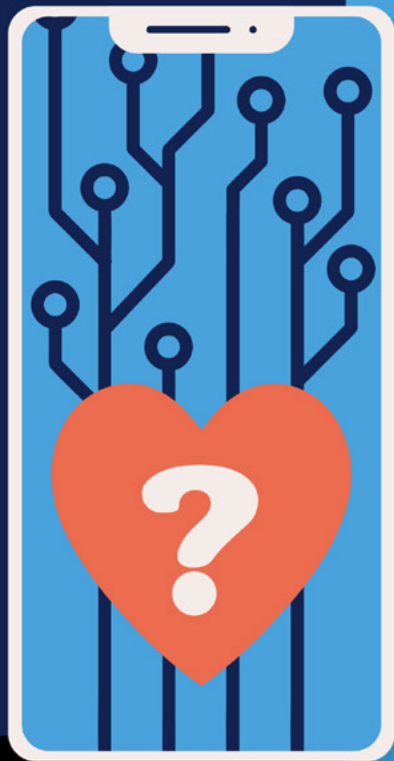


A Practical Guide About Digital Health For Medical Professionals



medicalfuturist.com

INTRODUCTION

Today when people Google their symptoms and use digital health technologies even before going to the doctor, it is more important than ever to be updated on the digital developments in healthcare and navigate through questions of digital health-related issues.

That is why we created this short guide for medical professionals. We want to facilitate communication between digitally savvy physicians and their patients who have been too afraid to ask about online information, apps, trackers, wearables or sensors.

We also summarise the most frequently asked patient questions and physicians' potential responses.

This guide aims to prepare healthcare professionals for ways of listening to and answering patients' questions related to digital health issues.

The FAQ also offers a framework on how to respond to the latest challenges in the patient-doctor communication. However, you as the doctor, the nurse or other medical specialist can fill in the void with content according to your own practice, specialty, experience, local customs, and specific conditions.

We encourage every physician, nurse, and caretaker who has an interest in the latest technologies and wants to step up to the challenges of the 21st century to skim through the guide – and let us know what you think!

Take care,

Dr. Bertalan Meskó

The Medical Futurist



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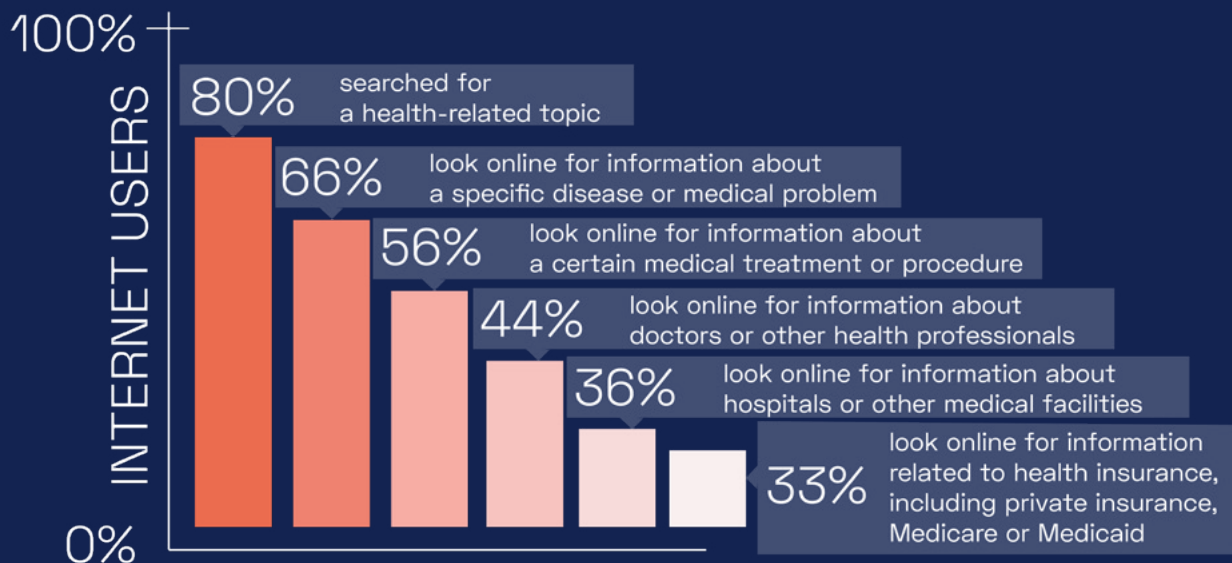
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GOOGLING SYMPTOMS

It can be annoying for a doctor when a patient arrives “well-informed.” However, you should just try to appreciate the effort s/he puts into healing. A striking 1 billion health-related searches are on Google every single day. Even with the best intentions and the best A.I. toolset, the search giant can’t exclude fake news and wrong information from among the relevant results. And yet, doing so is especially important in the case of medicine and healthcare, since the well-being of people is at stake. Here’s what there is to know to be prepared.

How do patients use online search engines to look up their symptoms?

Research and surveys clearly show that patients in large numbers are using online search engines to look up their symptoms. This is often the first step in checking for basic information about a disease and its treatment, says a comparative study about the use of search engines to obtain medical information. A study finds 89% of US citizens turn to Google before their doctor and as mentioned above, Google receives more than 70,000 health-related searches per minute every single day. Another study shows that online health information can increase patients’ knowledge of, competence with, and engagement in health decision-making strategies.



These numbers have only grown since COVID-19. The pandemic highlighted the disparities in access to digital health, including telemedicine. That said, it comes as no surprise that **digital health literacy** is a social determinant of health.

That's why your patients need assistance.

A **survey among consumers of online health information showed** that approximately half of the population of consumers of web-based health information with chronic health conditions would benefit from support in finding health information on the Internet.

Another survey also suggests that healthcare professionals should assist patients' medical decision-making by initiating as much dialogue with patients as possible, providing credible and convincing health information, and guiding patients where to look for accurate, comprehensive, and understandable online health information.



Hi Doctor Lee!

Hi Ramona! How are you today?

I'm not feeling that well and my phone tells me I might have pneumonia.

Well. Don't believe everything you read on your phone.

**Wait what?
That doesn't
sound right!
What if you
tried this
instead:**

Hi Doctor Lee!

Hi Ramona! How are you today?

I'm not feeling that well and my phone tells me I might have pneumonia.

Well. May I ask you what was the source of that piece of information? Why do you and why does your phone think that you might have pneumonia?

Oh, okay. So, my friend told me about this symptom-checker app and I typed in my symptoms and this is what I got.

Alright. So, what if we check your symptoms and also check the suggestions of that symptom-checker?

OK, Doctor Lee. Go on.

Instead of discouraging patients from using online tools saying that they provide inaccurate, incomplete or misleading information, **start a conversation** about reliable sources and the assessment of medical information online. This way, you will earn the trust of your patients and spare yourself the random online health information that patients throw at you from untrusted sources.

HOW TO FIGHT MEDICAL MISINFORMATION

In an age when the problem is not the access to health information anymore but rather that most people have to face a data overflow, finding the right piece of knowledge will be the biggest challenge. The 'right' information will make you empowered, but fake information might get you into serious health trouble. This is why you need to arm yourself.

We know how difficult it is to navigate in the online jungle – it's full of misinformation. The following guidelines offer principles for the assessment of medical news, medical websites, smartphone apps and health sensors or other medical devices. You could share your knowledge with your patients and educate them further about the usage of digital and online tools. So, let's start with the medical news arena.

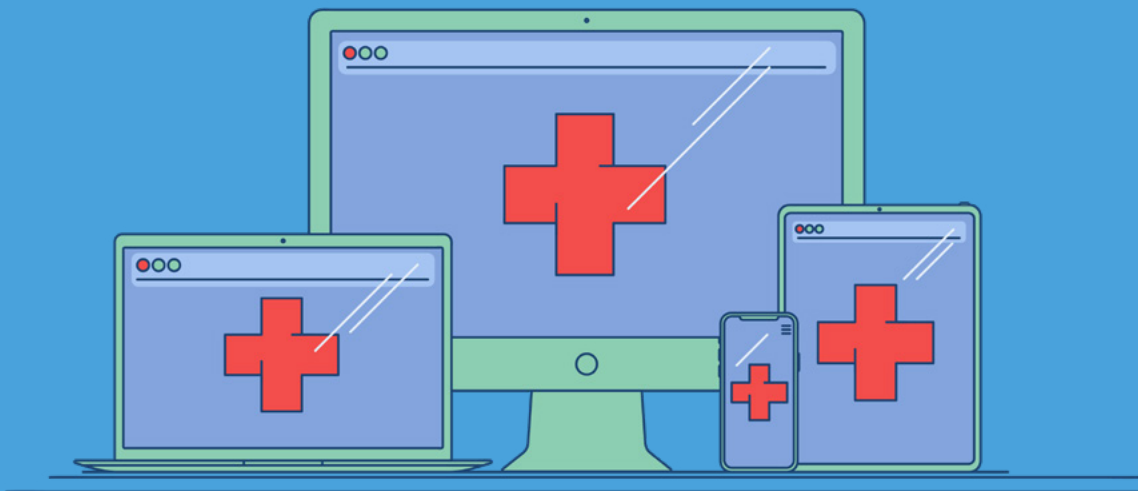
- o Be vigilant! Be critical with emails you receive from unknown sources, even from credible-looking ones. If your instinct tells you that something is not right, double-check the source using your web browser. It only takes 3 seconds to be on the safe side.
- o Make sure your patients cross-reference! A good piece of advice to share with them is: if you read something only on one site which seems or sounds too good to be true, it is. Period. The biggest breakthrough in the history of medicine will not appear only on a random website but in major journals. And a lot of other credible sources will cite it. Also, the way journalists interpret the results of a study is just one way of doing it. If you have doubts, check out the conclusion section of the abstract of the study and use your logic.
- o Verify the claims! If a medical company claims their technology is FDA-approved, you can check it yourself on the [**FDA website**](#). The same goes for every other regulatory agency. Also, if a company refers to a study, you can check it out yourself on their website. If no links are available, that's also a telling sign.
- o Don't click on everything! Sounds obvious, but we still cannot emphasise it enough. If a website or article wants to get your attention with pop-up advertisements or flashing signs, become suspicious. Check the link to see where it would take you.

WHERE TO FIND RELIABLE MEDICAL RESOURCES

In the era of fake news, relevant news often gets lost under the rubble of conspiracy theories. We would be better off being well-informed by trustworthy sources of information. At The Medical Futurist, we have been watching every resource and major medical organisation since the beginning, and it has increasingly been so since COVID-19. So let's see which ones are reliable and useful while meeting both medical and scientific standards.

On our website we regularly refresh our collection of websites that are relevant and reliable for medical information. Here are a few of our articles you may find useful:

- o [Top 10 Online Medical Resources For The Patients Of The Future](#)
- o [The Most Reliable COVID-19 Online Resources: Your Ultimate Guide](#)
- o [How Could Digital Tools Help Fight Against Anti-Vaccination?](#)
- o [The Most Reliable COVID-19 Online Resources: Your Ultimate Guide](#)



HOW DO I ASSESS THE QUALITY OF MEDICAL WEBSITES?

As the online space is full of fake news and misinformation, one of the most significant challenges is how to find reliable information. And, more importantly, how to find reliable medical information. If you're checking a site that provides medical information, consider these points:

- o Is the author of the article/website a medical professional?
- o Do they have an editorial policy and is it supervised by medical professionals or patients organisations?
- o Is there a policy on paid advertisements?
- o Do they have clear contact information and an archive?
- o Is there a clear description about the mission of the site and the intention of the author(s)?

The FDA also has recommendations for health information: access it [here](#).

Hi Doctor Martínez!

Hi Emma! How can I help you today?

I have a rash and I'm worried because I read somewhere that it might even be lethal.

Well, most rashes are rather common nuisances and can be treated quite simply, but in very rare cases, there are, in fact, some dangerous ones. Let me check it out and in the meantime, tell me, Emma, where did you get this information from?

Okay, Dr. Martínez, so you know that I'm a responsible person. I like to go after stuff on the internet. I found a website called [catchyourrash.com](#) and that's where I saw a picture that showed a rash similar to mine. They said that could be lethal.

So, [catchyourrash.com](#), huhh? Did you check the website's infos, the 'About us' section or whether they have any dermatologists on board? To be honest, I'm a bit suspicious about this. Let me check.

Okay, Dr. Martínez.

So, I couldn't find any reliable cross-references to this site, Emma. That's the problem. Because then it seems it's not a credible source. Next time, you want to have more information about rash, check out MedlinePlus or the National Health Information Center.

OK, Dr. Martínez, thank you. I'm gonna do that next time. But what do you say I should do with this rash now?

So, let me see it!

Among the many amazing sources out there, here are my top 10 choices when it comes to finding reliable medical and health information online. From medical websites to online toolkits, these are the favourites that I can always trust and rely on – and you should do so, too.

Where do I find a list of reliable medical websites?

The top online medical resources include:

- o [Smart Patients](#)
- o [Medscape](#)
- o [Medline Plus](#)
- o [Drugs.com](#)
- o [Mayo Clinic](#)
- o [Orphanet](#)
- o [Medgadget](#)
- o [National Health Information Center](#)
- o [National Center for Complementary and Integrative Health about web resources](#)
- o [E-Patients](#)



HOW TO EVALUATE THE QUALITY OF HEALTH APPS?

It has almost become a meme to state that your smartphone is more powerful than the computer aboard Apollo 11 that helped men land on the Moon. In fact, your phone probably boasts over 100,000 times the processing power of that computer. Considering that an Apple Watch can detect life-threatening conditions like atrial fibrillation, while a Fitbit could detect a woman's pregnancy, it's fair to know how to evaluate data from all these sources. We're here to help.

Over 400,000 health apps are now available in top app stores worldwide, with more than 200 health apps being added each day. As it is impossible to know about all of them, here are some principles and guidelines that can help you assess the quality of health-related smartphone apps.

- o Check the company behind it: look it up in company databases (such as the Crunchbase), browse through its appearance in relevant news sites – MedPage Today, Healthline, Medgadget, WebMD, News Medical.
- o Find out how often updates come out or how active they are on social media – if their last post is from 2019, they're likely out of business.
- o Read user reviews – and check it whether MobiHealthNews, or medgadget.com have reviewed the app. These are the most reliable sites.
- o Be vigilant about what kind of personal data it requests access to – for example, why would an app providing info on diabetes want to connect to your camera and photos – and what happens to your data after you allow access.

Where do I find a curated list of health apps?

You can check the NHS Apps Library, ICH Medical App Library and the ORCHA website.

HOW TO EVALUATE HEALTH SENSORS & WEARABLES?

There are millions of smartwatch owners with a cardiac abnormality detection feature. What would you do if it told your patient that he has atrial fibrillation (AFib), an irregular heart rhythm disorder that increases stroke risk? If the patient doesn't have a history of cardiovascular ailments, you might, at first, think it's an issue with the firmware, an incorrect reading or even a faulty device. To stay on the safe side you should however assume it reads right – for if it does, you saved a person's life.

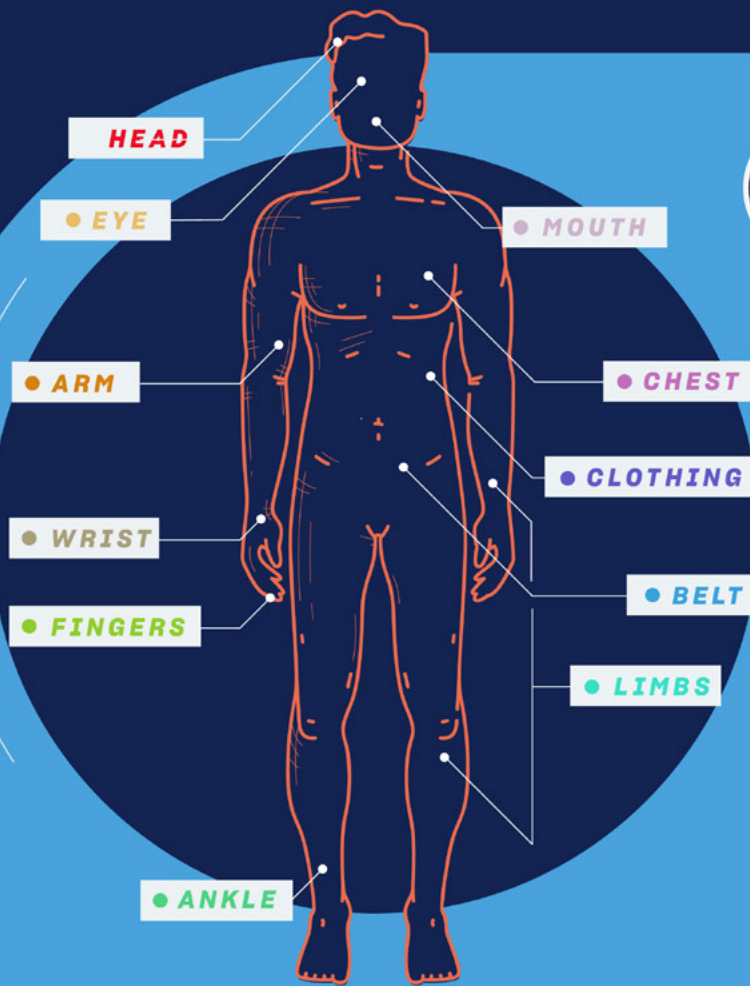
Fitness and health wearables on wrists, arms, ankles, clothing or even shoes, and health sensors and gadgets measuring vital signs have flooded the health device market. Just as in the case of health apps, it is impossible to know about every single one of them. Thus, consider the following to be able to evaluate whether they have value for the user/patient as well as for your practice.

However these devices have the tendency of overpromising. The same rule applies that if something sounds too good to be true, it is. When a smartwatch offers heart rate tracking, calorie counting, a mosquito and earthquake alarm (there is a watch like that!), you should advise your patient to be alert.

You can also:

- o Check if it has **FDA** or **CE marking**
- o Scroll through the accompanying app
- o Check what the reliable assessment organisation, **ORCHA** says about the application

The Medical Futurist's Body Map of Digital Health Sensors



EEG



Muse
Brainlink

BLOOD PRESSURE



Withings
iHealth
MocaCare
Omron

ECG



Kardia
WIWE

BREATHING



Spire
AioCare

SLEEP



Fitbit	Beddit	Philips
Withings	Resmed	
Apple	Oura	

BODY TEMPERATURE



Empatica
Oura

VISION



EyeQue
D-Eye

MOTION



Fitbit	Apple	Wahoo
Garmin	Withings	Oura
Polar	Ticwatch	Heartbit

* HEART RATE

PULSE OXIMETRY



Viatom

ELECTRODERMAL ACTIVITY



PIP
Empatica

COMBINED DEVICES



Withings BPM Core
Viatom+

STETHOSCOPE



EKO
WITHINGS

WHAT IF MY PATIENT ASKS ME ABOUT GENETIC TESTS?

It is easy to get lost in the jungle of the DTC genetic testing market too, but if you read The Medical Futurist's related articles, you can answer questions whether it is worth taking a genetic test or trying whole genome sequencing, what to do when your patient wants to know more about ancestry, health risks, paternity or maternity questions, or perhaps, pharmacogenomics and nutrigenomics.

Also, if you are looking for a database to find genetic tests and testing companies, here you can find a curated collection of the latest ones.

You might also want to check local regulations and options about genetic testing, if applicable. It is useful to know who could help in interpreting the results, or where to send the patient in case of concerns.

Direct-to-consumer (DTC) genetic testing companies are booming and offer their testing kits for as little as 50 USD, but be careful – the content of these tests vary!

Hi Doctor Jacobson.

Hi Rudy, how is it going?

I'm worried about my father and concerned about my health outlook, to be honest. It turned out that my dad has Alzheimer's and I wanted to ask you about his prospects and how we should approach the issue of his illness. But also, I'm thinking about getting a genetic test to figure out whether I could inherit the condition.

I'm so sorry to hear about your father! We should definitely look through his results and discuss what we could do. Now, about the genetic testing. That's certainly an option, but you should carefully consider which test you choose and how you interpret the results.

What would you recommend, Doc?

I have an excellent database of genetic tests for health risks and as I know many of them also provide genetic counselling so they will not leave you in the dark with your results. I'll look it up immediately for you, what if we check them out together!

Wow, sounds great. Thank you!

WHAT IF PATIENTS OVERUSE HEALTH APPS OR MEDICAL DEVICES?

The phenomenon of overreacting to perceived symptoms happens to a lot of patients. Nevertheless, as people are becoming more and more active when it comes to tracking and managing their wellbeing or disease with the help of digital tools, exaggeration might be an inevitable “side effect.”

As technology progresses, we'll have much more information on our hands about health and illness, including ECG sensors, food sensors, sleep trackers, digital tattoos, online algorithms or genetic test results. These tools are incredibly useful for prevention. However, if patients never had training in how to interpret data and how to manage their own information, they might be jumping to conclusions too early, misinterpreting or falsely evaluating data.

When you perceive your patient overreacting to information found online or overusing health technology, ask the patient the following questions (based on this article):

- o Do you spend minimum 1 to 3 hours per day checking your perceived symptoms online or via an app?
- o Do you fear having different diseases at the same time?
- o Do you check your medical state through a symptom-checker, an app or a wearable more than 3-4 times a day?
- o Does looking at online information make you feel more anxious?

If the patient responds positively to more than 3 questions, you should recommend them to cut back on the use of digital tools when it comes to managing their health.

LIMITS ON E-MAIL COMMUNICATION WITH PATIENTS

Appropriate communication is key in maintaining a good relationship with your patients. You can decide what kind of tools or channels you would like to use when it comes to talking to your patients. Here are some useful rules to keep in mind:

- o Indicate your office hours and be available for your patients in the given time frame on the given channel.
- o Indicate if and how they can reach you in case of emergency.
- o Be strict with your “office hours”, and outside of these hours, let patients flood your inbox, messaging platforms or social media channels without you responding. This might be difficult to keep, knowing that it concerns people in need. But while it is beneficial to be available, it might be a detriment to your own private life if you don't draw up clear boundaries. Moreover, you can be quite certain that it isn't an emergency since you indicated that in cases of emergency, they should contact you on the phone or in person.
- o Remind patients that e-mail communication is not enough to set up a diagnosis. Tell your patients that it could only accompany personal or telemedical services in diagnosing. Thus, it is not worth attaching medical evidence or describing symptoms in a too detailed manner if a patient writes you without having met you before.

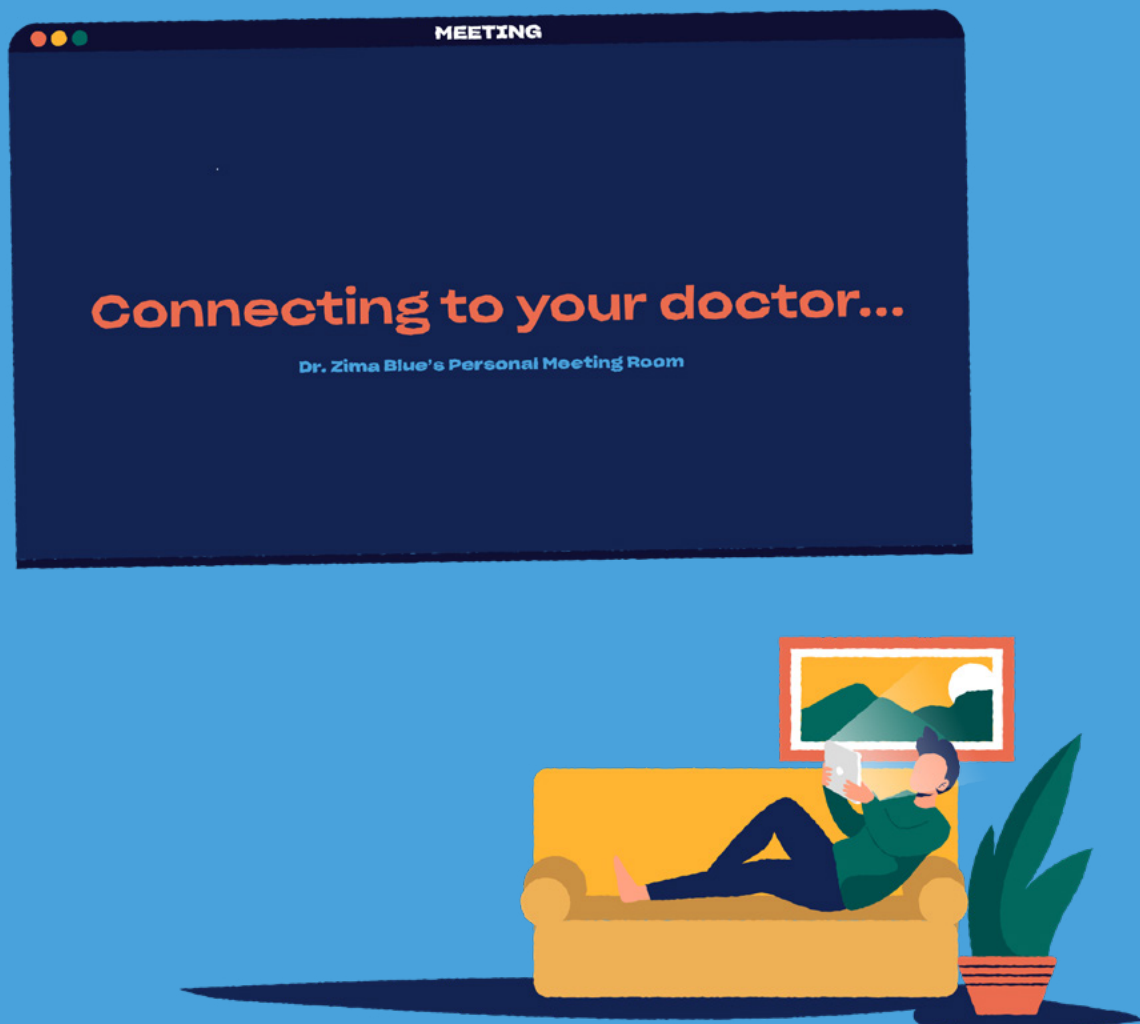


To clarify all the above issues, you need to set up and regularly update a policy about e-mail communication, and also include:

- o What patients can send you by e-mail (labs, referrals, etc.)
- o How soon will you answer? How many questions will you handle?
- o What can be the subject of online communication? What is already an emergency?

E-mail communication is an excellent tool to

- o discuss the next appointment and further course of action
- o follow-up on complaints after surgery or treatment
- o attach medical evidence about known medical problems

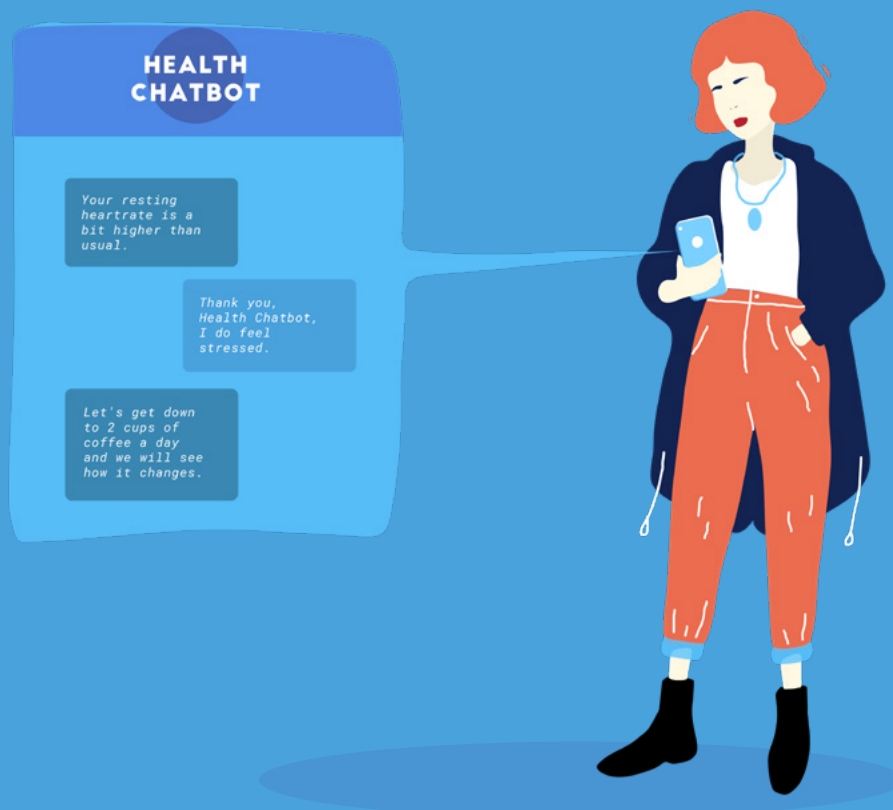


HOW TO COMMUNICATE WITH PATIENTS ONLINE?

Draw your patients' attention to the fact that they should always send their letters to your official work address and not the "office address", which can be read by assistants and colleagues, too. Patients should always make sure to only share information that is not too personal.

The use of social media channels, such as Facebook, LinkedIn, Twitter or messaging platforms, such as Messenger, WhatsApp or Viber could bring you closer to the younger generation.

Especially if you keep in mind the [survey of Roche UK](#), which shows that over half (56%) of those surveyed in Generation Z (individuals aged 16-24) would rather receive advice from their GP or clinical pharmacists via an app or website than face-to-face (44%).



You could also incorporate a **chatbot** in the website of your clinical practice and choose a social media channel to use to guide your young patients on their journey towards health.

Beyond the rules of e-mail communication, – including pinning down exact office hours, strictly keeping them, and making it clear that it's not a platform for emergencies, – it is also beneficial to indicate that **the conversations via messaging platforms or social media channels cannot be considered as diagnoses**. As mentioned above, you need to have at least a telemedical visit with the patient to form a well-grounded opinion.

Hi Doctor Brown!

Hi Lucy! How are you? How can I help you today?

I have fever and I'm coughing for days. I think the flu got me.

Let me see your throat and listen to your chest. [...] Yeah, it seems you have to stay in bed for a couple of days and come back for a follow-up visit.

Doc, I live 1.5 hours from here. Is it really necessary? Wouldn't it be okay to write you on Messenger how I feel? Can I friend you on Facebook?

Hm, so you live that far away? Then it won't be necessary to come in if you feel that your symptoms disappear. But definitely write me an email how you are. Unfortunately, my Facebook profile is private, but you can always reach me in email.

OK, I understand. Thanks, doc.

DEFENDING MY ONLINE PRIVACY AND THE PRIVACY OF PATIENTS

Medical information is among the most valuable items on the black market. It allows counterfeiters to file false insurance claims and even to buy medical equipment illegally. This valuable commodity is leading to an increased incidence of compromised healthcare records.

The advanced technologies fueling the digital transformation of healthcare cannot improve without our data; and without it, they can't be implemented as part of regular medical care. As we are using multiple email accounts, social media channels, messaging platforms, or even genetic data sites, online privacy has never been more important, no matter whether you are a patient or a doctor.

Use these safety steps and ensure the safety of your accounts:

1. Strengthen your passwords: don't use the same password for different accounts, and do not store the passwords on your computer. There are online tools to **create strong passwords**,
2. Use trusted password managers, such as **DashLane**, **1Password**, **Nordpass** or **BitWarden**. These generate random passwords and help you keep track of them.
3. Check it **here** to see if your password(s) have already been compromised.
4. Set up two-step verification to secure social media accounts.
5. Go to **mypermissions.org** to see what third parties you have already given access to your email address, contact list and other types of data. You can revoke any permissions you don't like with a click.

With the help of digital health technologies, patients turn into the point-of-care. Consumer technologies like smartwatches, portable ECGs and at-home genomic tests give unprecedented access to one's own personal health data.

As digital health technologies empower patients to become more proactive in managing their health, physicians can focus on the human component and serve as guides helping them navigate properly.

In this e-book we elaborate on the need for change, the related issues and provide practical recommendations on how you can start protecting yourself today. You can also watch my video on privacy [here](#).

GET YOUR COPY OF THE E-BOOK HERE



WHAT MORE CAN I DO TO SUPPORT MY PATIENTS' JOURNEY TOWARDS DIGITAL HEALTH?

Patient education is a significant part, and you can also utilise the power of technologies. Medical apps with the aim of educating patients about diseases, drugs, treatments, first aid, testing services or clinical trials are multiplying day by day.

For example, [MedlinePlus](#), produced by the National Library of Medicine, brings you information about diseases, conditions, and wellness issues in languages you can understand. With [Challenge Your Health IQ](#), you can broaden your medical knowledge through a fun trivia game. [This article](#) collects the best online available services for the US/UK. And [in this article](#) we listed the best dermatology apps to aid in digital skin care. You can also find more first aid or disaster-related apps or programs [here](#) – and there's way more on the sites we recommended on the previous pages.

What if I have more questions?

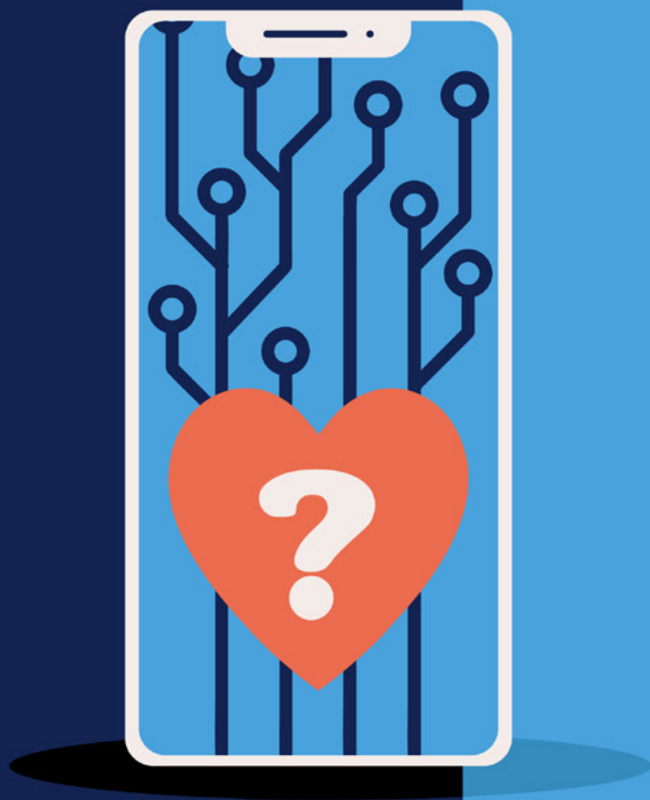
In this case, do not hesitate to reach out to The Medical Futurist team at the following email address and our social media channels:

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