

LAST CHANCE TO

SAVE A LIFE



**ATOM**  
AUSTRALIAN TEACHERS OF MEDIA

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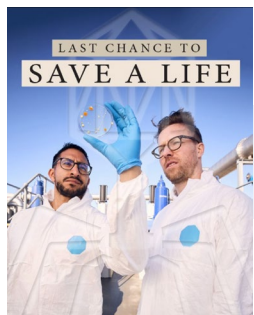
**STUDY  
GUIDE**



Dr Fernando Gordillo Altamirano and Prof. Jeremy Barr on a phage collecting mission. Photo by Ben King.

# SYNOPSIS

In a world threatened by deadly antibiotic-resistant infections, new hope emerges from the unlikeliest of sources: viruses. In Australia, patients are being injected with trillions of viruses to survive. We follow the patients, doctors, and scientists in nail-biting real time to discover the extraordinary power and challenges of ‘phage therapy’ – a strange and elusive 100-year old treatment that promises to not only save patients’ lives but give hope to the world.



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# CURRICULUM LINKS

THIS STUDY GUIDE ON *LAST CHANCE TO SAVE A LIFE* IS MAINLY AIMED AT SECONDARY SCHOOL YEARS 8–12, WITH RELEVANCE WITHIN THE CLASS ACTIVITIES TO THE AUSTRALIAN CURRICULUM GENERAL CAPABILITIES OF: CRITICAL AND CREATIVE THINKING, AND ETHICAL UNDERSTANDING.

*Last Chance to Save a Life* can be linked to the following subject areas within the Australian National Curriculum:

- **SCIENCE/BIOLOGY**
- **HEALTH AND PHYSICAL EDUCATION**
- **ENGLISH**
- **MEDIA STUDIES**

**Year 8 Science curriculum content description relevant to *Last Chance to Save a Life*:**

- Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available ([ACSHE134](#))
- People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity ([ACSHE136](#))

**Year 9 Science curriculum content description relevant to *Last Chance to Save a Life*:**

- Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community ([ACSHE157](#))
- People use scientific knowledge to evaluate whether they accept claims, explanations or predictions, and advances in science can affect people's lives, including generating new career opportunities ([ACSHE160](#))
- Values and needs of contemporary society can influence the focus of scientific research ([ACSHE228](#))

**Year 10 Science curriculum content description relevant to *Last Chance to Save a Life*:**

- Scientific understanding, including models and theories, is contestable and is refined over time through a process of review by the scientific community ([ACSHE191](#))
- People use scientific knowledge to evaluate whether they accept claims, explanations or predictions, and advances in science can affect people's lives, including generating new career opportunities ([ACSHE194](#))
- Values and needs of contemporary society can influence the focus of scientific research ([ACSHE230](#))
- Formulate questions or hypotheses that can be investigated scientifically ([ACSIS198](#))

**Year 9/10 Health and Physical Education curriculum content description relevant to *Last Chance to Save a Life*:**

- Critically analyse and apply health information from a range of sources to health decisions and situations ([ACPPS095](#))

**Year 10 English curriculum content descriptions relevant to *Last Chance to Save a Life*:**

- Create literary texts with a sustained 'voice', selecting and adapting appropriate text structures, literary devices, language, auditory and visual structures and features for a specific purpose and intended audience ([ACELT1815](#))

**Year 9/10 Media curriculum content description relevant to *Last Chance to Save a Life*:**

- Evaluate how technical and symbolic elements are manipulated in media artworks to create and challenge representations framed by media conventions, social beliefs and values for a range of audiences ([ACAMAR078](#))

***Last Chance to Save a Life* is also suggested as a supplementary text at Senior level for studying Biology: Science as a Human Endeavour (Units 3 and 4):**

- ICT and other technologies have dramatically increased the size, accuracy and geographic and temporal scope of data sets with which scientists work ([ACSBL103](#))
- Models and theories are contested and refined or replaced when new evidence challenges them, or when a new model or theory has greater explanatory power ([ACSBL104](#))
- The acceptance of scientific knowledge can be influenced by the social, economic and cultural context in which it is considered ([ACSBL105](#))
- People can use scientific knowledge to inform the monitoring, assessment and evaluation of risk ([ACSBL106](#))
- Science can be limited in its ability to provide definitive answers to public debate; there may be insufficient reliable data available, or interpretation of the data may be open to question ([ACSBL107](#))
- International collaboration is often required when investing in large-scale science projects or addressing issues for the Asia-Pacific region ([ACSBL108](#))

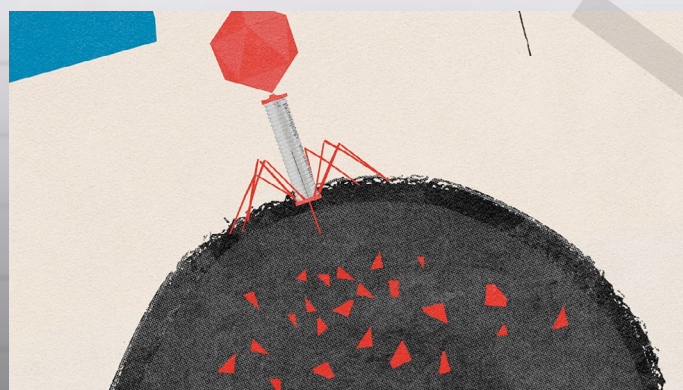
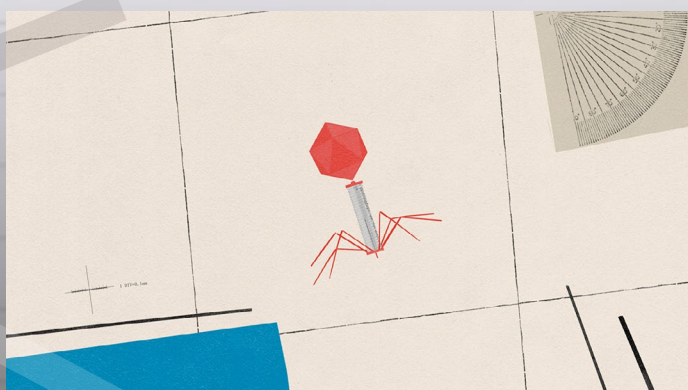
# PHAGES, ANTIBIOTICS, BACTERIAL 'SUPERBUG' DISEASES

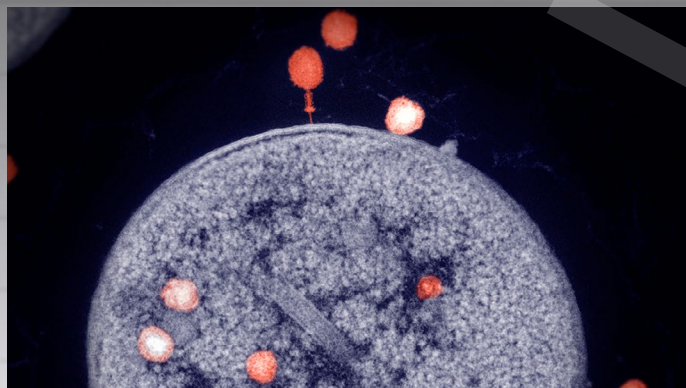
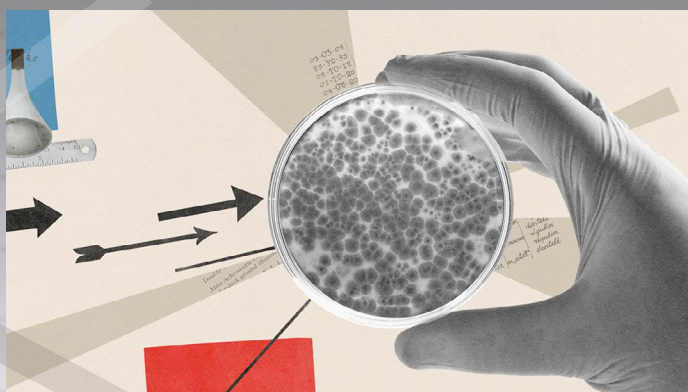
CARRY OUT THE FOLLOWING INTRODUCTORY ACTIVITIES RELEVANT TO AN UNDERSTANDING OF *LAST CHANCE TO SAVE A LIFE*.

- First, before we define the purpose and behaviour of a **phage**, find out the full name of 'phage', and then explain the language derivation of the word and what it means in English. You will discover that it has a very simple meaning. (See 'Phages and phage therapy' in [website references](#). Note that these references are samples only, selected from many that are available on the internet.)
- From the documentary film and further reading and viewing, on poster paper sketch, illustrate, and colour your own image of a phage, and label its various parts.
- We know that a phage is a type of **virus**. What, in general, is a virus? Why are many viruses dangerous to human health? What is the essential difference between a virus which is a phage and a virus that will make you ill with an infection, such as influenza and COVID? Explain why a phage has no adverse or harmful effect on a human body. (See 'Viruses' in [website references](#).)
- From your viewing and reading explain what a phage virus does in the human body. What does it insert into its bacterial 'prey' or 'victim', and what subsequently happens to that prey? In your explanation you will need to refer to, and show the meaning of the word 'bacteria' and to explain what a bacterial infection is. (See 'Bacteria' in [website references](#).)
- In the film we see research scientists visiting the Western Treatment Plant, a huge sewerage water treatment plant in Melbourne (see listed in [website references](#)). Explain why this is an excellent environment in which to find viruses that might turn out to be phages.
- What is **phage therapy**? What are the necessary ingredients and steps in carrying out phage therapy, and what are the intended goals of achieving successful results? In answering these questions, explain why, if phages are so abundant and readily present everywhere, it is so difficult to always achieve success in killing a bacterial infection. In other words, what is the one vital step in the process of phage therapy that decides whether a phage is suitable or not?
- You have already made an illustration of a phage. Now, drawing from your various information sources, create illustrations of the steps a phage goes through in eradicating the destructive power of a bacterial cell.

In the documentary and wherever phages are discussed, the descriptive written and visual language of phage behaviour tends to have a distinct military flavour to it. Comment on this use of imagery and explain why it seems most appropriate. Do you think there might be other ways to show and explain the relationship between a phage and its bacterial 'victim'?

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BELOW: Animation frames of a phage attacking bacteria.





- Using the language of a war story, plan and write a short fiction story about the attack of an army of phage cells on a host of dangerous, invading bacteria.
- Now let us look at the history surrounding the discovery of phages, early experimentation with them, and why all this research seemed to fall out of favour for many decades – until now. When and where were phages found and named, and who were the principal scientists involved? Comment on the early results over a twenty–thirty year period, of phage research and therapy. Explain why Russia (or rather, the USSR, with Russia at its centre), from the 1940s onwards, really became the only part of the medical research world that continued to press on with this method. What kinds of results were the Soviets achieving, and where, specifically, was this therapy carried out? Explain when and why the Western world (mainly Western Europe countries, the United Kingdom and the USA) forgot about, or began to ignore and dismiss, phage therapy in favour of an alternative. Why, and how, was Russia increasingly isolated from the West, behind the 'Iron Curtain', not only in phage development but also in many other areas of life, culture and civilisation? (You may want to look up the Cold War, the Iron Curtain, and the conflicting political ideologies of the era.)
- In the early twentieth century and through to the 1940s, the Western world developed what is known as **antibiotics** – although the nature of antibiotics had already been known, extending back to ancient times. From the program and wider reading, define in your own words the meaning of 'antibiotic'.

Present a short history of the research and development in the early twentieth century, particularly of naturally-occurring antibiotics. Describe what these antibiotics are made up of, or manufactured from, and what their purpose is, in controlling certain types of animal and human diseases. (See 'Antibiotics, including penicillin' in [website references](#).)

- The first highly effective antibiotic used on humans was **penicillin**. What is penicillin, and who discovered and developed it? When and where was it first used extensively? Describe the role in this history, played later by Nobel Prize-winning Australian, Howard Florey. When was penicillin eventually used in hospitals on the general public? Comment on the results researchers were experiencing from their use of antibiotics on humans in those years.
- From the program and elsewhere, carry out relevant research on the history of the use of penicillin from the 1940s, concentrating on the over-prescription of the antibiotic (and other versions of it), the over-zealous use of it, the use of it for illnesses or diseases for which it was not intended, and the abuse of it. When did the medical world come to realise that antibiotics were no longer having the desired beneficial effects on patients, and what were the causes? Was the problem with the antibiotic, or the patient, or the bacteria the antibiotic was supposed to eradicate? What does the term **antibiotic-resistant** mean? How did the medical world and the manufacturers of antibiotics respond to this resistance, and the fact that patients were not recovering from infections, and to try to counteract it?
- Following on from the previous topic of penicillin and the advent of resistance to it, define the meaning of the term, **superbug**. When did this terminology come into vogue?

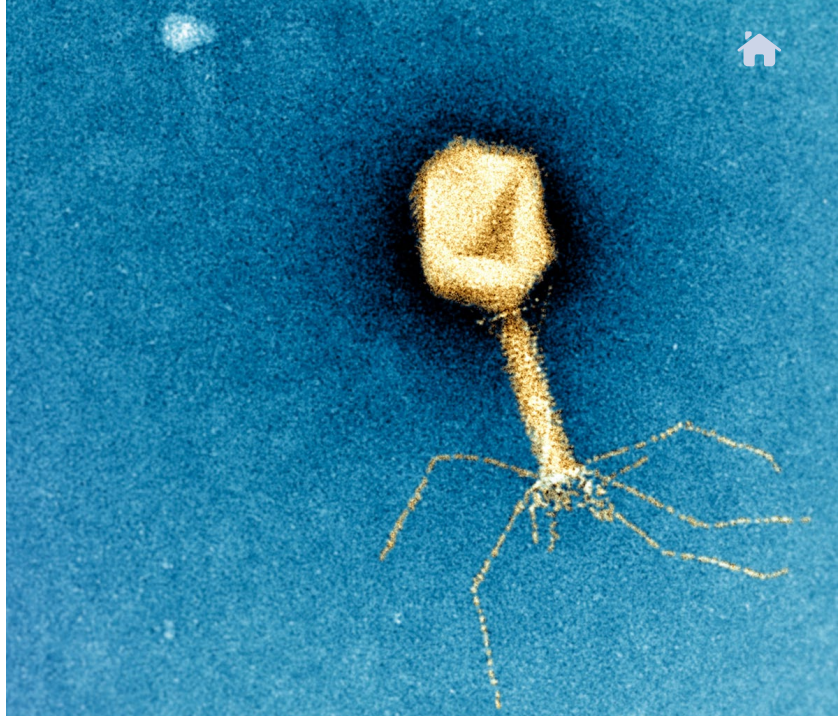
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 ABOVE L–R: Animation frame of a phage attacking bacteria • Phages attacking bacterium. Photo by Dr Jason Roberts, VIDRL Doherty Institute.



What kinds of bacteria are superbugs, how do they behave, and how, or by what process, did they become 'super', or resistant? (See 'Superbugs' in [website references](#).)

Comment on why superbugs have now become very dangerous to human health and life. From the documentary and other research, present some relevant statistics to demonstrate the immediate importance of grappling with this dangerous situation – one of the top ten global public health threats, according to the World Health Organisation. Aside from research into the use of phages to attack superbugs, carry out further research and discuss alternative measures being trialled and researched, such as modified viruses and antibiotics.

- From what you have learnt about antibiotics and superbugs, plan and create a large poster display showing the ways in which antibiotics have been used and abused, the effects on the human body and the ways in which the cycle of bacteria eradication has changed into the existence of the superbug – and what we can do to turn this around. You may use text and lettering, diagrams, statistics and graphs, and illustrations, photographs including of electron microscope images of cellular tissue, to produce your display.
- Plan and write a short story or poem about a superbug, or a family of superbugs over generations, told from one of the superbug's point of view. Give them a name – perhaps Mr, Ms and Mrs Evil. Are they bullies? Do they live to tell another tale? Or are they defeated? Include black and white or colour illustrations as you see fit. (As a starter, for inspiration you might consider viewing some old Mortein cartoon advertisements that featured Louie the fly – see [website references](#).)
- Finally, in this section, let us return to phages, and the historical development of phage therapy. Carry out research to find out more about the practice of phage therapy today in countries formerly belonging to the now-disbanded USSR.



(In website references under 'Phages', go to the last listed address). Also look for internet references to the **Eliava Institute**. What can you find out about the existence of phage hospitals in these countries?

Explain why Western countries have still not completely adopted phage therapy as a fully registered, medical mainstream method of combatting bacterial infection. What are the main concerns, in the West, to embracing this methodology and practice? Where, in the Western world, can patients be treated by phage therapy, provisionally, under highly supervised and registered conditions? What are those conditions? When and where in Australia did phage therapy begin, and why?

Also find out whether Australian researchers, such as those participating on the documentary, are drawing on the work of those practitioners in Eastern Europe.

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FROM ABOVE: Electron microscope image of a phage. Photo by Dr Jason Roberts, VIDRL Doherty Institute • Dr Jessica Sacher, Westmead scientist. Photo by Aaron Smith.



# SCIENTIFIC METHOD

CARRY OUT THE FOLLOWING ACTIVITIES ABOUT THE WAY IN WHICH WE SEE THE AUSTRALIAN MEDICAL RESEARCH TEAMS CARRYING OUT SCIENTIFIC PRACTICE AND METHODOLOGY INTO THE STUDY OF PHAGES, THE BEHAVIOUR AND INTERACTION OF PHAGES WITH BACTERIA, AND THE APPLICATION OF PHAGE THERAPY ON PATIENTS:



- First, we should understand the meaning of the term **scientific method**, its purpose and importance, not only as applied to human health and medicine but in all other fields of science practice and development, such as agriculture and biosecurity, climatology and the environment, botany, computerisation and electronics, engineering, and many other examples. We will then see if we can apply our understanding of the concept to what we can observe throughout the documentary film. (See 'Scientific Method' in [website references](#).)

As a class, carry out an inquiry into defining the meaning of the scientific method in one relatively short statement. Make a written record of the definition for the entire class to follow. In your reading and viewing you will also come across the scientific method mainly as a seven-step process, or perhaps a process in any other number of steps – in effect they are the same; one is more detailed than the other.

Prepare your findings as to what constitutes the scientific method, and then create a poster chart showing the step-by-step processes. If necessary add a written explanation of each step. For example, you will come across the term, 'hypothesis'. Explain what this means. Discuss and explain why it is utterly essential to carry out these steps very carefully, and rigorously. What are the pitfalls and consequences should any researcher, any scientist, not follow the scientific method properly, in any phase of an experiment?

- You may want to carry out some historical research as to why, when and how the concept of the scientific method developed over many centuries. (See the second listed [website reference](#) under 'Scientific Method'.)

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**CLOCKWISE FROM ABOVE: Dr Fernando Gordillo Altamirano. Photo by Ben King • Fernando collecting phage samples. Photo by Ben King • Dr Jessica Sacher, Westmead scientist. Photo by Aaron Smith**





Discuss how the scientific method might be used to debunk certain medical practices of the past which are now considered untenable, such as the application of leeches to cure diseases. Other non-medical examples may be whether the earth is round or flat, and whether it circles around the sun, or whether the sun circles around the earth.

- Carefully go through the documentary, noting examples of where you think the tenets and steps of the scientific method are being practiced by the researchers experimenting on phages and phage therapy, both in the testing laboratory and in hospitals where the patients are being directly treated. Examine, specifically, the development and application of what Dr Fernando Gordillo Altamirano has named, 'Phage Simón' for Ilario, the multi-application of phages for Paul, and the attempts to find a phage for Naomi.
- In extending the research and testing of phages from the laboratory to the 'real test', the experiment that must work – the application of the phages to the patient – two important words are mentioned: *contamination* and *sterility*. Discuss their importance in a medical scenario that could mean either life or death when the phages are administered into the patient.

- Did any of these treatments fail because the scientific method was not properly adhered to? In fact, is it fair to use the word 'fail' when referring to research results and treatment, or is it more advisable and relevant to approach the outcomes of experimentation in terms of a positive or negative test result, in a long, ongoing sequence of trials to find an answer?

In relation to the overarching adherence to the scientific method, discuss Fernando's comment: *We did our best for Ilario. We spent a lot of time, a lot of effort, but it hasn't been wasted. If anything it allows us to be better prepared for what comes next.*

Also take into consideration Dr Jeremy Barr's statement: *... we have learned a huge amount and I really feel that we're going to be a lot faster and better in these next upcoming cases ... This case also gave me a reality check in lots of ways. Phage therapy is hard ... it's really only now that we have the tools we need to understand what we're doing that enables us to do it properly.*

- Rather than repeat them here, for further classroom activities and exercises about the scientific method, note that the writer's

ATOM Study Guide on the documentary film, [Catching Cancer](#) (Genepool Productions 2009), also has a relevant section on this topic.



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**CLOCKWISE TOP LEFT:** Silvia and Enzo Franco at home. Photo by Ben King • Dr Fernando Gordillo Altamirano at the sewerage plant • Naomi Creek looking out for answers. Photo by Aaron Smith.



## THREE CASE STUDIES

THROUGHOUT *LAST CHANCE TO SAVE A LIFE* THE FILMMAKERS FOLLOW THE EXPERIENCES AND FORTUNES OF THREE PEOPLE WITH SUPERBUG BACTERIAL INFECTIONS, HOW EACH OF THEM RESPONDED AND REACTED TO EXPERIMENTAL PHAGE THERAPY, AND WHAT MEDICAL RESEARCHERS AND WE, AS OBSERVERS, MAY HAVE LEARNT. CARRY OUT THE FOLLOWING ACTIVITIES RELATED TO THE THREE PARTICIPANTS.

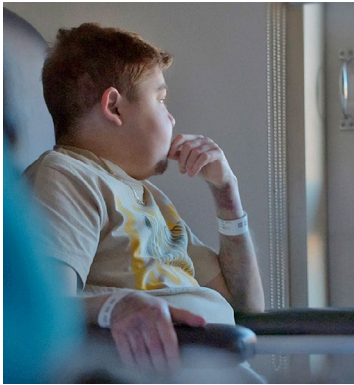
- First, write a short account of the lives of the three participants, and the path they each took towards finding a solution to their infections. Where or how did each of them contract their superbug? Describe the similarities and differences in the effects of infection on each, and the relative way they experienced the search for a therapeutic cure, and the success or otherwise of the procedures prepared for them by their medical teams.



- **NAOMI CREEK**
- **ILARIO FRANCO**
- **PAUL LASZLO**

- We are informed early in the film that the patients selected for phage therapy treatment must have superbug infections that are ‘... life, limb or function-threatening’. ‘Life and limb-threatening’ is easy to understand, but what is meant by ‘function threatening’? Offer an example of this. Explain how each of these three patients fulfil any or all of the criteria.
- In one instance, we see that the typical procedure of applying the phage virus to the patients is to be changed for one of them. As well as the **intravenous** method of application, Ilario is to be administered **nebulised** phage. Explain the difference in meaning between the two methods. Why was the procedure changed – what happened to Ilario’s health that necessitated the second method, and how was this intervention intended to bring about an improvement in his condition?
- Comment, with examples, on the importance of family support at home for each of the three participants as they progress through their respective ordeals.
- Discuss the results of the experimental phage treatment on each of the patients. Why, for example, did Paul have a severe reaction to the treatment, yet recover? Why did Naomi eventually not receive any phage treatment at all? Why did Ilario appear to be in recovery, yet sadly not recover, and pass away?

FROM TOP: Paul Laszlo. Photo by Dave May • Naomi Creek. Photo by Aaron Smith • Ilario Franco in hospital. Photo by Stu Heppel.



- Overall, comment on the inclusion throughout the film, of these three clinical cases in the fight to control superbug infections through phage therapy. Include discussion on the purpose, relevance and importance of personalising and humanising the subject throughout the documentary, in making it relevant to a wide viewing audience. Show how this personalising and humanising can be built into the structure of the film. Look, for example, at the scene featuring Paul's wife, Ann, singing a song she has composed. Note the lyrics – what is the song about? How is it relevant to the themes of the film?

Other scenes to comment on feature Ilario and his desire to get a driving licence, to compose music, and, of course, the shots of his inscribed grave stone, while Naomi is seen saving distressed wildlife in her home on Flinders Island.

Note the way some camera shots of the participants are shot, lit and framed, and the type of accompanying soundtrack mood music, as these stylistic choices also play on how we, the audience, will relate to the subjects.

- Drawing from the film and further viewing and reading, plan and write a short fiction story about someone enduring a superbug infection, taking part in phage therapy, and encountering medical research teams working for your life in the name of science and literally the future of human life. You may use any style or approach you see fit: first or third-person narration, genre, present or past tense, use of narrative flashbacks or flash-forwards, settings and character relationships. Your story may be presented as a series of emails, diary entries, phone conversations, recorded messages, or traditional fiction devices.

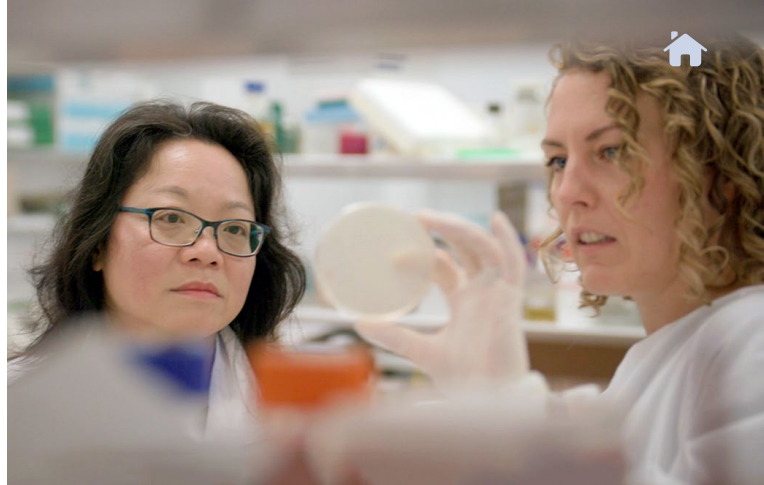


**CLOCKWISE FROM TOP LEFT: Ilario Franco in hospital. Photo by Dale Cochrane • Ilario in hospital with mother Silvia Franco. Photo by Dale Cochrane • Naomi Creek. Photo by Aaron Smith • Paul Laszlo and Ann Palumbo. Photo by Dave May • Silvia and Enzo Franco at home. Photo by Ben King.**



# THE RESEARCH TEAMS

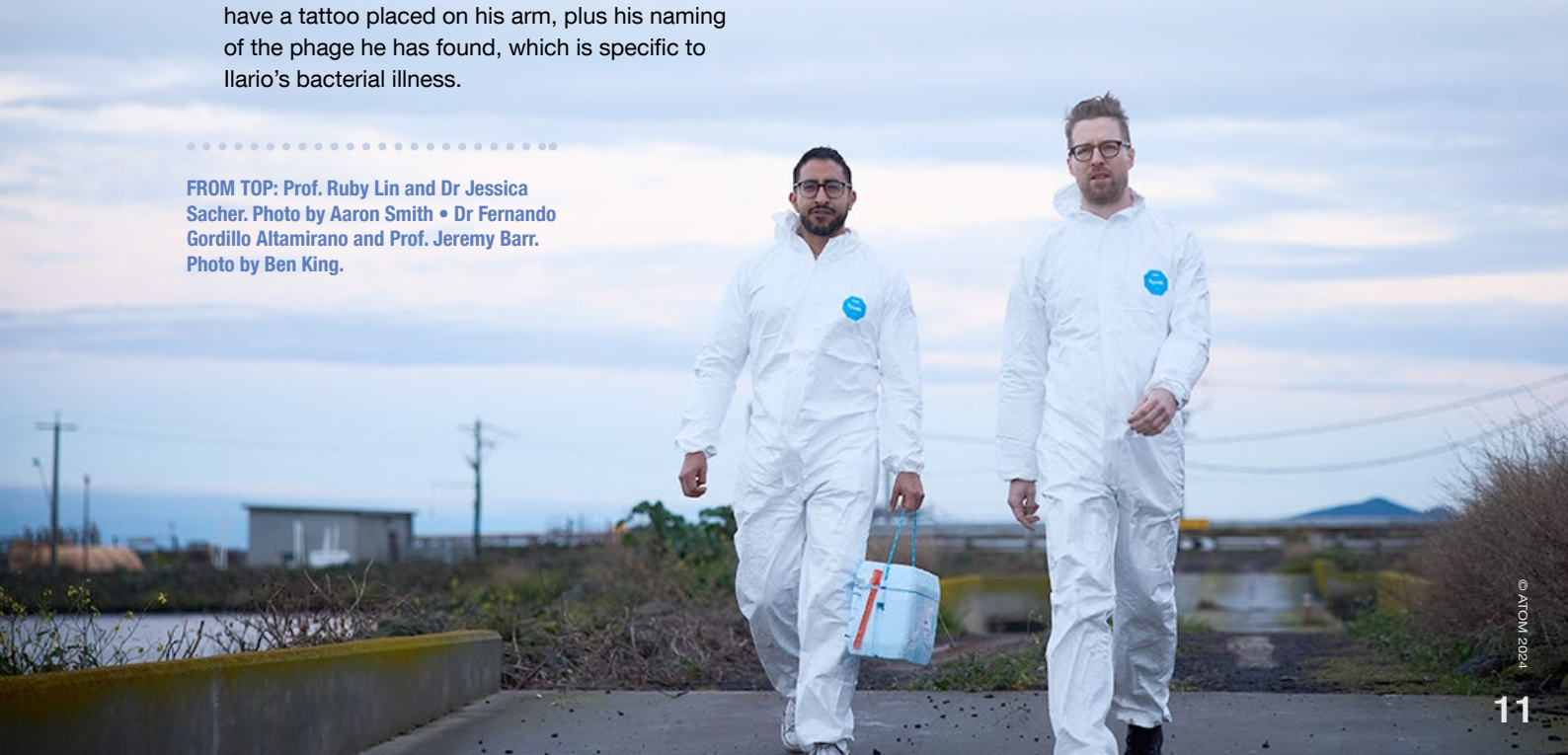
CARRY OUT THE FOLLOWING ACTIVITIES ABOUT THE MEDICAL RESEARCHERS WHO FEATURE THROUGHOUT THE EPISODE:

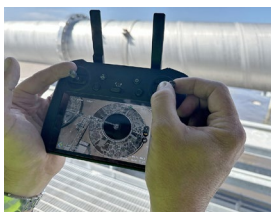


- Write a short account of the research work being carried out by each of the medical experts appearing in the program, and the patients they are hoping to find a cure for. Comment on the commitment they take to their respective tasks, and to the extreme responsibilities and trust placed upon their shoulders.
  - **DOCTOR FERNANDO GORDILLO ALTAMIRANO**
  - **ASSOCIATE PROFESSOR JEREMY BARR**
  - **PROFESSOR ANTON PELEG**
  - **PROFESSOR RUBY LIN**
  - **DOCTOR JESSICA SACHER**
  - **PROFESSOR JON IREDELL**
- There are many moments during the program where we see these practitioners not only as clinical, skilled and knowledgeable professional medical staff but as vulnerable human beings like the rest of us, displaying emotions, worries, fears and concerns in difficult moments as they go about their work. What do these moments bring to the film, and to our appreciation and understanding of the work they are doing? Comment, drawing on scenes depicted throughout the program. For example, note Fernando's decision, and the reasons behind it, to have a tattoo placed on his arm, plus his naming of the phage he has found, which is specific to Ilario's bacterial illness.

- Towards the end of the program, in referring to the phage treatment that cured Paul, Jessica says, 'All of modern medicine could not get rid of it [the superbug infection]. And then this little phage, that we actually know very little about ... got rid of it.' As well, Jon suggests, 'The optimist in me simply says that, wow, this is the magic ingredient. But other physicians may review this story and say, "Well, you know, the combination of the surgery and the antibiotics was different this time", but I don't think so.'
- What do you think they are both saying, on behalf of the other phage scientists, about the future of their research and therapy? Why does Jon refer to potential for a certain scepticism from other physicians to the results? Is the scepticism here a healthy or demoralising response? Such a question brings us back to the general tenets of the scientific method.
- You may also wish to carry out further examination and reading to reach a more informed decision for yourself about the future of phage research. For example, is phage therapy likely to have the potential to overtake and replace other forms of research into eradicating the threat posed by superbugs? Aside from phage therapy, what other contemporary methods of treating superbug infections, are currently being developed and tested?

FROM TOP: Prof. Ruby Lin and Dr Jessica Sacher. Photo by Aaron Smith • Dr Fernando Gordillo Altamirano and Prof. Jeremy Barr. Photo by Ben King.





# ANALYSIS OF A FILM SEQUENCE

CARRY OUT THE FOLLOWING ACTIVITIES ON A SEQUENCE FROM THE FILM:

- View the sequence from [12:41–14:00]. It begins at the Western Treatment Plant, includes animated illustration, voice-over, soundtrack music and sound effects, and live action to-camera ‘talking heads’. First, describe in your own words the ‘story’ being told, and why it finishes without a satisfactory conclusion. What does the final comment, by the voice-over narrator, tell us about everything we have just been seeing, with the known being undermined by the unknown?

- Visually, the entire sequence – the way in which some scenes meld or dissolve into the scenes following them – is extraordinary, forming a visual pattern of connections. Comment on how this occurs through the use of extreme high-angle distance shots, in combination with close-up shots, and camera movement. Take into account the role and purpose of the accompanying soundtrack music in creating and sustaining a soundscape mood for the viewer.
- Following on from the previous questions, comment on the otherworldly, science fiction, futuristic ambience of the sequence. What, for instance, do you think the sewerage treatment plant looks like as seen and framed from high above? How does the microscope image and the animated scene of the phage movement and activity elaborate on these impressions, and why do you think special sound effects have been added to compound these strange sensations of a different, unknown world?



CLOCKWISE TOP LEFT: Drone remote. Photo by Emma Watts • Director Emma Watts on location • Producer Sonya Pemberton and Emma on set. Photo by Dave May • Interview with Dr Fernando Gordillo Altamirano. Photo by Emma Watts • Crew filming on Flinders Island. Photo by Aaron Smith.



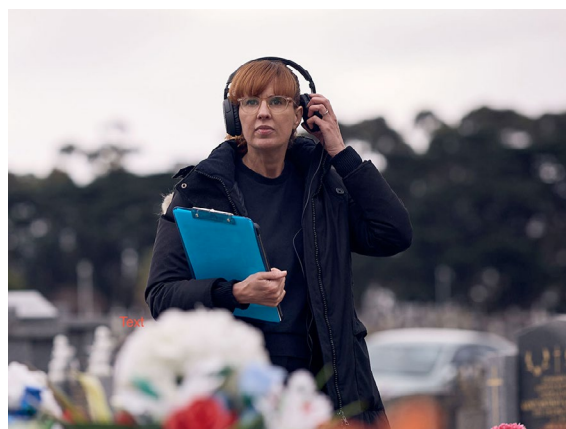
Are those sound effects relevant and even redundant if they are not an accurate depiction of real-life reality? How, in fact, is a phage depicted, and how does it behave, in these animated scenes? Is it an accurate impression, or not? You may be able to make more than one, deliberate visual analogy, if you look very closely at the imagery. Think, for example, of *War of the Worlds* and other, similar movies you may have seen.

- As both an entertainment and learning experience, discuss whether the animated scenes in this sequence had any impact on your appreciation, awareness and understanding of what phages are and what they do. What might have been the learning experience if we, as viewers, had only seen and heard the spoken words of the two research scientists in the sequence? From a purely subjective view, would it have been as interesting, and entertaining, without the animation? Comment on the presence of the two scientists as trusted authority figures throughout the sequence.

Do the animated visuals complement the presence and narration of the two on-camera participants? You may wish to view the sequence with the sound muted, then listen to the sequence without looking at the visuals, and then record your reactions to both; it is possible you may have two distinct, and different reactions.

- The questions posed in the previous activity about this sequence of the film raise the overarching issue of the position of the filmmakers themselves. Discuss the role of the filmmakers in bringing the intricacies of medical science, in this case phage therapy, to the notice of the general public. For example, consider the issues involved in the application of specialist, medical jargon to a documentary film. Consider the requirement to humanise rather than to dwell on research data statistics.

FROM TOP: Cameraman Dale Cochrane filming Prof. Jeremy Barr preparing the phages. Photo by Emma Watts • Director Emma Watts on location. Photo by Ben King.



## CONCLUSIONS

CARRY OUT THE FOLLOWING ACTIVITIES DERIVED FROM YOUR VIEWING OF *LAST CHANCE TO SAVE A LIFE*.

- Discuss why the producers considered that *Last Chance to Save a Life* was a suitable title for the documentary. If you were asked to give the series an alternative title, what would you call it, and why?
- What have you learnt, or realised, or come to appreciate from your viewing of *Last Chance to Save a Life* which you had not known or appreciated before? Discuss the overall impression you gained as to whether the film depicts and argues a positive future for the development of phage therapy over the next few decades. Provide some evidence or examples from the film to support your view.
- Working in pairs plan and construct a scripted storyboard for a thirty-second promotional video about *Last Chance to Save a Life*, designed for television screening. In groups you may then wish to produce, record and edit your promo. Consider your use of text captions, sound and film 'grabs' of visual content, music, sound effects and dialogue to tie it all together into a cohesive, effective advertising message.
- Plan and write a review in 250-300 words of *Last Chance to Save a Life*, for the general arts review pages of a daily or weekly national newspaper.

# REFERENCES AND FURTHER RESOURCES

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- Note that there are many references and videos on the internet about the scientific method, aimed at various audiences. The videos in particular seem different from each other, but at heart they examine the same basic concepts, using different material as examples. Students are advised to find and view these for themselves. Below is a brief sample.  
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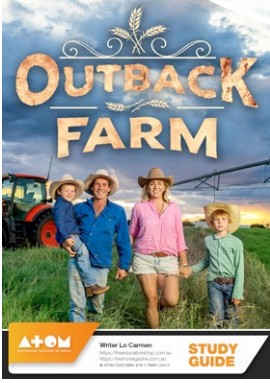
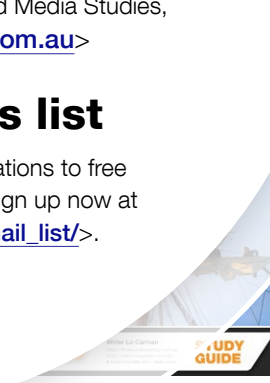
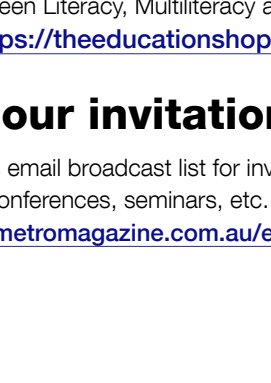
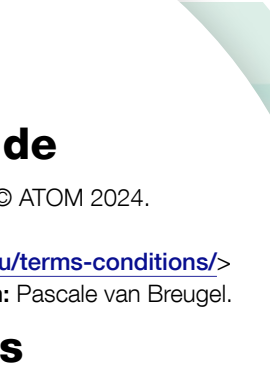
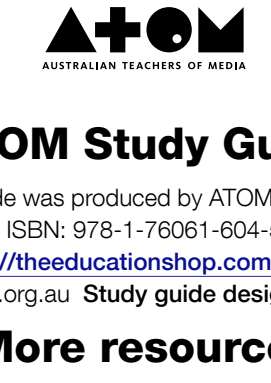
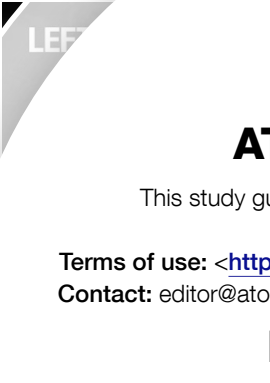
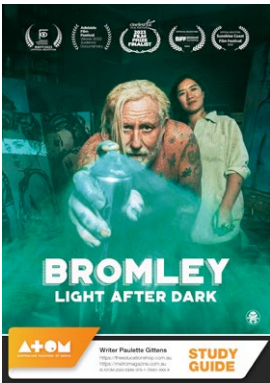
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