



Cover Story

New Care Delivery

578 **Prof. Laura Oleaga:**
New Health Care Delivery

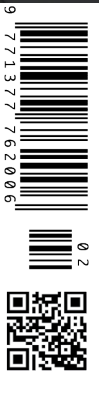
584 **Jorge Fernández García:**
New Era in High Value Care in Europe

588 **Chris McCahan:**
Pandemic Accelerating Uptake of New
Care Models

592 **Dr Rafael Vidal-Perez:**
Artificial Intelligence and Cardiology:
Reaching New Frontiers

596 **Prof. Eugene Fidelis Soh et al.:**
Building a Hospital Without Walls

604 **Prof. Sergey Morozov et al.:**
Moscow Radiology: COVID-19 Prepar-
edness and Action





It's Time for Open MRI

Author: [Prof. Penny Gowland](#) | Professor of Physics Faculty of Science | University of Nottingham | UK

Author: [Dr. Aaron B. Montgomery](#) | Innovative Open MRI of Pensacola | USA

Author: [Martyn Beckett](#) | COO | InHealth | UK

Author: [Marco Belardinelli](#) | Business Unit Director | ASG - Paramed

Magnetic Resonance Imaging (MRI) is a powerful diagnostic tool in clinical medicine. However, MRI technology is evolving continuously. In a recent webinar organised by HealthManagement.org, Prof. Penny Gowland, Dr. Aaron Montgomery, Martyn Beckett and Marco Belardinelli looked into the strategies that could be used to maximise the value and the output of MRI by utilising advancing technology. They specifically discussed open MRI and how it can enhance both value and output of MRI.



Key Points

- An open MRI is an MRI scanner that is configured to enhance patient comfort.
- An Open MRI offers high-quality imaging, a wide-open design, and a comfortable scanning environment.
- Some of the key benefits of an Open MRI include kinder and quicker clinical care, less claustrophobic environment, rapid positioning, and ability to study the effects of position and gravity and human dynamics.

An open MRI is an MRI scanner that is configured to enhance patient comfort. Traditional MRI scanners consist of a hollow, cylindrical structure. Patients are slowly sent through this structure during an MRI exam. However, being in a narrow and confined space can be challenging for some patients, especially those who suffer from claustrophobia. Traditional MRIs are also not suitable for patients who have difficulty laying down or those with wide shoulders or excess weight. An open MRI is shaped more like a doughnut, with magnets above and below the patient and open sides.

An Open-MRI opens up the possibility of providing new clinical information. Specifically, it provides a whole new dimension in MRI and offers the ability to look at the effects of position and gravity on the human body. One of the things that you could do in an Open MRI scanner that you couldn't possibly do in a standard MRI scanner is to look at the effects of normal positioning, normal gravity on joints and standard movements in joints, and the effects of repositioning on the way the body is functioning. Another area of interest in clinical research is the use of Open MRI in respiratory medicine. Patients with respiratory disease find it very hard to lie supine. An Open MRI can help look at the shape of the

diaphragm in COPD and several other conditions to identify changes in the way the diaphragm functions in disease. This would be clearly impossible with any other modality - not only MRI, but there are no other imaging modalities that would provide this resolution when a patient is upright.

Another area of application for Open MRI is in experimental medicine. You can look at the dynamics of the human body, joints in large angles and also the movements of the joints. Gastrointestinal function can also be more effectively studied with this advanced tool. Hence, an Open MRI has the potential to simplify clinical imaging, enable new clinical studies and provide a unique tool to study human dynamics in vivo.

An Open MRI offers multiple options for patient positioning. Standard MRI can only be performed with the patient lying flat, but with an Open MRI, the patient can be seated, standing or lying down, thus providing optimal patient positioning.

A major problem that many patients face with standard MRI is claustrophobia. This is not just a problem in terms of patients feeling confined, but it can also complicate the diagnostic exam. Findings from a study from the University of Wisconsin-Madison show that approximately 5 to 7% of

Positional Imaging



the world's population suffers from severe claustrophobia. MRI has been shown to trigger claustrophobia. Another study shows that nearly 13% of patients experience a panic attack during an MRI. It is estimated that nearly 20% of patients have difficulty completing an MRI or refuse to go through with an MRI. An Open MRI is a more comfortable alternative for such patients.

Open MRI is also very useful in patients who suffer from certain medical conditions that make it difficult for them to lay down flat. These include Congestive Heart Failure (CHF) and COPD. Cancer patients also have a higher incidence of difficulty in laying flat. Similarly, patients with back pain would prefer to do an MRI in a different position.

Traditional enclosed MRI scanners require the patient to enter a narrow tunnel, but an Open MRI allows the patient to sit, stand or lay down. Also, in an Open MRI scanner, there is nothing immediately in front of or above the patient. There is thus no barrier between the patient and their surrounding environment. They can see what's around them at all times and can even watch TV while sitting in the scanner during the MRI procedure. This is not something that is possible with a traditional MRI scanner.

Overall, the unique design of an open MRI offers several benefits:

- Patients can walk in and be scanned in a variety of positions. This is called positional or weight-bearing MRI.
- Patients can be scanned in the exact position they experience pain, or for the spine and joints to be imaged under the effects of gravity. The spine can be scanned in multiple positions (for example, flexion and extension).
- An Open MRI may be the last chance for imaging to support diagnoses of conditions for patients while avoiding the need for general anaesthesia.
- An Open MRI can offer patients an improved MRI experience and provide the opportunity for a more accurate diagnosis when upright and/or weight-bearing examinations are necessary.

For more information and details on Open MRI, please listen to the complete webinar: <https://iii.hm/asgdigiconfjournal>