

Using the Tailoring Immunization Programmes guide to improve child immunisation in Umina, New South Wales: we could still do better

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Table S1. Structural, intermediary and individual factors influencing underimmunisation in Umina

Structural determinants		
Barriers to immunisation	Enablers to immunisation	Potential strategies
Health policy (No Jab No Pay (NJNP), fee for service model of care, GP incentives, history, supportive to punitive, changes in National Immunisation Schedule)	Commonwealth availability of vaccines; National Immunisation Schedule is clear and set (even though changes often)	Improve quality of AIR data
Area of workforce shortage		
Social welfare (reduction in support services for vulnerable families)	Australian Immunisation Register (AIR) database	Medicare reform
Housing market (rental stress)		Improve social support for vulnerable families
Labour market forces (under employment, gig economy, stagnant wages, Newstart Allowance)		Provide evidence to inform policy and practice change upstream (OPC; National Immunisation Schedule; immunisation should not be sole parental responsibility)
Social profile (Umina specific (Peninsula is unique, discrete, services taken away, left out, won't cross the bridge, close knit with family support), community in transition (commuters from Sydney, holiday homes side by side with poor housing, area affordable to higher SES), holiday location, CALD, youth issues, community profile ABS; mental health, D&A, domestic violence, OOHC, poverty, working poor, single parent families, elderly carers), community walk results		

Intermediary determinants		
Barriers to immunisation	Enablers to immunisation	Potential strategies
<p>access to GP</p> <p><u>Parents' views:</u> GP not wanting to immunise when child is a bit sick</p> <p><u>General Practice's views:</u> GP access (cost, hours, parking, closed books, difficulty getting apts, need for apts at all, waiting time to see GP, nurse and in waiting room, largely available only from nurses), data issues, changing National Immunisation Schedule, parent factors (forgetting especially if few kids, lack of information, hard to understand technical information, hesitancy), \$6 GP incentive is not effective, catch up is complex and time consuming, change wouldn't be easy because of staffing, mindsets and costs,</p> <p><u>Other services' views:</u> GP have limited hours of operation, high costs, workforce shortage, closed books, hard to get appointments, in Umina single practices and older GPs (may be reluctant to change), when child presents sick they are not immunised, part-time GP and limited continuity of care (trusting relationship, opportunistic), may lack motivation unless \$ incentives; only interested in their existing patients (not the good of broader community);</p>	<p>Access to GP</p> <p><u>Parents' views:</u> easy to make appointments, were bulk billed, didn't have to wait long, walking distance, Reliance in Gosford is easy and free 7 days till 10 pm, on bus line</p> <p><u>General Practice's views:</u> bulk billing, opportunistic approach, having Practice Nurses (PN) (available, working together, nurse autonomy, can enter data, etc), flexible and accommodating, use of reminders, NJNP encourages compliance, working well with PHU (resource and information, advice), making appointments available every day, good communication from reception onwards,</p> <p><u>Other services' views:</u> GPs provide 75-85% of immunisations on Central Coast, there are 4 GP practices in Umina on or near the main st, with parking, public transport, some are large, GPs are good when parents want that one on one relationship (not a drop in clinic), easier if they have a PN; Reliance in Gosford is open 7 days, till 10pm and bulk bills (not so easy to get to if no car), immunisation available at all times</p>	<p>access to GP</p> <p>There is an opportunity to improve communication and efficiency in practices to immunise more children every day (better use of reminders, use phone to make appointment on the spot, no need for GP appointments), extend hours of operations, provide parking, other (i.e. move immunisation information to front of blue book, transport vouchers, home visiting, more information about where to immunise)</p>

access to CFHN

Parents' views: some parents felt 'labelled', 'fobbed off', put in 'too hard basket', others felt the same and don't go there, have to wait, limited clinic time

Other services' views: Woy Woy; location (not in Umina, difficult to get to for people with mobility issues, more children and parking not easy), hours of operation (2 Tues per month, 1.25 hours each, not flexible, no weekends or evenings), busy, no reminders or overdue lists, don't always use opportunistic approach, lacking continuity of care, Erina; location hard to get to, 2-3 buses, busy road, homevisitng; not ideal, takes time, very involved, logistics and supply, can make a mistake if not a second person there, only one nurse does this

Mingaletta and CFHNs's views: difficult to recruit to the role as requires lot of confidence to immunise in someone's home general, opportunistic immunisation; some nurses don't want to do it ('not my role', 'too busy', 'extra work', requires extra training, needs a second person)

access to CFHN

Parents' views: no appointment needed, walked there, free, really great nurses, good experience with their child laughing (entertained by nurses),
CFHNs' views: *Woy Woy immunisation clinic* is free, no appointment needed, on main road and buses go by, friendly and social, mums like it, no one complains, immunisation is their core business, they are good at it, don't turn anyone away, provide extra support for those that need it, some nurses provide opportunistic immunisation, designed to get people through, strong leadership from management to support the nurses and the clinic, to be accommodating and flexible for parents, parents from Umina do use the clinic.
Erina immunisation clinic is open all day Sat, been going for a long time, has a positive atmosphere, whole family can come, good for commuters, Dad, working families, near Erina Fair, parking is easy, no appointment needed. *CFHN general services:* provides home visiting (assessed case by case, not promoted but available for those who really cant come in); immunisation is part of CFHN general service, done in partnership with other services,

access to CFHN

Parents' views: nurses need more time or resources to spend with mums and not push you out the door, they could provide more information to those parents who may be affected by negative media;
other services' views: create more opportunities for immunisation through better access via CFHN (longer hours, more often, closer to/in Umina; more opportunistic and home visit); and via GPs (more bulk billing; after hours; open some books); potential immunisations offered at Peninsula Community Centre (PCC);

	<p>fits in whenever convenient, not a large number, staff are highly motivated to immunise those children, routine with Mingaletta</p> <p>opportunistic immunisation; part of routine care (checking, offering if time)</p>	
<p>access to immunisation provided in Aboriginal community centre:</p> <p><u>The Elders' views:</u> centre is not funded, run by volunteers, lost their bus</p>	<p>access to immunisation provided in Aboriginal community centre:</p> <p><u>Parents' views:</u> very good, receiving calls and sms to remind me, for multiple children, CFHN provides information about potential reactions and what to do</p> <p><u>The Elders' views:</u> just that the centre exists, its inclusive, provided during play groups, no appointments necessary, free of charge, working well, culturally appropriate, central location, Aboriginal families use GPs, CFHN clinics and Mingaletta, having choice is good</p>	
<p>role of Public Health Unit in child immunisation:</p> <p><u>other services' views:</u> PHU doesn't plan an active role in media to counteract anti vax messages; info on immunisation is not very accessible on their website, communication is sometimes only with GPs and not PNs who need to be involved</p>	<p>role of Public Health Unit in child immunisation:</p> <p>have KPIs for immunisation, routinely uses AIR data for surveillance, 2 nurses are also active immunisers in the community so are well informed, in their role for a long time, very experienced, play important role in providing advice and assistance to general practice and</p>	

	CFHN. Strong relationships and collaboration with other stakeholders in areas of problem solving and trouble shooting	
social and economic disadvantage as a result of upstream social/structural factors	-	-
<p>Human resources (people): staff shortage (in General Practice); GPs retiring; some services may expect people to come to them (not accommodating of people's needs) whereas outreach needed especially for harder to reach communities</p>	<p>Human resources (people): <u>parents' views:</u> nurses who provide practical, instrumental support, especially for young mums with multiple kids, kids who are sic;, providers who have time to provide information and answer questions <u>General Practice's views:</u> some GPs are strong advocates for immunisation, support it and encourage it <u>PHU's views:</u> PHU members being immunisation advocates, strong personal convictions about community health and wellbeing, going beyond what's required, 'managing red tape', strong leadership, flexible, proud of our abilities to pull together <u>Other services (and PHU):</u> long standing Immunisation Taskforce; strong collaboration of key immunisation partners- diverse perspectives, inclusive, respectful; commitment to the cause;</p>	<p>Strengthen partnerships with parents and community: develop/strengthen trusting, respectful relationship with parents; consider including community members in developing tailored strategies maintain what works well in HR: continue the good works of Immunisation Taskforce, strong collaboration between immunisation stakeholders; can do attitude</p>

	<p>can do/problem solving attitudes ("can do better, should do better") and incorporating various/innovative solutions; contributes to high rates of child immunisation; regular meetings; interpreting AIR data to inform better service delivery</p>	
<p>Information</p> <p><u>Service providers' views:</u> information on where to vaccinate children when not readily available; PHU not providing timely information to counter-arguments for anti-vax campaigns</p> <p><u>parents' views:</u> information on where to vaccinate children when not readily available; some parents don't understand why it is important to vaccinate children</p>	<p>Information</p> <p><u>parents' views:</u> use multiple sources of info (GPs, PN, midwives, online mostly governmental websites, blue book)</p>	<p>Improve information access</p> <p><u>parents' views:</u> from midwives at the hospital, especially for first child, Facebook, community centre, information about why its important</p> <p><u>other participants:</u> good quality/correct information should be available widely to parents (online, printed) and in different formats (what are the best formats?); strong counter-arguments for anti-vax campaigns</p>
<p>Transport stress</p> <p>encompasses more than not having: also not being able to afford petrol; public transport not covering all the areas; needing to walk a long way with a pram to get to the bus; mobility issues for older carers with frames, mums with prams, people with disabilities; cost of public transport</p>	<p>Transport</p> <p><u>some service providers' views:</u> think transport is not a problem in Umina, the idea that people will travel to a good service that delivers well if there is parking and good transport</p>	

		<p>Reminders for when child is due for immunisation</p> <p><u>parents' views:</u> use Blue Book, Save the Date, Centre Link, being organised, using a calendar, husband, receiving reminders/recalls from providers</p> <p><u>other service providers:</u> reminders are a known effective strategy to increase immunisation rates; stakeholders to decide on best/most effective ways (before, after; format)</p>
<p>Individual determinants</p>		
<p>Barriers to immunisation</p>	<p>Enablers to immunisation</p>	<p>Potential strategies</p>
<p>Parent characteristics/behaviours</p> <p><u>parents' views:</u> having 3 boys made it hard to keep up to date; people haven't seen these diseases so don't think its important</p> <p><u>other services' views:</u> parents are cherry picking i.e. getting some vaccinations but not all (may need to understand the personal value; concerned about ingredients; take time to encourage and convince); other priorities get in the way and parents are forgetting about immunisation (upstream factors: moving often, experiencing social disadvantage); apathy; parents may be hesitant (may be anxious about immunising); not motivated to update their details with Medicare; lack of awareness of the schedule</p>	<p>No strong antivaxx</p> <p>parents support for vaccination</p> <p>knowledgeable about value for children and the community</p> <p>personal experience with Vaccine Preventable Disease in themselves or their children</p> <p>never questioned it and followed the schedule</p> <p>stories about vaccine safety circulate amongst parents but don't influence their behaviour</p>	<p>Strengthen rapport with families</p>

<p><u>under immunisation common among Out Of Home Children (OOHC)</u> due to complexities, not having Blue Book, transient, disrupted PHC, no Medicare cards, poor communication within the service, elderly family carers struggle to access services, stigma</p>		
<p>Provider characteristics/behaviours some GPs may be reluctant to change/to innovate; many GPs getting out of practice giving vaccinations (rely on Practice Nurses for child immunisation);</p>	<p>see Human Resources</p>	