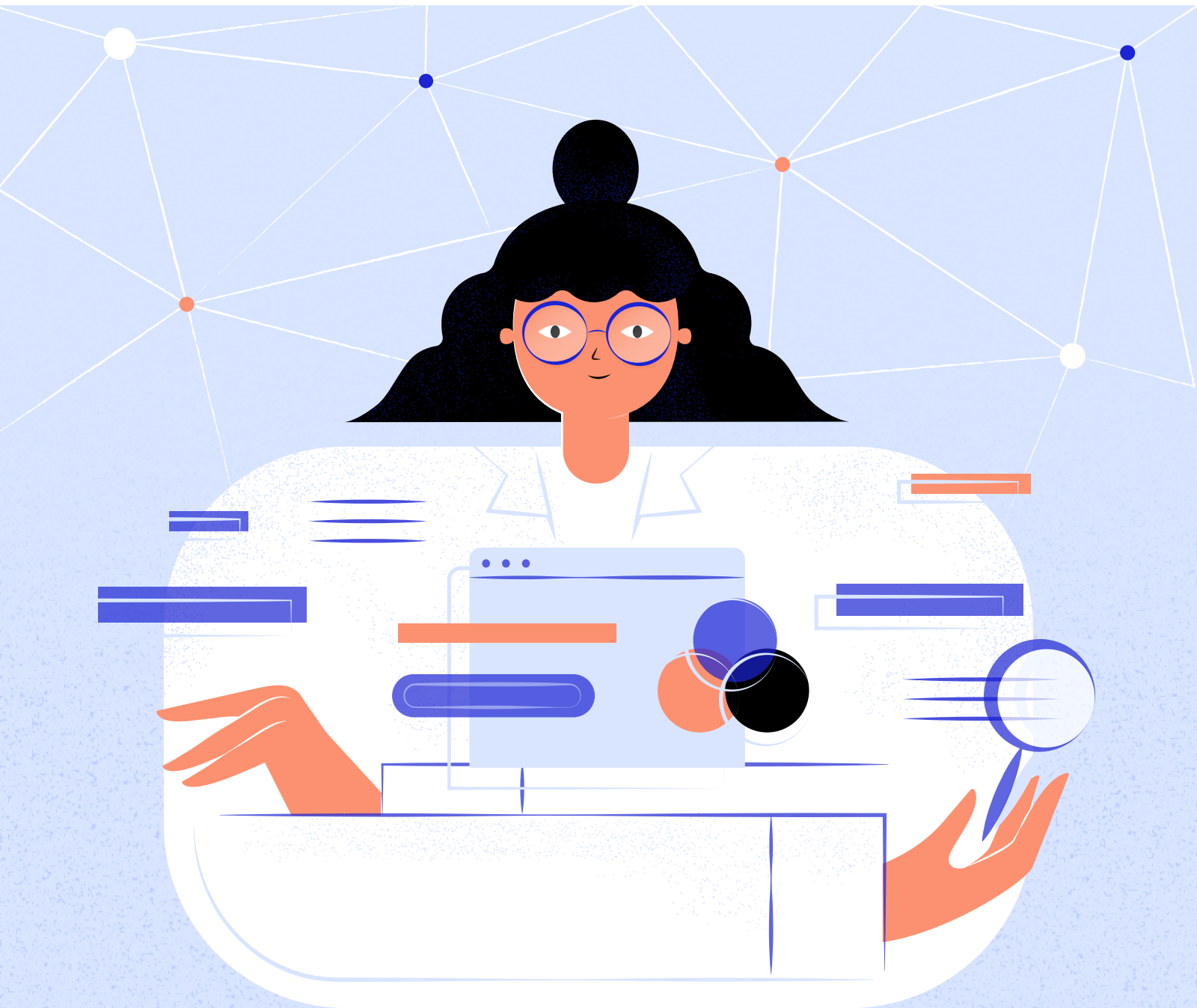
brandmed

High Quality EBM Content Creation

Ebook
2021



In the expanding world of new technologies and open access to medical information, the demand for comprehensive Evidence-Based Medicine digital materials noticeably increases.

Integrated solutions, reflected in the combination of knowledge, skillful writing and creative design, can take your content to the next level.
By bringing together diligence and suitable tools, you will deliver materials that meet expectations of both your clients and your readers.

With 6 years of experience on the international healthcare market, we are more than happy to share our knowledge and tips on medical content creation.

Brandmed has brought on values taken directly from the doctor's office. We understand the great responsibility which comes with creating communication for brands focused on healthcare. It is not an easy field, but after all those years of learning from our mistakes and relentless desire to grow, we feel ready to guide you through the process.

Throughout this e-book, we would like you to discover the true potential of EBM as the core of medical content. You will learn how to create high-quality healthcare-related and market-oriented materials based on scientific evidence. We will guide you step by step and prepare you to design and create EBM content with due diligence and fresh perspective.

Let us show you the true beauty of science.

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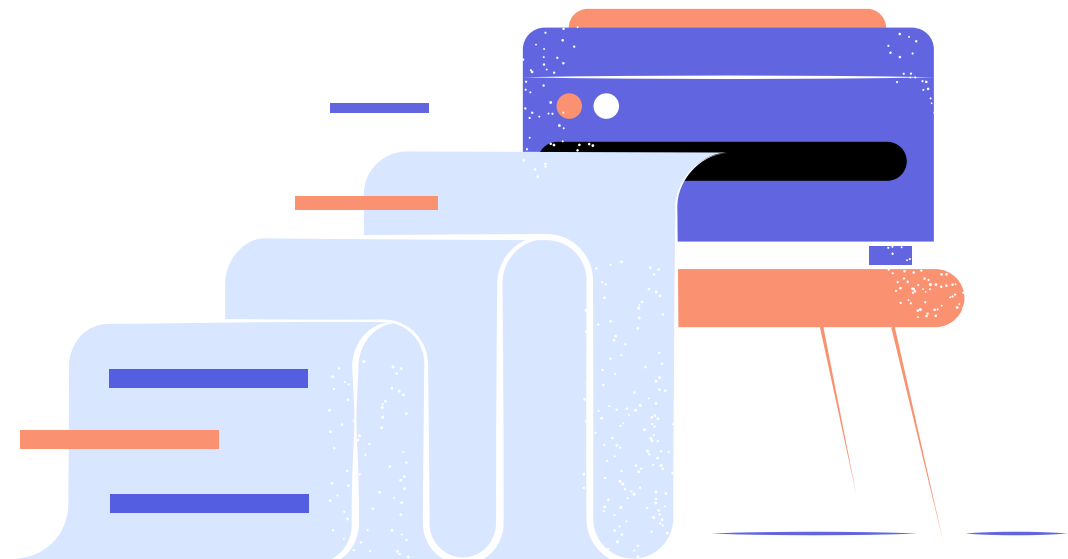


PART I

Chapter 1: EBM and Marketing

Medical content creation has a very unique specificity. The aim is to combine informative, substantial text and clear style, as you want to create understandable, reader-friendly material. Creating content based on Evidence-Based Medicine (EBM) will help you to achieve this goal efficiently. Let's take a quick look at why exactly you need an EBM strategy.

Medical light bulb

Evidence-Based Medicine (EBM) is a widely used term in modern healthcare systems, although its first heralds date back to the nineteenth century [1].

According to David Sackett's definition, it is "conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients." [2]. Accordingly, clinicians should look at particular cases relying mostly on scientific research and not focusing so much on individual experience. Comparing EBM to an invention of a light bulb might sound weird but, in fact, it is not so detached from reality.

An evidence-based attitude towards medical art has made an enormous progress in healing patients worldwide, just as a light bulb changed the conditions of our lives forever. As a medical writer you have to communicate with your recipient using EBM standardized content. Why is it so crucial? And what exactly does it mean in everyday practice?

First – evidence, then – experience

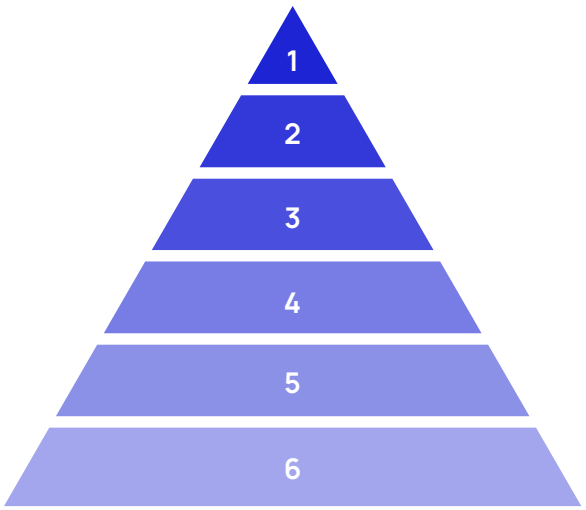
EBM is a gold standard, both for clinicians and medical academics [3]. What advantages come from using this approach, first named in the 1980s at McMaster Medical School in Canada [4]? The traditional medical strategy takes for granted that the opinion of local health authorities or unique medical units' standards are important fundamentals of making treatment decisions. On the contrary, doctors following the rules of **EBM concentrate mostly on scientifically proven knowledge** – therapeutic protocols coming from peer-reviewed studies and guidelines of international societies.

Thus, **thanks to evidence-based approach, clinicians can benefit from other doctors' experience, coming from all around the world.** This method is based on precise statistical analysis and carefully verified data. Using the EBM strategy, you do not expect that drug X cures disease Y – you just know how many patients treated with X in certain conditions have recovered.

Scientific pyramid

As you might be aware, not all scientific reports are comparable to one another. Despite the fact they are published in respected medical journals, individual articles differ from each other in terms of their importance.

For you, as a content creator, it is substantial to be able to assess the quality of research. It will help you interpret scientific data, which is necessary to create a medical text on topics such as health education or pharma marketing. Different kinds of studies you can encounter include:



1. meta-analysis/systematic review of RCTs
2. randomized controlled trials – RCTs
3. controlled trials without randomization
4. cohort studies
5. case-control studies
6. case reports or case series

Diagram 1 – The hierarchy of evidence [13,14]

Studies are ordered due to their validity – from the most to the least important. We present concise characteristics of each of them on the following pages.

It is crucial to remember that one of the most basic factors in the research process is the number of participants. Despite being the most easily available and economical solution, case reports are seen as quite unreliable. Why?

The more participants are involved in the study, the more valuable it becomes. Even though the range of an experiment is crucial, it is not the only factor that keeps it reliable. As you can see on the diagram above, the most important in the hierarchy of evidence is **meta-analysis.** This type of study gives you a possibility to compare a broad amount of data and provides generalized, consistent results, thanks to thorough **data processing.** We cannot talk about the importance of medical evidence without mentioning randomized trials. **Randomization minimizes the influence of uncontrolled variables.**

It is also another way to reduce bias coming from individual response to applied conditions. Thanks to double blinded random group allocation, neither the patient nor the doctor knows which participants are given a novel drug or a placebo. Sounds complicated? Only at the beginning! **Remember, as a medical writer, you must deeply understand the rules of scientific research.** You do not want to get lost in the labyrinth of source material.

So, let's take a look at the examples. As it has been mentioned before, case reports present the lowest educational value. An individual condition cannot be applied to the whole population. Therefore, studies analyzing giant, representative groups are more useful – such as cohort or clinically controlled studies. Besides, **it is really important for writers to check whether the control groups compared in a particular research are diverse.**

Relying on the scientific reports of the highest quality is the only way to make your medical content credible.

Noticeable benefits

It is proven that EBM is beneficial both for patients and doctors. **81% of cases in the general practice can be solved by using content from randomized controlled trials and non-experimental studies [5].**

This fact confirms how important research and scientific evidence are in clinical communication. However, Evidence-Based Medicine is also powerful and useful in the field of medical education. **A study from 2016 clearly shows that the EBM approach was much more efficient than conventional attitude** during journal group sessions for six months in the group of emergency medicine residents [3].

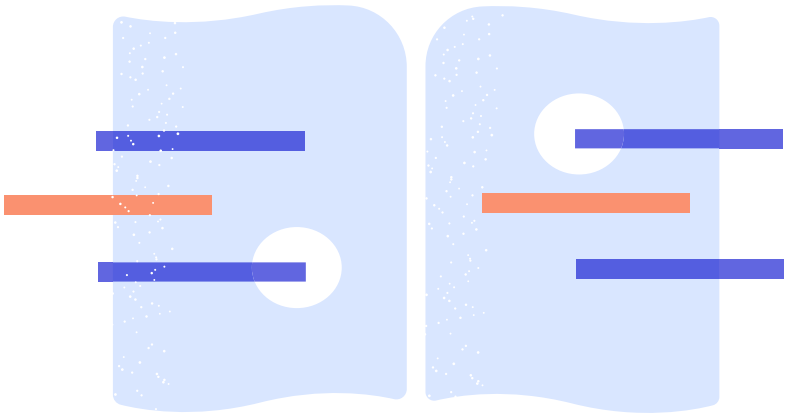
Research findings are widely available, so they can be used by everyone - professionals and students, doctors and medical reviewers [4]. Moreover, evidence-based attitude assures that patients are treated in the same way all around the world. The **EBM approach makes medicine egalitarian** – no matter where you are, science is available thanks to the Internet.

To wrap up, why is using the EBM attitude a key issue, not only in everyday clinical practice, but also in other medical areas? What benefits could both authors and readers reap from it?

Firstly, making your text complied with the **EBM approach turns the content into comprehensive, credible material, up-to-date with the recent scientific reports.** Furthermore, EBM-related information goes in line with constant development of medicine and technology.

Do you need to write a long text consisting of intricate medical issues?
Or maybe you want to make sure your recipients do not get bored?

Base your articles on recent studies, innovative reports containing current data and groundbreaking conclusions! Mice with psychotic symptoms [8], correlations between the ghrelin hormone levels and monetary decisions [9]… Include such elements in your piece – let your readers be astonished! **Thanks to content that attracts readers' attention, you will create the next chapter of evidence based marketing.** How to achieve that goal? Peruse this e-book to find out.



Chapter 2: Healthcare Industry Market - know your client

The previous chapter explained why EBM is a core component of the healthcare industry market. **Now it is time to introduce your potential clients, as knowing their needs is one of the main rules of medical content creation.** And remember, we have never said this journey will be easy...

Diversity of the healthcare market

Constant development of the healthcare industry means you will probably cooperate with companies specialized in different fields. **Your next project might focus on medical services, healthcare facilities, devices or equipment, drug research, AI or machine learning...** You can run negotiations with a new healthcare startup on one day and work with a big, established pharmaceutical giant on another.

If you are reading this, you probably already work internationally, or at least you include going global within your business strategy. As it should be - scope of work within the healthcare market rarely confines itself domestically.

We are highlighting this fact as international content creation presents a challenge: **although EBM is a gold standard all around the world, healthcare markets in different countries follow different standards.** And it is your job to avoid making mistakes. No matter how good the visuals and the promotion strategy are, without credible EBM content any undertaken project will be doomed to failure.

Let's face it, in this industry mistakes are unacceptable. In fact, they can seriously damage brand's reputation and accountability on the market. Sometimes it may even end with legal consequences. For this reason, most companies, especially pharmaceutical ones, use both external and internal elaborate revision systems.

That is why, **when working within the healthcare industry, you have to take into account the prolonged process of revision and approval.**

Type of content your client may ask for

Large companies in the healthcare sector are eager to outsource medical content creation in order to unburden their internal teams. After all, preparing high-quality EBM materials that fit all the premises of a project takes a lot of time and resources. It is a challenge for the pharmaceutical companies to find medical specialists who are also EBM content production experts. Read more on that topic in our article: "3 reasons why most Pharma Companies Struggle to Produce EBM Content".

Basic features of modern medical projects include their omnichannel approach. It is dictated by the expectations of the main target group: digital native doctors. Thus, one of the assets you have to possess is the knowledge of tailoring written content to diverse digital channels, such as Facebook, LinkedIn, Instagram, blog, newsletters, etc. Make sure to dig into this topic - read our article where we answer the question "Why Investing in Digital Native Doctors is Something You Should Start Doing Right Now". Remember that you have to know your target audience. Especially when it comes to the content that includes pharmaceutical advertising, online access to it cannot be open and it should be carefully monitored.

Taking into account the huge variety of digital channels and different demands of your clients, you can be asked to prepare diverse forms of content:

- articles
- case studies
- social media posts
- newsletters
- blog entries
- manuals
- testimonials
- copy for the visuals
- video scripts
- e-books

You might feel overwhelmed when reading how demanding the healthcare industry is. So how can you operate within it with confidence?

Set the bar at the “pro” level (or higher)

It is time to share with you some tips on how to feel self-assured even when working on huge, international medical projects. By following them, you will earn a reputation as a mastermind of EBM content creation sooner than you think. **At the beginning of every cooperation, it is important to identify basic needs of your client.** What follows is understanding and answering them by creating appropriate, high-quality EBM content (keep reading our e-book as we explain the process step by step!).

Apart from clarifying the topic and project goals, as a medical company you should always:

You can earn clients’ trust by being honest and transparent in your communication. However, brace yourselves. Especially if you work in a startup, sometimes you may find it hard to come to terms with large companies when discussing workflow arrangements. Pharmaceutical enterprises are like complex machines with a lot of elements, each one depending on another to work properly.

Thorough revision, both internal and external, may prolong feedback provision and material approval. This, in turn, might disturb your team’s project roadmaps. However, as we mentioned above, nothing can be published without the company’s internal process of medical review, which is regulated by law. So be patient….

...but show initiative! **Present complex topics by juggling with language, design and visuals (illustrations and animations are amazing tools when it comes to content used in the digital health area!)**.

By surprising your customers, you will make it to the top of the market.
We explain it in detail in the chapters concerning working on complex medical issues, SEO and visuals.

In the next chapters of our e-book, you will find many practical tips on creating high-quality EBM content. We follow them every day, constantly learning from our mistakes and upgrading our skills. We can assure you that the knowledge we share will make you feel more confident on the medical industry market!

Chapter 3: Recipient – layman or professional?

Although deep understanding of Evidence-Based Medicine (EBM) and the pharmaceutical market are issues of utmost importance when it comes to creating professional medical content, **we should not underestimate the needs of the recipients.** The client demands us to write specific texts dealing with narrow topics directed towards a particular audience.

The way of writing will differ depending on the age, level of education and knowledge of the subject in the target group. How to meet the expectations and create a high-quality EBM product at the same time?

Confront expectations with reality

The first step in every professional cooperation is to **really dig deep into the topic and the client's expectations.** There is no room for understatements and assumptions, unless you like rewriting the whole text after the client's revision. We receive topics and sometimes have an original vision of the piece, but it is not so rare that what we think does not fully meet the needs of the market. **To prevent misunderstandings, ask clients about the target groups, research client's previous materials touching on similar areas and consult your decision before you start to write.**

Cognitive errors – a trap of every mind

How people think, understand, and learn is a question the greatest scientists have tried to answer throughout history. You may ask what it has in common with the production of the EBM content. You have to remember that cognitive errors involve every human. **The way our recipients think will influence the conclusions they draw from a text.** Medical topics are an issue of great importance and preparing them with high diligence is the key to spreading knowledge in the society. It brings along a responsibility to provide the recipient with simple and accurate messages.

The diversity of the recipients' needs creates space for providing multiple perspectives on the same topic. **Every author of Evidence-Based Medicine texts should be aware that the consumer can be either an expert on the topic, or a layman.** So we have to create with a specific audience in mind.

Layman – simplify

Most EBM writers are somehow related to medicine: students, medical doctors, other healthcare personnel. Hence, they are in their element, know the topic and often forget that it is not common knowledge.

Imagine a text packed with professional medical vocabulary, referring to specific biological pathomechanisms, concerning complex medical problems, that is to be read by someone who is not a medical professional. We can assure you, they will end up reading the first paragraph at best.

The real skill that should be our goal, is to **write complicated things in an accessible way.** If you are aware of our consumer's familiarity with the topic, you can adjust your language and prepare tasks in a particular way.

To be honest, it requires an even better understanding of a problem than when you are writing for medical professionals. The real art of describing difficult issues comes from a thorough knowledge of the topic. When you have to write a text for a lay reader, think about what the recipient may not understand, which parts of the text can bring questions and might be difficult for the reader. It is also important to use appropriate, comprehensible language.

Then – simplify. Think about problems and how to clearly communicate them. Use comparisons to everyday life but do not treat your recipient as a child.

Instead, put yourself in the recipient's shoes. Remember, there is no person on Earth that knows everything. Use visual techniques, diagrams – there are many ways you can help viewers understand the problem, and we will show you how to do so in the following chapters.

How to simplify?

Complex term		Simple term
hypertension	→	high blood pressure
fasciculation	→	muscle twitch
rhinorrhea	→	a runny nose
emesis	→	nausea
lying supine	→	lying on back

Table 1. Examples of simplifications

Brandmed Tip

Pay attention to all complex words you use. There is a great probability that what seems simple to you, will not be simple to a lay reader.

Late-stage cancer patients present cachexia.	→	Late-stage cancer patients suffer from loss of weight and muscle with lack of appetite.

Brandmed Tip

You can ask a team member who is not a medical professional (e.g. graphics, informaticians), whether the phrases are understandable.

Professional – customize

The multitude of medical fields challenges us to think outside the box. Some may assume there is no difference between writing for different groups of medical professionals, but they could not be more wrong.

In this case, as you prepare a draft, consider consumers' most important needs. **What occupational group you try to reach, why should they read your article in the first place, what distinguishes your article from other content on a particular topic, what can be your advantage.** Answers to these questions will be your guide in the process of writing.

There is a big difference between creating EBM content for doctors, nurses, pharmacists, etc. **The same topic interests each of them from a different perspective.** Even if you start with a basic introduction, in which information important for every medical area is used, you should (then) dig deeper in the scope of interests of the specific target group.

When it comes to doctors, you consider e.g. knowledge about the action of a drug, its side effects and indications. For nurses, you should focus on practical issues related to the administration of drugs, possible complications, etc. For pharmacists, you prepare text concerning methods of drug production and their vending.

So you customize. Focusing on personal occupational needs can provide you with best results. It also shows writers a proper approach to creating professional EBM material. That is what makes the difference when it comes to choosing among resources in which the recipient will look for answers. If we want people to trust you and read your articles, you should pay attention to general truth as well as to the details: **who, where and why will be reading our texts.**

Brandmed Tip

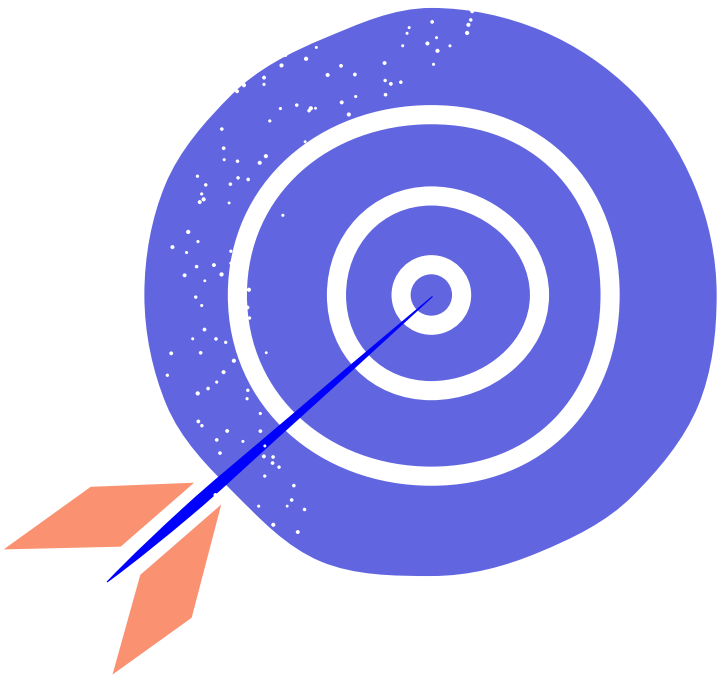
If you are not sure what is the perspective the reader exactly expects, it is a good idea to ask for advice from a representative of the target group you are writing for.

Goals

We focus on good quality EBM materials. We pay attention to pharmaceutical market expectations and we produce simple, customized texts for our target groups. Moreover, we hope to achieve the intended effect.

No matter whether we write to broaden the recipient's knowledge or to sell a particular product, our main goal remains the same – to produce high quality EBM content, designed and created with due diligence and we will be held accountable for the result.

Keep on track, have that theory in mind and use practical tips that are presented in the next chapters. Work hard, write often, think smart and both you and your employer will soon notice the difference.



PART II

Chapter 1: Re-search - how not to lose yourself in the labyrinth of research

As we said earlier, nowadays, you can find literally every piece of information on the Internet. However, their quality varies. Preparing healthcare related content, whether it is a text or a visual, is a challenging process, as you have to make sure it is based on credible, factual sources.

Where to find up-to-date medical data? In the recent scientific reports, of course. But here comes a challenge – how to make use of all the advantages of EBM sources?

What is an instant recipe for easy searching through databases?

Databases are a medical writer's best friend

This is exactly where you should start. To create EBM content, you need a worldwide-available, giant database of various medical areas. Only when you choose your data carefully can you think about rewriting it in an accessible way. For easy tips on how to transfer those sophisticated data into a piece of intriguing content – read the next chapter of this e-book.

Examples of scientific search engines include:

- Google Scholar
- PubMed
- Web of Science
- Clinical Key
- Scopus

Let's analyze how **academic search engines and bibliographic databases** could be of use to you. There are many search engines helpful for medical writers. Some are available for free, for others you need to buy a subscription or obtain institutional access, for example via university library.
Which one to choose?

What are you searching for?

Of course, it depends on many different factors. The first and most important question that should be posed is **what exactly you are looking for when adopting scientific data in your own content.** Whether you need the latest scientific reports on a new drug just introduced on the market or are looking for the latest edition of specific guidelines – you choose a **search engine adjusted to your expectations.**

Sometimes you will explore Lancet's publications, another time you will go through an online pharmacology manual.

Brandmed Tip

Make a list of what kind of data you are searching for. Classify them. Then match each study you find with an appropriate thematic category.

There is no doubt that to search through databases, basic knowledge of scientific studies is needed. Let's take a quick look on what you can find in medical journals:

- **case report** – descriptions of individual medical cases;
- **case control study** – retrospective research, which aims at detecting disease prevalence in two groups: exposed and not exposed to a particular variable [3];
- **cohort study** – prospective study, focused on a link between exposure and development of a disease. In such a research, two groups of participants (one exposed to a particular variable and the other one not) are under long-term observation oriented on morbidity [3];
- **randomized controlled trial (RCT)** – trials with randomization in which all variables are controlled [7];
- **systematic review** – a summary of studies focused on a particular topic, assessing their methodology and underlying key findings [3];
- **meta-analysis** – consists of statistically processed results of many reports. Difficult to develop, but with high scientific importance [3].

Now that you are aware of what kinds of studies you can come across in bibliographic databases, we will present you with specific searching tools.

Google Scholar - entry level

This is an easy-to-use web search engine **available for free.** Thanks to the uncomplicated search methods, Google Scholar seems to be a good option when you are a beginner, but as every digital tool, it has both its pros and cons.

One of the disadvantages of this system ushered by Google is that it prioritizes the appearance of articles with a higher citation level. As a result, at the beginning of the search results list, you do not see the latest scientific reports but the most popular ones, which might be a little bit older and out-of-date.

PubMed – scientific enclave

When you ask a professional for a useful medical search engine, they would most likely recommend PubMed. It provides access to a giant database of **MEDLINE** and since 1996 has been available online for the public, even without institutional access [6]. It conveys more than **32 million** abstracts and citations [6]! Another advantage of PubMed is that you can link out each study – although on NCBI website (National Center for Biotechnology Information, PubMed's affiliation) you will find only abstracts.

The information about the source of a full piece is given. While using this tool, you must remember to **define your needs precisely** (type of research, publication date, species etc.), as the amount of data is tremendous. Taking everything into account, it is also vital to check the exact date of publication of the article – because in medicine information immediately becomes outdated.

Brandmed Tip

Specify details. Set filters, such as: publication date, article type (e.g. clinical trial, systematic review), text availability (whole publication accessible or only an abstract).

Web of Science – index of citation

Once called Web of Knowledge, Web of Science by Clarivate Analytics is a comprehensive compilation of bibliographies from various fields, such as medicine, engineering or arts & humanities[8].

It consists of more than **174 million** records (books, journals and many more). [8] Thanks to Web of Science Core Collection you can precisely check the **number of citations** for an exact journal and its Impact Factor.

Impact Factor (IF)... and all that jazz

Maybe you have not yet discovered that the Impact Factor of a particular medical journal is something that can have a real influence on the quality of your text. But let's start from the beginning – its definition. **Impact Factor (IF) is a way of measuring the frequency with which a median article in a particular journal was cited in a certain year [2].**

The higher the IF a journal was given, the more citations its average publication received in a twelve-month period (concerning only the articles published in two previous years). Seems complicated and intricate? Might be, especially at the beginning, but it is a necessary journal comparison tool.

Why is it decisive for a writer of an EBM based content to recognize such a feature? Well, by referring to academic journals with higher IF, the value and credibility of your text increase immediately.

Do not dig yourself a hole - how to organize your research work

Are you afraid that you will soon forget where exactly you found percentage data or a particular definition? Make sure to organize your research.

Tidy up your desktop, organize files into themed folders. Decide that it is the end of a mess, moreover – from now on systematic work starts.

Brandmed Tip

Schedule and keep order. Download and save studies you definitely need(as .pdf), keep them in a designated folder. **Highlight the exact paragraph you plan to cite, for future reference.**

Re-search – love at second sight

Some may say that importing detailed information from medical journals seems arduous and boring but, in fact, using data from scientific papers in your own text is much more creative than one can expect. **Selecting information from reports is not scientists' love at first sight, but it might turn out to be an adventure.** This is just RE-SEARCH – not through molecules or cells but among words and sentences. Remember, you are responsible for sharing the facts to a wide audience. **You re-search and re-discover brand new medical reports by the means of your own piece.**

In spite of the fact you have survived through the labyrinth of research and EBM, needless to say, it is not the end. Creating a text for the digital era of the 21st century also means adequate usage of other specific tools – **SEO and visuals.** Feeling lost again? Let us guide you through the process in the following chapters!

Chapter 2: reWRITING - difficult topics made easy

Medical topics are, as we have already agreed, usually intricate, filled with professional terminology and complicated data. When writing EBM content, you should be able to illustrate the most difficult topics in a manner that makes them easy to understand for your readers.

How can you achieve such an intimidating goal?

Pose the right question

In previous chapters we have described how the knowledge of the healthcare market and its demands, as well as understanding your audience's expectations and needs shape your writing. Now it is time to fully immerse yourself in the creative process.

The first step in creating EBM content should be defining the purpose of your text. What message are you trying to convey? Who is your audience and what impact should your text have on them? What do you want to achieve? It might often feel like your idea is complicated and multi-faceted.

Take a step back and find a leading vision of the project. Formulate a clear purpose of the content, otherwise, there is a threat that your text will be unstructured and hectic, with multiple threads of thought and no clear message behind them. If you pinpoint the purpose, you create structure and will be able to weave the information into a coherent whole.

Brandmed Tip

It is easy to get lost in the nuances and lose sight of the bigger picture. It might be helpful to write down your ideas in the form of a graph or share your ideas with colleagues who offer fresh perspectives. By keeping to the leading vision, you will make your text coherent and easily understandable.

Picking, not nit-picking

Now that you know what your goals are, you will have to use data that you have gathered through a thorough literature search to create purposeful content. This is a crucial step, hence you have to strategically think about how you want to present the information. Firstly, while reading your article database, look for trends. It is easy to fall into a trap of trying to cite all the data, numbers and nuances to give the reader the full picture of the intricacies of the topic. However, your audience are rarely experts on the issue and up-to-date with the latest research on the matter at hand, and presenting them with stacks of statistics and complicated information will not be helpful. Instead, **find similarities and differences in the data you have found and summarize what you have learnt on a higher level.** It will make it easier for the reader to understand the heart of the problem without being overwhelmed or confused by the magnitude of numbers and abstruseness of the research.

Brandmed Tip

Look for similarities and differences in information from different pieces of literature and use tables to summarize them on a higher level. It will help you to find new data interplay and to keep your findings in order.

Danger! Watch out for the trap

Presenting general trends by summarizing data on the topic into neat conclusions and picking the information you want to cite carefully are a great way of simplifying difficult topics. However, be careful, as there is a trap which you can easily fall into. **You have to be aware that not all research on a certain topic leads to the same conclusion.**

Some data will not be in line with your hypothesis and will not support your thesis. This does not mean that you can simply overlook it or omit to mention the inconvenient facts. Firstly, assess if the research is valid, the methodology well-planned and data not skewed (we guide you through this meticulous process in previous chapters). If you find that it is relevant, mention it in your text. Not all existing evidence will ever fully support your vision but is important to present it too to avoid bias and give full information to your readers.

Brandmed Tip

Describing data that is not fully in line with your thesis or other research on the topic will not hinder the credibility of your content. On the contrary, it is proof that your literature search was thorough and you have used the best data available, in accordance with the EBM guidelines.

For example…

You have found the tendencies and trends in the data, described them neatly and summarized it all in an easy-to-read whole. However, giving examples is how you present context and bring your text to life. You can cite the conclusion of an article or describe a piece of research to back your thesis up. You can show some data to give tangible evidence to support your main thrust.
Find representative and valid examples and present them to the reader.

Organizing your content in a manner that is general-to-specific will make it clear and easily comprehensible, while still allowing your audience to go into some detail without it being overwhelming or too elaborate.

Visuals are here to help

Walking the fine line between vague and detailed is a difficult task, especially if the topic is complex and intricate. This is where visuals come into play.

It is easier for the reader to absorb information if it is graphically friendly, instead of going through an intimidating wall of text. You can use:

- bullet points
- tables
- diagrams
- illustrations
- animations
- photos

… and whatever else comes into your mind.

It depends on your audience, the aim and style of your content and on information that you want to depict. **Remember, about sixty-five percent of the population are visual learners [1] and graphics are how you can grasp their attention, make your message easier to understand and more memorable.**

Last but not least- watch your language

Well-thought-out content is the most important thing in writing EBM texts. However, for it to reach your audience, you have to put intentions into words. Be mindful of the language you use because even the most brilliant idea will not resonate with the reader if the writing itself is inapt. As we said earlier, the style depends on many factors. **Is your content addressed to professionals or laymen? Is it a formal document or a casual leaflet? What media are you using to distribute it?** These factors play a crucial role in choosing the right style of writing to write your text. We discussed the topic of adjusting your writing to your audience's characteristics and needs in depth in previous chapters. However, it is necessary to emphasize the importance of adapting your language depending on the purpose of your content.

If you are addressing healthcare professionals in a formal setting, you will use medical terminology and formal language in a matter-of-fact fashion. It is important to stress that there is no need to overcomplicate. Compound-complex sentences and flowery language look nice on paper but are not easy to read and might hinder the perception of your ideas, even among the most scholarly readers. On the other hand, if you are creating content for laymen, you have to simplify the issue by avoiding jargon and explaining the ideas with accessible vocabulary. If your content is informal in nature, you might even slip in a pun or a joke to make it more entertaining and approachable.

Again, it all comes down to the purpose of your content. Identify it and then adjust the style, set the right tone, and use the language to your advantage.

Brandmed Tip

If you are writing for laymen, it might be a good idea to have your text read by a person not connected to the healthcare industry. Professionals tend to overestimate the general population's knowledge of the topic and specialist vocabulary.

How to do it right?

To give you an example, here is a table from a research paper discussing the role of nopal cactus as a source of bioactive compounds [2].

Biological Activity	Source of Cactus Products	In Vivo and in Vitro Models	References
Hypolipidemic and Hypocholesterolemic	Cladodes powder	Rats	[14]
	Cladodes (Glycoproteine)	Mice	[100]
	Seeds powder and seeds oil	Rats	[53]
Anti-diabetic	Capsule: cladode and fruit skin extract	Human	[101]
	Cactus powder in capsule	Human (Man and women)	[102]
	Aqueous extract of the cladode and fruit and mixture	Rats	[103]
	Cladode and fruit skin extract capsule	Man	[104]
Hypoglycemic	Polysaccharide extract from the cladode	Rats	[105]
	Extract powder racket after drying	Rats	[106]
Anti-Inflammatory	Indicaxanthin, from fruit	Human intestinal epithelial cell line (Caco-2 cells) stimulated by cytokine IL-1b	[88]
	Lyophilized extracts of cladodes	Human chondrocyte cultures stimulated with IL-1β	[89]
	Indicaxanthin from Cactus Pear Fruit	Rat Pleurisy obtained by injection of 0.2 ml of λ-carrageenin into the pleural cavity	[93]
	Methanol extract of cactus stems (active substance: β-sitosterol)	Mice (male)	[107]
	Methanolic extracts of prickly pear fruits (Betalain Indicaxanthin)	In vitro study of the interaction between purified Betalains and HOCL and human	[93,108]

Anti-Inflammatory and Antioxidant	Butanol and methanol fruit extract	myeloperoxidase In vivo studies in gerbils and In vitro studies in cultured mouse cortical cells	[92]
Antioxidant	Betalain a pigment purified from fresh pulp of cactus pear	Endothelial cells human umbilical vein (HUVEC)	[90]
	Betanin prickly pear fruit Extracts	Chemical and biological (human RBC, LDL) systems	[1]
	Ethanol extract of the stem	Chemical and biological systems (mouse splenocytes)	[22]
	Flavonoid fraction of juice of whole fruits	Rats	[18]
	Glycoprotein (90 kDa) isolated from Opuntia ficus-indica var. saboten MAKINO	Mice induced by Triton WR-1339	[100]
	Cactus pear fruit	Healthy humans (10 women and 8 men) supplemented with cactus pear or Vit C	[109]
	Quercetine ether 3-O-méthyl isolated from Opuntia ficus-indica var. saboten	Primary cultured rat cortical cells	[17]
Antmicrobial	Methanol extract of cladode	Bacteria: Campylobacter jejuni and Campylobacter coli	[95]
	Methanolic, ethanolic, and aqueous extracts of cladode	Bacteria: Vibrio cholerae	[96]
	Hexane extracts from flowers	Bacteria: Staphylococcus aureus, Escherichia coli, Pseudomonas Aeruginosa and Bacillus subtilis	[110]
	Aqueous and alcoholic extracts of cladode	Bacteria: Proteus mirabilis	[111]

Table 8. Major bioactive effects of cactus preparation in different experimental models.

Here is how the authors summarized the information in the table:

> During the last decade, growing interest in cactus has resulted in a large number of scientific papers describing the composition and/or bioactivity of the whole extract or specific purified cactus compounds. Beside the compound contents of Opuntia ficus-indica, this review has also devoted a special effort to the account for the biological activities of the different parts of the cactus plant (summarized in Table 8). Interestingly, data from several human trials or rodent experiments show that cladodes and fruits extracts are the cactus preparations the most widely tested for their biological activities. Accordingly, as potential metabolic regulators, cactus extracts reveal beneficial effects on the metabolisms of both lipid and glucose, which bode well for the treatment of human metabolic disorders including diabetes and obesity.
> On the other hand, antioxidant and anti-inflammatory properties of cactus pear and cladodes need to be explored in depth to better understand biological activities and preventive potentials exhibited against several age-linked diseases by polyphenols and flavonoids abundant in cactus pear. At the nutritional level, cactus may be used as an alternative source of natural colors and nutriments, via supply in betalains, aminoacids, sugars, proteins and vitamins. The latter compounds offer a high nutritional value to the food industry for which the development of a real cactus-sourcing branch is awaited.

Take home message

To sum up, here are the things you need to remember when writing your EBM content:

1. State the purpose of your text.
2. Find the key arguments and similarities in your literature database. Summarize, generalize, avoid providing information that is too detailed.
3. Use all the relevant information on the topic, do not exclude data just because it is not in line with your thesis.
4. Give examples to support your conclusions.
5. Use graphic design to depict intricate data.
6. Adjust the language to your audience, the unique style of your brand, the character of your text.

Chapter 3: SEO and visuals - spice up your EBM content

Huge amounts of new research, specialist articles and a myriad of data are released into the world of medicine every day. It is difficult to estimate how much healthcare content is created each year, but the bottom threshold of annual publications is the number of articles indexed by MEDLINE at the National Library of Medicine. For fiscal year 2020, the staggering number of citations was 952 919 [1]. For your material to capture attention and be memorable for the viewers in the plethora of healthcare information you need more than just impeccable EBM content.

The enigmatic concept of SEO

You have created the perfect article based on EBM. How can you make sure that it is easily accessible and seen by your potential audience? This is where SEO comes with to the rescue. The acronym stands for Search Engine Optimization. **It is a process that aims to increase the visibility of your content in search results. The better the visibility, the more likely your content is to be found and seen by the potential viewers.** Search engines use algorithms that go through websites and collect information on the content.

Based on that, websites are given an order in which they appear in the search result for a given query [2,3]. When your content is online, you obviously want it to pop up as one of the first search results, as it increases the chance of your potential audience opening it. Search engines reward websites with the right combination of ranking factors and if you use SEO and optimize your content accordingly, you ensure that it includes the right types of ranking factors, hence it appears higher in the search results.

Brandmed Tip

After writing and reviewing your medical content, make sure to optimize it according to the SEO guidelines.

SEO in practice

Now that we have established what SEO is and how it can help you make your content more impactful and reach a wider audience, the following question arises: how do you apply it to your content? The answer is unfortunately not so simple, as there are many ranking factors that are considered by the search engine's algorithms.

Here is an example of ranking factors used by Google in 2021:

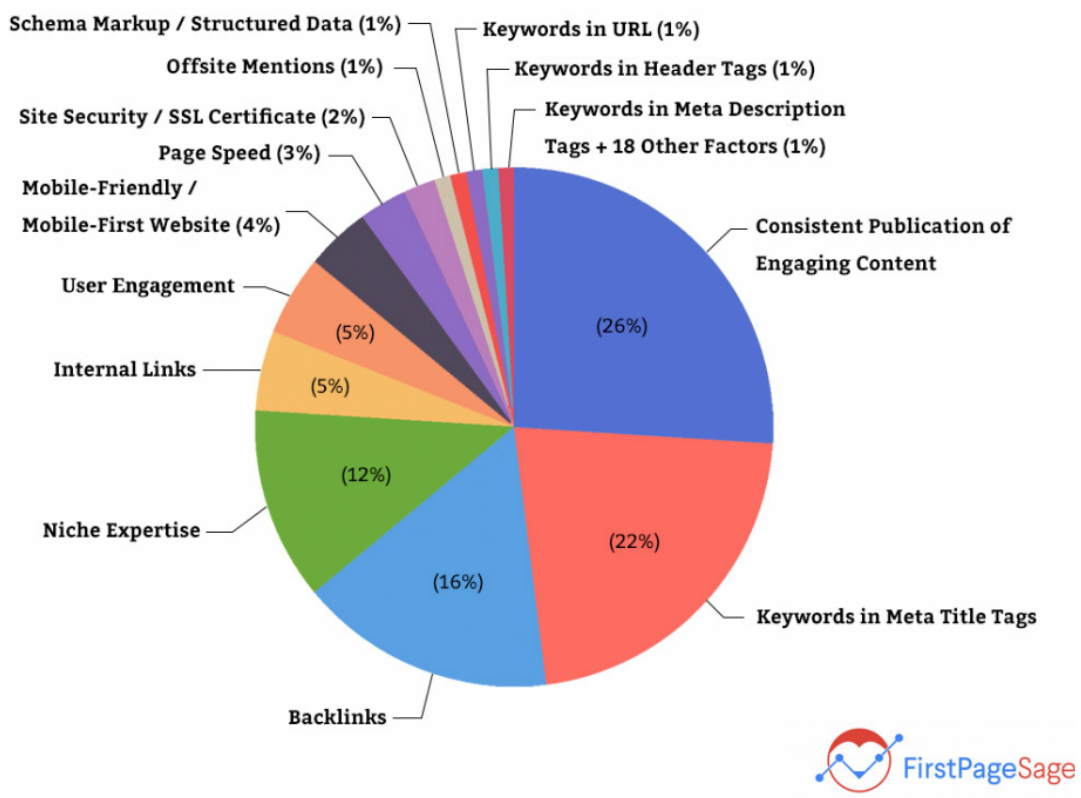


Figure 1: The 2021 Google Algorithm Ranking Factors (source: https://firstpagesage.com/seo-blog/seo-faqs/the-2021-google-algorithm-ranking-factors-fc/ [4])

As can be seen in the chart, the two most important factors are:

1. **consistent publication of engaging content and**
2. **using keywords in meta title tags.**

This means that you should create content regularly and consistently in order to improve its rank in search results. You also ought to optimize your content and include the keywords that your website should rank for.

Keywords are the key

Keywords should be used both in the content itself as well as in the title tag, which is an HTML element that specifies the title of a web page. You should check which keywords are most searched for and use them carefully. The placement and concentration of keywords within the title tag are also important. **While your title tag should consist of only the targeted keywords, it would be difficult to comprehend, hence you have to strike a balance between using keywords and making the title tag easy-to-read and inviting.**

Keep in mind that these are just a few examples of how you can use SEO in order to increase the chances of your content being seen. If you want to know more about how to make your content more appealing and reach more views, read our text on "How to make people read your articles?". However difficult SEO might appear, it is important to highlight its importance in the era of content overflow on the Internet. The rank of your text might be crucial in ensuring success of your content.

Brandmed Tip

Title tags should be only between 50 and 60 characters in length so you have to plan them strategically. They should involve keywords and your brand's name at the end. To save space, avoid stop words, such as "a", "the" "and", "with".

Attention! Graphic design needed!

Using SEO will improve your content's visibility online. Now you have to make it seem interesting and engaging enough for the recipient to read through it and hopefully remember your message. A great way to achieve this goal is to use visual stimuli. As we have mentioned, about sixty-five percent of the population are visual learners [5] and graphics are crucial in attracting their attention and making your message easily comprehensible for them.

Visuals can be used to simplify a complex medical issue or guide your audience step by step through a complicated process. You can take advantage of them to explain mechanisms of action of medication or depict how a drug should be administered. (If you want to know more about how illustrations can simplify medical issues, we described it in detail on our blog.) It has been proven that it is necessary to pair abstract concepts with powerful images to make a lasting impact. One study found that after three days people remember only 10 to 20 percent of written or spoken information, as opposed to almost 65 percent of visual content [6].

The effect of graphics on memory is deeply rooted in the human brain. Visual stimuli are processed by the brain faster and more efficiently than text. They are also more easily stored in long term memory, which means they tend to be more memorable for the viewers. Visual language also stimulates imagination and evokes emotions, which reinforces memorization and improves comprehension on difficult topics too. It all adds up to the miraculous effect of using graphic design in your content. It makes it more engaging, viewer-friendly, impactful and memorable.

Now you are well-prepared to create EBM-based content in an accessible, clear way. But being a medical writer does not end with typing, precisely. You want to be a professional – therefore, read the next chapter and learn how to form proper references.

Chapter 4: Last but not least - references

Verifiable information - needle in a haystack

If you are reading this, you have probably already read our chapter on Evidence-Based Medicine. If not, make sure to go through it and gain more information on the basic concept of medical content creation.

This time though, we focus on references. How to be doubtless about their reliability? And how to include a correct bibliography in order for your medical content to be bulletproof?

What is a reliable source?

The process of research itself is complicated. If you need a quick recap, go back to the chapter where we break it down. Once you learn how to identify credible sources, researching will get easier. There are actually many types of resources available that you can base your content on, including:

- articles published in medical journals,
- scientific databases,
- legal acts,
- official guidelines,
- manuals and textbooks,
- audiovisuals (podcasts, movies, videos),
- interviews and webinars with healthcare experts.

As you can see, there are plenty of possibilities. However, you have to be assured of their factual value. If you cannot find the information about the author(s) of your source, its title, date of publication, affiliation, etc., dig deeper. It is also worth remembering that you should pay attention to your audience when researching. Let's say you are preparing a social healthcare awareness campaign - citing interactive and visually attractive materials would probably appeal to the community more than an endless list of scientific papers.

Brandmed Tip

There are specific manuals on citing each type of source. Watch out, as an entry in the reference list referring to a website will be formatted differently than an article citation.

Step by step: how to make sure your reference list is credible?

Plagiarism is a NO-NO - paraphrasing and quoting

If we were to choose the most important rule of content creation, it would be to avoid plagiarism at all costs. It applies both to text and visuals. It is illegal to cite somebody or use their work without giving them credit. Thus, when quoting, ALWAYS use in-text citations, also included in the final reference list.

Of course, you are allowed to paraphrase or get inspired by the graphics encountered during research. Remember though to mention the exact source your visual is based on. Last but not least, it is mandatory to include each citation in the reference list. Likewise, make sure you cite each source in the text!

By avoiding plagiarism and paraphrasing you will also learn how to explain complex medical topics in a comprehensible manner. You will find more tips on reWRITING in the corresponding chapter.

Brandmed Tip

Decide on one particular style of in-text citation and stick to it throughout the whole material.

Select one citation style and stick to it

There are several citation styles you can use in your article (MLA, Chicago, ASA, IEEE…). Let's say you decide to follow one of the most popular - the APA (American Psychological Association) format, currently its 7th edition. For each cited piece include:

- "Author or authors. The surname is followed by first initials.
- Year of publication of the article (in round brackets).
- Article title.
- Journal title (in italics).
- Volume of journal (in italics).
- Issue number of journal in round brackets (no italics).
- Page range of article.
- DOI or URL
- The first line of each citation is left adjusted. Every subsequent line is indented 5-7 spaces.

Example:

Ruxton, C. (2016). Tea: Hydration and other health benefits. Primary Health Care, 26(8), 34-42. https://doi.org/10.7748/phc.2016.e1162" [1]

Brandmed Tip

You can find a lot of automatic citation machines online! Just type in the title/DOI, click "cite" and copy the correct citation.

Although we are not going to set out all the formal rules of formatting your bibliography (e.g. indentation, italicization), you should be aware that there are strict formatting guidelines to follow. Especially if you are preparing a content with the intention of its publication in an academic journal. They are precisely described in official manuals corresponding to each citation style. Just Google them, as they are generally available.

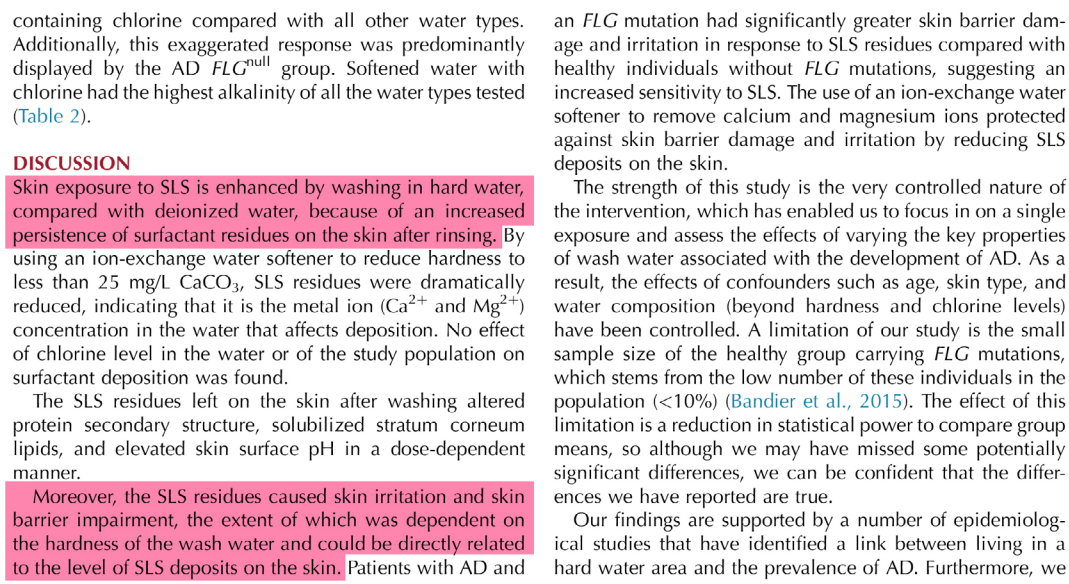
Brandmed Tip

When creating your content with the intention of further publication, make sure to check specific guidelines of a particular journal.

Make highlighting your standard

It is a good practice to create a separate folder with all the sources you are going to cite and to highlight all extracts corresponding to your text. The easiest way is to do it while actually writing, instead of going through all the PDFs once you finish your piece.

Remember that when you are preparing a specific healthcare-related content for your clients, they will usually demand providing them not only with the text itself, but also with all the sources it is based on. Highlighting corresponding passages helps you avoid any possible doubts on the credibility of your content. Below you can find an example of a paper with marked excerpts, used when preparing an article.



containing chlorine compared with all other water types. Additionally, this exaggerated response was predominantly displayed by the AD *FLG*^{null} group. Softened water with chlorine had the highest alkalinity of all the water types tested (Table 2).

DISCUSSION

Skin exposure to SLS is enhanced by washing in hard water, compared with deionized water, because of an increased persistence of surfactant residues on the skin after rinsing. By using an ion-exchange water softener to reduce hardness to less than 25 mg/L $CaCO_3$, SLS residues were dramatically reduced, indicating that it is the metal ion (Ca^{2+} and Mg^{2+}) concentration in the water that affects deposition. No effect of chlorine level in the water or of the study population on surfactant deposition was found.

The SLS residues left on the skin after washing altered protein secondary structure, solubilized stratum corneum lipids, and elevated skin surface pH in a dose-dependent manner.

Moreover, the SLS residues caused skin irritation and skin barrier impairment, the extent of which was dependent on the hardness of the wash water and could be directly related to the level of SLS deposits on the skin. Patients with AD and an *FLG* mutation had significantly greater skin barrier damage and irritation in response to SLS residues compared with healthy individuals without *FLG* mutations, suggesting an increased sensitivity to SLS. The use of an ion-exchange water softener to remove calcium and magnesium ions protected against skin barrier damage and irritation by reducing SLS deposits on the skin.

The strength of this study is the very controlled nature of the intervention, which has enabled us to focus in on a single exposure and assess the effects of varying the key properties of wash water associated with the development of AD. As a result, the effects of confounders such as age, skin type, and water composition (beyond hardness and chlorine levels) have been controlled. A limitation of our study is the small sample size of the healthy group carrying *FLG* mutations, which stems from the low number of these individuals in the population (<10%) (Bandier et al., 2015). The effect of this limitation is a reduction in statistical power to compare group means, so although we may have missed some potentially significant differences, we can be confident that the differences we have reported are true.

Our findings are supported by a number of epidemiological studies that have identified a link between living in a hard water area and the prevalence of AD. Furthermore, we

Figure 1. An example of highlighting corresponding passages. An excerpt from Danby, S. G., Brown, K., Wigley, A. M., Chittock, J., Pyae, P. K., Flohr, C., & Cork, M. J. (2018). The Effect of Water Hardness on Surfactant Deposition after Washing and Subsequent Skin Irritation in Atopic Dermatitis Patients and Healthy Control Subjects. The Journal of investigative dermatology, 138(1), 68–77. https://doi.org/10.1016/j.jid.2017.08.037

Use different sources, but take care of your business!

Finally, watch out for citing your competitors. No matter how good their content is, your goal is to turn your target audience's attention to your materials. So even if you are going through your competitor's resources when researching, dig deeper. Instead of citing them, follow the attached bibliography and base your content on scientific papers mentioned. **And remember, if there is no enclosed reference list, do not waste time on such materials. How can you know they are credible?**

Reference checklist - take-home message

- ✓ Base your content on credible sources (e.g. published, peer-reviewed papers, official guidelines, professional textbooks, legal acts, etc.)
- ✓ Follow a uniform manner of citation. Decide on a format of in-text annotations.
- ✓ Always end your text with the bibliography section.
- ✓ Order cited articles in line with in-text annotations.
- ✓ Make sure you fulfill requirements for the chosen reference citation format.
- ✓ When referring to a website, always include the information about time of the last access.
- ✓ Create a separate folder including all your resources.
- ✓ Highlight referential passages in each cited document.
- ✓ Make sure you are not citing your competitors' materials.

Chapter 5: No room for mistakes - cross check

As you can see, creating high-quality medical content requires multifaceted thinking from the writer. **The process of preparing a complete, professional and comprehensible EBM material includes countless revisions.** As your goal is to deliver a particular message, supported by scientific knowledge and familiar to the recipient at the same time, you should prepare yourself for a long ride. Sometimes it takes hours of hard work and multiple rounds of corrections to create an article you will be proud of.

However, in the course of preparing the material, you may miss some mistakes. **How not to be surprised by the errors? And how to create a faultless material that will meet all your expectations?**

Be careful who and what you cite

History knows cases that left their mark on today's approach to science and EBM. One of the most disgraceful stories concerns Andrew Wakefield, whose article about the MMR (measles, mumps, rubella) vaccine and autism was published in The Lancet without a detailed revision. As it turned out later, Wakefield had a "fatal conflict of interest". He had been paid by a law board to state the evidence supporting litigation by parents who believed that the vaccine had harmed their children. Consequently, many parents began to refuse the MMR vaccine for their children [1]. **Even though there was no scientific evidence that a possible correlation between bowel disease, autism, and the vaccine existed, this situation caused "the MMR vaccination crisis" [2].**

The Lancet is the world's leading medical journal with an impact factor of 60.392 [3]. Nevertheless, one of the greatest mistakes in the history of modern medicine was made by its editors. It shows **how careful every writer should be when it comes to research, references and selection of EBM resources.** Even if you have already finished writing, double-check authors and universities whose data you cite. Seek different points of view, rely on articles with the highest scientific level and try to see a pattern in them.

You are creating evidence-based medicine papers, therefore the thesis presented in your article should be supported by solid scientific background. If you are still hesitating which author's data you should base your material on – read again the first chapter of the e-book and think about the strength of scientific proof you need to support your hypotheses with.

Scientific data also expire

Sometimes, if writing your article requires more than just a brief research and is planned on a long-term basis, the data collected at the beginning of the process might be outdated at the end of it. **No one will ask whether you have started a year ago or yesterday – the data must be up to date.** So if you know that the process will last long, monitor all the updates of the materials you use. Knowing that writing an article is scheduled for the next few weeks or months gives you an advantage, as you can plan it efficiently.

Divide your work, write the parts you can, and collect corresponding articles that are published at the moment. Then re-check. Search for new findings on the topic you are interested in, rewrite or complete what you have already prepared and repeat the revision process on a regular basis as your project progresses. This will guarantee that at the end of the assignment **your article will contain only up-to-date information. This is the ultimate goal of any medical content.**

Make sure everything is correct

You conduct research, create, implement SEO rules, prepare visualization and finally combine the entire piece together. There are multiple aspects to keep in mind during the process. And multitasking often leads to making mistakes. Hence, it is important to check the material carefully more than once.
After completing every part in which you use any EBM material, check if the references were put in the right place and if you cited them correctly.

Do not put it off until later, because "later" generates errors as you may forget what and where you wanted to add. **Make sure every table, diagram, etc. is labelled and includes references (if applicable).**

Finally, look at the final version. Read it one more time and then get some sleep ☺. Take time to rest and also "let the article rest". Working on medical material might be exhausting. When a vision of the upcoming deadline hangs over the writer, mistakes are made. In addition to working efficiently and delivering a medical article of the highest quality, make sure you are focused on checking it thoroughly. **This is the moment to think about your piece, give it the final look and send forward. But not to the client: to your colleague.**

Ask for a fresh perspective

Every company has its own work policy. As Brandmed, we can speak only for ourselves, but we also have years of experience in the medical field and we are proud of what we have achieved over the years. **The golden rule of our work is the mandatory process of cross-checking.** Every medical content that comes from our copywriting team is checked by at least one additional person other than the main author. Moreover, **if the task is complicated, we try to read it in teams, brainstorm the vision and come up with the best material one may prepare.** Additionally, each text undergoes an external linguistic revision. All this to provide solutions of the highest quality.

You may ask, why bother so much?

Writing EBM content production is hard, but creating specialized materials for the pharmaceutical and healthcare market is the hardest of all. Every writer spends hours on their text and goes through it thousands of times. You know what happens if you re-read your piece over and over again. **Mistakes are inevitable.** Furthermore, while investigating the topic and preparing drafts, the author familiarizes him- or herself with the issuer.

This may result in personal, puzzling shortcuts. If we want to avoid misunderstandings, every fresh look is welcome. Firstly, a second pair of eyes will bring a new angle to the text and another perspective will enable better presentation of the topic. Secondly, a double-check confirms the main author in a particular vision and helps avoid linguistic errors, which may not be noticed after long hours of writing.

Generally, writers like to work independently. You become attached to your material, especially if you put a lot of commitment into it. **However, trying to be open to every advice you can get is a good idea.** It is natural that the text gets better if it is confronted with different people. **A problem shared is a problem halved.**

Check as you would like it to have it checked

Asking for another opinion usually results in being asked back. You will not always be the author, sometimes you will be the reviser of the original text instead. In Brandmed, we are working in pairs which allows us to plan our work more efficiently. We know what our team member is currently working on, so we can expect that in a while we will be asked to double-check their article. **Yes, that is right, prepare yourself for cross-checking as it is also a demanding activity.**

How to cross-check correctly?

Check what the client's guidelines are. You may not be familiar with a specific project so, before reading your partner's text, ask for whom the article was written. This will shed light on what you should expect while checking. Then look actively for mistakes and assume they are present, because this will make you more watchful. Let's hope you will be positively surprised by their absence. Then check the references and their citation – make sure the numbers correspond to specific parts they should refer to.

Aspects that you should pay attention to while cross-checking:

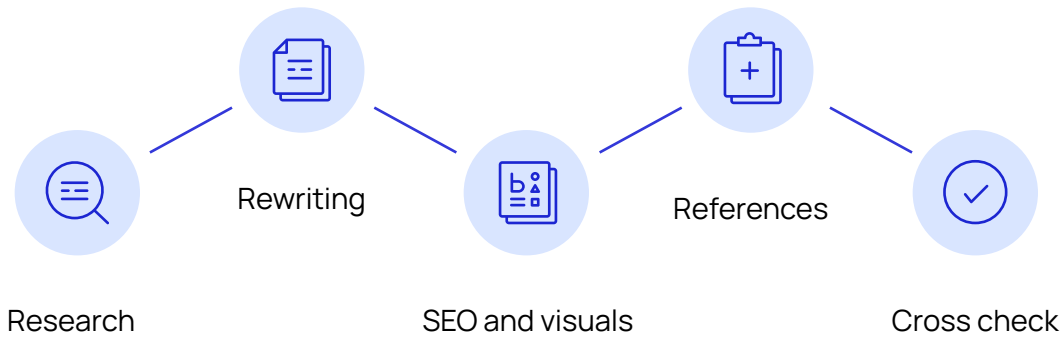
- Whether the general idea and topic are comprehensively presented in the article.
- Whether the article can be read fluently.
- Whether the article is clear and comprehensible.
- Whether the article is correct in linguistic terms.
- Whether the citations were put correctly in the corresponding paragraphs.
- Whether all visual elements work properly and are in line with the text.

As for „just" revising, the whole process might seem long. **However, a trusted "cross-checker" is like a real treasure. It gives the author a sense of safety, because even if a bug will sneak in somewhere, the watchful eye of a co-worker will pick it up.** So be a checker you would want your colleagues to be for you.

Take-home message

- Always use reliable sources and check them in terms of credibility.
- When writing, make sure the EBM material you use is still up to date.
- Check multiple times whether you have put the in-text citation in the right place.
- Label all the graphics and inspect them for possible errors.
- Ask someone to cross-check the article.
- If you check someone else's article, do it carefully.

CONCLUSION



You searched, you made drafts, implemented SEO rules, prepared visualization, had the text crossed-checked. Your work is done. Last step – send the text to the client and wait for the feedback. At worst, you will have to start the process all over again, but **follow our tips and there is a huge chance that the only adjustments you will have to make will be minor ones. In the end, no human is unerring.**

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PART I

Chapter 1: EBM and Marketing

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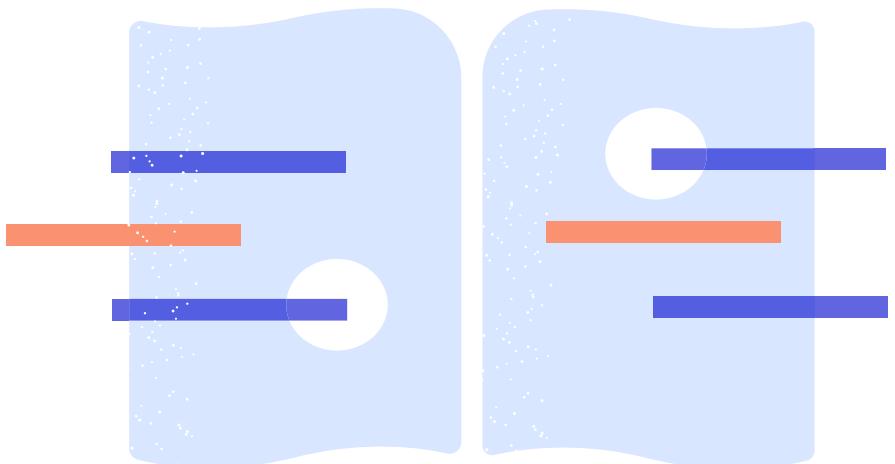

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