
When pregnancy tests were toads

The Xenopus test in the early NHS

Jesse Olszynko-Gryn



Xenopus laevis, the African clawed toad.
Guppiecat on Flickr

As a young woman in the 1950s, Audrey Peattie injected urine into toads every day. She worked as a technician at an NHS pregnancy-testing laboratory in Watford (17 miles from central London). The toads were *Xenopus laevis*, originating in South Africa, but the urine samples with which they were injected came from women around Britain. NHS doctors posted their patients' urine samples to Audrey for the diagnosis of pregnancy. Pregnancy tests really were reliant on toads in the era of modern science.

I had been researching pregnancy testing's past in libraries and archives in Cambridge, Edinburgh and London for about a year when I came across Audrey's story on a local newspaper website. An obliging journalist put us in touch and I was able to visit her in Watford in August 2011 to discuss her experiences working in the heyday of the 'Xenopus test'. It was such a pleasure to meet Audrey face-to-face – a timely

reminder to those of us who research in the medical humanities of just how fruitful public engagement and oral histories can be, often leading to surprising new perspectives.

Audrey's job involved processing urine specimens for use in the *Xenopus* test, also called the 'Hogben test' in honour of one of its inventors, the British physiologist Lancelot Hogben. A hormone found in the urine of pregnant women – today known as human chorionic gonadotropin (hCG) – can induce the female *Xenopus* toad to lay hundreds of eggs. The Hogben test involved injecting a toad with urine and seeing whether it laid eggs (a positive reaction). Today, *Xenopus* is better known as a model organism in developmental biology and is still found in research laboratories around the world. It is no longer injected with urine, but rather with a commercial hormone that also induces egg-laying. From the late 1940s to

the 1960s, however, it was routinely used as a living pregnancy test. Prior to *Xenopus*, female mice and rabbits had been used, but these had to be slaughtered, dissected and carefully examined for ovarian changes. Because toads were reusable and could be conveniently kept in aquaria, *Xenopus* made pregnancy testing practical on a larger scale than before.

Watford was one of three specialised centres covered by the NHS (the other two were in Edinburgh and Sheffield) that received urine specimens for pregnancy diagnosis from doctors and hospitals around Britain. The Family Planning Association (FPA) also kept a *Xenopus* colony for pregnancy testing in a London laboratory. For a fee, the FPA would test the urine of any doctor's patient regardless of the reason the test had been requested. The NHS, on the other hand, feared that their facilities would be swamped by requests from women who were merely curious

about their condition, and so attempted to restrict their free service to cases of medical urgency. Technicians such as Audrey who worked for the NHS were responsible for processing the urine, injecting the toads, and reading the test results, which were then communicated to doctors.

Working in a laboratory full of urine and toads was an unusual job for a young woman in the 1950s.

Getting to know Audrey has been a high point of my PhD so far. She showed me her collection of unique photographs of the inside of a pregnancy-testing laboratory and recalled her workplace, vividly describing its sights and smells. These intimate perspectives are invariably missing or dismissed as mere drudgery from published accounts in standard medical journals and textbooks. Audrey and I shared her recollections of how, by the time some urine specimens got to Watford, they were quite old and so smelly that she joked with her colleagues that they “had been given by a horse”. The toads proved to be hardy, but now and again Audrey would find “a little corpse” floating in a tank, which could go “quite horrible and stinky as well”. Occasionally a jar would arrive smashed, which was also “disgusting”. In such cases “you’d get a soggy parcel” and the laboratory was obliged to request a second specimen as “you needed quite a reasonable amount” for a test. In each case, a toad needed to be taken from the tank; Audrey recalled that she “just reached in and got one. You just put your fingers between its legs and then just injected it into the thigh, because they’ve got really fat thighs...we just did it in a very casual way...because we were doing... loads and loads of them every day.”

Working in a laboratory full of urine and toads was an unusual job for a young woman in the 1950s. Audrey was fresh out of grammar school and most of her friends were secretaries, teachers, sales clerks and college students. Her job was, as she recalled, “a rather peculiar thing to have to explain to people”. This anecdote confirms a key finding of my research: until fairly recently, pregnancy testing remained an obscure practice. Although facilities

existed, getting a test was neither a rite of passage for the expectant mother nor an aid to the woman who wanted to terminate an unwanted pregnancy. Rather, laboratory tests were mainly reserved for use in urgent, medical-priority cases that required differential diagnosis – for example, to distinguish the growth of a normal fetus from that of a tumour. Doctors, not women, controlled pregnancy testing and they were not keen on making this laboratory service available

the early 1970s, but it resembled a small chemistry set and so was not user-friendly. It was not until 1988 that the first recognisably ‘modern’ one-step-stick hit the shelves.

Now a wide range of pregnancy and fertility tests can be bought at any pharmacy or even on eBay, and they are frequently advertised in magazines, in contemporary art, on reality television and in romantic comedies. One of the main objectives of my research is to recover the transition from mice,



Audrey (centre) injects a toad. Reproduced by kind permission of Audrey

to every woman on demand. If a woman sent her own urine specimen to a laboratory it would not be tested, and if she went to her family doctor she might well be told to return in a couple of months when the physical signs of an advanced pregnancy were apparent. Both the dubious association with illegal abortion and the potentially enormous financial cost to the NHS were factors that limited pregnancy testing’s availability.

Today we live in a world of cheap and ubiquitous home pregnancy tests and Audrey’s job may seem even more peculiar to us than it did to her friends over half a century ago. Many changes have occurred in the interim. Immunological test kits finally replaced *Xenopus* in the 1960s and were rapidly taken up by private companies and feminist organisations offering diagnostic services directly to women. The first over-the-counter home test was sold in pharmacies in

rabbits and toads to Clearblue and First Response. Beyond that, I hope to also contribute to both social history and the history of medicine, by capturing the imagination of a wider public with pregnancy testing’s fascinating history.

This is why I am so keen to encourage women – and men – to share their experiences of pregnancy testing (anonymously) on an interactive blog. Please do get in touch with me at the address below if you feel that, like Audrey, you too have something to contribute. It has been a real privilege to discover that nearly everyone has a pregnancy-test story to tell.

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