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# Implementation of screening and management of household contacts of tuberculosis cases in Daru, Papua New Guinea

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**Setting:** Daru Island, Western Province, Papua New Guinea (PNG).
**Objective:** To describe the implementation of a screening programme for household contacts of tuberculosis (TB) cases residing on Daru Island.
**Design:** This was a retrospective descriptive study evaluating two periods of implementation: introduction and expansion of a screening programme for household contacts of drug-resistant TB (DR- TB) cases (March 2016 to September 2017), and inclusion of drug-susceptible TB (DS-TB) cases with provision of preventive therapy for eligible contacts between October 2017 and March 2018.
**Results:** In the first period, the contact screening programme was established and strengthened by increasing coverage over time. There was a large number of contacts (median 8) in each household, and a high uptake of screening. In the second period of evaluation, respectively 412 and 223 contacts of 42 DS-TB and 25 DR-TB index cases were screened. Overall, 156 (24.6%) contacts reported TB-related symptoms and 9 (1.4%) were diagnosed with active TB. All 9 commenced TB treatment: 5 had DS-TB and 4 had DR-TB. Of 82 child contacts of DS-TB cases eligible for preventive therapy, 57 (69.5%) commenced treatment and 45 completed treatment.
**Conclusion:** Community-based household contact screening and management was successfully implemented under programme conditions in this high burden TB and DR-TB setting in PNG.

Improving tuberculosis (TB) case detection and treatment is critical to reducing disease transmission, incidence and mortality.[1] The World Health Organization (WHO) reported that 6.4 million new cases of TB were notified in 2017, but that this represents only 64% of the estimated global incidence.[2] Furthermore, only approximately 23% of the estimated 1.3 million young child contacts of TB cases eligible for isoniazid preventive therapy (IPT) were commenced on IPT.[2] While the potential of IPT to decrease TB-related morbidity and mortality in children is widely recognised, closing the wide policy-practice gap that exists in most TB-endemic settings remains challenging.[3,4]

Papua New Guinea (PNG) is classified by the WHO as high burden for TB, TB-human immunodeficiency virus (HIV) infection and multidrug-resistant TB (MDR-TB).[1] In 2016, PNG reported a total of 28 244 TB case notifications, a rate of 333 per 100 000 population with 26.7% of all notified TB cases occurring in children (aged <15 years).[5] This is substantially higher than the global estimate of 10.6% of all TB cases, and represents ongoing community transmission.[2,5] Of the provinces in PNG, Western Province reported one of the highest TB case notification rates of 674/100 000 in 2016.[5] There is a particularly high TB incidence in Daru, the capital of Western Province, which has reported an outbreak of MDR-TB.[6–8]

The screening of household contacts, particularly contacts of the most infectious TB cases (i.e., bacteriologically confirmed), can further increase case detection,[9] and thereby improve IPT uptake as per international and national TB guidelines to high-risk contacts who do not have active TB.[10–12] In 2016, the Western Provincial Health Office (PHO) and partners began to screen the household contacts of TB cases resident on Daru Island. We describe the implementation of the Daru household contact screening programme from 2016 to March 2018, and evaluate case finding and the provision of IPT to eligible contacts.

## METHODS

### *Study setting*

Daru Island is located 3 km off the mainland of South Fly District, Western Province. The 2011 census recorded a population of 15 142.[13] As the capital of Western Province, Daru serves as the commercial and administrative centre for the coastal parts of both South and Middle Fly Districts.

### *Study design and population*

We conducted a retrospective, descriptive study of the implementation of a screening programme for household members of index cases with bacteriologically confirmed TB resident on Daru Island in two time periods. The first time period for evaluation was from the introduction of contact screening in March 2016 to the end of September 2017, a period when screening focussed on contacts of index cases with MDR-TB, including extensively drug-resistant (XDR) and pre-XDR-TB. The second period for evaluation was a 6-month period from October 2017 when screening was expanded to include contacts of drug-susceptible TB (DS-TB) cases.

A household contact was defined as any person who shared the same enclosed living space with the index case for at least 1 month before diagnosis. Infor-

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**TABLE 1** Development and expansion of contact screening programme in Daru, Papua New Guinea

| Time period | Activity |
|---|---|
| January 2016 | Plan to introduce contact screening activities endorsed by Western Province Provincial Health Office and partners—initial focus on XDR-TB cases |
| March 2016 | First household contact screening undertaken of two index cases with XDR-TB |
| | Contact screening register introduced |
| June 2016 | Preparation to expand contact screening with focus on DR-TB cases |
| | Five additional staff dedicated to conduct contact screening |
| | Symptom screening tool and referral slip developed |
| | Engagement of community-based treatment supporters for screening |
| July 2016–May 2017 | Regular post-screening meetings for feedback and discussion of challenges and solutions to improve implementation. |
| | Preventive therapy register introduced and first child aged <5 years started on preventive therapy for DS-TB |
| | Household mapping tool introduced to allow screening and diagnosis data for all contacts from a household to be recorded together on a single form replacing the previous symptom screening tool |
| June–September 2017 | Review conducted of existing contact tracing services and report with recommendations disseminated to Western Province TB Core Group (leadership/governance committee for TB programme) |
| | Planning and preparation for streamlining and scale up of contact tracing to include contacts of DS-TB and for expanded coverage of IPT for children aged <5 years who are contacts of DS-TB patients |
| | Roll-out of electronic medical records system for TB care at Daru General Hospital |
| October 2017 | Systematic contact screening commenced on contacts of recently diagnosed DS-TB cases |
| | Revised household mapping tool and linkage form implemented |
| | Community-based IPT routinely offered to eligible contacts (i.e., children aged <5 years and not considered to have active TB) of DS-TB cases |

XDR-TB = extensively drug-resistant tuberculosis; DR-TB = drug-resistant TB; DS-TB = drug susceptible TB; IPT = isoniazid preventive therapy.

mation was provided to the index case at the time of diagnosis about the rationale for and process of contact screening, and verbal permission to visit the index case's household was obtained. Households were visited as soon as possible following consent, with the aim of conducting screening within 1 week of diagnosis. The initial focus in 2016 was on households of XDR- and pre-XDR TB cases, followed by the inclusion of other MDR-TB cases. Household screening of pulmonary DS-TB cases commenced on 12 October 2017.

## *Study procedures and data collection*

### *Introduction of screening for household contacts of drug-resistant TB cases*

Table 1 shows the development of household contact screening activities on Daru Island over time since first introduced in 2016. The screening was initially conducted on an ad hoc basis by various programme staff, including nurses and case managers. The National Tuberculosis Programme (NTP) Contact Tracing and IPT registers were introduced to Daru for the first time. In June 2016, dedicated contact tracing staff were recruited and a screening tool with a checklist of TB-related symptoms and a referral slip for contacts with symptoms were developed. Community-based TB treatment supporters were engaged to assist with locating households and conducting screening. Regular post-screening meetings were held to resolve implementation challenges. Over time, the coverage and efficiency of contact screening increased, and in 2017 screening began to include a backlog of drug resistant (DR) TB cases diagnosed in the previous year. From March 2016 to September 2017, data for individual contacts from the time of screening to further evaluation and management were not systematically recorded; only aggregate estimates of the number of index cases and contacts screened were available for analysis.

### *Expansion to drug-susceptible TB cases and isoniazid preventive therapy*

Preparations for the expansion of contact screening to include households of bacteriologically confirmed DS-TB cases and introduction of IPT as part of the standard care package for eligible contacts was undertaken in June–September 2017 (Table 1). The symptom screening tool was replaced with a household mapping tool originally developed for use in Swaziland,[14] which collected individual contact data, including (for symptomatic contacts) attendance for diagnostic evaluation, results of investigations and further management. Isoniazid (100 mg preparation) was procured and a community-based IPT clinic was established. The NTP Contact Tracing and IPT registers were used to report and follow up children on IPT. Discussion of contact screening activities was established as a routine agenda item in weekly TB case management meetings.

For the period October 2017 to March 2018, the number of people resident in the index case's household for at least 1 month was recorded at initial screening. Data about household contacts were collected, including age, sex and the results of symptom screening, defined as positive or negative depending on the presence (or not) of the following TB-related symptoms:

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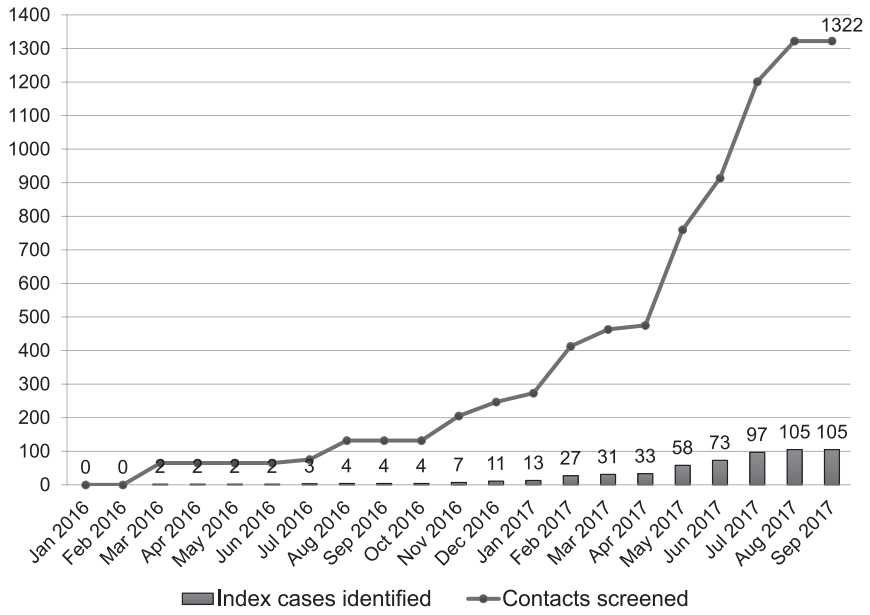


**FIGURE 1** Index cases identified and contacts screened (cumulative), January 2016–September 2017.

persistent (>2 weeks) cough; fever; night sweats; unexplained weight loss; evidence of extrapulmonary TB (e.g. reported or visible neck swelling or spinal deformity). Young children (aged <5 years) were also screened for nutritional status by measuring mid-upper arm circumference (MUAC). Any contact of any age who screened positive, i.e., reported any TB-related symptom, and any young child contact identified as malnourished (defined as MUAC < 12.5 cm) were referred to the Daru General Hospital (DGH) TB diagnostic centre for evaluation. Two sputum specimens, if available, were collected for acid-fast bacilli smear microscopy and Xpert® MTB/RIF testing (Cepheid, Sunnyvale, CA, USA). Following diagnosis, cases were registered in the TB registers and commenced on appropriate treatment. Samples that were rifampicin-resistant (RR) on the Xpert test were also transported to the Central Public Health Laboratory, Port Moresby, PNG, for culture, and to the Queensland Mycobacteriology Reference Laboratory (Brisbane, QLD, Australia) for drug susceptibility testing.

IPT, comprising daily isoniazid for a 6-month duration as per the NTP protocol,[12] was offered to eligible contacts of DS-TB cases only, i.e. young children (aged <5 years) who were asymptomatic and not malnourished at the time of initial screening, or who were symptomatic and found not to have active TB following further evaluation. For all other asymptomatic contacts, including contacts of MDR-TB cases without a diagnosis of active TB, IPT was not provided and there was no further routine active follow-up. Specific education was provided, with advice to attend DGH should TB-related symptoms develop in the future, in addition to ongoing community engagement and education activities.

Human immunodeficiency virus (HIV) screening (questions about status or counselling with testing) was not conducted as part of the contact screening at the household. Counselling and testing for HIV and commencement of IPT for people living with HIV is provided through the HIV clinic at DGH once active TB has been excluded. Index cases with HIV infection were counselled individually about risks for family members and managed appropriately, but HIV status was not explicitly disclosed at the time of the household visit.

### *Data entry and analysis*

The household mapping tool (October 2017–March 2018) was used for data collection for individuals from identification and initial screening through linkage to care as treatment for disease or infection. These collected data were entered into an electronic database which also captured data of all active TB cases registered in the Daru Basic Management Unit. These data were cross-checked with data in paper NTP registers. The electronic database was exported using SQL scripts and imported into Stata v.14 (StataCorp, College Station, TX, USA) for analysis. Continuous variables such as age are reported as medians (interquartile range [IQR]). Categorical variables are reported as numbers with proportions. The $\chi^2$ test was used to compare categorical variables. The level of significance was set at 5%.

### *Ethics statement*

Ethics approval was provided by the PNG Medical Research Advisory Council (MRAC), Port Moresby, PNG, and the Alfred Hospital Ethics Committee, Melbourne, VIC, Australia.

## RESULTS

### *Introduction and strengthening of household contact screening on Daru Island*

Figure 1 represents the cumulative number of index cases who agreed to household screening and contacts screened from the introduction of contact screening until the time of strengthening and scale up of activities as given in Table 1. While the management of household contacts was as described above, data on individual contacts were not being systematically recorded over this time period.

### *Evaluation of contact screening and management of DS- and DR-TB cases*

For the second period of evaluation, 697 household contacts of 67 index cases were identified. Figure 2 is a flow diagram providing details of the numbers identified, including numbers for young child contacts (aged <5 years), for each step of the contact

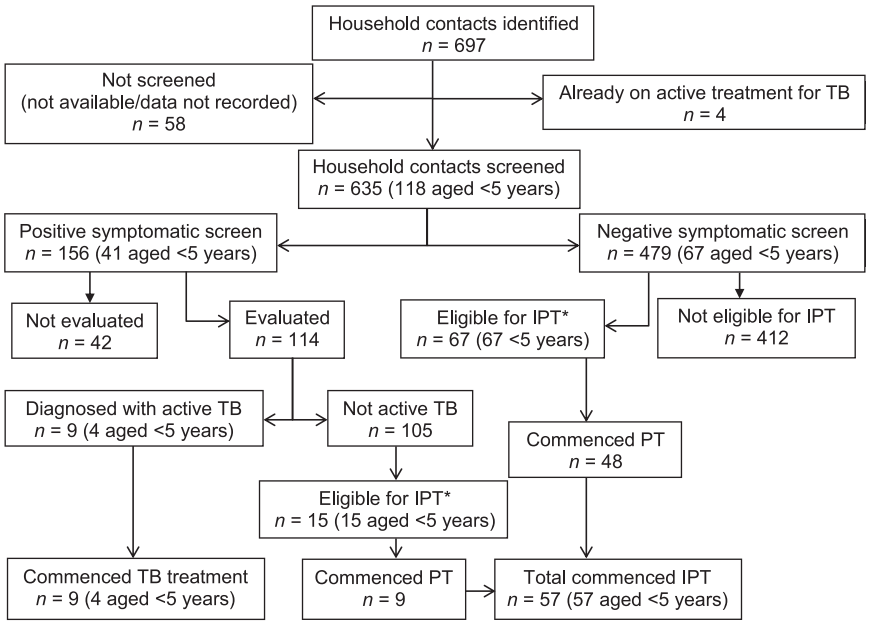


**FIGURE 2** Flow chart of household contact screening. *Eligibility for IPT defined as all asymptomatic DS-TB contacts aged <5 years. TB = tuberculosis; IPT = isoniazid preventive therapy; DS-TB = drug-susceptible TB.

screening and management procedure. The characteristics of the index cases are given in Table 2. The median age of index cases was 28 years [IQR 21–35] and the median number of contacts who shared the household with the index case was 8 ([IQR 5–12], range 2–50). Approximately one third (37.3%) of the index cases had bacteriologically confirmed DR-TB: 21 had MDR-TB, 2 had pre-XDR-TB and 2 had XDR-TB.

Table 3 shows the characteristics of the household contacts and the yield from active case-finding for contacts of DS-TB and DR-TB cases. Eight contacts were screened twice (at two separate time points) as they had different index cases, and these all screened negative at each separate screening. There was a higher proportion of young child contacts in households of DS-TB index cases than in DR-TB households ($P < 0.01$). Overall, 24.6% of contacts reported TB-related symptoms (i.e., screened positive); this proportion was similar between households of DS-TB and DR-TB cases. Of those who screened positive, the overall proportion who presented to DGH for further evaluation was 73.1%; this proportion was higher in household contacts of DS-TB compared to DR-TB cases ($P = 0.05$).

Figure 3 shows the results of the cascade of care analysis of TB case finding and treatment for DS-TB and DR-TB contacts. The yield of active TB cases was 1.4% of those screened overall, and similar between households of DS-TB and DR-TB cases. A total of nine new active TB cases were identified through contact tracing, and four of these were young children. Five (including 2 young children) were diagnosed with DS-TB and 4 with MDR-TB, 2 of whom were bacteriologically confirmed using Xpert while the 2 young children were clinically diagnosed. Of all screened contacts with ages recorded, the proportion of young child contacts (3.4% of 118) diagnosed with active TB was higher than for contacts aged ⩾5 years (1.1% of 450), a difference that was not statistically significant ($P = 0.09$).

Figure 4 shows the cascade of care for the management of young child contacts of DS-TB index cases, including the use of IPT. Of 90 such contacts, 88 (97.8%) were screened. Of these, 67 (76.1%) were asymptomatic at initial screening, 48 (72%) of whom were initiated on IPT. An additional 15 children who were symptomatic at screening were subsequently found to not have active TB on further evaluation, nine (43%) of whom commenced PT. The overall proportion that commenced IPT of those eligible

**TABLE 2** Characteristics of index cases with bacteriologically confirmed tuberculosis whose contacts were screened between 1 October 2017 and 31 March 2018 ($n = 67$)

| Characteristic | *n* | (%) |
|---|---|---|
| Age, years | | |
| 0–14 | 3 | (4.5) |
| 15–45 | 55 | (82.1) |
| ⩾46 | 9 | (13.4) |
| Sex | | |
| Male | 33 | (49.3) |
| Female | 34 | (50.8) |
| Contacts identified, *n* | | |
| 1–9 | 40 | (59.7) |
| 10–19 | 22 | (32.8) |
| 20–29 | 2 | (3.0) |
| >30 | 3 | (4.5) |
| Resistance type | | |
| Drug-susceptible TB | 42 | (62.7) |
| Drug-resistant TB* | 25 | (37.3) |
| Site of disease | | |
| Pulmonary | 58 | (86.6) |
| Extrapulmonary | 9 | (13.4) |
| HIV status | | |
| Negative | 62 | (92.5) |
| Positive | 2 | (3.0) |
| Unknown | 3 | (4.5) |

*All forms of drug-resistant TB (RR-TB, MDR-TB, pre-XDR- and XDR-TB).
TB = tuberculosis; HIV = human immunodeficiency virus; RR-TB = rifampicin-resistant TB; MDR-TB = multidrug-resistant TB; XDR-TB = extensively drug-resistant TB.

**TABLE 3** Characteristics of household contacts screened by index case resistance type, 1 October 2017–31 March 2018

| | Index case TB classification | |
|---|---|---|
| | Drug-susceptible TB contacts *n* (%) | Drug-resistant TB* contacts *n* (%) |
| Household contacts identified | 429 (61.6) | 268 (38.5) |
| Household contacts screened for TB (% of those identified) | 412 (96.0) | 223 (83.2) |
| Age groups of household contacts, years, % of those screened for TB | | |
| 0–4 | 88 (21.4) | 30 (13.5) |
| 5–9 | 42 (10.2) | 28 (12.6) |
| 10–14 | 32 (7.8) | 21 (9.4) |
| 15–45 | 138 (33.5) | 109 (48.9) |
| ⩾46 | 58 (14.1) | 22 (9.9) |
| Unknown/not recorded | 54 (13.1) | 13 (5.8) |
| Presence of TB-related symptoms, % of those screened for TB | | |
| Negative | 318 (77.2) | 161 (72.2) |
| Positive | 94 (22.8) | 62 (27.8) |
| Household contacts with positive screen further evaluated for active TB, % of those with positive screen | | |
| Evaluated | 74 (78.7) | 40 (64.5) |
| Not evaluated | 20 (21.3) | 22 (35.5) |
| Household contacts diagnosed with TB, % of those evaluated | | |
| Not TB | 68 (91.9) | 37 (92.5) |
| Active TB | 6 (8.1) | 3 (7.5) |
| New TB cases detected initiated on treatment for active TB, % of those diagnosed | 6 (100) | 3 (100) |

*All forms of drug-resistant TB (RR-TB, MDR-TB, pre-XDR- and XDR-TB).
TB = tuberculosis; RR-TB = rifampicin-resistant TB; MDR-TB = multidrug-resistant TB; XDR-TB = extensively drug-resistant TB.

was 70% and 45 (78.9%) of the 57 who commenced, or 54.9% of the 82 who were eligible, completed 6 months of IPT.

## DISCUSSION

This study describes the successful implementation of community-based household contact screening in a resource-limited, high TB endemic setting including a high DR-TB burden. The findings suggest a high level (91.1%) of acceptability of screening among household contacts of index cases. The study also reports a higher than average number of contacts per index case household (8 vs. 5.7 average number of household members as reported in the 2006 PNG Demographic Health Survey), reflecting household crowding on the island, which increases risk for transmission of TB.

There was no significant difference in the yield of new active TB cases among DS-TB and DR-TB contacts screened. There are few studies which directly compare the prevalence of active TB or tuberculous infection in contacts of DS-TB and DR-TB cases in the same community. A recent study from Vietnam showed a higher prevalence of tuberculous infection among DR-TB contacts than in DS-TB household contacts,[15] whereas a prospective study from Peru found that the hazard ratio for incident TB disease in DR-TB contacts was lower (around half) than that for DS-TB contacts, after adjusting for confounders such as sputum smear grade, age and HIV status of the index case.[16] A systematic review reported an overall prevalence of TB disease among household contacts of 3.1% (95% confidence interval [CI] 2.1–4.5), which was similar among contacts of patients with MDR-TB or XDR-TB (3.4%, 95%CI 0.8–12.6).[17] A more recent meta-analysis of 25 studies reported an overall prevalence of active TB and latent tuberculous infection of respectively 7.8% (95%CI 5.6–10) and 47.2% (95%CI 30–61.4).[18] In contrast to these previously published data, the overall yield of case detection in our study was lower (1.4%, 95%CI 0.75–2.7); this is surprising given the high TB burden in Daru, and may reflect the sensitivity of the symptom-based screening approach used (without chest X-ray or enhanced sputum collection), the number of symptomatic contacts not presenting for further evaluation and the inclusion of households of index cases with extrapulmonary forms of bacteriologically confirmed TB, which may be less infectious. It may also reflect a decrease in TB transmission prior to and during the study period due to the strengthening of case detection and improved treatment outcomes in this community.[19]

A key gap identified is that one fourth of contacts who report TB-related symptoms at the time of household screening do not

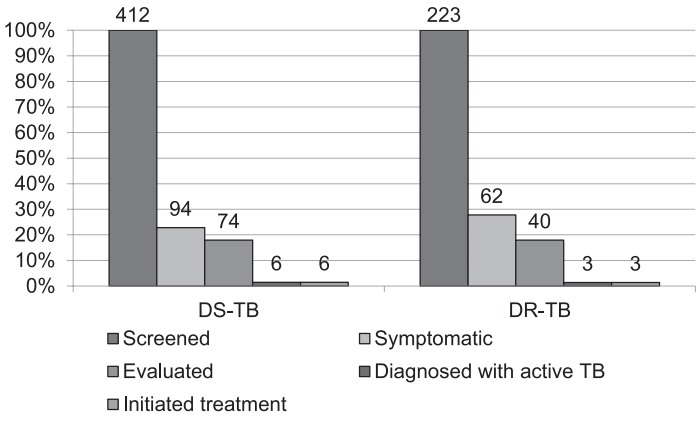


**FIGURE 3** Cascade of care for the screening and management of household contacts (all ages) of index DS- and DR-TB cases. DS-TB = drug-susceptible tuberculosis; DR-TB = drug-susceptible tuberculosis; TB = tuberculosis.

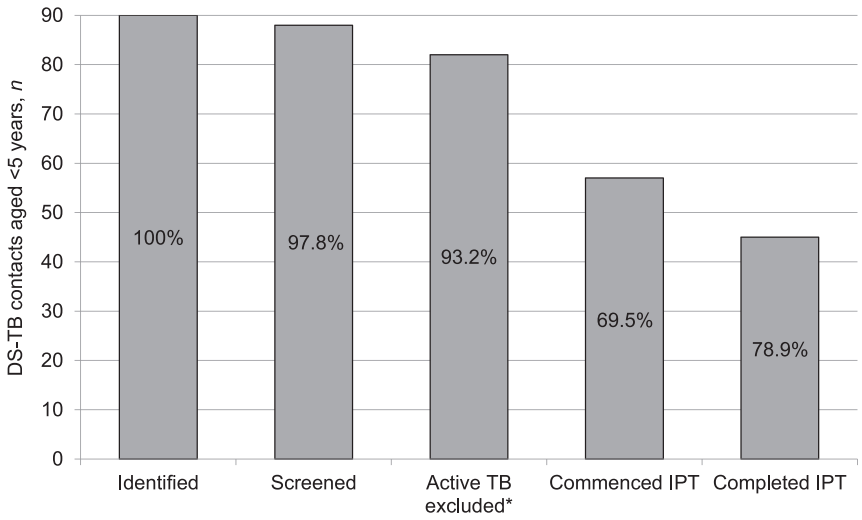


**FIGURE 4** Cascade of care for the screening and management of young child (aged <5 years) household contacts of index DS-TB cases. Data labels = percentages calculated on preceding column. * $n$ = 67 asymptomatic at initial screening; a further 15 initially symptomatic at screening found not to have active TB and thus became eligible for IPT. DS-TB = drug-susceptible tuberculosis; IPT = isoniazid preventive therapy; TB = tuberculosis.

present for further evaluation. It is also worrying that symptomatic DR-TB contacts were less likely to present for evaluation than symptomatic DS-TB contacts. This suggests that additional follow-up mechanisms and/or incentives to encourage symptomatic contacts to present for diagnostic investigations should be considered. For those diagnosed with active TB, linkage to treatment was very strong, with all new TB cases identified through contact screening in the October 2017 to March 2018 period commenced on treatment. However, the numbers were small.

IPT uptake by eligible child DS-TB contacts was high, and similar to findings from recent studies of the implementation of community-based child contact screening and management programmes.[20–22] IPT uptake in young child contacts is noted to be consistently higher when a decentralised community-based approach is employed compared to a passive facility-based approach.[4] Nonetheless, there was still a gap between eligibility and uptake of IPT, with around 30% of child contacts who were eligible for IPT not commencing treatment. Reasons for this were not explored, but it is well-known that it is often challenging to persuade parents that their young child who is well should receive medicine daily for 6 months with monthly follow-up.[4,23] Strengthening health literacy and offering IPT regimens that are of shorter duration may improve acceptability and feasibility.[4]

The study identified a number of challenges related to recording and reporting. The lack of comprehensive recording and reporting of contact screening data before October 2017 prevented the comparison of screening outcomes for individual contacts within the preceding period of implementation. Despite considerable steps to improve monitoring and evaluation, there were missing data within the second period of evaluation. This can be attributed in part to the rapid growth of the contact screening programme, with new staff being engaged to conduct contact screening without adequate training or supervision. While these are key limitations of this study, they also indicate key implementation challenges and areas for programmatic improvement.

## CONCLUSION

The study shows that even in low-resource settings with a high burden of TB, household contact screening of TB cases can be successfully implemented. The model implemented in Daru may serve as an instructive example for other provincial programmes seeking to improve TB case detection and IPT provision.

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**Contexte :** Ile de Daru, Province de l'Ouest, Papouasie Nouvelle Guinée.
**Objectif :** Décrire la mise en œuvre d'un programme de dépistage des contacts domiciliaires de cas de tuberculose (TB) résidant sur l'ile de Daru.
**Schema :** Etude rétrospective descriptive évaluant deux périodes de mise en œuvre: introduction et expansion du dépistage des contacts domiciliaires des cas de TB pharmacorésistante (DR) (mars 2016 à septembre 2017); et inclusion des cas de TB pharmacosensibles (DS) avec la fourniture du traitement préventif des contacts éligibles (octobre 2017 à mars 2018).
**Resultats :** Au cours de la première période, le programme de dépistage des contacts a été etabli et renforcé avec une couverture croissante dans le temps. Il y a eu un grand nombre de contacts (médiane: 8) dans chaque foyer et une couverture élevée du dépistage. Dans la deuxième période d'evaluation, 412 et 223 contacts de 42 cas index de DS-TB et de 25 cas index de DR-TB respectivement ont été dépistés. Dans l'ensemble, 156 (25%) contacts ont rapporté des symptômes liés à la TB et 9 (1,4%) ont eu un diagnostic de TB active. Ces 9 patients ont commencé un traitement de TB (5 DS-TB et 4 DR-TB). Sur 82 enfants contacts de cas de DS-TB éligibles au traitement preventif, 57 (69,5%) ont commencé le traitement et 45 l'ont achevé.
**Conclusion :** Le dépistage des contacts domiciliaires en communautés et leur prise en charge ont été mis en œuvre avec succès dans des conditions de programme dans ce contexte durement frappé par la TB et la DR-TB en PNG.

**Marco de Referencia:** La Isla Daru en la Provincia Occidental de Papúa Nueva Guinea.
**Objetivo:** Describir la introducción de un programa de investigación de contactos domiciliarios de los pacientes con tuberculosis, residentes en la Isla Daru.
**Método:** Estudio retrospectivo descriptivo realizado con el fin de evaluar dos períodos de la implementación, a saber: la introducción y la ampliación de escala de la investigación de los contactos domiciliarios de casos de tuberculosis farmacorresistente (de marzo del 2016 a septiembre del 2017); y la inclusión de los casos de tuberculosis farmacosensible con provisión de tratamiento preventivo a los contactos aptos para recibirlo (de octubre del 2017 a marzo 2018).
**Resultados:** Durante el primer período, se estableció el programa de investigación de contactos y se fortaleció con una mayor cobertura con el transcurso del tiempo. Se encontró un gran número de contactos en cada domicilio (mediana de ocho) y una aceptación alta de la detección sistemática. Durante el segundo período de evaluación, se investigaron 412 de los 223 contactos de 42 casos iniciales de tuberculosis farmacosensible y 25 casos de tuberculosis farmacorresistente. En general, 156 contactos referían síntomas indicativos de tuberculosis (25%) y en nueve se diagnosticó tuberculosis activa (1,4%). Los nueve pacientes comenzaron el tratamiento antituberculoso (cinco casos de tuberculosis farmacosensible y cuatro de tuberculosis farmacorresistente). De los 82 contactos pediátricos de casos farmacosensibles que cumplían con los criterios para recibir el tratamiento preventivo, 57 comenzaron el tratamiento (69,5%) y 45 lo completaron.
**Conclusión:** La investigación y el tratamiento comunitario de los contactos domiciliarios se instauraron eficazmente en condiciones programáticas en este entorno con alta carga de morbilidad por tuberculosis y tuberculosis farmacorresistente en Papúa Nueva Guinea.

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