

# ModernHealthcare

## Full of potential List highlights healthcare innovations for 2012

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Devices and therapies that treat chronic diseases and medical apps for smartphones are among medical innovations that will profoundly affect healthcare in 2012, according to a list compiled by physicians and scientists at the Cleveland Clinic.

Panelists evaluate nominated innovations for four criteria, including:

- Significant potential for short-term clinical impact.
- A high probability of success.
- Devices and therapies that are already on the market or close to being introduced.
- Those with sufficient data available to support the nomination.

Some of the choices have yet to be approved for use in the U.S., including the top innovation on the list: a catheter-based renal denervation that controls resistant hypertension.

The procedure takes 40 minutes and targets the renal sympathetic system, which has small nerves that carry signals between the brain and the kidneys. When these nerves are disrupted, blood-pressure levels improve.

Ardian, the Mountain View, Calif.-based company that developed catheter-based renal denervation, was acquired by Medtronic in November 2010 for \$800 million, plus commercial milestones. Although the Food and Drug Administration hasn't approved the catheter system, it has received the CE marking (CE stands for European conformity, in French) to be sold in Europe and is listed by Australia's regulatory agency for drugs and devices, the Therapeutic Goods Administration.

"We view renal denervation for the treatment of uncontrolled hypertension as one of the most exciting growth markets in medical devices," Sean Salmon, Medtronic's vice president and general manager of the coronary and peripheral business, said in a statement at the time the deal was announced.

A diabetes drug that reduces blood sugar by excretion through urination is another innovation aimed at treating a chronic disease that was recognized by the Cleveland Clinic panel, which called the SGLT2 inhibitors a "paradigm shift in diabetes treatment."

"While other diabetes medications typically boost insulin levels or make the body more sensitive to insulin, SGLT2 inhibitors work independently of the hormone, leaving the door open for possible use as an add-on therapy," the Cleveland Clinic said in an online explanation of the selection.

Bristol-Myers Squibb Co. and AstraZeneca are jointly developing the drug, which they call dapagliflozin. An FDA advisory committee voted in July that the drug should not yet be approved.

The list cites two technology sectors as top innovations: mobile medical apps and data and analytics, noting that the latter can improve hospital operations, track outcomes in clinical and surgical procedures,

and benchmark effectiveness-to-cost models.

“What (the list) shows is the opportunity for the power of the use of data and information as a critical tool in healthcare,” said Dr. Harry Greenspun, a senior adviser of healthcare transformation and technology at the Deloitte Center for Health Solutions.

He noted that the inclusion of data and analytics, mobile apps and gene-sequencing machines reflect healthcare innovations that can improve the quality and safety of healthcare on a broad level, rather than in the treatment of a single condition or disease.

Medical apps for mobile devices can be used by physicians to answer patient questions without leaving the bedside, as well as help physicians select screening tests and calculate a patient's risk of developing some diseases.

Four factors are influencing the adoption of mobile apps in healthcare, according to Chris Bergstrom, chief strategy and commercial officer for WellDoc, a Baltimore-based company that develops technology, including mobile apps, for disease management:

- Consumers and providers want mobile apps.
- The FDA issued guidance regarding how they will be regulated ([July 25, p. 12](#)).
- EMR installations are in “full upswing.”
- Published clinical evidence is documenting their impact.

“This type of evidence will give providers the confidence to prescribe mobile medical products and payers the willingness to pay for them,” Bergstrom said in an e-mail.

Other top innovations on the 2012 list include low-radiation-dose CT scans for early detection of lung cancer; genetically modified mosquitoes that can reduce the threat of disease; wearable robotic devices with microprocessors and computer chips for amputees; an implantable device to treat complex brain aneurysms; “next generation” gene-sequencing machines; and a concussion management system for athletes treated for head injuries.

The top medical innovation on the Cleveland Clinic's list last year was the molecular imaging biomarker for early detection of Alzheimer's disease.