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Germanwings 4U 9525: Flying With Mental Disorder

by

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On 24 March 2015, at around 10 h 15 UTC (local time 11 h 15), the Marseille en-route control centre informed the BEA of the accident to an Airbus A320, registered D-AIPX that had occurred at 10 h 41 (local time) while overflying the French Alps. Six crew members (2 flight crew and 4 cabin crew) and 144 passengers were on board.

In accordance with the provisions of European regulation (EU) n°996/2010 of the European Parliament and Council of the 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation, a Safety Investigation was immediately initiated by the BEA.

A team of seven investigators from the BEA travelled to the accident site on the afternoon of 24 March. In coordination with the authorities in charge of the judicial investigation, and with helicopter transport provided by the Gendarmerie, the safety investigators were able to access the site the following day.

The Cockpit Voice Recorder (CVR) was found on the afternoon of 24 March 2015 and transferred the following day to the BEA for readout. After reading out the data, it appeared to the BEA that an act of unlawful interference was probably involved in the accident. European Regulation (EU) n°996/2010 and the advance arrangement relating to Safety Investigations between the French ministry of Justice and the BEA of 16 September 2014, specify that, in such a situation, the relevant elements gathered during the Safety Investigation must be communicated immediately to the judicial authorities, and the BEA can decide to continue the Safety Investigation. Because the BEA was expecting to draw safety lessons from such an event, it was decided to continue the investigation.

The co-pilot had been flying for Germanwings since June 2014 and was the holder of a class 1 medical certificate that was first issued in April 2008 and had been revalidated or renewed every year. Since July 2009, this medical certificate had contained a waiver because of a severe depressive episode without psychotic symptoms that had lasted from August 2008 until July 2009. This waiver stated that it would become invalid if there was a relapse into depression.

In December 2014, approximately five months after the last revalidation of his class 1 medical certificate, the co-pilot started to show symptoms that could be consistent with a psychotic depressive episode. He consulted several doctors, including a psychiatrist on at least two occasions, who prescribed anti-depressant medication. The co-pilot did not contact any Aero-Medical Examiners (AME) between the beginning of his decrease in medical fitness in December 2014 and the day of the accident.

In February 2015, a private physician diagnosed that the vision and sleep problems which the co-pilot was suffering from were related to a psychosomatic disorder and an anxiety disorder and referred the co-pilot to a psychotherapist and psychiatrist. On 10 March 2015, the same physician diagnosed a possible psychosis and recommended psychiatric hospital treatment. A psychiatrist prescribed anti-depressant and sleeping aid medication in February and March 2015. Neither of those health care providers informed any aviation authority, nor any other authority about the co-pilot's mental state. Several sick leave certificates were issued by these physicians, but not all of them were forwarded to Germanwings.

No action could have been taken by the authorities and/or his employer to prevent him from flying on the day of the accident, because they were informed by neither the co-pilot himself, nor by anybody else, such as a physician, a colleague, or family member. In addition, the mental state of the co-pilot did not generate any concerns reported by the pilots who flew with him.

In the cruise phase of the accident flight, the co-pilot waited until he was alone in the cockpit. He then intentionally modified the autopilot settings to order the aeroplane to descend to the ground. He had practiced these autopilot settings during the preceding flight, when he was alone in the cockpit. During the accident flight, he kept the cockpit door locked during the descent, despite requests for access made via the keypad and the cabin interphone. He did not respond to the calls from the civil or military air traffic controllers, nor to knocks on the door. Security requirements that led to cockpit doors designed to resist forcible intrusion by unauthorized persons made it impossible to enter the flight compartment before the aircraft impacted the terrain in the French Alps.

The BEA investigation concluded that the process for medical certification of pilots, in particular self-reporting in case of decrease in medical fitness between two periodic medical evaluations, did not succeed in preventing the co-pilot, who was experiencing mental disorder with psychotic symptoms, from exercising the privilege of his licence. The following factors may have contributed to the failure of this principle:

- the co-pilot's probable fear of losing his right to fly as a professional pilot if he had reported his decrease in medical fitness to an AME;
- the potential financial consequences generated by the lack of specific insurance covering the risks of loss of income in case of unfitness to fly;
- the lack of clear guidelines in German regulations on when a threat to public safety outweighs the requirements of medical confidentiality.

The investigation showed that information on previous similar events was limited and difficult to obtain, and that currently available data do not provide accurate awareness of in-flight risks related to mental issues or incapacitation.

Therefore the BEA has issued **two recommendations** to European Aviation Safety Agency (EASA) and EU Member States to perform routine analysis of in-flight incapacitation, in particular on psychological and psychiatric issues, and to encourage data collection to validate the effectiveness of medical assessment criteria.

Aeromedical experts consulted by the BEA considered that routine in-depth psychological testing of all pilots to detect serious mental illness would be neither productive nor cost effective.

However, it might be useful to regularly evaluate the mental health of pilots with an identified history of mental illness.

This is why BEA issued **one recommendation** to EASA to require that conditions for the follow-up of pilots with a history of psychological trouble be defined when they are declared fit to fly.

The BEA investigation showed that the legal and institutional framework regarding the possibility for a treating doctor to transmit confidential medical information about a pilot to authorities, when there is a risk to public safety, varies between countries. In some countries it is even compulsory to do so. This could help reduce risks.

However, the reluctance of pilots to declare their problems and seek medical assistance, for fear of losing their licence, with economic and social consequences, needs to be addressed at the same time. The international benchmark undertaken by the investigation showed that some National Aviation Authorities allow aircrew to continue to fly while taking specific medication to treat depression. Such programs exist in Australia, the UK, Canada and the USA. The modalities differ between countries but all include specific medical assessment, a list of accepted medication (among selective serotonin reuptake inhibitors named SSRI), whose possible side effects have been shown to be compatible with flying duties, clinical reviews and requirements for mental stability before being allowed to return to flying duties. Authorizing controlled medication ensures that pilots can be monitored more closely. It reinforces self-declaration by allowing pilots to declare any depression without fear of being grounded for an excessively long time. This counteracts the possibility that pilots might choose, if left to their own devices, to fly while depressed, with or without adapted medication.

The investigation has also shown that provisions allowing health care providers to breach medical confidentiality exist in most States, in particular in Europe, under certain conditions and when it is in the interest of preserving public safety or preventing imminent danger. EU regulations authorize the processing of medical data if it is required for the purpose of medical diagnosis and if the person processing the data is under an obligation of secrecy. Some States have dedicated provisions applying to pilots whose health issues need to be reported to the relevant authorities if they threaten public safety. Other States, like Germany or France, have only general provisions applying to any citizen and to any imminent danger. In those States, such provisions are regularly outweighed, in the decision process of doctors, by provisions related to medical confidentiality, which are perceived as more important and which contain possible legal consequences if they are violated. Furthermore, the absence of a formal definition of “imminent danger” and “threat to public safety” drives doctors to adopt a conservative approach and may lead them not to report their potential concerns to authorities.

Combining the guarantee of knowing the occupation of their patients who are pilots, with regulations allowing and/or mandating health care providers to inform authorities in case pilot unfitness threatens public safety, would create an environment favourable for doctors to report to authorities. The various questions relating to the balance between public good and confidentiality favour a global approach that addresses every area of concern, in order to provide better protection for all parties (the patient, the doctor, the public). These issues are particularly relevant for pilots, because of the higher financial investment and attractiveness

linked to their profession, and are already partially taken into account in some countries. Similar issues may exist for safety personnel working in other industrial domains, and the BEA found that the French nuclear and railway industries did address, to some extent, these issues.

This is why the BEA has addressed **eight safety recommendations** to the World Health Organisation (WHO), International Air Transport Association (IATA), European Commission, European Aviation Safety Agency (EASA), Federal Ministry of Transport and Digital Infrastructure (BMVI) and Bundesärztekammer (BÄK) to:

- define rules to require health care providers to inform appropriate authorities when a patient's health is very likely to impact public safety, while still protecting patients private data from unnecessary disclosure (addressed to WHO, EU Commission, BMVI and BÄK);
- define modalities under which EU regulations would allow pilots to be declared fit to fly while taking antidepressant medication (addressed to EASA);
- encourage operators to implement measures to mitigate the socio-economic risks related to pilot's loss of licence for medical reasons under medical supervision (addressed to EASA and IATA);
- promote the implementation of peer support groups to provide a process for pilots, their families and peers to report and discuss personal and mental health issues, with the assurance that pilots will be supported, guided, and provided help (addressed to EASA).



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Romain joined BEA in 2002, after obtaining his MSc in Engineering.

He served as a flight recorder specialist for 6 years, then became an IIC / Acc Rep for the Investigation Department in 2009. He was involved in several major investigations in France and abroad, led the Operations group in the Air France flight AF447 investigation, and acted as deputy IIC for the Germanwings investigation. He is currently involved as accredited representative for the Egyptair flight MS804 and Malaysia Airlines flight MH370 accident investigations.

Promoted to investigation Team Leader in 2011, Romain manages a team of nine safety investigators.

He has a University Degree in Human Factors.