#### OPINION Dr Google, second opinions, and the informed patient The impact of today's information-centric culture on healthcare is far-reaching.

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With healthcare information now readily available on the Internet, most patients visiting their physician already have some understanding of their condition or what they believe that might be, and come armed with questions, a far cry from the old days when a physician's opinion was sacred and unquestionable.

In addition, our cultural ethos drives the phenomenon of second opinion which is typically sought when the advice received is not encouraging, even, if appropriate. Oftentimes,

multiple second opinions are obtained in parallel and can lead to confusion and delay in initiating treatment. Web-based second opinion services are now commercially available.

A friend contacted me asking for a second opinion on a CT scan on a relative of his who had been unfortunately diagnosed with a malignancy. On inquiring, I learned that the scan had been reported by a competent radiologist and a clinical opinion had been rendered by an experienced and reputed oncologist. Yet, in parallel, the friend was seeking a series of second opinions on the CT scan findings, the pathologic diagnosis, and also on the treatment plan. He had also reviewed all available information on the Internet and had a series of questions ready to ask each medical professional on the related aspect of the disease.

Whether you're a physician or not, I'll wager a substantial amount on the conviction that this sounds vaguely familiar? And I'm fairly confident that any physician colleagues reading this would agree. This is becoming an increasingly common phenomenon in the era of the Internet. Physician messaging and social networking sites routinely bring up, typically with a note of chagrin, the issue of the new physician on the block, namely Dr Google.

Why is this an issue, you ask? Good question. Well, for one, this represents a reversal of the traditional physician-patient relationship, of the paradigm of the doctor as infallible, and of his/her opinion as sacrosanct. While one might argue that this reversal of the traditional order is necessary, it must also be appreciated that it does not come without some consequences.

But first, to set things straight, it is the fundamental and unarguable right of a patient to familiarise themselves with a medical condition that they have been diagnosed with.

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Receiving a medical diagnosis is a time of many emotions including fear and uncertainty about the future as well as a slew of doubts about what treatment option is the most effective and least harmful for their condition. It is therefore completely understandable that the individual and their families seek out whatever information is available from whatever source available to them. In the pre-Internet era this was not feasible or practical, but in the current days of Internet searches, this information is only a few mouse clicks away. Today the Internet serves as a vast repository of medical information. Medical information websites and portals directed at the lay public abound (with subtle disclaimers about how the information they contain should not be taken as medical advice). In addition, today, most medical institutions provide free information about diseases and treatment options on their websites. Powerful search engines such as Google can allow the lay person access to vast amounts of medical information in milliseconds. Sites such as WebMD and Netdoctor provide comprehensive advice on all aspects of health. And medical journal articles are also available online through PubMed, a far cry from the old days when one had to visit ones medical school library to formally request a printout of a Medline search. Every individual with a computer and Internet connectivity can in a short period of time gain access to a large amount of medical information.

It is however important to realise that information gained in this manner can potentially be biased or hyperfocussed without attention to or consciousness of a larger picture or awareness of other relevant factors.

Other factors including sociological and economic ones, play a role in the second opinion phenomenon. For instance in this era of privatised healthcare, it is sadly a common plaint (whether or not this is justified is a separate discussion) that physicians are always looking to make a buck off their patients, and that the diagnosis and treatment plan that is being presented is being done with the express intent of securing maximum revenues for the healthcare provider. In an environment rife with professional mistrust it is the natural course for the patient to seek an alternative opinion.

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Further, today, web-based second opinion services are now commercially available. A Google search (how ironic) on the term medical second opinion yields a host of such services. Some of these are run by sub-specialist tertiary care institutions of excellence, while others are intermediaries that guide one to such institutions, such as the eponymous second-opinion.com.

In addition our cultural ethos drives the phenomenon of second opinion which is typically sought when the advice received is not encouraging, even if appropriate. When the news is not good it is fairly typical (and understandably so), for a second, or even a third, opinion to be taken, either to validate the primary opinion or to overturn it. The opinion seeking ends once an opinion is finally received that is in keeping with what one really wants to hear.

In radiology, second opinions have grown into an industry, largely because the terminology of the radiologic report can be incomprehensible and often frightening to laypersons. Radiology second opinion services while providing an independent analysis of the imaging scan, also, therefore help to demystify and explain the situation to laypersons in language that they can understand. Radiology images being digital to begin with, obtaining a second opinion simply requires one to upload the CD of one's CT or MRI scan to the portal over the Internet from one's home computer.

What's the risk in all this? Well, oftentimes, especially among the elite, multiple second opinions are obtained in parallel and this can lead to confusion and delay in initiating treatment, which may impact on the response and ultimate outcome. A tragic example – a friend with an early stage cancer spent such an extended period of time evaluating and discussing his treatment options that the treatment ended up being delayed by a couple of months. It is debatable whether this played a role in the tumor recurring shortly after what was hoped to be curative surgery.

Another "side-effect" if you will, is the impact on one's physician. Second-guessing someone who has spent the better part of his or her life learning every detail about the condition that you have is probably not in your best interest. A bit like asking Gordon Ramsay if he's sure that he put enough salt in the ratatouille. Although some physicians, my pediatric cardiologist spouse included, are gracious enough to accept that they are fallible and will encourage anxious parents to seek another opinion if they wish, the majority of physicians will not take kindly to being doubted or questioned.

On another level, in addition to the consumer-focussed medical information systems and portals, today there exist clinical decision support systems for physicians, such as IBM's Watson and Google's Deepmind (literally, if you will, Dr Google). With the vast and growing amount of medical information rapidly exceeding the capacity of the individual physician to keep abreast of it all, such systems use tools such as Deep Learning and Artificial Intelligence to help physicians process information rapidly and take better informed medical decisions.

This then represents the true future of medicine, the superphysician working in parallel and in collaboration with the informed and empowered patient.

## Key takeaways

It is entirely appropriate to research one's medical condition thoroughly. The Internet today provides a vital resource for such information. It should be appreciated however that medical information gleaned from the Internet typically represents the tip of the iceberg and should be weighed in the balance with the decades long breadth of experience of a specialist.

Second opinion services, including web-based services are available especially in digital specialties such as radiology. These are probably best used judiciously, ideally in case of complex or rare conditions where it is important to connect with the appropriate subspecialist, rather than as a routine.

The use by physicians of medical-based decision support services such as Watson are likely to increase in coming years as research data increases, Artificial Intelligence algorithms increase in sophistication and more data is integrated within deep learning systems that develop Artificial Intelligence.



Views are personal.

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