

Keynote speech at the ENAR Diversity Workshop

It is an honor and a great pleasure to talk to all of you today. It is so nice to see you all- we have high school students, undergraduates, graduates, faculty and folks working in government and industry. I hope you all enjoyed the lunch.

Now, the tough job is ahead of you- to stay awake through my talk!!!

Before I forget, let me thank Renee and Adriana for inviting me for this workshop, and for putting together a nice program. I also want to thank folks like Dubois, Lance, Scarlett, Mehlett, Nagambal and others who have been working hard in the background and for their dedication to diversity. Thank you!

In this talk, I want to focus on three main points:

1. Importance of people in your life- these could be your parents, friends, teachers, role models and mentors- Look for them and be grateful to them. I will share with you some of my mentors, and hopefully, through my examples, you can think of your own friends and mentors who are important for you.
2. Then, I will talk about- why each one of you is so important for our profession. I will share with you some statistics to show how small the number of African Americans and Hispanics are in our profession, and almost nonexistence of Native Americans.
3. Finally, I want you to remember “Yes, We can!” I will share some success stories of folks who may be potential role models for all of us.

Let me say it again- "Yes, we can!" We all should be proud to see the Change!

I have to show you this picture with President Obama [Show the picture] doing the famous NC State Wolf!

Priceless!

As you know, in his inaugural speech, President Obama talked about data and statistics. He also talked about how America will meet its challenges. [Show excerpts]

In his speech to the Congress, he also mentioned how important higher education is.

Last week, he also emphasized that over the next eight years, we must educate more citizens beyond a college degree. [Show excerpts]

Now, let me share about some folks in my life who told me "Yes, you can" and who made a difference. I don't mean this to be an exhaustive list, just a select sample. Also, while I go through them, focus on the diversity of folks who I have benefited from, and think who may be your cheerleaders.

First of all my parents have had a tremendous influence on me. [Show parents' pic]

As a child, I used to be scared of my mother. She used to check my homework every night.

Not only that, before I went to bed, she also made sure that I read the material that may be covered in my classes the next day – She did this all the way through my 12th grade.

My dad on the other hand used to wake me up by 4am to teach calculus in our house for me and my classmates. Now some of you know why I don't sleep much at nights!

The problem is, my daughter is tired of me telling this to her every week. [Show Asha's picture] My dad was a very good teacher and I still dream of becoming as good a teacher as he was- if it is not for my students, at least for my daughter.

You probably think I got into statistics because my dad was a math teacher. To be honest, I believed that too for a while.

After my 12th grade, in 1974, I got admitted to go to a very good school to study Mechanical Engineering. But, I also got selected to attend the Indian Statistical Institute, which admits only 25 students each year from all over India. The good thing is that ISI is one school that pays stipend for its undergraduates and had no tuition bills to pay.

My dad convinced me that there is a great future in Statistics and that I should really go into it. Only after I graduated with my BS and MS, and getting ready to come to US for my Phd, I realized that he really did not have money to send me to the engineering college on his salary.

But, I am so glad that I got into statistics- I love our profession! Everyone needs statisticians, and especially biostatisticians are needed for everyone's survival! [Show departmental t-shirt, "Who Needs Statisticians"] I have never regretted becoming a statistician. Also, my wife will tell you, I am the worst mechanic in the house and cant fix a thing.

I want our high school students in the audience, Tyler and Jeremiah, to know that the top jobs in the nation right now are all related to biostatistics. Notice that all of them deal with, statistics/biostatistics! [Include the bullet about top 5 jobs] You know what was rated the least satisfactory job? A Lumberjack!

In college, I made many good friends, who have encouraged me and cheered me on! [include a picture from Atul's house.] They are my best friends still and we have a strong network of classmates all around the globe, and we keep in touch through our yahoo group.

Such network is critical and I want to encourage you to develop strong bonds while you are in college or at a university.

Let me give you an example: In my first week at ISI, I was homesick and wanted to go back home. One of my friends, CN Rao, yelled at me and talked some sense in to me about finishing college. He came to US a year ahead of me, and paid my application fees to apply to graduate schools in US. I am grateful to him!

When I got admitted to Iowa State for my Phd, in 1979, one of my dad's close friends gave an interest free loan to buy my airline ticket. You see how important friends are. That is the first time I ever got on a plane- to come to US, I was barely 21.

I came to US with \$20 in my pocket and \$40 hidden in my socks. There was a limit at that time how many rupees can be converted to dollars. So, I had to get \$40 in the black market. I had a yearly stipend of \$5,000 at Iowa State- and I found out that I was in fact making more than my father was at that time. I saved money like crazy, and sent money home to repay my father's loan within one year.

During my first month in Ames, I wanted to quit and go home because I was homesick. I wrote to my parents that I want to come back. Well, you got to think about it- this was 30 years ago- there is no email at that time. My parents didn't have a phone either.

My dad used to call me "collect" on my birthdays to wish me a Happy Birthday from a public phone!

I don't want to leave you with the impression that my family was poor. They were certainly ok, but certainly they guarded me from some of the information to see me succeed and keep my focus on my studies. They found money to invest in my education, and for that I will always be grateful.

So, it had to be a snail mail – took 2-3 weeks for them to receive my letter saying I want to come back, and 2-3 weeks back for them to send a response back! My mom wrote a nice story, which I don't have time to go into now... but the bottom line was that going back without getting a Phd was not an option. [remind me later, if we have the time, I will tell you the story.]

In Iowa, home-away-from home, I made many many good friends. [show a picture of Yasuo, Rachel, etc.-] They are my professional brothers and sisters, and we look out for each other.

The point I want to make here is that - Networking is very important. Remember- Friends of your friends are more likely to be of help to you than the friends themselves... By the way, where's a likely place to meet friends of friends?

Professional meetings like this. So, while you are here, take advantage of meeting folks and get to know your friends' friends as well. Don't leave this room without making some new friends. Meet more friends and their friends at the mixer tonight!

At Iowa State, I had excellent mentors like Professor Malay Ghosh and my advisor Professor Wayne Fuller. [show their pictures] Here are the folks who helped me - only when I needed it, and cheered me on every occasion they had a chance for.

Choosing a good advisor who you are comfortable with is very important. As a student or as a junior faculty member, at JSM, all I had to do was stand next to my advisor at the Opening Mixer. He is like a magnet, everyone stopped by to talk to him. First thing my advisor did is to introduce all his students to everyone who visited him. I met a lot of well known folks in our profession, and always learn from these conversations something new about our profession. Though he is my guru, I also consider him as one of my best friends.

I joined NC State in 82. I had lots of hair and used to play cards with grad students. [show my picture with cards & lots of hair] Can you believe that this was me 27 years ago!

Many of my colleagues have helped me and mentored me through my pre-tenure years. I won't name all of them, but I would mention a few of them to give you the types of help I received. I hope you get as lucky as I have been – meeting so many excellent people.

When I had a bad lecture day, one of my colleagues Francis, [show if there is one with Francis] used to really cheer me up and give me constructive suggestions on how to improve it. He always gave me good pats on the back as well.

Another faculty member, Peter [picture] put me on a grant proposal with him and gave me the experience to work on proposals.

John and Dennis [show Rawlings and Boos] took me as co-chairs to advise doctoral students. They taught me the ropes. John even invited me to be a co-author on a regression book with him!

Tom and Dan [show their pictures] have been mentoring me with administrative responsibilities.

Staff play an important role as well- Janice [show her pic] took me as her brother for the past 27 years, and looked out for all my needs in the department. You don't know how important it is to have a good relationship with the staff in your department.

I should also say, I met a wonderful neighbor Grace [show her picture] who I have not heard saying a negative thing about anyone or anything. She has such a great positive influence on me. Positive people spread positive energy, and give you inspiration to be kind to others.

The point I am trying to make here is it takes a village to raise everyone of us. There are many many folks who want to see you successful- seek them out, and do not hesitate to ask for help. There is no reason to act macho. I am blessed with excellent colleagues and friends.

Speaking of blessing, let me tell you a story that may help you in thinking of choosing your future departments.

A holy man was having a conversation with God one day and said, [show Ganesha] ' God , I would like to know what Heaven and Hell are like.'

God led the holy man to two doors.

He opened one of the doors and the holy man looked in.

In the middle of the room was a large round table. In the middle of the table was a large pot of stew, which smelled delicious and made the holy man's mouth water.

The people sitting around the table were thin and sickly. They appeared to be famished.

They were holding spoons with very long handles, that were strapped to their arms and each found it impossible to reach into the pot of stew and take a spoonful.

But because the handle was longer than their arms, they could not get the spoons back into their mouths.

The holy man shuddered at the sight of their misery and suffering.

God said, 'You have seen Hell.'

They went to the next room and opened the door. It was exactly the same as the first one.

There was the large round table with the large pot of stew which made the holy man's mouth water again.

The people were equipped with the same long-handled spoons, but here the people were well nourished and plump, laughing and talking. The holy man said, 'I don't understand..'

It is simple,' said God . 'It requires but one skill.

You see they have learned to feed each other, while the greedy think only of themselves.'

Happy departments are those who figured out that we want to see all our colleagues succeed and get a satisfaction out of combined success than individual success. We are all on the same team! So, as you visit departments for your undergraduate or graduate degrees, or a place to work, look and see whether you are going to a safe haven or hell [show our department's group shot]!

Enough about me, let us talk about some statistics about diversity in our profession. You probably noticed that I have not shown many African Americans or Hispanics in my pictures so far. Do you know why?

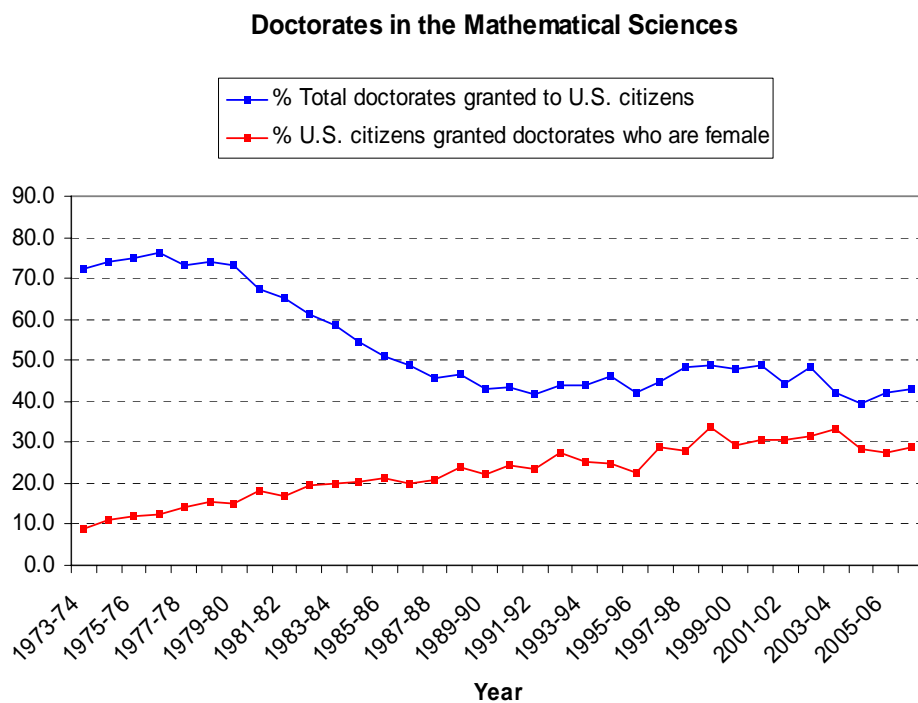
Can you guess what percentage of US population is African American/Hispanic/Native Americans all together?

It is 25%.

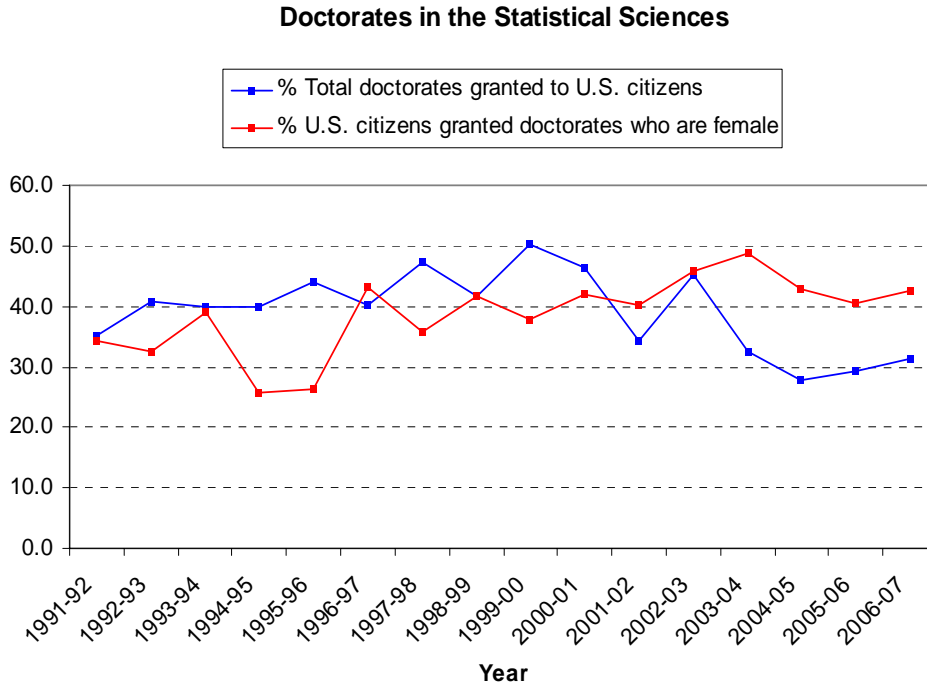
Do you know what percentage of Phds in mathematical sciences (includes, math, stat, biostat, etc.) went to AA/Hispanics/Native Americans in 2007?

About 5%!

Let me also show you how the percentage of US students, and female students earning doctoral degrees changed over the years. It is hanging around 40% and 30% lately.

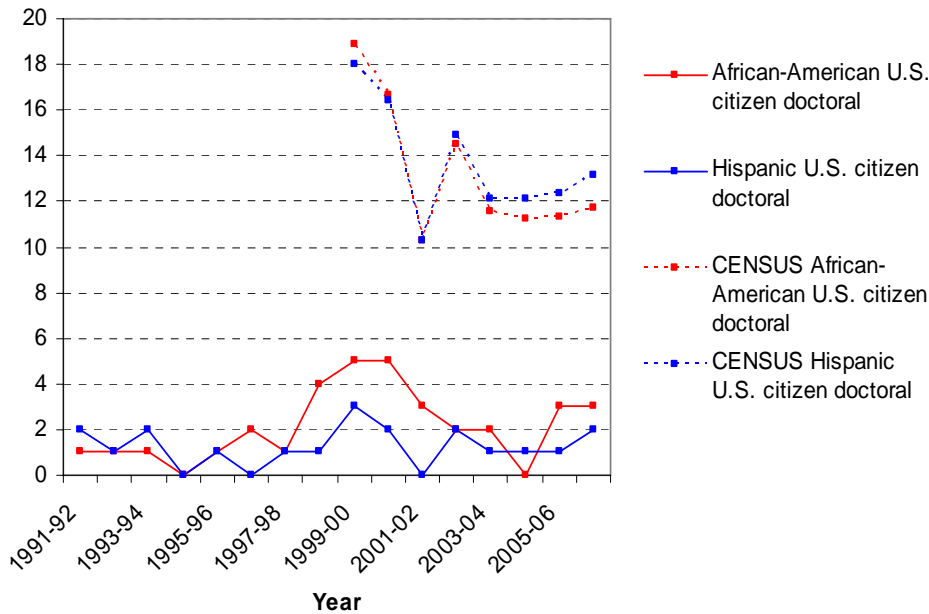


But, let us look at this in just statistics. We are doing better with female doctorates overall, compared to math, but not so well in terms of number of US students. The percentage is dropping below 30%.



Now, let us focus on the minority students in US. The number of doctorates awarded can be counted on one hand each year. This is what is really pitiful. This is where all you a play a very important role! Dr. Shah can probably name all of them who are on this chart!

Doctorates in the Statistical Sciences to U.S. Citizens



For Native Americans, the numbers are 0 or 1 and may be, and just may be, one year it was 2.

In 2006-2007, 49% of the Phd's in statistics/biostatistics were for women. But a number of them did not end up in faculty jobs. Not that everyone needs to be in academia, but wouldn't it be nice to see our faculty look similar to our demographics.

If we look at Full-time faculty in statistics in 2006-07, we have in this country,

| Full time faculty | Asian | Black | Hispanic | White | other |
|-------------------|-------|-------|----------|-------|--------------|
| Men | 18% | 1% | 1% | 55% | 2% |
| Women | 7% | 1% | 0% | 16% | 1% -> 25%??? |

I would encourage you to visit the following website where I got a good bit of information from. It also has good advice for everyone in mathematical sciences.

http://www.msri.org/calendar/workshops/WorkshopInfo/458/show_workshop

I picked up a couple more slides from one of the presentations at this workshop to show you the numbers. Notice how low the percentages are for minorities.

We lose critical talent each year- first at high school level- folks move away from STEM disciplines; we then lose them again during their undergraduate degrees; then we lose them at graduate level; finally, we lose a big time when it comes to hiring faculty! It is a huge leaky pipeline.

We have a long way to go, and this workshop is a good beginning. We need you! ASA workshop is coming up in August, and I encourage you to attend that as well.

I want you to now close with making the point that even though some of the statistics I have shown you are lousy, statisticians are not lousy, and we are making outstanding contributions to the society.

Before I get into that, let me say something- I don't want to leave you with the impression that everyone I met in US is wonderful. I have met my share of ignorant folks who threw eggs at me in Iowa- not because I gave a long speech like today, but just because I was Indian. I met lady at Mitch's in Raleigh, who started yelling at me and my colleague- "You Indians should go back where you came from." But you can't let these folks get you down.

If you are like me, you probably talk to yourself every day- when you are taking a shower, or working on your computer. Your mind wanders, and keeps thinking about bad things that may happen to you or to someone close to you or think that someone really doesn't like you. You have to stop that chatter that you have with yourself and think about positive things.

So, let me end the talk on a positive note by showing you some folks who we all should be proud of, and some of them you may find to be your future role models:

Professor David Blackwell [include a picture with Kim and me]

Several of you may know Professor Blackwell from the famous Rao-Blackwell theorem. He is the first African American statistician to be inducted in to the National Academy of Sciences in 1965. He was a chair of Berkeley Stat department, the same department that wouldn't take him in 40's when he got his Phd, because of his color. He graduated 50 phds, President of IMS, and Vice President of ASA.

Dr. Emory Brown [his picture] is another member of the National Academies! He is an MD and has a Phd in Statistics from Harvard. Fellow of ASA, AAAS and IEEE.

He develops statistical methods, spatial-temporal models and signal processing algorithms to analyze data from the field of neuroscience.

Dr. Joan Staniswallis [her pic] works in the area of nonparametric and semiparametric regression, as well as functional data analysis for curve data. She works on environmental applications such as the health effects of pollution in ambient air, and the use of ecological data to study health disparities in health outcomes.

At UTEP, she has served as director of the NIH funded Minority Biomedical Research Support Program (MBRS). She is a Fellow of The American Statistical Association:

Javier Rojo [his pic] at Rice University does excellent research nonparametrics and survival analysis. He is an excellent mentor for a number of students and has won several honors.

Dr. Hrabowski [his pic] is a statistician who is also the President of the University of Maryland at Baltimore County. He is an excellent speaker and received many honors.

My colleague, Jackie Hughes-Oliver [show her pic]- she took a number of courses from, and is an outstanding teacher, a very good friend. Excellent mentor; She is the co-Director of Graduate Programs in our department. The other co-Director is Dr. Pam Arroway who is here in this workshop. Please get to know her too. She is doing a roundtable luncheon on Monday about Diversity.

Think of Rafael Irizarry [show his pic]. He is a star in the making!

Dr. Pinheiro [show his pic] is in the audience, he has done outstanding work on nonlinear mixed effects models and data mining software. Works at Novartis!

Dr. Randy Davis, is the Director of Biostatistics groups which works on various diseases at GlaxoSmithKline. Excellent personality, and excellent mentor.

Dr. Tommy Wright works at Census Bureau and Brian Millen at Eli Lilly are very good persons to get to know.

Since I am running out of time, let me quickly run through some folks who are excellent mentors- take the time to get to know them. [Show a mosaic of pictures]

Donald Martin, Consulo Arellano- faculty in our department
Montse Fuentes and Kim Weems are also in our department
Dubois Bowman at Emory
Lloyd Edwards at UNC Biostat
Scarlett Bellamy, Mehlett Tedesse, Yolanda Munoz
Stephanie Monks – a native American

Our current students- Diedra, Pedro, Anthony, Shenek, ... Look out for them in a year or two as you diversify your faculty or staff.

Get to know Dr. Shaw who is responsible for many StatFest and the Infinite Possibilities Conference [show IPC group pic]!

I want you to realize- people in this room are very important, our nation needs you, you have the responsibility to reach your own full potential and help others as you move up. Someone pulled me up. As we move up, it is our turn to help others move up.

Let me end with a quote from the inauguration day:

- “we ask you to help us work for that day when black will not be asked to get back,
 - when brown can stick around --
 - when yellow will be mellow –
 - when the red man can get ahead, man -- and when white will embrace what is right.”
- Rev. Joseph Lowery

Thank you all for your patience. Let me know if you have any questions! Enjoy your time at the conference. Thank you again!