

Appendices

Appendix A: Synopsis

Table A1: Systematic synopsis of the English versions of the 2013 and 2024 editions of the Declaration of Helsinki (DoH). The red, crossed-out passages in the 2013 edition column have been replaced or removed in the 2024 edition. Replaced and new passages are highlighted in green in the 2024 edition column.

Art.	Version 2013	Version 2024	Comments / explanations
Preamble			
1	The World Medical Association (WMA) has developed the Declaration of Helsinki as a statement of ethical principles for medical research involving human subjects , including research on identifiable human material and data. The Declaration is intended to be read as a whole and each of its constituent paragraphs should be applied with consideration of all other relevant paragraphs.	The World Medical Association (WMA) has developed the Declaration of Helsinki as a statement of ethical principles for medical research involving human participants , including research using identifiable human material or data. The Declaration is intended to be read as a whole, and each of its constituent paragraphs should be applied with consideration of all other relevant paragraphs.	'Subjects' becomes 'participants'. Focus on participation and voluntariness in the terminology
2	Consistent with the mandate of the WMA, the Declaration is addressed primarily to physicians. The WMA encourages others who are involved in medical research involving human subjects to adopt these principles	While the Declaration is adopted by physicians, the WMA holds that these principles should be upheld by all individuals, teams, and organizations involved in medical research, as these principles are fundamental to respect for and protection of all research participants, including both patients and healthy volunteers.	The 2024 version emphasizes the ethical-normative meaning for researchers who are not physicians more strongly. An "encourage" to adhere to the recommendations becomes a normative "should".
General Principles			
3	The Declaration of Geneva of the WMA binds the physician with the words, "The health of my patient will be my first consideration," and the International Code of Medical Ethics declares that, "A physician shall act in the patient's best interest when providing medical care."	The WMA Declaration of Geneva binds the physician with the words, "The health and well-being of my patient will be my first consideration," and the WMA International Code of Medical Ethics declares "The physician must commit to the primacy of patient health and well-being and must offer care in the patient's best interest."	Adapted to updates of the referenced declarations / codes
4	It is the duty of the physician to promote and safeguard the health, well-being and rights of patients, including those who are involved in medical research. The physician's knowledge and conscience are dedicated to the fulfilment of this duty.	It is the duty of the physician to promote and safeguard the health, well-being and rights of patients, including those who are involved in medical research. The physician's knowledge and conscience are dedicated to the fulfilment of this duty.	No change
5	Medical progress is based on research that ultimately must include studies involving human subjects.	Medical progress is based on research that ultimately must include participants. Even well-proven interventions should be evaluated continually through research for their safety, effectiveness, efficiency, accessibility, and quality.	Second paragraph is from article 6 of 2013.

Art.	Version 2013	Version 2024	Comments / explanations
6	The primary purpose of medical research involving human subjects is to understand the causes, development and effects of diseases and improve preventive, diagnostic and therapeutic interventions (methods, procedures and treatments). Even the best proven interventions must be evaluated continually through research for their safety, effectiveness, efficiency, accessibility and quality.	Medical research involving human participants is subject to ethical standards that promote and ensure respect for all participants and protect their health and rights. <i>Since medical research takes place in the context of various structural inequities, researchers should carefully consider how the benefits, risks, and burdens are distributed.</i> <i>Meaningful engagement with potential and enrolled participants and their communities should occur before, during, and following medical research. Researchers should enable potential and enrolled participants and their communities to share their priorities and values; to participate in research design, implementation, and other relevant activities; and to engage in understanding and disseminating results.</i>	Items 6 & 7 were swapped compared to 2013. Addition to article 7 from 2013: (1) Context of structural inequality should be focused on with regard to the distribution of burdens and benefits. (2) Involvement of participants and their communities in research.
7	Medical research is subject to ethical standards that promote and ensure respect for all human subjects and protect their health and rights.	The primary purpose of medical research involving human participants is to generate knowledge to understand the causes, development and effects of diseases; improve preventive, diagnostic and therapeutic interventions; <i>and ultimately to advance individual and public health.</i> <i>These purposes can never take precedence over the rights and interests of individual research participants.</i>	Addition to article 6 from 2013: (1) Downstream effects of research advances should benefit individual and public health. (2) (Good) purpose of research never overrides the rights of participants (previously in Article 8, 2013).
8	While the primary purpose of medical research is to generate new knowledge, this goal can never take precedence over the rights and interests of individual research subjects.	<i>While new knowledge and interventions may be urgently needed during public health emergencies, it remains essential to uphold the ethical principles in this Declaration during such emergencies.</i>	New article, emphasizes that the ethical principles of this declaration remain valid even in public health emergency situations. The article from 2013 can already be found in article 7 of 2024 and is therefore included.
9	It is the duty of physicians who are involved in medical research to protect the life, health, dignity, integrity, right to self-determination , privacy, and confidentiality of personal information of research subjects . The responsibility for the protection of research subjects must always rest with the physician or other health care professionals and never with the research subjects , even though they have given consent.	It is the duty of physicians who are involved in medical research to protect the life, health, dignity, integrity, <i>autonomy</i> , privacy, and confidentiality of personal information of research <i>participants</i> . The responsibility for the protection of research <i>participants</i> must always rest with physicians or <i>other researchers</i> and never with the research <i>participants</i> , even though they have given consent.	(1) The 2024 version uses the term "autonomy" as opposed to "right to self-determination". Autonomy is a concept that describes the actual capacity for self-determination, rather than being limited to the right. The right to self-determination is a (non-sufficient) condition for autonomy. (2) The 2024 version extends the responsibility for participant protection of "health care professionals" to all researchers.

Art.	Version 2013	Version 2024	Comments / explanations
10	Physicians must consider the ethical, legal and regulatory norms and standards for research involving human subjects in their own countries as well as applicable international norms and standards. No national or international ethical, legal or regulatory requirement should reduce or eliminate any of the protections for research subjects set forth in this Declaration.	Physicians and other researchers must consider the ethical, legal and regulatory norms and standards for research involving human participants in the country or countries in which the research originated and where it is to be performed , as well as applicable international norms and standards. No national or international ethical, legal or regulatory requirement should reduce or eliminate any of the protections for research participants set forth in this Declaration.	(1) The 2024 version extends the responsibility of this article from physicians to all researchers. (2) The 2024 version extends the scope of the ethical, legal and regulatory standards to be considered to all countries involved instead of only to the countries of the respective responsible parties. In certain multinational contexts, this point is already regulated by law (see EU law), but not globally and, in particular, not within this code of ethics. One possible argument could be the outsourcing of research to less regulated countries in order to circumvent safety precautions. This approach is known from the pharmaceutical industry and is heavily criticized.
11	Medical research should be conducted in a manner that minimises possible harm to the environment.	Medical research should be designed and conducted in a manner that avoids or minimizes harm to the environment and strives for environmental sustainability .	(1) The 2024 version supplements the minimization of environmental damage with the pursuit of ecological sustainability and emphasizes that this must already be considered in the design. A subtle but important addition, as minimizing damage to the environment is not sufficient to achieve ecological sustainability.
12	Medical research involving human subjects must be conducted only by individuals with the appropriate ethics and scientific education, training and qualifications. Research on patients or healthy volunteers requires the supervision of a competent and appropriately qualified physician or other health care professional .	Medical research involving human participants must be conducted only by individuals with the appropriate ethics and scientific education, training and qualifications. Such research requires the supervision of a competent and appropriately qualified physician or other researcher . Scientific integrity is essential in the conduct of medical research involving human participants. Involved individuals, teams, and organizations must never engage in research misconduct.	(1) In the 2024 version, research monitoring was expanded to potentially include all researchers instead of being limited to health care professionals and physicians. (2) Compared to 2013, this article was supplemented by an emphasis on scientific integrity. The ethical-normative component of scientific integrity is to be made explicit, particularly in research involving human subjects. In medical research in particular, "misconduct" has potentially significant consequences that can lead primarily to (avoidable) harm to participants, but also downstream to harm to healthcare.
13	Groups that are underrepresented in medical research should be provided appropriate access to participation in research.	Groups that are underrepresented in medical research should be provided appropriate access to participation in research.	No changes

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14	Physicians who combine medical research with medical care should involve their patients in research only to the extent that this is justified by its potential preventive, diagnostic or therapeutic value and if the physician has good reason to believe that participation in the research study will not adversely affect the health of the patients who serve as research subjects .	Physicians who combine medical research with medical care should involve their patients in research only to the extent that this is justified by its potential preventive, diagnostic or therapeutic value and if the physician has good reason to believe that participation in the research will not adversely affect the health of the patients who serve as research participants .	s.a.
15	Appropriate compensation and treatment for subjects who are harmed as a result of participating in research must be ensured.	Appropriate compensation and treatment for participants who are harmed as a result of participating in research must be ensured.	s.a.
Risks, Burdens, and Benefits			
16	In medical practice and in medical research, most interventions involve risks and burdens. Medical research involving human subjects may only be conducted if the importance of the objective outweighs the risks and burdens to the research subjects .	In medical practice and in medical research, most interventions involve risks and burdens. Medical research involving human participants may only be conducted if the importance of the objective outweighs the risks and burdens to the research participants .	s.a.
17	All medical research involving human subjects must be preceded by careful assessment of predictable risks and burdens to the individuals and groups involved in the research in comparison with foreseeable benefits to them and to other individuals or groups affected by the condition under investigation. Measures to minimise the risks must be implemented. The risks must be continuously monitored, assessed and documented by the researcher.	All medical research involving human participants must be preceded by careful assessment of predictable risks and burdens to the individuals and groups involved in the research in comparison with foreseeable benefits to them and to other individuals or groups affected by the condition under investigation. Measures to minimize the risks and burdens must be implemented. The risks and burdens must be continuously monitored, assessed, and documented by the researcher.	The second paragraph of article 17 was expanded in the 2024 version to include burdens. It is thus emphasized that not only risks, i.e. potential damage, but also definitive burdens for participants should be reduced.
18	Physicians may not be involved in a research study involving human subjects unless they are confident that the risks have been adequately assessed and can be satisfactorily managed. When the risks are found to outweigh the potential benefits or when there is conclusive proof of definitive outcomes, physicians must assess whether to continue, modify or immediately stop the study.	Physicians and other researchers may not engage in research involving human participants unless they are confident that the risks and burdens have been adequately assessed and can be satisfactorily managed. When the risks and burdens are found to outweigh the potential benefits or when there is conclusive proof of definitive outcomes, physicians and other researchers must assess whether to continue, modify or immediately stop the research.	Extension of the scope and responsibility (see above)

Art.	Version 2013	Version 2024	Comments / explanations
	Vulnerable Groups and Individuals	Individual, Group, and Community Vulnerability	The term “vulnerable group” generally refers to groups that are more likely to be misled, mistreated, or otherwise exploited. Among other things, this concept has been criticized for generalizing entire groups as vulnerable instead of pointing out specific vulnerabilities in specific situations [1]. The 2024 version of the DoH appears to respond to the debate surrounding this concept by referring to vulnerabilities and “situations of vulnerability”.
19	<p>Some groups and individuals are particularly vulnerable and may have an increased likelihood of being wronged or of incurring additional harm.</p> <p>All vulnerable groups and individuals should receive specifically considered protection.</p>	<p>Some individuals, groups, and communities are in a situation of more vulnerability as research participants due to factors that may be fixed or contextual and dynamic, and thus are at greater risk of being wronged or incurring harm. When such individuals, groups, and communities have distinctive health needs, their exclusion from medical research can potentially perpetuate or exacerbate their disparities. Therefore, the harms of exclusion must be considered and weighed against the harms of inclusion. In order to be fairly and responsibly included in research, they should receive specifically considered support and protections.</p>	<p>Important addition in version 2024: Exclusion due to vulnerability poses risks due to underrepresentation or special medical needs. Resulting harms and inequalities must be considered.</p> <p>Vulnerability as a term is used more precisely.</p>
20	<p>Medical research with a vulnerable group is only justified if the research is responsive to the health needs or priorities of this group and the research cannot be carried out in a non-vulnerable group. In addition, this group should stand to benefit from the knowledge, practices or interventions that result from the research.</p>	<p>Medical research with individuals, groups, or communities in situations of particular vulnerability is only justified if it is responsive to their health needs and priorities and the individual, group, or community stands to benefit from the resulting knowledge, practices, or interventions. Researchers should only include those in situations of particular vulnerability when the research cannot be carried out in a less vulnerable group or community, or when excluding them would perpetuate or exacerbate their disparities.</p>	s.a.
Scientific Requirements and Research Protocols			
21	<p>Medical research involving human subjects must conform to generally accepted scientific principles, be based on a thorough knowledge of the scientific literature, other relevant sources of information, and adequate laboratory and, as appropriate, animal experimentation. The welfare of animals used for research must be respected.</p>	<p>Medical research involving human participants must have a scientifically sound and rigorous design and execution that are likely to produce reliable, valid, and valuable knowledge and avoid research waste. The research must conform to generally accepted scientific principles, be based on a thorough knowledge of the scientific literature, other relevant sources of information, and adequate laboratory and, as appropriate, animal experimentation.</p> <p>The welfare of animals used for research must be respected.</p>	<p>The 2024 version adds sustainability aspects to article 21. For example, only research on humans that is promising and reduces waste should take place.</p>

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22	<p>The design and performance of each research study involving human subjects must be clearly described and justified in a research protocol.</p> <p>The protocol should contain a statement of the ethical considerations involved and should indicate how the principles in this Declaration have been addressed.</p> <p>The protocol should include information regarding funding, sponsors, institutional affiliations, potential conflicts of interest, incentives for subjects and information regarding provisions for treating and/or compensating subjects who are harmed as a consequence of participation in the research study.</p> <p>In clinical trials, the protocol must also describe appropriate arrangements for post-trial provisions.</p>	<p>The design and performance of all medical research involving human participants must be clearly described and justified in a research protocol.</p> <p>The protocol should contain a statement of the ethical considerations involved and should indicate how the principles in this Declaration have been addressed. The protocol should include information regarding aims, methods, anticipated benefits and potential risks and burdens, qualifications of the researcher, sources of funding, any potential conflicts of interest, provisions to protect privacy and confidentiality, incentives for participants, provisions for treating and/or compensating participants who are harmed as a consequence of participation, and any other relevant aspects of the research.</p> <p>In clinical trials, the protocol must also describe any post-trial provisions.</p>	<p>2024 updates the requirements for research protocols by requiring a more extensive description of the research. All medical research studies involving human subjects must be clearly described and justified. The protocol content now includes important elements such as objectives, methods, expected benefits and potential risks and burdens. The qualifications of the researcher are also mentioned. Sponsors are no longer explicitly listed: If the sponsor also finances the study, then it is implicitly named by stating the “source of funding”. However, if financing is provided by a third party (e.g., through a public funding program) without the sponsor being directly named, the sponsor is not automatically apparent. Furthermore, the protection of privacy and confidentiality is addressed, which is relevant for the handling of participant data.</p>
Research Ethics Committees			
23	<p>The research protocol must be submitted for consideration, comment, guidance and approval to the concerned research ethics committee before the study begins. This committee must be transparent in its functioning, must be independent of the researcher, the sponsor and any other undue influence and must be duly qualified. It must take into consideration the laws and regulations of the country or countries in which the research is to be performed as well as applicable international norms and standards but these must not be allowed to reduce or eliminate any of the protections for research subjects set forth in this Declaration.</p> <p>The committee must have the right to monitor ongoing studies. The researcher must provide monitoring information to the committee, especially information about any serious adverse events. No amendment to the protocol may be made without consideration and approval by the committee. After the end of the study, the researchers must submit a final report to the committee containing a summary of the study's findings and conclusions.</p>	<p>The protocol must be submitted for consideration, comment, guidance, and approval to the concerned research ethics committee before the research. This committee must be transparent in its functioning and must have the independence and authority to resist undue influence from the researcher, the sponsor, or others. The committee must have sufficient resources to fulfill its duties, and its members and staff must collectively have adequate education, training, qualifications, and diversity to effectively evaluate each type of research it reviews. The committee must have sufficient familiarity with local circumstances and context, and include at least one member of the general public. It must take into consideration the ethical, legal, and regulatory norms and standards of the country or countries in which the research is to be performed as well as applicable international norms and standards, but these must not be allowed to reduce or eliminate any of the protections for research participants set forth in this Declaration.</p> <p>When collaborative research is performed internationally, the research protocol must be approved by research ethics committees in both the sponsoring and host countries.</p>	<p>(1) The 2024 version also emphasizes the independence of the ethics committees by stressing sufficient resources and adequate qualifications.</p> <p>(2) The focus of the ethics committees has been expanded from “laws and regulations” to “ethical, legal, and regulatory norms”.</p> <p>(3) It is required that ethics committees of all countries involved in international research approve the research project.</p> <p>(4) The required rights of ethics committees have been extended to the possibility to withdraw approval from ongoing research and to suspend ongoing research.</p>

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		The committee must have the right to monitor, recommend changes to, withdraw approval for, and suspend ongoing research. Where monitoring is required, the researcher must provide information to the committee and/or competent data and safety monitoring entity, especially about any serious adverse events. No amendment to the protocol may be made without consideration and approval by the committee. After the end of the research, the researchers must submit a final report to the committee containing a summary of the findings and conclusions.	
Privacy and Confidentiality			
24	Every precaution must be taken to protect the privacy of research subjects and the confidentiality of their personal information.	Every precaution must be taken to protect the privacy of research participants and the confidentiality of their personal information.	s.a.
Informed Consent		Free and Informed Consent	
25	Participation by individuals capable of giving informed consent as subjects in medical research must be voluntary. Although it may be appropriate to consult family members or community leaders, no individual capable of giving informed consent may be enrolled in a research study unless he or she freely agrees.	Free and informed consent is an essential component of respect for individual autonomy. Participation by individuals capable of giving informed consent in medical research must be voluntary. Although it may be appropriate to consult family members or community representatives, individuals capable of giving informed consent may not be enrolled in research unless they freely agree.	The ethical significance of free and informed consent is introduced. The language is made more precise.
26	In medical research involving human subjects capable of giving informed consent, each potential subject must be adequately informed of the aims, methods, sources of funding, any possible conflicts of interest, institutional affiliations of the researcher, the anticipated benefits and potential risks of the study and the discomfort it may entail, post-study provisions and any other relevant aspects of the study . The potential subject must be informed of the right to refuse to participate in the study or to withdraw consent to participate at any time without reprisal. Special attention should be given to the specific information needs of individual potential subjects as well as to the methods used to deliver the information.	In medical research involving human participants capable of giving informed consent, each potential participant must be adequately informed in plain language of the aims, methods, anticipated benefits and potential risks and burdens, qualifications of the researcher, sources of funding, any potential conflicts of interest, provisions to protect privacy and confidentiality, incentives for participants, provisions for treating and/or compensating participants who are harmed as a consequence of participation, and any other relevant aspects of the research. The potential participant must be informed of the right to refuse to participate in the research or to withdraw consent to participate at any time without reprisal. Special attention should be given to the specific information and communication needs of individual potential participants as well as to the methods used to deliver the information.	The 2024 version supplements article 26 to provide additional information in the sense of informed consent. The update emphasizes for the first time that potential participants must be informed in simple language about the objectives, methods, expected benefits and possible risks and burdens. It also adds aspects such as the “qualifications of the researcher” and “measures to protect privacy”. Incentives for participants are also addressed.

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	After ensuring that the potential subject has understood the information, the physician or another appropriately qualified individual must then seek the potential subject's freely-given informed consent, preferably in writing . If the consent cannot be expressed in writing , the non-written consent must be formally documented and witnessed. All medical research subjects should be given the option of being informed about the general outcome and results of the study.	After ensuring that the potential participant has understood the information, the physician or another qualified individual must then seek the potential participant's freely given informed consent, formally documented on paper or electronically . If the consent cannot be expressed on paper or electronically , the non-written consent must be formally witnessed and documented. All medical research participants should be given the option of being informed about the general outcome and results of the research.	
27	When seeking informed consent for participation in a research study the physician must be particularly cautious if the potential subject is in a dependent relationship with the physician or may consent under duress. In such situations the informed consent must be sought by an appropriately qualified individual who is completely independent of this relationship.	When seeking informed consent for participation in research the physician or other researcher must be particularly cautious if the potential participant is in a dependent relationship with them or may consent under duress. In such situations, the informed consent must be sought by an appropriately qualified individual who is independent of this relationship.	s.a.
28	For a potential research subject who is incapable of giving informed consent, the physician must seek informed consent from the legally authorised representative. These individuals must not be included in a research study that has no likelihood of benefit for them unless it is intended to promote the health of the group represented by the potential subject, the research cannot instead be performed with persons capable of providing informed consent, and the research entails only minimal risk and minimal burden.	In medical research involving human participants incapable of giving free and informed consent , the physician or other qualified individual must seek informed consent from the legally authorized representative, considering preferences and values expressed by the potential participant . Those persons incapable of giving free and informed consent are in situations of particular vulnerability and are entitled to the corresponding safeguards. In addition to receiving the protections for the particularly vulnerable, those incapable of giving consent must only be included if the research is likely to either personally benefit them or if it entails only minimal risk and minimal burden.	(1) The 2024 version clarifies this article in terms of language. (2) Version 2024 emphasizes that the interests and preferences of potential participants must be taken into account in the case of proxy informed consent by relatives / guardians / etc. (3) The criteria for participation have been adjusted. Personal benefits or advantages of the represented group are no longer a prerequisite if risks and burdens should be minimal. (4) The vulnerability of those affected is addressed. The exclusion of this group is less strict, which may be due to the arguments against the exclusion of participants with vulnerability mentioned above.
29	When a potential research subject who is deemed incapable of giving informed consent is able to give assent to decisions about participation in research, the physician must seek that assent in addition to the consent of the legally authorised representative. The potential subject's dissent should be respected.	When a potential research participant who is incapable of giving free and informed consent is able to give assent to decisions about participation in research, the physician or other qualified individual must seek that assent in addition to the consent of the legally authorized representative, considering any preferences and values expressed by the potential participant . The potential participant's dissent should be respected.	s.a.

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30	Research involving subjects who are physically or mentally incapable of giving consent, for example, unconscious patients, may be done only if the physical or mental condition that prevents giving informed consent is a necessary characteristic of the research group. In such circumstances the physician must seek informed consent from the legally authorised representative. If no such representative is available and if the research cannot be delayed, the study may proceed without informed consent provided that the specific reasons for involving subjects with a condition that renders them unable to give informed consent have been stated in the research protocol and the study has been approved by a research ethics committee. Consent to remain in the research must be obtained as soon as possible from the subject or a legally authorised representative.	Research involving participants who are physically or mentally incapable of giving consent (for example, unconscious patients) may be done only if the physical or mental condition that prevents giving informed consent is a necessary characteristic of the research group. In such circumstances the physician or other qualified individual must seek informed consent from the legally authorized representative. If no such representative is available and if the research cannot be delayed, the research may proceed without informed consent provided that the specific reasons for involving participants with a condition that renders them unable to give informed consent have been stated in the research protocol and the research has been approved by a research ethics committee. Free and informed consent to remain in the research must be obtained as soon as possible from a legally authorized representative or, if they regain capacity to give consent, from the participant.	The 2024 version clarifies the language.
31	The physician must fully inform the patient which aspects of their care are related to the research. The refusal of a patient to participate in a study or the patient's decision to withdraw from the study must never adversely affect the patient-physician relationship.	The physician or other researcher must fully inform potential participants which aspects of their care are related to the research. The refusal of a patient to participate in research or the patient's decision to withdraw from research must never adversely affect the patient-physician relationship or provision of the standard of care.	This article requires that the refusal of consent must not have negative consequences for potential participants. The 2024 version emphasizes that the refusal of informed consent must not result in the "standard of care" not being provided.
32	For medical research using identifiable human material or data, such as research on material or data contained in biobanks or similar repositories, physicians must seek informed consent for its collection, storage and/or reuse. There may be exceptional situations where consent would be impossible or impracticable to obtain for such research. In such situations the research may be done only after consideration and approval of a research ethics committee.	Physicians or other qualified individuals must obtain free and informed consent from research participants for the collection, processing, storage, and foreseeable secondary use of biological material and identifiable or re-identifiable data. Any collection and storage of data or biological material from research participants for multiple and indefinite uses should be consistent with requirements set forth in the WMA Declaration of Taipei, including the rights of individuals and the principles of governance. A research ethics committee must approve the establishment and monitor ongoing use of such databases and biobanks. Where consent is impossible or impracticable to obtain, secondary research on stored data or biological material may be done only after consideration and approval of a research ethics committee.	The new wording in version 2024 leaves more scope for broad-consent approaches in data collection and references the Declaration of Taipei with regard to data governance.

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Use of Placebo			
33	<p>The benefits, risks, burdens and effectiveness of a new intervention must be tested against those of the best proven intervention(s), except in the following circumstances:</p> <ul style="list-style-type: none"> • Where no proven intervention exists, the use of placebo, or no intervention, is acceptable; or • Where for compelling and scientifically sound methodological reasons the use of any intervention less effective than the best proven one, the use of placebo, or no intervention is necessary to determine the efficacy or safety of an intervention; and the patients who receive any intervention less effective than the best proven one, placebo, or no intervention will not be subject to additional risks of serious or irreversible harm as a result of not receiving the best proven intervention. <p>Extreme care must be taken to avoid abuse of this option.</p>	<p>The benefits, risks, burdens, and effectiveness of a new intervention must be tested against those of the best proven intervention(s), except in the following circumstances:</p> <ul style="list-style-type: none"> • If no proven intervention exists, the use of placebo, or no intervention, is acceptable; or • If for compelling and scientifically sound methodological reasons the use of any intervention other than the best proven one(s), the use of placebo, or no intervention is necessary to determine the efficacy or safety of an intervention; and the participants who receive any intervention other than the best proven one(s), placebo, or no intervention will not be subject to additional risks of serious or irreversible harm as a result of not receiving the best proven intervention. <p>Extreme care must be taken to avoid abuse of this option.</p>	The 2024 version clarifies the language.
Post-Trial Provisions			
34	<p>In advance of a clinical trial, sponsors, researchers and host country governments should make provisions for post-trial access for all participants who still need an intervention identified as beneficial in the trial. This information must also be disclosed to participants during the informed consent process.</p>	<p>In advance of a clinical trial, post-trial provisions must be arranged by sponsors and researchers to be provided by themselves, healthcare systems, or governments for all participants who still need an intervention identified as beneficial and reasonably safe in the trial. Exceptions to this requirement must be approved by a research ethics committee. Specific information about post-trial provisions must be disclosed to participants as part of informed consent.</p>	The 2024 version clarifies the language. It is introduced that exceptions to these requirements can be approved by ethics committees.
Research Registration, Publication, and Dissemination of Results			
35	<p>Every research study involving human subjects must be registered in a publicly accessible database before recruitment of the first subject.</p>	<p>Medical research involving human participants must be registered in a publicly accessible database before recruitment of the first participant.</p>	In version 2024, “Every research” becomes “Medical research” to better reflect the scope of this declaration.

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36	<p>Researchers, authors, sponsors, editors and publishers all have ethical obligations with regard to the publication and dissemination of the results of research. Researchers have a duty to make publicly available the results of their research on human subjects and are accountable for the completeness and accuracy of their reports. All parties should adhere to accepted guidelines for ethical reporting. Negative and inconclusive as well as positive results must be published or otherwise made publicly available. Sources of funding, institutional affiliations and conflicts of interest must be declared in the publication. Reports of research not in accordance with the principles of this Declaration should not be accepted for publication.</p>	<p>Researchers, authors, sponsors, editors, and publishers all have ethical obligations with regard to the publication and dissemination of the results of research. Researchers have a duty to make publicly available the results of their research on human participants and are accountable for the timeliness, completeness, and accuracy of their reports. All parties should adhere to accepted guidelines for ethical reporting. Negative and inconclusive as well as positive results must be published or otherwise made publicly available. Sources of funding, institutional affiliations, and conflicts of interest must be declared in the publication. Reports of research not in accordance with the principles of this Declaration should not be accepted for publication.</p>	s.a.
Unproven Interventions in Clinical Practice			
37	<p>In the treatment of an individual patient, where proven interventions do not exist or other known interventions have been ineffective, the physician, after seeking expert advice, with informed consent from the patient or a legally authorised representative, may use an unproven intervention if in the physician's judgement it offers hope of saving life, re-establishing health or alleviating suffering. This intervention should subsequently be made the object of research, designed to evaluate its safety and efficacy. In all cases, new information must be recorded and, where appropriate, made publicly available.</p>	<p>When an unproven intervention is utilized in an attempt to restore health or alleviate suffering for an individual patient because approved options are inadequate or ineffective and enrollment in a clinical trial is not possible, it should subsequently be made the object of research designed to evaluate safety and efficacy. Physicians participating in such interventions must first seek expert advice, weigh possible risks, burdens, and benefits, and obtain informed consent. They must also record and share data when appropriate and avoid compromising clinical trials. These interventions must never be undertaken to circumvent the protections for research participants set forth in this Declaration.</p>	<p>The 2024 version clarifies the language. The importance of the ethical principles of the Declaration of Helsinki is emphasized. It is added that "unproven interventions in clinical practice" should not be used as a method of circumventing these principles.</p>

Appendix B: Nuremberg Code

Table B1: Principles of the Nuremberg Code (1947) [2]. The Nuremberg Code has since been extended into general codes of medical ethics and continues to influence modern research ethics frameworks worldwide. The Declaration of Helsinki is based on the original principles of the Nuremberg Code as a result of the Nuremberg Medical Trial of 1946/1947, in which doctors were accused and, in some cases, convicted of “war crimes” and “crimes against humanity” during the Nazi dictatorship [3], [4].

The Ten Principles of the Nuremberg Code (1947)	
1	The voluntary consent of the human subject is absolutely essential. This means that the person involved should have legal capacity to give consent; should be so situated as to be able to exercise free power of choice, without the intervention of any element of force, fraud, deceit, duress, overreaching, or other ulterior form of constraint or coercion; and should have sufficient knowledge and comprehension of the elements of the subject matter involved as to enable him to make an understanding and enlightened decision. This latter element requires that before the acceptance of an affirmative decision by the experimental subject there should be made known to him the nature, duration, and purpose of the experiment; the method and means by which it is to be conducted; all inconveniences and hazards reasonably to be expected; and the effects upon his health or person which may possibly come from his participation in the experiment. The duty and responsibility for ascertaining the quality of the consent rests upon each individual who initiates, directs, or engages in the experiment. It is a personal duty and responsibility which may not be delegated to another with impunity.
2	The experiment should be such as to yield fruitful results for the good of society, unprocurable by other methods or means of study, and not random and unnecessary in nature.
3	The experiment should be so designed and based on the results of animal experimentation and a knowledge of the natural history of the disease or other problem under study that the anticipated results justify the performance of the experiment.
4	The experiment should be so conducted as to avoid all unnecessary physical and mental suffering and injury.
5	No experiment should be conducted where there is an a priori reason to believe that death or disabling injury will occur; except, perhaps, in those experiments where the experimental physicians also serve as subjects.
6	The degree of risk to be taken should never exceed that determined by the humanitarian importance of the problem to be solved by the experiment.
7	Proper preparations should be made and adequate facilities provided to protect the experimental subject against even remote possibilities of injury, disability or death.
8	The experiment should be conducted only by scientifically qualified persons. The highest degree of skill and care should be required through all stages of the experiment of those who conduct or engage in the experiment.
9	During the course of the experiment the human subject should be at liberty to bring the experiment to an end if he has reached the physical or mental state where continuation of the experiment seems to him to be impossible.
10	During the course of the experiment the scientist in charge must be prepared to terminate the experiment at any stage, if he has probable cause to believe, in the exercise of the good faith, superior skill and careful judgment required of him, that a continuation of the experiment is likely to result in injury, disability, or death to the experimental subject.

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