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The PEN Fa'aSamoa Initiative: An Integrated Platform for Hearing and Vision Screening in Samoa

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Background

Global efforts are underway to reduce hearing and vision disorders worldwide, especially those due to avoidable causes among children living in low and middle-income nations.[1,2] The strategies recommended by the World Health Organization (WHO) Prevention of Deafness and Blindness Division are comprehensive, and include addressing medical causes such as otitis media and trachoma, as well as implementing public health measures such as routine childhood immunization programs, improved general health and nutrition, and upgrades in environmental health and living standards. Given the well-known adverse effects of hearing and vision disorders on speech, language, literacy and learning development, school-based health screening programs are further recommended to enable early intervention and optimal management for any hearing and vision concerns identified.

The Pacific Islands have among the highest levels of hearing and vision disorders in the world. Under the Sustainable Development Goal (SDG) Agenda for 2015 to 2030, Pacific Island nations are currently engaged with both local and international stakeholders to achieve "Good Health & Well-Being" (SDG3) and "Quality Education" (SDG4). This framework presents a platform for the implementation of initiatives aimed at addressing hearing and vision difficulties in children as early as possible to optimize their general health and educational outcomes.

A major challenge for the Pacific Islands is that hearing and vision health professionals are in general extremely scarce.[3] Hearing and vision health advocates must therefore consider the ethical implications of promoting hearing and vision screening in a context where follow-up services may be absent. Ear, Nose and Throat (ENT), audiology and ophthalmology services are limited but evolving in the Pacific Island nation of Samoa: however, the inclusion of hearing and vision screening in the national PEN Fa'aSamoa Initiative should satisfy the screening principles of screening test and intervention availability, as well as the implementation of screening within a complete program of the over-arching health system.[4]

The ENT Department is the only health service representative on the Inclusive Education Working Group of the Ministry of Education, Sports and Culture, and as such is mindful of all healthcare services that would benefit the students of Samoa. To illustrate our proposal for hearing and vision screening in Samoa, we present the benefits of mobile technology for school-based health services under the PEN Fa'aSamoa Initiative. The multistakeholder integrated health approach aligns with the task-sharing philosophy of integration of hearing and vision services into universal healthcare coverage.

Ethics Approval and Informed Consent Statements

Ethics approval was sought from the Health Research Ethical Committee of the Government of Samoa

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Ministry of Health. We were advised that ethical approval was not required for a perspective article.

Informed consent was not applicable for this perspective article.

The PEN Fa'aSamoa Initiative

The PEN Fa'aSamoa Initiative is adapted from the WHO Package of Essential Non-Communicable Disease Interventions for Primary Health Care in Low-Resource Settings for the Samoan context. At this time, the school-based component of PEN Fa'aSamoa is focused on assessing the nutritional status of primary school students. During the Annual Health Forum of Samoa in December 2021, the PEN Fa'aSamoa Division issued an invitation to all health professionals to explore the option of participating in the PEN Fa'aSamoa Initiative. The ENT Department has seized the opportunity to investigate the feasibility of school-based hearing screening within a major national public health program. Given our role on the Inclusive Education Working Group, we would advocate for the integration of both hearing and vision screening.

PEN Fa'aSamoa: A Potential Platform for National School-Based Hearing and Vision Screening

Current development theory frameworks have shifted from "capacity-building" to "capacity-development." Rather than implementing new initiatives in isolation, this theory promotes the development or expansion of established programs. From this perspective, integrating hearing and vision screening into the existing PEN Fa'aSamoa School Program is a welcome proposal, and one that the ENT Department may advocate as the health representative on the Inclusive Education Working Group. Integration with PEN Fa'aSamoa answers our concerns regarding referral pathways from screening through to review by hearing and vision professionals: there is already an established referral pathway from school screening to primary health care providers, who may subsequently refer to the ENT and Ophthalmology Departments of the national referral Tupua Tamasese Meaole (TTM) Hospital if deemed necessary.

To achieve national hearing and vision screening of primary school students within the PEN Fa'aSamoa Initiative, implementation may consist of the following 4 stages described below:

1. ***Procurement of mobile technology for combined hearing and vision screening.*** This model of health screening service delivery is promoted by the WHO World Report on Hearing, and has proved effective in low and middle-income country settings where, similar to Samoa, there is a shortage of qualified hearing and vision health professionals, and where the greatest burden of hearing and vision disorders is found among underserved rural and remote communities.[5-10] While the literature for combined hearing and vision school screening programs is limited at this time, the potential benefits of such programs using mHealth technology have been demonstrated.[11] The use of a mobile application coupled with calibrated headphones can enable task-shifting to community health workers and facilitate hearing and vision screening on a mobile device (ie, phone, tablet, etc.). These mobile applications include monitoring for noise compliance to ensure suitability for hearing screening in community settings (ie, quiet classroom, community hall, office), and involve consistent and accurate measurement of decibel levels across the relevant frequency range.[5,12-14]
2. ***A pilot study by the ENT and Ophthalmology Departments using the mHealth screening technologies***. The specialists will accompany PEN Fa'aSamoa staff members and community health workers on their school visits to assess the students using the screening technologies. Although hearing and vision screening mobile applications have been field-tested and validated,[15-22] the pilot study will inform recommendations for the Samoan hearing and vision screening protocol to ensure maximum capture rates of children requiring referral to primary and/or specialist services, while also maintaining acceptable and manageable referral rates. (N.B. Research studies to date do not report sensitivity or specificity rates for hearing and/or vision school screening).[11]
3. ***Training of community health workers for hearing and vision screening.*** Formal training and accreditation will support community health workers to perform basic ear and eye examinations with greater skill and confidence, alongside new skills to facilitate hearing and vision screening using mHealth technologies. The training will be provided by the ENT/Audiology and Ophthalmology Department staff members to encourage engagement and consultation within and across working relationships between all members of the program. Formal recognition of newly acquired skills, as well as potential increase in renumeration, may be required to ensure retaining necessary human resources.

4. ***Monitoring and evaluation.*** The Ministry of Health in Samoa is currently in the process of creating the position of a Research Lead, and the successful candidate will oversee the monitoring and evaluation of all ministry health programs. For the proposed hearing and vision screening program, monitoring and evaluation activities should review the whole program, from school-based screening to further care by primary and/or hospital-based health care. Access to specialist services may be difficult for students living in rural/remote areas (ie, transport difficulties, logistics). Therefore, a major strategy for the referral pathway is to schedule community outreach visits. Where referrals for further hearing and vision management are high, a cost-benefit analysis may demonstrate that specialist outreach visits are justified.

Conclusion

The implementation of school-based hearing and vision screening should be a welcome proposal for Samoa under the PEN Fa'aSamoa Initiative. Similar options should be investigated by other Pacific Island countries who also bear a high burden of hearing and vision disorders.

Author Contributions

AK drafted the manuscript. DWS and SP provided feedback. AK revised accordingly.

Declaration of Conflicting Interests

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Ethical Statement

N/A for "Perspective" article.

Ethical Approval

Not applicable.

Written Consent

Consent not applicable.

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