



## DEAN'S MESSAGE: What's On My Mind

*W*hat's on my mind this month is the School of Medicine's (SOM) community outreach activities. As one of the nation's oldest medical schools, the SOM has a long tradition of community service and outreach. In the early 1800s, our outreach and service focused primarily on helping the citizens of the City of Baltimore cope with the many public health problems they faced, such as yellow fever and dysentery. More than two centuries later, our outreach efforts have extended to communities all over the world. Through our efforts, we are helping people in Maryland, across the U.S., and in developing countries in Africa, the Caribbean, and the Middle East to achieve healthier, longer, more productive lives.

In this message I will focus briefly on just a few of our outreach activities here in the state of Maryland, which are overseen by Claudia Baquet, M.D., M.P.H., associate dean for Policy and Planning, director, Center for Health Disparities, and director, Program in Minority Health and Health Disparities Education and Research. Dr. Baquet, who also serves as director of the Maryland Area Health Education Center Program and of our Center for Health Policy/Health Services Research, coordinates an extensive portfolio of community outreach activities that seek to reduce and eventually eliminate health disparities in our state.

For example, Dr. Baquet oversees the Colorectal and Breast Cancer Patient Navigation (PN) Program, a pilot study launched in the spring of 2007 to implement a culturally appropriate intervention to increase Maryland residents' knowledge of and increase their compliance with national and international breast and colorectal cancer screening guidelines. The program, which is delivered by community health workers (CHWs), provides breast and/or colorectal cancer educational presentations to individuals and groups throughout the state. The PN program is now being developed into a protocol that can be used by CHWs across the United States who may be interested in participating on health disparities research teams.

Approximately 300 people have been educated about the importance of participation in clinical trials through the MPACT® program.

In addition, during the fall of 2009, Dr. Baquet and her colleagues launched the Maryland Program for Advancing Clinical Trials (MPACT®), which is a statewide strategy to educate the general public and health care professionals and foster public trust in clinical trials and clinical research. MPACT® includes a series of educational programs, entitled *Clinical Trials: Removing the Mystery and Stigma of Research*, which have been held across in various locations across the state. To date, approximately 300 people have been educated about the importance of participation in clinical trials through the MPACT® program.

Another of Dr. Baquet's community outreach activities is "Project KITS," a five-week educational program that provides introductory computer and health literacy training to senior citizens in the City of Baltimore. This program was developed to address the "digital divide," especially among seniors. Potential participants complete a pre-evaluation survey to determine their background with computers, and only those with very little or no computer experience are enrolled in the classes. This program has been extremely successful in promoting both computer

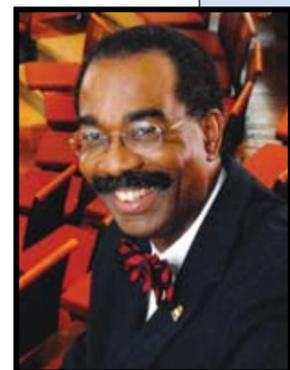
and health literacy, with the first group of participants pre- and post-test scores rising from approximately 20 percent to almost 60 percent, respectively.

These are just a few examples of the important community outreach activities being carried out by SOM faculty and students in the state of Maryland and throughout the world. It is our plan to continue the SOM's rich tradition of community service by expanding our activities where appropriate and wherever they may be needed.

In the relentless pursuit of excellence, I am  
Sincerely yours,

E. Albert Reece, MD, PhD, MBA

Vice President for Medical Affairs, University of Maryland  
John Z. and Akiko K. Bowers Distinguished Professor and  
Dean, University of Maryland School of Medicine



## School of Medicine Provides Medical Aid in Haiti

On January 28, the first team of faculty from the School of Medicine traveled to Haiti to administer medical aid in the earthquake-ravaged country, but that small group of five was just the beginning. The School of Medicine and the University of Maryland Medical Center are teaming with Baltimore-based international nonprofit Catholic Relief Services (CRS) to send doctors, nurses and other health professionals to Haiti in weeklong rotations over the coming months. More than 150 faculty and staff members have volunteered to be part of the relief effort.

Thomas M. Scalea, M.D., Francis X. Kelly Professor of Trauma Surgery and Director, Program in Trauma, led the

Dr. Delva, wearing a Catholic Relief Services t-shirt, seeing patients on the grounds of St. Francois de Sales Hospital. The photo was taken by Lane Hartill of CRS.

first group of five when he flew to Haiti on January 28. Just two days later, Dean Reece and Gov. Martin O'Malley were on hand to see off the remaining 15

*More than 150 faculty and staff members have volunteered to be part of the relief effort.*

members of the first team as they prepared to catch a military flight to Haiti. The team took with it 8,000 pounds of medical supplies and medications—enough to perform 200 surgeries on the ground in Haiti. The team will work at the site of St. Francois de Sales Hospital in Port-au-Prince, one of Haiti's oldest hospitals. The hospital was almost completely destroyed in the earthquake, but a makeshift hospital has sprung up on its grounds.

"I wanted to thank all of the people here from University of Maryland for representing all of us in trying to provide some relief to the people who are really suffering and hurting after the earthquake," Gov. O'Malley said as he bid good-bye to the second half of the team. "They're doing what Maryland does best, which is compassion and healing."

The aid mission is made possible because of the School of Medicine's

longstanding presence in Haiti through the Institute of Human Virology (IHV). IHV has run an HIV/AIDS clinic in Port-au-Prince since 2004, in a partnership with CRS. The clinic, funded by a grant from the President's Emergency Preparedness Fund for AIDS Relief (PEPFAR), is located on the grounds of St. Francois de Sales Hospital. The building remained intact after the earthquake, and all 22 of the clinic's employees—including doctors, nurses, lab assistants and drivers—were located safe and sound in the days after the disaster. Many began volunteering immediately, caring for patients in makeshift tents set up around the remains of the hospital.

Among them was Haitian native Guesly Delva, M.D., an infectious disease fellow with the IHV in Baltimore. Dr. Delva flew home just days after the earthquake to search for his family and to render aid to his fellow countrymen. He located his mother safely just before leaving the U.S., and once in Haiti he spent his days working with CRS to help patients at St. Francois de Sales.

Back in the U.S., Joseph F. O'Neill, M.D., M.P.H., visiting professor, Department of Medicine, and director of Global Health Initiatives for the IHV, was working with his colleagues

to facilitate a faculty trip to Haiti. He worked closely with Robert R. Redfield, M.D., professor, Department of Medicine, and associate director of the IHV, and Andrew N. Pollak, M.D., professor, Department of Orthopaedics. Dr. Pollak and Dr. Redfield visited Haiti briefly after the disaster to determine what kind of supplies and expertise the School of Medicine should send as part of its larger mission.

Reaching out to disaster-stricken nations is nothing new for School of Medicine faculty. For example, in June 2008, a team from Shock Trauma went to Chengdu, Sichuan Province in China to assist with medical care of survivors from a devastating earthquake there.

The first team of School of Medicine professionals to travel to Haiti is largely made up of trauma and surgical experts. Dr. Scalea and other Shock Trauma faculty and staff have unique expertise in the types of traumatic injuries—orthopaedic as well as spine and head injuries—that they expect to treat in Haiti.

The mission to Haiti is just the latest example of the School of Medicine's global impact. School of Medicine faculty already conduct research and see patients in 23 countries outside the U.S.



# Many Surgeons Suffer Occupational Injuries from Minimally Invasive Techniques

Surgeons who engage in minimally invasive, laparoscopic surgery are providing great benefits to their patients, but possibly to their own detriment, according to new research from Adrian E. Park, M.D., professor and vice chair, Department of Surgery. The study, on which Dr. Park was lead author, entailed the largest survey ever conducted of surgeons in North America who perform laparoscopic procedures. The survey found that 87 percent of laparoscopic surgeons have experienced physical symptoms or discomfort. This was especially true among those with high case volumes. Previous surveys had found only a 20-30 percent incidence of occupational injury among these surgeons. Results of the survey are being published in the March 2010 *Journal of the American College of Surgeons*.

Millions of patients around the world have benefited from minimally invasive surgical techniques introduced some 20 years ago. The benefits include increased safety, quicker recovery, shorter hospital stays and cosmetic advantages compared to open surgery techniques.

Despite these successes, the impact of minimally invasive techniques on those who perform them is little-known and under-appreciated. “We face a pending epidemic of occupational injuries to surgeons and we can no longer ignore their safety and health,” said Dr. Park. “Sadly, it is easier for a surgeon to obtain an ergonomic assessment and direction to improve his golf swing than his posture or movement during surgery.”

Dr. Park is also executive director of the Maryland Advanced Simulation, Training, Research, and Innovation (MASTRI) Center at the School of Medicine, the first facility in the world to focus on surgical movement. “If injuries among surgeons are not addressed significantly, we’re going to face a problem in the near future of a shortage of surgeons as well as shortened career longevity among surgeons who enter, or are already in, the field,” he said.

Dr. Park says surgeons who perform laparoscopic surgery face constraints that are not part of open surgery. “In laparoscopic surgery, we are very limited in our degrees of movement, but in open surgery we have a big incision, we put our hands in, we’re directly connected with the target anatomy. With laparoscopic surgery, we operate by looking at a video screen, often keeping our neck and posture in an awkward position for hours,” said Dr. Park. “Also, we’re standing for extended periods of time with our shoulders up and our arms out, holding and maneuvering long instruments through tiny, fixed ports.”

A comprehensive 23-question survey was sent to 2,000 board-certified gastrointestinal and endoscopic surgeons in North America and abroad who are members of the Society of American Gastrointestinal and Endoscopic Surgeons, a diverse group of



Adrian E. Park, MD

**“We face a pending epidemic of occupational injuries to surgeons and we can no longer ignore their safety and health.”**

experienced laparoscopic practitioners. The questions were grouped in four categories: demographics, physical symptoms, ergonomics and environment or equipment. Some questions required single answers, such as “Have you ever had any physical discomfort or symptoms you would attribute to your laparoscopic operating? Yes/No.” Other questions allowed selection of multiple applicable answers.

Of 317 surgeons completing the survey, 272 (86.9 percent) reported experiencing physical discomfort or symptoms they attributed to performing minimally invasive surgery. The discomfort ranged from eye strain to problems in the surgeon’s dominant hand, to neck, back and leg pain. A few surgeons also reported headaches, finger calluses, disc problems, shoulder muscle spasm and carpal tunnel syndrome. Age played a role in hand problems, with younger surgeons and those over 60 at highest risk, but there was no correlation between age and symptoms in other parts of the body.

Annual case volume emerged as a key predictor of physical symptoms. Case volume impact was seen in surgeons who had received postgraduate surgical fellowship training. Those surgeons averaged 249 cases a year, while the non-fellowship average was 192.

Neck, hand and leg symptoms rose with increased case volume. “If surgeons had more than 150–200 cases a year, they were at a much higher risk,” said Dr. Park. “However, if the surgeon did long, complex cases, they only needed half that number to increase the risk.”

To minimize the problems, 84 percent said they had changed their position, while 30 percent said they changed instruments or took a break. Significantly, 40 percent of all participants said they would just ignore any such problem.

Instrument design was listed as the main source of symptoms for more than 74 percent of the surgeons, while 40 percent cited operating room table setup and display monitor location. More than half of the surgeons (58.7 percent) said they were only slightly aware or not aware at all of recommendations to reduce symptoms from researchers in the field of surgical ergonomics.

Dr. Park said the survey results provide important pieces to the puzzle, but ergonomic researchers do not know what all the issues are. As a first step toward developing solutions, he calls for a fresh, comprehensive attempt to understand the surgical workplace. “Many manufacturers and industries have been able to optimize workflow, worker safety and efficiency by characterizing their workspace, while we in surgery have done nothing. We have not seriously investigated or addressed the surgeon-patient interface and the surgeon-instrumentation interface. If you go into the cockpit of an airplane, everything is integrated. In the operating room there is very limited integration of technologies,” said Dr. Park. 🏢

## Japanese Delegation Gets a Glimpse of New Stem Cell Center

Japanese science and technology officials got a peek inside the School of Medicine’s new Center for Stem Cell Biology and Regenerative Medicine when they visited campus last month.

Curt Civin, M.D., founding director of the Center, associate dean for Research and professor of pediatrics, met with the group of six officials from Japan’s stem cell research community on January 22. The six Japanese officials were visiting the U.S. to gain a better understanding of the state of stem cell research in America.

Dean E. Albert Reece, M.D., Ph.D., M.B.A., welcomed the group and voiced his hope for continued conversations between the School of Medicine and the Japanese scientific community.

“We are a very research-intensive institution,” Dean Reece told the group. “When we can collaborate with scientists around the world, it only makes us stronger. Combining and exchanging ideas—that’s what science is all about.”

School of Medicine leadership and faculty with the Japanese delegation. (L-R: Dean Reece, David Litwack, Ph.D., Assistant Professor, Department of Anatomy & Neurobiology, Huakun Xu, Associate Professor, Department of Endodontics, Dental School, Stuart Martin Ph.D., Associate Professor, Department of Physiology, Dr. Civin, and Adam Puche, Ph.D., Associate Professor, Department of Anatomy & Neurobiology. The remaining six in foreground and on the right are from Japan.)

The visiting group was led by Shin-Ichi Nishikawa, M.D., Ph.D., deputy director, Center for Developmental Biology, RIKEN, and Research Director, IBRI, Foundation for Biomedical Research and Innovation.

Before Dr. Civin began briefing his guests on the state of stem cell research in Maryland and throughout the U.S., and the growing Center for Stem Cell Biology and Regenerative Medicine, Dr. Nishikawa thanked him for welcoming the group.

“Stem cell research is an area of great interest for our country,” Dr. Nishikawa explained. “Our government has charged us with exploring the research going on in

the United States in hopes of creating new partnerships between scientists in both countries.”

Dr. Civin described his own research in cancer stem cells, and explained how he hoped the new Center for Stem Cell Biology and Regenerative Medicine would bring together scientists from many disciplines to advance the field of stem cell research.

The group also heard from other faculty from the School of Medicine and the Dental School on details of their own work and how they hope the new stem cell research center will advance their science. 🏢



# Leading a Revolution in Radiology



Eliot Siegel, MD

**A**s the healthcare industry strives to upgrade to a system of electronic medical records, the Department of Diagnostic Radiology and Nuclear Medicine at the University of Maryland School of Medicine is already way ahead of the game. The department was the first to implement a filmless system for patient scans, a practice that is now standard but was revolutionary when the department first took the leap 16 years ago.

"Everything was done on film, and no one was really sure—although it sounds kind of funny now—whether we would be able to get the speed and resolution we would need using computer monitors," explains Eliot Siegel, MD, professor of Diagnostic Radiology & Nuclear Medicine. "But we did a lot of research and work to be able to succeed in setting up the world's first filmless radiology program. We earned a reputation around the world as the place that was not only on the cutting edge as far as making the transition, but also the place that was writing all the papers and doing all the studies about what the implications were."

Over the years the department has strived to remain on that cutting edge. "We're working with a number of different companies—Microsoft, IBM, Siemens, General Electric, Phillips—and other research partners to ask the question 'Where do we go in the next 10 or 20 years?'" Siegel says. "To a large extent, the research that we do is to try to predict an event and then work to make it actually happen, so we can continue to pave the way for the future of diagnostic imaging. And the more we get a reputation for doing really interesting, high-tech things, the more we attract people from around the world who want to do various types of research projects with us."

Partnerships with the major corporations Dr. Siegel mentioned have proven especially fruitful. "In some cases, they will give us technology they've developed and ask us to help apply it, and in other cases they'll ask us to develop it," Dr. Siegel explains. "It's a really great resource and has made the department very high-profile."

A recently funded project with IBM has the department testing possible software that would enable computers to analyze patient data and suggest diagnoses based on the results. "They're going to start out looking at *New England Journal of Medicine* case reports, and have the computer try to outguess a human professor and discussant who are also looking at all the information for the case and trying to come up with a diagnosis," says Dr. Siegel. "Who knows, in the next few years it may be that we will have computers suggesting diagnoses, as we get different

lab tests, imaging studies and physical diagnosis signs in a structured format that the computer will be able to interpret."

Doctors would always have the last word, though. "The computers will give a recommendation to do this test or that test to better differentiate the problem," Dr. Siegel explains. He likens it to the TV show "House," where a team of experts concentrates on one challenging medical case each week. "Wouldn't it be nice to have that level of intelligence and experience from cumulative literature and cumulative patient data, to be able to help you make a diagnosis?" asks Dr. Siegel. "That's where we're heading."

The innovations do not stop there. Recently, Dr. Siegel presented at the Radiological Society of North America (RSNA) on a groundbreaking study being done at the School of Medicine testing the effectiveness of high-frequency ultrasound with elastography to visualize suspicious lesions and assess their degree of stiffness. Currently, biopsy is the only effective method of testing whether these lesions are cancerous, but cutting into patients is not only very painful but also leaves lasting scars.

Using a system provided by Hitachi, Dr. Siegel and his team have discovered that by assessing the shape and scope of lesions with very high-resolution ultrasound, and then using elastography to compare the stiffness of the lesion in

relation to the skin around it, they can tell with 100 percent accuracy which are cancerous and which are benign. "Much to our surprise, we found in every case that all

the malignant lesions had a stiffness ratio of more than five to one, meaning every malignant lesion was at least five times harder or less elastic than the normal skin surrounding it," reveals Dr. Siegel. "And every benign lesion had a ratio to normal skin of three or less. There was nothing that was between three and five. That allowed us to prove 100 percent separation."

"What we hope to do in the future is work with our colleagues at the National Institutes of Health (NIH) and apply for NIH funding to be a preeminent imaging research center, using optical imaging, ultrasound and MRI," says Dr. Siegel. "It's really captured people's imaginations, because skin cancer is the most common type of cancer, and melanoma has had a doubling in incidence over the last decade. In the next few years, we hope we'll have another tool to look at these lesions that will really revolutionize the way we practice." 

**"... we did a lot of research and ... succeeded in setting up the world's first filmless radiology program."**

## Stent Study Finds Improvement for Dialysis Patients



Ziv Haskal, MD

**A new FDA-approved stent graft** can keep key blood vessels open so dialysis machines can connect to the body, according to a new study led by Ziv Haskal, M.D., professor, Department of Diagnostic Radiology and Nuclear Medicine. Dialysis patients often need repeated procedures, such as balloon angioplasty, to open blood vessels that become

blocked or narrowed at the point where dialysis machines connect to the body. These blockages can impact the effectiveness of hemodialysis, a life-saving treatment to remove toxins from the blood when the kidneys are unable to do so. Dr. Haskal's study indicates the new stent graft can keep vessels open longer, reducing the number of procedures these patients may need. The study was published in the February 11 edition of the *New England Journal of Medicine*.

"This is the first large-scale randomized study to find a therapy to be superior to the gold standard of balloon angioplasty. We found that using this new stent for dialysis patients whose access grafts have become narrowed improves graft function. It also clearly reduces the need for repeated invasive procedures and interruption of dialysis," said Dr. Haskal.

The prospective multi-center study took place at 13 sites across the country and enrolled nearly 200 patients. Ninety-seven patients received angioplasty with the new stent, which is a small metal scaffold inserted in the patient's arm, compared to 93 who received angioplasty alone.

In the study, patients with the stent graft were more than twice as likely to have open vessels compared to the angioplasty-only group after six months. The

recurrence of vessel narrowing, restenosis, was nearly three times lower with the stent group, (27.6 percent vs. 77.6 percent). In later follow-up, some patients still had functioning grafts two years after the stent graft was first implanted.

"Results of this research should change the way we treat hemodialysis patients. In this study, patients who received angioplasty alone were twice as likely to need additional procedures compared to those who had the stent in addition to angioplasty," said Dr. Haskal. "That can translate into cost savings and improved quality of life for these patients, who already spend about nine to 12 hours a week in dialysis. We can now start considering grafts as something that may last for years in dialysis patients, instead of months."

According to the researchers, the cost to treat dialysis access failure amounts to about \$1 billion per year, and the number of patients needing hemodialysis is expected to continue to grow substantially over the next decade.

**"This is the first large-scale randomized study to find a therapy to be superior to the gold standard of balloon angioplasty."**

Kidney failure patients often have a synthetic portal, known as an access graft, embedded into their arm before they begin hemodialysis. The access graft works like an artificial blood vessel, allowing needles to be inserted repeatedly, so the blood can be circulated out of the body, filtered in a machine and then returned to the patient's circulatory system. Patients must undergo dialysis several times a week.

For hemodialysis, scar tissue naturally forms at the edges of the access grafts. That scarring can impede blood flow, requiring doctors to perform angioplasty to open the vessels. In that outpatient procedure, doctors insert a balloon into the blood vessel and inflate the

balloon to open the narrowed artery or vein. Following angioplasty, vessel narrowing frequently recurs, requiring repeated procedures, up to several times a year. If scarring becomes too severe and repeated angioplasties do not work, the patient may need another procedure put in an access graft at a different site on the arm. Other therapies have been compared to balloon angioplasty, but, until now, none has shown benefit in a prospective randomized study.

This self-expanding metal stent graft creates a scaffold to keep the blood vessel open. It is encapsulated by polytetrafluoroethylene, the same material from which most dialysis grafts are made. The device allows the physician to mimic the effect of surgery at the scarred area without actually performing surgery.

Dr. Haskal is leading another large study that is currently enrolling patients to assess the benefits of the device over a longer period of time.

The other sites participating in this study were the Hospital of the University of Pennsylvania; University of Texas, Southwestern Medical Center; Oregon Surgical Consultants, Portland, OR; Open Access Vascular Access Center, Miami, FL; Vascular Access Center, Augusta, GA; Tucson Vascular Surgery; Indiana University School of Medicine; Bamberg County Hospital and Nursing Center, Bamberg, SC; and Vascular Access Center of Frontenac Grove, Frontenac, MO. This study was funded by Bard Peripheral Vascular, Inc., manufacturer of the Flair Endovascular stent graft. 





#### Advocacy Day 2010

State Senator Kathy Klausmeier of Baltimore County (center) met with (from left) Donna Parker, MD, clinical associate professor, Department of Medicine, and Associate Dean for Student Affairs; Laura Caputo, MS-III; Khola Tahir, MS-II; Christina Walsh, MS-II; and Claudia Baquet, MD, MPH, professor, Department of Medicine, and associate dean for Policy and Planning.

#### {PHOTO OF THE MONTH}



Photo by Mark Teske

Overlooking the Grand Canal from the Rialto Bridge in Venice, Italy.

#### {STUDENT PROFILE}

### Childhood in Mali Inspires Student



Oumou Diallo

Third-year student Oumou Diallo traveled a long and winding road to reach medical school. She details this journey in her book *Torrential Flow*, which was published in September 2009 and is available online from Amazon.com.

Born in Mali, West Africa, Diallo lost her father at a young age because the hospitals in Mali did not have the equipment needed to treat his heart condition. At age 11, she was chosen to participate in the Parliament of Children, an advocacy group created as a forum for children to express their views and discuss their rights. Being a child ambassador “was life changing to me,” says Diallo. “While there, I met young people like myself confined to life situations they had in no way chosen to live in.”

Diallo’s choices in life expanded when her mother made the difficult decision to send her away to France during a period of political uprising in Mali. It was one of her French teachers who first encouraged Diallo to publish the stories she had written about her childhood in Mali and her experiences with the Parliament of Children. Although she chose not to do so at the time, Diallo kept the stories with her, adding new life experiences as they came along.

The most monumental of these experiences was immigrating to America, where Diallo was finally able to reunite with her mother and brothers, who had left Mali for New York. In her book, “I stress the importance of the impact of people I have met on these three continents,” Diallo says. “My own path from a single mom’s family [in Africa] to getting an education in the U.S. would not have been possible without the help of the many mentors who crossed my path.”

It was one of these mentors who helped Diallo get *Torrential Flow* published. “I have gotten very positive reviews regarding the book, both from my friends and unknown readers. I am delighted with the outcome,” says Diallo. So delighted, in fact, she’s already working on a new book. “Whenever possible, I jot down a line or two,” Diallo admits.

But medicine is her top priority. She recently returned to Mali, for the first time in five years, to observe the work the School of Medicine is doing there, in preparation for her fourth-year AHEC rotation. “I wanted to know where the CVD site was and to meet the people from Maryland working in Mali, as well as the Malians working at the site,” Diallo explains. “I also wanted to assess what specialties were needed most. I found that surgeons are pretty scarce, as well as good anesthesiologists. My visit to Mali was a really great foundation for my soon-to-come, month-long rotation there.”

One day, Diallo hopes to return to her home country for a much longer period of time. “I’d definitely like to open a surgical center and clinic there and hopefully collaborate with various physicians and surgeons here,” she says, adding that any money she earns from her book will go toward financing this goal.

Diallo is keeping an open-mind about her ultimate field and hopes to practice in either anesthesia or otorhinolaryngology-head and neck surgery. With either one, “my life experiences will be coming full circle,” she says. 🏛️

# SOMnews

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