal Pathology	Psychosomatic Medicine
Gynecological Pathology	Pulmonary & Critical Care Medicine
Hand Surgery	Rheumatology
Hematology	Sleep Medicine
Hematopathology	Spinal Cord Injury
Hospice & Palliative Medicine	Surgical Critical Care
Infectious Diseases	Surgical Pathology
Interventional Cardiology	Thoracic Surgery
Medical Biochemical Genetics	Vascular Interventional Radiology
Medical Genetics	Vascular Neurology
Molecular Genetic Pathology	Vascular Surgery
Neonatal-Perinatal Medicine	
Nephrology	
Neuropathology	

5. DEPARTMENT OF CARDIOTHORATHIC SURGERY

The Department of Cardiothoracic Surgery at Stanford University Medical Center is located in the Falk Building, together with Department of Cardiovascular medicine and Cardiovascular Institute.

The **Falk** is a research center situated between Stanford University Hospital and Lucille Salter Packard Children's Hospital. The **second floor** is occupied with academic offices for staff and physicians and the Library, where most of conferences and meetings are performed. The **lower floors** are equipped with research laboratories, cardiovascular biology labs, a full animal facility with surgical and catheterism laboratory and other rooms where faculties, students and residents develop their experiments and research projects.

The Cardiothoracic surgery department in Stanford is pioneer in cardiac surgery and heart transplantation and has one of the top cardiac and thoracic programs in USA due to the following distinguished legacy of notable triumphs knowing as the "firsts":

- The **first** adult human heart transplant in the United States performed by Drs. Norman Shumway
- The **first** successful heart-lung transplant in the world performed by Dr. Bruce Reitz
- The **first** successful use of a ventricular device as a bridge to transplantation implanted by Dr. Philip Oyer (a currently surgeon)
- The **first** thoracic aortic stent graft implanted by Dr. D. Craig Miller (another currently surgeon)
- The development of the **first** integrated platform for minimally invasive heart surgery.

The Department is comprised of three divisions: Adult Cardiac Surgery, Pediatric Cardiac Surgery and Thoracic Surgery. It is headed by Dr. Joseph Woo, a nationally recognized heart surgeon and a leading researcher in new approaches to cardiovascular care, who works together with other well-known surgeons such as *Dr. Craig Miller, Dr. Michael Fischbein, Dr. Philip Oyer, Dr. Richard Ha, and Dr. Jack Boyd*.

The main programs that this department offers are the following:

- Integrated Cardiothoracic Surgical Residency Program for medical students which want to become CT surgeons.
- Fellowships and instructorships for residencies as a subspecialty training programs in the fields of pediatric cardiac surgery and transplantation.
- Elective rotations for students who are enrolled in their fourth or final year MD program at Stanford Medical School or visiting students.
- Research programs that can be performed in the labs of the Falk Center.
- Summer Internships, student fellowships and Basic Science research training for high school students, pre med students and medical students (with the Cardiothoracic Surgical Skills and Education Center).
- Educational Conferences.

During the placement, students and visitors will be able to meet some of the faculties as Dr. Jack Boyd, who is the Director and the Mentor of visitors, and staff (Rachelle Villanueva is the administrative associated to Dr. Boyd). In addition, students will also be involved on the Cardio-thoracic team and participate on some of the mentioned programs.

6. VISITORS AT STANFORD

The training for students and visitors on the Cardio-thoracic Surgery and Transplant Surgery unit at the Stanford University School of Medicine is designed to provide a basic didactic and practical experience in the evaluation, diagnosis and treatment of surgical diseases.

The main goal of this placement is to give students the opportunity to acquire knowledge, skills and attitudes necessary for the recognition and management of patients with disorders that require surgical evaluation and treatment. Students may also become familiar with the principles, reasoning techniques, and tools used by surgeons and observe and adopt the attitudes and attributes of an excellent physician.

In order to achieve these objectives students will be exposed to the educational curriculum of the university, including didactic lectures, clinical conferences and student and resident run discussions, Students will also rotate on the different clinical services in surgery (heart failure, heart/lung transplantation (from donor to recipient), mechanical support, aortic surgery, heart valve surgery, and coronary revascularization) and will attend patient care activities such as evaluations, daily hospital rounds, inpatient consults and outpatient clinic encounters. In addition, for those students who are interested at basic science and/or clinical research, being involved in the ongoing investigations will also be provided as an extra activity.

To have an overview of the activities and how these ones are organized during the ship a schema and a time-schedule is provided in the following section.



ORGANIZATION AND SERVICES:

OPERATING ROOM

- There are cardiovascular surgeries everyday with different surgeons.
- OBJECTIVES:
 - Observing the sterile technique, the basic operating room conduct and the surgical procedures and techniques.
 - Being informed of the patient's current and past medical history and indication for the operation.
 - Gaining knowledge of the normal and abnormal anatomy and understanding the pathophysiology and treatment of the cardiovascular disorders.
 - Learning how to write post-operative orders with their resident/faculty supervision.
- TIPS: *Checking the weekly cardiovascular surgery schedule is a good option to organize your week in order to see different kind of surgeries. Once you are in the OR, introduce yourself, keep in mind what are the sterile areas and try to find a place where you can see the procedures without disturbing the physicians (the anesthesia area is a good place).*

RESIDENT RUN DISCUSSIONS

- OBJECTIVES:
 - Discussing common treatments for disease under study including the advantages/disadvantages and outcome of each.
 - Recognizing and evaluating patients with presentations commonly confronted by surgeons and discuss their differential diagnoses
 - Learning how to describe a logical work-up for each patient using standard diagnostic testing.
- TIPS: *Normally discussions are not in the main schedules, so you should ask the chief residents when these meetings are going to have place.*

PATIENT ROUNDS

- During the week, there are morning and afternoon rounds where the entire surgical team sees and reports on each patient
- OBJECTIVE: Participating in outpatient follow-up of surgical patients and learning how to recognize postoperative complications.
- TIPS: *Now is the moment to wear your white coat, follow the team, and ask all the questions you may have.*

CLINICS

- Clinics allow students to devote attention to new, long-term, follow-up, and postoperative patients.
- OBJECTIVES:
 - Learning how to obtain and accurately record complete, organized, appropriately detailed histories, and how to perform and record accurate, focused physical examinations
 - Understanding the preoperative planning required preparing patients for surgery.
- TIPS: *We advise to dress appropriately or to wear your white coat.*

CATH ANGIO LAB

- The Catheterization Angiography Laboratory provides minimally invasive catheter based radiological procedures for diagnostic evaluation and/or therapeutic intervention such as transcatheter aortic valve replacement (TAVR) or transcatheter mitral clips .
- OBJECTIVES:
 - Observing the minimally invasive transcatheter procedures via transfemoral, transradial or transapical.
- TIPS: *The CATH LAB is near the OR. If you are interested at Intervencionist Cardiology, it is interesting to attend to a TAVR or a Mitral Clip procedure.*

TRANSPLANT

- The Cardiopulmonary Transplant Service encourage students to attend to heart and/or lung transplants from the donor to the retrieval.
- OBJECTIVES:
 - Learning what are the indications for the heart-lung transplants.
 - Observing the donor surgery and understanding all the steps and the process to harvest an organ such as a heart or a lung.
 - Learning how to pack the harvest organ in iced cardioplegia.
 - Attending to the retrieval surgery and understanding the steps of the surgery.
- TIPS: *Try to meet and be in touch with the transplants fellows. Show interest on attending to a transplant procedure and they will let you know when the transplants are going on. The transplants can be any where and any yime, so you should be ready for it.*

RESEARCH

- Students who wants to observe and participate to research projects should ask for being involed in a research team.
- OBJECTIVES:
 - Participating with both a faculty member and a lab mentor to craft a research project
 - Learning basic and advanced techniques in molecular, biochemistry and cell biology research.
 - Getting skills for future pursuit in biological and biomedical research.

EDUCATIONAL CONFERENCES

- Everyday there are conferences open to everybody at the library Falk where faculties, surgeons, residents and physicians present different cases or speeches related to cardiovascular topics.
- TIPS: *Check the time schedule of the conferences, and attend to the ones that are on your interest.*

CARDIOVASCULAR SURGERY SCHEDULE: JULY 1- AUGUST 15, 2015

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
CONFERENCES (Falk Library)	<p>6-7am:</p> <ul style="list-style-type: none"> - Journal Club: read scientific literature, discuss concepts, present ideas, and expand critical thinking skills. - Cardiopulmonary Bypass/ Myocardial Protection / Circulatory support - Ischemic Heart Disease - Heart Valve Disease <p>7-8am:</p> <ul style="list-style-type: none"> - M&M - CSPPAN (Multi-Disciplinary Quality and Education Meeting) - Residency Didactic sessions 	-	<p>6.30-8.30am:</p> <ul style="list-style-type: none"> - Combined Pediatric Cardiology- Pediatric Cardiac Surgery 	<p>7-8am:</p> <ul style="list-style-type: none"> - Thoracic Case Conference <p>12-1pm:</p> <ul style="list-style-type: none"> - Cardiomyopathy or Heart Failure Conference 	<p>7-9am:</p> <ul style="list-style-type: none"> - Cardiopulmonary Transplantation 	<p>8-9am:</p> <ul style="list-style-type: none"> - Combined Cardiology- Radiology- Cardiovascular Surgery
<p><i>Check conference's schedule at: http://scalpel.stanford.edu/</i></p>						

DAILY SERVICES

OPERATING ROOM (8 or 9)	<p>7 or 8am:</p> <ul style="list-style-type: none"> - Valvular surgery <ul style="list-style-type: none"> o Aortic, Pulmonary, tricuspid valve surgery o Mitral valve repair (Minimally invasive heart surgery) - Natural heart valve repair - Arrhythmia surgery - Coronary artery bypass graft (CABG) surgery - Left ventricular remodeling/surgical ventricle restoration 	<ul style="list-style-type: none"> - Mechanical circulatory support (MCS): <ul style="list-style-type: none"> o Extracorporeal membrane oxygenation (ECMO) o Ventricular assist device (VAD) - Myectomy/myotomy - Transmyocardial revascularization (TMR) - Complex thoracic aortic aneurysm surgery - Hypertrophic cardiomyopathy
CATH ANGIO LAB	<p>7 or 8am:</p> <ul style="list-style-type: none"> - Cardiac angiography - Cardiac electrophysiology study (EPS) - Pacemaker - Implantable cardioverter defibrillator (ICD) implantation - Angioplasty - Stent placement - Biopsy 	<ul style="list-style-type: none"> - Chemoembolization - Intravascular ultrasound (IVUS) - Ablation - Thrombolytic therapy - Valvuloplasty <ul style="list-style-type: none"> o Transcatheter aortic valve replacement (TAVR) o Transcatheter mitral valve replacement (TMVR) o Transcatheter mitral valve repair (Mitral Clip)
CLINICS	<p>- Every surgeon has clinics once or twice a week. In order to attend them don't hesitate to ask for their schedule.</p>	
TRANSPLANT (any time)	<ul style="list-style-type: none"> - Donor: meeting at the Emergency Door, transportation to the site of donor harvest, donor surgery, organ packaging and transportation back to Stanford. - Retrieval: heart transplant, lung transplant or combined heart-lung transplant. 	

7. SUMMER INTERNSHIP: Cardiothoracic Surgical Skills and Education Center Stanford

The interest and the motivation of the visitors may bring them to participate in other programs associated with the Department of Cardiothoracic Surgery of Stanford.

For instance, the Cardiothoracic Surgical Skills and Education Center Stanford Summer Internship is a program with a duration of 4 weeks designed to educate high school and pre-medical graduate students in basic and advanced cardiovascular knowledge as well as medical and surgical techniques that will be utilized in medical school and in the residency program.

The Internship presents 3 parts:

- A theoretical part that takes place in the Li Ka Shing Center, where the students attend to lectures where they learn the anatomy and the physiology of the cardiovascular system, and to conferences where recognized doctors give an overview of the different cardiac pathologies and the different medical and surgical treatments for each of them.
- A practical part, which provides an early and basic surgical training outside the operating room in order to get some skills that are used in the cardiothoracic surgeries.
- And final part, where the students have to present a project related with the Cardiology and Cardiothorathic surgery fields.

Although this program is focused to teach high school and pre-med students, it also provides basic training to medical students and cardiothoracic residents who are already passionate for and involved in cardiac surgery career, and it gives supplementary lab time to those who require additional hands-on cardiac surgical training.



Program Schedule

	WEEK 1	WEEK 2	WEEK 3	WEEK 4
LECTURE TOPICS	<ul style="list-style-type: none"> • Orientation and Safety Course • Introduction to Cardiac Anatomy and Physiology • History of Cardiac Surgery • Anatomy and Physiology • 3-D dimension Cardiac • Introduction to Surgical Instruments - practical course • Porcine Heart Dissection 	<ul style="list-style-type: none"> • Heart and Lung Transplant • Valvular Heart Disease • Ventricular Assist Devices • Total Artificial Heart • Myocardial Infarctions 	<ul style="list-style-type: none"> • General Surgery and Emergency Surgery • Surgical Innovations and Medical Device Design • Coronary Artery Bypass • EKG and Echocardiography • Minimally Invasive Surgery 	<ul style="list-style-type: none"> • History of Congenital Disease and Surgery • Mitral Valve Surgery • Aortic Valve Sparing Surgery • Cardiopulmonary Bypass and Perfusion
SURGERY SKILLS	<p><u>Basic technical skills:</u> Including knot tying and suturing skills and cardiac anatomy. This week is focused on knot tying. The student is expected to master the two-handed knot and to be introduced to the one-handed knot.</p> <ul style="list-style-type: none"> • Knot tying • One handed • Two handed • Instrument • Superficial • Deep 	<p><u>Basic Suturing with Porcine Tissue:</u> Using the porcine heart, student is taught how to make an incision, hold the scissors and forceps and suture in a vertical fashion and horizontal fashion. The student is introduced to different ways to hold a needle driver, including “palming” the instruments.</p> <ul style="list-style-type: none"> • Running Stich • Needle Handling • Instrument Handling • Tissue retraction and handling • Tissue forceps • Placement of wound retractors • Respect for tissues • Porcine Heart Dissection 	<p><u>Coronary Artery Disease and Bypass course:</u> Students are introduced to more advanced surgical skills and will build on their basic techniques.</p> <ul style="list-style-type: none"> • Vessel Anastomosis (Coronary and Vascular Anastomosis) • Porcine Heart Dissection 	<p><u>Aseptic Surgery Course:</u> Operating room simulation experience is demonstrated for students</p> <ul style="list-style-type: none"> • Gowning and Gloving <p><u>Aortic Valve Replacement:</u> Surgical skills are refined and assessed with review sessions to consolidate skills</p> <ul style="list-style-type: none"> • Mechanical or Biological Valve Implantation

8. CONTACT: Department of Cardiothoracic Surgery

In order to visit the Department of Cardiothoracic Surgery of Stanford University, the authors of this memorial recommend getting in contact with the following professionals:

Rachelle Villanueva

Administrative Associate to:

Jack H. Boyd, M.D.

Department of Cardiothoracic Surgery
Stanford University School of Medicine
Falk Cardiovascular Research Center
300 Pasteur Dr., CV2C-155
Stanford, CA 94305-5407
Email: Rvilla@stanford.edu
Phone: 650.736.2042
Fax: 650.725.3846

Paul Chang, Senior Scientist

Director of Cardiothoracic Surgery
Research Laboratory
Director of Cardiothoracic Surgical Skills
and Education Center
Falk Cardiovascular Research Bldg.
Department of Cardiothoracic Surgery
300 Pasteur Drive CV-005
Stanford, CA 94305-5407
Phone: (650) 725-0298
Email: pc1@stanford.edu
Fax: (650) 498-8614

9. CONTACT: Surgery – General Surgery

Nicole Cordova

Email: ncordova@stanford.edu
Tel: 650-736-1355

Administrative associate to:

Brendan C. Visser

Tel: (650) 721-1693
Email: bvisser@stanford.edu
Clinical, Stanford Cancer Center
875 Blake Wilbur Dr. MC 5826
Stanford, CA 94305
Tel: (650) 498-6000
Fax: (650) 736-4167

For any other information, visit the following links:

- <http://med.stanford.edu/>
- <https://stanfordhealthcare.org/about-us.html>
- <http://med.stanford.edu/ctsurgery.html>
- <http://scalpel.stanford.edu/> (conference schedules)
- <http://med.stanford.edu/cssec.html>

10. PERSONAL EXPERIENCE ESSAY: (in catalan)

Aquest era el meu últim estiu abans de començar a estudiar pel MIR i decidir definitivament quina seria la especialitat mèdica que brindarà el meu futur. És per això que, després d'haver passat els altres estius treballant en festivals, viatjant o gaudint del bon temps, vaig decidir que havia de fer dues coses:

La primera, havia de tornar als Estats Units. Volia tornar a viure la cultura de la seguretat i l'autoconfiança, volia tornar a experimentar el workhard-playhard, i per suposat, volia tornar a provar els deliciosos "pancakes" i les enormes "cookies" acompanyats de "scrambled eggs" i un bon "Bloody Mary" per contrastar.

La segona decisió, era tenir un projecte relacionat amb la meva carrera professional; alguna cosa pràctica, diferent, que m'obris portes i em permetés fer contactes; a la vegada que em donés l'oportunitat d'aprendre i millorar els meus coneixements i habilitats mèdiques.

Després de molts tràmits, entrevistes, burocràcia i esforços, em van acceptar per fer una estada de dos mesos al "Departament de Cirurgia Cardiotoràctica" de "l'Hospital de Stanford", situat entre San Francisco i San José, al cor de Silicon Valley, a l'Estat de Califòrnia. Aprofito per agrair al Dr Jaume Soler i Lleonart i al Dr. José Luís Pomar especialment, al meu company de viatge Inaki Larracochea, i a totes les persones i institucions, com la Universitat de Girona i el Col·legi Oficial de Metges de Girona, que han fet possible aquest somni. Gràcies per la vostra atenció, confiança, recolzament i ajuda.

La Universitat de Stanford és una de les millors Universitats estatounidenques, líder mundial en investigació i recerca i un gran referent, gràcies al seu eficient sistema educatiu. Coneguda per haver format els fundadors de Google i Yahoo i per tenir 29 professors guanyadors de Premis Nobel. La Universitat també disposa d'un gran hospital amb un important equip de Cirurgia Cardiotoràctica, que va ser el primer en dur a terme un satisfactori transplantament de cor. A més, és el lloc on s'estan desenvolupant noves tècniques de caràcter menys invasiu per tractar les diverses patologies cardíques, i on es començarà a fer servir el robot quirúrgic "Da Vinci" en els pacients indicats.

Era una molt gran oportunitat per avançar en la meva carrera professional, i no la pensava deixar passar.



I...al cap d'uns mesos d'espera, i aprovar el meu 5è any de carrera... Aquíestic!. Envoltada de rics, no només econòmicament, sinó també en coneixements, valors, qualitats i talents. Sincerament, trobo que aquest lloc és molt diferent... em sento com a dins d'una bombolla on l'ambició en objectius, la intel·ligència i la innovació són els tres grans pilars d'aquesta petita comunitat. Tots els estudiants lluiten per aconseguir el seu gran somni, i ho donen tot per ser els millors. Tots els professors fan recerca abastant diversos camps; cercant noves idees per millorar la societat, i donant molta importància a l'ensenyament dels joves estudiants, ja que consideren que han d'estar molt ben preparats per construir i innovar un futur molt més desenvolupat.



Els doctors de l'hospital són grans professionals, en saben moltíssim i coneixen quines són les seves limitacions, per això sempre volen aprendre i millorar. Ells també saben que és molt important formar adequadament als residents i estudiants i ens donen la oportunitat de formar part del seu equip com si fóssim un doctor més. Ells ens conviden a participar, a col·laborar a les sessions clíniques i a donar el nostre punt de vista, ens estimulen a pensar, a ser crítics i a tenir judici, mentre



ens ajuden a millorar les nostres habilitats i aptituds. Els doctors veterans confien en les noves generacions i saben que, tot i que ells són els mentors, també poden aprendre molt dels actius i novells estudiants.

A més, tot i que estan molt especialitzats en el seu àmbit, ja sigui cardiologia, pediatria o cirurgia, cada setmana fan conferències per els curiosos que volen ampliar els seus coneixements sobre les altres especialitzacions. També fan sessions clíniques formades per equips multidisciplinaris, per tal de contrastar diversos punts de vista i discutir quin és el millor procediment i tractament per cada pacient. Tots aquests esdeveniments solen ser oberts, ja que el seu objectiu és aconseguir que tothom aportí idees, per tal que la universitat i l'hospital avancin ràpidament i reverteixi el màxim a la societat.

La veritat és que estic molt contenta!. Aquesta experiència m'està donant oportunitats que no hauria tingut mai a la vida; com el primer dia que vaig formar part de l'equip de transplantaments. Sempre recordaré el moment de sentir un "clink-clink" a les 2h de la matinada, mirar el mòbil, i llegir entre lleganyes un missatge important: "Heart transplant. 2.45 pick up at the Emergency room. 30min to answer". Rellegir-lo dues vegades i que de la emoció se m'activés el codi d'alerta i ràpidament el meu cos es posa en marxa com si m'hagués pres 3 cafès!. "Yes! I am coming!". Saltar corrents del llit, posar-me els "scrubs", agafar la bici i, en menys de 5min, plantar-me a l'hospital per trobar-me amb l'equip de transplantaments. "Hi Egina. Nice to see you here. We are going to Lancaster, near LA. There is a donant with a functional heart, and a patient waiting for it".

Amb els nivells d'adrenalina fins als núvols i desperta com mai, pujo al cotxe i al cap de 20min, sense tenir ni idea de cap a on ens dirigíem, arribar a l'aeroport de la NASA, situat a Mountain View, on un jet privat, amb seients de pell i molt ben equipat, ens estava esperant per volar fins a l'Hospital de Lancaster.



Un cop allà, trobar-nos que tot està a punt per començar la cirurgia, i que dos equips més de transplantament, un d'Arizona i un de South Califòrnia, també tenen l'objectiu de portar l'òrgan requerit i en perfectes condicions cap al seu hospital. Vestir-nos, rentar-nos, entrar a quiròfan, i aleshores, una infermera llegeix en veu alta les últimes paraules que la família volia donar al seu parent. Se'm posa la pell de gallina. L'empatia fa que tots els meus nivells d'adrenalina disminueixin, i em poso trista. 1 min de silenci pel donant. Reflexiono, se'n va una vida, però se'n salva una altra. "Gràcies donant, per aconseguir que una persona pugui seguir vivint i millori, significativament, la seva qualitat de vida". S'acaba el minut, i comença la cirurgia. Tothom es concentra i un bisturí obra de dalt a baix el tòrax i l'abdomen. Tot l'organisme corporal encara segueix viu, menys el cervell, que fa hores que ja no hi és. Els pulmons respiren, el cor batega, i la sang encara circula a tota velocitat. Quan el "bypass cardiopulmonar" està establert i tothom està preparat, "es posa el donant a dormir". La tensió arterial disminueix, l'electrocardiograma es converteix en un línia recta, i els pulmons deixen de respirar. Ha arribat el moment. El rellotge es posa en marxa, són les 5h de la matinada, i només en tenim 4 per portar el cor des de LA al "nostre hospital", ja que passat aquest temps, l'òrgan deixarà de ser funcional. Rapidesa, eficiència i habilitat, és el que es necessita a partir d'aquest moment. Clampar una arteria, tallar una vena, una sutura per obrir més el camp quirúrgic... Tots els cirurgians treballen amb destresa i ningú perd ni un segon. "the heart is ready". I tot està apunt per extreure el "gran senyor", el cor, que "sempre ha de ser el primer". "Go ahead!". I en un obrir i tancar dulls, el cor ja és fora, dins una bossa envoltada de gel i en una nevera, preparat per viatjar. Sortim de l'hospital a les 7h, tornem a agafar l'avió, i tot i que estic molt cansada, no puc parar de moure el peu. Ja és de dia, el temps passa i encara falta una hora per aterrar. Quan arribem a Stanford, ja ens estan esperant. Els cardiocirurgians ja estan treballant; el pacient ja està anestesiàt i el seu tòrax ja és obert, apunt per trasplantar-l'hi l'òrgan esperat. Correm cap a la quiròfan número 7, tots nerviosos i ben "taquicarditzats", però amb un cor parat; un cor que en menys de 1h tornarà a bategar, ja formant part d'una altra persona, per salvar-li la vida i deixar-la continuar.



Fascinant. No hauria pensat mai que em trobaria en una situació com aquesta abans de ser doctora o cirurgiana oficial. Quan ho recordo, em sento orgullosa de no tenir por, de ser valenta i d'aprofitar sempre cada oportunitat que em passa pel davant.

Una altra bona experiència que estic tenint és viure com un estudiant més al campus, que també m'agrada molt. Els universitaris s'allotgen en apartaments que formen petites comunitats, i cada una organitza esdeveniments per conèixer gent i trobar-se amb amics. Per exemple, es té el costum de jugar al "VolleyBall" cada tarda, mirar pel·lícules en una gran pantalla a l'exterior els dilluns, fer barbacoes els dijous, i passar el cap de setmana a la ciutat o visitant nous llocs. I sí!. També es fan "house parties" i surten de festa, tot i que comencen sobre les 8 del vespre i a les 2 de la matinada, ja és tot tancat. Viure en aquesta àrea, també em permet conèixer la zona, la seva gastronomia i la seva cultura. Podríem dir que a Califòrnia, i sobretot a la zona de Stanford, hi ha més tendència a cuidar-se, a fer esport, a mantenir-se actiu i a menjar adequadament. És cert que hi ha llocs de "fast food", i que a tot arreu pots menjar-te una bona hamburguesa, però sembla que la gent local no es gaire amiga d'aquesta tradició americana, i prefereixen pagar una mica més per menjar als bons restaurants que hi ha a la "University Ave". Tot i això, "make sure" d'anar a la "Chesecake factory" a provar els deliciosos pastissos de formatge que fan, de provar els "pancakes" típics de Stacks a Menlow Park i d'aconseguir les gegants i boníssimes "peanut chip chocolate cookies" que fan a la pastisseria del Safeway. Jo tampoc em perdria passejar pels voltants de Palo Alto i veure la zona residencial. Les cases són una passada, quasi mansions, i en comptes d'anar en cotxe, els adinerats van en cavall. I per suposat, visitaria San Francisco, la ciutat lliberal, on tot està permès. Creuar el Golden Gate, veure Sausalito i Tiburon, tornar amb el Ferry cap a la ciutat tot passant per la Illa de Alcatraz. Menjar alguna cosa al turístic Pier 39, veure el Lombard street, el Palace the Fine Arts i gaudir de la posta de sol al Mirador del Presidio amb la brisa del mar i el gran pont vermell de fons.



Les cases són una passada, quasi mansions, i en comptes d'anar en cotxe, els adinerats van en cavall. I per suposat, visitaria San Francisco, la ciutat lliberal, on tot està permès. Creuar el Golden Gate, veure Sausalito i Tiburon, tornar amb el Ferry cap a la ciutat tot passant per la Illa de Alcatraz. Menjar alguna cosa al turístic Pier 39, veure el Lombard street, el Palace the Fine Arts i gaudir de la posta de sol al Mirador del Presidio amb la brisa del mar i el gran pont vermell de fons.

I fins aquí, un petit tast del meu primer mes a l'Estat Califòrnia, un mes ple d'aventures i experiències que sempre recordaré.



Estiu 2015
Stanford University
Egina Vilatimó Pablos

11. Acknowledgements

When we faced up this project for first time and measured its magnitude, we knew it would not be easy. It was a dream surrounding our minds for so long, a dream that we reviewed it every day and it looked so beautiful, that we could not help but dream it. So, we decided to don't give up and make it real.

In this project it has been necessary not only our complete dedication and commitment, where we have worked extremely hard during all the year, but also the help of many excellent faculties.

Firstly, we would like to express our sincere gratitude to Dr Joan San, Dean of the University of Girona, and to Dr Josep Vilapana, director of Col·legi Oficial de Metges de Girona, for their support and guidance throughout this process, their help and facilities.

Secondly, we would also like to thank Dr. Jaume Soler i Leonart and Dr. José Luís Pomar for giving us the tools and the contact with the hospital and give us this great opportunity. Also to the English teacher, Adrian Scally, who was always at our side for anything, who helped us and taught us so much that made this possible

All you have handed the patience and wisdom of your years of experience and have made it possible to overcome the various difficulties encountered us on the road, so we are fully grateful and indebted for life.

.Thank you to all.

Finally, to our mentors in Stanford, with special mention to Dr. Jack Boyd, Dr. Woo and their crew, Paul Chang and Dr. Brendan Visser.

It has been a real pleasure to have worked with you. You have taught me a great deal. You will be sorely missed.

Thanks for all the help and dedication over the summer.

"I don't know what that dream is that you have. I don't care how disappointing it might be as you're working toward that dream. But that dream that you're holding in your mind – it's possible."

