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## LETTER TO THE EDITOR

### End of an Era: Methods for Microbiology Laboratories Dealing with Experienced Staff Retirements

Ryan Hopprich<sup>1,\*</sup> and Joanna Hopprich<sup>1</sup>

<sup>1</sup>*Microbiology and Infectious Diseases, SA Pathology, Adelaide, South Australia, Australia*

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#### Dear Editor,

We are writing about the ongoing issue of experienced staff retiring from the profession and the resulting knowledge gap in microbiology. This issue is not unique to our profession, but it is one that has the potential to have a significant impact on the progress of research, patient care, and the development of new treatments and technologies.

Like many countries, Australia is facing the issue of an aging population; it is becoming increasingly common for experienced staff members to retire from their positions. This is especially true in microbiology, where many clinical technicians and scientists have dedicated their entire careers to the vocation. The loss of these individuals represents not only a reduction of expertise but also a deficit of institutional memory, including a shortfall in generational knowledge accumulation and the valuable connections and networks individuals have built over many years.

The knowledge gap left behind as experienced staff retires can be particularly detrimental to an organisation, especially for the remaining staff. As those working in the field are aware, microorganisms are incredibly diverse and complex, and it takes years of study and practical laboratory experience to fully understand their behaviour and interactions. Without experienced staff members to guide and mentor younger staff, it can be difficult for new technicians and scientists to gain the knowledge and skills they need to make meaningful contributions to the field. This can lead to a slowing of progress and a lack of innovation, which ultimately harms the advancement of the profession.

One commonly suggested solution is to invest in mentorship and training programs for younger or inexperienced microbiology professionals. These programs can provide new scientists and technicians with the guidance and support they

need to gain the knowledge and skills required to succeed in the field. Additionally, it would be beneficial to create opportunities for experienced staff members to continue to be involved in the field in some capacity, whether it be through consulting or teaching and mentoring roles, potentially in a reduced-hour situation, whichever work for individuals. For the full value of these learning opportunities to be harnessed, dedicated time and resources must be set aside by the organisation.

Another potential response is to focus on intergenerational teamwork and formal group learning sessions, where experienced staff members can share their knowledge and expertise with their colleagues. This can be achieved through regular seminars, journal clubs, workshops, and training sessions or through the creation of cross-generational teams to collaborate on specific projects. This could ensure that the knowledge and expertise of experienced staff members are passed on to the next generation. Having an experienced staff member dedicated to training is another method to ensure that the wealth of knowledge accumulated over the years is not lost the moment senior staff members walk out the door. Professional development is a key driver to ensure that newer, inexperienced staff can upscale their skill and knowledge base rapidly to allow them to quickly start filling the gaps left by retiring experienced staff members.

Finally, one of the best potential ways to address the knowledge gap is by investing in new technologies that can help to automate and streamline certain aspects of clinical work. This can help to reduce the reliance on human expertise and make it possible for less experienced clinical laboratory staff to make meaningful contributions to the field. It is critically important, however, that the fundamentals of microbiology are not lost to automation and that the science behind each new advancement is clearly understood by staff. Too often, we witness new developments in technology, which newer, younger staff quickly become adept at, but basic bench tests are not integrated as part of the required teachings. In the

\* Address correspondence to this author at the Microbiology and Infectious Diseases, SA Pathology, Adelaide, South Australia, Australia;  
E-mail: [ryan.hopprich@sa.gov.au](mailto:ryan.hopprich@sa.gov.au)

instances where technology or automation fails or requires downtime due to maintenance, it is not uncommon to observe new and inexperienced staff unable to continue, their problem-solving skills suffering due to over-reliance on technology. A balance is required between embracing new technologies and maintaining core microbiology skill sets.

## CONCLUSION

To conclude, the issue of experienced staff members retiring and the resulting knowledge gap is a significant concern for microbiology. However, solutions can help mitigate the effects of this issue, including mentorship and training programs, intergenerational teamwork, and investment

in new technologies. Organisations, management, and the microbiology field as a whole must continue to take this issue seriously and take steps to address it in order to ensure that the profession continues to progress and make meaningful contributions to human health.

## CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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Declared none.

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