

Universal for whom? Evaluating an urban Aboriginal population's access to a mainstream universal health home visiting program

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Abstract

Objective. To investigate access to a Universal Health Home Visit program for families of Aboriginal and non-Aboriginal infants and the effect of a one-off home visit on subsequent health service utilisation.

Methods. A case-control study was undertaken drawing 175 Aboriginal infants from an Aboriginal birth cohort study and 352 matched non-Aboriginal infants. A structured file audit extracted data from child and family health nurse records. Receipt of home visit and effect on ongoing use of child and family nurses services was compared for Aboriginal and non-Aboriginal infants.

Results. Of the 527 infants, 279 (53.0%) were visited at home within 2 weeks. This is below NSW Health benchmarks. Significantly fewer Aboriginal infants (42.9%) compared to non-Aboriginal infants (58.0%) received a home visit within 2 weeks ($P < 0.01$). Receipt of a single home visit did not affect future service use or the number of child health checks infants received.

Conclusion. This study highlights the challenges of ensuring equitable access to a universal post-natal home visiting program. Assessing ways in which universal services are delivered to ensure equity of access may help to re-evaluate target expectations, reduce demand on nursing staff, improve targeting of vulnerable infants and help in further developing and implementing effective health policy.

What is known about the topic? The rate of home visits within NSW is 45%, which is well below the recommended target rate of 65%. Aboriginal families utilise health services differently than non-Aboriginal families.

What does this paper add? Inequalities in accessing a home visit within 2 weeks were found, with families of Aboriginal infants being less likely than families of non-Aboriginal infants to receive a home visit within 2 weeks. Factors such as being a young mother, an unpartnered mother, a mother with psychosocial risks identified antenatally, or residing in a disadvantaged suburb were associated with not receiving a visit within 2 weeks. Receipt of a home visit did not, despite the program's aim, affect further health service use.

What are the implications for practitioners? Practitioners and managers need to be aware of the challenges in providing equitable access within a universal post-natal home visiting program.

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Introduction

There is an understanding within Australian society that all children should have equal opportunity for the best possible growth and development in the formative years of their lives. Numerous strategies have been put in place to ensure this is a reality. One of them is *Families First*, a coordinated strategy of the NSW government designed to increase the effectiveness of

early intervention and prevention services in helping families raise their children.¹

The *Families First* strategy incorporates several universal and targeted services, including a universal home visiting program that offers one home visit to the families of all newborn infants across the state. The program is delivered by Child and Family Health Nurses throughout, what was at the time of undertaking

this study, the state's area health services. The home visiting service sits within the context of other mainstream early childhood services offered by the area health service, such as early childhood health clinics.

The home visiting program is a universal strategy that aims to enhance access to postnatal child and family services. It does this in several ways: (i) by providing new families with the opportunity to receive their first post-natal health visit within the home environment; (ii) by providing an opportunity for the Child and Family Health Nurse (hereafter referred to as 'the nurse') to identify needs within the context of the home environment; (iii) by engaging families who might otherwise not access mainstream services such as the early childhood clinics; and (iv) introducing and facilitating early access to a range of child and family health services and other local support services.^{2,3} At this first health check, nurses undertake a psychosocial assessment, provide parenting support and education and identify the family's ongoing support needs.⁴ In this way, vulnerable and disadvantaged families are identified and encouraged to engage in a wider range of health and community services.¹

NSW Health recommends the offer of a home visit be made to every family with a newborn infant within 2 weeks of birth.² While aiming for complete coverage, NSW Health's outcome measure for this program is a home visitation rate of 65% of infants within 2 weeks of birth.² However, during 2004–07, the rate of families receiving a home visit within 2 weeks was ~45%.²

This study was built upon the Gudaga Study, an established Aboriginal^A birth cohort study based in Macarthur region, which is on the outer south-west fringes of Sydney, NSW.⁵ The aim of the Gudaga Study is to describe the health, development and health service use of Aboriginal infants and children in the region. This is the first time such a study has been undertaken on the east coast of Australia and provides a unique opportunity to examine how families with Aboriginal infants engage in a wide range of health services, including the universal health home visiting (UHHV) program, which was introduced into the region in 2001.

The aims of this paper are to identify the number of families receiving a home visit; to determine if nurses are visiting vulnerable and disadvantaged families who are meant to be identified and supported; to compare receipt of a home visit among Aboriginal infants to non-Aboriginal infants; and to investigate the effect of the home visit on ongoing use of health services.

Methods

Study population

The study population was infants born at the region's Campbelltown Hospital between October 2005 and May 2007. Mothers admitted to the maternity ward were invited to participate in a survey that systematically identified Aboriginal infants, the details of which have been published elsewhere.⁵ During recruitment, 178 aboriginal infants were identified, either by the survey (155 infants) or through other networks (23 infants). Of the 1953 non-Aboriginal infants identified from the ward survey, we

randomly selected two non-Aboriginal infants for every one Aboriginal infant and matched on sex and date of birth. (Matching on other characteristics may have made the non-Aboriginal controls not representative of the non-Aboriginal infant population.) Matching gave us a subsample of 356 non-Aboriginal infants. This was sufficient power (80%) to detect a difference of 15% in the proportion of Aboriginal and non-Aboriginal infants who received a UHHV following birth. Seven infants were excluded from the study for living outside the region. A case-control study was conducted on the remaining 527 infants (252 males, 275 females), which included 175 Aboriginal infants in the case group (85 males, 90 females) and 352 non-Aboriginal infants in the control group (167 males, 185 females).

Data collection

The study comprised an audit of the infants' child health files, which were located in the community health centres in the local health service region. The auditor (J. Widdup) had no personal contact with any participants in the study and he was blinded to the Aboriginal status of the infants during auditing.

A structured audit tool was created based on Sydney South West Area Health Service (SSWAHS) Ingleburn Baby Information System Paediatric data collection forms. The audit tool collected baseline data including:

- (1) demographic information on the mother and infant;
- (2) initial contact with the mother of the infant by the nurse;
- (3) the outcome of that initial contact; and
- (4) whether an initial home visit was provided, and if so, when was it provided.

For all infants and their mothers who had a home visit with the nurse, follow-up data on all subsequent visits up to 15 months were extracted. This included information on health services usage, timeframe for service delivery and child health checks according to NSW Health guidelines.⁶ Issues experienced by infants, mothers or nurses were also recorded.

The data collected from the audit were linked to data collected by the Gudaga Study. Data from the Gudaga Study were collected during the initial ward survey or extracted from hospital administrative data and included maternal and infant demographics, socioeconomic status, relevant risk factors and delivery details. Data sources were cross-referenced where possible to validate findings.

Data analysis

The data gained from the audit were analysed using SPSS version 17 for Windows (SPSS, Inc., Chicago, IL). Significance levels were set at $P \leq 0.05$ for all analyses. Chi-square tests were used to determine any difference in the characteristics of the Aboriginal and non-Aboriginal infants. Baseline data were analysed using bivariate logistic regression to explore the relationship between receipt of a home visit within 2 weeks and several identifiable risk factors. Multivariate logistic regression analyses were then

^AThe use of the term 'Aboriginal' is in recognition of the preference of the Aboriginal community in south-west Sydney. Although we recognise that this work may also apply to people of Torres Strait Islander background, the majority of the community in the region is of Aboriginal origin. Use of this term is also in line with NSW Health policy. This research was funded by a project grant from the National Health and Medical Research Council. Sydney South West Area Health Service (Campbelltown) provided infrastructure support to the study.

conducted, in which each model contained one risk factor and infants' Aboriginality, to explore the relationship between infant Aboriginality and each risk factor on receipt of a home visit within 2 weeks.

Follow-up data were analysed through independent *t*-tests to compare the mean difference in the number of visits; services utilised; referrals made; and child health checks reported for Aboriginal infants and non-Aboriginal infants. Independent *t*-tests were also used to compare the mean difference in the number of visits; services utilised; referrals made; and child health checks reported for children who had received a home visit within 2 weeks and those who had not. Multiple linear regressions, controlling for number of visits, were then performed on any significant findings.

Ethics

The Gudaga Study was approved by the Ethics Committees of the Aboriginal Health and Medical Research Council, SSWAHS and University of NSW. The SSWAHS Ethics Committee approved this supplementary study. Informed consent was received by all mothers participating in the Gudaga Study. The research team is committed to undertaking health research with Aboriginal communities in accordance with National Health and Medical Research Council guidelines,⁷ ethics and values.⁸ These strategies have been described elsewhere.⁹

Results

The characteristics of all infants and their mothers are displayed in Table 1. A greater proportion of Aboriginal infants than non-Aboriginal infants were premature. A greater proportion of mothers of Aboriginal infants were younger than 20 years, single, had not completed year 10, were not in paid employment and lived in poorer suburbs when compared to mothers of non-Aboriginal infants.

Upon discharge from hospital, registration details of the infant are sent to local Community Health Centres to enable infants to be registered onto a Community Health database. Fig. 1 summarises the process of locating records. Fig. 1 also shows the total number of initial visits performed by the nurse, including home visits made within 2 and 4 weeks and after 4 weeks. Of those contacted, 28 (5.3%) mothers declined a home visit.

Baseline data

Approximately one-half (52.9%) of newborns and their mothers received a home visit within 2 weeks. Aboriginal infants (42.9%) were significantly less likely to receive a home visit within 2 weeks than non-Aboriginal infants (58.0%) (odds ratio (OR) = 0.54, $P=0.001$). Table 2 (columns 4 and 5) presents the results of the bivariate logistic regressions. In addition to infants' Aboriginality, other factors associated with being significantly less likely to receive a home visit within 2 weeks included: prematurity; being a mother under 20 years; single mothers; mothers with older children; mothers who did not complete Year 10; unemployed mothers; mothers with any psychosocial risks; and those living in the most disadvantaged areas.

Multivariate analyses were then undertaken in which each model contained one risk factor and Aboriginality of the infant (see Table 2, columns 6 and 7). Aboriginal infants remained less likely to be visited at home within 2 weeks in all these models. However, in three of the models, when controlling for the infants' Aboriginality, young mothers, single mothers and mothers with any psychosocial risk were no longer associated with a decreased likelihood of receiving a home visit within 2 weeks.

Follow-up data

For all infants, the number of visits with a nurse following an initial home or clinic visit was 4.99 visits (s.d. = 4.5). The number of related health services utilised was 1.36 (s.d. = 2.4) and the number of recorded referrals to other services was 0.81 (s.d. = 1.1). The number of child health checks documented by a nurse in the infants' records was 2.36 (s.d. = 1.6). There were no significant differences in the mean number of nurse visits, health service utilisation or referrals between Aboriginal and non-Aboriginal infants (Table 3). Aboriginal infants had significantly fewer child health checks reported in their records. This difference in receipt of child health checks remained significant in a multiple regression analysis controlling for number of visits (mean difference (MD) = 0.32, $P < 0.05$). There were no significant differences in the mean number of nurse visits (MD = 0.35), health service utilisation (MD = 0.23) and referrals (MD = 0.05), or child health checks (MD = 0.27) in the first 15 months for infants who received a home visit within

Table 1. Characteristics for all infants and their mothers

	Aboriginal infants (<i>n</i> = 175)		Non-aboriginal infants (<i>n</i> = 352)		Significance	
	<i>n</i>	%	<i>n</i>	%	χ^2	<i>P</i>
Infants						
Male	85	48.6	167	47.4	0.1	0.8
Low birthweight (<2500 g)	16	9.1	20	5.7	2.2	0.1
Gestational age < 37 weeks	20	11.4	22	6.3	4.3	0.04
Admitted to Special Care Nursery (SCN)	26	14.9	39	11.1	1.5	0.2
Mother						
Age < 20 years	34	19.4	18	5.1	26.9	<0.001
Single	70	40.0	49	13.9	45.5	<0.001
Multiparous	126	72.0	233	66.2	1.8	0.178
Did not complete year 10	48	27.4	30	8.5	33.1	<0.001
Not in paid employment at booking in	140	80.0	194	55.1	31.2	<0.001
Most Disadvantaged State SEIFA Quintile	102	58.3	124	35.2	25.4	<0.001

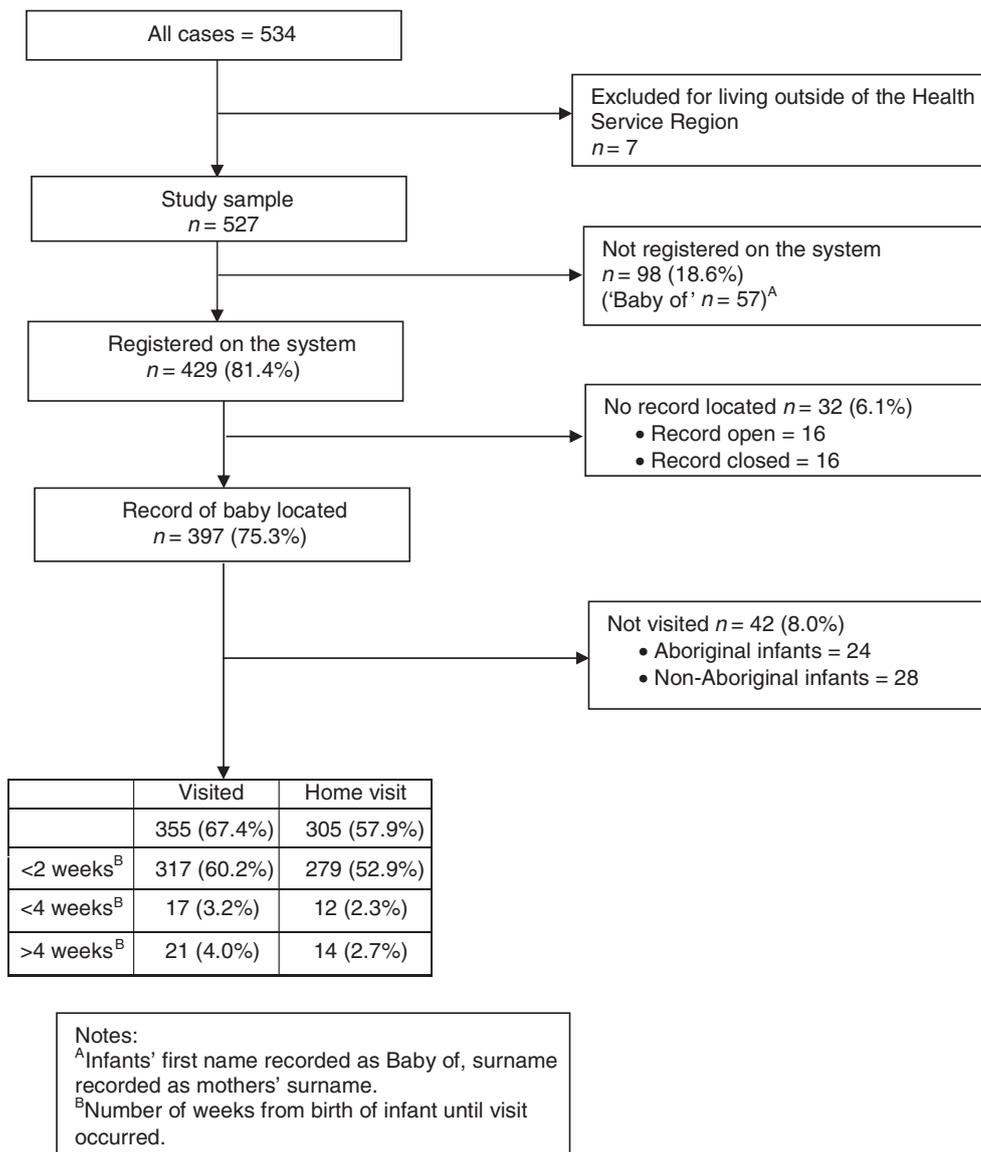


Fig. 1. Flow chart on the file audit process.

2 weeks compared to those who were visited later than 2 weeks after birth.

Discussion

This study examined the provision of a universal home visiting service for new mothers in the urban SW fringe of Sydney, NSW. Our results showed that substantially fewer infants than the NSW Health target of 65% received a home visit within 2 weeks of birth. Our findings suggest mothers and infants with a range of vulnerabilities were less likely to receive a home visit than those without vulnerabilities. Also, Aboriginal infants were less likely to receive a visit than non-Aboriginal infants, even when controlling for vulnerabilities. Receipt of a single home visit did not affect future service use or the number of child health checks received.

Although the rate of home visits within 2 weeks was higher than the state average,² the target of NSW Health was not met within this population. There could be several reasons for families not receiving a visit: they may have declined the offer of a visit; the nurses may have been unable to contact them; there may have been issues with the registration process; or records may have been missing. We were able to explore each of these four possible reasons. The file audit found ~5% of families declined a home visit and a further 22.8% were noted as unable to be contacted. Our experience in the Gudaga Study is that it is difficult to contact some mothers who may not have access to a telephone connection or who move residences regularly. A common reason for not receiving a home visit was not being registered with the Community Health service (18% of infants had no indication they were registered). There could be several reasons for this: infants may never have been referred; paperwork may have been mislaid; or

Table 2. Risk factors for receiving a home visit within 2 weeks for Aboriginal and non-Aboriginal infants
Probabilities are significant at: *, $P < 0.05$; **, $P < 0.01$; ***, $P < 0.001$. OR, odds ratio

Risk factor	Received a home visit		Bivariate analysis		Multivariate analysis	
	<i>n</i>	%	OR	(95% CIs)	OR	(95% CIs)
Aboriginal infant	75	42.9	0.54**	0.38, 0.78		
Premature	13	31.0	0.37**	0.19, 0.73	0.40**	0.20, 0.79
Aboriginal infant					0.57**	0.39, 0.82
Mother under 20	19	36.5	0.48*	0.26, 0.86	0.57	0.31, 1.0
Aboriginal infant					0.59**	0.40, 0.85
Single	51	42.9	0.59*	0.39, 0.89	0.70	0.45, 1.08
Aboriginal infant					0.60**	0.41, 0.87
Multiparous	177	49.3	0.63*	0.43, 0.91	0.65*	0.44, 0.94
Aboriginal infant					0.56**	0.38, 0.80
Year 10 not completed	29	37.2	0.47**	0.28, 0.77	0.55*	0.33, 0.92
Aboriginal infant					0.60**	0.41, 0.88
Mother not in paid employment at booking in	155	46.4	0.48***	0.34, 0.69	0.57**	0.40, 0.83
Aboriginal infant					0.61*	0.42, 0.89
Any Psychosocial risk	131	48.0	0.66*	0.47, 0.93	0.72	0.50, 1.02
Aboriginal infant					0.58**	0.40, 0.83
Most disadvantaged SEIFA	99	43.8	0.50***	0.40, 0.70	0.58**	0.40, 0.83
Aboriginal infant					0.61*	0.42, 0.89

Table 3. Follow-up service use within 15 months
Probabilities are significant at: *, $P < 0.05$

	Aboriginal infant (<i>n</i> = 107)	Non-Aboriginal infant (<i>n</i> = 246)	Mean difference	95% CIs
Mean number of visits	4.6 (4.5)	5.2 (4.5)	0.54	-0.48, 1.55
Mean number of services utilised	1.4 (2.4)	1.3 (2.4)	0.11	-0.65, 0.43
Mean number of referrals made	0.8 (1.0)	0.8 (1.2)	0.50	-0.17, 0.35
Mean number of child health checks	2.0 (1.5)	2.5 (1.7)	0.46*	0.10, 0.83

infants' details may have changed in the time period between discharge from the hospital and contact with the Community Health service. The area health service has subsequently recognised issues with the referral process used during the study period¹⁰ and a new intake system, including electronic referrals, has been introduced. Finally, over 6% of infants' records were unable to be located during the course of the file audit, highlighting issues with the then existing file management systems. These missing files raise concerns about confidentiality, security and child protection legislation obligations.

One of the NSW Health aims for the home visiting program was to use a universal program to engage with families who may not otherwise have accessed the available mainstream services. Our findings suggest that families with vulnerabilities and disadvantages such as being a young mother, an unpartnered mother, a mother with psychosocial risks identified antenatally, or residing in a disadvantaged suburb, were less likely to be visited at home within 2 weeks than families without those characteristics. Further, Aboriginal infants were less likely than non-Aboriginal infants to receive a home visit by a nurse within 2 weeks. We also found that a greater proportion of the Aboriginal infants had mothers with the vulnerabilities we explored. However, as Aboriginality of infant remained significant when each vulnerability was controlled for, it appears that these vulnerabilities alone do

not account for the decreased likelihood of a timely home visit for Aboriginal infants. These findings suggest that the universal home visiting service does not connect with those families at high risk of not engaging with other mainstream services. A further aim of the home visiting program was to identify and concentrate services to vulnerable or disadvantaged families. This is problematic if the universal service is not engaging with these clients.

The universal health home visiting program was intended to encourage greater engagement with, and ongoing use of, child and family nurses. Our results indicate that receipt of a home visit within 2 weeks of birth does not influence ongoing service usage of the early childhood clinic service, referrals, use of other health services, or completion of child health checks. Both NSW Health and the NHMRC recommend a minimum of five child health checks during infants' first 12 months to monitor infants' growth and development and to identify and treat problems.^{6,7} Both Aboriginal and non-Aboriginal infants received fewer checks than recommended and Aboriginal infants had fewer documented child health checks than non-Aboriginal infants. These checks may have been performed elsewhere by other health professionals, may not be documented in the infants' records, or may not have been performed. This is an area where follow-up investigation is required.

Strengths and limitations of the study

A strength of this study was its use of data collected as part of establishing the Gudaga Study. By accessing data on mothers who delivered at Campbelltown Hospital, we were able to identify a cohort of infants who should have received a home visit. Previous studies have relied upon community health records and administrative data, thus excluding infants who did not access services. A limitation of the study was its reliance on a chart record audit and information recorded therein. We had no further information on use of other services and did not seek further information from service providers and mothers of infants. Further research could explore mothers' experiences with services and care seeking behaviour.

Implications for service delivery

This study highlights the problem of implementing universal health programs to achieve mandated coverage and equitable uptake of services between population groups. There are few incentives for additional investment to ensure equity. From the data collected in this study, there is evidence to suggest that simply offering an initial home visit to families with newborn infants does not ensure that vulnerable infants will have improved access to services. Understanding the factors that create and maintain vulnerability, along with early identification during antenatal care, sharing of information about mothers and proactive follow up of 'at risk' families, and culturally appropriate services may help to address these issues. Changes are currently underway to deliver sustained nurse home visiting to the region's Aboriginal families to address some of these issues. It will be important to track the reach and uptake of these services.

Implications for policy

Our study raises several policy concerns. First, the universal home visiting program is predicated upon a single home visit. There is, however, little scientific supportive literature to demonstrate the effectiveness of a one-off visit in achieving the aims set for this program. Second, our results suggest that the aims of the program may be too broad. The core aims of the program are to provide a universal mainstream program to all; identify and engage vulnerable families; and concentrate service to these families. This study suggests none of these aims are being met: the program is not universal; vulnerable and disadvantaged families are not being identified and services are not being concentrated to these families. If families are not visited, then they cannot be identified by the nurse as vulnerable and consequently, they will not be linked in to other services. A universal service that aims to be the first point of contact for vulnerable families needs to have mechanisms to encourage or support equitable access to that service. The NSW Health target of 65% of mothers visited at home by 2 weeks could limit equitable access to the home visiting service. The 35% who may not be seen in a timely manner (if at all), may be the very families the home visiting service is hoping to identify.

The investment in providing a home visit within 2 weeks of birth does not appear to affect ongoing health service usage. Our results suggest families engage ongoing health services regardless of when they received their initial visit. Effective health policy requires clearly defined objectives to determine specified

health outcomes and appropriate use of resources to achieve these outcomes. Policy makers need to acknowledge the flexibility required for universal health services in responding appropriately to the health service users' needs.

Conclusions

It is NSW Health policy for 65% of families of newborn infants to receive a visit in the home by a child and family nurse within 2 weeks of birth. Our findings suggest that this target is not being met. We demonstrate that there are inequalities in receiving a home visit within 2 weeks of birth and highlight the challenges of ensuring equitable access to a universal post-natal home visiting program. With no other policy outcome measure, there are few incentives for additional investment to ensure equity of access. Our findings suggest that simply offering a home visit to families does not ensure that vulnerable infants have improved access to services.

Existing information on risk and vulnerabilities, gathered at the hospital during the antenatal period, could be used to assist service providers to offer post-natal services to the most vulnerable families in a more proactive way. Our particular concern is in the experience of families of Aboriginal infants who might also require culturally appropriate post-natal services to enhance engagement with health services. It is anticipated that Bulindidi Gudaga, a sustained nurse home visiting program recently introduced into the Macarthur region, will meet this need for the families of Aboriginal infants in this geographic area.

Competing interests

The authors have not reported any competing interests.

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