Evaluating the impact of the Lions Outback Vision mobile ophthalmology service

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Populations residing in rural and remote areas of Australia suffer poorer outcomes in eye health compared with their urban counterparts.[1,2] The challenges of providing eye health services to these rural and remote communities are well documented.[3] One way Lions Outback Vision has aimed to address the challenges of providing rural patients with quality eye care is through the Lions Outback Vision Van (LOVV), a mobile eye health unit launched in 2016 that provides comprehensive ophthalmology services across rural and remote Western Australia. It consists of three consulting rooms with specialist equipment equivalent to a tertiary hospital eye clinic. Sixteen regional towns are visited at least twice per year, traveling up to 25,000 kilometres in total. The LOVV augments existing outreach services of Lions Outback Vision that include outreach specialist and optometry clinics, diabetic retinopathy screening and telehealth consultations.

To evaluate the impact of the LOVV in its inaugural year of operation, outcomes before and after its implementation were compared. These include service coverage, equipment availability and ophthalmological use of the Patient Assisted Transfer Scheme (PATS) which provides a subsidy towards the cost of travel and accommodation for urban transfers when outreach services are not available. A case-study from Derby (a remote town 2400km from Perth by road) also investigated comparative outcomes in further detail.

Across sixteen towns, outreach clinic days increased from 107 to 152 (42 %) and outreach ophthalmology consultations increased from 2341 to 2837 (21.2%) from 2015 to 2016. Of the 14 pieces of specialist ophthalmological equipment available on the LOVV, 7 were previously not available at any of the 16 regional locations. In 2016, 7086 ophthalmological related PATS claims were made across WA travelling 3.38 million kilometres and costing the government $1.6 million. This was significantly lower than the predicted interval of 1.8-2.26 million (95% PI) expected from the trend of the previous three years.

The impact of the LOVV was highlighted in the case-study of Derby in the Kimberley, a remote town of 3325 residents with 47.2% identifying as Aboriginal or Torres

Strait Islander. Patient attendance increased from 50.7% (101 out of 199 referred patients) in 2015 to 67.9% (146 out of 215 referred patients) in 2016. This demonstrated a significant increase in the odds of a patient attending the Lions Outback Vision Van compared with previous outreach clinics (OR=2.05, CI (95%) 1.38-3.06, p= 0.0004). Patient attendance compares favourably to previous outreach clinics, with attendance across 17 AMS sites averaging 49%. [4] The number of patient referrals to sites outside of Derby for eye care decreased after implementation of the LOVV to 6 transfers compared to 16 in previous year(OR=4.39, CI (95%) 1.66-11.66, p= 0.003). Equipment that was previously unavailable was used 118 times on the LOVV in Derby. This primarily consisted of uptake in the utilisation of optical coherence tomography, visual fields and biometry for intraocular lens measurements pre-operatively.

The LOVV has improved regional ophthalmology service delivery in Western Australia by increasing specialist outreach availability and access to equipment while saving government expenditure on patient travel. To extend the evaluation, long-term assessment including patient health outcomes may demonstrate impact beyond the inaugural year.

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