

Nancy Oriol, MD – A pioneering career in medicine, education and public service

Faculty Associate Dean for Community Engagement in Medical Education

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Last year's Anesthesia Week Education lecture, "*Turning Success into Significance*" by Dr. Roberta Hines inspired us to search for ways in which we can make a larger impact beyond the exceptional day-to-day service we provide our patients. Dr. Hines listed several influential people in the field including Virginia Apgar and Ellison "Jeep" Pierce. Our own department has been fortunate to have many physicians who have impacted health care on a larger scale, and perhaps the perfect embodiment of this type of physician is our own Dr. Nancy Oriol. Her remarkable career spans 40 years as an exceptional OB anesthesiologist, researcher, author, lecturer, educator, and innovator. Driven by a passion for community and social medicine she has worked tirelessly to improve health care disparities and access, cultural competency education, and biomedical literacy in under-represented minorities and socioeconomically disadvantaged youth.

Dr Oriol may be best known in our department for her role as Director of Obstetric Anesthesia from 1984-1997. In 1987 she launched the Obstetric Anesthesia Fellowship and she and her mentees went on to have significant impact on clinical care by dispelling myths such as: epidurals causing back pain or epidurals interfering with the process of labor, among others. In 1989 she first introduced the walking epidural, a method of providing labor pain relief that does not cause motor weakness, fetal bradycardia or interfere with the process of labor. And in 1992 as a member of the first task force on OBA practice guidelines, Dr. Oriol helped lower what was considered the standard dose of local anesthetics needed for labor analgesia. Then in 2002, as the first American to address the Chinese Society of Anesthesiologists, she introduced the walking epidural as a way to help lower the elective c/s rate that was so common in China.

Among her educational innovations, Dr. Oriol developed an interest in Hi-fidelity simulation and was an advisor to Drs. John Pawlowski, Marty Gallagher and David Feinstein in their 1990s groundbreaking work of the use of hi fidelity simulation for medical students. Later in 2001 she partnered with Dr. Jim Gordon, Professor of Emergency Medicine at MGH, in the establishment of the Gilbert Program in Medical Simulation at HMS, and in 2008 co-created the HMS MEDScience Program for High School students which currently, under the leadership of Julie Joyal, former BIDMC ICU nurse, serves over 2000 local high school students a year.

Her work in public service also started in the 1990s with the 1992 launch of the Family Van. This work expanded significantly in 2009 with her seminal paper on the ROI of mobile clinics which helped inspire other mobile clinics and was the catalyst for developing a research network of mobile clinics. Today as Faculty Associate Dean for Community Engagement at Harvard Medical School, she continues to work in the public service sector, most recently creating a clerkship that embeds senior medical students in community-based organizations in Boston, Alaska and New Orleans.

These activities outside of the hospital in education and public service tell her story, and her 2014 TEDx talk "*Anesthesia Dreams*" describes how this work was inspired from inside the specialty of anesthesia.

Simulation Lab to Replace Animal Lab and Beyond

Prior to the '90s it was standard for medical schools to use laboratory animals to demonstrate cardiovascular physiology for medical students. Dr. Oriol thought the simulator could do a better job without hurting animals, so along with John Pawlowski and Marty Gallagher they started talking about using simulation to teach physiology. Nancy's idea had originally been inspired by one of her neighbors, who was an anesthesiologist at MGH, who talked about bringing medical students into the heart room as a way to demonstrate the cardiovascular system. Dr. Oriol thought, *"Let's bring students into the simulation lab as an even better way to replace Animal Lab or the heart room - because we can be sure our mannequin is going to have cardiac problems."*

Bringing Simulation to Harvard Medical School

In 2001, shortly after Dr. Oriol had become dean for students, she obtained access to a mannequin that was to be housed on the medical school campus for use by medical students. Previously students had to go to the Center for Medical Simulation for such experiences. The school gave her permission to turn the historically significant, but then vacant, Surgical Research Laboratories into a *temporary* Simulation Center. To do so, she and Dr. Gordon, with borrowed equipment and creative license, built the Gilbert Program in Medical Simulation and obtained the funding to expand to five simulation rooms that remained in use for *10 years*.

Moving from medical students to high school students with HMS MedScience

The original funder of the Gilbert Program, after generously investing in the startup for medical students, suggested that to help sustain the program she and Dr. Gordon should create a "Doctor Camp" for high school kids as a way to generate income. Dr. Oriol talked to then Harvard President Larry Summers about starting such a camp and asked if she could use the tuition to support the medical student simulation program. President Summers liked the idea so much that he offered to help fund a pilot year. In 2005, Dr. Oriol and Dr Jim Gordon designed a curriculum using mannequin simulation "to bring science to life for young students." Working with colleagues Drs. Feinstein and Pawlowski they ran two, one-week summer immersion courses, one for high school and one for college. Dr. Oriol explains how it started:

"For the pilot year we called the Mayor's office and said we have 10 spots for this new one week high school science program. They connected us with some local schools including O'Bryant and Codman. The students sent by the teachers were the students they thought needed motivation. However, some of these students were not pleased that their teachers were making them go to school in the summer, and they showed up with a bit of an attitude. But by the end of the first day they didn't want to leave, they loved it! Every day we had the students write an essay about what they learned and the essays were spectacular. These students were suddenly realizing they could learn science and become a doctor or a nurse. The students told us it was life changing. We even worried that if any local parent knew we could inspire young students like this they would picket the school until we offered it for everybody! Using simulation for novice students was a new idea but it worked and was a great success. And it has now grown into this vibrant self-sustaining year-round program!"

Today HMS MEDScience is a well-established and growing high school science course that is offered by 30 metro Boston high schools. It is a semester-long credit-bearing biology course where the students have classroom didactics four days a week, then one day each week they come to HMS for either simulation cases or hands-on skills labs. It is also offered as a summer

immersion program where students spend one week fulltime at HMS learning anatomy and physiology as well as teamwork, communication, problem-solving and more. Most recently we have created a wet-lab program in genetics and immunology and that too is a success.

And there are Volunteer Opportunities

Several BIDMC anesthesiologists are involved with the program including: Dr. Dan Walsh and CRNA Donnell Carter. The MEDScience team particularly welcomes anesthesiology residents who would like to help teach skills. Anyone interested in learning more please contact Colby Reilly PhD, Education Program Lead. Colby_Reilly@hms.harvard.edu

Public Service: The Family Van was created by Nancy Oriol in 1992 while working fulltime as a staff anesthesiologist at the BI. Why and how did an anesthesiologist get into street-based care?

What is the Family Van?

The Family Van (familyvan.org) is a mobile health clinic that serves local Boston communities. It offers health education, counseling and preventive services such as screening for blood pressure, cholesterol, diabetes, obesity, and pregnancy. In addition, they offer referrals to many local health and social service agencies for support with wide ranging issues such as employment, housing, food, dental care, mental health services, health insurance and more. The Family Van is staffed by community health workers, public health practitioners, health educators, counselors, students and volunteers. It follows a regular weekly schedule with designated sites in Roxbury, Dorchester and East Boston. It is a community resource and not only provides free care but also collaborates with local businesses and organizations. Originally administered by the BIDMC, the program moved to HMS with Dr. Oriol when she became Dean for Students. It has a budget of about \$600,000 per year and about 20% of the funding comes from HMS and the rest from philanthropy and grants. In Dr. Oriol's words:

"The Van is a little miracle and it is cost effective. We provide most of the prevention services that are required of primary care doctors but we don't have the time to have the type of longer conversations patients need in order to help them to care for themselves. The neighborhood health centers are our collaborators and if we can't handle a situation we call the local health center who can dive deeper into the issue. We had an early electronic record keeping system for health data and have published our outcomes proving that we improve health and save money."

How did the Family Van come to be?

Dr. Oriol's idea for the Family Van started when she was working in obstetric anesthesia and realized that many women did not have the knowledge to properly care for themselves. This was around the time the Globe was running a series called "Birth in the Death Zones" an exposé on the high rate of infant mortality in several local Boston communities. From Dr. Oriol's perspective, the women at risk for such tragedies needed better health information and easier access to broader support services out in their communities and not just prenatal care. She used her ingenuity and persuasive skills to get initial funds from Chief of Anesthesia Edward Lowenstein and BIDMC President Mitchell Rabkin. Then with this support she and a 3rd year medical student, Cheryl Dorsey, spent two years connecting with the communities listening and learning about what people wanted and needed. Dr. Oriol shares,

“I wanted to help but to do so I needed to learn more about what was happening in the communities from their perspective. However, I was working full time and could not spend as much time meeting people as I wanted, so I needed help. At that time the anesthesia department had an issue with our doctors not filling out their charts properly so we were losing a lot of money. To solve that problem I asked Dr. Lowenstein to let me hire a student who would track the doctors down and get the charts signed. He agreed and he also approved that this medical student could use some of her time helping me connect with the community. We spent many months networking and planning in a process that today we would call “crowd sourcing.” The program was designed by the people it was meant to serve. And while I had initially conceived of the program as a response to the public crisis of infant mortality and my personal focus had been women’s health, from the day the Van opened we had more men seeking our services than women. We started with a part time schedule but in response to demand we went to fulltime eventually serving 5000 visits a year. Today we see men and women in equal numbers and our services have grown in response to ideas that come from our community – we are still co-designed by the people we serve.”

Family Van a national model and MobileHealthMap a national research collaborative

During the 27 years the Van has been in operation, many communities have sought help in starting their own mobile clinics. But according to Dr. Oriol, they are not cookie cut programs so she shares with people the process that made the Family Van such a success. This process requires working with the community to co-design the program, not a “needs assessment” but rather a mutual act of designing, building and iteratively improving. This ensures that what is built serves the people well. In 2009, Dr. Oriol and her team created an online Return on Investment Calculator for mobile clinics. This was spotlighted on national news and received funding from Health and Human Services for a convening in D.C. and a public launch. The result is MobileHealthMap.org, an online portal complete with analysis tools, research library, best practice resources, and opportunities to connect with peers across the country to advocate broadly in support of mobile health services. At this time over 700 mobile clinics nationwide have joined the Map.

Family Van and medical education

Dr. Oriol’s career has come full circle to combine educational innovation with public service. In her current role as Faculty Associate Dean for Community Engagement she has created an advanced clinical clerkship that embeds senior medical students in community-designed health programs such as the Family Van or Boston Health Care for the Homeless. Working in these programs students see first-hand the impact of the social determinants of health on people’s lives. But more importantly the students experience health care delivery programs that were designed by the people they serve, and as such, are a very different paradigm from today’s health care systems.

To explain this clerkship Dr. Oriol likes to use her student’s words about what they see and what they learn: *“One student observed that, ‘Having completed three years of medical school, I have spent many hours working in the healthcare system. Throughout my rotations, I have seen patients in four academic hospitals, including multiple satellite locations. I have worked on inpatient units, in ICUs, in the operating rooms, and in outpatient clinics. Over the years and across these settings, I recall a number of patients who faced difficulty in getting access to healthcare due to issues of insurance, legal status, and/or cost. Yet, it was striking that in a single day on the Family Van in East Boston, I heard about as many of these stories as I heard in about 6 months at the hospital.’*

Another student suggested that, 'In the end, we can have the best therapies and most effective medications, but nothing will result in positive long term outcomes if we don't create models of care that focus on the individual and how they manage their life. All you will need to grasp to fully benefit from this clerkship experience, is nothing more than understanding "individual human connection," and it will require dedicated practice.'"

This is only a short summary of Dr. Oriol's amazing career and record of accomplishments, all of them grounded on a deep commitment to creating meaningful and effective medical education programs and serving the needs of underserved communities. She has helped change and enhance how we teach medicine. The MedScience Program has inspired many high school students to go into medical careers, both clinical and scientific. In addition, the remarkable little "Family Van" has improved health in underserved communities and no doubt saved lives with crucial preventive care services. She is a true innovator with a unique ability to bring her dreams to fruition. Congratulations Dr. Oriol - our department is proud to have you on our faculty!

What did the family van have on it? Community health workers, BP, Cholesterol, Glaucoma, diabetes, the case finding is phenomenal (people who haven't been to doc, check BP, call ambulance. Now do STDs, now half women, half men. What we thought we were looking at was pregnancy induced hypertension, gestational diabetes.

As an anesthesiologist. I can become really close to my patient within one day. SO the PC docs say I don't see you every time you need your BP checked I won't know you/be your friend. No. I can make an connection in one interaction.

Clearly over the years we are alive and well, but we have to write millions of grants to get a half mil. That means a lot of no's and that hurts our feelings.

Number of papers published, students trained, it's phenomenal. Used to be BI employees, now HMS employees. The asst. dir. and the supervisor is a community health workers, has been doing it forever. (not nurses, educators, people who can do simple things) That's the whole point. We have PC docs doing what CHWs should be doing. So Medical assistants should be doing that and they should be doing it as the primary providers, not as physician extenders. Because then it becomes just a technician. If you are the primary prov.

Any problems on the van? We never had violence on the Van. The community determined where we would park so we asked everybody. First time we parked at a playground where intersection of two gangs where a little girl was killed. Two gangs looked out for us. So, we've been out there. The van is doing well, the people are doing well.

No transients. Exec director now. I was it for first 10 yrs.

It's a really neat history. (We should do a 40 yr. timeline!) Hard to write a narrative...

What would be interesting is almost a family tree of people who were affiliated with this and where they went on to... 20-40yr clinicians in this woven fabric of how this all came to be.

Diagram our history out on a huge piece of paper. Invite people to put stuff into the timeline/family tree.

The Medical School HS program has a means of income.

I'm a doer not a writer, never written up a story of the family van

Become a writer first. If you don't write about it it might as well not have happened.

She did some research in OB and found that OB Anesthesia had a major problem with clinicians not filling out their charts properly. After calculating the money lost annually (100k), she then convinced then Chair of Anesthesia, Ed Lowenstein to give her 10K to hire a medical student to police the charts and be the enforcer in having clinicians correct them.

This all started here at the BI, it stayed here for 10 years, by then I was at HMS. Basically in 2000 I was at the medical school so much that it was hard to have the van staff here and I was still engaged. And then, the hospital was in financial disrepair, and I thought it was really bad form for the hospital to need to close clinics because it had to (it didn't have the money) and to still be supporting the van. And so I moved the van to HMS. Paul Levy was at the Medical School at the time as the Ad. Dean and helped me to move the van to HMS and shortly after he came to BIDMC.

She used post call days to go and meet with everybody in Boston about trying to do this. With very little time to beat the pavement, Dr. Oriol found a way to push her idea forward and hire a che. OB Anesthesia had a major problem that people not filling out the charts properly. So she

calculated the money lost (about 100K). She then asked Ed Lowenstein to give her 10K to have a medical student to be the enforcer. The student would go through the records and track down the person to fill it out if not filled out correctly. Paid her \$ and gave her free time to work with me, and we started the van. I'd call people and she'd go to the meetings. She is now the President of Echo and Greene Foundation (Med/Kennedy/white house fellow).

Dr. Oriol has developed a course called Community Engagement at HMS. At any one time she has a student at Boston Healthcare for the homeless for the whole month or on the family van, at any one time a fifth person on the family van. We just opened a site in Alaska, I had two students in Anchorage, Alaska, in April 3 students in New Orleans,

Received an award for her TedX talk and got an award form Society of Anesthesia

OB research/Community work/Innovator (sim program family van HS course)/textbook/Educator in HMS dept of social medicine, (dual appt. with global Health in general medicine) TedX Beacon Street

Not to include: Kind of cute but can't really talk about: When they hired me to be dean of students, it was a time in anesthesia when they decided there were too many anesthesiologists. There was a moment in time when the NYT ran a story showing Med schools looking at job boards and they claimed there were too many anesthesiologists. One year, only one program in the country filled and that was us (we were small but we were the only program that filled). Students were getting warned off anesthesia something fierce. The medical establishment always kind of resented and hated anesthesia. People would say to me, Oh, you're going to be so bored. Really? I don't think so.

When I became Dean of Students, the person who hired me said basically, "Now, we don't want you to recruit people into anesthesia, you are here to be Dean of Students for everybody doing everything. And he was very clear. I said Okay, I will never recruit, I just had our people be the teachers of everything I could control. You don't need to recruit when you put John Pawlowski in front of the students (I want to be him! Y'know?)

Up until that point 1997, no one in HMS had matched into anesthesia. Because the school didn't respect it, you didn't get exposed to it. Some had gone into something else and then switched into anesthesia but no one had matched into it directly from HMS up until 1997. Since then it has gone up quite a bit. (I wonder how that happened?)

(first relationship with China was through the dept of OBGYN, Ben Sacks invited to do a conference in Beijing. Very first china conf. But at the last minute he couldn't go, had a death in the family. Nancy was a dean at the time so she went. The walking epidural and the family van. That was the beginning of the walking epidural in China. (standard old fashioned epidural, caused fetal distress, heart rate goes down, did n't want to risk this on their one baby, so they had 50% epidural rate. So walking epidural, the value of it doesn't make the baby's heartrate go down. Then they could have pain relief and not risk hurting their one child. One book they had about the science of anesthesia is the one book we wrote with them.

Dr. Lee is from China, did half OB anesth in china, half here. We were doing the epidural here, he saw it was completely normal. He asked me to go there and teach, instead I taught him, and he went to china and taught the anesth. There, and hit changed the Csect rate. A couple years later I went there.

HMS students do go into Primary Care. A lot do, they always have. The story that they don't go into Primary Care is total bullshit. There is a Shortage of Primary Care docs and there is a really good reason, because the job is horrible. (changes of insurance, you are the gatekeeper) Spend

50% of your time on the telephone. Who went to medical school to spend 50% of your time yelling at insurance companies? (Why don't they revamp the entire process and have an admin. Counterpart for every physician to deal with all this?)

Well actually, I would change it...my other thing is the Family Van...

I got really jealous, MGH getting medical students early.

There is a video of John Pawlowski and Marty Gallagher (a pump tech here in this Dept. for a million years, then went to med school, graduated and came back as an anesthesiologist here). And so John Pawlowski and Marty Gallagher started doing simulation for medical students to replace Dog Lab.

One teacher (one kid was really brilliant but really obnoxious, got called a parent and said: What happened to her, she's not obnoxious anymore. Parents called and said, what did you do to our daughter?

In the early days it is hard for a school, they have to disrupt their day to get 12 kids over here. Watertown public school changed its schedule to fit the course in.