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Looking for Your Next Disruptive Technology? Try Student Competitions

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Medtech-focused student competitions can be an excellent source of intellectual property for licensing or purchase by medical device companies.

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The 2014 BMEidea competition winners at the MDEA ceremony. [image via NCIIA]

National student design competitions that focus on new medical devices and technologies can provide an excellent source of intellectual property for licensing or purchase by medical device companies. Not only do they help focus student energy, enthusiasm, and talent on a real-world problem, but they also provide students with national exposure that can help when seeking employment after graduation and/or possible venture funding for promising new technologies.

Competitions allow medical device companies to become familiar with the quality and commercialization potential of student design projects.^{1, 2}

The goals of these competitions vary but often include: providing students with incentives and opportunities to learn about engineering design and teamwork; encouraging designs that address a specific disability or medical condition; and encouraging design innovations and creation of intellectual property of interest to the medical device industry and investment community that could lead to the formation of new business ventures and start-up companies. There are several competitions that encourage the design of new medical devices. Several emphasize entrepreneurship and potential for commercialization and provide cash awards to be used to further develop the winning design concepts. They seek technically feasible, potentially profitable innovative devices and may require a basic business plan or opportunity statement to determine market size, profitability, and potential for commercialization. Each has a different emphasis, unique judging criteria, and unique entry requirements.

An example of one of these competitions is the Biomedical Engineering Innovation, Design, and Entrepreneurship Award (BMEidea) national student design competition, sponsored by the National Collegiate Inventors and Innovators Alliance (NCIIA), an organization that supports technology innovation and entrepreneurship in higher education. Each year, winners of this competition are announced during the Medical Design Excellence Awards (MDEAs) ceremony as part of the MD&M East Conference and Trade Show. The BMEidea competition provides expert evaluation of student projects, and the opportunity to win substantial product development funding and gain exposure to and develop contacts in the medical device industry. Winning entries are required to:

1. Demonstrate clinical utility and technical feasibility,
2. Meet technical, economic, legal, and regulatory requirements,
3. Feature a novel and practical design, and
4. Demonstrate potential for commercialization including a market assessment, and proposed regulatory and intellectual property strategies.

To allow disclosure of designs and protect the intellectual property resulting from student projects, teams often submit provisional or full patent applications prior to entering competitions. Most teams are interested in commercializing their new product or technology. Some may be interested in creating startup companies to accomplish this, but many of them are interested in creating license agreements with established medical device companies. One example of a winning competition team taking the licensing route is the REGEN, a device for the local delivery of post-operative analgesia. Developed by a team from Johns Hopkins University, REGEN is a small implantable receptacle that diffuses pain-relieving analgesic directly at the site of a laparoscopic incision. REGEN was the third place winner of the BMEidea competition in 2008. The team licensed the technology to a startup company, Device Evolutions, in 2009.

Companies interested in learning about new medical products and technologies developed by student design teams, finding competition entrants and winners, and exploring opportunities for licensing should first visit the Web site for each competition. Some Web sites include information on past winners and the progress the team has made toward commercialization. For example, details regarding the history of the REGEN project including licensing activity can be found here, and past winners of BMEidea and BMEstart competitions can be found here. Trade publications, such as *MD+DI*, publish the results of competitions (such as BMEidea) each year and can be a good source of this information. Professional societies and organizations that sponsor student design competitions (ASME, RESNA, IEEE-EMBS, NCIIA, and others) often announce the winners in their journals, newsletters, or Web sites. Finally, interested companies can contact the technology transfer offices at various universities to learn of student-generated IP available for licensing.

References

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About the Authors

Dr. Jay R. Goldberg is director of the Healthcare Technologies Management program at Marquette University and the Medical College of Wisconsin (Milwaukee) and is a clinical professor of biomedical engineering. He teaches courses involving design and new product development. His industry experience includes development of new products in urology, orthopedics, and dentistry.

Phil Weilerstein has served as the CEO of the National Collegiate Inventors and Innovators (NCIIA) for 18 years, fostering innovative programs in entrepreneurship in higher education. Under Phil's leadership, NCIIA's work has trained hundreds of student teams that have raised more than \$300 million to grow and launch 200 new ventures. More than half of these ventures are still in business today, reaching millions of people in more than 50 countries and helping to solve some of our greatest 21st century challenges.