Aviation Safety vs. Medical Confidentiality: Disclosure of Health Information for Accident Prevention and Investigation

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INTRODUCTION: In this article an analysis is made of existing legal provisions and policies regarding medical confidentiality and the use of medical information on pilots, for the reporting of unfit pilots and for accident and incident investigation. An overview is given of the applicable international, European and several national legal frameworks in relation to this question. The applicable national legislation and relating policies of the Netherlands, the U.S., and Canada are compared on this subject. These three States (countries) are selected because of the differences between them in legal provisions when it comes to medical confidentiality of pilots' health information. The article will conclude with tools derived from this analysis, which can be used to find a balance between medical confidentiality vs. aviation safety.

KEYWORDS: medical confidentiality, aviation safety, accident investigation, licensing procedures, unfit pilots.

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Since the crash of the Germanwings flight, a new debate has started on pilots' medical privacy. As it turned out that the pilot had been seen by several physicans and psychiatrists, questions were raised why none of them informed the civil aviation authority or his employer.

Organizations like ICAO, EASA, AsMA, and national aviation authorities have been taking initiatives to improve regulations and guidelines and establish new policies, as well as other projects to prevent something similar from happening again. However, these initiatives have not yet addressed the difficulties for medical professionals to balance the medical privacy versus aviation safety objectives.

The principle of confidentiality of medical information is implemented in national legislation around the world in various ways. The provisions and requirements for reporting medically unfit pilots to the authorities vary equally around the globe. Some States (countries), like Canada, Sweden, New Zealand, and Norway,[48,58,59] require reporting pilots' medical conditions to the civil aviation authorities by all physicians or all medical service providers. Other States, such as Germany[3] and the Netherlands,[12] have a reporting obligation only for medical examiners and complex legislation protecting medical confidentiality prevents other physicians from reporting.

After an accident has occurred, public investigation authorities might encounter difficulties in obtaining information to rule out the pilot's medical condition as a contributing factor. In fact, the Germanwings copilot's physicians refused to share any information with the investigators of the French accident investigation authority BEA. Investigators of the German accident investigation authority, the BFU, joined the French investigation team as accredited representatives. The BFU tried to interview the physicians and therapist of the copilot, however they refused cooperation, referring to medical confidentiality obligations.[3]

Again, the legislation varies from State to State. Some States, such as the U.S. and Finland,[19,47] allow their national investigation authorities full access to medical information of cockpit and cabin crew involved in an accident or incident. On the other hand, in the Netherlands disclosure of medical information to investigators can only be granted with patient's consent.

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Hence investigators cannot get access to this information if the pilot has lost his life in the accident.

The reporting of unfit pilots is a deliberate breach of medical confidentiality, aimed at preventing an unfit pilot from flying, hence preventing a potential accident and, in the case of commercial aviation, a potential loss of many lives. The aim of an investigation is to prevent future accidents, as investigators try to reveal the causes of an accident and draw lessons for the future. As the reporting of an unfit pilot might prevent a single accident, investigating accidents and the lessons derived from them might prevent numerous accidents from happening. Although both reporting and investigating are aimed at improving flight safety, the legal considerations for allowing medical professionals to breach medical confidentiality can vary greatly.

INTERNATIONAL REGULATORY FRAMEWORK

Reporting Medically Unfit Pilots

The Chicago Convention of 1944 is regarded as the institution of international civil aviation. It provides the necessary measures to ensure the safe operation of aircraft. At the moment nearly all of the world's States are parties to the Chicago Convention, therefore the provisions of the Convention and its accompanying documents are applicable to the vast majority of the licensing procedures, applicants, and license holders around the world.[32]

As air travel still relies on pilots and other air and ground personnel, their competence, skills and training are essential for the safeguarding of aviation safety.[22] To have a basic understanding and agreement on the minimum requirements a pilot must meet, Article 32 of the Chicago Convention stipulates the obligation for flight crewmembers operating on international flights to have a certificate of competency and a license issued by the State in which the operated aircraft is registered.

The Chicago Convention is accompanied by 19 Annexes, in which the basic rules are promulgated in Standards and Recommended Practices (SARPs). SARPs need to be implemented in State's national law in order to become legally binding and enforceable.[39]

The minimum Standards related to the licensing procedure are contained in Annex 1 to the Chicago Convention.[24] In order to obtain or renew a pilot license and exercise the privileges thereof, a valid Medical Assessment is required. This is obtained by periodically undergoing health examinations, performed by a certified Medical Examiner, designated by the Licensing Authority. These examinations are designed to prevent the risk of incapacitation in flight. The reporting of unfit pilots is therefore, qualitate qua, part of the licensing procedure.

Medical confidentiality is addressed in Standard 1.2.4.10 of ICAO Annex 1, stating that *Medical confidentiality shall be respected at all times*. However, after completing the examination, the Medical Examiner has to report the results of the examination to the Licensing Authority, including an evaluation of the findings.[24] In order to do so, on the application forms for a Medical Assessment, the applicant has to give his or her consent to disclose relevant medical information to the Medical Assessor of the Licensing Authority, as indicated on the example application form added in the ICAO Manual of Civil Aviation Medicine.[28] In reality, a pilot does not seem to have a choice: if he does not consent, his application will probably not be accepted.

Annex 1 does not contain standards on reporting of medical information to other parties not involved in the licensing process, such as the employer.

Accident Investigation

Article 26 of the Chicago Convention contains the basic obligation to investigate aircraft accidents and serious incidents. The procedures that need to be followed when conducting such an investigation are set out in Annex 13 to the Chicago Convention,[25] accompanied by ICAO guidance material.

It is extremely important to obtain all relevant material which will allow the root cause of an accident to be revealed in order to effectively learn from it. Standard 5.4 (a) states that an investigation normally includes the gathering of *all relevant information*. It is unclear why the wording "normally" is used and how to interpret this nuance, nevertheless, this Standard does seem to support the idea that, if relevant, medical information should be gathered within an accident investigation and therefore be, legally, made available to the investigators. Furthermore, on the basis of Standard 5.6, the investigator-in-charge (IIC) needs to have access to *the wreckage and all relevant material*. Although the wordings seem to imply that *all relevant material* only relates to the wreckage, it can be argued that it does not necessarily need to have a connection with the wreckage and could be interpreted as absolutely anything that is considered relevant, including medical information. This interpretation is supported by the fact that the ICAO *Manual of Aircraft Accident and Incident Investigation*[27] points out the medical records of flight crew as a *primary source* of information for an investigator.[29] In addition the Manual describes how the analysis of a Cockpit Voice Recorder, in conjunction with findings from other areas of the investigation, can be helpful to acquire more insight into crew physical actions and any other potential factors affecting human performance, such as *impairment due to medical conditions*.[31] With regard to surviving crewmembers, the investigator must determine, prior to interviewing them, whether the crewmembers have seen a physician. In the interview, the investigator should seek information about, among others, their medical history and current medical condition, medications taken at the time of the accident or incident and any medication taken at the time of the interview.[30]

The ICAO *Manual of Civil Aviation Medicine* contains a large chapter on medical factors in aircraft accident investigation.[26] Those involved in the human factors investigation are responsible for the aeromedical, crash injury, and survival aspects of the investigation with regard to the events and the cause of the accident. The Manual points out that the investigators must focus on any physical or psychological disorder, or environmental factors that contributed to impaired function of the crew, and search for relevant information in the medical

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background of the flight crew. Furthermore, the Manual prescribes that the medical records of the flight crew must be studied to find out whether any condition was known to exist and could have hindered the fulfilling of their task in a safe manner. Particular attention must be paid to any condition likely to have led to incapacitation in flight, or to a deterioration of fitness and performance. These guidelines cannot be followed if an investigator has not been granted the authority to obtain this medical information.

EUROPEAN REGULATORY FRAMEWORK

Reporting Medically Unfit Pilots

The EU aviation licensing procedures are contained in the 'Aircrew Regulation'.[11] The process for the issuance of a medical certificate within the Aircrew Regulation is in line with the process described in ICAO Annex 1. The regulation imposes obligations on medical examiners in charge of issuing pilots' medical certificates, to disclose among them information on the medical fitness of pilots. There is no requirement in the Regulation stating that the applicant for a medical certificate has to give explicit consent for this disclosure. Nevertheless, on the standard form established by EASA for medical examination reports, the applicant or license holder must sign a consent statement for the release of all information contained in the examination report and any additional attachment to the AME and, where necessary, to other medical assessors.[13]

Apart from the aviation licensing procedures, there is no European legislation containing an obligation for physicians or other medical professionals to report unfit pilots to the national authorities.[3]

Accident Investigation

EU Regulation 996/2010 on the investigation and prevention of accidents and incidents in civil aviation establishes the European legal framework for accident and incident investigation, in line with ICAO Annex 13.[45] It contains, among others, the entitlements of the IIC conducting the investigation (as to which, see Art. 4, 5, 6 and 11). Several of the entitlements of the IIC relate to having access to relevant information, including medical information. However, any confidentiality obligations under Union legal acts or national law are to be respected, Art. 11(2).

On the basis of Article 11(d) the IIC can request a full autopsy examination of fatally injured persons and have immediate access to the results of such examinations or of tests on the samples taken. Furthermore, the IIC can request the medical examination of people involved in the operation of an aircraft or request tests to be carried out on samples taken from them and request to have immediate access to the results, Art. 11(e). In addition, the IIC must obtain *free access* to any relevant information or records held by the operator, training organization, the CAA and EASA, Art. 11(g).

The Regulation does not contain specific provisions to obtain the medical history of a person involved in an accident. If this information could be obtained from the operator, training organization, the CAA or EASA, the provisions of Art. 1(g) might be used for it. Nevertheless, any medical confidentiality obligations might still apply, including the rules of the GDPR.

GDPR

Since 25 May 2018 the EU Regulation 2016/679 on data protection, also known as the General Data Protection Regulation (GDPR), is applicable on personal data, including health information. The GDPR is directly binding, therefore EU Member States must comply with its provisions and any contradictory national legislation is superseded by the regulation.[1] Any organization that processes personal data within the European Union falls under the scope of the GDPR. However, the GDPR is also applicable on the processing of personal data *outside the Union* but related to offering goods or services, irrespective of whether or not payment is required, to persons who are in the European Union.

The GDPR applies to data concerning health, meaning any personal data related to past, current, or future physical or mental health status of a natural person, including the provision of health care services, see Art. 4(15) GDPR. The GDPR does not apply to personal data of deceased persons, as to which see Art. 4(1) and Recitals 27 and 160 of the GDPR.[44]

Article 9 of the GDPR defines data concerning health as a special category of personal data. The processing, including disclosure, of this sensitive personal information is only allowed if the data subject has given his *explicit consen*t for the processing or if processing is necessary for reasons of *substantial public interest*. The latter exception can only be applied if the processing is authorized by Union or Member State law and if specific safeguards have been put in place.[44]

Within the licensing procedure, an applicant must sign consent to full disclosure of his medical information to the AME and the Medical Assessor of the Licensing Authority, therefore complying with the GDPR requirement of *explicit consent* to disclose such information. Outside of the licensing procedures, medical professionals can only report unfit pilots, without consent of the pilot, if necessary, in *the public interest* and allowed by national law, as there are no provisions in EU law for reporting pilots outside of the licensing process.

With regard to obtaining health information of flight crew that survived an accident or incident, the same requirements of Article 9 apply: either *explicit consent* is needed, or disclosure is necessary for *reasons of substantial public interest.* It can be argued that the investigation obligation in EU Regulation 996/2010 imposed on the national investigation authority might serve as a legal basis for the processing of personal health information for *reasons of substantial public interest* and therefore providing a legal basis to obtain health information without consent of the pilot involved.

As the GDPR is not applicable to personal data of deceased persons, accident investigation authorities need to rely on their national laws for the acquiring of medical information of pilots who have lost their lives in an accident.

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NATIONAL REGULATORY FRAMEWORKS

The Netherlands

Reporting medically unfit pilots. The Netherlands, as a member of the European Union, must comply with the European Aircrew Regulation. Within licensing procedures, the sharing of a pilot's medical information is based on the consent he must give on the application form, similar to the consent clause on the ICAO and EASA standard application form.[34]

In the Netherlands, there is no legal obligation for physicians or other medical professionals to report unfit pilots, other than Medical Examiners. In the absence of consent of the individual involved, the only possible grounds for breaching medical confidentiality to report an unfit pilot is a *conflict of duties*.[43] A *conflict of duties* can arise in an emergency situation where a person may encounter severe consequences if the medical professional keeps to his obligation of nondisclosure. It is up to the medical professional to decide whether or not to disclose the information, taking into account the confidentiality obligation vs. the other interest.[36,38] The medical professional is not obliged to breach confidentiality, but must assess whether the damage prevented outweighs the breach of his confidentiality obligation. For this assessment, the following criteria can be used:[8,9,38,43]

- It is not possible to ask or get consent of the patient.
- Nondisclosure might cause serious damage for another person or the patient himself.
- The medical professional finds himself in a moral conflict by maintaining the obligation to remain silent.
- There is no other way than breaching the confidentiality to solve the problem.
- It must be almost certain that the damage can be prevented or limited by breaching the confidentiality.
- The confidentiality is breached as little as possible. Only directly relevant information may be provided (subsidiarity and proportionality requirements).

As medical confidentiality is treated as an extremely important right in the Netherlands, it is not easily assumed by medical professionals that the situation is serious enough to breach this. The situation has become even more complicated since the applicability of the GDPR. Even if a medical professional believes that there are sufficient grounds to breach medical confidentiality and information on the medical fitness of a pilot should be reported, it seems that the provisions of the GDPR prohibit this. This is a result of not having laws in place that allow processing of medical data for "*reasons of substantial interest*," and due to the further limitation of the term "*reasons of substantial interest*" in the Dutch GDPR Implementing Act.[53,54]

Accident investigation. In the Netherlands, accident investigators of the Dutch Safety Board (DSB) are authorized to demand relevant information, to demand and inspect relevant data and documents, investigate objects and, if necessary, take them with them for further analyses.[46] The Chairman of the DSB has the authority to request an autopsy after a fatal accident and use that information in an investigation.[59] Nevertheless medical professionals cannot be obliged to share medical information of a patient with the DSB, as they are excluded from the obligation to cooperate in Article 40(3) of the Kingdom Act DSB.[46] As the DSB has not been granted any specific exception in Dutch legislation there is no legal obligation for medical professionals to breach the medical confidentiality. Furthermore, the "conflict of duties" requires an imminent emergency situation and a threat of serious danger that can be prevented by disclosure of the medical information, which is not always evident when investigating an aircraft accident or incident.[36] On top of that the implementation of the GDPR has narrowed down the possibilities even more. Therefore, without the consent of the person involved, Dutch investigators seem to have no access to medical information. This is particularly complicated when a pilot has suffered fatal injuries in a crash, as the required consent cannot be substituted by permission from relatives.[37]

As mentioned above, Standard 5.4 of ICAO Annex 13 describes the gathering of all relevant material as being part of the investigation process and Standard 5.6 of Annex 13 prescribes that the IIC must have access to *all relevant information*. Based on the above it could be concluded that these Standards are not fully implemented in the Dutch legislation, in particular Standard 5.6, as the IIC does not have unhampered and unrestricted access to medical information. Therefore, it could be argued that the Netherlands is not in compliance with this Standard.

United States

Reporting medically unfit pilots. In line with the licensing process as prescribed in ICAO Annex 1, any U.S. applicant or holder of a pilot license must have a valid medical certificate.[10] To obtain a medical certificate a pilot must be examined by an FAA-designated Aviation Medical Examiner (AME). As in the other mentioned States, in the U.S. a pilot has to express consent for the disclosure of medical information within the licensing process.[16] Without consent an application is not accepted, so a pilot might see himself forced to agree with potentially broad disclosure of his medical information. However, the FAA does have provisions in place to respect medical confidentiality as much as possible. The FAA has published its "system of records notice," which describes in detail what information the FAA collects and why. Furthermore, the FAA applies its own Privacy Policy, whereby, most importantly, within the FAA, access to an individual's medical information is strictly on a "need-to-know" basis.[14]

Apart from the licensing procedures any health care provider, other than the AME, can rely on the provisions of section 164.512(j) of the HIPAA Privacy Rule to disclose information on an unfit pilot, as it allows disclosure of health information, without consent of the individual, to avert a serious threat to health or safety.[21,57] The person reporting should believe in *good faith* that there is a threat, and the threat should be *serious* and *imminent*. The disclosure must be consistent with applicable law and standards of ethics and be done to a person reasonably able to prevent or lessen the threat. No specific limitation is established on what information might be disclosed to protect

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persons or the public from a serious threat. Moreover, the HIPAA Privacy Rule lacks a clear definition on what constitutes a serious threat, and leaves it up to the responsible health care provider to develop criteria to limit the disclosure of the protected health information.[21,56,57]

The disclosure of medical information to avert a serious threat is a *permitted* disclosure, not a required disclosure. Hence HIPAA does not entail a reporting obligation for health care professionals. However, many states have adopted, through statutory or case law, a so-called "duty to warn" or "duty to protect."

The concept of a "duty to warn" stems from the case Tarasoff v. Regents of the Univ. of California concerning a psychologist who was treating a patient who mentioned that he wanted to kill Tatiana Tarasoff. Although the psychologist warned the police, he did not warn the potential victim. As the patient carried out his plans, the psychologist was held to have breached a duty to warn a potential victim.[50]

A total of 29 states within the U.S. have laws mandating the reporting of serious threats, from which some have varying reporting duties for different professions. Sixteen states have permissive reporting laws, four states have no duty to report and one state has a special duty to protect when a hospitalized patient makes threats and is released negligently. The majority of these state laws on a "duty to warn" relate to mental health care providers and the mental status of the individual. However, some states, such as Oregon and Rhode Island, have broader provisions, allowing disclosure without consent of health information by all types of health care providers, in case of a threat of danger to others or society.[2,40]

As to the requirements that must be fulfilled for a duty to warn to arise, a large variety is notable among the state laws. This relates to the seriousness of the threat, which could vary between states from "*serious threat,*" to "*actual threat,*" or "*specific and immediate threat.*" Also, the requirements related to the type of threat vary a lot between states. This could be for example: "*imminent serious physical harm,*" "*clear and substantial danger,*" "*physical violence,*" "*threat to kill or seriously injure,*" or "*bodily harm.*" Additionally, the requirement on identifiability of the potential victim varies. This could be, among others, "*identified victim,*" "*reasonably identifiable victim or victims,*" "*specific person or persons,*" or simply "*others.*"[2,40]

Furthermore, in each state there might be additional state regulations on medical confidentiality that also need to be taken into account. Some states have specific legislation in place to protect mental health information, such as the Texas Mental Health Records statute.[15]

This patchwork of regulations, different from one state to another, makes it extremely complicated to comprehend and comply with rules concerning medical confidentiality and apply those in relation to reporting unfit pilots. Health care professionals can be held liable for breaching medical confidentiality in one state and be held liable for not reporting a threat in another state even if circumstances are exactly the same. It is therefore understandable that the FAA advocates introducing a uniform national policy on mandatory reporting of medical issues that affect public safety.[20]

Accident investigation. In the U.S. the investigation of accidents and incidents involving civil aircraft is delegated to the National Transportation Safety Board (NTSB). The NTSB is considered to be a "*public health authority,*" as described in the HIPAA Privacy Rule,[18] as it investigates transportation accidents in an effort to reduce mortality and injury by making recommendations for safety improvements (as to which, see HIPAA, 45 CFR Part 164.501. Definition of Public Health Authority).[17,21,57] Therefore the NTSB is authorized by law to collect, receive, and use personal health information, without consent of the person involved, for the purpose of preventing or controlling disease, injury, and death, based on HIPAA 45 CFR Part 164.512(b)(1)(i).[21,57] The designation as public health authority is unique, but convincing in light of the reasoning behind it. Ultimately, all accident investigation authorities are aiming to improve flight safety and save lives.

Despite the authorization to request medical information directly from health care providers, the NTSB in practice always uses a subpoena. The subpoena requires the health care provider to respond, and disclosure of the required information can be based on the provision that allows disclosure without consent for *the purpose of preventing or controlling disease, injury and death*, based on HIPAA, 45 CFR § 164.512(b)(1)(i).[21,57] Using a subpoena has the advantage that the request for information is documented, which can enhance the due care that the NTSB needs to exercise when requiring sensitive medical information. Furthermore, a subpoena with details on the requested information can provide more clarity for the person who must provide the information, as well as an extra, tangible legitimacy to disclose the information. The subpoena can only be signed by the Chairman or the Chairman's delegate and can be enforced by bringing a civil action to a district court, if necessary, based on §1113(a)(3) of the NTSB Act.[55]

Canada

Reporting unfit pilots. Canada has implemented the ICAO Annex 1 procedures for licensing of pilots in the Canadian Aviation Regulations (CARs),[5] as mandated in Article 4.9 of the Canadian Aeronautics Act.[4] Any applicant for or holder of a pilot license must have the appropriate medical certificate related to the category of the license, Art. 404.03(1).[5] The examination to obtain or revalidate such a medical certificate is conducted by a Civil Aviation Medical Examiner (CAME), appointed by the Minister, Art. 404.16.[5] A CAME is usually a physician in private practice who is appointed and authorized to provide the CAME service.[49]

The applicant must sign a statement on the report, authorizing the disclosure of his submitted medical information to the Civil Aviation Branch of Transport Canada, the latter being the governmental authority responsible for licensing of aviation personnel. This information will be used for the sole purpose of assessing his or her medical fitness.[51]

Apart from the licensing procedure Canada has a very broad legal obligation to report unfit pilots. Any physician or optometrist, presented with a license holder, or anyone whom they have reasonable grounds to believe to be a license holder, who

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has a medical condition that is likely to constitute "*a hazard to aviation safety,*" has the obligation to inform a medical adviser, usually the Regional Aviation Medical Officer (RAMO), Art. 6.5(1) Aeronautics Act.[4] If a physician or optometrist, in good faith, reports an unfit license holder, it is assumed that the license holder has given his consent to disclose this information to a RAMO, Art. 6.5(6) Aeronautics Act.[4] Hence, this assumption leads to bypassing any applicable privacy rules. The threshold to breach medical confidentiality is lowered by granting the physician or optometrist immunity from legal proceedings, see Art. 6.5(4) Aeronautics Act.[4] Furthermore the information can be used in any way necessary for the interests of aviation safety, Art. 6.5(3) Aeronautics Act.[4]

Other medical professionals such as psychologists, social workers, and pharmacists do not have a legal reporting obligation and need to comply with either the confidentiality rules of the Canadian Privacy Act,[42] in case they work for a governmental institution, or PIPEDA[41] in case of a commercial organization.

Subject to any other Act of Parliament, personal information under the control of a government institution may be disclosed if the head of the institution believes that the public interest in disclosure clearly outweighs any invasion of privacy that could result from the disclosure, Art. 8(2)(m)(i) Privacy Act.[42] One might assume that this could also include information on the health status of a pilot. Unfortunately, the Privacy Act lacks clarity on what would be considered necessary in the "*public interest*." Does it require some type of threat or endangerment of persons? Furthermore, the Privacy Commissioner must be informed in writing about the intended disclosure, which can be interpreted as an additional due care requirement, although he has no authority to prevent the disclosure. The government institutions are listed in Schedule (section 3) of the Privacy Act, page 48.[42] It is unclear which of the listed government institutions would be in possession of such health information.

Commercial medical organizations that have to comply with PIPEDA are allowed to disclose information in case of "*an emergency that threatens the life, health, or security of an individual*" [art. 7(3)(e) and 7(5)],[41] while the Policy of the Canadian Medical Association allows disclosure of medical information in case of a "*significant risk of substantial harm to the patient or to others*."[6] There is no obligation to inform the Privacy Commissioner prior to disclosure without consent, although introducing such an obligation could benefit the due care to be exercised when disclosing sensitive medical data to the authorities. Art. 7(3)(e) of PIPEDA does state that the patient should be informed about the intended disclosure to third parties, which in some instances might be inappropriate, particularly if it could endanger the medical professional.

Because of the clear reporting obligation for physicians and optometrists, and the possibilities to disclose medical information based on the Privacy Act or PIPEDA, it could be concluded that in Canada the interest of aviation safety clearly outweighs the medical confidentiality rights of a pilot.

Accident investigation. An investigator of the Canadian Transportation Accident Investigation and Safety Board (TSB) has several legal tools, such as issuing warrants or summons, to require any information he believes, on reasonable grounds, to be relevant, including health information of a pilot, and can even demand a person involved to undergo medical examination or require an autopsy or medical examination of the remains of a deceased person, if he has reasonable grounds to believe that it is or may be relevant to the investigation.[7]

For the judicial warrant, and for each type of summons, specific forms are available in the TSB Regulations.[52] The option of the issuing of a Statutory Summons is more commonly used, as this can be issued without involvement of a judicial authority. So far, no physician or health practitioner that has been served with a warrant or with a Statutory Summons of the TSB has challenged it before the Federal Court.

CONCLUSIONS

When reporting a pilot as unfit, an acute danger might be prevented, justifying the disclosure of confidential information. Acquiring medical information for accident or incident investigation most likely will not prevent acute danger. Unlike the licensing process, medical information, then, is just one of the many types of information that is used in an accident investigation. Nevertheless, medical information can be crucial in finding out the cause of an accident. However, if the medical confidentiality in relation to the licensing process would be loosened, that would affect every pilot who needs a medical certificate. If medical confidentiality in relation to accident or incident investigation would be loosened, this would only affect the pilots involved in an accident. This might be a reason for taking a different approach on this matter.

With regard to the States discussed, the differences are remarkable (**Table I**). Whereas Canada has a very broad reporting obligation for medical professionals, seemingly overruling confidentiality of pilots' medical information, the obtaining of such medical information for the purpose of accident or incident investigation requires a more elaborate procedure, including the issuance of a warrant or summons.

The United States has a much more complex legal framework in view of reporting unfit pilots. Some states have obligations for medical professionals to report, whereas other states have a more permissive reporting provision. In one state a health care professional can be held liable for breaching medical confidentiality, while in another state, under the same circumstances he might be held liable for not reporting. On the other hand, the NTSB has unrestricted access to all relevant medical information for the purpose of accident investigation.

Compared to the U.S. and Canadian legal frameworks, the Netherlands has very strict laws on medical confidentiality, leaving scarce room for medical professionals to disclose medical information to third parties. As to obtaining medical information, particularly in case of a pilot that has not survived the accident under investigation, the Netherlands has no provisions for the investigating authority. However, questions can be raised if the legislation of the Netherlands is in compliance with Annex 13 on this point, in particular Standard 5.4 and 5.6, and if differences should have been filed with ICAO.

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Table I. Overview of Main Differences in Legal Frameworks.

	REPORTING UNFIT PILOTS WITHOUT CONSENT AND OUTSIDE LICENSING PROCESS	DISCLOSURE OF HEALTH INFORMATION WITHOUT CONSENT FOR ACCIDENT INVESTIGATION
International Legislation		
ICAO SARPS	No provisions in Annex 1 or elsewhere.	Provision for unlimited access to all relevant information in St. 5.4 and 5.6 of Annex 13.
EU legislation	No provisions.	EU Regulation 996/2010, Article 11, contains a provision to request an autopsy but does not contain specific provisions to obtain the medical history of a person involved in an accident, except if this information is held by the operator, training organization, CAA or EASA.
National Legislation		
U.S.	HIPAA: Permitted disclosure to avert a serious threat to health or safety; 29 states have a legal "duty to warn", a reporting obligation mainly related to mental health issues potentially causing danger. Large variety of applicable criteria and definitions; 16 states have permissive reporting laws; 4 states have no duty to report; 1 state (Georgia) has a specific duty to protect when a hospitalized patient makes threats and is released negligently.	NTSB is considered to be a "public health authority" as described in the HIPAA Privacy Rule. NTSB is therefore authorized by law to collect, receive, and use all personal health information, without consent of the person involved, for the purpose of preventing or controlling disease, injury and death. However, in practice the NTSB usually issues a subpoena to obtain health information.
Canada	Each physician and optometrist has a reporting obligation in respect to flight crew that might pose a danger to aviation safety.	TSB has only access to health information if a warrant or statutory summons is issued.
Netherlands	No legal provisions. Policy exists allowing to report in case of a threat of serious damage for another person or the patient, causing a moral conflict for the physician and if the physician has done everything to obtain consent and there is no other way to prevent the damage then by breaching confidentiality. This policy is confirmed in jurisprudence.	No legal provisions to obtain medical information except for requesting an autopsy.

The Way Forward

The differences found, as summarized in the above section, should be considered in the establishment of tools to help balance flight safety vs. medical confidentiality. A thorough evaluation on the effectiveness of a mandatory reporting obligation would be advisable. The question can be raised what impact a broad reporting obligation has on the relationship between the medical professional and the pilot and what impact this reporting obligation has on license holders with a medical condition going "underground" instead of seeking help for their medical conditions.[35]

As for now the following suggestions on possible requirements are derived from this research, which might provide tools to decide on whether to disclose medical information on a pilot:

- It is not possible to ask or get consent of the patient.
- The medical professional will find himself in a moral conflict if he doesn't breach his medical confidentiality obligation.
- Remaining silent will cause (more) serious damage.
- Breaching medical confidentiality will likely prevent this damage.
- Medical confidentiality will be breached as little as possible.
- The medical professional sees no other possible solution to resolve the problem.

For these suggestions to be implemented in an effective way the following safeguards might be introduced in law or policies:

- Any reporting permission or obligation should be defined by law.
- It needs to be clear what professions have a reporting obligation or permission. This should not be restricted to mental health professionals only.
- It needs to be clear whom to report to: family, friends, authorities, potential victims, etc. Medical professionals might prefer disclosing to a fellow medical professional.
- Define clearly what types of circumstances justify a disclosure: e.g., threat to a person or in the public interest.
- Define the seriousness of the danger or threat. Guidelines should be established on how to assess this seriousness.
- Define the victim: should there be a threat toward an identifiable, reasonably identifiable, or clearly identified victim?
- The reporting should be without legal risk to the health care professional, if he has acted in good faith.
- Except in case of gross negligence or criminal offenses, the disclosure of information should be without (legal) consequences for the pilot involved.
- Provisions on protection and disclosure of personal health information need to be equal, whether the health care professional works for a government health organization or private organization.
- Appoint a dedicated Privacy Commissioner or the like, whom health care professionals can turn to if they need advice on whether to disclose medical information or not.
- Put privacy policies in place, stating what information is collected, for what purpose, who is authorized to have access and under what circumstances the information might be disclosed without consent. Make sure that access to individuals' medical information is only on a strict "need-to-know" basis.

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As for accident and incident investigation, it is mainly up to the States to try to adapt the principle of medical confidentiality to changing perspectives on how to improve aviation safety. If confidentiality rules restrict investigation authorities from getting access to medical information, a difference should be filed with ICAO.

On the 17th of August 2018 an ICAO State Letter was issued on the designated disclosure of specific and limited medical confidential information. This State Letter is accompanied by a survey to collect information on the different States' practices regarding reporting of medical confidential information. After comparison and analyses of the received information, the aim is to develop guidance material on sharing limited and applicable medical confidential information in the interest of aviation and public safety, along with the relevant Annex provisions as deemed appropriate.[23,33]

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