


RESEARCH ARTICLE

Adapting and translating the ‘Hep B Story’ App the right way: A transferable toolkit to develop health resources with, and for, Aboriginal people

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Abstract

Issue Addressed: In 2014 the ‘Hep B Story App’, the first hepatitis B educational app in an Aboriginal language was released. Subsequently, in 2018, it was assessed and adapted before translation into an additional 10 Aboriginal languages. The translation process developed iteratively into a model that may be applied when creating any health resource in Aboriginal languages.

Methods: The adaptation and translation of the ‘Hep B Story’ followed a tailored participatory action research (PAR) process involving crucial steps such as extensive community consultation, adaptation of the original material, forward and back translation of the script, content accuracy verification, voiceover recording, and thorough review before the publication of the new version.

Results: Iterative PAR cycles shaped the translation process, leading to a refined model applicable to creating health resources in any Aboriginal language. The community-wide consultation yielded widespread chronic hepatitis B education, prompting participants to share the story within their families, advocating for hepatitis B check-ups. The project offered numerous insights and lessons, such as the significance of allocating sufficient time and resources to undertake the process. Additionally, it highlighted the importance of implementing flexible work arrangements and eliminating barriers to work for the translators.

Conclusions: Through our extensive work across the Northern Territory, we produced an educational tool for Aboriginal people in their preferred languages and developed a translation model to create resources for different cultural and linguistic groups.

Abbreviations: CHB, chronic hepatitis B; HBV, hepatitis B virus; PAR, participatory action research.

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So What? This translation model provides a rigorous, transferable method for creating accurate health resources for culturally and linguistically diverse populations.

KEYWORDS

Aboriginal and Torres Strait Islander peoples, chronic hepatitis B, education, health equity, health literacy, health promotion, health resources, translation

1 | BACKGROUND

Chronic Hepatitis B (CHB) is a global public health issue affecting over 290 million people,¹ which, if left untreated, can lead to cirrhosis and liver cancer. In Australia, in 2020, an estimated 222 559 people were living with CHB.² Hepatitis B (HBV) Prevalence in the Northern Territory is 1.84%, the highest in Australia, and Aboriginal and Torres Strait Islander people are disproportionately affected, with 6% prevalence.²⁻⁴ This disparity is due to various factors, including socio-economic disadvantage, lack of access to health care services and language barriers.⁵

Effective clinical management can reduce the risk of developing liver cancer and associated liver mortality in people with CHB, provided patients are diagnosed in the early stages of CHB.⁶ Poor access to clinical care among people living with CHB is a significant barrier to reducing hepatitis B virus (HBV) related morbidity and mortality. Only 73% of people living with CHB are aware of their infection in Australia, and only 22.6% are engaged in care.² One explanation for the dearth of clinical care is the lack of knowledge about the virus among people living with, or at greater risk of, CHB.⁷

CHB health literacy among patients, health care providers, and community members has been continually found to be poor.^{8,9} Low CHB literacy and inadequate communication between health service providers and Aboriginal and Torres Strait Islander people may also result in less comprehensive CHB treatment and contribute to the difference in fatality rates due to liver disease or liver cancer.¹⁰ Services need to be tailored to the needs of Aboriginal and Torres Strait Islander people, particularly in the Northern Territory, where there is considerable cultural and linguistic diversity among Aboriginal and Torres Strait Islander groups. With more than 100 languages and dialects spoken in the Northern Territory, all the languages vary significantly in their grammatical structure, concepts and vocabulary.¹¹ Responsibility is on service providers to design holistic strategies that are appropriately tailored to these groups; Hajarizadeh et al. have reported that in Australia, to improve knowledge, the focus should be on people with low levels of educational attainment and whose first language is not English.¹² Language is fundamental to Aboriginal and Torres Strait Islander culture and identity, benefiting individual well-being and health.¹³ The state of Indigenous languages is critical in Australia, with all of Australia's Aboriginal and Torres Strait Islander languages under threat. Before colonisation, more than 250 Aboriginal and Torres Strait Islander languages existed.¹³ Unfortunately, many Aboriginal and Torres Strait Islander languages have been lost because, up until the 1970s, harsh government policies have suppressed languages.¹⁴

Aboriginal and Torres Strait Islander people were discouraged from speaking their languages, and punishments were imposed on those who did.¹⁴ The forced removal of children from their parents due to one such policy has had long-lasting consequences on the 'Stolen Generation's' ability to pass on Aboriginal and Torres Strait Islander languages. Of the 141 Aboriginal and Torres Strait Islander languages still in use, only 12 are considered strong, nine of which are Northern Territory languages.¹³ Speaking language is vital for the well-being of Aboriginal and Torres Strait Islander people. Aboriginal and Torres Strait Islander languages have carried dreaming stories, song lines, and knowledge from generation to generation for thousands of years. When a language is no longer spoken, it disconnects people from their past.¹³ Knowledge, tradition, and culture become harder to express and pass on with language loss. However, many Aboriginal and Torres Strait Islander people have excellent language skills that are not adequately valued or used; this makes their role in the survival of their language vital. We have previously reported that having an educational tool in a patient's first language is crucial in developing treatment partnerships for Aboriginal and Torres Strait Islander patients with CHB.⁸ The availability of CHB education in a patient's preferred language will improve health literacy and contribute to developing shared understandings between health providers and those living with CHB.

In 2014, the Menzies hepatitis B team released the 'Hep B Story', the first CHB educational app in an Aboriginal language. The original version of the 'Hep B Story' app was created with community members in English and Yolŋu Matha using participatory action research (PAR) methods.⁸ It improved CHB-related knowledge and was positively evaluated by users.⁹

Following the original app's success, in 2018, 10 additional Aboriginal languages were selected for translation of the 'Hep B Story' (Table 1). These languages were selected based on the number of speakers^{11,15,16} and the areas of the Northern Territory that had a greater need for information due to the prevalence of CHB.² Due to the study's location in the Northern Territory of Australia, the predominant population primarily identifies as Aboriginal, and consequently, no Torres Strait Islander languages were chosen for translation. Henceforth, the term 'Aboriginal' will be employed with due respect, acknowledging that the project did not engage in consultations or language translations with any Torres Strait Islander language groups. The choice of these languages ensured that 70% of the Northern Territory Aboriginal population would have access to the information in their first language.

Using PAR methodology, the translation process developed iteratively and evolved into a model that may be applied when creating

TABLE 1 Aboriginal Languages selected for translation.^{11,15,16}

Language	No. of speakers	Region of Northern Territory
Kriol	20 000	Katherine
Yolŋu Matha	6806	East Arnhem
Arrernte	5475	Alice Springs
Murrinh-Patha	3100	Wadeye
Pitjantjatjara	3000	Western Desert
Warlpiri	2509	Central
Tiwi	2102	Tiwi Islands
Kunwinjku	2000	West Arnhem
Anindilyakwa	1600	Groote Eylandt
Burarra	1000	Maningrida
Gurindji	900	Katherine West

health resources in Aboriginal languages. PAR's ability to strengthen the capacity of culturally and linguistically diverse groups has been noted.¹⁷ This paper outlines a model that can be used when translating health resources into Aboriginal languages and practical considerations for similar collaborative projects between Aboriginal people and non-Aboriginal researchers to develop multilingual health resources.

2 | METHODS

2.1 | Setting

This project was undertaken in the Northern Territory of Australia. Covering an expansive area of 1.35 million square kilometres, the Northern Territory is characterised by a low population density. Of the 233,000 individuals residing in the Northern Territory, 26.3% identify as Aboriginal and/or Torres Strait Islander, with 77% living in remote locations.^{18,19}

2.2 | Researcher reflexivity

The team comprises Aboriginal and Torres Strait Islander members (CR, GG, SW, TA, SB) representing diverse language and cultural groups across the Northern Territory. They bring a wealth of knowledge as Aboriginal Health Practitioners, Aboriginal Community Workers, and Researchers. The non-Aboriginal and Torres Strait Islander members of the team (PB, EVC, KH, JSD, MH, JD) possess extensive experience in Aboriginal and Torres Strait Islander clinical service delivery and research. To ensure a respectful and inclusive work environment, the team upholds PAR principles and is committed to continuously reflecting upon their biases and working together to eliminate them.

2.3 | Study approach

The research team adopted a study approach that synthesised PAR principles with Indigenous research knowledge and principles (ways of

knowing, being and doing²⁰) to cultivate a culturally responsive and ethically robust research framework. PAR principles are increasingly recognised as valuable in Indigenous health research.^{21–24} Participants are active collaborators as the inquiry is completed 'with' rather than 'on' or 'to' others²⁵ fostering a reciprocal, two-way learning process. Participant ownership of the research is facilitated by working with researchers to help design questions, collect and analyse data, and contribute to the final report.²⁶ A vital element of this involvement is a collective, self-reflective inquiry process undertaken by participants to enhance research practices. PAR unfolds as a cyclical process of observation, reflection, evaluation, and action, with each cycle allowing for iterative improvements and changes over time.

Adhering to PAR principles, we were able to refine our research methodology. This methodology underscored the importance of collaborative partnerships, ensuring the active involvement of the language group members in shaping the final product. Furthermore, it emphasised the significance of respecting cultural protocols, oral traditions, and integrating community perspectives. Upholding these principles involved recognising Indigenous Knowledge holders, ensuring the research was community-driven and culturally relevant. For example, integrating community-led story telling or yarning initiatives^{27–29} into the community consultation sessions. The adaptation and translation of the 'Hep B Story' app followed a modified and expanded PAR process for each of the 10 language groups, as shown below in Figure 1. At each stage of the translation process, we built upon insights from all individuals involved, using a two-way learning process to refine and optimise each individual step.

The detailed process for each step in the process is outlined below:

1. Thorough community consultation and focus groups with language speakers and Aboriginal research assistants were conducted to assess the cultural suitability of content and illustrations. Informed consent was obtained from all focus group participants.
2. Content or illustrations from the original version were adapted as required, and the original English script was updated.
3. Forward and back translation of the updated script undertaken using local translators as per World Health Organisation (WHO) guidelines for translation of health-related materials.³⁰
4. The Hep B team members (consisting of an Infectious Diseases specialist, Registered Nurse, and Aboriginal Researcher) checked back translations for content accuracy.
5. Queries were discussed and corrected with translators, and the Aboriginal language script was finalised.
6. Voiceovers were recorded using local language speakers (male and female).
7. Dreamedia[®] (the company that developed the software for the original 'Hep B Story' app) produced revised versions of the app for each language group.
8. A functional preliminary version of each app was taken back to the focus group members and translators and reviewed.
9. Final edits and corrections made and reviewed.

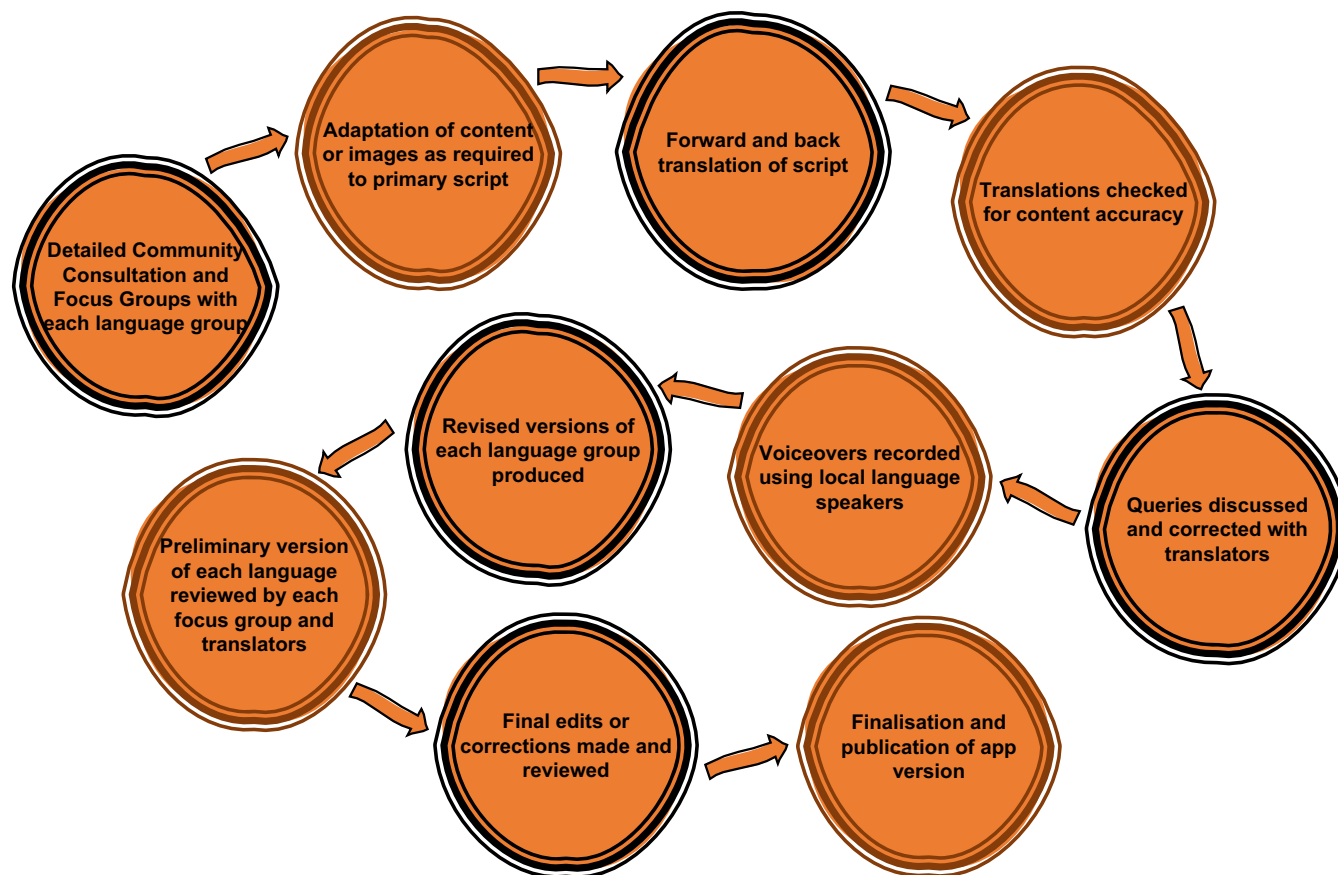


FIGURE 1 Translation process.

10. Finalisation and publication of the new language version.

3 | RESULTS AND ANALYSIS

The translation process developed iteratively through continual PAR cycles with team members and translators reflecting upon each experience. Learnings guided changes in the process until it evolved into a model that could be applied when creating any health resource in an Aboriginal language.

3.1 | Translation and adaptation processes

3.1.1 | Creating the primary script for translation requires consultation and effort

Before beginning translation, substantial time was spent developing the primary script in simple English to ensure it was clear and precise. This process was done with content experts and Aboriginal language speakers who were Elders within the community. As Elders are respected members of the Aboriginal community who give advice and pass on knowledge, they are considered the 'right' people for the job. This process was undertaken with each Aboriginal language group. It

included checking if there were any words or sentences that would be difficult to translate, such as 'common' or 'regular,' removing any double negative sentences and idioms, and minimising the use of complex medical terminology. Keeping sentences short and to the point was essential. The initial phase of developing the primary English script was fundamental as it saved significant time later in the translation process, avoiding confusion and ensuring the content accuracy of the final product.

'You can't just pick anyone from community. You have to know the protocols, and you have to know the community in order to get the right people in the room to design a tool that people will use because it has been done in the right way'.

Consultation Group Participant

3.1.2 | Consultation with language speakers is essential before beginning translation

Before translation, it was essential to ensure the cultural appropriateness of the 'Hep B story' for each language group. It cannot be assumed that what is appropriate for one language group will be suitable for another as there is no single Aboriginal and Torres Strait

Islander culture group, and each community has different protocols. Aboriginal culture differs throughout Australia; each group can have various ancestral backgrounds influencing their day-to-day life (kinship, language, art, law, and ceremonies).³¹ We, therefore, conducted in-depth consultations with each language group. This involved travelling extensively across the Northern Territory and presenting to Regional Councils, Local Authority Groups, health clinics, and other community stakeholders, which required several trips to each area. Time to connect with the communities and build relationships was essential. The value of this process cannot be understated, as it built trust with the community, fostered cultural competence in the project, and identified many unique adaptations for individual language groups.

One example of an adaptation for versions covering the Top End of the Northern Territory and Central Australia was the 'Fishing Story'. In the original version of the 'Hep B Story' the fishing story tells how HBV is passed on from one person to another when a little girl pricks her finger with a hook, and the blood drops onto the sore on the leg of her fishing partner, giving him HBV. This story was adapted to two people collecting wood for the Central Australian languages to be more relatable for people residing there, as fishing is not an activity undertaken in the desert.

'Need to get the story right (fishing story), different ones for the Top End and desert'.

Consultation group participant

Other adaptations implemented to both the script and illustrations were applicable to all language groups to ensure the cultural appropriateness of the story. These adaptations related to topics of sexual transmission and 'women's business' (pregnancy, childbirth, and 'growing up' children). These topics have strict rules and are only considered culturally appropriate to be discussed with the same gender.³²

3.1.3 | Dialects, ancient versus modern and preservation of language

Many translators viewed the 'Hep B Story' app translation project as one way to preserve Aboriginal languages; therefore, several decisions needed to be made before translation work could commence. The first was deciding which dialect to use, as each language has unique dialectal variations with distinct differences. Choosing the 'best fit' for the target population required additional consultation with local language speakers. Furthermore, the complication of deciding between ancient and modern languages developed. Choosing ancient wording would contribute to the preservation of the languages. However, it would mean that the younger generation, frequently using modern language, would be less likely to understand the translation without assistance. Compromises were made to satisfy the need for language preservation while delivering health messages that are understandable to all generations.

This translation was done by (translator name) (they) always writes (sic) in ancient language because it's the proper way and preserves our language, but the young people don't understand some words and need an Elder to explain it to them.

Translator

Finding individuals proficient in reading and writing within each Aboriginal language group was challenging. A primary factor contributing to this challenge was that most Aboriginal language speakers never received instruction on how to write in their first languages during their schooling. Instead focussing on English literacy for two primary reasons. First, the majority of Aboriginal and Torres Strait Islander languages were traditionally oral, resulting in a lack of comprehensive documentation. Although some language materials such as word lists may exist in libraries and archives these are often disjointed or confusing due to inconsistencies in transcription by non-indigenous individuals.³³ Second, Aboriginal and Torres Strait Islander languages have historically been given little or no recognised place in the Australian schooling system,^{34,35} with many educational policies before 1967 aimed at teaching Christianity and the Western way of life.³⁵ It has only been since 1982, when the first Aboriginal Education policy was issued, that the importance of including Aboriginal histories and cultures in education was recognised.³⁶ The Australian Government Department of Education has recently acknowledged the significance of bilingual education and has entered into a partnership with First Languages Australia. This collaboration aims to provide support for community language learning initiatives aimed at increasing the numbers of speakers and educators. Such efforts will empower communities to integrate Aboriginal and Torres Strait Islander languages into school curricula through a strengthened teaching workforce.^{37,38}

3.1.4 | Forward translation

The initial forward translation, where possible, was done by two or more translators working together, side by side. This enabled the translators to discuss and identify the best sentence wording in real-time. Additionally, having a content specialist available to the translators to explain medical concepts in simple language ensured the translation was factually and medically correct. Translators and content specialists would work together to undertake the translation when feasible. If this were not possible, translators would contact the content specialist to clarify medical concepts when necessary. Furthermore, involving an Aboriginal Health Practitioner (AHP) from the target language in the translation process was invaluable. They could identify the correct Aboriginal words to classify body parts/organs/diseases and explain specialist terminology in language. Describing HBV as a chronic disease is difficult due to its asymptomatic nature, four phases of disease (of which only select phases require antiviral medication), and associated stigma. Explaining 'hepatitis B' as a 'virus' that circulates through the

blood and causes inflammation of the liver was particularly challenging when most Aboriginal languages don't have a word for 'hepatitis'. We broke the word 'hepatitis' into two parts for the translation to provide meaning to the term, 'hepa' means liver, and 'titis' means inflammation. The term inflammation required further explanation as it is a Western biomedical term, so it was further described as 'hot'. We also discovered that many Aboriginal languages have only one word to define disease, which is used for all pathogens (bacteria, viruses, parasites) and cancer. This made distinguishing HBV from other pathogens and cancer difficult. In some instances, no words or names could be used to differentiate the HBV, so stories or analogies were carefully created to give a mental image of the virus. Hence this was not a project that could be done solely by one translator, as it required numerous back-and-forth discussions between several translators. Using PAR methodology ensured the cultural safety of the project, as telling stories is congruent with the oral tradition of knowledge sharing in Aboriginal and Torres Strait Islander cultures.²⁷

Not only did words need to be translated, but the sentence's grammatical structure needed to be organised such that the new text was worded naturally. English sentence structure differs considerably from Aboriginal languages, and if not carefully done, the whole message within the script can be incorrectly translated. Translating one sentence took considerable time and effort. The 'Hep B Story' was a long script that could not be done in a few hours. This became apparent when no matching words could be found in the Aboriginal language, and new words, analogies, or stories needed to be generated to translate the story.

'Sometimes there are no words in Aboriginal language that match, so we need to tell a story just to describe what we are trying to tell'.

Translator

3.1.5 | Back translation

Back translation is the process of translating a completed translation back into the original language to confirm that the translation is correct. In our case, this involved translating the Aboriginal language back into English. This was done by a separate translator who was not involved in the forward translation as per WHO guidelines.³⁰ Misunderstandings, unclear wordings, or errors in the forward translation could then be identified. Many translators who worked on the project were unfamiliar with the back translation process. When discussing the process of undertaking back translation, extra care was taken to explain its purpose and ease the concerns of the back translator. This was critical to avoid offending the forward translator, as it could have been misinterpreted as 'not trusting' the forward translation. After completing the back translation process, all translators could see the value of the method.

'At first, I didn't know why we would do this as (translator's name) is a good translator, and it feels like we are disrespecting (them), but now I see why we did it. It is a good process to be part of; it makes sure the message is right'.

Translator

3.1.6 | Finalising translation

Two content specialists checked back translations, ensuring the information or story was medically and factually correct rather than a word-for-word translation. Significant effort ensured the message could not be misinterpreted or misconstrued to give a dangerous or damaging message due to the 'high-risk content', where errors could have significant consequences. One example was the sentence, 'Virus is a medical word meaning a tiny invisible germ that needs to live inside a person to stay alive.' This was back-translated to 'Virus is like a worm that gets in our body so the person can stay alive'. This incorrectly conferred the message that a person 'needs' the 'virus' to stay alive, and without the content checking, it would have been a disastrous health message. All incongruities were discussed with translators involved in the forward and backward translations. If necessary, sections of the translation were rewritten. The translated script was finalised once a consensus on all discrepancies had been reached.

3.1.7 | Recording voice-overs

Based on feedback from the community consultations, it was advised to have both male and female language speakers record the voice-overs. This was crucial to ensure that 'hep B' was not perceived as either a 'man's' or 'woman's' disease but something that affects everyone. Several practice sessions were undertaken before recording to ensure the voiceover sounded effortless. It was an additional advantage if the translators who generated the script were present at the recording studio as they could coach the speaker through the recording to achieve the best result. Alternatively, if the translator could undertake the voiceover themselves, they had the advantage of being the most familiar with the script and could emphasise dialogue at appropriate places.

'It's better and faster if I do the voice recording coz (sic) I know what I've written, and it will flow'.

Translator

3.2 | Practical considerations

In the project's initial planning phase, the team allowed 12 months for the completion from start to finish of all 10 language translations. This was a significant miscalculation of the time required for the task; in

reality, it took 5 years. The process of adaptation and translation appears simple on paper. However, this proved to be an incorrect assumption. Connections and relationships needed to be established with each community and language group. Over time we became aware of the necessity of having a 'local community navigator' to endorse the 'Hep B' project and advise of the appropriate consultation process and community members to participate. Finding translators able to write in each language, and removing barriers to work, was not a simple task. The lessons learned, barriers to the undertaking, and unexpected outcomes experienced throughout the project are described below.

3.2.1 | Allow sufficient time to complete the entire process

The time it took to translate the languages was substantially longer than anticipated, given the labour-intensive steps detailed above in the translation process. The translation process was not rushed as it was difficult work involving complex mental processing, particularly given the contemporary lack of education for writing Aboriginal languages. Allowances were made for considerable time to think about the translation or answers to questions, and long periods of silence were not misunderstood but respected while the translators reflected on the script. Frequent breaks were offered, and a time limit was placed on each working session to prevent fatigue for the translators. Efforts were made to avoid putting undue pressure on the translators to finish, which avoided errors and inaccuracies in the translation.

'Most people say, come on hurry up and finish the job, but this translation work is hard; it makes my brain tired, my whole body tired, and then I find it hard to think'.

Translator

While the timeline for translation extended well beyond anticipated, it was essential to understand that the translation of the script was lower on the priority list for the translators than their numerous other obligations. In contrast to Western cultures, Aboriginal and Torres Strait Islander families are characterised by intricate networks of kinship structures, roles and obligations, that are deeply intertwined with their profound connection to culture and Country. In this concept, the Aboriginal and Torres Strait Islander notion of family extends beyond biological ties, encompassing individuals who share a common heritage and culture. Caring for one's family and community is regarded as an integral part of Aboriginal and Torres Strait Islanders people's duties and responsibilities, often putting the needs of others first before their own.³⁹ Many appointments to undertake translation work were cancelled due to factors such as illness, family, community and cultural obligations, sorry business (funerals), COVID-related travel cancellations, remote community unrest, and other personal business.

3.2.2 | Flexible working arrangements

Given the challenge of finding translators able to do written translation, it was essential to work around their schedules. Translation work was undertaken in multiple locations, and translators were given the option to choose their preferred sites. Some translators chose to work in the air-conditioned office, while others preferred to sit on a mat under a tree or picnic table at the park. Flexibility on the number of hours worked in one session or starting time was helpful. This allowed the translators to fit work around their personal, family, or cultural obligations (e.g., sorry business) and appointments. Many translators underwent renal dialysis several days each week, so working around dialysis days was necessary. Several translators undergoing dialysis expressed their satisfaction at having meaningful work to engage in during their days off from dialysis. Negotiating time to work around child-caring responsibilities was occasionally required. Sometimes, the only available time to work was on the weekend. Where practicable, this was also accommodated. Importantly the flexibility enabled the translators to attend ceremonies when their presence was required and return to their work commitments when practical.

3.2.3 | Barriers to translators being able to work and overcoming them

In addition to scheduling working sessions around medical appointments, family and cultural obligations, there were other aspects to consider. Translators were often negotiating problems with everyday practical issues like reliance on public housing, government payments, high cost of food and its insecurity, and lack of transport options, all while attempting to retain paid work. The authors identified early in the project that to remove these barriers; it was necessary to focus on addressing physiological needs (food, water, comfort) and the foundations of well-being for Aboriginal and Torres Strait Islander adults (belonging and connection, holistic health, purpose and control, dignity, and respect).⁴⁰ The research team provided catering for all consultation and translation sessions, so translators knew that they would have access to nutrition. Working in an air-conditioned building was problematic for several translators, so warm jumpers and shawls/wraps were offered for comfort. Many translators live in un-airconditioned accommodations in the hot tropical climatic conditions of the Top End of the Northern Territory and do not need to own warmer clothing.

The translators consistently voiced concerns about security, particularly in terms of financial matters. The authors recognised a significant cultural mismatch for Aboriginal and Torres Strait Islander Peoples who need to navigate Western bureaucratic systems, highlighting a necessity for compromise and flexibility. Waiting 2 weeks for the pay cycle posed challenges for translators who required immediate payment for essential needs like food. To address this, supermarket vouchers were offered on the day of work, allowing translators to buy food promptly while waiting for their full payment

in the fortnightly cycle. Frequently, translators would share their remuneration among multiple family members, adhering to kinship rules where family and community obligations overrule individual preferences. For the translators receiving government welfare support payments, the fear of losing their benefits was also a barrier to work. In one case, despite being proud to be employed, one employee resigned from their casual position to prevent any adverse effects on their government welfare payment. Transport support was provided so translators did not have to worry about how to get to work and the cost involved. Most translators were Elders with poor eyesight, which caused difficulty and eye fatigue when studying transcripts. This was overcome by providing non-prescription reading glasses and printing the transcripts on A3-sized paper with extra-large font. Housing complications were a concern for several translators who required time off the translation work to meet with government departments and discuss their situations. Occasionally it was necessary to cut short or reschedule translation sessions around these meetings.

3.2.4 | Costs involved

The costs involved were far more significant than first anticipated. The consultation process required the team to travel extensively across the Northern Territory to many remote locations. Flights, accommodation, and hire cars at remote locations are very expensive. Several trips to each site were undertaken during the script's consultation, translation, and finalisation stages, so the travel budget was a large portion of the costs.

Other costs included catering for every consultation and translation session, taxi vouchers to enable transport to and from work, flights, and accommodation for several remote-dwelling translators and voice-over artists, in addition to the wages and vouchers paid. Engaging an app development company was a critical step. Developing an app is complex, so working with a company with a proven track record and expertise in app software is advisable.

3.2.5 | Aboriginal project staff are essential

This project was co-led and guided by an Aboriginal researcher, which undeniably influenced its success. They were the most appropriate person to establish the initial connection with communities, build relationships and navigate community consultations. Many valuable contacts and endorsements within Northern Territory Aboriginal communities would not have been possible without this person. High-level mentorship on Aboriginal culture and culturally appropriate conduct was consistently provided to other team members, resulting in significant improvements in their cultural understanding and ability to work in a culturally safe way.

Additionally, an Aboriginal Trainee was employed on this project. Working closely with the Aboriginal Researcher, the Trainee became confident to take the lead on a consultation group and begin the initial relationship building with one specific community. Capacity building

of all research staff and translators was a significant focus of this project, and utilising PAR methods allowed it to happen naturally over time. All research staff and translators contributed to refining methods, ultimately improving their capacity. Respectful and trusting working relationships between project staff members, translators, and language speakers were a strong focus of the philosophy of all involved.

3.2.6 | Positive unexpected outcomes

The consultation process for each language group resulted in extensive HBV education community-wide. Many participants then shared the story with their family members and encouraged them to attend the clinic for a HBV check-up. The project became one owned by the entire community, with those involved feeling the importance of getting the HBV story out to 'their people'; they offered to do the work unpaid. While the authors appreciated the enthusiasm of the offer, we ensured that everyone who worked on the project was appropriately remunerated.

'I'm happy to work (on the translation of the app) for nothing because this message is important, it's hurt my family, we need to talk about it'.

Translator

'We need to get this message out'.

Consultation group participant

After the publication of each new language version of the app, it was incredibly heartening to witness the excitement within the community upon seeing the development of the Hep B Story⁷ in their language. Even though many community members were unable to read the text, the mere fact that it was written in their language held significant meaning. With numerous Aboriginal languages classed as endangered, the creation of such a resource now aids in the preservation efforts of these languages.

Furthermore, the translator model proved to be readily applicable to other language projects. Consequently, several translators were promptly engaged to translate urgently required COVID-19 health messages into Aboriginal languages.^{41,42}

4 | DISCUSSION

To create a culturally appropriate resource for the Northern Territory's Aboriginal population, it was essential to recognise the cultural diversity among the Aboriginal population and that it is not a 'one size fits all situation'. The fundamental principle was meaningfully involving the 'right people' for the job. This includes Elders, Aboriginal Health Workers, people living with CHB, affected communities, content experts, and other key people (as defined by each language group).

Additionally, we believe the following notions are essential in the translation process:

1. *Understand that the translation process is a rigorous one.* It is not only about translating the script but ensuring accurate conceptual transmission. A word for word translation risks misinformation and a loss of cultural context and meaning. Translating Western biomedical words and concepts into Aboriginal languages is extremely difficult and requires intricate thought processes as it involves bridging knowledge gaps and creating analogies for words with no direct equivalents. This meticulous task demands significant time and effort. To address this, the authors emphasise the importance of the back translation process. Back translation ensures accurate representation of information and culturally sensitive content. This approach facilitates a deeper understanding of cultural nuances and specificities, ultimately enhancing the effectiveness and relevance of health resources.
2. *Provide a flexible and culturally safe workplace.* Aboriginal and Torres Strait Islander people have distinct cultural practices, beliefs, and values that should be respected and accommodated within the workplace. By fostering cultural safety, organisations can promote a sense of belonging and trust, ensuring Aboriginal and Torres Strait Islander people feel valued and supported. This environment encourages the free exchange of ideas and promotes a collaborative approach to resource development. This includes recognising and responding to the constraints people work under when they are part of a group that experiences disadvantage and discrimination. Addressing the basic physiological and safety needs and considering the foundations of well-being for Aboriginal and Torres Strait Islander adults is essential. Ensuring all staff understand Aboriginal and Torres Strait Islander culture, history and health disparities will help build respectful relationships between Aboriginal and Torres Strait Islander and other employees.
3. *Use a non-hierarchical, collaborative approach to recognise the expertise and knowledge of Aboriginal and Torres Strait Islander individuals and communities.* Involve Aboriginal and Torres Strait Islander people at all stages of the resource creation process, including planning, development, and evaluation, to foster a sense of ownership and empowerment. Collaboration ensures that resources reflect the specific needs and aspirations of the communities they represent. A two-way learning approach emphasises the importance of mutual respect, reciprocal learning, and knowledge exchange between Aboriginal and Torres Strait Islander communities and non-Aboriginal and Torres Strait Islander professionals. This approach acknowledges that both parties bring unique perspectives, experiences, and expertise. Creating opportunities for two-way learning fosters a deeper understanding of Aboriginal and Torres Strait Islander culture, history, and health needs while sharing relevant knowledge and practices.
4. *Facilitate workplaces for Aboriginal and Torres Strait Islander people that navigate the barriers to work.* To facilitate more Aboriginal and

Torres Strait Islander people obtaining and retaining meaningful employment, further work must be done to balance Western bureaucratic and Aboriginal and Torres Strait Islander systems. Translation work tends to be sporadic, so most translators still rely on government welfare payments each fortnight. The concern of losing government assistance is a real barrier to obtaining paid casual work. Organisations must create compatibility between the equally valid Western and Aboriginal and Torres Strait Islander systems to enable Aboriginal and Torres Strait Islander people to work and earn a regular income. Workplaces can and should work together with Aboriginal and Torres Strait Islander people to find solutions to these barriers.

5 | CONCLUSION

Developing and adapting culturally appropriate health resources is crucial to addressing Aboriginal and Torres Strait Islander people's health inequalities and should be a priority for healthcare services in Australia. When creating health resources for Australian Aboriginal and Torres Strait Islander communities' emphasis must be placed on the importance of rigorous translation, a flexible and culturally safe workplace, a non-hierarchical, collaborative approach, and two-way learning. By implementing these strategies, workplaces can effectively engage Aboriginal and Torres Strait Islander people and navigate barriers to work, ultimately contributing to developing culturally appropriate and impactful health resources that promote the well-being of Aboriginal and Torres Strait Islander communities. The translation process described in this paper, used with careful attention to social and emotional well-being, enables the successful production of health resources in Aboriginal languages. The Translators dedicated significant effort to this project, motivated by the importance of telling the story about CHB to their family and community members in their first language. It was a privilege to work with this group of highly skilled people. With more than 100 individuals involved, we have produced an educational tool about CHB in the preferred language for most Aboriginal people in the Northern Territory. Most importantly, we have developed a robust model to create health resources for different cultural and linguistic groups that can be applied globally.

The 'Hep B Story' app is free to download from the Google Play and Apple app stores or available online on the Menzies School of Health Research website.

AUTHOR CONTRIBUTIONS

P.B., J.S.D., S.B. and J.D. performed study design. P.B. and C.R. performed project management. P.B., C.R., G.G., S.B., S.W. and T.A. conducted community consultation and education. P.B., C.R., T.A., E.V.C. and K.H. performed acquisition of data. P.B., C.R., S.B., E.V.C., K.H., M.H. J.S.D. and J.D. performed analysis and interpretation of data. M.H., J.S.D. and J.D. provided supervision. P.B. wrote the main manuscript text and prepared Figure 1. All authors reviewed and revised the manuscript.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The datasets generated and analysed during this study are not publicly available as individual privacy may be compromised.

ETHICS STATEMENT

Ethical approval was obtained from the Human Research Ethics Committee of the Northern Territory Department of Health and Menzies School of Health Research (NTHREC 2018-3240).

PARTICIPANT CONSENT

All participants gave written informed consent to participate in this study, and an interpreter was used where necessary.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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