

KNOWLEDGE IS POWER!

- In order to help you make the best decisions about AF ablation, we want you to be knowledgeable about your AF and our ablation outcomes
- The following presentation provides information to help you with your decisions
- All of the ablation outcomes shown are those of the electrophysiologists of Silicon Valley Cardiology
- We want you to know both our good results and our complications
- If you have an ablation with us you will become “a patient for life” as we will periodically check to see how you are doing over the long-term

KNOWLEDGE IS POWER!

- If you are contemplating an AF ablation, it is important that you obtain the types of data we provide in these slides from anyone who may be doing your procedure
- It is important that physicians provide you with their personal outcomes and not just quote numbers they read in the medical literature
- You are entitled to know each center's total experience, complication rates and both short-term and long-term outcomes
- While ablation can eliminate AF in most patients, there are patients where it does not, and we want our patients to have realistic expectations of AF ablation

WHO SHOULD HAVE AN AF ABLATION?

- **The primary benefit of AF ablation is elimination of the symptoms of AF and improvement in your quality of life**
- **These symptoms can include palpitations, inability to exercise maximally, shortness of breath, dizziness, lack of stamina, fatigue, anxiety or side effects from medicines taken for AF**
- **Generally, completely asymptomatic patients are not candidates for AF ablation; however, there may be some exceptions such as**
 - **Younger patients, in order to avoid a lifetime of drugs**
 - **Patients with poor heart pumping due to AF**
 - **Patients who might need a pacemaker to be able to take drugs for AF**

WHEN SHOULD I CONSIDER AN AF ABLATION?

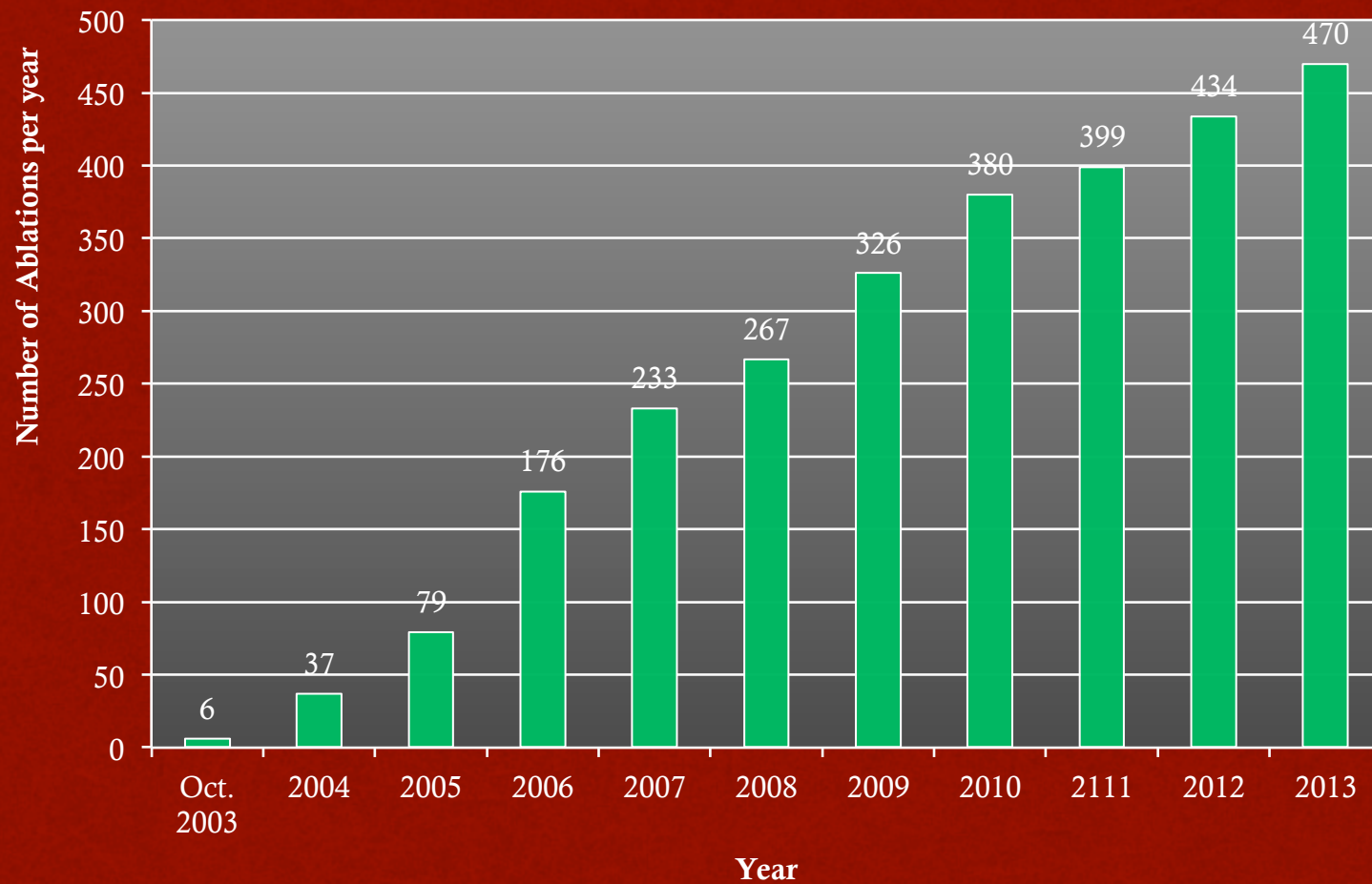
- There is no single answer to this question
- Generally, patients have an ablation when the AF interferes with their quality of life and they have failed one antiarrhythmic drug, although many patients now choose ablation as primary treatment over life-long drug therapy
- Patients should keep in mind that the sooner they elect to have an ablation, the better their chance of having a successful ablation
- The best ablation outcomes are in patients who are younger, have smaller left atria, have been in AF for shorter periods of time and have not failed drugs.

Waiting only makes all of these things get worse!

HOW MANY AF ABLATIONS HAVE THE DOCTORS OF SILICON VALLEY CARDIOLOGY PERFORMED?

- We have currently done over 3000 AF ablations
- This experience is important, because studies have shown there are *fewer complications* and *better outcomes* in high volume centers such as Silicon Valley Cardiology
- The next slide shows the annual number of ablations done by the physicians of Silicon Valley Cardiology

SILICON VALLEY CARDIOLOGY AFIB ABLATIONS (2807 ABLATIONS IN 2063 PATIENTS THROUGH DEC 31, 2013)



EXPERIENCE COUNTS

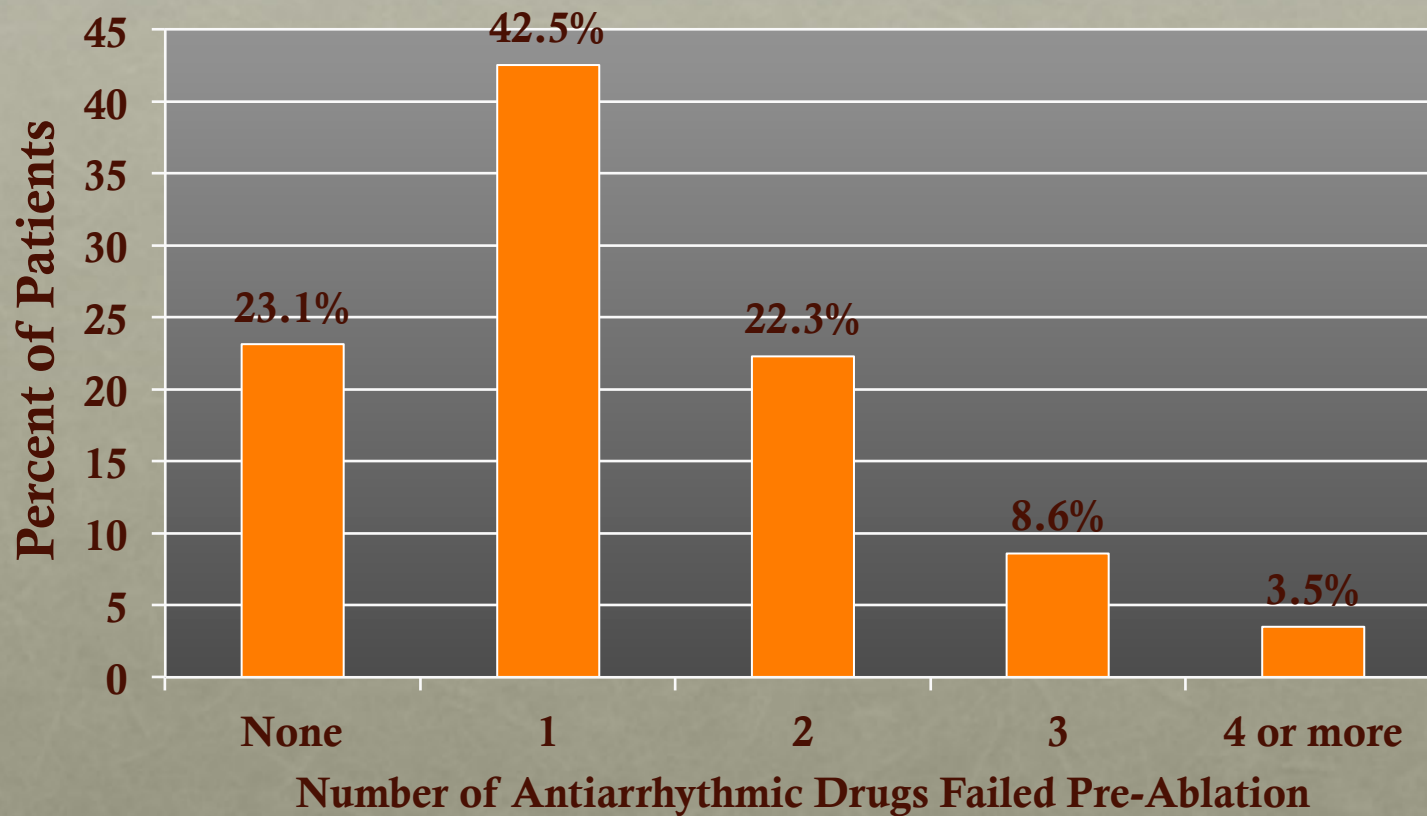
- **Several studies have shown that the volume of AF ablations done by a physician as well as the total volume done at any AF ablation center are strong determinants of complication rates**
- **Remarkably, 81% of all AF ablations done in the US are done by physicians who do fewer than 25 AF ablations a year at centers doing fewer than 50 a year. At Sequoia Hospital, the physicians of Silicon Valley Cardiology expect to do over 500 AF ablations in 2014**
- **Across the US there is one in-hospital death every 238 AF ablations. Although we are certain we will someday have this tragic outcome, so far, we have done more than 3000 AF ablations without a death**

**SILICON VALLEY CARDIOLOGY AFIB ABLATIONS:
CLINICAL CHARACTERISTICS
(2063 PATIENTS HAVING 2807 AF ABLATIONS)**

Variable	
Age (years)	62.5 (range 21-86)
Gender	70.2% male 29.8% female
Hypertension	53.3%
Coronary Heart Disease	14.5%
Diabetes	11.4%
Dilated Cardiomyopathy	9.7%
Prior Strokes or Transient Ischemic Attacks	7.5%
Left Atrial size (cm)	4.29 (2.2-6.9)
Average follow-up after ablation	4.0 years

SEQUOIA HOSPITAL AFIB ABLATIONS: ANTIARRHYTHMIC DRUGS FAILED PRE-ABLATION (N = 2063 PATIENTS)

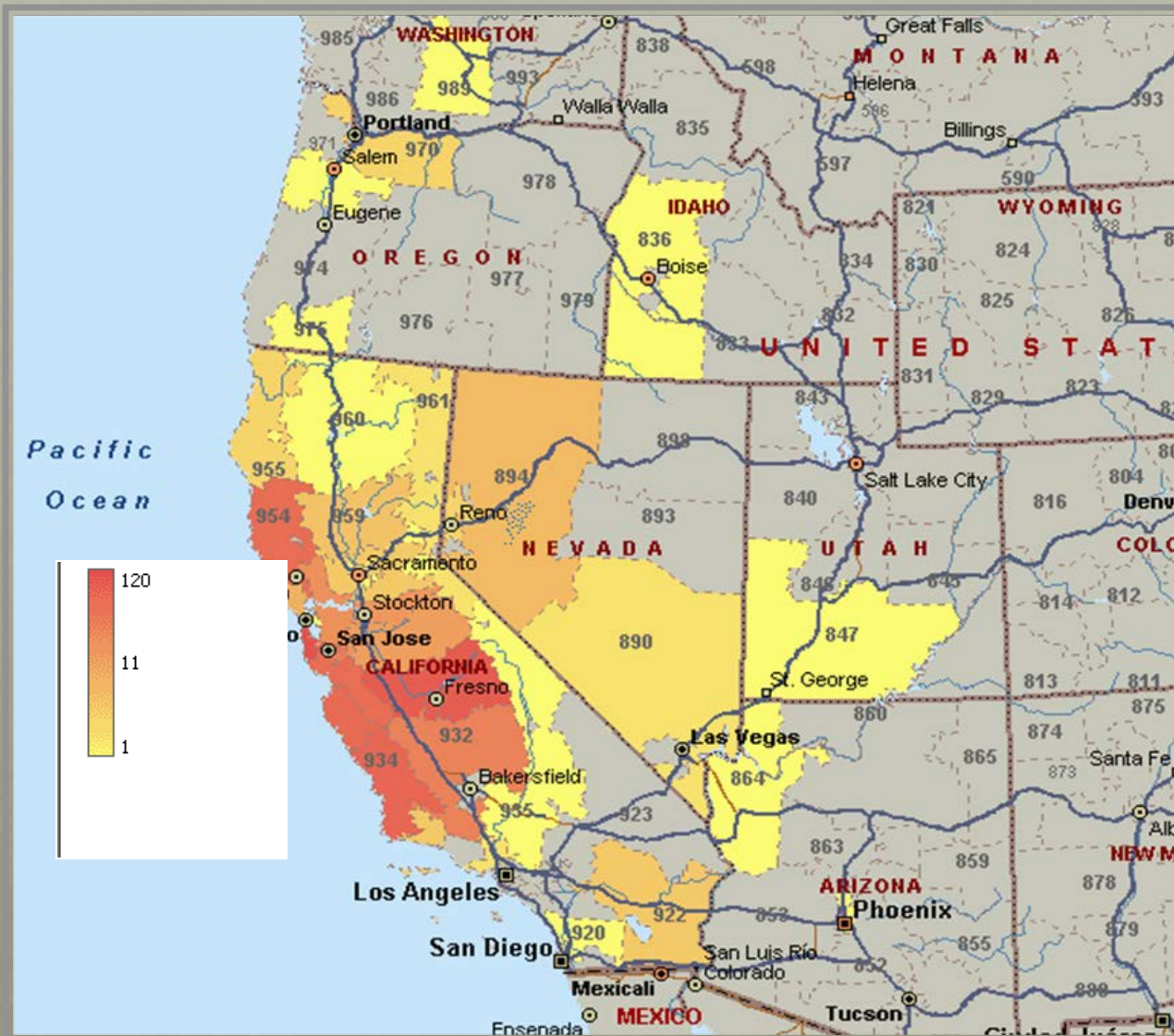
Percent of patients failing antiarrhythmic drug therapy pre-ablation



WHERE DO OUR PATIENTS COME FROM?

- **Our patients come from all over the U.S. to have their AF ablations done at Sequoia Hospital by the electrophysiologists of Silicon Valley Cardiology**
- **The following slide shows their predominant West Coast origins, but our patients also come from Alaska, Hawaii, Texas, Ohio, New York, Mississippi, Montana, Illinois, Pennsylvania, Nebraska, Wyoming, Colorado, and other distant states**
- **If you come from far away, we can recommend lodging in the area for you and your family. Most patients are able to fly or drive home 1-2 days after the ablation and return to normal activity in 1 week**

SEQUOIA AFIB ABLATION PATIENTS: DISTRIBUTION IN WESTERN STATES BY ZIP CODE

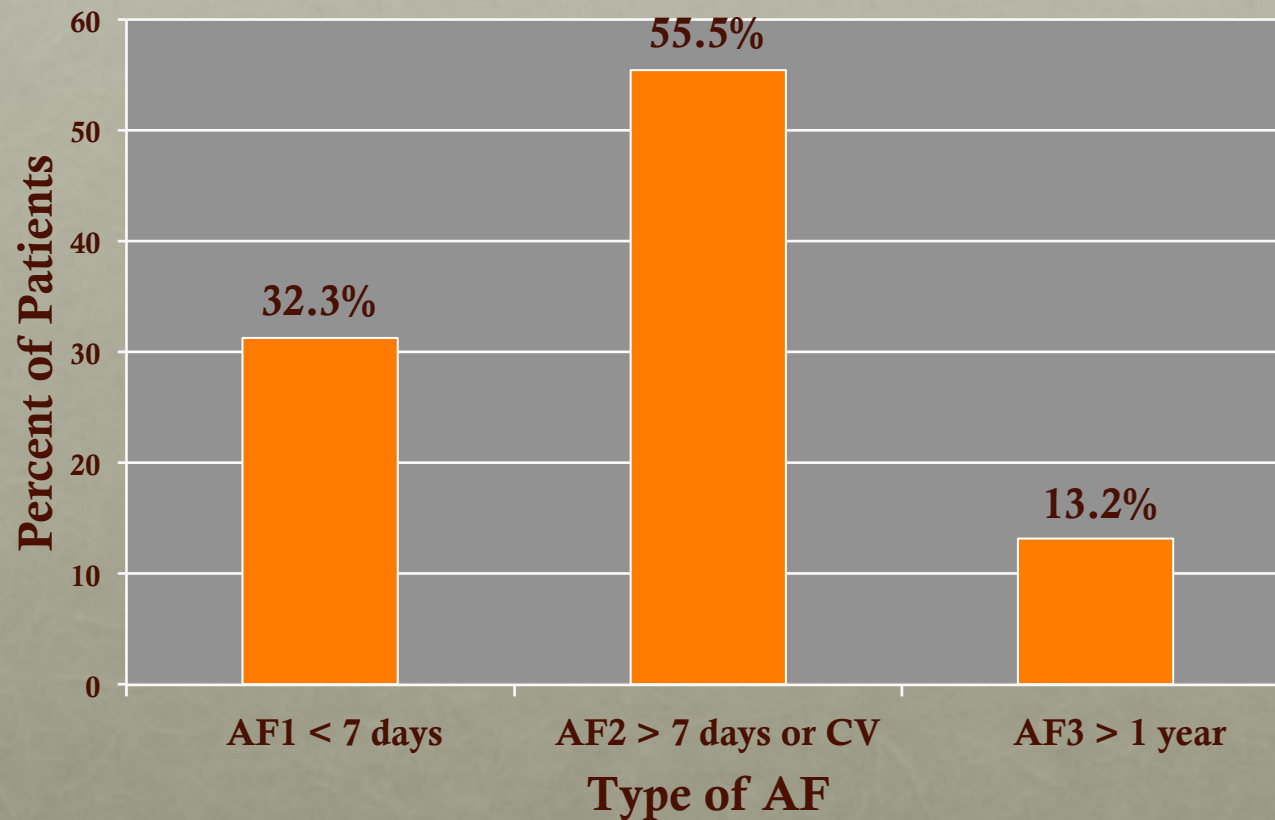


NOT EVERYONE WITH AFIB IS THE SAME- ABLATION OUTCOMES VARY BY TYPE

- It is important for you to know your AF type
- AF type does not relate to how long you have had AF, but reflects how long your episodes of AF last
 - *AF1 = Paroxysmal AF* (AF always terminates in less than 1 week)
 - *AF2 = Persistent AF* (AF episodes last 1 week to 1 year)
 - *AF3 = Long-Standing AF* (in continuous AF for more than 1 year)
- In the subsequent slides you should pay most attention to outcomes related to *your AF type*

SEQUOIA HOSPITAL AFIB ABLATION PERCENT OF PATIENTS WITH EACH AF TYPE

Distribution of Ablations by AF type



FACTORS THAT AFFECT AF ABLATION OUTCOMES

- **Your type of AF is one of the most important determinants of ablation outcome with the best outcomes occurring in AF1 and the worst in AF3**
- **Other factors predicting a better outcome are:**
 - **smaller left atrial size**
 - **younger age**
 - **fewer antiarrhythmic drugs failed**
 - **absence of coronary artery disease**
- **Even if you have factors that do not predict the absolute best ablation outcome, your success rate may still be quite acceptable**
- **When a patient comes for a consultation, we discuss their particular case and are able to give a reasonable estimate of their AF cure rate based on our experience with over 3000 AF ablations**

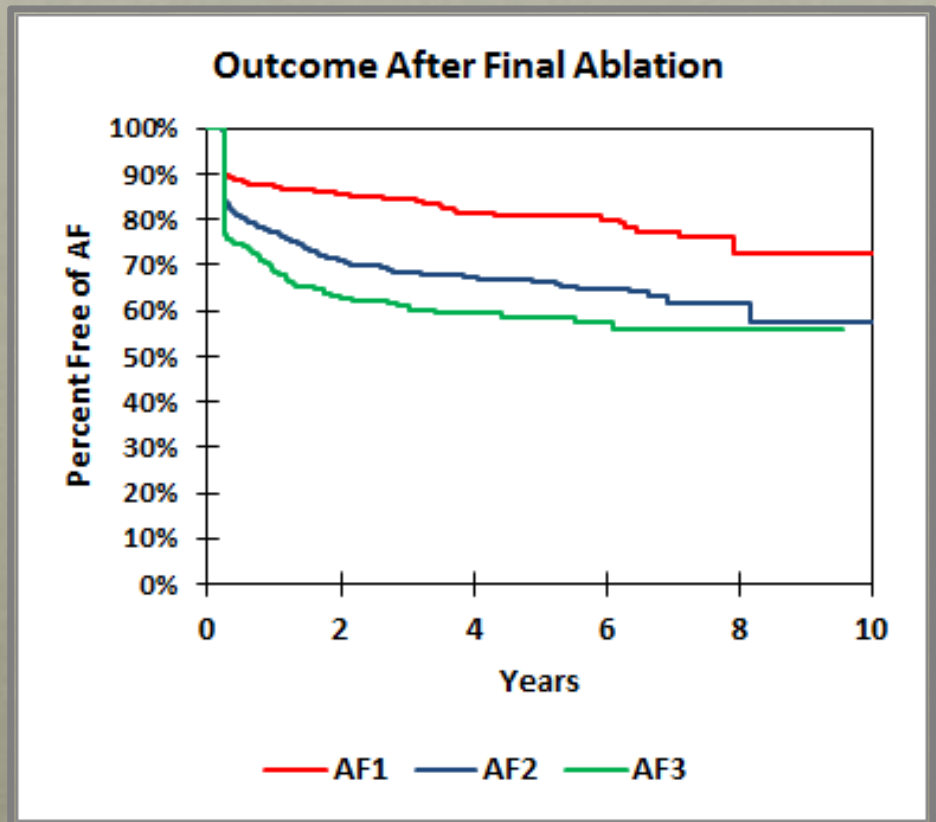
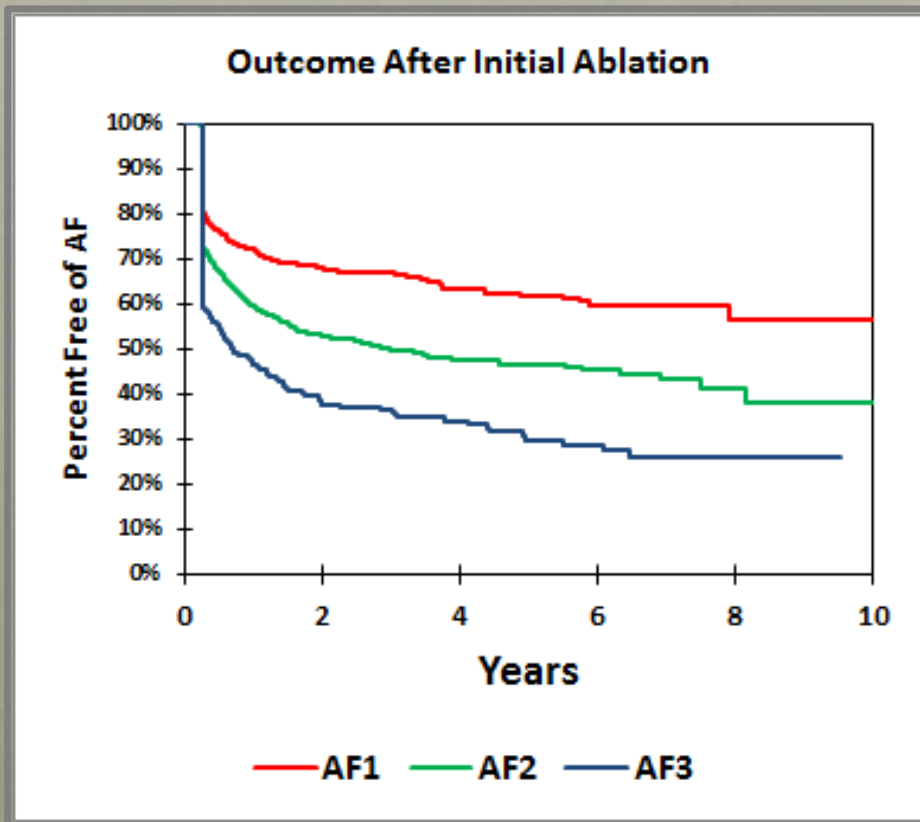
HAVE A REPEAT ABLATION IF THE FIRST ONE DOES NOT WORK!

- Although we would like to cure all patients with a single ablation, that is not always possible
- The chance of needing a second ablation varies with the type of AF:
 - AF1 = 22.4%
 - AF2 = 28.7%
 - AF3 = 36.7%
- We rarely do a third ablation. Only about 3.8% of patients undergo more than 2 ablations and typically this is done only when the first two ablations “almost worked”
- Repeat ablations are more successful than first ablations because much of the work has already been done at the first ablation
- Repeat ablations are just as safe as the initial ablation

OUTCOMES OF THE INITIAL AND REPEAT ABLATIONS BY AF TYPE

- On the next slide the graph on the left shows our results for the initial AF ablation by AF type. Although many patients are cured by the initial ablation, the repeat ablations have an even higher success rate
- On the next slide the graph on the right shows our final results for all patients whether or not they came back for a repeat ablation. This includes patients who chose not to have a repeat ablation if AF still occurred. If all patients came back for a repeat ablation, most of them would be free of AF and the success rates would be even higher than shown in this graph, as you will see in subsequent slides

10 YEAR OUTCOMES: PERCENT OF PATIENTS FREE OF AFIB AFTER INITIAL ABLATION (LEFT GRAPH) AND AFTER FINAL ABLATION (RIGHT GRAPH)



“GOING ALL THE WAY”

- More than 85% of our patients who are not cured by the first ablation do come back for a repeat ablation
- We refer to patients either cured by the first ablation or coming back for a repeat ablation as patients who “go all the way”
- The next two slides show our long term outcome in patients who “go all the way”. The first slide shows our outcomes in a table format and the next slide shows the same outcomes in a graph format

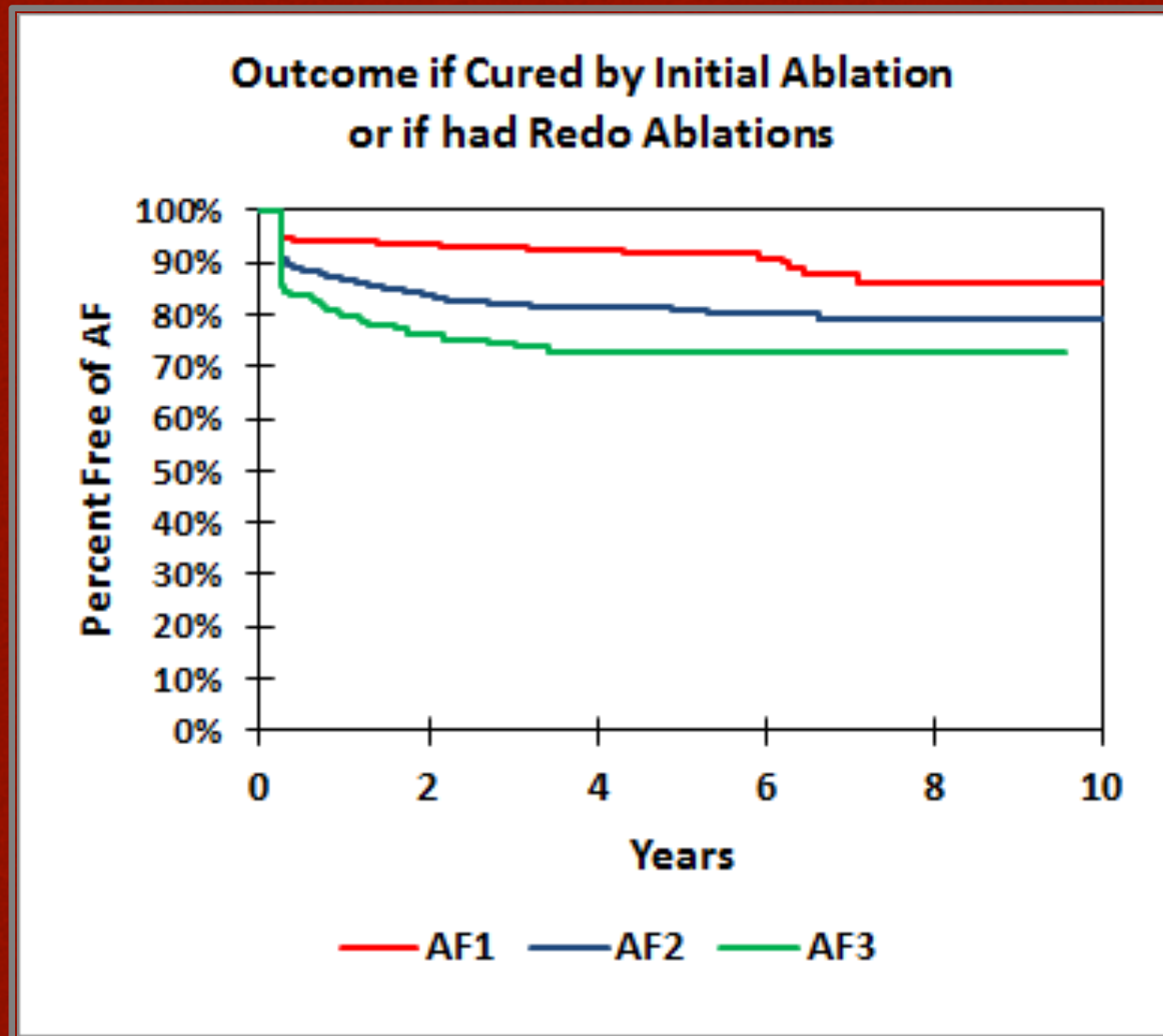
These are the outcomes a patient can expect if they “go all the way” and come back for a repeat ablation if the first does not work

LONG-TERM FREEDOM FROM AF FOR THOSE PATIENTS “GOING ALL THE WAY”

	1 year AF free rate	3 year AF free rate	5 year AF free rate	7 year AF free rate	10 year AF free rate
Paroxysmal AF1	94.1%	93.0%	91.8%	87.9%	86.3%
Persistent AF2	86.8%	81.8%	80.8%	78.9%	78.9%
Long- standing AF3	79.5%	79.4%	73.0%	73.0%	73.0%

10 YEAR OUTCOMES

PERCENT OF PATIENTS EITHER CURED BY THE FIRST ABLATION OR TREATED WITH A REPEAT ABLATION WHO ARE FREE OF AF



COMPLICATIONS: YOUR SAFETY IS OUR MOST IMPORTANT CONSIDERATION

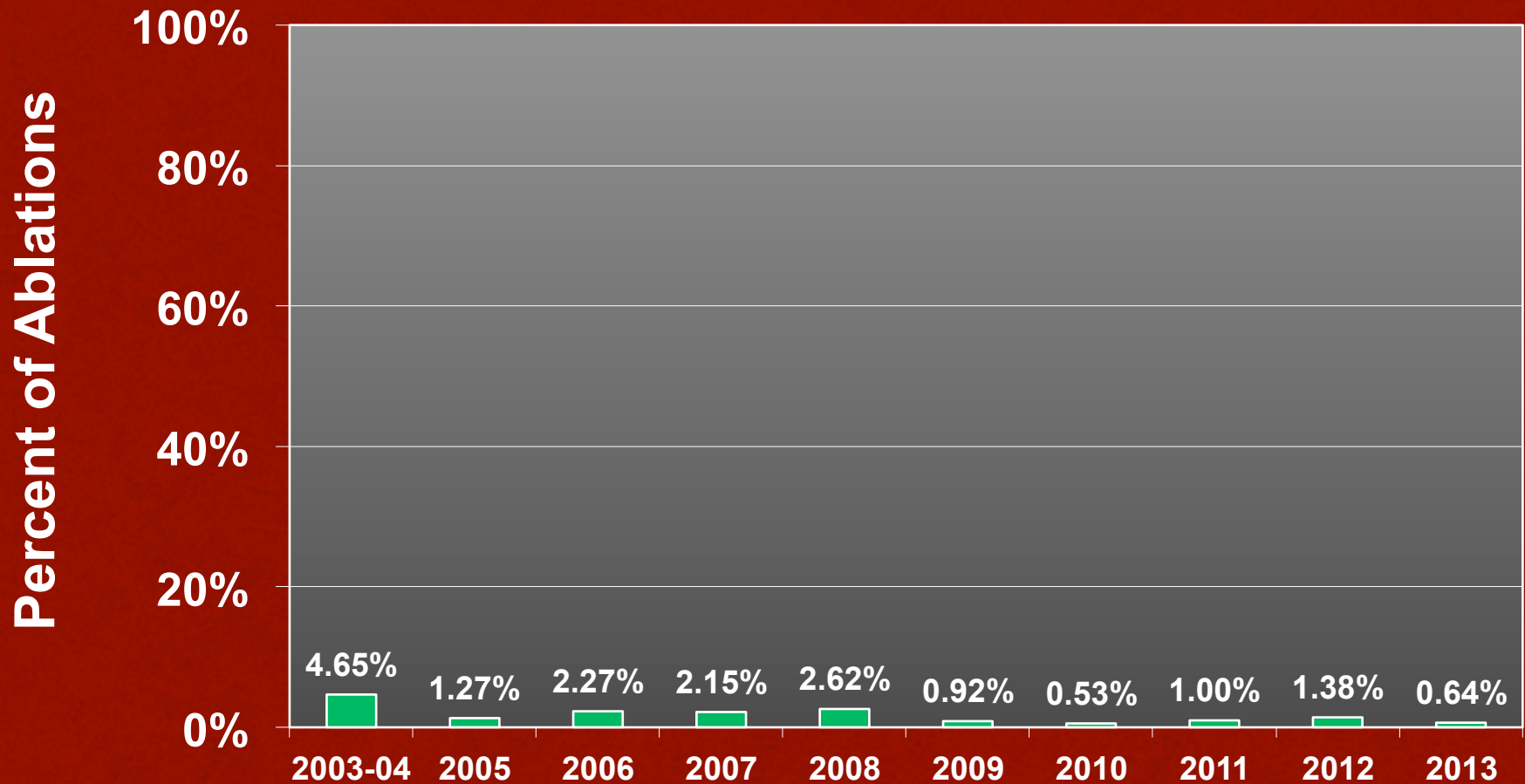
- **AF ablation has inherent risks**
- **Most major complications do not result in permanent disability and resolve completely in a short time**
- **We have constantly refined our techniques to minimize complications**
- **It takes years of experience to know how to minimize complications. It is important to have your AF ablation at a high volume center with a long experience with AF ablation**
- **Over the last 5 years our rate of major complications, most of which resolved completely, has averaged less than 1%**
- **The next 2 slides show our total major complications over 10 years as well as our yearly major complication rates**

SEQUOIA HOSPITAL AFIB ABLATION: ALL MAJOR COMPLICATIONS FROM 2003-2013 IN 2807 ABLATIONS

Major Complication	Total Number	Percent of 2807 Ablations
Death	0	0%
Pulmonary vein stenosis requiring treatment	0	0%
Atrial-Esophageal fistula	1	0.03%
Pericardial tamponade	13	0.46%
Stroke	4 Only 1 with residual	0.14%
Groin complications requiring surgery or blood transfusion	9	0.32%
Pacemaker for heart block	1	0.03%
Severe protamine reaction or tongue injury	2	0.07%
Total Major Complications	29	1.03%

SEQUOIA HOSPITAL MAJOR AF ABLATION COMPLICATIONS BY YEAR

(2807 ABLATIONS IN 2063 PATIENTS THROUGH 2013)



Major AF Ablation Complications by Year

HOW DO OUR COMPLICATION RATES COMPARE TO THE US MEDICARE DATA?

- **The next slide shows the number of complications per 1000 ablations for all Medicare patients undergoing AF ablation in the US compared to our complication rates**
- **The rate of complications at other centers is *7.3 times* greater than our complication rate**

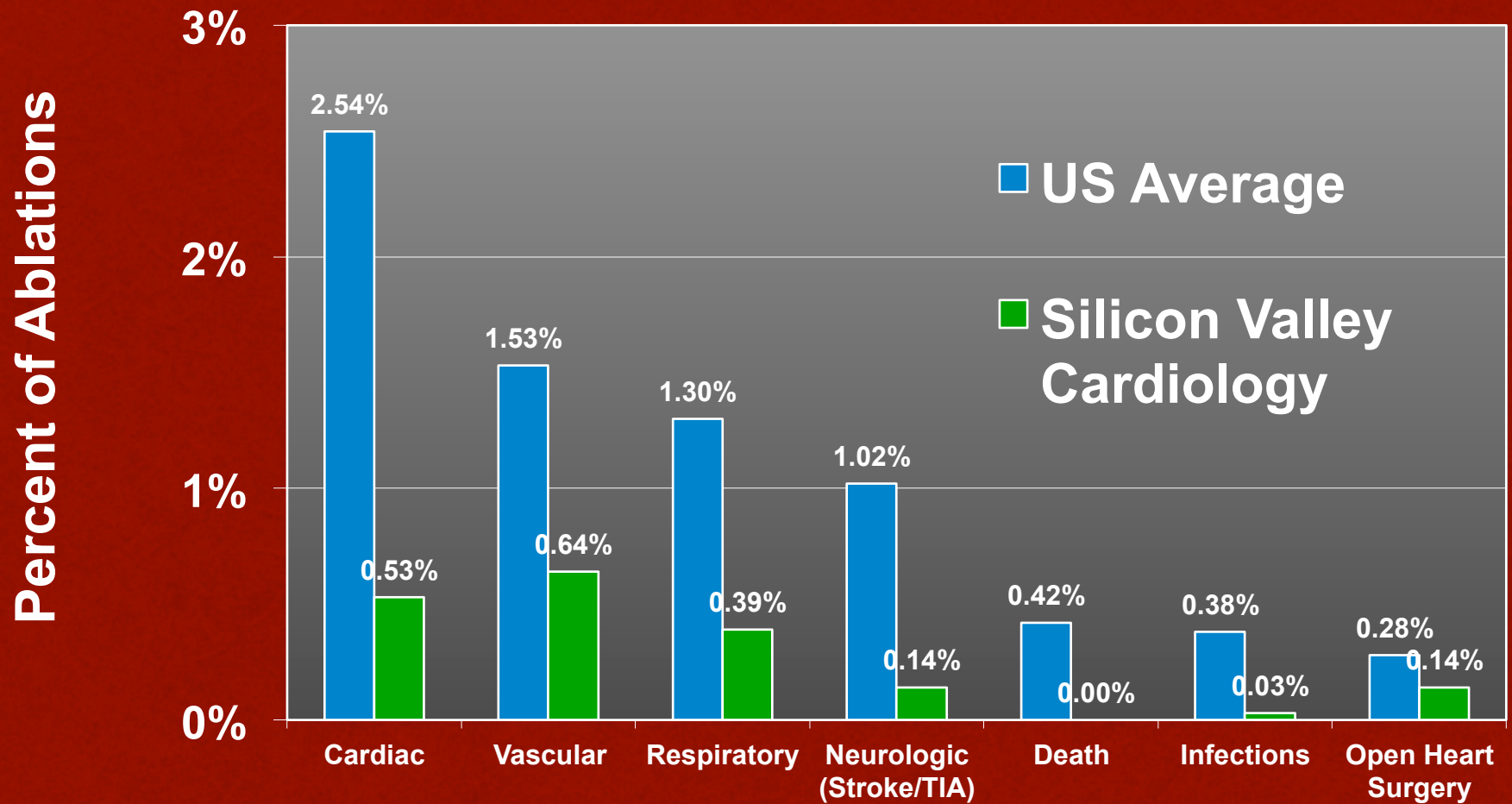
SEQUOIA HOSPITAL AF ABLATION COMPLICATIONS COMPARED TO MEDICARE DATABASE (NUMBER OF COMPLICATIONS PER 1000 AF ABLATIONS)

Complication	Top 25% of Medicare Centers	Bottom 50% of Medicare Centers	All Medicare Centers	Sequoia Hospital
Death	1	6.5	4	0
Strokes	3	4	4	1.4
TIA	1	3	2	0.7
Pericardial tamponade	28	31.5	31	4.6
Pneumothorax	1	5.5	4	0
Any vascular	60	57	57	5.7
Hemorrhage/ hematoma	51	45.5	48	1.8
Surgical repair	3	4	4	3.2
Accidental puncture	9	11.5	9	0.7
Total Complications per 1000 AF ablations	87	91.5	91	12.4

HOW DO OUR COMPLICATION RATES COMPARE TO ALL OTHER US CENTERS?

- **In the United States there were 93,801 AF ablations done from 2000-2010. During that time 1.6% of all ablations done in the United States were done by Silicon Valley Cardiology**
- **The next slide shows the complication rates for Silicon Valley Cardiology compared to all United States centers**

SILICON VALLEY CARDIOLOGY AF ABLATION COMPLICATIONS COMPARED TO US AVERAGE

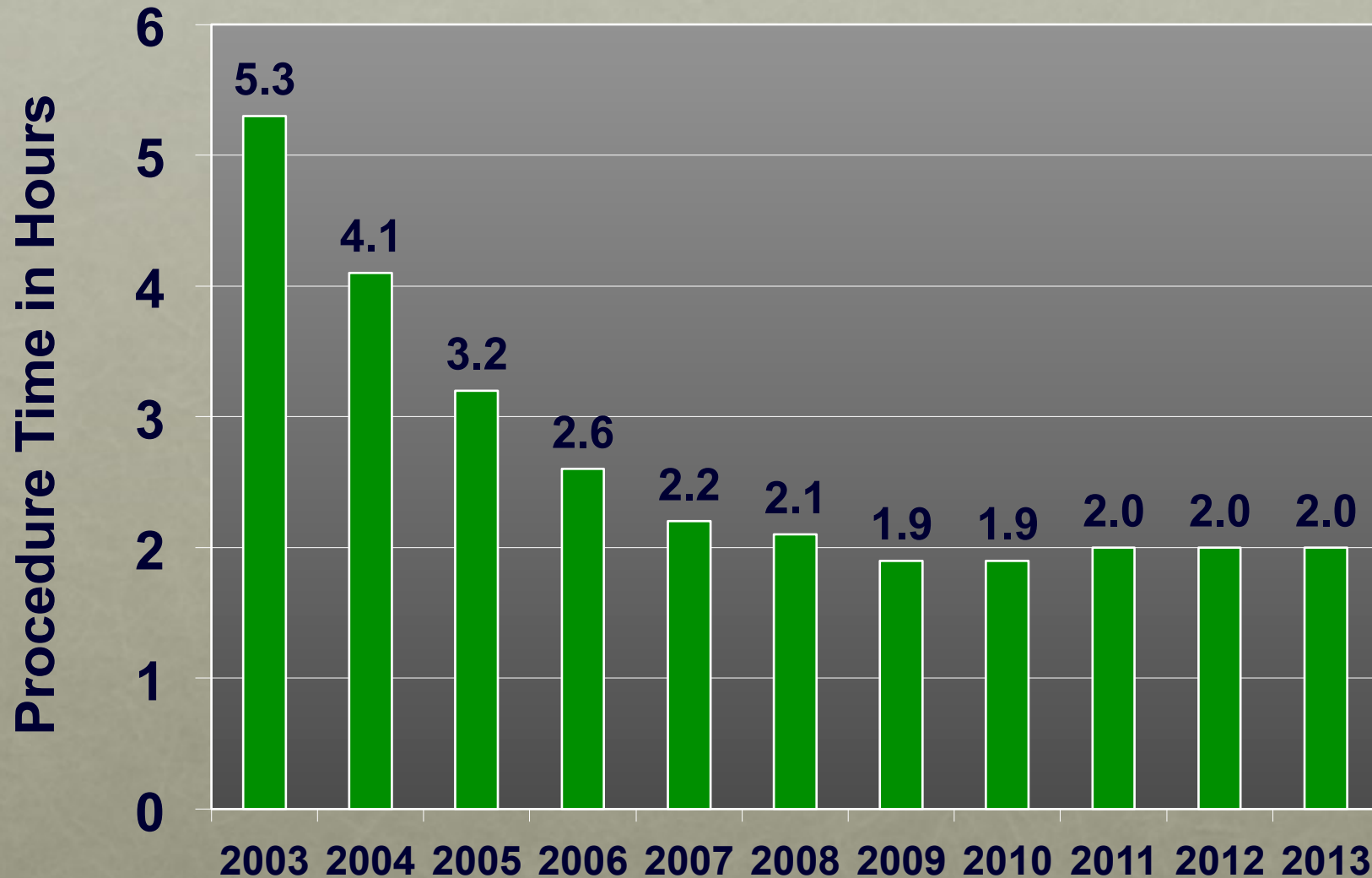


AF Ablation Complications: US Average vs. Silicon Valley Cardiology

HOW LONG DOES IT TAKE TO PERFORM AN AFIB ABLATION?

- **Patients often hear horror stories of 4 to 7 hour AF ablations, sometimes done without much anesthesia**
- **We use general anesthesia with our cardiac anesthesiologists for all AF ablations which allows you to have a restful sleep while we fix your AF**
- **For the past 7 years our average ablation time is approximately 2 hours. Shorter ablation times lower the risk of complications**
- **The next slide shows how we have shortened the procedure as we have become more experienced**

SEQUOIA HOSPITAL AFIB ABLATION PROCEDURE TIMES BY YEAR



CONCLUSIONS

- We hope this information helps you to understand more about your afib and your chance to be cured of it
- We also hope you have a good idea of Silicon Valley Cardiology's AF ablation program and our outcomes
- We encourage you to view our videos about atrial fibrillation and AF ablation elsewhere on our website
- We encourage you to ask questions both of us and of others you may visit regarding AF ablation
- The most important questions to ask of any center you are considering for your AF ablation are:
 - How many AF ablations have they done?
 - What is their long-term success rate?
 - What is their complication rate?
- Be assured that should you choose to come to us for your ablation procedure, we will do our best to cure your AF in the best and safest way possible