When Michael Pisaric was two years into his PhD, he travelled to Watson Lake in Canada with his supervisor, Julian Szeicz, and graduate student Tammy Karst-Riddoch, to collect sediment from several lakes in Yukon and in northern British Columbia. Szeicz was a geographer at Queen’s University in Kingston, Canada, who worked on reconstructing ancient climates. The trio hoped that the samples would reveal how climate had influenced tree-line dynamics in the region over the past 10,000 years.

As they trudged through the snow and negotiated a series of switchbacks, a snow avalanche roared down the hill and covered them. When it cleared, Pisaric was buried up to his shoulders and there was no sign of Szeicz. Karst-Riddoch dug Pisaric out and they ran down the hillside to call the Royal Canadian Mounted Police, who recovered Szeicz’s body later that day.

These sorts of tragedies are rare, devastating and hard to deal with. The loss of a principal investigator owing to an accident or illness can not only set junior lab members adrift emotionally, it can also put their careers in jeopardy. But they can establish ways to keep their careers from becoming unhinged (see ‘Setback savers’). Collaborative networks can help to keep funding in place, and a hard look at the progress of their research and career path will help them to work out where to go next.

But first they must work through the emotional toll of the death or diagnosis. “You have to take care of yourself, and that may mean moving away from your work for an extended period of time,” says Pisaric, who did not return to research for six months after the event. “Come back when you are comfortable, not because of the pressure from other people.” When Pisaric did return, he avoided his PhD research. Instead, he busied himself with data from his master’s degree on changes to the Siberian tree line over the past 10,000 years, later publishing two papers.

He found a new supervisor and a mentor and eventually returned to full speed.

When Tony Pawson, a cell biologist at the Lunenfeld-Tanenbaum Research Institute at Mount Sinai Hospital in Toronto, Canada, died unexpectedly in August 2013, his lab group consisted of about 30 people. “They
to shut down unexpectedly.

Nick Haddad, an ecologist at North Carolina State University in Raleigh, credits his collaborators for covering for him during the time that he was unable to work. He had just 4 days left to refine a paper with 25 co-authors when he had an accident that put him out of action for almost two months.

His collaborators contacted the journal editor and pulled together the pieces left dangling. The paper was eventually published in Science Advances. Haddad sees the article as tangible evidence of his safety net. “I cannot remember being this excited about a paper, except maybe my first,” he says. “We like to think of ourselves as independent scientists and academics, except that it is not really true. We are a community of scholars, and my own success is not mine, but the success of a group of people who are interacting and collaborating.”

As well as collegial support, trainees need to ensure that their financial affairs are in order (see ‘Control your assets’). Graduate students, especially, tend to be supported by their supervisor’s funding. Pisaric, who is now a physical geographer at Brock University in St. Catharines, Canada, recalls that the initial response from the funding agency was to terminate Szeicz’s grant and claw back the unused money. It was an enormous blow on top of all the other emotional stress he was experiencing. “I was left wondering,” he says, “how do I finish my PhD with no funding?”

Research grants depend on the terms that the sponsor lays out in the funding agreement. Many of the grants from US and Canadian federal funding agencies are contracts between the agency and a laboratory’s principal investigator. The agency’s decision to support a project therefore rests on the track record of the scientists leading it, not just on the idea, so the grant can be terminated if the recipient is no longer able to carry out the research or to meet other requirements. Like other agencies, the US National Science Foundation tries to be flexible when a grantee needs to step back from a project, says Dana Topousis, acting head of the foundation’s office of legislative and public affairs in Washington DC. In some cases, the project can be transferred to a co-principal investigator.

“In the case of prolonged absence owing to illness, these agencies have provisions in place that allow the principal investigator to postpone or transfer the grant to a colleague. “I know of individuals who have put their grants on hold for chemotherapy or to care for someone in their family who is very ill,” says Judith Chadwick, assistant vice-president of research services at the University of Toronto. “These are human relationships, and there is always sympathy.”

In Pisaric’s case, his department encouraged him to draw up a budget that would allow him to complete crucial aspects of his research and cover conference expenses and lab costs, such as those related to sample analysis. The department then worked with the funding agency to secure some of the financial support he needed from Szeicz’s grant.

TIME FOR COMPROMISE

But other grants, including those for infrastructure, or support that comes from industry, may not be as flexible. When his supervisor passed away in the third year of his PhD at the Kennedy Institute of Rheumatology at the University of Oxford, UK, Adam Cribbs found that his own stipend remained intact, but other funding in the lab disappeared. That meant he was no longer able to do some planned experiments with a price tag of close to £10,000 (US$15,654), but with a few compromises still managed to finish his PhD on time.

Unexpected disasters can also bring truths to the surface and give trainees a chance to re-evaluate the direction of their careers. They may choose to move into another area of research or even away from science.

Marc Chrétien was six years into his PhD in laboratory medicine at the University of Toronto when his supervisor died of cancer. Chrétien had been developing a method to study the intracellular response of endothelial cells to the stress created by blood flow. He says that instead of one person stepping in, five departmental scientists tried to achieve consensus on the direction of his research and his readiness to write up his thesis. “Emotionally, I was completely drained and exhausted,” he says. As a result, Chrétien decided to switch...
tracks and applied to medical school. When he was accepted, he withdrew from the PhD programme and is now a second-year medical resident at McGill University in Montreal, Canada. He has already published a paper from his graduate work and aims to publish another in the future.

Cribbs, too, found a new direction. As he wrapped up his PhD research, he realized that he lacked the knowledge to properly analyse some of the data he was generating. After he finished his PhD, he applied for and got a UK Medical Research Council fellowship in bioinformatics, which is designed to train biologists in computational biology. Although his interest in bioinformatics was spurred by his supervisor, he says that he probably would not have changed course so dramatically and sought additional training had he not become much more independent than his peers. “I’m not sure I would have tried something new if I hadn’t developed this confidence,” he says. “I collaborated with quite a few people and found out my strengths and weaknesses.”

Such experiences are difficult and traumatic, but there can also be constructive outcomes. “It changed me, I grew up, it made me a better scientist,” says Cribbs. “If you don’t ask for help you don’t get it — and that can make the difference between finishing and not finishing.”

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