# 26 seconds

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"Good morning, ladies and gentleman, this is your captain speaking. Welcome on board Germanwings flight from Barcelona to Düsseldorf. We will soon be ready for takeoff and our flight time today will be two hours. We apologize for the delay, and we will do our best to make up time in the air," Captain Patrick Sondenheimer assures the 144 passengers, most of them German, on the Airbus A320.

Sondenheimer switched off the public announcement system, and resumed the pre-flight routines for the second leg of morning's roundtrip with his co-pilot, Andreas Lubitz, who read the check-lists calmly, going over the different steps, setting the correct levels for controls in front of him and preparing to fly the plane back to Düsseldorf, the budget airline's home base in western Germany.

The pilots looked similar – young men with short haircuts, in white short sleeved shirts, gray ties with narrow burgundy stripes pattern reflecting the official colors of their airline, in black pants and shoes. The most significant difference belonged to Sondenheimer, on the captain's seat to the left. He had four silver stripes on his shirt epaulettes, while Lubitz's had three as a junior pilot.

They had been delayed in Barcelona because of a minor technical issue. One of the plane's front lavatories' flushing systems hadn't worked properly, but the captain had fixed it during the layover.

Sorting out the problem had taken all his time during the short stop, Sondenheimer had said, so he hadn't had time to go to the bathroom. "You can go whenever you like," Lubitz told him.

"Germanwings 1-8-Golf, wind is east-northeast at 16 knots, runway 07R, cleared for takeoff," the air traffic controller at Barcelona's El Prat airport tower radioed to the waiting plane, which was ready to proceed to the runway.

"Cleared for takeoff runway 07R, Germanwings 1-8-Golf," the captain, on the radio duty for the second leg, acknowledged. His co-pilot taxied to the runway and aligned the aircraft to the right position for the departure.

It was almost 9 a.m., on March 24 2015, a cool, cloudy spring morning in Barcelona. After final checks, Lubitz pushed the throttle handles up and the plane's two engines gearing up to the takeoff speed of 170 miles per hour. Germanwings' nearly full flight 4U9525 took off through light rain, 30 minutes late.

"Direct IRMAR Merci Germanwings one eight Golf"

As the plane ascended on autopilot, heading northeast toward the French coast over a bright turquoise Mediterranean Sea, the pilots discussed different ways to make up lost time, eventually asking permission from French air traffic control to adjust their pre-set flight route to a faster course.

A bell sounded signifying the cabin call. The captain pushed the door switch up to "unlock," granting the flight attendant access to the cockpit. She chatted with the pilots about the layover and then asked Lubitz if he wanted something to eat. The plane was still climbing steadily on autopilot towards the set cruising level of 38,000 feet, making it a convenient time for him to have a bite.

As the plane neared the French Riviera, Sondenheimer requested the permission for route change from Marseille air traffic control. While waiting for a response, he said he was going to step out from the cockpit shortly. But there was still work to do. He began the mid-flight briefing, asking Lubitz to start preparing for the approach and the landing into Düsseldorf.

"Hopefully. We'll see," he answered and repeated: "You can go now."

But before Sondenheimer could take him up on the offer, Marseille air traffic control got back to him to approve the time-saving flight change. They were allowed to fly directly to the navigation waypoint called IRMAR on the mountainous area of Alpes-de-Haute-Provence near Italian border.

"Direct IRMAR Merci Germanwings one eight Golf," captain read back the air traffic control's instructions on the radio.

It was 9:30 a.m. As the autopilot took the new course towards the waypoint, Sondenheimer said he was stepping out and asked Lubitz to take over radio communications. He removed his headset, pressed the electronic switch controlling his seat, moved it back and stood up.

"You're in control now," Sondenheimer said as he walked to the door.

"I hope so,"

Lubitz replied, watching the captain's retreating figure as he closes the door.

He was alone at the controls.

He was supposed to make preparations for landing into Düsseldorf.

Instead, Lubitz lifted his hand, up and to left, toward the modest looking slim black panel, just below the front windows. It was the plane's Flight Control Unit (FCU), commonly known as autopilot.

Lubitz had played around with the autopilot's altitude settings on the flight to Barcelona, but had restored them to the intended positions.

Now, he turns a second knob from the right slightly to the left, pulling it to set it to new target: 100 feet.

Twenty-six seconds had passed since the door was closed.

Next Lubitz switched the autopilot setting to "open descent" and the auto thrust to "THR IDLE" mode, causing the plane to slow and begin a descent toward the new target altitude.

Two minutes later when the plane is was descending over the southern France, Lubitz increased the speed.

"GWI-18G, what flight level are you cleared for?" the Marseille Air Traffic Control inquired. Lubitz didn't reply to this or any of the dozen subsequent contact attempts from ATC and another plane flying nearby.

A buzzer sounded signaling a request to open the door. Instead, Lubitz locked it and increased the speed again.

The ATC tried to call again and again. Bell rang, signaling a call from the cabin, over and over. The captain was knocking on the door, calling for his co-pilot to open the door.

Lubitz failed to answer. Nor did he reply when France's Air Defense system's air traffic controller tried to establish contact.

Lubitz barely flinched when the captain and crew tried to break down with a crowbar and a fire extinguisher the armored cockpit door that could've sustained a grenade blast. The plane was at 10,000 feet descending rapidly.

Lubitz simply sat on his seat on the right, holding the side-stick that could have disengaged the autopilot at any moment, just breathing steadily, in and out, watching the snow-capped peaks of the French Maritime Alps draw closer and closer.

*"Terrain, Terrain, Pull Up, Pull Up."* An aural alert from ground proximity warning system activated 30 seconds before the impact.

Other sirens and buzzers went off in the cockpit, with flashing lights warning the co-pilot of the ground closing up fast; the frantic crashes on the door; the yells and screams of terror from cabin – Lubitz ignored them all.

At 10:41.06 local time the plane crashed on the southern side of a mountain peak called Tête du Travers, a minor peak in the lower western slopes of the highest point of the French Maritime Alps, Tête de l'Estrop. The final flight of Germanwings flight 4U9525 lasted 41 minutes.

The plane hit the ground at a speed of 397 mph, instantly killing all 150 people on board. Among the victims were two babies, sixteen German high-school students and two teachers, opera singers, business travelers and holidaymakers.

The impact shattered the plane into small pieces that were scattered around the steep charcoal gray slopes of the ravine called Ravin du Rosé, eight miles north of tiny village of Prads-Haute-Bléone.

"Like confetti," one of the first rescue workers on the site described the crash site.

#### \*\*\*\*\*

We will never know what was going through Andreas Lubitz's mind during that scant half a minute, when decided to do it. For the last ten minutes of the flight he didn't say a word.

Lubitz didn't leave a note or any other explanation why he chose to commit an aircraft-assisted suicide on a passenger jet he was trained and trusted to fly. Nor will we know why he chose to kill 149 others while taking his own life.

Those twenty-six seconds changed hundreds of lives for forever. But how did a lanky, nerdish, 27-year-old man described by friends as quiet, fun, low-key, average guy, come to make such a grim decision?

Lubitz almost didn't make it to that Germanwings plane's cockpit. Papers documenting the last seven years of his life, combined with the recent accident and criminal investigations in three countries, reveal his aberrant path in becoming a professional pilot.

The records also show there were several occasions when his aptitude for the job was questioned and he almost didn't make the cut. He was given the benefit of the doubt many times over those years, sometimes for a good reason.

Other times, however, the decisions made by various medical and aviation professionals as well as airlines, officials and regulators can be seen as ignorant, badly informed and hastily executed.

Although Lubitz purposely flew the Germanwings plane into the side of a mountain, systemic oversights put him in that cockpit.

#### \*\*\*\*\*

"Dear Lufthansa, when I grow up, I want to become a pilot and fly for you."

It might not have been exactly those words Andreas Lubitz wrote to Lufthansa as a boy, but he knew early on what he wanted to be when he grew up. Flying big airplanes for Germany's flagship carrier was his childhood dream, all he had ever wanted to do.

That dream came true on a drizzly fall Monday morning, September 1 2008, when the 20-yearold Lubitz walked pale grey steps into the red-brick building in Bremen, northwestern Germany, to begin pilot training in Lufthansa's Flight Training School.

Six-feet-eight, the slim, sporty young man with light brown hair and blue eyes, whom his friends and family called "Andy," had graduated from high school previous year.

He had passed stringent aptitude tests and physical examinations in the spring. He had been accepted from thousands of applicants to the three-year training program that included a chance to become a pilot for one of the most prestigious airlines in the world.

For the opportunity, Lubitz had moved to Bremen, 250 miles north from his hometown of Montabaur, leaving behind his family and girlfriend.

The program cost about 70,000 euros (\$78,000), but the charge was covered by a low-interest loan from the airline. Lubitz would repay the debt from his paychecks in coming years.

The first six months he was supposed to study in Bremen the theoretical basics in aerodynamics, navigation, meteorology, electrical engineering, air traffic control, and safety. He'd then move for an intensive, four-month practical flight training part to Phoenix, Arizona, to learn to fly a single-engine Beechcraft Bonanza F33.

There Lubitz would have an advantage over his classmates: he had flown gliders at his local club LSC Westerwald in Montabaur since he was 14, and passed the exam for his license three years earlier.

He only needed to pass the training modules and gain his private pilot's license, the basic permit to fly motorized aircrafts and the first step for a professional pilot's license.

But just after two months, on November 5, he discontinued training.

"Dear Lufthansa, I'm hereby suspending the pilot training due to medical reasons."

It was too much. Lubitz felt overwhelmed by the demanding studies. Pressure from the program was suffocating. He couldn't cope with the stress.

He hardly slept, and his ears were ringing. Lubitz thought it was too loud in his Bremen apartment. The noises from the highway near the flat disturbed him, but he didn't have the energy to look for another place.

Separated from his family and girlfriend, he felt lonely.

He tried to sort out his feelings in his journal:

"Event Analysis"

"A hasty relocation, new life overnight, new environment."

"Apartment very cute and tidy. But empty and lonely when I'm home. In addition, fixation on street noise = insomnia."

He needed a break, so on that Wednesday in early November he simply walked out of the flight school and returned to Montabaur.

"Severe depression, without psychotic symptoms"

At home Lubitz was diagnosed with severe depression. He had suicidal thoughts, and he suffered from insomnia and tinnitus.

The psychiatric treatment begun November 19 in Montabaur.

"The memory of the past makes me cry," Lubitz wrote in his diary on New Years' Day 2009.

"I don't really believe I can find similar state... I would like to be set free... On hearing the encouraging words of others, I sometimes think all this is behind me, it's all finally swept away... [But] final solution which sometimes makes me happy is to jump off the cliff."

While in treatment Lubitz made one "no-suicide pact" with his psychiatrist who also put him on medication. He was prescribed a selective serotonin reuptake inhibitor (SSRI) Cipralex and an anti-depressant called Mirtazapine.

He felt he had failed, betrayed both his own and others' expectations. He believed he was going to be disqualified from pilot training because of depression.

"My professional dream of becoming a pilot is almost finished = I ponder, I think endlessly," he wrote in his journal.

Slowly, the medication took effect and Lubitz started ten months of psychotherapy with Montabaur therapist. He was sleeping better; his tinnitus and suicidal ideations faded.

The therapist advised him how to regain control of his life with relaxation techniques, breathing, stress relief, exercise, writing a journal, recording how much sleep he had had each night and what his mood was like. The treatments worked; on the first months of 2009, Lubitz became more optimistic and confident.

"My father and my mother [are] in me, they don't have to be present physically = I can be happy alone," he wrote in February.

Family was important to him. His father Günter is a business man, and his mother Ursula is a home-maker and piano teacher who also plays organ at the local Lutheran church.

Lubitz was close to his younger brother, who looked up to him. He felt responsible for his mother and brother. From a very young age he was the man in the house as his father spent weekdays in Düsseldorf, where he worked as an executive in a glass factory.

However, Lubitz's sensitiveness to sounds remained.

"Even after moving elsewhere, my ears have continued to focus on the sounds (fridge, boiler)."

"I'd like to heal... God, who art in heaven..."

By the spring of 2009, Lubitz was determined to heal. His goal was to get back to pilot training. He wasn't going to give up on his dream.

"His high motivation and active participation contributed to successful completion of treatment, after management of symptoms," the psychotherapist wrote about his patient in 2010.

Progress had been so good that his psychiatrist terminated antidepressants in February, and in late June he decided to phase out the SSRI medication. Lubitz felt he was ready to cope with school and pressure.

As he moved from recovery to normality, he wrote how grateful he was for the support he had received during "the darkest period of his life."

"I want to sincerely thank my family, especially my mother who saved me from the worst... I also thank my lovely girlfriend, tender Kathrin, who spent a lot of time with me, and never lost her hope on me."

Yet, the healing process left him scarred.

"The method [the therapist] used was not right for me. I didn't feel comfortable with it. It was awful. I can't go through that again," he wrote after completing his therapy in October.

"Dear Lufthansa, I'm fully recovered and would like to resume my pilot training."

Lubitz emailed Lufthansa in midsummer 2009 for permission to return to flight training. But the school wanted proof of his recovery.

He had already requested to be reinstated in the spring, stating in his email he had been hospitalized but that he was doing better. Although Lubitz mentioned a hospital stay, there are no records of him being admitted.

Lufthansa's Aero Medical Center (LHAMC), the group's in-house medical department, had refused to revalidate his medical certificate due to depression and its treatment in April. Withholding the renewal is an aviation medical examiners' (AME) standard procedure when a pilot is going through treatment for serious illness.

To receive and maintain flight privileges, a pilot must have a valid medical certificate at all times. The certificate must be issued and renewed by an AME, a doctor who specializes in aviation medicine and approved by national regulator.

In commercial aviation pilots less than 40 years of age are required to have an annual medical examination. Older pilots are examined twice a year in the U.S. Also, the pilots having medical problems can be required to renew their medical certificate more frequently to track their recovery.

The annual check-up includes thorough tests for eyes, ears, heart, lungs, as well as blood and urine samples. Pilots also complete a form to document all medications and other visits to the doctors. It includes some perfunctory questions about mental health, but AMEs are expected to observe the pilot's mental state during the examination.

By signing the form, pilots consent to background and medical data checks. A signature is also required that all information provided is complete and true.

Although a routine thing, annual medicals are stressful for pilots; an unfavorable finding could end their careers.

"A license is rarely revoked, especially at the annual medical examination. There are cases that has happened, but as most illnesses are today treatable, the license can be temporarily suspended while pilot's going through the treatment," a medical director and an experienced AME explained.

This was also the case with Lubitz in spring 2009.

According to the examiner, pilots, with their livelihoods on line, may not disclose everything.

"This is business of trust," he said. "Sometimes a pilot feels more comfortable to contact the AME about problems after certificate examination, like normal doctors, instead of someone who's making a ruling on their future."

It's not easy for a doctor to revoke a pilot's license.

"But the AME has responsibility for aviation safety, too. When in doubt, a good guideline is to ask yourself: would I fly with this pilot?" the examiner said.

The examiner added that although the medical certificate is valid for a year, person's health is volatile.

"It's not like a seal of approval that this person is good to go for next 365 days. Things can change, and fast," the examiner said.

Aviation doctors emphasize that full disclosure from pilots could be achieved with a nonpunitive, open environment. However, changes in pilots' working conditions – increased pressure for more hours flying, less time in the destination, layoffs, benefit and contract changes – have sometimes inhibited pilots' willingness for full disclosure. This can pose difficulties in a system that still relies on the pilots' personal sense of duty and self-declaration of problems. Pilots are required to consult the AMEs if they at any time feel their ability to do the job has been impaired, and trust the aviation doctor's judgment on their medical fitness.

But the system only works with a trusting relationship between doctor and patient, and the pilot has no conflicting interests between health and job security.

Despite of Lubitz's self-declared healthiness, Lufthansa Flight Training School didn't take his word. In July 2009 he was required to pass new medical check-up, deliver a report from his psychiatrist and submit to an outside psychiatrist's evaluation.

Still, Lubitz didn't pass his new medical examination on the first try in mid-July. The Lufthansa AME refused to renew his certificate and demanded an independent psychiatric evaluation. He took an extra step, too, and informed German aviation authority (LBA) about denial.

Lufthansa has declined to disclose details about Lubitz's care by company's Aeromedical Center (AMC). The airline also declined a request to interview the AMEs involved. Therefore, it is unclear why Lubitz's first examination wasn't approved or why he passed a medical test two weeks later.

The likely reason for rejection is medication. Records show that Lubitz's SSRI medicine was phased out in late June and stopped by July 10 when his psychiatrist in Montabaur, wrote a certificate to state his recovery. But with mood altering drugs there is a required waiting period to ensure the patient can cope without the drug and the symptoms don't return.

The outside expert read Lubitz's patient files and the two met on July 14. He made Lubitz a full neurological examination and consulted his psychotherapist by phone.

The key question in this examination was not whether Lubitz was suitable to become a pilot trainee, but if he were still ill; could the expert see any signs of the illness?

The answer was no, and the doctor determined Lubitz fit to resume training.

Outside evaluation was probably the reason why Lufthansa doctors changed their minds. But instead of revalidating Lubitz's certificate for a full year, they issued it for eight months. Also two longer-term precautions were implemented: first, the records show, Lubitz was required to renew his medical certificate every six months for next two years, until November 2011.

The International Civil Aviation Organization's (ICAO) medical guidelines for AMEs require aviation doctors to follow up the recovery and pay special attention to the pilots with history of depression at the examination:

"Depression is by nature a recurrent disorder, and although single episodes do occur, the history of a depressive episode should alert the medical examiner to ask specific questions to ensure that

the applicant does not currently have the illness. Those persons who have had one serious depressive episode have approximately a 50 per cent risk of experiencing a second episode. Because depressive mood disorders are recurring disorders, it is imperative that the "recovered" patient be monitored closely for signs of recurrence for a period of time following recovery. There is evidence that recurrence is most likely to happen during the first two years. An educative approach may help the individual recognize the earliest signs and thus facilitate early intervention." (ICAO Manual of Civil Aviation Medicine, 3<sup>rd</sup> edition 2012)

Longer periods of closer monitoring are standard procedure for commercial pilots with a history of mental illness. In the U.S. the Federal Aviation Authority (FAA) requires follow-ups to ensure a pilot's recovery by his regular doctor and a special Human Intervention Motivation Study (HIMS) AME.

The second measure was to endorse Lubitz's patient file with a restriction: "*Note the special conditions/restrictions of the waiver FRA 091/09 -REV-*". That marking made the AMEs treating him in future aware of his medical history and able to take it into consideration in the examination.

A restriction, if not specified in patient file or license, requires the aviation doctor or regulator to contact the authority who has issued the license for further information.

Restrictions on pilots' licenses are common and vary from permanent requirements, such as need to wear glasses when flying, to temporary limitations of duty, like advanced pregnancy or post-surgery.

In Lubitz's case, the restriction meant his psychological wellbeing had to be monitored.

Lubitz's evaluation was fast, completed within weeks, considering the severity of the case and that it was summer holiday season. When he was readmitted to the pilot training in the end of July, the Head of Lufthansa Aeromedical Center in Frankfurt wrote him a note:

"We wish you 'happy landings' all the time."

Lubitz restarted studies in Bremen on August 26 2009, following a break of nine and a half months.

"I'm living now in the most beautiful apartment in Bremen," he wrote in his diary.

"Dear Mr. Lubitz -- based upon our review of the information submitted, we are unable to establish your eligibility to hold an airman medical certificate at this time."

All went well until the following summer. Lubitz passed a medical check-up in late February, after receiving a certificate from his psychotherapist, and another in mid-June. With that he applied for a medical certificate and student pilot's license from the United States.

However, he didn't disclose his mental illness history on the application to the FAA. The records show another application with the mention of depression was filed in few days later. It's likely the correction was made by his Lufthansa AME at the time, Jörg Siedenburg, who added a remark:

"In the meantime there was a brief period of reactive depression caused by decompensation subsequent to excessive demands. Applicant was evaluated by [an outside expert] and found fit for JAR-FCL 3 Class 1 Medical fitness. Applicant is continuing as a flight student without any further abnormalities and was found fit for JAR-FCL." (Siedenburg, June 18<sup>th</sup> 2010)

Making false statements to a federal agency is an offense and a pilot caught lying on a medical application can lose his license, face fines up to \$250,000 and a prison term up to five years. For Lubitz there were no consequences.

The FAA withheld his request pending review of more information regarding his depression in early July of 2010. Lubitz was asked to submit a status report from his doctor, detailing treatment, medication and recovery. The FAA also wanted documents to indicate how his condition was evaluated, how he was doing without medication and plans to follow up his progress.

Lubitz submitted two old certificates he had from his psychiatrist and psychotherapist:

"In case of Mr. Lubitz, modified living conditions caused the onset of depressive episode. By a drug therapy and psychotherapeutic treatment, which enabled him to develop the sufficient resources for getting on with similar situations in the future, the complete remission was obtained. The medication could be stopped. Mr. Lubitz completely recovered, there is no residuum remained. The treatment has been finished." (Montabaur psychiatrist, July 10<sup>th</sup> 2009)

"Andreas Lubitz was under my psychotherapeutic treatment from January to October 2009. Mr. Lubitz's high motivation and active participation contributed to successful completion of treatment, after management of symptoms." (Montabaur Diplom-Psychologist, February 23<sup>rd</sup> 2010)

After a review, the FAA granted him a third-class medical certificate and student pilot's license in late July. However, the U.S. authorities expressed concern:

"Because of your history of reactive depression, operation of aircraft is prohibited at any time new symptoms or adverse changes occur or any time medication and/or treatment is required." (FAA, July 28<sup>th</sup> 2010) Having received both his medical certificate and student license Lubitz moved to Lufthansa's Airline Training Center Arizona (ATCA), located in Goodyear, the southwestern suburb of Phoenix, in early November to begin four months of flight training.

Besides Lufthansa, ATCA currently trains pilots for the German Air Force (Luftwaffe) and KLM Royal Dutch Airlines. According to the school, 98 percent of their students become professional pilots with a commercial airline. The rate is high because most of the students are already under contract with an airline.

"Andreas Lubitz: Private pilot (PPL, Foreign Based) - with ratings airplane single engine land, glider, issued on basis of and valid only when accompanied by Germany pilot license. All limitations and restrictions on the Germany pilot license apply."

His first pilot's license in hand in March 2011, Lubitz should've been on to his next phase of training: learning to fly the passenger jets.

But there was a detour.

Once more, the global economy took a turn for worse. Debt crisis flared in Europe, Arab Spring uprisings spread from Tunisia all over North Africa and the Middle East. An earthquake and tsunami hit Japan and economic growth slowed in the U.S.

Airlines were struck by dropping ticket sales and weak freight demand while the jet fuel prices shot up by 41 percent in 2011.

Faced with tumbling profits, fierce competition and a deteriorating market, airlines sought for cutbacks.

Lufthansa divested some of its assets, slashed capacity, froze recruitments and planned layoffs. The airline drew up a new 1.5 billion euro (\$2.1 billion) cost savings program and intensified cooperation with its recently acquired low-cost subsidiary, Germanwings.

There were no jobs for aspiring junior pilots. Things had changed drastically since Lubitz was admitted to training in 2008. Then, Lufthansa had recruited 262 pilot trainees, and 240 more in 2009 when he returned to flight school. Two years later, Lufthansa assured that all 368 student pilots would be employed by the group after graduation, but for 2012 no new trainees were accepted; only 29 were admitted in 2013.

Lubitz had options. He could have dropped out of Lufthansa program and tried to find another employer or continued training in another flight school, but that'd required repaying his student loan in advance. He could left piloting or he could have accepted the company's offer to work different jobs while waiting on a pilot's position to open.

He chose the latter; from mid-June for next two and a half years he worked as a part-time flight attendant for Lufthansa, while continuing pilot studies on the side. It wasn't unheard of for a junior pilot to work among the cabin crew in the interim.

Lubitz wanted to fly; being a steward gave him experience in the business.

"From Basic to Best: The New Germanwings – The European Answer"

He got his chance two and a half years later. He was hired on December 4, 2013 by the newly rebranded Germanwings. The low-cost subsidiary's role had grown rapidly as the new hope within the group.

Germanwings had become a success story. It was the solution for lowering the airline group's heavy cost structure, fixing loss-making short haul feeder traffic problems, restoring Lufthansa's profitability and countering the competitors such as Ryanair, which had spread to German market.

It wasn't exactly the prestigious Lufthansa job he had dreamed of, but his new employer was energetic, young-spirited, hungry and growing fast. But for Lubitz, it was an opportunity to finally complete his training and fly for living. There was also a chance to advance to Lufthansa later; both Lufthansa and Germanwings' pilots are in same internal pilot pool, allowing, in theory, for transfer from one carrier to other.

It was a smart career move and a good choice for his private life, too. He'd be based in Düsseldorf, a short drive to Montabaur, and he and Kathrin could live in the apartment his parents owned in town. It was the same flat his father had used in Lubitz's childhood.

Germanwings immediately put him to work. Day before Christmas Eve Lubitz completed type rating training, specializing to fly airline's plane of choice, Airbus' single-aisle A320.

In late January he began the final leg of training: conversion training to update his pilot qualifications to the new aircraft type, A320, and the line flying as a junior pilot which got him at last to fly passenger jets for real.

And then – it was done! June 26 2014 was a big day for Lubitz. He was appointed as a Germanwings co-pilot. Finally, after 5 years, he had made it.

He was a professional airline pilot.

"He was 100 % fit to fly."

It's 2:32 p.m. in Thursday March 26 2015, 52 hours after the crash. The afternoon sun shone softly through curtains on a packed conference room at Lufthansa's corporate headquarters in Cologne.

A tanned man wearing glasses walked briskly into the room, leading a group of four behind a long table in front of waiting reporters. Lufthansa Group's CEO Carsten Spohr sat down at the second seat from the right. Germanwings' CEO Thomas Winkelmann took the chair on his right side and the low-cost airline's Chief Pilot Stefan-Kenan Scheib took the last seat on right. Barbara Schädler, Head of Corporate Communications, sat on Spohr's left-hand side.

Spohr's pitch black suit and tie and snow-white shirt are suited the somber mood of day's press conference. The country was in shock, crippled with grief, and filled with questions.

And he has only a few answers to offer.

The full horror of the story had already been released. The French investigation leader, Marseille prosecutor Brice Robin, had revealed a suspect in the cause of the crash.

An internal suspect.

Spohr was living every airline CEO's worst nightmare.

Serious and square jawed, Spohr sat down, glanced around the roomful of reporters, rolling a mint pastille in mouth. He adjusted the microphone in front of him and took a last look at the papers in his hands. Focusing, it was up to him to convince the world that despite the crash Lufthansa was still as trustworthy and safe airline than day and a half ago.

Spohr, 48, had taken the helm of Europe's leading airline group just 11 months earlier, after his predecessor Christoph Franz, CEO for only three years, left to chair Swiss pharmaceutical company Roche's board of directors. He had been the leading internal candidate, having spent past 20 years in various managerial positions within group. Self-proclaimed "Lufthansa man born and bred," he had headed group's main passenger airline for three years before getting the top job.

But he had started out as a pilot, flying those same Lufthansa's Airbus A320s as the one now laying on a mountainside, smashed to bits, largest of them size of a small car. He had seen it on previous day when he visited the crash site in France. As a former captain, he could estimate the speed and force that caused the nearly incomprehensible destruction.

Now his job is to confirm to the world what a few days ago was unimaginable: the fatal crash that had happened to Lufthansa – industry-wide considered as the epithet of aviation safety – was caused by a deliberate act by one of their own.

Everything should've been alright. The check on company's records of the crew and the plane had found out very little out of ordinary.

The plane, a 24-year-old veteran Airbus A320-211, was registered D-AIPX. The jet was known as 'Mannheim' – named after the south German industrial city – before January 2014, when it was moved from Lufthansa's fleet to Germanwings. The plane was in good shape and had been

carefully maintained by Lufthansa's in-house mechanics. The day before the crash, maintenance had done routine check checking aircraft's landing gear and its oil levels. The log for minor repairs showed that a few on-board lights weren't working.

Two pilots, 34-years-old captain Patrick Sondenheimer and first officer Andreas Lubitz, were both trained by the company's own flight school. Both had passed all regular proficiency tests as well as their annual medical examinations without problems, Lubitz in July 28 and Sondenheimer October 31 2014.

On paper, they both were highly qualified professionals.

Spohr didn't disclose these details in the press conference. He said the crash was a mystery for the company too. However, he said, there was one thing about Lubitz that stood out: he had taken a break from his training in 2009. But Spohr did not say why, citing the confidentiality.

"He was 100 % fit to fly, without any restrictions or conditions," Spohr declared.

But he was wrong, on both accounts.

Lubitz had had a restriction on his Lufthansa patient file and medical certificate since July 2009. Also his professional MPL-pilot license issued in February 2014 was attached with a marking *\*\*\*SIC\*\*incl. PPL\*\*\** meaning that he was required to undergo *"specific regular medical examinations"*.

The markings meant that an AME or a regulator should consult the German aviation authority first about Lubitz's special circumstances before issuing a medical certificate or a license.

"Eyes and ears much affected"

It had been two weeks since Lubitz's last medical examination at work. On August 5 2014, mild, overcast and slightly drizzly for a late summer Tuesday, he was driving near Cologne, when another car rear-ends his Audi A3.

The car's airbag deployed on the impact, but no one was hurt. Still, he decided to see a doctor, because an old nuisance, tinnitus, has reappeared, reminding him of darker days past.

The doctor assured him his ears were ringing because of the loud bang from airbag deployment and that the sound would shortly disappear.

And so it did.

Lubitz continued flying Germanwings planes across Europe. He passed the second proficiency check on October 28 and his A320 type rating is revalidated.

He and Kathrin were happy together, living in Düsseldorf. The neighbors often saw them heading out together, going for a run. In their eyes they were a normal young couple.

The high-school sweethearts were talking about future, now that both of their careers were taking off. Kathrin, a sporty blue-eyed blonde, a year younger than Lubitz, had got a job as a mathematics teacher from a school near home.

They planned to get married in 2016, and starting a family year after that.

As the year drew to a close, Lubitz contacted Lufthansa Aeromedical Center to get the restriction removed from his pilot's license. He didn't have an insurance policy against inability to fly and he said he couldn't get one because of the restriction.

LHAMC told him there was nothing it can do, because responsibility of removing it had been passed to the national aviation regulator, the LBA. In order to get the authorities to do it, the center informed him, he would need to get another health certificate from a psychiatrist.

Lubitz never got around to it. There was something else, more pressing, requiring his attention.

"If I didn't have this problem in the eyes, everything would be fine."

Christmas was near but he didn't feel the holiday spirit. He was sleeping poorly, worried about his sight. He felt his vision was impaired by a dark veil during the day and in the night, he told an ophthalmologist on December 19, the day after his 27<sup>th</sup> birthday, halos appear to surround the light sources, like street lamps.

He might suffer from macular degeneration, AMD, the ophthalmologist said. But as it's very rare condition for a young man, the doctor tested his eyes and found nothing wrong.

Merry Christmas, Mr. Lubitz, your eyes are fine.

"Because I'm afraid of going blind and I continue to fixate on my eyes, I keep brooding on this idea over and over again, and stress increases constantly."

But Lubitz doesn't believe the doctor. He suspected there was something seriously wrong with his eyes. After the holidays he got a second opinion.

He complained his sight was blurred to the second, third, fourth, and ultimately to the eighth ophthalmologist he visited in January.

None of them found anything wrong with his eyes. They all told him his eyes were fine.

And Kathrin thought so too: at home she was the one who had to turn the lights on while he could read in dim light. They joined his family on a weekend trip to Berlin, and his parents noted Lubitz didn't have trouble reading the small text from his smart phone or other devices, either.

"Sometimes I have panic attacks because of my eyes."

Although the specialists don't find problems with his eyes, to make sure Lubitz received a referral to a MRI-scan at Düsseldorf University Hospital, Uniklinik. The doctors wanted to rule out possibilities such as bleeding, thyroid gland problems or brain tumor.

Eventually, he had to face it. His problem was not physical, but as one of the ophthalmologists suggested, psychosomatic.

And he was about to get another stress factor to his life.

In the meantime the simmering row over pay and early retirement benefits between Lufthansa management and the pilots had escalated. To speed the negotiations up, the pilots union Vereinigung Cockpit (VC) called a 48-hour strike that cancelled almost all Germanwings' flights in February 12-13.

Lufthansa's management, looking for the cost cuts, wanted the new pilots recruited to Germanwings to accept the smaller pay checks and work longer than in the main airline. At the moment the Lufthansa pilots can retire at 55 and receive a portion of their pay until state's pension payments begin at 65.

The dispute, which is still ongoing without any signs of solution, soured the relationship between the pilots and the management. The company's rhetoric toughened to include threats to lay pilots off or outsource the jobs to neighboring countries with lower cost base, such as Austria.

At the time Lubitz had worked for Germanwings little over a year. Now his employment status suddenly became more uncertain, and as he was among the most junior pilots on crew, he might have been one of those asked to move or leave.

February 17 Lubitz went to his regular GP in Düsseldorf, telling her about his anxiety of going blind and how the specialists hadn't found anything wrong with his eyes. He mentions he was having trouble sleeping, so she wrote him a prescription for potent sleeping pills, Zopiclone.

She gave him two referrals: one to a psychiatrist, requesting him to examine Lubitz for "*psychosomatic and anxiety disorder*", and another to psychotherapy for "*complex psychosomatic disorders*".

The next day Lubitz walked in a psychiatrist's office in Düsseldorf.

"Hypochondria"

They talked. About his worries about eyes, trouble of sleeping, stress, his previous episode of depression. Does he have suicidal thoughts, the psychiatrist asked. No, Lubitz said.

"Health anxiety disorder, hypochondria," the psychiatrist suspected.

Hypochondria, better known as somatic symptom disorder, is a condition where a fear of serious illness distorts patient's perception of bodily sensations. A stomach growling from hunger is seen as a sign of cancer, a headache as brain tumor.

It's a so-called secondary illness that can mask the underlying problem, such as depression or anxiety disorder. Anyone can get the illness at any age, but in most cases it begins in early adulthood.

Usually diagnosis of hypochondria requires at least six months of evidence of fixation on health problems, and constant visits to doctors' without any troubling findings. In Lubitz's case the psychiatrist never made a real diagnosis or confirmed his the initial observation with tests.

However, doctors and psychiatrists specialized in aviation are well aware of the problem, especially with pilots, who are highly attuned to monitor their bodies, mental well-being and performance. Pilots might downplay symptoms of mood disorders, such as depression, anxiety or bipolar disorder, and concentrate to problems that feel more tangible.

According to the aviation psychiatrists focusing on physical complaints, somatization, is common with pilots who suffer from depression. Then, the diagnosis is called "masked depression".

The psychiatrist gave him two prescriptions: a SSRI drug again, this time Citalopram, which is used for treating anxiety disorders; and Lorazepam, a benzodiazepine often prescribed as sleep aid for people suffering anxiety disorders.

Although widely used, both drugs have long lists of potential side effects, most severe being enhanced anxiety or insomnia, impaired mental capacity, suicidal and violent ideations, aggressiveness, emotional coldness and lack of empathy. Typically suicidality, violence and feeling of illness worsening are experienced in the beginning of psychotropic or mood-altering drug treatment, as the effect takes on gradually, and on younger patients.

The drug makers recommend doctors to keep a close eye on their patients on the first month of treatment, and alert also the patient's family or caretakers to be mindful of possible side effects.

As the common side effects involve dizziness, drowsiness and memory loss, the usage of these drugs is prohibited or restricted in certain fields – including aviation.

The medical regulations for pilots vary somewhat: in Europe and Australia pilots are allowed to fly while on low dose of SSRI medication. However, they are first required to demonstrate there are no side effects that could affect their ability to operate the plane, which in practice means a mandatory grounding for a period of time.

In the U.S., the FAA has approved usage of only four SSRI medicines for pilots – Citalopram among them – on mild dosage. Even then the license is taken under consideration, and the pilot has to prove he has been on medication for at least for six months without problems. For most, this means six-months flying suspension.

Usage of psychotropic medications, such as Mirtazapine and Lorazepam, is not allowed and leads in practice to a mandatory grounding period.

The U.S. and nearly all European countries require aviation doctors to pay special attention and organize follow-ups with pilots with a history of mental health issues, including the use of SSRI or antidepressant medication. The practice is not about stigmatizing people with psychological problems, but to support their recovery.

"My God, I don't want this man in the controls of an airplane."

On that Wednesday in February 2015, Lubitz left the psychiatrist's practice with two prescriptions. He got the medication from pharmacy, but he did not start taking either one of them.

He continued to work normally, but on Sunday he was back at the GP's office. She wrote him a sick-leave for three days.

Next day he went to see the psychiatrist again. Lubitz told him he hadn't been taking neither of the medicines he had prescribed him. The doctor gave him another prescription, now for the same anti-depressant he had five years before for depression, Mirtazapine, in mild dosage.

Lubitz started taking the anti-depressant pills, but not Lorazepam or Citalopram.

Few days later he was back at work. The medication didn't seem to be working, though. He didn't feel any better, so after a while he doubled the dosage on his own.

Antidepressants and SSRI medication are always started gradually and finding the correct dose for a patient can take months. Given his previous experience with the mood-enhancing drugs, Lubitz should have been aware of it. He also should have understood better than to raise the dosage without consulting his doctor.

Meanwhile Lubitz begun to look for a psychotherapist. He visited several only once, trying to find one he would feel comfortable with, wanting to avoid the harsh experience he had had six years before.

Later, one of these therapists described the visit to the police. According to the psychotherapist he dealt with a man who was "unsure of himself, who gave the impression of being under pressure". He even remembered having thought during their session: "My God, I don't want this man in the controls of an airplane."

However when the investigators asked if the therapist had noticed any signs of suicidal behavior in Lubitz during the session, he said no.

"I continuously spend nights I don't sleep at all. My maximum sleep time is two hours per night (but at present this length is rarely reached)."

His worsening insomnia worried the family. Wanting to help, his mother made him an appointment to a sleep-disorder specialist in Cologne and accompanied him there. The visit did not turn out helpful.

Ever more distressed over his situation, his mother sent an email in early March to his old psychiatrist in Montabaur, asking an appointment "as soon as possible".

"Suspicion of psychosis."

Yet Lubitz kept reverting to his eye problems. On Tuesday March 10 he went to his regular GP in Düsseldorf, once again complaining of blurred vision.

This time she warned him of "*imminent psychosis*" and gave him an outpatient referral to a mental health clinic associated with the local university hospital.

To his patient file she wrote: "Suspicion of psychosis. Complex psychosomatic disorders".

Instead of going to the clinic, Lubitz went home and sent an email to his Montabaur psychiatrist:

"Because I'm afraid of going blind and I continue to fixate on my eyes, I brood in this idea and stress increases constantly. [...] I continue to spend nights I don't sleep at all. My maximum sleep time is two hours per night (but at present this length is rarely reached). Sometimes [I have] panic attacks because of the worry over [my] eyes."

Lubitz wrote he had been in the university clinic and that they hadn't found anything; that he has been taking Mirtazapine; but he doesn't mention anything about having suicidal thoughts.

"We have already talked of psychologists, but it is true the approach of psychology, in the depth it's often used, [...] makes me feel uncomfortable and misunderstood. Of course, [...] the triggers that must be worked on can be found, but I would need emergency aid to sleep. [...] If I didn't have this problem in the eyes, everything would be fine. In principle, there is no reason I have this problem now."

When the psychiatrist read the email, he pulled up Lubitz's patient file and added a note: "*strained, nervous, no depressive symptoms in the actual sense*."

The next day, Lubitz talked extensively about his eye problems to visiting female relative. Having studied some psychology, she told him to see a psychotherapist.

But on Thursday March 12, he was back at his GP, claiming his eyes were troubling him again. She wrote him a sick-leave note, beginning immediately, for two weeks through March 30, citing *"psychiatric problems"* as the cause of illness.

He didn't want that note stating he had mental problems. He knew if he took that to his employer, he'd be grounded, perhaps for good.

As the FAA had warned in 2010: "Because of your history of reactive depression, operation of aircraft is prohibited at any time new symptoms or adverse changes occur or any time medication and/or treatment is required."

Nor did he want the referral to the psychiatric clinic. He didn't call them. Instead on Friday 13 he called his GP's office once more, but she's on holiday.

Her replacement doctor granted him an appointment. After examination, he walked out with a new sick-leave note, covering absence from March 13 to 22 for "*ongoing eye problems*."

He delivered the note to Germanwings, and was officially signed off as sick.

"No delusions, no hallucinations, not suicidal."

The following Monday he drove to Montabaur, for his appointment with the psychiatrist.

At the clinic he told the doctor he had doubled the dose of Mirtazapine by himself.

"Dwells in problems, obviously. [...] Agitation, tension, nervousness," the psychiatrist described his patient's state of mind on the file.

The doctor gave him another prescription of Mirtazapine, but left the dosage open, because, he said, he's not sure of it. The doctor recommended Lubitz should check the correct dose from Lufthansa's AMEs.

To help him sleep, the psychiatrist prescribed Lubitz more Zopiclone, but also another sedative used to treat psychoses and anxiety, Dominal Forte, and told him to start taking Citalopram as well.

"No delusions, no hallucinations, not suicidal," he concluded on the patient file.

The psychiatrist also issued another two weeks' sick leave, until March 29, but signed it as a neurologist, his other specialty, and wrote as a reason "*ongoing eye problems*".

Eight days later, the police found this note from Lubitz's apartment in Düsseldorf, torn up and in trash can.

## "The most rapid death"

Lubitz had been looking for a therapist for a while, visiting many practices in Düsseldorf, but hadn't found one of his liking. Until now.

Therapy sessions started on Tuesday March 17, a week before the crash. He went in three times in four days while on sick-leave.

They discussed his troubles with sleeping and stress and how to handle it. The therapist recommended books and relaxation through "autogenic training," a self-hypnosis relaxation technique, to control and avoid stress.

But Lubitz didn't tell him what he was doing at home.

He spent hours surfing online, searching information on different ways to kill himself.

On Wednesday he looked at medical options. Lubitz's browser history showed that he googled topics such as "quantity of sleeping pills to cause death" and "the most rapid death," as well as specific methods: swallowing gasoline, mercury, cyanide, Valium, the malaria drug chloroquine which can cause heart failure, and other techniques.

He searched for ways to get the drugs without a doctor. He looked at the Netherlands, the neighboring country with more relaxed medication policy, a few hours' drive away.

On Thursday he read an article, "A suicide every 40 seconds", an anti-suicide story from local paper's archive that went through World Health Organization's statistics about how common taking one's own life is in the world. After that, he searched for "suicide process".

He also looked for answers for his condition: "masked depression". But he only found an unhelpful old article of how it was used as a generic term for depression. He didn't find the formulation used by the aviation doctors.

"I'm having stress, circling thoughts, brooding..."

He didn't mention his eye problems to the new therapist. On Friday, March 20, they discussed his personal relationships.

"Relationships with parents, OK. Friends, OK. His dream job. Loves his girlfriend above all," psychotherapist wrote in his notes.

There were early signs of progress: "Could sleep a little better."

Thus his last meeting with a medical professional ended with a slightly positive note.

None of the doctors treating Lubitz in early 2015 deemed him depressed. They noted his obsession with eyesight, his anxiety, stress, agitation, tension and trouble of sleeping.

The two who had the longest doctor-patient –relationships with Lubitz, the Montabaur psychiatrist and the GP in Düsseldorf, were concerned his grasp on reality was slipping and he was overwhelmed by anxiety.

The treatments were limited to appointments at their offices, various medications and sickleaves. There are no indications that any of the doctors followed up with Lubitz's progress afterwards. Therefore they had little idea he wasn't following their instructions to the letter.

However, the time span of the key meetings was short, just six weeks, and the doctors might have regarded his treatment as ongoing.

They recognized Lubitz's distress but lacking the evidence of any physical problem, he was regarded as hypochondriac, and treated for anxieties. At this point it is not known how seriously the doctors took Lubitz's complaints as they have refused to speak to both the investigators and the press.

The communication between a doctor and his patient is privileged everywhere. The point is to encourage a person to seek medical treatment without fear that his condition will be disclosed to others and to prompt him to reveal all relevant information. It is at the core of medical ethics, but additionally the physicians are required by law to protect the information and they are not allowed to disclose it to third parties without patient's consent.

However, the confidentiality can be overridden by officials, such as national aviation authorities, or court orders can be issued to require the doctors to produce the patient files. A doctor is also allowed to breach the confidentiality if he believes the patient is going to hurt himself or others.

In Germany the patient confidentiality is held as almost sacred, absolute right. The interpretation of rules within the medical profession is stricter than elsewhere, but the guidelines for breaking it are in line with other countries.

"The doctor can't break patient confidentiality unless there is a justified suspicion which means he thinks there is danger the patient will hurt himself or others. If the patient says he is going to commit suicide that voids the confidentiality. Then a doctor should inform the police or judge. But under no circumstances he is allowed to inform patient's employer," a German surgeon explained the practice.

Breaching patient confidentiality is a crime in Germany that could lead to a jail sentence up to one year, and the doctor being struck off. Breaking confidentiality would expose the physician for a civil lawsuit, too.

The threshold to report a patient is high and never taken lightly.

"I would always consult a colleague or a psychiatrist before calling police or judge," the surgeon said.

If the doctor raises the alarm and patient is taken into custody, he is usually required to submit to a 24-hour observation to examine "if the suicidal thoughts are really there".

All doctors rely on the information their patients choose to disclose, but in Germany patients are not required to tell their occupation or other personal details beyond the ailment.

In Lubitz's case it is clear that only a few of the doctors who treated him knew he was a pilot. Besides his hometown doctors, one therapist who met him briefly knew his profession.

Also the Düsseldorf psychiatrist examined Lubitz for suicidal ideations. But when asked, Lubitz denied having such thoughts, so all the doctors ruled them out. None of them considered him as a threat to himself or to others.

The German doctors rarely share their patient information with their colleagues.

"Usually a patient has one file with every doctor he visits, and if there is no major illness, the file remains with the doctor. Only with serious medical issues, such as an operation, the doctor asks for previous check-ups or patient files," the surgeon said.

Informing the authorities about the patient is even rarer. Especially in aviation: the links between the LBA and AMEs are still weak and co-operation nearly non-existent. And in borderline cases, the doctors tend to side with the patient.

Friday evening, March 20, Lubitz went online again and searched "code cockpit door" – details about the Airbus A320 plane's cockpit door lock system. He surfed through some aviation forums discussions and watched a documentary about the subject.

On the weekend his web searches were more ordinary: sales at the online clothing store and a menu of a restaurant.

"Decision Sunday"

What should he do? To sort out his thoughts on the last day of his sick-leave, he drew up a list of pros and cons.

"Decision Sunday"

"Return to work?/std. byv. / gi / BCN / eye clinic Siegburg / [his therapist's name] / Düsseldorf / eyes and ears much affected, invoke internal will to live and work / org.stress / to let go"

"Undecidedness"

Lubitz's shorthand remarks are subject to interpretation as he didn't explain them any further, but evidently he was pondering whether or not he should return to work the next day and what his options for the future were.

"Std.byv" might indicate he was considering to pick up his studies at the university where he had taken a few correspondence courses after high school. It could also mean "stand by shift" that he had scheduled for Monday.

"Gi" could mean "ground instructor", a non-flying aviation trainer job that would have given Lubitz a chance to stay in business and use his knowledge in flying. "BCN" is likely the aviation code for Barcelona, referring to his scheduled flight there on Tuesday.

Lubitz had read an article about a procedure made in an eye clinic in Siegburg, which had improved the patient's eyesight. The next four entries probably reflect his internal debate: his belief there was something wrong with his eyes versus recognition of having mental problems; the specialist that could help him; and that he would need to resort to his inner strength to keep going.

Last two entries might describe how he felt about his job. Lubitz might have become disillusioned with the realities on his dream job, the organizational stress had increased and he might have thought if it was worth it.

The final entry could mean he was considering suicide, wishing to "let go".

All in all, the list didn't seem to help Lubitz much as the last thing he wrote on it was "undecidedness".

"He seems calmer"

Lubitz's phone rang on the wee hours of the morning. He was on call from 3 a.m., and was called in to do a ferry flight of an empty Germanwings plane from Düsseldorf to Berlin Tegel airport.

There was just him and a Dutch captain and they took off from Düsseldorf at 4:57 a.m. As there were no passengers or other crew on board, they had left the cockpit door open. The captain mentioned that was a normal practice before 9/11 and reinforced cockpit doors, and back then the open door had invited the passengers to come by and say hello. Lubitz didn't comment the topic in any way.

They arrived in Berlin at 5:56 a.m. The captain commended him for his flying and landing, which according to him were "challenging".

At 8:20 a.m. Lubitz was on his way back to Düsseldorf, but his work day was already done and he flew as a passenger. After landing, he drove home and went online again.

This time he searched information about "sleep disorders", browsing through some pages. Then he typed in another search: "living wills." He looked for information how to draw up a document stating his wishes in case of serious accident or other medical emergency that would leave him incapable to express his wishes.

He wrote that if something happened to him, he didn't want life support. And should he go deaf or blind, he wanted to die.

Lubitz's living will was not legally binding document. It didn't have date or witnesses' signatures nor was it notarized. Blindness or deafness are not terminal illnesses, so his wish to be able to die would not have applied in those cases.

In late afternoon Kathrin, returning home from work, found him in the kitchen, making dinner. That was their agreement; first one home cooks.

To her, he seemed calmer.

After the dinner, they ran a routine errand, drove to a local market to do groceries for the week.

They drove home, put the groceries away and for the rest of the evening they watched TV. At 7:41 p.m. Lubitz logged on to Germanwings' intranet to see if there had been changes for his morning flight to Barcelona.

After an ordinary night at home, they turned in at 10 p.m.

Tuesday March 24

Again Lubitz woke up in the early hours, and got up around 3 a.m. He was quiet. Kathrin didn't wake up when he prepared for work, and when she did, he was long gone.

He drove to the airport and signed in for duty at around 4:30 a.m. In crew room he met with the captain of his flight to Barcelona and back, Patrick Sondenheimer, for a briefing.

While they prepared for flight, some colleagues came by for a few words. Sondenheimer's friend popped in and chatted with them for a few minutes before they went to the gate.

They got to the plane, 'Mannheim', and took off from Düsseldorf on schedule at 6:01 a.m. for El Prat Airport in Barcelona.

An hour into the flight, at 7:20 a.m., Mannheim was on cruising altitude of 37,000 feet, over western France, heading south. Captain Sondenheimer decided to take a bathroom break.

A half a minute after the captain had left the cockpit, the air traffic controller from Bordeaux radioed in, instructing Lubitz to descend to 35,000 feet. He copied the request, and set the new target altitude to computer.

Yet he didn't leave it to that. He switched the altitude again, to the minimum setting of 100 feet, equivalent to the ground level, then up to the maximum of 49,000 feet, and back again to 35,000.

Thirty seconds later Bordeaux asked him to continue descending to 21,000, which he does. But in a minute, Lubitz changed altitude target again to 100, flipping the setting back and forth for almost two minutes, until he heard the buzzer.

It was the captain, requesting him to unlock the door.

Lubitz reset the altitude to 25,000 feet, reached over to the right side of main pedestal, pushed the toggle slightly upwards unlocking the cockpit door.

The captain re-entered and resumed command. And the plane's computers routinely relayed the flight data, including the rapid altitude changes to Germanwings' operations center on the ground.

There was a problem in flight. Not a major one, but something requiring Sondenheimer's attention. One of plane's front lavatories' flushing system was malfunctioning. On their way to Barcelona, they informed maintenance about the problem via ACARS datalink system, asking what to do about it.

The captain continued to sort it out after they landed at Barcelona at 7:57 a.m. local time. He called to Germanwings maintenance service in Cologne, and they instructed him to reset system from circuit breaker located at the rear of the plane. But to do that he had to wait until the passengers had disembarked.

Because of the minor technical problem the final flight was delayed 30 minutes on the departure back to Düsseldorf.

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Marseille Air Traffic Control Center knew something had gone terribly wrong in a routine flight from Barcelona to Düsseldorf when there was no response to a dozen of radio contact requests from both civil and military air traffic controllers over six minutes and the plane, continuing its bizarre descent, had disappeared from their radars.

Immediately a phone call was made to France's national center of aerial operations (CNOA) in Lyon, which promptly ordered an Air Force fighter to air. Seven minutes later a Mirage fighter took off from Orange-Caritat Air Base, northwest of Marseille, heading east towards Italian boarder to search for the missing aircraft.

While the quickly assembled rescue teams begun their long journey towards the crash site in Alpes-de-Haute-Provence, ATC centers in France, Spain and Switzerland gathered their data for the investigators.

The facts showed that Germanwings flight 4U9525 had proceeded to France's air space without abnormalities. The weather conditions had been good and there was no unusual activities in the area, so there was no external reason why the plane had started to descend after 30 minutes of flight.

Had there been a mechanical failure such as loss of pressure that had forced the pilots to drop the altitude? In that case they would have made an emergency descent to a safe level of 10,000 feet, alerted the ATC and requested emergency clearance to land to nearest airport. They would definitely have avoided flying into the mountainous area.

But there was no communications from the plane. Had both pilots lost consciousness? If that had been the case, the plane would have stayed on its pre-set course instead of sloping fall towards the ground.

The first hint came from radar data. The information from three ATCs tracking flight 4U9525 showed the same curious thing: the target altitude setting on autopilot had changed all the sudden from 38,000 feet to the minimum setting of 100 feet.

There was only one way that could have happened: someone, on the plane, had changed it on purpose.

Had a terrorist been able to take control of the plane somehow? Or had someone else gained access to the flight deck, causing the accident? But only a pilot would know how to change the autopilot's settings. And would a terrorist, intent on causing maximum casualties and fear, crash the plane with a controlled descent to a remote area in mountains?

The last, chilling possibility was that it was either one of the pilots. Nearly unimaginable possibility in a beautiful Tuesday afternoon in southcentral Europe.

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It was Andreas Lubitz's decision. He chose to crash Germanwings flight 4U9525. He could have reversed the decision he made in those 26 seconds at any time during the final ten minutes of the flight.

But even before that fatal Tuesday morning his decisions were irresponsible.

To fly passenger jets, Lubitz was responsible for abiding to long list of rules. Those regulations included what kind of medication he could use and when, and what to do if he felt his professional capacity to perform his duties had diminished.

Lubitz sought help in early 2015, so frantically that doctors considered him to be a hypochondriac. But by seeing private practitioners he broke the rules. As a commercial pilot he was required to consult an AME immediately if he had doubts about his physical or mental well-being.

Why didn't he follow the rules? One possible explanation is that Lubitz feared he would permanently lose his pilot's license if he went to an AME.

Such an explanation seems unsubstantiated and premature.

"Today almost every ailment is treatable, so losing the pilots' license due to medical reasons is extremely rare. Mental illness is comparable to other serious illnesses that require long-term treatment, such as cancer or cardiovascular disease. Pilots should feel confident that although they are suspended while ongoing treatment, they can recover and return to work," was how a leading AME explained the current practice in Europe.

Another question: If the working environment was bad, did Lubitz feel he could not betray signs of weaknesses?

AMEs do not work for the airline. Had Lubitz resorted to their help, his right to medical confidentiality would have been intact because AMEs do not disclose the details of illness to the employer.

"The aviation medicine system would have taken over and they would have had already established programs for handling this kind of situations," an AME with profound experience on accident investigations said.

Even if Lubitz felt he couldn't trust Lufthansa AMC's doctors, the airline and the pilots' union had other channels available, including anonymous help lines and peer support systems. There are no indications Lubitz reached out to those resources.

Lubitz didn't confide to any of his colleagues at Germanwings, either. They saw nothing unusual in his behavior. However, Lubitz had been with the airline only for a year so it is likely none of his colleagues had flown with him more than few times and therefore wouldn't have been able to tell the difference. The budget carrier's business model is based on short-haul flights with quick turn-arounds in destination, which underscores a temporary and task-oriented working environment.

Continuing to fly on medication that would have disqualified him from flight duty was Lubitz's second mistake. He should have reported the prescribed drugs to LHAMC, which would have grounded him immediately.

Between January and March of 2015, Lubitz was prescribed five different medications: an antidepressant, a SSRI and three kinds of sedatives. Traces of three of those – Mirtazapine, Citalopram and Zopiclone – were found during Lubitz's postmortem toxicological tests. The largest trace was Mirtazapine. The sleeping pill Zopiclone was not found in all samples. The investigators described the findings to be consistent with "therapeutic levels".

Nevertheless, those levels were too high for a commercial pilot. He never should have flown while taking Mirtazapine. According to the records, Lubitz had been taking Mirtazapine for a month before his death.

In Europe, pilots are allowed to take Zopiclone 12 hours before their next flight. This sleeping pill is not commercially available in the U.S., and the FAA requires a 24-hour wait period with similar kind of hypnotic drugs.

It is difficult to say what role – if any – medication played. Mirtazapine, Citalopram and Zopiclone each can enhance insomnia, depression and suicidality, especially in the early stages. Some studies show that SSRI and antidepressant medications can also cause emotional detachment.

According to the sources close to investigation, Lubitz began to explore various methods of suicide a week before the crash. He was on sick leave and, presumably, taking all three drugs found in autopsy.

He searched online for medical options to end his life, but he did not resort to drugs he had or other methods he had researched.

Instead Lubitz chose to crash the plane and kill 149 people with him. Experts believe the plane was simply a weapon of opportunity.

"He was a pilot, so he used the plane. If he had been a police, he would had used a gun," an investigator said.

Who could have taken that weapon from him? Could Lubitz have been stopped?

During those seven years any of the involved authorities, airlines, trainers and doctors could have stopped him. But the German aviation safety network did not intervene because national privacy laws prevented vital information from being shared between the relevant parties.

This practice breaches both EU and international legislation set by the ICAO. Germany's situation is unique in Europe, and EU officials had been aware of the malfunctioning system for years before the Germanwings crash. The other European countries abide with EU legislation requiring the national aviation authority to supervise the AMCs and AMEs, co-operate with private practitioners and airlines, and act to prevent the potential safety hazards, such as recognizing pilots unfit to fly.

By binding EU legislation, the AME is obliged to provide all the information from medical checks or health assessment to the aviation authority.

"This is not the case in Germany. If the AMEs and other physicians operate in accordance with EU law, they are penalized according to German law. This voids the aviation safety system and renders the LBA completely toothless. The fact that EU legislation always exceeds the national legislation in this area doesn't seem to be relevant in Germany, and the EU do not want to - or can't - do anything about it," a long-time aviation medical director said.

The EU audited the LBA for safety issues only few months before the crash. The union's representatives said the national privacy law blocked the medical professionals' chance to share information about pilots' health. They also criticized the lack of mental healthcare services for young pilots.

"The core of the problem is that German privacy law protected Lubitz's job by covering his personal health information, but not the lives of the passengers and other crew members. There is a serious conflict between the individual and the public interest," a high-level EU official said.

To date, Germany has not improved information sharing within the aviation safety network or relaxed the privacy legislation. There is an initiative to build a medical database with the LBA to meet the new standard set by the European Aviation Safety Agency's (EASA) task force last year. However, German officials have been quick to assure the new database would meet the national privacy law's requirements – effectively diluting it.

While German pilots support the improvements, they are not sold on relaxed medical confidentiality.

"Medical secrecy is a greater good that has to be protected. It is necessary that a patient trust his doctor. Only if he can fully trust the doctor he will be willing to open up and tell him all his problems. We do not want that a patient tries to hide his problems only because he does not know what the doctor will do with his findings. Should this happen only once, we might have another Lubitz, and we have to do anything to prevent this!" a senior pilot with a German airline said.

This fear seems exaggerated – the aviation safety system that allows the doctors and authorities to share the pilots' health information works fine elsewhere in Europe and the U.S. The relevant health information is passed along only when necessary and to the authorized participants within the network, so the patient's medical confidentiality is preserved.

In Lubitz's case the problem was not that he feared the doctors would have passed details of his health to the aviation authorities or the airlines. Based on the information at hand he seems to have had trust issues with his doctors, but those were not based on a fear they would break the patient confidentiality.

Lufthansa could have stopped Lubitz in 2009. The airline's pilot-training school could easily have dismissed him after he left the program after just two months. The training is demanding to weed out candidates not suitable for the job.

The airline hasn't said why Lubitz was readmitted to pilot training. Reputable companies such as Lufthansa can choose the best candidates for training, and there are always more applicants than openings.

Instead, Lubitz was allowed to return to training and the LHAMC kept an eye on his recovery for next two years. However, the medical center did not include psychiatrist or psychologist consultation for the treatment plan.

Would a psychologist's involvement made a difference? Would Lubitz have turned to the LHAMC for help had he had established a trusted relationship with the company's mental health provider?

After the follow-up period that ended in November 2011, Lubitz's mental health was monitored at the annual medical examination. How comprehensive those check-ups were is unclear as Lufthansa has declined to comment on the co-pilot's treatment.

Lubitz's last regular medical examination at LHAMC was in late July of 2014, five months before he started visiting the doctors because of his eye problems, and eight months before the crash. As he did not contact Lufthansa's medical services, the airline was unaware of his new problems.

Lufthansa's AME also contributed in June 2010, when Lubitz omitted his depressive episode from his application to the FAA. Either the medical examiner or the American authorities could have dismissed him then for lying on the federal application form.

The FAA had another chance when the agency requested from Lubitz further information about his mental health. Despite the specific instructions of the documents he was expected to provide, the FAA accepted two medical certificates that were several months-old and did not meet the requirements. The documents were not in line with those the FAA demanded from American pilots with comparable mental health issues.

Perhaps U.S. officials thought there was no harm in issuing Lubitz a student pilot's permit. At least they had no reason to deny it, as Lubitz likely benefited from association with a trusted airline such as Lufthansa.

That permit allowed Lubitz to attend to the practical flying module part of his training in Lufthansa's Air Transportation Center Arizona (ATCA) in Goodyear, Arizona. However, according to a recently filed lawsuit by David Friday, who lost his wife and son in the crash, the center "knew that Lubitz suffered [from] mental illness and declared him 'unflyable'."

That was just the first lawsuit. Families of more than 80 crash victims represented by Brian J. Alexander, partner and aviation law specialist in Kreindler & Kreindler, New York, are preparing to take Lufthansa and ATCA to court in Arizona.

"Andreas Lubitz should never have been allowed to enter ATCA's commercial airline pilot training program. ATCA was one of the most important gateways in his path to become a Germanwings pilot and the center was negligent in failing to apply its own "stringent" standards to discover the history of his severe mental illness that should have kept Lubitz from being admitted to program," Alexander said.

According to Alexander, "red flags were missed," including that Lubitz's German medical certificate had a restriction "because of his earlier episode of severe depression and suicidal ideations."

"The restriction was a warning that Lubitz was a man with a history of unresolved problems and not someone who should be allowed to fly passengers in commercial aircraft. To the extent they observed his symptoms during training and otherwise determined him to be unsuitable, their conduct was reckless and in violation of applicable aviation regulations," Alexander said.

Lufthansa and Germanwings have denied any wrongdoing.

Besides civil suits, two criminal investigations in Germany and France will be concluded later this year. Lubitz can't be charged because legislation in neither country allows prosecution of the dead.

In Germany, the Düsseldorf prosecutor will determine if criminal negligence was involved. German law doesn't allow companies to be sued, but a criminal negligence case against the airlines is possible in France.

The trials might be the only way to force doctors who treated Lubitz to shed light on the medical circumstances leading to the crash. Most of the doctors have invoked their right to not talk to investigators.

While medical privacy is a right, Lubitz's case involves the conduct of his doctors, airlines, training and test centers, as well as other authorities. The lack of transparency has become a convenient excuse, a hideout to avoid scrutiny of professional conduct and probing questions.

German doctors stand by patient confidentiality from fear that breaching it could lead to a lawsuit or being struck off. Such chance is remote. In Germany, only a few doctors have been sued for breaching confidentiality.

Current law, however, allows physicians to breach confidentiality in extreme cases. The Germanwings crash falls into that category.

If Germanwings crash is not big enough tragedy for the German doctors and other participants to speak up, what would be? The gravity of the matter should suffice to guarantee an open and public investigation but there is another incentive: the grieving families who lost their loved ones in the crash deserve to know the truth.

The only way of reducing risk of 4U9525 happening again is to find out what really happened, and why.

Until then, the important details of Lubitz's doctors' appointments will not be known. It is unknown if he revealed his profession to the doctors he saw or if doctors asked it. Nor is it known if doctors asked Lubitz's permission to consult others and if he refused to give the consent.

Lubitz's treatment by private doctors was sporadic, mostly limited to single visits to different doctors with no follow-ups. None took responsibility of his care. There was no long-term plan or co-operation between the physicians.

There was a relatively short time span between Lubitz's doctors' visits, approximately six weeks. Lubitz chose to see different physicians. Had he chosen to resort to LHAMC, the treatment would have been more focused and planned for the long term.

How much help did he receive from all those visits? According to the records, the physicians were somewhat successful in treating his symptoms. Lubitz was sleeping a bit better towards the end.

It is known, however, that Lubitz did not listen to his doctors. He refused to believe the ophthalmologists who told him his eyes were fine. The MRI was not enough to convince him either. He did not start the medication he was supposed to; he doubled the dosage of his antidepressant on his own; he did not take advantage of the referral to the psychiatric clinic and he did not use his sick-leaves.

Lubitz did not tell any of the doctors of his suicidal thoughts either.

None of the doctors deemed Lubitz suicidal or depressed in early 2015. They took note of his obsession with vision, anxiety, stress, agitation, tension and trouble of sleeping. The physicians suspected of psychosomatic or anxiety disorder and hypochondria, but they probably did not consider the 'masked depression' as an option.

Lubitz's condition was never properly diagnosed.

BEA, the French aviation accident investigation bureau, consulted a group of mental health experts for their final report, asking them to diagnose Lubitz based on the information from his medical records.

"Majority of the experts agreed that the limited medical information available may be consistent with the co-pilot having suffered from a psychotic depressive episode that started in December 2014, which lasted until the day of the accident. Other forms of mental ill-health cannot be excluded and a personality disorder is also a possibility," BEA said in the report released in March 2016.

Reiner Kemmler, flight psychologist and the former head of Lufthansa's department of aviation psychology, who treated several depressed pilots during his time with the airline, believes Lubitz's vision problems and depressive states were "probably compensative reactions to job-related problems: never becoming captain with Germanwings, bad social climate with junior co-pilots and subjective feelings of lack of appreciation."

According to him the available data provided by BEA was however insufficient and a proper diagnosis would require more information about Lubitz's social and developmental characteristics, his relationships, health history and long-term observations about his behavioral patterns.

The initial aptitude tests for evaluating the pilot applicant's suitability are not designed to spot Lubitz's kind of problems, Kemmler said. Therefore his initial psychological tests from the spring of 2008 might not have revealed anything alarming. The German Aerospace Center (DLR) which conducts the tests in co-operation with Lufthansa, has not released Lubitz's test results.

The EASA task force, set up after the Germanwings crash, recommended that all pilots must pass a psychological evaluation before they enter service. BEA, on the other hand, suggested closer follow-ups for the pilots with a history of mental-health problems. Both initiatives are fully applicable to practice.

Other measures EASA suggested included mandatory random drug tests and additional training for AMEs to be able to better identify pilots who would need to be referred for psychiatric evaluation.

"Flight surgeons are not competent enough to handle psychological problems, even if this is a criteria in their job. Aviation psychologists would be needed, but there are not much around, because you need quite a lot of experience in this field," Kemmler said.

Somewhat skeptical about possible turf wars between medical professionals, Kemmler said he would rather place aviation psychologists within the airlines' Safety Management Systems. However, he supports the initiatives to boost peer support and reporting systems suggested by EASA and BEA. The idea is to build up similar peer systems for psychological problems as the ones already in place for helping colleagues with alcohol and substance-abuse problems.

Germany is planning to introduce random drug and alcohol testing for pilots.

"The law will be changed and these tests are definitely going to happen. Although even the medical experts agree that these tests are counterproductive, their views have not been heard by the politicians," a German aviation expert said.

It is questionable if random drug and alcohol testing would have been helpful in preventing the crash of flight 4U9525.

The Germanwings crash has already lead to changes. Lufthansa and a few other European airlines that were not already following the two-person-in-a-cockpit –rule have implemented it. Should either of the pilots need to leave the cockpit during the flight, another member of the crew must sit in, ensuring that nobody is left alone at the controls.

Would it have made a difference if Germanwings had followed that procedure before the crash?

Perhaps. Since most suicides are acted out alone, the presence of another person might have been enough to stop Lubitz. However, a flight attendant might not have been able to tell a difference between routine actions by pilots and ones intended to crash the plane.

Even so, the flight attendant could have opened the door for the captain after Lubitz locked it.

Could captain Sondenheimer have saved the plane had he regained access to the cockpit?

"Would the captain have been able to grasp Lubitz's plan as soon as he re-entered? I think this is not so easy – simply because this scenario is so unlikely," a veteran pilot with nearly two decades of experience on flying commercial airplanes said.

Had the captain been able to return his seat, he could have taken control by pressing the button on his sidestick.

"This deactivates the sidestick of the other pilot and switches the flight controls to the pilot that pushes this button. However, this can again be overridden by the other pilot. This mode was definitely not constructed for Germanwings kind of scenario," the veteran pilot continued.

The last option would have been to physically overcome Lubitz.

"It is a big step to decide to physically harm somebody, especially if you are not as strong as the other person. Then the only choice is to look for a weapon. There is a crash axe in the cockpit. Can you imagine what it takes to attack somebody with an axe?" the pilot said.

Yet after the Germanwings crash, aircrew members training must include such preparation.

Aviation safety relies heavily on the personal sense of responsibility of all individuals within the system. Self-reporting and peer group observations are critical in day-to-day operations. All aviation personnel are acutely aware of the priority of safety; maintaining it is a common cause.

The most tragic part of the crash of Germanwings flight 4U9525 was that it could have been prevented.

The crash brought co-operation and information sharing between all parties in the network – aviation personnel, their families, the AMEs and AMCs, private sector physicians, the airlines and their subsidiaries around the world, as well as the national and international aviation authorities – into the spotlight. The case showed it is not enough if the individual components work relatively well on their own, if the system fails as a whole.

Germany's reluctance to make the necessary changes poses a challenge to the other countries. So far, the EU has been willing to turn a blind eye to rules violations by its influential member.

But the pressure is building. Some European countries are considering not accepting medical certificates issued in Germany, a move that would effectively block German flights to those destinations. It is, however, unlikely that those countries would be willing to actually implement such bans.

From the passengers' point of view, the situation is more complicated. The air traveler must accept the existence of the residual risk – the tiny chance that something might go wrong despite the best efforts to prevent it.

But if passengers are expected to accept risk, Germany's practice where national privacy law supersedes EU or international regulation, can be seen as a breach of contract. In order to have acceptable risk, there must be certainty that the system is doing everything in its power to prevent unacceptable risk. This was not the case in Germany.

Passengers trust the airline and its employees with their lives. The idea that a passenger's life is less valuable than the German custom of secrecy is impossible to accept.

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**Reiner W. Kemmler**, Diplom-Psychologist, Aviation Psychology and Crisis Management, mobile: <u>+49 (0) 173-4951 465</u>, <u>kemmler@luftfahrtpsychologie.de</u>, website: <u>www.luftfahrtpsychologie.de</u>

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Many of the sources used in this story spoke under condition of anonymity. List of sources has been redacted in order to protect the confidentiality of sources.

### POST SCRIPT:

In March 24 2015 I had just started my shift as evening producer at the news desk when a headline on Bloomberg terminal scroll caught my eye – something about a plane crash. I clicked it open, but it had only a link to La Provence-newspaper's website and it didn't even work.

However aviation was part of my regular beat, so I was curious. When I finally got the French webpage open, it was a shock: a German plane had downed into mountains in southern France.

That was it – someone else took over the producer's shift, and I went off to cover the story. In following days wrote several pieces of the crash of Germanwings 4U9525 from different angles. But as it is the case with breaking news, you can never get too deep into the subject, so after some weeks the coverage subdued.

When I came to Columbia I had some ideas of what I'd like to do for thesis but nothing specific. In one of our first seminar meetings in fall, Professor James Stewart said that sometimes it pays off to return to a story when the rest of the (news) pack has moved on. That reminded me of the Germanwings crash and the odd details I had read that didn't seem to make sense.

I began to re-read the articles and got even more curious. Who was Andreas Lubitz and why had he done it? By early October, I had decided this was it and continued to research.

The coverage of Germanwings crash was extensive but almost all the articles had some mistakes in them. It took a lot of time and patience to sort out which details were actual facts and which were hearsay or speculation.

Although written material was abundant, the human resources were another thing. I was lucky to find excellent sources with first-hand information on the matter and without them this story wouldn't have been possible. However, as much of this material is not yet public, we agreed to confidentiality and for the first time in my career I used anonymous sources.

I received a grant from Columbia Journalism School and was able to travel to Germany to do reporting on location during the winter break. That six-day trip around the country was intensive but of utmost importance. In order to do investigative journalism you have to be able to go out there, meet people and talk to them.

My first draft was basically a timeline with the facts. The narrative begun to rise from there in late January, and shortly after that, when I came across with Lubitz's journal entries, I knew I had the backbone for the story.

However my story had the "Titanic problem" – everyone knew the plane was crashed intentionally by Lubitz, so finding the right narrative angle took some time. The pieces fell together when my advisor Sylvia Nasar told me what she had done with the Beautiful Mind: she had written even those scenes that John Nash wasn't in on as if he was somewhere nearby. That helped and I focused tightly on Lubitz.

Second draft had the main ideas in, but the final version and the structure were completed just days before the deadline.

I had never done a long-form narrative or this comprehensive investigative piece before. That was challenging, but so much fun. I loved it.

The most important thing on the thesis project is to choose a subject that really interests you. Be open minded, but choose the one of your liking. This is a marathon, nothing like the class work or news pieces you have done before.

Do as much of the groundwork on fall semester as you can – research and set up the interviews, because you truly will have to use your winter break for reporting. And when you've done that, it's time to do the first draft. The time will just fly by and sooner than you realize it is April and the deadline looms ahead.

I suggest that you plan your spring schedule so that you will have time work on your thesis: it's up to you to make time to write, to do the follow-up interviews, check facts – and rewrite.

This is a great chance to do your own project and make it special. Aim high and have fun.