deterioration does not necessarily progress once it has occurred. Fatigue and reduced mobility may often progress only slowly or stabilise. The prognosis will also depend on the nature of any underlying cause for the functional deterioration.25

Conclusions
Although some patients who have had poliomyelitis may later develop wasting, pain, and fatigue in isolation, in most there is significant underlying weakness and skeletal deformity predispousing to functional deterioration. The severe physical stresses of postpolio disability contribute to the development of progressive orthopaedic, respiratory, neurological, and general medical abnormalities, often exacerbated by intercurrent events. These abnormalities may present with atypical clinical features because of the extent of underlying atrophy and weakness, but many are potentially treatable and most patients can be helped to understand and manage increasing disability. It is essential to emphasise that the symptoms, disabilities, and impairments of postpolio functional deterioration are often amenable to treatment. It is also important to urge caution before attributing functional deterioration to a primary “postpolio syndrome” or “progressive postpolio muscular atrophy.”

Commentary: Postpolio syndrome—“We aren’t dead yet”
Ruth Bridgens

Alice is 58 years old and is married with two sons, both in their 30s. She works for several charities, is a magistrate, and is out most days and evenings. She fits in a gentle game of tennis every week, but cannot walk more than a mile, even on the level. This was not always the case. A few years ago, she was jogging at least three miles every day and playing squash several times a week. Gradually, she began to notice that jogging uphill became difficult. She tried to find more level routes. Climbing stairs became difficult, and her legs and back began to ache after exercise. This carried on for a couple of years. She realised that the aching was in three areas—her left arm, right leg, and back. The three places that had been most affected by polio when she was 12 years old. At that time, she had spent a month in hospital and then, after several years of taxing physiotherapy and exercises, she recovered completely, except for slight atrophy in one leg.

As she continued becoming weaker, she would suddenly find herself overwhelmed by exhaustion, which was relieved if she lay down for 15 minutes. She remembered an article about something called postpolio syndrome, which she had made a mental note of at the time but had thought nothing more about. Her general practitioner referred her to a neurologist, who said, “Nothing wrong with you.” She mentioned postpolio syndrome, and he replied, “There’s no such thing as postpolio syndrome.”

I interviewed Alice as part of my research for a PhD in medical sociology. She spoke in a gentle voice, softly laughing with surprise once or twice at the story she was telling. After the interview, I asked Alice if she had ever told anyone her story before, and she answered quietly, “No, never.” She felt it had always been too difficult to explain, and she hadn’t really wanted to. Even in 1958, when she had had polio, she felt it was something of a curiosity and a disease doctors knew little about. Because of the vaccine, the research into the complexities of polio that had accumulated in the 1940s and ’50s had never been disseminated. Doctors expect weakness and visible atrophy in someone who has had polio, but not the muscle fatigue, pain, and fatigue that are also common. The knowledge that all cases of polio, including mild ones, involved widespread damage to the nervous system had been lost.

In parting, Alice said to me, “If one doctor changes his mind about postpolio syndrome from your research, I will be happy. We aren’t dead yet.” Although Alice has sorted her life out now, I felt everything could have been made a little bit easier for her.

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Simulators

Doctors should learn in the same way that pilots do. They should train and test their skills in simulators. In that way they could make mistakes and climb a steep learning curve quickly without harming anyone—so it would be good for patients and doctors alike.

How many times over recent years have you heard something like this? Some feel that the analogy has been stretched too far and that doctors and pilots do completely different jobs and so cannot learn in the same way. But before we look at the drawbacks of simulators let’s first consider their advantages.

Proponents of simulators damn learning by experience: they say that it is time consuming, dangerous, and expensive. Learning with simulators is quicker and safer. Certainly simulators are effective at eliminating risk and allow the learner to learn through repeated failure and eventual success. In simulations you can experience complications that would take you a lifetime of clinical practice to just see, never mind learn how to deal with. Thus, learning and experience can be accelerated. Simulations can also allow us to integrate our knowledge and skills more effectively than by reading a book or sitting in a lecture hall—these methods are best for gaining knowledge.

Like many other e-learning experiences, online simulations satisfy the “Martini criteria”—you can do them any time or any place. They can also be a better way of assessing performance than written exams.

What, then, are the downsides of learning via simulations? Virtual reality can never be reality, and caring for a virtual patient on a computer can never be the same as caring for a patient sitting in front of you. So should we make simulators as close to real life as possible? Absolute realism is not always the best option. To learn about how to care for a patient with depression online, you don’t need to drive to your virtual surgery in your virtual car—in fact, these can distract from the learning experience. Some simulators can overwhelm the learner with information and cause them to throw up their hands and give up.

At BMJ Learning, we have found that we don’t need to reproduce a virtual hospital to produce effective simulations. However, although too much emphasis on physical fidelity can be a distraction, psychological fidelity (that is, patients doing and saying things that are credible) is essential. For that reason, our simulations (which we call interactive case histories) involve patients with common conditions and common complications of those conditions. The simulations then train and test your skills on important aspects of these conditions such as diagnosis, treatment, and prognosis.

One of our newest case histories introduces you to a series of patients with abnormal liver function tests. The module’s author, Anand Reddy, says that “a recent large population based study showed that apparently healthy people with liver function tests at the upper end of normal had markedly increased mortality from liver disease.” Another study showed that 8% of US citizens without overt liver disease have unexplained abnormalities of their liver function tests, possibly reflecting increased prevalence of fatty liver.” To find out how best to care for patients with abnormal liver function tests just click on www.bmjlearning.com.

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