How would you feel if you came across this sign? Would you be crossing your fingers that nothing bad happened? This feeling is common for half of the world's population who live in rural areas but are served by just a quarter of the world's doctors. In Australia rural doctor shortages contribute to the fact that our rural populations have a higher prevalence of disease, greater rates of preventable death, and a life expectancy 10 years lower than our urban populations.

People who live in the Loddon Mallee region of Victoria have the highest obesity, the highest cancer incidence, and the lowest life expectancy of the state. A key step to improving the health outcomes of Loddon Mallee populations is to improve their access to doctors. Now, a strong research base shows that the most sustainable way to do this is to enrol medical students from the Loddon Mallee region and train them in the Loddon Mallee region, as this makes it highly likely that they will return to the region as doctors.

Fortunately, Monash university already has a program in place to enrol and train Loddon Mallee medical students. This is called the extended rural cohort. However, there is one problem: not enough Loddon Mallee students are applying. Now a key step to improving Loddon Mallee students’ interest and fixing the rural doctor shortages in the Loddon Mallee region is to figure out what is associated with interest in a medical career for these students. So far, we know that academic achievement, distance, and cost have been significant barriers for rural students in the past.

However, now Monash has put numerous programs in place to address structural barriers, and yet the extended rural cohort remains undersubscribed, suggesting that there may be more factors at play. Other research suggests that exposures to the medical field may be associated with interest. Across all the existing literature, and there were four key exposures to the medical field. These were: doing medical work; experience and watching or reading medical fiction; having a doctor as a family member or friend; and having experiences of illness.

However, none of this research has been specific to a rural cohort, let alone Loddon Mallee students, despite the desperate need to increase their interest and applications. Therefore, my research focused on how exposures to the medical field are associated with interest in a medical career for Loddon Mallee students. This study was quantitative and cross-sectional.

A survey was used to collect all the data at once. This was cost effective, relevant to the time restrictions of the study, and enabled a region-wide sample. The survey was piloted with 15 year 10 students from Bendigo to ensure its clarity and flow. All 28 secondary schools in the Loddon Mallee region were invited to participate. VCE coordinators at participating schools distributed the explanatory statement and Google Forms survey to their year 11 and year 12 students via email.

The proposed sample consisted only of students studying at least two mathematic science subjects Sampling an entire cohort, including those pursuing arts and humanities, may have provided results which were too generic to inform the enrolment of the students actually eligible for selection into a medical career. Now, as mathematics and science are compulsory subjects for all students in year 10 and younger, they were not included in the study as it couldn't be determined who was studying the precursor subjects to medicine.

Informed consent was ensured in the first survey question and no personally identifiable information was collected from the participants. The four key exposures to the medical field were measured with multiple choice questions, and interest in a medical career was measured on a five-point Likert scale, categorized into a binary measure – interested and not interested – for ease of data analysis. The data was analysed in Microsoft Excel and chi-squared tests were used to determine and whether the association between exposures and interest was statistically significant. So, if the Chi scored value was less than 0.05 this was considered significant, as I gave 95 percent confidence the association was true.

However, if the Chi-squared value was less than 0.001, this was considered very significant, as I gave 99.9% confidence. The association was true so 11 of the 28 schools participated, 657 students completed the survey, of which 436 are Year 11 or year 12 mathematics science students. Within the sample females and students at catholic and independent schools were over-represented. Overall, 65 of students were interested in a medical career these students were very significantly more likely to be female than male, and significantly more likely to be from regional centres than small towns. So doing medical work experience was very significantly associated with interest.

Approximately 20 percent of students had completed medical work experience but these students were significantly more likely to be from regional centres than small towns. Watching and reading medical fiction was also very significant. Approximately 60% of students had read and 75% had watched medical fiction, but this exposure was very significantly more common among females rather than males.

Now having a doctor as a family member or friend, nor having experiences of illness of any intensity, were significant, although experiences of illness were common in the study cohort. So, at the moment every Loddon Mallee student's access to medical work experience is reliant on their individual school's connections to local providers.

But this may not deliver sufficient opportunities for Loddon Mallee students particularly those in small towns. Therefore, a strong intervention from Monash University to strengthen interest from Loddon Mallee students will be to ensure that every student can access medical work experience no matter where they live. Now while watching or reading medical fiction was very significant it should be noted that they do not often accurately portray a real medical career.

They're commonly romanticised and dramatized and set in large tertiary hospitals with a focus on specialty care. This is not the picture of rural medicine therefore it may be important to connect these students with medical work experience to ground their interest in a rural medical career. Now having a doctor as a family member or friend was not significant, and this is supported by some existing literature. For example, a study by Moberly found that only 1 in 10 doctors would recommend a medical career to a family member or friend which is likely to disinterest students.

Also, as students are increasingly prioritising work-life balance in their career choices, the long and unpredictable working hours of their doctor family member or friend may discourage them. Now as these working hours are far more common among rural rather than urban doctors this may be a reason that my results are not in agreement with other research that has sampled an urban cohort.

Overall, the results this finding suggests that: One, I should target students both with and without a doctor as a family member or friend equally. Finally having experiences of illness, no experiences of illness of any intensity were significant. However, as they were common, Monash could potentially reach a wide range of students by putting up posters in GP clinics and hospitals as well as in schools detailing available medical work experience, and even opportunities to enroll in the extended rural cohort.

Now with regard to limitations my study was only cross-sectional not longitudinal, so it couldn't be determined whether exposures caused interest, only that they were associated. Also given the scope of the study I couldn't measure actual application to study medicine, only interest. But this could be an area for further research.

Overall, the results suggest that if Monash could improve the accessibility of medical work experience, particularly in small towns, to complement the consumption of medical fiction, this may strengthen interest from Loddon Mallee students and increase their applications to the extended rural cohort. Over time, this may improve the supply of graduate doctors to the Loddon Mallee region which is an absolutely critical step in improving the health outcomes of the Loddon Mallee population. Thank you.

[Applause]

Thanks Eliza I hope Monash get you on staff very soon .We're so, I mean we take for granted having such immediate access to medical care, I found this such a thoughtful and important piece of research with really practical applications. Having completed it now though what areas would you like to investigate next, is this something you want to delve more into?

Yeah absolutely, um so I've disseminated my findings to Monash and I'm going to present to their school of rural health, and hopefully my research findings can have practical application, and they can work with schools and doctors in the Loddon Mallee region to start doing things like improving the accessibility of medical work experience, and it'd be great to go back and look at this again. Have we, if we put some initiatives in and see, have interest levels changed? Have application levels changed? And that's certainly something I'd be interested in doing in the future.

Thanks Eliza that's truly life-changing.

[Applause]

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