Here's how 40 years of angioplasty and heart stents have improved the lives of millions of patients.

Every year, 17.7 million people die from cardiovascular diseases, of which coronary artery disease is the most common.

But without a big idea 40 years ago, that number might be higher.

Back then, angioplasty — a procedure to widen blocked arteries in the heart that cause coronary artery disease — was the dream of one dedicated physician, Zurich's Dr. Andreas Gruentzig.

Since Dr. Gruentzig performed the first coronary angioplasty in 1977 with a catheter and balloon set-up he created in his own kitchen, this technology and clinical knowledge has progressed into a lifesaving procedure that more than 1 million people receive annually in the United States, according to a report published by Cardiovascular Diagnosis & Therapy.

Abbott has developed many tools and devices that have improved the angioplasty procedure itself as well as patient outcomes. We are proud to carry on this pioneering legacy.

**What is cardiac angioplasty?**

For patients with coronary artery disease, plaque builds up inside arteries that supply oxygen-rich blood to the heart.

If blood flow to the heart is reduced or blocked, a person could feel chest pain or discomfort (angina), and when the artery becomes completely blocked, it can lead to a heart attack, according to the American Heart Association. The goal of angioplasty — also known as percutaneous coronary intervention (PCI) — is to open clogged arteries, allowing blood to flow freely through them.

Once real-time imaging determines the catheter is in the correct place, the balloon is inflated, compressing the plaque and opening the blockage.
Innovations in angioplasty: heart stents

In 1986, a team of physicians led by Dr. Jacques Puel in Toulouse, France, performed an angioplasty with an important new piece of hardware: a bare-metal stent.

During a heart stent procedure, a catheter is inserted through an artery, such as in the arm or leg, then guided up into the heart to the blocked artery. The stent, a mesh-like tube of thin wire, was inserted after the balloon was inflated, and helped support the inner walls of the artery as it healed.

With bare-metal stents, however, patients experienced restenosis — the reblocking or closing of the artery due to tissue growth either inside or around the edge of the stent that was placed.

The next innovation was drug-eluting stents, metal stents coated with a medicine known to suppress restenosis.

These drug-eluting stents were thinner, more flexible, and coated with improved polymers to release the medicine that prevented tissue growth; and showed improved results for patients compared to bare-metal stents.

Now, stents are used in nearly all coronary angioplasty procedures, and significantly reduce the likelihood of the artery becoming obstructed again.

From balloon angioplasty in the 1970s to bare-metal stents in the 1980s and drug-eluting stents in the 2000s, scientific innovations in coronary artery disease have come a long way.

XIENCE

It’s one of the most-used drug-eluting stents in the world. A medicine to reduce scar tissue formation, as well as a special coating, called fluoropolymer, helps reduce the risks of restenosis and thrombosis (artery blockage due to blood clots around the stent) and improve patient results.

Look at the numbers:

• More than eight million people around the world have received a XIENCE stent since its initial regulatory approval in 2006. It has been implanted twice as many times as any other drug-eluting stent, making it one of the most-used drug-eluting stent in the world.
• 10 years of real-world experience and over 100 clinical trials. Results have consistently shown better outcomes with XIENCE than with metallic stents or other drug-eluting stents.
• Only one drug-eluting stent is FDA-approved for chronic total occlusion. Yep, XIENCE.1
• The special fluoropolymer coating on XIENCE interacts with proteins in the blood to reduce the risk for blood clots in the stent.
• XIENCE has an unprecedented safety profile, with consistently low rates of stent thrombosis, even in complex cases.

For U.S. Important Safety Information, please visit:
https://vascular.abbott.com/Xience-Stent-Safety.html#isi