

Technology: a medical tourism enabler



Technology has changed the face of most industries, and medical tourism is no exception. **Tatum Anderson** explores how the digital age has shaped the progress of global medical tourism offerings

Whether a potential patient searching for information on a particular procedure, a facilitator organising a medical travel package for an international client trip, or doctor linking up with a prospective patient for a consultation ahead of planned treatment, technology has changed the way in which those involved in medical tourism approach the subject. Not without its own set of related issues, technology allows for the speedy dissemination of data – key to the development of the industry. It has opened up the world of medical travel to people in every part of the globe and brought together all the different players from every stage of the medical tourism process. Here, we look at some of the ways in which technology is currently used in this industry, and look to the future to see how it might progress.

Remote access

Telemedicine, which can include emails between patients and doctors, e-consultations, e-diagnoses and even remote surgery, was originally

developed to prevent people from having to travel to access health services. However, it's turned out to be a tremendous boon for medical tourism because it can speed up treatment times as well as make procedures more efficient and safer. E-consultations and e-diagnoses can inform potential patients of their options before they travel. Patients can research and organise safe treatments at cheaper hospitals on the Internet. Electronic health records and digitised medical devices help healthcare providers to more easily make more informed decisions too.

The world's first 'Internet hospital' in Guangdong, China, is helping patients in rural villages to 'visit' doctors in distant cities without leaving home. Their blood pressure, body temperature and blood glucose readings

E-consultations and e-diagnoses can inform potential patients of their options before they travel

can be sent to the doctor, who can diagnose and prescribe online. Patients have rated the system so highly that there are similar plans afoot for 1,000 more sites in 21 provinces.

And Apollo Hospitals Group in India, which was one of the first to pioneer what is now called telemedicine, offers appointments with consultants in patients' homes via the Internet. Telemedicine specialists visit patients with videoconferencing kit and devices – even ECGs – to measure vital signs during these e-consultations.

Indeed, Josef Woodman, CEO of Patients Beyond Borders, a medical travel publisher, said he reckons medical tourism couldn't have progressed without – and has even driven the development of – these kinds of technologies. "You couldn't really do medical tourism until 10 years ago when you weren't capable of digitising a health record," he says. "Medical tourism helps to push the envelope around telemedicine, consultations and in some cases remote surgeries."

For instance, medical tourism has spurred a growing interest from potential patients in second opinion e-consultation services. The Cleveland Clinic and Cancer Treatment Centers of America originally offered e-diagnosis services for those who weren't able to travel to their hospitals for diagnostics. Today, these are offered to medical tourists considering alternative treatment options abroad.

Telemedicine in advance of travel can also help mitigate against unexpected diagnoses, said Julie Munro, president of the US-based Medical Travel Quality Alliance (MTQUA). "Patients arriving at a medical destination expecting a specific length of stay at a budgeted cost can be hit with a more serious diagnosis, more complicated treatment, or a higher bill once they are properly diagnosed," she noted. "It's difficult for them to refuse a treatment, or deny their loved one a needed surgery, once they are on site."

At the click of a button

Perhaps the most popular use of technology within medical tourism is the use of the Internet by patients to research destinations and treatments. The

Medical tourism helps to push the envelope around telemedicine, consultations and in some cases remote surgeries

Internet is awash with information – via forums, websites, portals, and the like – regarding hospitals, facilitators, treatments, hotels, doctors, and every other conceivable element of a medical travel journey.

Open gateway portals, such as the Treatment Abroad website, compare providers and costs around the world; some websites are national or regionally based, such as the Thailand Medical Tourism Portal. Elsewhere, treatment-focussed portals concentrate on providers of specific services, such as IVF or dental treatments. Others are run by small numbers of providers within a single city such as Prague or Budapest.

The problem is, as far as patients are concerned, it's unclear how reliable or independent much of the information on offer on the Internet about medical tourism is. Many sites are run by the very organisations that stand to gain from medical tourism, such as hospitals, doctors, and intermediaries who sell health tourism packages, and even governments that sponsor medical tourism.

Numerous studies have found problems with accuracy, completeness, readability, design, disclosure and references on websites, and warn that health information online should be used with caution. Munro commented: "Price transparency is notoriously opaque, for instance, >>



as is independent information about the likelihood of hospital-acquired infections, doctor qualifications, and treatment outcomes.”

One telling review of 17 Canadian medical tourism broker websites revealed just how misleading information could be. Many made no mention of pricing, risks associated with medical tourism, deep vein thrombosis risk due to post-operative travel, or follow-up care. Medical credentials of foreign physicians were often vague or confusing, and sometimes not mentioned at all. “These shortcomings are matters of grave ethical concern as they threaten the ability of patients to make informed decisions regarding their medical care,” the paper by academics at the University of Calgary concluded.

Of course, there are numerous initiatives to counteract one-sided information and, once again, telecommunications play an integral role in this. Internet communities have been set up that allow patients to discuss

Telemedicine in advance of travel can also help mitigate against unexpected diagnoses

such issues as facility cleanliness, convenience, price, satisfaction with medical services and the availability of lodging while recuperating. Some,

such as the Plastic Surgery Journeys website, allow members who have had cosmetic surgeries to post before and after photos, discuss side-effects and complications. In some of the most frank communities, there have been discussions about patients who died from surgery. Elsewhere, a group of patients who were disfigured by cosmetic surgery in Mexico even created a website to warn away other patients.

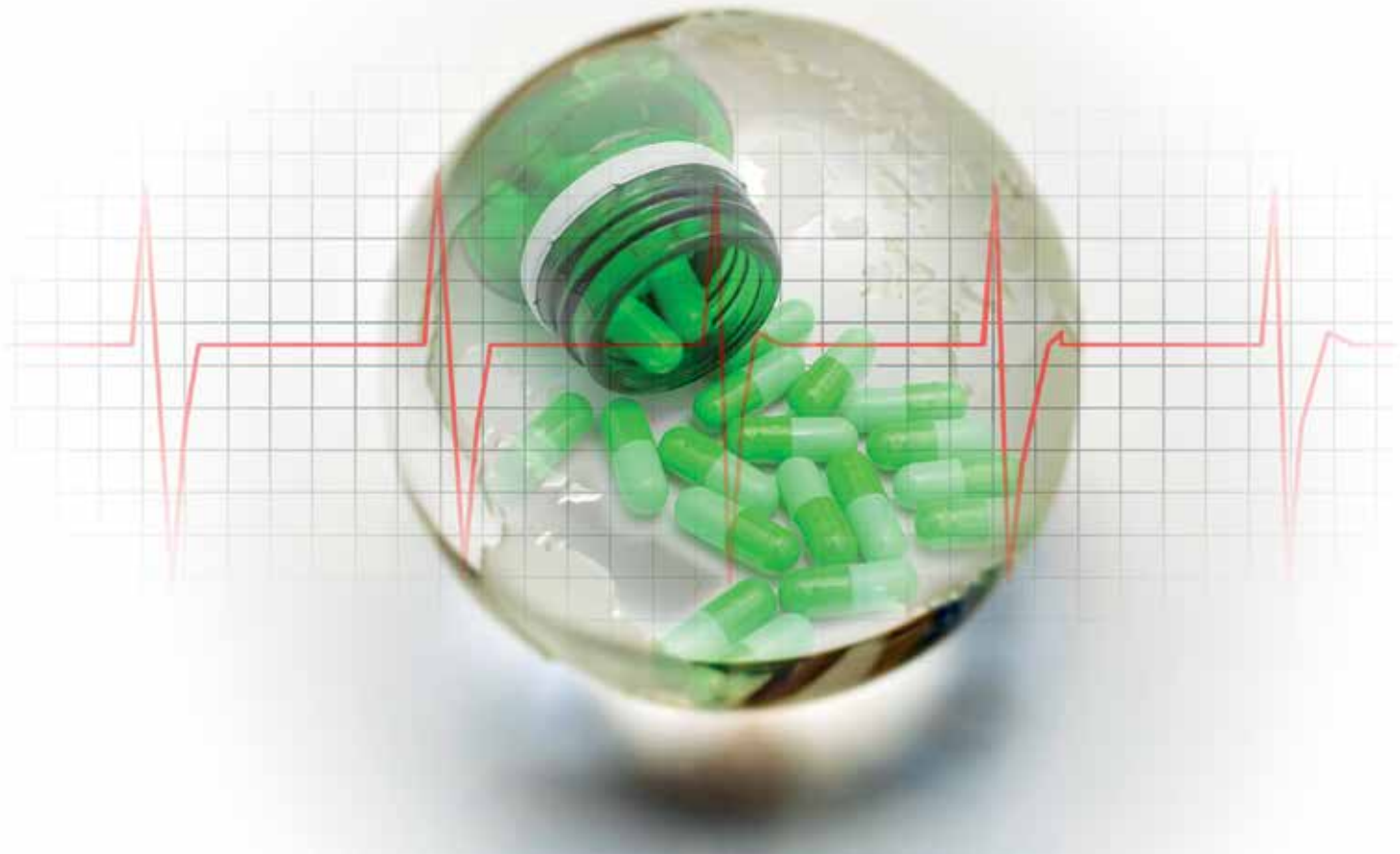
Other attempts to improve the quality of information on offer include websites that use stars to rank doctors, testimonials, and patient reviews.

But the jury is out on many of these too, said Dr Prem Jagyasi, who has published books on medical tourism and global healthcare. “In many cases, they are not reliable indicators of the efficacy and expertise of the doctor,” he told *MTR*. “Some of these might even be fudged. Some quacks might try to lure the patient by promising quick and assured cures and fraud them of their hard earned money.”

Munro of MTQUA agreed: “Newer versions of these gateways, that encourage patients to rate their doctor or hospital experiences, are unproven.” The quality of information available via social media is questioned too – obviously, this doesn’t just apply to information about medical tourism. Many medical specialists have gained large followings on Facebook and Twitter – some even blog regularly and publish health tips in response to questions from the public. But social media is also a marketing opportunity for physicians and hospitals. It is often there to boost the reputation and brand of a physician – sometimes regardless of their talent.

So, although some information can be useful, patients may have to dig for it. “Much of it is [fabricated], but there are nuggets of useful information layered within,” said Dr Prem. “Of course, the dangers of information running into misinformation are high, but it has not diluted the enthusiasm of people to search for information





related to health problems and diseases, preventions, cures and the institutions that provide services for them.”

At the same time, most professionals in the medical tourism sector believe digital communications, such as email, can be extremely useful for patients wanting to direct questions to physicians. And research shows that patients do want to communicate digitally with their doctors more frequently and more widely than is currently available.

A glitch in the machine

Although email improves accessibility and immediacy of answers for patients enquiring about non-urgent issues, some argue that there could be confidentiality problems or inappropriate interactions between physicians and patients. “There could be a replacement of face-to-face or phone interaction, and ambiguity or misinterpretation of digital interactions,” noted *the American College of Physicians and Federation of State Medical Boards* in a 2013 position paper (it took particular exception to doctors whose patients ‘liked’ them on Facebook).

Medical tourism experts also worry that digital communications could fall short of stringent privacy laws in the countries from which medical providers may accept patients, including the US and Europe. Indeed, MTQUA has just published a best practice guide for medical tourism websites. It warns websites that collect information from prospective patients to be careful, as many potential patients are enquiring about services and giving away sensitive information via online forms or email. Such websites, warns the guide, should treat the information in exactly the same way as that of established clients. In other words, all patient information must be appropriately encrypted, stored and deleted – whether or not they are clients.

And here is the rub with medical tourism technology. When technologies take off, they may inadvertently throw up a raft of non-technological problems that must be solved before there is widespread take-up. For instance, it’s still illegal in quite a few US states for e-consultations to happen if the patient is not registered in the same state as the doctor, for instance. And in Europe, where the new European Union cross-border health directive encourages patients from one country to be treated in another, there have been challenges in delivering telemedicine services

across borders. Furthermore, in the UK, there has been confusion about whether health professionals involved in offering advice to patients must be licensed in all countries where those patients are being treated. “We haven’t solved all the issues, and the technology – as usual – is way ahead of the regulation, which tries to keep up with patient safety issues,” said Patients without Borders’ Woodman.

Electronic health records (EHR), which have been implemented within hospitals across the world, could be invaluable for medical tourism: doctors can use them to evaluate medical tourists, identify potential drug interactions, manage patient caseload and store radiology and laboratory test results, as well as manage after-care. And in more challenging circumstances, they have been used to ensure patient safety. Take the women who received the faulty French PIP breast implants. It was possible to give follow-up surgeons details of the previous surgery, including the implant manufacturer and serial number, when they were later recalled. But EMRs too have run into problems that make them underused within the sphere of medical tourism. Few hospital EHR systems can ‘talk’ to each other, even those created by the same manufacturer, due to compatibility issues. The UK’s attempted implementation of EHRs across its hospital network was abandoned after billions of pounds had been spent on it, due to incompatibility and other technical problems.

But, interestingly, there is lots of resistance to the use of electronic health records that has nothing to do with interoperability or incompatibility. Shahid Shah, CEO of Netspective, a US-based company that builds >>

We haven’t solved all the issues, and the technology – as usual – is way ahead of the regulation

while the non-technological wrinkles are being ironed out, a raft of new technologies could help medical tourists further – from personal health apps to 3D printing

EHR systems, said there is little incentive for hospitals to send information about a patient to a hospital that is losing it money. Similarly, the medical experience could be improved enormously if physicians at home and abroad could talk to each other via the Internet far more than they do, but as it is not clear who is being paid for providing such a service, there is little appetite to do so. “Why would a doctor – if you are a patient in the US – help you go to India and take away US\$50,000 worth of my income that you would otherwise have given to me?” he asked. So, while the non-technological wrinkles are being ironed out, a raft of new technologies could help medical tourists further – from personal health apps to 3D printing. Increasingly sophisticated non-invasive surgery is reducing the need for inpatient care, while hospitals are speeding treatments by sending MRIs to the other side of the world to be read and interpreted overnight by outsourced radiologists.

One company in the US, Collaborative Medical Technology Corporation (CMTC), has developed a cloud-based system to help doctors request second opinions from specialists. By filling in online forms with all the pertinent information that a doctor at a centre of excellence would need – including electronic health records, scans, and answers to particular questions about a care plan – it might be less burdensome for doctors to

collaborate, according to Simon Schurr, CEO and president.

Future tech

Today, summary reports or interpretations are often the only way for home doctors to see results of laboratory tests and scans. Further down the road, the healthcare Internet of Things is expected to enable recordings of ECGs, digital images of X-rays, MRIs and CAT scans, and readings from blood and tissue samples to be sent from digital devices. This could reduce medical errors where details are lost within interpretations, said Shah. “When you get an X-ray done, someone can actually look at the X-ray in your home country because it makes more sense. It’s not interpretation,” he said. “The whole problem with all of this interpretation is errors.”

His company is also creating distributed care plan systems to ensure that every stage of a procedure is carried out, regardless of which country the patient is in. It would log and check, for instance, that a scan or test has been done before a patient’s surgery, or that they’ve taken the correct drugs at the correct time when they return home.

But perhaps the most experimental technology is remote telesurgery. Here, a surgeon can operate on a distant patient by using a robotically controlled arm. It has huge potential if surgeons could be much further away from their patients. Indeed, the US military could be operating remotely on soldiers in the field by 2025. But, as with all these technologies, there are still questions to be answered. In this case, there is need for an anaesthetist and back-up surgeons if the robot malfunctions. However it is used, there is no doubt that technology has enabled the medical tourism industry to expand and develop in the way it has.

Despite the glitches, the errors and the misinformation, the use of the Internet and digital technology has revolutionised the way people think about healthcare, the way they access medical treatment, and the way that those in the medical travel and wider healthcare industry are able to reach more people in need than ever before, making patient journeys quicker, easier and often safer. ●

