

Transforming the future of health care

Inside Sheba Medical Center's cutting-edge Innovation Center

• STEVE WALZ

Imagine a future where hospitals deploy virtual nurses to greet patients, doctors perform complex surgical procedures using robotics, and outpatients are empowered to maintain a healthy regimen by using smartphones and wearables to monitor their activities – with digital tele-medicine capabilities to provide CAT scans and MRIs from wherever they might be in times of medical need.

In many respects, the future is now at Sheba Medical Center (also known as Tel Hashomer) in Ramat Gan, where perhaps the world's most sophisticated Innovation Center is taking shape. Recently tabbed by the government of Israel to become the nation's first "City of Health" and mecca of cutting-edge digital/tele-medicine, Dr. Eyal Zimlichman, deputy director general, chief medical officer and chief innovation officer at Sheba Medical Center, has been charged with building and shaping this unique venture.

Sheba Medical Center is already renowned in Israel and around the globe for its quality care and advanced medicine. It is also a major medical/scientific research powerhouse that collaborates internationally with the biotech and pharmaceutical industries to develop new drugs, treatments and technologies. In the search for effective new treatments for critically ill patients, hundreds of clinical trials commissioned by some of the world's best-known pharmaceutical and bio-tech companies are conducted at Sheba Medical Center.

The Sheba Innovation Center aims to bring new technologies into the hospital and community ecosystem in order to further improve patient care. It will allow seamless integration between innovators, scientists, start-ups, high-level developers, large corporate companies, investors and academia – all under one roof! The Innovation Center will focus on digital health technologies, including precision medicine, big data and predictive analytics, tele-medicine and mobile health. Sheba Medical Center is already a world leader in both medical research and big data.

THE NEW Innovation Center will be housed in a 6,000-sq.m. (65,000-square foot) building, utilizing the wide range of medical professionals within Sheba Medical Center to identify unmet clinical needs and then actively and rapidly (up to a year from idea to initial proof of concept) develop solutions and products. Innovation grants offered by philanthropic funds, investors and strategic partners will be fueling the innovation and development cycles.

Sheba Medical Center's world-class experts and opinion leaders will follow development and testing activities. Finally, formal partnerships with leading academic medical centers, accelerators and investors will help propel innovations into the market, where they can create meaningful value for patients.

The Innovation Center has already attracted an impressive roster of Sheba's top medical professionals who are on the cusp of creating revolutionary treatments, including Dr. Elad Jacoby (Immunotherapy), Prof. Benjamin Dekel (Stem Cells & Regenerative Treatments), Prof. Gal Merkal (Melanoma) and Prof. Michal Beerli (Cardiovascular Risk Factors). In addition, a growing number of start-ups have also put down roots at Sheba in order to collaborate on new medical technologies.

According to Dr. Zimlichman, some of the world's largest consumer big data and medical technology companies will also be investing substantial funds and manpower in the new Innovation Center, which will allow them to have direct access to Sheba's research and start-up medical prowess.

Zimlichman is no stranger to the newfangled shifts in medical technology, having conducted research on implementing new technology to improve health care quality and patient safety at Boston's Brigham and Women's Hospital and Harvard Medical



A DIGITAL watch that monitors rate is just one example of the many ways Sheba Medical Center is entering the digital age. (courtesy)



School-affiliated Center for Patient Safety Research and Practice. A graduate of both the Technion and Harvard University School of Public Health, he has also served as an adviser to the Office of the National Coordinator for Health Care Information Technology in the US Department of Health and Human Services.

Dr. Nathalie Bloch, who serves as the director of the Innovation Center, also possesses a unique background in start-up technologies. She was a primary care physician, a medical director/ board member at MACIPA (Independent Physician Association) and a senior fellow at the Harvard Medical School for Innovation in primary care medicine. She was chosen to judge various start-up competitions in Boston, including competitions at Harvard Medical School and the well-known MassChallenge. Dr. Bloch regularly consults and serves on the boards of numerous Israeli digital health startup companies.

Zimlichman is a steadfast believer in the Start-Up Nation concept that has fueled the Jewish state's technological growth during the past several decades.

"Israel serves as a global incubator of innovative ideas for a variety of reasons," Dr. Zimlichman revealed.

"First of all, it's in our genes. Secondly, there is the military aspect, where we are taught to improvise when necessary in the field. These things allow us to be naturally innovative. This has trickled down into the medical field, where we are offering the highest level of medical care. I also believe unique innovations in medicine that will impact the world for the next 100 years will be developed in Israel. Some of them are already in use at Sheba."

ONE PRIME example: Within the realm of wearables with medical apps, Prof. Robert Klempfner, the director of Sheba Medical Center's Cardiac Prevention and Rehabilitation Institute at the Leviev Heart Center, is already blazing a new technological trail.

Heart patients are able to engage in cardiac care and rehabilitation from short and long distances, using uniquely designed wearable smart watches (i.e. a hi-tech Polar watch) – without having to return to the hospital for treatment.

"Today, the challenge for heart doctors and cardiac care patients is what happens after a coronary event [heart attack], intervention or heart surgery. What kind of regimen can be created for someone who might have had surgery at Sheba but lives and works far away from the hospital? Within the new world of tele-medicine and digital health, we have the technology to create rehab programs that are a win/win experience for both the hospital and the patient," claimed Prof. Klempfner.

"The cardiac care patients are given a watch that is equipped with an app developed by our Sheba medical team and Datos Health (Israeli start-up company). The app contains a care path specially designed for each patient, containing rehab regimens, education material and secure communication with our patients. The medical center receives data from wherever he/she is located when they are walking, exercising and doing other physical activities. Our technicians then analyze the info and provide ongoing feedback, assisted by smart algorithms provided by the innovative system. The program is also primed for patients who suffer from hypertension and diabetes that are now able to transmit all their measurements automatically to our system."

Indeed, the future is now at Sheba Medical Center.

For more information about the Innovation Center, email innovation@sheba.health.gov.il.

A LOOK at Sheba Medical Center doctors and nurses using the latest in cutting-edge technology. (courtesy)



Dr. Eyal Zimlichman (courtesy)

This article was written in cooperation with Sheba Medical Center.