

Understanding and use of antibiotics amongst Samoan people in New Zealand

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ABSTRACT

INTRODUCTION: Use of antibiotics is high in Samoa and this may affect the expectations and patterns of antibiotic use of Samoans in New Zealand.

AIM: This study examined the understanding and reported use of antibiotics amongst Samoans in New Zealand.

METHODS: In-depth interviews were held with 13 Samoans in New Zealand. These interviews were analysed and used to develop a questionnaire that was administered to 112 Samoans attending health care facilities in New Zealand.

RESULTS: Many participants had little understanding of antibiotics. Less than 2% identified the correct purpose for antibiotics, and 66% thought they were used to relieve pain. Respondents regarded a wide range of medicines (including some which they regularly took) as antibiotics. They frequently attributed colds and flu to environmental conditions (96%), and regarded antibiotics as a useful treatment for them (81%). They reported stopping taking antibiotics before finishing the course. Very few (8%) were aware of antibiotic resistance.

DISCUSSION: Health care practitioners cannot assume that patients share a Western scientific understanding of which illnesses are caused by microbes, or what antibiotics are or do. People may have significant confusion about the medicines they take. Samoans, whether they are born in New Zealand or not, may hold traditional Samoan views about health and illness.

KEYWORDS: Antibiotics, lay knowledge, URTI (upper respiratory tract infections), Samoa, New Zealand

Introduction

Antibiotic resistance is a serious and growing problem.¹⁻³ This is due to high overall use, but sub-optimal patterns of use, such as incomplete treatment courses, may also be important.²

There are approximately 130 000 Samoans in New Zealand, of whom 60% were born in New Zealand.⁴ Pacific people in general, of whom 49% are Samoan, have shorter life expectancy, poorer health, higher rates of diabetes, higher mortality rates from cardiovascular disease and stroke than the general population.⁵ There are several reasons to assume that antibiotic use might be high amongst Samoans in New Zealand. Pacific people have lower socioeconomic and health status and higher rates of infectious diseases than other

New Zealanders.⁶ In the general population lower socioeconomic status is linked to higher rates of infectious diseases^{7,8} and higher use of antibiotics.⁹ In Samoa the use of antibiotics is high, and antibiotics are available without prescription from pharmacies.¹⁰ This may affect Samoan people's expectations of treatment and patterns of antibiotic use in New Zealand. One clone of community-acquired methicillin-resistant *Staphylococcus aureus* has been labelled Western Samoan Phage Pattern (WSPP) MRSA, because its prevalence amongst Samoans and other Pacific Islanders suggests that it may have emerged in Samoa.¹ In addition, the prevalence of traditional beliefs about health and illness may mean that Samoan people use antibiotics in ways that are not consistent with Western scientific beliefs.

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Misunderstandings about antibiotics are common in a wide range of populations studied.¹²⁻¹⁵ This study aimed to investigate understandings and use of antibiotics amongst Samoans in New Zealand. It did not aim to compare the level of knowledge of Samoans and non-Samoans in New Zealand, nor does it assume that Samoans have lower levels of knowledge than other New Zealanders.

Methods

In-depth interviews were held with 13 Samoans in New Zealand in 2005–2006. These interviews were audio-taped, transcribed, and those in Samoan were translated into English. They were coded and analysed using nVivo. Themes were developed from the aims of the project, the results of previous studies, and inductively from the interviews. Analysis was discussed amongst team members, and the material from the interviews was used to develop a questionnaire exploring knowledge and use of antibiotics. This questionnaire was administered to 112 Samoans. All interviews (in-depth and questionnaire) were carried out by Samoan members of the research team.

Respondents for the in-depth interviews were identified through the researchers' informal networks in Auckland and Wellington. Respondents for the questionnaire were identified through health services catering primarily to Pacific people in Auckland and Wellington. All Samoan patients using the clinic during the times when the researcher was present were invited to participate.

Both in-depth interviews and the survey were carried out either in Samoan or English. The seven in-depth interviews in Samoan were translated into English. An identical questionnaire layout in Samoan and English was used, so that translation was not necessary for the questionnaire analysis.

Ethical approval for the study was granted by Wellington and Auckland ethics committees (AKX/04/07/194). Informed consent was obtained from all participants. Information sheets and consent forms were provided in English or Samoan.

WHAT GAP THIS FILLS

What we already know: Many studies have shown gaps in public knowledge about antibiotics, but none have looked specifically at Samoans.

What this study adds: Significant misunderstandings by Samoans living in New Zealand are common. Primary health care practitioners should not assume that patients share their understandings of antibiotics or microbial illness.

Results

Semi-structured interviews

Most of the participants (11/13) were female and their ages ranged from 29 to 82 years of age. Eight were born in Samoa, and five in New Zealand. The semi-structured interviews revealed significant misunderstandings and lack of knowledge of antibiotics. Some respondents consistently confused antibiotics with painkillers, while others had inconsistent understandings, which changed throughout the interview.

Interviewer: What do you think antibiotics do?

Participant: They do—they heal don't they? They're supposed to relieve the pain I guess.

There were frequent confusions between antibiotics and other medication. One respondent, speaking of her nephew with epilepsy:

Interviewer: Do you remember what medication he was on?

Participant: He was definitely on some sort of antibiotics but I have no idea what they were, I will have to ask my sister. I think it was two lots of different ones.

Antibiotics were frequently confused with paracetamol and other analgesics. However, during the interviews they were also confused with allopurinol, epilepsy medication, topical NSAIDs, asthma inhalers, Indocid, fluoxetine, and a urinary alkaliniser. This sort of confusion was common even in respondents who told us that antibiotics were medicines to kill bacteria.

Many respondents reported use of incomplete courses, and storing of leftover antibiotics.

Respondent: I think the way my family uses antibiotics is typical.

Interviewer: What do you mean by that?

Respondent: They use it and when they feel better they stop using them. And they will keep them for later use.

A small number of respondents reported receiving advice about appropriate use of antibiotics from health professionals, which sometimes appeared to have changed their attitudes or behaviour. Some perceived that doctors in New Zealand had become less likely to prescribe antibiotics:

Interviewer: So who suggested that you take these...who decided that you should use them?

Respondent: Usually the doctor, but that was in the time when they gave them out pretty freely, nowadays they're not as generous with antibiotics I find...you even have to ask 'could we have an antibiotic?' and they would generally say 'no, let your own system fight it' and they will tell you to go home and drink lots of water and fluids.

A minority of respondents remembered being told to complete courses of antibiotics, and one knew from reading medicine labels:

Respondent: I remember when I was given antibiotics I make sure I take them all before.

Interviewer: Do you?

Respondent: It always says on the thing that you make sure you take all your antibiotic until you finish it off, yeah.

Interviewer: And you do?

Respondent: Yeah.

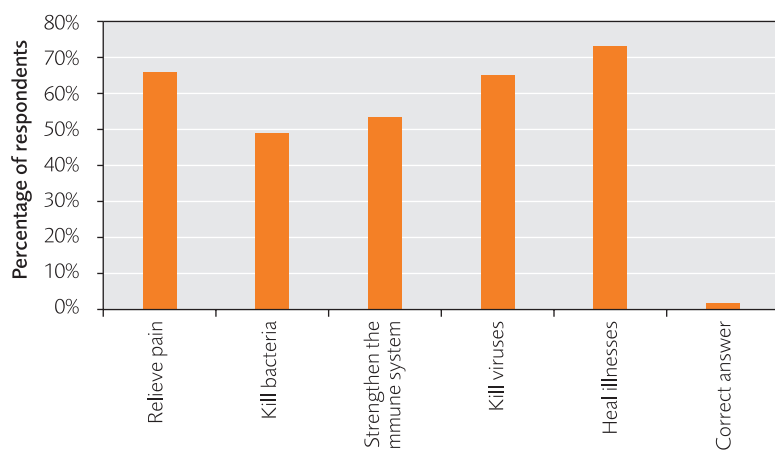
Survey

One hundred and twelve people completed the questionnaire; an approximate response rate of 84%. Fifty-three percent of the sample were female. Nine percent were under 20 years old, 31% were between 20 and 40 years old, 36% were 40 and 60, and 24% were over 60 years old. Most (83%) were born in Samoa, with the others born in New Zealand (17%). For those born in Samoa, the average length of residence in New Zealand was 14 years, with a range from six months to 40 years. Of those born in New Zealand, only one had lived in Samoa for a short time. The others had either not been to Samoa, or only been for holidays.

Only two of the 112 people interviewed gave a correct answer to the question 'What do antibiotics do?' Responses were categorised as correct if they were 'kill bacteria' or 'kill bacteria' and 'heal illness', but no other responses. Although half the sample (49%) correctly stated that antibiotics kill bacteria, this was a less popular answer than 'kill viruses' (65%), 'relieve pain' (66%), and 'strengthen the immune system' (54%). (Figure 1)

Just over half the sample (54%) correctly identified antibiotics from a list of medicines. Amoxycillin was correctly identified as an antibiotic by 81% of the sample, and Augmentin by 80%. However, the other medicines listed: 'metformin for diabetes', 'allopurinol for gout', paracetamol, coldral/coldrex, asthma inhalers, were also identified as antibiotics (Figure 2).

Figure 1. What do antibiotics do?



Respondents could select more than one option. If they selected both a correct option ('kill bacteria') and an incorrect one such as 'relieve pain', their answer was counted as incorrect. Respondents who chose the answer 'kill bacteria' with no other option, or 'kill bacteria' and 'heal illnesses' with no other option were classified as correct.

Colds were more commonly attributed to environmental rather than microbial causes (96% vs 42%). Environmental causes were changes in the weather (92% of respondents), dust (57%) and getting cold (50%). Thirteen (20%) of those who thought that dust caused colds were born in New Zealand.

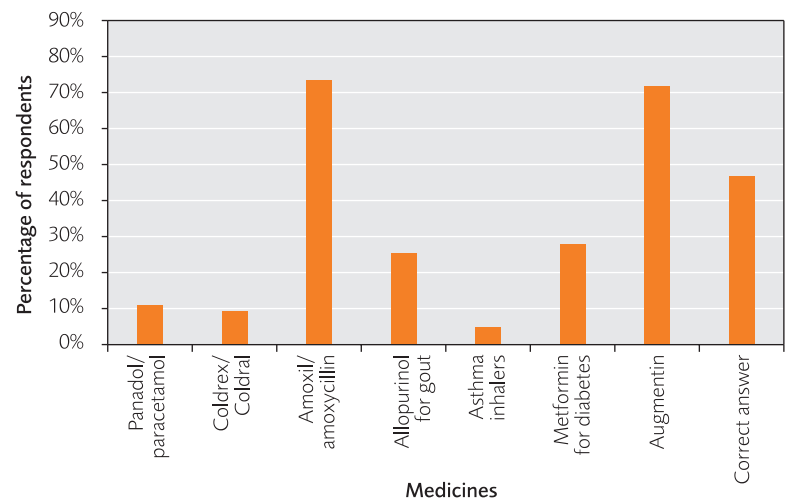
Respondents were asked, 'If you had a cold/fulu* for three days, with coughing, heavy nose, and headache, what would you do?' Almost all respondents (99%) said they would see a doctor or nurse, and over half reported that they would take medicines (46%). Panadol or paracetamol was by far the most common medicine reported (51/56 medicines listed). Hot drinks (35%), rest (28%), and traditional Samoan fofo (29%) were also commonly reported responses.

Participants were asked what medicines they had taken in the last month, and what for. Sixteen people identified antibiotics (amoxicillin, augmentin, doxycycline, penicillin) which they reported that they had taken for flu, lung infections, infected chest, sore throat, throat infections, fissures, 'bad flu', knee injury, chest pain/infection, eczema, boils, and tonsillitis.

Of the two people who reported taking allopurinol in the last month, one had earlier indicated that allopurinol was an antibiotic. Of the 11 people who reported taking metformin, eight had earlier indicated that metformin was an antibiotic. All but one of these people gave very wide interpretations of what antibiotics did, saying that they relieved pain, strengthened the immune system, killed viruses and bacteria, and healed illness. Of the 57 people who reported taking paracetamol in the last month, three thought this was an antibiotic. None of these three thought antibiotics relieved pain. Two thought they killed bacteria, and two thought they killed viruses. Two took the paracetamol for flu and one for a headache.

Eighty-one percent of the sample believed antibiotics were useful for colds and flu, and four percent were not sure. Antibiotics were believed to prevent colds and flu getting worse (68%), help people get better sooner (62%), relieve symptoms (57%), and prevent serious illness (35%).

Figure 2. Which medicines are antibiotics?



Respondents could select more than one option. Respondents' answers were classified as correct if they chose 'Amoxil/amoxycillin' with no other option, or 'Augmentin' with no other option, or 'Amoxil/amoxycillin' and 'Augmentin' with no other option. If, for example, a respondent said panadol and amoxil were antibiotics, their answer was counted as 'incorrect'.

Forty-six percent of people said they would stop taking antibiotics when they got better (rather than when the course was finished). When asked what they would do with leftover antibiotics, 54% said they would keep them, 46% said they would throw them out, and 3% said they would give them to someone else. No one said they would return them to a pharmacy.

When asked if antibiotics have any bad effects, half of the sample were unsure, and 39% thought they did. The 'bad effects' identified were allergy (34% of the whole sample), diarrhoea (31%), thrush (14%), damaging the immune system (13%), germs getting used to antibiotics (8%), 'people start to dependent on them' (3%), inability to drink alcohol (1%), and overdose (1%).

Discussion

Both the in-depth interviews and the questionnaire suggest that many Samoan people have little understanding of antibiotics, and regard a wide range of medicines as antibiotics (even medicines they have personal experience of). The responses suggest that Samoan people frequently

* 'Fulu' is Samoan for cold or flu.

attribute colds and flu to environmental conditions, rather than microbes. They regard antibiotics as a useful treatment for colds and flu, frequently stop taking them before finishing the course, and very few are aware of antibiotic resistance. Ironically, stopping taking antibiotics 'prematurely' for those with a common cold will probably reduce resistance while such behaviour could be harmful for diseases with serious consequences such as streptococcal tonsillitis (and its relation to rheumatic fever).

The survey involved a small sample of people who were visiting health care practitioners. The interview process was very time-consuming and so the sample size of 112 was decided by practical constraints rather than a power calculation. Thus caution should be used when extrapolating to the general Samoan population, and further research is needed. However, this is the first information available on Samoan knowledge and understanding of antibiotics. There were some difficulties in translating the terms 'bacteria' and 'virus' into

seems to be encouraged by prescribing patterns. Antibiotics are also available without prescription from pharmacies.¹⁰

The belief that exposure to cold and changes in weather can cause colds may also be common in Western cultures.¹⁶ However, to our knowledge, the belief that dust causes colds and flu has not been reported elsewhere, although it may have been part of medical orthodoxy some time ago.¹⁷ In this study, Samoans born in New Zealand were just as likely to report this belief as those born in Samoa. This suggests that health care professionals cannot assume that New Zealand-born Samoans completely share Western ideas about health.

A previous study found that 42% of the population of a New Zealand town had taken antibiotics in the last year.⁹ In this study, 14% reported taking antibiotics in the last month. It is difficult to compare these numbers because the survey was administered with a sample of those visiting health care providers, rather than a general population sample.

Curry et al. found that most people taking antibiotics for URTI believe that they help symptoms (85%) and shorten the course of URTI (80%).¹⁴ Respondents in our study of Samoan people also commonly believe that antibiotics have these effects, and they also believe antibiotics prevent URTIs getting worse, and prevent serious illness.

Respondents in our study of Samoan people reported a very high level of use of health care providers for colds/flu (99% said they would see a doctor or nurse for a cold lasting three days). In contrast, Curry et al. reported that only 15% of their general population-based sample said they would usually see a doctor about an URTI.¹⁴

This study provides several messages for health care professionals. It cannot be assumed that patients share Western scientific understandings about which illnesses are caused by microbes, which illnesses are viral, and which are bacterial, or what antibiotics are or do. People may have significant confusions about what the medicines they take actually do. Even Samoans who are

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Samoan, so caution should also be used in interpreting results concerning these.

Studies overseas have also found misconceptions and lack of knowledge about antibiotics. For example, 8% of people interviewed in 1976 thought aspirin was an antibiotic¹² and only half of the respondents in another knew that codeine was not an antibiotic and some thought Robitussin was an antibiotic.¹³

The interviews reported here are part of a larger study looking at knowledge and use of antibiotics amongst Samoan people in Samoa and New Zealand. In Samoa itself, participants reported routine use of antibiotics for colds and flu. This

born in New Zealand may hold traditional Samoan views about health and illness, rather than Western ones. However there is some evidence that explanations about appropriate use of antibiotics given by individual doctors and pharmacists make a difference.

While the results show the need for targeted health promotion about antibiotics in the Samoan community, they also suggest that caution is needed. Because many Samoan people were unable to distinguish antibiotics from other medicines, there is a risk that they may reduce use of other essential medicines, such as metformin if they are warned about the dangers of antibiotic use. Messages about appropriate (non-antibiotic) management of colds and flu, building on existing culturally-based practices, would be safest strategy in this context.

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COMPETING INTERESTS

None declared.