

Integrating Physicians, Researchers and Engineers—60 Years of Medical Device Innovation at Mayo Clinic

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Medical innovation is often delayed by the difficulty in developing cooperation among practicing physicians, academics and medical device developers. In Rochester, Minnesota, the Mayo Clinic Division of Engineering has excelled at integrating these specialties, facilitating medical device innovation for the past 60 years. In 1948, Mayo Clinic combined an instrument shop with an engineering design services team and created the Division of Engineering. This enabled a unique partnership between physi-

cians, researchers, and product developers. Early innovations from this team include the Mayo heart-lung machine, cardiac monitoring, advances in aero-medicine, surgical stereotaxy, and early transfusion equipment. Today, the Mayo Division of Engineering consists of mechanical, chemical, electrical, biomedical, and software engineers, machinists, and a scientific glass-blower. The division works in close collaboration with project proponents (primarily physicians) within the clinical environment to analyze problems, propose designs, and deliver a clinical solution. From custom 3-D models for support pre-surgical planning to endoscopic heart valve repair devices, the team identifies opportunities and delivers systems that can be quickly translated into medical practice.