Revista Bioética
Print version ISSN 1983-8042 | On-line version ISSN 1983-8034

Rev. Bioét. vol.29 no.4 Brasília Oct./Dec. 2021

Medical confidentiality in the digital era: an analysis of physician-patient relations

Gabriela Kato Lettieri [1], *Aline Hung Tai* [1], *Aline Rodrigues Hütter* [1], *André Luiz Torres Raszl* [1], *Mariana Moura* [1], *Raquel Barbosa Cintra* [2]

1. Universidade de Mogi das Cruzes, Mogi das Cruzes/SP, Brasil. **2.** Centro Universitário São Camilo, Mogi das Cruzes/SP, Brasil.

Abstract

The study analyzes confidentiality in the physician-patient relations, addressing how new technologies, such as social media, influence professional practice, and assessing the professionals' knowledge regarding situations in which confidentiality can be broken without legal consequences. This cross-sectional, quantitative and exploratory research took place between October and November 2019, involving 116 physicians who answered a structured questionnaire with 19 questions, among which five assessed knowledge on professional secrecy according to the Code of Medical Ethics and the Brazilian legal system. Physicians who answered three or more questions correctly were considered to have satisfactory knowledge on social media use and medical confidentiality (only 55.2% of respondents). Results reveal the importance of continuing medical education, especially regarding medical confidentiality.

Keywords: Confidentiality. Bioethics. Social media.

Resumo

Sigilo médico na era digital: análise da relação médico-paciente

O estudo analisa o sigilo na relação médico-paciente, abordando a influência de novas tecnologias, como as mídias sociais, no exercício da profissão, e aferindo o conhecimento de profissionais sobre situações em que o sigilo pode ser quebrado sem consequências legais. Trata-se de pesquisa de natureza exploratória, de abordagem quantitativa e corte transversal realizada entre outubro e novembro de 2019, com 116 médicos, por meio de questionário estruturado com 19 questões, entre as quais cinco avaliaram o conhecimento sobre sigilo profissional de acordo com o Código de Ética Médica e o ordenamento jurídico brasileiro. Considerou-se que os médicos que responderam três ou mais questões corretamente apresentaram conhecimento satisfatório sobre o uso de mídias sociais e o sigilo médico (apenas 55,2% dos entrevistados). O resultado revela a importância da educação médica continuada, principalmente quanto ao sigilo médico.

Palavras-chave: Confidencialidade. Bioética. Mídias sociais.

Resumen

Confidencialidad médica en la era digital: análisis de la relación médico-paciente

El estudio analiza la confidencialidad en la relación médico-paciente, abordando la influencia de las nuevas tecnologías, como las redes sociales, en el ejercicio de la profesión, y midiendo el conocimiento de los profesionales sobre situaciones en las que la confidencialidad puede romperse sin consecuencias legales. Se trata de una investigación exploratoria, con enfoque cuantitativo y transversal, realizada entre octubre y noviembre de 2019, con 116 médicos, mediante un cuestionario estructurado con 19 preguntas, entre las que cinco evaluaron conocimientos sobre la confidencialidad profesional según el Código de Ética Médica. y el sistema legal brasileño. Se consideró que los médicos que respondieron correctamente a tres o más preguntas tenían un conocimiento satisfactorio sobre el uso de las redes sociales y la confidencialidad médica (solo el 55,2% de los encuestados). El resultado revela la importancia de la educación médica continua, especialmente en lo que respecta a la confidencialidad médica.

Palabras clave: Confidencialidad. Bioética. Medios de comunicación sociales.

Research

The authors declare no conflict of interest.
Approval CEP-UMC 3.600.096 CAAE 20266719.2.0000.5497

The Code of Medical Ethics (CEM), developed by the Federal Council of Medicine (CFM), fully and separately regulates the practice of medicine, the relations between physicians, between physician and patient, and between physician and health institutions or the State [1,2]. Among the CEM precepts CEM (CFM Resolution 2,217/2018, modified by CFM Resolutions 2,222/2018 and 2,226/2019) [1,2], confidentiality – a moral and ethical precept present in interpersonal relationships that is directly related to the principles of professional secrecy, privacy and freedom – stands out. Regarding confidentiality in physician-patient relations specifically, it was the Hippocratic Oath that established the protection of medical confidentiality [3]. But despite being one of the most traditional moral precepts of healthcare, confidentiality is still frequently disrespected. Hence why one has to constantly create and adapt new ethical codes that guide the physician's practice, following social changes [4].

In the current era of technological evolution, data transmission is increasingly faster and more vulnerable, simultaneously, as it escapes human control and threatens people's privacy. In this context (computerization of data networks, social networks and the internet, among others), technology ends up conflicting with the protection of fundamental rights [5].

The 1988 Constitution included the protection of the rights to privacy and intimacy in the Brazilian legal system and recognized four institutes: intimacy, private life, honor and image [6,7]. Disclosing data on a patient's health can, for example, influence others' perception about that person's life expectancy, about the possibility of developing certain illnesses or disabilities, about paternity or maternity situations, etc. Information on the existence of serious diseases (for example, chronic-degenerative, infectious, neoplastic, psychiatric), on the use of drugs or medications, or on sexual matters, can also generate discrimination, with possible deleterious personal and social effects to the patient [8]. Consequently, protecting personal data made available on the internet is paramount, since certain information, when disclosed, violates the right to privacy.

For a long time, healthcare professionals were seen as practically family members, attending to the patient at home and available on call. The relationship tended to be unilateral, and the medical will was indisputable [9]. Currently, the physician-patient relationship is built on the recognition of patient autonomy, abandoning a paternalistic relationship to create a partnership one, with rights and duties to both parties [10]. Physicians are obliged to practice their profession ethically, observing good conduct and confidentiality in the relationship [11].

Breach of professional secrecy can also be considered a legal obligation in certain cases, when doctors must share information with the authorities. According to article 73 of CEM, the physician is prohibited from *revealing facts of which they have knowledge by virtue of the exercise of their profession, except for just reason, legal duty or the patient's written consent* [1]. An example of breach of confidentiality as a legal duty is the communication to the competent authority of abuse against children or adolescents [12].

In the case of communicable disease, the physician must also inform the public, seeking protection from public danger [13]. According to the sole paragraph of article 73 of CEM, violating ethical duty is prohibited: *a) even if the fact is public knowledge or the patient has died; b) when testifying as a witness (in this case, the physician will appear before the authority and declare their impediment); c) in the investigation of a suspected crime, the physician is prevented from revealing any secret that may expose the patient to criminal prosecution* [1].

The guarantee of confidentiality, besides encouraging the professional-patient bond, can favor treatment adherence and autonomy in decision-making. In this context, medical confidentiality works as a protection mechanism for the patient's values and personal experiences, supporting the necessary trust in the physician-patient relationship [14]. Being so fundamental, such confidentiality must be an integral part of medical education [15].

This study evaluates the knowledge of physicians about bioethical precepts related to confidentiality. Our goal is to contribute to a better understanding of this concept, enriching the

discussion on this topic of a dual nature: on the one hand, we have the professional's ethical duty of professional secrecy; on the other, the patient's right to privacy, freedom, and intimacy.

Method

This cross-sectional, quantitative and exploratory research was carried out by the application of a clear and objective questionnaire, using the online tool Google Forms. Comprising 19 questions elaborated by the researchers, the questionnaire was sent by email to the participants. Before answering the questions, the participants had to accept an informed consent form. Once the term was accepted and the responses collected, all information was kept confidential. Volunteer data were identified by codes, not by names, and only the researchers had access to the data. Participants received no material or financial benefit, and could leave the study at any time without prejudice.

The study was developed in accordance with the Standards and Guidelines for Research Involving Human Beings (CNS Resolution 466/2012 [16] and 510/2016 [17]) and evaluated by the Research Ethics Committee of Universidade de Mogi das Cruzes. Questionnaire application and data collection took place between October and November 2019. Answered the questionnaire 119 general practitioners with active registration in the Regional Council of Medicine (CRM), without gender, age, or training time screening. Nor were participants required to have completed medical residency or hold a specialist title.

After excluding three questionnaires (2.52%) for being filled out incorrectly, the study effectively evaluated 116 questionnaires. We checked for outliers and found no discrepant data that could bias the analysis. Data were compiled and organized in tables using Microsoft Excel software. Since these were qualitative variables, we created contingency tables and applied the chi-square test (χ^2) at a 95% significance level (200 thousand bootstraps to estimate the *p*-value) to verify the relationships between the variables under study. Such analyses were performed using the R statistical software [18] with the "gplots" [19] and "corrplot" [20] packages.

The six first questions of the instrument referred to sociodemographic variables, including questions such as name, CRM, practice status, age, gender and time since graduation. The questionnaire also comprised four questions on the use of social media; three everyday problem-situations for respondents to judge in which situations medical confidentiality could be broken; a question in which respondents could mark the alternatives they considered described a justifiable situation of breach of medical confidentiality; and a question about how the medical diagnosis should be informed, according to International Classification of Diseases (ICD) codes or not. In the question where respondents could mark more than one alternative, only two described situations in which medical confidentiality could be broken, thus we considered adequate when interviewees marked these two alternatives and no other. Respondents were also asked if they had read the CEM, if they had any knowledge of the Hippocratic Oath, if they received formal orientation on medical confidentiality during graduation, and if they knew anyone who had ever been sued for breach of confidentiality and what the nature of that lawsuit was.

Results were evaluated according to the following criterion: each of the 5 questions that allowed for a right or wrong answer, when answered correctly, would score 1 point, and when answered incorrectly, would score 0. Thus, we added the number of points for each interviewed physicians, with 5 as the maximum score and 0 the minimum score. Respondents who answered at least 3 questions correctly, thus scoring 3 points or more, were classified in the "satisfactory" knowledge group; respondents who answered all questions incorrectly, or answered only 1 or 2 questions correctly were classified in the "unsatisfactory" knowledge group.

Results and discussion

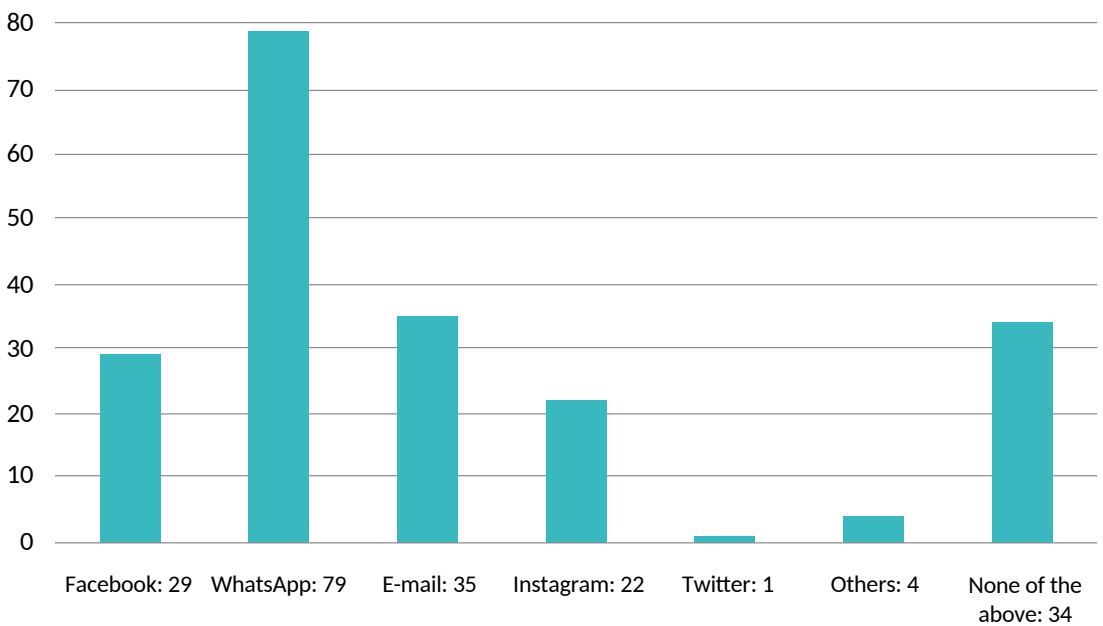
Of the 116 physicians who answered the questionnaire, 85 (73.3%) were from the state of São Paulo, nine (7.8%) from Minas Gerais, four (3.4%) from Rio de Janeiro, three (2.6%) from Rio Grande do Sul, two (1.7%) from Bahia, two (1.7%) from Mato Grosso

and two (1.7%) from Paraná. We counted only one participant from each of the following states: Amazonas, Rio Grande do Norte, Maranhão, Pernambuco, Sergipe, Federal District, Mato Grosso do Sul, Espírito Santo, and Santa Catarina. Most participants work in the state of São Paulo, which is in line with data from the 2018 Medical Demography in Brazil [21], since, of the 451,777 physicians registered in Brazil, 28% have their practice in the state of São Paulo. Regarding the respondents' training time, 49 (42.2%) have less than five years of training, 23 (19.8%) have been trained for five to ten years, and 44 (38%) for more than 11 years, of which half have more than 20 years of training.

To optimize the statistical analyses, professionals were separated into four age classes: Class 1, from 20 to 30 years old (n=49; 42.2%); Class 2, from 31 to 40 years old (n=23; 19.8%); Class 3, from 41 to 50 years old (n=22; 19%); and Class 4, over 50 years old (n=22; 19%). As for gender, 65.5% of the participants were female (n=76), versus 34.5% male (n=40). Although the total number of active male doctors working in Brazil is still higher (54.4% of the 414,831 working professionals), women are already the majority among younger doctors – 57.4% in the group up to 29 years old and 53.7% in the age group between 30 and 34 years old. This reflects a change in the growth of the active medical population, which has been undergoing a feminization and rejuvenation process [21].

When asked about the use of social media and instant messaging applications for professional purposes, 82 (70.7%) of the 116 respondents said they use them, and 34 (29.3%) said they do not use them for this purpose. Among those who claimed to use social media and instant messaging applications for professional purposes, WhatsApp (68.1%) and email (30.2%) were the most used applications (Graph 1). Most interviewees who claimed to use these resources for professional purposes are women (63.4%) between 31 and 40 years old (34.1%), and graduated less than five years ago (35.4%). Just as the present survey revealed that most respondents use social media and exchange messages via applications for professional purposes, a study conducted with physicians and nurses in five London hospitals showed that 64.7% of physicians used SMS messaging, 46% used image messaging, and 33.1% used application-based messaging technology to share patient-related information [22].

Graph 1. Social media most frequently used for professional purposes



In a later question, respondents were asked whether they used instant messaging applications to discuss clinical cases and whether they did so individually or in groups. Nineteen (16.4%) interviewees answered that they do not use instant messaging applications to discuss cases, while 96 (82.8%) confirmed such use, among which 24% do so only individually, 19.8% only in groups, and 56.2% both ways. One (0.8%) respondent chose not to answer this question. Similarly, a study carried out in the United Kingdom showed that instant messaging applicants such as WhatsApp are an integral part of daily communication within clinical teams. In this survey, 80% of physicians interviewed reported that using these applications improves the relationship and cohesion between professionals and bridges traditional hierarchies that can hinder effective communication within the team. Among these physicians, most used WhatsApp in groups composed of members of the clinical team [23].

The subsequent question asked whether survey participants considered the benefits and efficiency of communicating with medical colleagues via text messages, email, or personal phone to be greater than the risks to privacy and confidentiality of patient health information. Of the 116 physicians, 85 (73%) answered "yes," 27 (23%) answered "no," and four (4%) chose not to answer. We found no statistically significant relationship (p>0.05) between age, time since graduation and use of social media. Therefore, most physicians (73%) find it beneficial to use online communication between co-workers for professional purposes, a result very similar to the study by O'Sullivan and collaborators [23], in which 72.5% of the interviewed physicians acknowledged the benefits of instant messaging tools like WhatsApp.

When analyzing the respondents' age, we observed that within Class 1 (20-30 years old), 59% use social media; in Class 2 (31-40 years old), 72% use social media; in Class 3 (41-50 years old), 85% use social media; and, in Class 4 (over 50 years old), 81% use social media. Results show that younger physicians proportionally use social media professionally the least, despite finding them beneficial. These data contradict the trend towards greater social media use among younger people.

In a 2017 study carried out in Texas, healthcare professionals answered that they spent approximately one hour on social media every day. Healthcare professionals under 40 years old were more involved in social media compared with those over 40 (p<0.05) [24]. Another study, carried out in Florida, concluded that younger medical students spend more time on social media compared with residents [25]. Against this trend, younger physicians participating in the current study reported using social media less than older groups. We found no statistical relationship between social media use and age, gender and time since graduation (p>0.05).

When analyzing the five questions with right or wrong answers, 64 (55.2%) of the 116 respondents answered three or more questions correctly and were thus classified as belonging to the satisfactory knowledge group on social media use and medical confidentiality in the physician-patient relationship. The remaining 52 physicians (44.8%) answered at most two questions correctly, being thus included in the unsatisfactory knowledge group.

We proposed three daily problem-situations for participants to judge when they could breach confidentiality. The first problem-situation read: "Your patient has an interesting morphological change, inherent to a rare medical condition. You take a picture with your cell phone, so that it is impossible to identify the patient from the photograph. You think it would be educationally relevant to share it with your medical colleagues. Do you consider it a breach of medical confidentiality to share this photograph via social media or instant messaging applications?"

Forty-one respondents (35.3%) answered correctly: sharing the picture constitutes a breach of confidentiality. Conversely, 72 physicians (62.1%) did not consider it a breach of confidentiality, and three (2.6%) chose not to respond. The 1988 Federal Constitution,

in its article 5, determines that intimacy, private life, honor, and image of people are inviolable, ensuring the right to compensation for material or moral damage resulting from violation [6]. According to Barros [26], "image" is the projection of an individual's physical personality in the outside world, that is, every type of representation of the person, whether artistic painting, drawing or photograph. Consequently, to expose any patient image, in any type of media, even if authorized by the patient, characterizes an ethical violation. Note that the problem-situation above makes no mention of the patient having authorized image use.

The second problem-situation read: "Do you consider it correct, from the medical ethics standpoint, regarding confidentiality, to share patients' clinical information (without identifying them) in instant messaging groups formed exclusively by physicians, as to discuss the clinical picture and ensure the patient's health?" Results showed that 89 respondents answered correctly (76.7%), considering the situation to be correct, while 27 (23.3%) answered wrongly.

According to CFM Opinion 14/2017, in the current scenario of evolution of human relations, the use of technological resources is irreversible and presents benefits to the medical professional, in the search for a better diagnosis and subsequent prognosis of patients and their illnesses. Besides, with WhatsApp and other means of communication, one can create groups formed exclusively by medical professionals to discuss clinical cases. To avoid claims related to breach of confidentiality and information security, however, confidential medical matters cannot be shared in informal friendship groups, even if composed only of physicians. This highlights the importance of exchanging only scientific or clinical information [27].

The third problem-situation read: "You are being sued by the mother of a patient who died due to complications from toxoplasmosis. As an occupational physician, you saw this patient several times since 2015, at the factory where he worked as a lathe operator. The patient was medicated and discharged; no tests performed. In 2018, after consulting at another healthcare unit, he was found to be a human immunodeficiency virus (HIV) carrier and to have brain lesions caused by toxoplasmosis. With no time for treatment, the patient died in September of that year. Outraged, his mother protested against you and the factory, which eventually culminated in your dismissal. You prepare a note to the company in which you clarify the case. It states that the patient died of HIV/AIDS and that he lived with a former prostitute. Do you consider it a breach of medical confidentiality to issue this note since it is needed for your own defense?"

According to the answers, 83 respondents (71.6%) considered that a breach of confidentiality occurred, for 26 respondents (22.4%) no breach of confidentiality occurred, and seven (6%) chose not to answer. According to article 89 of the CEM, the physician is prohibited from *releasing copies of the medical record under their custody, except to comply with a court order or for their own defense, as well as when authorized in writing by the patient* [1]. The problem-situation above, therefore, presents a breach of confidentiality, as the doctor wrote a note to the company without the patient's authorization.

We performed individual statistical analyses for the three problem-situations, with the following variables: age group, time since graduation, and social media use. None of them resulted in significant dependence (p>0.05). When considering the set of answers for the three problem-situations, however, we found a relationship between the variables age, time since graduation, and social media use (Table 1). Respondents who declared using social media and instant messaging answered "yes" in most problem-situations compared to those who reported not using social media. As for gender and undergraduate orientation on medical confidentiality, we found no relationship with the type of response to the problem-situations.

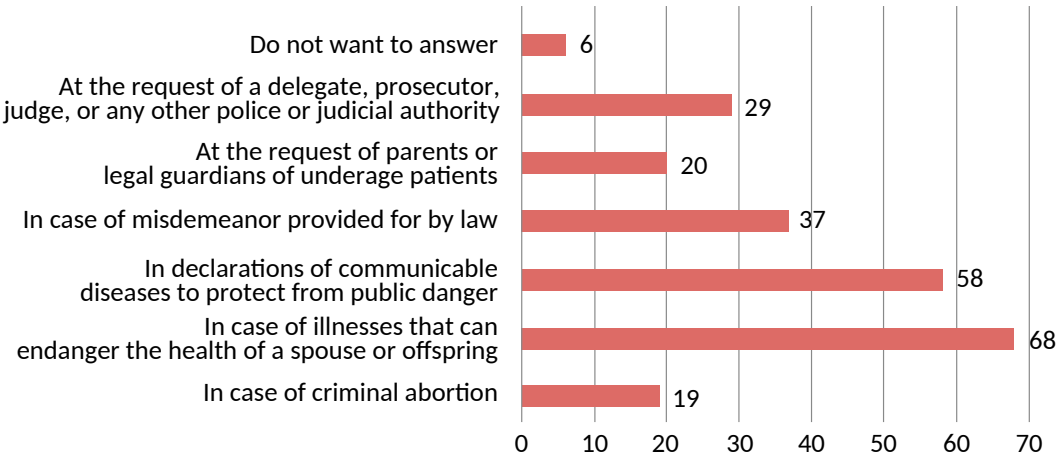
Table 1. Relation between the variables age, time since graduation and social media use considering the set of answers for the three problem-situations

Variables Age	Positively in three problem-situations	Positively in two problem-situations	Positively in one problem-situation	Did not answer positively
Class 1	19.51%	46.34%	31.71%	2.44%
Class 2	12.82%	58.97%	28.21%	0%
Class 3	25%	55%	15%	5%
Class 4	12.50%	37.50%	50%	0%
p-value=0.0004				
Time since graduation				
Class 1	20.41%	48.98%	28.57%	2.04%
Class 2	8.70%	52.17%	39.13%	0%
Class 3	22.73%	59.09%	13.64%	4.55%
Class 4	13.64%	45.45%	40.91%	0%
p-value=0.0009				
Gender				
Female	21.05%	48.68%	28.95%	1.32%
Male	10%	55%	32.50%	2.50%
p-value=0.259				
Social media use				
No	11.76%	44.12%	44.12%	0%
Yes	19.51%	53.66%	24.39%	2.44%
p-value=0.036				
Undergraduate orientation on medical confidentiality				
No	10.53%	57.89%	31.58%	0%
Yes	18.75%	48.96%	30.21%	2.08%
p-value=0.435				

Among the five questions that allowed right or wrong answers, one required the respondents to be able to mark the situations where a breach of medical confidentiality was justifiable (Graph 2). The question proposed six situations involving: criminal abortion; illnesses that can endanger the health of a spouse or offspring; declaration of communicable diseases to protect from public danger; criminal fact provided for by law; at the request of parents or legal guardians of underage patients; and at the request of a delegate, prosecutor, judge, or any other police or judicial authority. Among these, more than one alternative could be selected.

According to chapter IX of CEM [1], physicians are prohibited from disclosing facts of which they became aware in their profession practice, except for just cause, legal duty, or the patient's written consent. It also prohibits physicians from revealing information about teenage patients or children when they have the capacity to discern, even to their parents or legal representatives, except when non-disclosure could cause harm to the patient. Physicians are also barred from revealing a secret that would expose the patient to criminal prosecution, and therefore the breach of medical confidentiality is not justifiable in cases of criminal abortion or misdemeanor.

Graph 2. Answers about situations in which breach of medical confidentiality is justifiable



Breach of medical confidentiality is a crime, typified in article 154 of the Penal Code [13], which considers it a crime for a physician to reveal to anyone, without just cause, a secret of which they became aware in the exercise of their profession and whose disclosure could cause harm to others, even when done at request of judicial authorities. Article 89 of CEM [1] prohibits physicians from releasing copies of medical records, except to comply with judicial orders or for their own defense. When judicially requested, the medical record will be forwarded to the requesting court; when the record is presented in the professional's own defense, the physician must request that professional secrecy be observed. These conditions are also expressed in article 448 of the Code of Civil Procedure [28], and the physician may be civilly liable.

According to Opinion 1,904/2008 [29], of the Regional Council of Medicine of the State of Paraná (CRM-PR), breach of medical confidentiality for just cause is authorized in the event of contagion of future spouses or their offspring. It is prudent, however, that the physician first exhaust all suitable means – only then is the breach of confidentiality justifiable. According to another CRM-PR document, Resolution 5/1984 [30], physicians can breach medical confidentiality for just cause in case of compulsory notification of communicable diseases, for collective welfare. Such notification is a legal duty and, therefore, justifies the breach of medical confidentiality.

Hence, breach of medical confidentiality is only allowed in cases of certain illnesses that can endanger the health of one of the spouses or offspring, and in declarations of communicable diseases. Only 11.2% of the interviewed physicians (n=13) correctly selected the conditions that allowed for breach of confidentiality. When applying the chi-square test, we found no statistically significant association between correct answers, time since graduation, and age group (p>0.05). Reading documents on medical confidentiality and receiving undergraduate orientation on confidentiality, however, had a statistically significant association (p-values of 0.0004 and 0.002, respectively).

Another question asked physicians how they informed the diagnosis on the certificates, whether coded by the ICD or written. According to Consultation Process 1,134/1990 [31] of the Regional Council of Medicine of the State of Minas Gerais, physicians can only provide certificates with a written or ICD coded diagnosis with the express authorization of the patient or guardian. Seventy-six physicians (65.5%) answered the question correctly by pointing out that they write the diagnosis in full and coded (ICD) only if the patient requests and signs in agreement with the breach of confidentiality. Conversely, 28 respondents (24.1%) stated that they put the coded diagnosis (ICD) on all certificates, thus violating the CEM.

The International Classification of Diseases assigns codes to medical diagnoses, thus universally standardize diagnoses to monitor the incidence and prevalence of diseases, allowing for statistical analyses needed for public health management. The ICD was not designed for

secrecy, since diagnoses related to codes can be found by anyone via the internet [32].

Of the 116 physicians interviewed, 108 (93.1%) claimed to have read documents on medical confidentiality, such as the Hippocratic Oath and the Code of Medical Ethics, and 96 (82.7%) reported having received undergraduate orientation on medical confidentiality. A study on bioethics teaching in Latin America medical schools found that the workload for teaching ethics and bioethics is insufficient [33]. Conversely, research done at the Faculty of Medicine of Universidade Federal da Bahia on the knowledge of professors and students about bioethics revealed that 86.2% of professors and 100% of students read the CEM [34]. Teaching ethics is important from the early years and throughout medical graduation, as the knowledge solidified during training is essential for future professional practice [2].

Only 13 (11.2%) of the 116 respondents reported knowing someone who had already been sued for breaching medical confidentiality. These proceedings were either judicial or within the scope of CRM, or both. The investigation and professional ethics process in the regional councils and in the CFM are governed by the Code of Professional Ethics Procedure [35]. The disciplinary penalties applicable to its members by the regional councils can be: confidential warning in a reserved notice; confidential censorship in a reserved notice; public censorship in an official publication; suspension from professional practice for up to 30 days; and termination of professional practice [36]. Judicial proceedings are governed by the Code of Criminal Procedure [37] and by the Code of Civil Procedure [28]. In the civil sphere, the penalty may be a sentence to pay compensation for material or moral damage resulting from the infraction [6]. In the criminal sphere, the penalty can be imprisonment or a fine [13].

Final considerations

Only 55.2% of the participating physicians showed satisfactory knowledge on medical confidentiality in the analyzed terms. Of these, most (71.9%) answered three out of the five questions correctly, while only one physician correctly marked all questions.

In the current scenario of technological advancement and social media use, we realize the importance of constant updating on the theme, considering that medical confidentiality is a key ethical principle of the profession and paramount in the physician-patient relationship. We highlight the relevance of bioethics teaching in undergraduate courses for the training of future professionals, as well as raising awareness among practicing professionals, so that they can act based on ethical and moral conduct, aiming at the good of their patients and society.

References

1. Conselho Federal de Medicina. Código de Ética Médica: Resolução CFM nº 2.217, de 27 de setembro de 2018, modificada pelas Resoluções CFM nº 2.222/2018 e 2.226/2019 [Internet]. Brasília: CFM; 2019 [acesso 25 ago 2021]. Disponível: https://bit.ly/3vHqrPj
2. Yamaki VN, Teixeira RKC, Oliveira JPS, Yasojima EY, Silva JAC. Sigilo e confidencialidade na relação médico-paciente: conhecimento e opinião ética do estudante de medicina. Rev. bioét. (Impr.) [Internet]. 2014 [acesso 25 ago 2021];22(1):176-81. Disponível: https://bit.ly/3C65Ars
3. Rezende JM. À sombra do plátano: crônicas de história da medicina. São Paulo: Unifesp; 2009.
4. Jadoski R, Mostardeiro SR, Exterkoetter JD, Grisard N, Hoeller AA. O consentimento livre e esclarecido: do Código de Nuremberg às normas brasileiras vigentes. Rev Ciênc Saúde [Internet]. 2017 [acesso 25 ago 2021];29(2):116-26. DOI: 10.14295/vittalle.v29i2.7080
5. Jabur GH. Liberdade de pensamento e direito à vida privada. São Paulo: Revista dos Tribunais; 2000.
6. Brasil. Constituição da República Federativa do Brasil de 1988. Diário Oficial da União [Internet]. Brasília, 5 out 1988 [acesso 18 mar 2020]. Disponível: https://bit.ly/3pBv3ph
7. Diniz MH. Curso de direito civil brasileiro. São Paulo: Saraiva; 2009.

8. Carvalhal GF, Poli MH, Clementel FK, Gauer GC, Marques GH, Silveira IG *et al*. Recomendações para a proteção da privacidade do paciente. Rev. bioét. (Impr.) [Internet]. 2017 [acesso 25 ago 2021];25(1):39-43. DOI: 10.1590/1983-80422017251164
9. França GV. Direito médico. São Paulo: Byk-Procienx; 1982.
10. Marques Filho J. Termo de consentimento livre e esclarecido na prática reumatológica. Rev Bras Reumatol [Internet]. 2011 [acesso 25 ago 2021];51(2):179-83. Disponível: https://bit.ly/3m7r81i
11. Vieira LC. Responsabilidade civil médica e seguro: doutrina e jurisprudência. Belo Horizonte: Del Rey; 2001.
12. Brasil. Lei nº 8.069, de 13 de julho de 1990. Dispõe sobre o Estatuto da Criança e do Adolescente e dá outras providências. Diário Oficial da União [Internet]. Brasília, nº 135, p. 13563, 16 jul 1990 [acesso 25 ago 2021]. Disponível: https://bit.ly/2XFT7M9
13. Brasil. Decreto-lei nº 2.848, de 7 de dezembro de 1940. Código Penal. Diário Oficial da União [Internet]. Brasília, 31 dez 1940 [acesso 18 mar 2020]. Disponível: https://bit.ly/3px8nGT
14. Villas-Bôas ME. O direito-dever de sigilo na proteção ao paciente. Rev. bioét. (Impr.) [Internet]. 2015 [acesso 25 ago 2021];23(3):513-23. DOI: 10.1590/1983-80422015233088
15. Elger BS. Factors influencing attitudes towards medical confidentiality among Swiss physicians. J Med Ethics [Internet]. 2009 [acesso 25 ago 2021];35(8):517-24. DOI: 10.1136/jme.2009.029546
16. Conselho Nacional de Saúde. Resolução CNS nº 466, de 12 de dezembro de 2012. Aprova diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. Diário Oficial da União [Internet]. Brasília, nº 12, p. 59, 13 jun 2013 [acesso 25 ago 2021]. Disponível: http://bit.ly/1mTMIS3
17. Conselho Nacional de Saúde. Resolução nº 510, de 7 de abril de 2016. Dispõe sobre as normas aplicáveis a pesquisas em ciências humanas e sociais cujos procedimentos metodológicos envolvam a utilização de dados diretamente obtidos com os participantes ou de informações identificáveis ou que possam acarretar riscos maiores do que os existentes na vida cotidiana, na forma definida nesta Resolução. Diário Oficial da União [Internet]. Brasília, nº 98, p. 44-6, 24 maio 2016 [acesso 25 ago 2021]. Disponível: http://bit.ly/2fmnKeD
18. R: a language and environment for statistical computing [Internet]. Vienna: R Foundation for Statistical Computing, 2015. Disponível: https://bit.ly/3jzhvXx
19. Warnes GR, Bolker B, Bonebakker L, Gentleman R, Huber W, Liaw A *et al*. gplots: various R programming tools for plotting data [Internet]. 2020 [acesso 25 ago 2021]. Disponível: https://bit.ly/3CbkXPs
20. Taiyun/corrplot: a visual exploratory tool on correlation matrix [Internet]. 2017 [acesso 25 ago 2021]. Disponível: https://bit.ly/2ZjpCjB
21. Scheffer M, Cassenote A, Guilloux AGA, Biancarelli A, Miotto BA, Mainardi GM. Demografia médica no Brasil 2018 [Internet]. São Paulo: Departamento de Medicina Preventiva da Faculdade de Medicina da USP; 2018 [acesso 25 ago 2021]. Disponível: https://bit.ly/3m7zaHp
22. Mobasheri MH, King D, Johnston M, Gautama S, Purkayastha S, Darzi A. The ownership and clinical use of smartphones by doctors and nurses in the UK: a multicentre survey study. BMJ Innov [Internet]. 2015 [acesso 25 ago 2021];1(4):174-81. DOI: 10.1136/bmjinnov-2015-000062
23. O'Sullivan DM, O'Sullivan E, O'Connor M, Lyons D, McManus J. WhatsApp doc? BMJ Innov [Internet]. 2016 [acesso 25 ago 2021];3(4):238-9. DOI: 10.1136/bmjinnov-2017-000239
24. Surani Z, Hirani R, Elias A, Quinsenberry L, Varon J, Surani S, Surani S. Social media usage among health care providers. BMC Res Notes [Internet]. 2017 [acesso 25 ago 2021];10:654. DOI: 10.1186/s13104-017-2993-y
25. Thompson LA, Dawson K, Ferdig R, Black EW, Boyer J, Coutts J, Black NP. The intersection of online social networking with medical professionalism. J Gen Intern Med [Internet]. 2008 [acesso 25 ago 2021];23(7):954-7. DOI: 10.1007/s11606-008-0538-8
26. Barros EA Jr. Código de ética médica: comentado e interpretado. Timburi: Cia do eBook; 2019.
27. Conselho Federal de Medicina. Processo-consulta CFM nº 50/2016 – Parecer CFM nº 14/2017 [Internet]. Brasília: CFM; 2017 [acesso 25 ago 2021]. Disponível: https://bit.ly/3Cp9qMJ
28. Brasil. Código de Processo Civil: Lei nº 13.105, de 16 de março de 2015 [Internet]. Brasília: Senado Federal; 2015 [acesso 25 ago 2021]. Disponível: https://bit.ly/3GdzZqi

29. Conselho Regional de Medicina do Paraná. Parecer nº 1904/2008 CRM-PR [Internet]. Curitiba: CRM-PR; 2017 [acesso 25 ago 2021]. Disponível: https://bit.ly/3vGG7m1

30. Conselho Regional de Medicina do Paraná. Resolução CRM-PR nº 5/1984 [Internet]. Curitiba: CRM-PR; 1984 [acesso 25 ago 2021]. Disponível: https://bit.ly/2Ztdxsy

31. Conselho Regional de Medicina do Estado de Minas Gerais. Processo consulta nº 1134/90: PC/CFM/ nº 32/1990 [Internet]. Belo Horizonte: CRM-MG; 1990 [acesso 25 ago 2021]. Disponível: https://bit.ly/3nnmWKr

32. Conselho Regional de Medicina do Acre. Parecer CRM/AC nº 005/2010: Processo Consulta nº 003/2010 [Internet]. Rio Branco: CRM-AC; 2010 [acesso 25 ago 2021]. Disponível: https://bit.ly/3b5JREd

33. Ferrari AG, Silva CM, Siqueira JE. Ensino de bioética nas escolas de medicina da América Latina. Rev. bioét. (Impr.) [Internet]. 2018 [acesso 25 ago 2021];26(2):228-34. DOI: 10.1590/1983-80422018262243

34. Almeida AM, Bitencourt AGV, Neves NMBC, Neves FBCS, Lordelo MR, Lemos KM *et al*. Conhecimento e interesse em ética médica e bioética na graduação médica. Rev Bras Educ Med [Internet]. 2008 [acesso 25 ago 2021];32(4):437-44. DOI: 10.1590/S0100-55022008000400005

35. Conselho Federal de Medicina. Resolução CFM nº 2.145, de 17 de maio de 2016. Aprova o Código de Processo Ético-Profissional (CPEP) no âmbito do Conselho Federal de Medicina (CFM) e Conselhos Regionais de Medicina (CRMs). Diário Oficial da União [Internet]. Brasília, p. 329, 27 out 2016 [acesso 20 mai 2020]. Disponível: https://bit.ly/2XG0y61

36. Brasil. Lei nº 3.268, de 30 de setembro de 1957. Dispõe sobre os Conselhos de Medicina, e dá outras providências. Diário Oficial da União [Internet]. Rio de Janeiro, p. 23013, 1 out 1957 [acesso 20 mai 2020]. Disponível: https://bit.ly/3jzgA9s

37. Brasil. Decreto-Lei nº 3.689, de 3 de outubro de 1941. Código de Processo Penal. Diário Oficial da União [Internet]. Rio de Janeiro, p. 19699, 13 out 1941 [acesso 20 mai 2020]. Disponível: https://bit.ly/2ZsLSrL

Gabriela Kato Lettieri – Undergraduate – gabi.sscg@gmail.com
0000-0002-8221-6213

Aline Hung Tai – Graduate (specialist) – aline_hung@hotmail.com
0000-0002-9206-7696

Aline Rodrigues Hütter – Graduate – alinerodrigueshutter@hotmail.com
0000-0002-7403-8488

André Luiz Torres Raszl – Undergraduate – andreraszl@gmail.com
0000-0001-7788-3022

Mariana Moura – Undergraduate – mari.moorish@outlook.com.br
0000-0002-8020-0437

Raquel Barbosa Cintra – Master – raquelbc@umc.br
0000-0001-9838-1312

Correspondence
Gabriela Kato Lettieri – Universidade de Mogi das Cruzes. Av. Dr. Cândido Xavier de Almeida e Souza, 200 CEP 08780-911. Mogi das Cruzes/SP, Brasil.

Participation of the authors
The authors participated in all stages of writing and reviewing of the manuscript, contributing to the planning, data analysis and interpretation. Raquel Barbosa Cintra advised all the research stages, reviewing the work.

Received: 10.7.2020
Revised: 10.5.2021
Approved: 10.7.2021

Research