

## CAREERS IN STEM WEBINARS

**ROLE MODEL SERIES** – Giving students the opportunity to meet Australian scientists and engineers



### Associate Professor Roslyn Hickson

*Using math to solve real world problems?*

25 November – 2.00pm (AEDT)

Read this article on [R and K numbers](#).

What R number do we need to stay below keep an outbreak under control?

How can these factors influence spread?

- Being infectious but not showing symptoms (asymptomatic)?
- A person's social life

How is a K value different to an R value?

What is the target K number for COVID-19?

How can K values inform governments in the later stages of the pandemic?

What is the target K number for COVID-19?

This next site looks at [forecasting cases of COVID-19 for Australia](#)  
**Have a look at the forecasts for two different states, say Victoria and the ACT.**  
 Adjust the Case fatality ratio in each. When do they show close to 100% detection?

Now look at the growth rates. Why do you think they are represented by a log scale?

**Compare WA, Victoria, NT and NSW.**

Which state has had the worst growth trajectory at any time (since it's first 100 cases)?

Which state is doing the best at flattening the curve?

Which state has had the greatest variation in its growth rate in the last month?

**Try other state combinations to see how they differ.**

This website has a tool that [models for Malaria](#) and the difference diagnosis and treatment can make.

Take a look at the costs for diagnosis and treatment in: [Bangladesh](#) [Colombia](#) [Ethiopia](#) [Papua New Guinea](#)  
 Where can you see the biggest variation in costs?

Which country is the most expensive? What might contribute to these costs?

Pick another country and move some of the sliders in the assumptions. Which ones have the biggest effect on reducing the costs?

If you were an advisor, where would you want to invest a country's money (based on these figures)?

If you want to know more, [this article](#) has more information on how diseases spread, including R and K factors.

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