

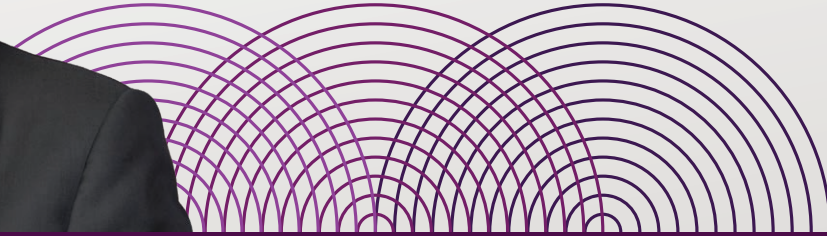
UPMC has a Vision



UPMC
LIFE CHANGING MEDICINE



José-Alain Sahel, MD



UPMC Vision and Rehabilitation Hospital Q&A

with Director José-Alain Sahel, MD

In November, UPMC announced a \$2 billion investment to create three new specialty hospitals. The UPMC Heart and Transplant Hospital, UPMC Hillman Cancer Hospital, and UPMC Vision and Rehabilitation Hospital will continue UPMC's tradition of innovation and pioneering new medical advancements. The UPMC Vision and Rehabilitation Hospital is expected to open in 2020.

José-Alain Sahel, MD, Chair, Department of Ophthalmology, and Director, UPMC Eye Center, discusses the innovative technologies planned for the vision-related services at the UPMC Vision and Rehabilitation Hospital.

Q: What is the mission of the new specialty hospital?

A: For the vision-related services, we are planning a transforming environment where translational research will bring new developments in vision restoration using many approaches. The hospital will address several goals: improving access to state-of-the-art care; teaching providers onsite and beyond; developing innovative diagnostic and therapeutic tools; and engaging patients.

Q: What kinds of ocular diseases and disorders will you and your colleagues treat?

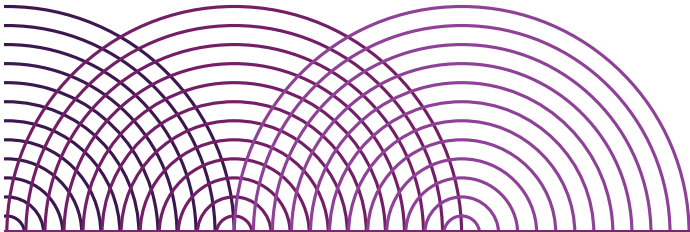
A: We will treat all complex corneal and glaucoma conditions, age-related macular degeneration, genetic retinal diseases, and complications of diabetes, to name a few. We also have strengths in oculoplastics, neuro-ophthalmology, and pediatric ophthalmology.

One of the key issues we wish to address is aging. In our region, there is a larger aging population than in most of the country. We want to provide early diagnosis, preventive approaches, information and education, easy access to current therapies, home monitoring, and development of novel therapies. Our goal is to improve the quality of life at all stages of the process, from normal aging to potential loss of independence.

Q: What clinical enhancements will be available in the new specialty hospital?

A: Our services will be easy to access, both in person and through digital technologies like telemedicine. We will develop in-depth analyses of the signs and symptoms of eye disease through high-resolution structural and functional imaging. This will provide data that artificial intelligence and deep learning algorithms will exploit to improve diagnosis accuracy, avoid drug interferences, propose care pathways, and identify risk factors.

We will implement cutting-edge technologies, including cataract surgery, refractive surgery, corneal disease technologies, microinvasive glaucoma techniques, and novel retina therapies. We will also build programs on brain-computer interfaces to stimulate the brain directly in the blind.

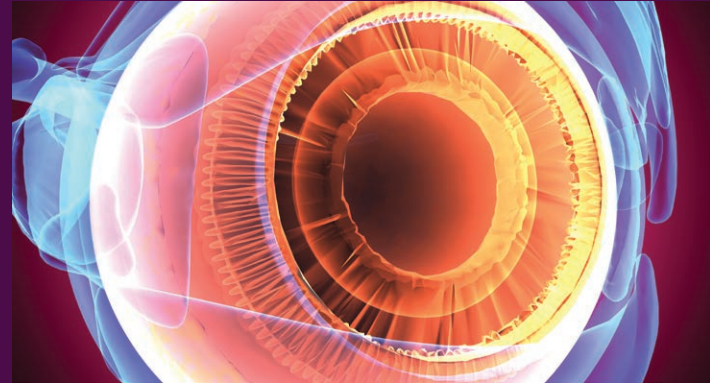


The hospital will access new microscope technology that is only available at about 10 sites worldwide. It took years to refine the technology and it's very promising. It will help physicians see the cells at a very high resolution to monitor the course of the disease at the cellular level instead of waiting for the tissue to be damaged. We will be able to follow the course of a disease much more closely.

Q: What types of innovative diagnostic procedures and corrective surgeries will be offered?

A: The design of the hospital will enable safe and efficient implementation of innovative care including:

- Stem cell therapies for retinal and corneal degeneration, and possibly glaucoma
- Gene therapies
- Prosthetic vision for retinal conditions
- Laser-assisted cataract surgery
- Robotic 3D surgery
- High-resolution imaging
- Artificial intelligence



Q: How will the specialty hospital collaborate with French research institutions?

A: Thanks to the agreement signed between UPMC, the University Pierre et Marie Curie of the Sorbonne Universités in Paris, the Institut National de la Santé et de la Recherche Médicale, and the Centre National de la Recherche Scientifique (CNRS) - this collaboration will bring together more than 500 scientists with complementary expertise, and will provide training on different sites with different health care models. I envision the development of a truly collaborative international institute, producing multiple innovations in care.

Q: What avenues of research will you and your colleagues pursue?

A: The Eye Center's research is already very deep and broad. We will expand our work in developmental biology, optic nerve regeneration, robotic vision, gene therapy, systems pharmacology, drug delivery, adaptive optics, and biphoton imaging.

Q: Where do you envision the field of vision restoration in 10 years?

A: I think it will be quite advanced. Obviously, there will still be a lot of patients that won't be able to access vision restoration because of irreversible damage to the optic nerve or because of brain damage. But I hope that in many conditions, we will have something to propose.

Today, we have many studies launching on a number of advances like vision restoration, vision protection, and high-resolution prosthetics. Ten years down the road, we will hopefully have the answers. Stem cells will certainly be far beyond where they are today. Another area that is very promising is optogenetics, where you try to reactivate the remaining cells in the retina.

These advances will also bring up the question, "How does the brain cope with this new information?" There are people who never had vision or who have adjusted to losing vision. So, we will work on cognitive neuroscience to rehabilitate the brain to

work with the new senses. It fits well with the idea of a vision and rehabilitation hospital because there will be a need for a vision rehabilitation strategy in these patients.

Q: What will distinguish this hospital from other similar institutions?

A: We will never let any innovation be ignored. Whether we are the people originating the innovation or we are accommodating an innovation from another place, we are open to using anything that can help a patient. It will be very collaborative and open.

And finally, this will be a hospital with state-of-the-art technology – the next-generation hospital that is fully connected and focused on patient experience. This is a unique opportunity to make a big difference and have a huge impact.

In addition to the services Dr. Sahel describes, the new hospital will include a world-class innovation and training center, state-of-the-art low vision center with a simulation street lab, and an urgent care center specific to ophthalmology.

For more information, visit [UPMC.com/upmc-innovates](https://www.upmc.com/upmc-innovates).





200 Lothrop Street
Pittsburgh, PA 15213

NON PROFIT ORG
US POSTAGE
PAID
PITTSBURGH, PA
PERMIT NO. 3834

