



Murdoch
UNIVERSITY

MURDOCH RESEARCH REPOSITORY

This is the author's final version of the work, as accepted for publication following peer review but without the publisher's layout or pagination.

The definitive version is available at :

<http://dx.doi.org/10.1007/s10393-014-0919-x>

Balilla, V.S., Anwar McHenry, J., McHenry, M.P., Parkinson, R.M. and Banal, D.T. (2014) The assimilation of western medicine into a semi-nomadic healthcare system: A case study of the indigenous Aeta Magbukún, Philippines. *EcoHealth*, 11 (3). pp. 372-382.

<http://researchrepository.murdoch.edu.a/21672/>

Copyright: © 2014 International Association for Ecology and Health
It is posted here for your personal use. No further distribution is permitted.

1 **Title & Abstract page:**

2 The assimilation of Western medicine into a semi-nomadic healthcare
3 system: a case study of the Indigenous Aeta Magbukún, Philippines.

4

5 **Abstract**

6 The Aeta Magbukún are a genetically and culturally distinct group of Indigenous people
7 living in an isolated mountain forest in the municipality of Mariveles, in the province of
8 Bataan, Philippines. This research aims to document some healthcare related
9 information of the people, inform future decisions regarding maximising benefits of
10 modern conveniences, and minimise negative consequences on their culture and health.
11 Using an ethnographic approach, data was collated from a community health survey in
12 combination with field notes from three of the co-authors while living with the Aetas.
13 Despite major implications from rapid ecological and cultural changes, traditional
14 ethnomedical systems continue to be revered as an essential healing practice, although
15 they are increasingly used in conjunction with Western medicines and healthcare. At the
16 Aeta village level, the changing socio-political influence between the kagun (traditional
17 healer), the NGOs, and the Municipal Council in terms of healthcare provision is
18 pivotal, as the kagun have chosen to integrate the Western medicine and healthcare
19 services into their traditional healthcare system, without simply rejecting them. In turn,
20 Western-style healthcare interventions have the potential to be carefully managed to
21 integrate traditional Aeta Magbukún socio-political structures, healthcare, and cultural
22 continuity. The cumulative influence of numerous other novel aspects to Aeta life (e.g.

1 permanent housing, a highway through the village, literacy, cash economies, energy-
2 dense foods, communication/entertainment devices, etc.) will place additional pressure
3 on the traditional ethnomedical healthcare system. However, enabling the continuity of
4 access to appropriate healthcare knowledge (both the transfer of knowledge from
5 Western medicine to the Aeta Magbukún, and vice-versa), can assist many cultures
6 through the inherent stresses of increasingly rapid acculturation and development.

7 Word count: 5,451

1 The assimilation of Western medicine into a semi-nomadic healthcare
2 system: a case study of the Indigenous Aeta Magbukún, Philippines.

3

4 **Introduction**

5 Despite a perception of incongruence between traditional Indigenous and Western
6 healthcare systems, it is often difficult to both generalise and distinguish between the
7 adoption and use of either at an individual or community scale. For example, many
8 Indigenous peoples adopt the use of Western medicine in the treatment of acute
9 symptoms, life threatening illness, and emergencies (Nathan and Japanangka 1983).
10 However, strong Indigenous social and kinship obligations have the potential to override
11 individual treatment decisions to the detriment of the individual, as core beliefs about the
12 causes of illness and death are commonly attributed to social or spiritual dysfunction
13 (Reid 1983; Morgan et al. 1997; Maher 1999). Yet, there can be a danger of
14 overgeneralisation in anthropological literature from individual communities (Maher
15 1999), as Indigenous peoples, their beliefs, and practices are both incredibly diverse and,
16 as living cultures, are subject to change (Morgan et al. 1997).

17 To appreciate the contemporary Aeta Magbukún health framework, one has to
18 discern how the concept of health manifests itself within the context of their culture,
19 politico-economic system, and biophysical environment on a daily basis. Aeta camps
20 usually consist of around a dozen very small temporary housing structures that are used
21 for wet weather shelter and sleeping (Headland 1987b). As they are largely nomadic,
22 the Aeta have few possessions and no way of storing food, however, there is a high
23 value placed on food sharing and the accommodation of overnight visitors travelling

1 through the region. With the exception of these overnight visitors, Aeta will only reside
2 long-term with kin (Headland 1987a, b). As with other minority and marginalised
3 groups in the Philippines, poorer health outcomes can be attributable to
4 underdevelopment, including low socioeconomic status, which in turn is a product of
5 issues concerning security of land tenure, poor sanitation, and difficulties in access to
6 utilities and quality education (David 1989; Walter and Saggars 2007; Gracey and King
7 2009). Collectively, Indigenous populations in the Philippines have been estimated at 12
8 million and are broadly classified as Lumads, Igorot, Ilongot, Negrito, Mangyans, and
9 Palawan tribes, although these are divided further into 110 major ethno-linguistic
10 groups (Ting et al. 2008). The Aeta Magbukún belong to one of 25 ethnolinguistic
11 groups and along with the Ata, Aeta, Alta, Agta, Ati, Pugot, and Remontado, are
12 classified as Negrito. The Negrito are typically nomadic forest hunter-gatherers located
13 throughout Luzon, and provinces of the Visayas and Mindanao (Rai 1982; Headland
14 1984; Ting et al. 2008). The Aeta/Agta of Luzon generally form socially-isolated
15 linguistic groups through networks of kin, which have remained stable and
16 independently viable until more recent encroachment on their land by the growth and
17 migration of agricultural and mercantile populations (Rai 1982). For the Aeta
18 Magbukún, lifestyle and cultural change was accelerated within the last decade with the
19 completion of a highway and provision of electricity to their *bayan-bayanan* (village).
20 Thus, the Aeta Magbukún represent an interesting case of a genetically and socially
21 distinct traditional Indigenous population experiencing rapid socio-cultural adaptation to
22 Western-style infrastructure, medicine, healthcare, language, and culture (Delfin et al.
23 2011; Lopez-Class et al. 2011; McHenry et al. 2013), and yet are one of the least known

1 and researched Indigenous peoples within what remains of the forested areas of the
2 Bataan province of Luzon (Balilla et al. 2012). (Figure 1).

3 **[Insert Figure 1 approximately here]**

4 The Aeta Magbukún in Bataan, live on the edge of the remaining forest of the
5 municipality of Mariveles in the province of Bataan, Philippines. As the traditional
6 Indigenous peoples of the land, the Aeta Magbukún continue a nomadic hunter-gatherer
7 lifestyle, although some have become semi-nomadic in the last decade. Their
8 subsistence lifestyle within the declining area of their forested ancestral domain exposes
9 the Aeta Magbukún to external socio-political influences and resulting ecological
10 changes (Balilla et al. 2012; Balilla et al. 2013). An acute example occurred on 28
11 September 2006 when typhoon Milenyo (known internationally as Xangsane) hit the
12 Bataan province and almost annihilated the Aeta Magbukún community through
13 extraordinarily intense flash flooding. The extreme movement of mud and debris was
14 exacerbated by (legal and illegal) forestry activity by non-Aeta groups. This revealed
15 the insufficiency of forestry management to prevent excessive exploitation of the forest
16 in Mariveles to the detriment of both the Aetas and the wider community (Balilla et al.
17 2012). Since this incident, the Mariveles Municipal Council has given greater emphasis
18 and priority to environmental programs and campaigns protecting the over-exploitation
19 of the forests in the municipality. Consequently, the Aeta Magbukún have featured in
20 various council conservation activities, which drew on the Aeta's image as vanguards of
21 the forest and as a living legacy in need of protection.

22 The objectives of this research are to provide a snapshot in time of simple Aeta
23 Magbukún demographics, the self-reported subjective health levels, and level of
24 traditional ethnomedicine and Western medicine use within the past two weeks. Due to

1 the reliance on primarily volunteer researchers and data collectors, this baseline
2 information is particularly limited, yet is contextualised within the cultural and socio-
3 political information observed first-hand by the authors. The work hopes to become one
4 of very few written documents of potential historical value for the Aeta Magbukún.
5 Thus capturing an element of their ethnic identity, traditions, and independence, for
6 future detailed follow-up research and analysis (Bruner 1986).

7

8 **Method**

9 This ethnographic research utilised a mixed-methods approach comprising participant-
10 observation, informal interviews, and a simple community health survey. Observational
11 field notes and informal interviews with key community members were collected by three
12 of the co-authors (an anthropologist, NGO administrator, and a teacher, all of whom are
13 non-Aetas) predominantly when living within the Aeta community. Period of residence
14 range from a few weeks to several months at a time over two years, with one author living
15 with the community continuously for several years, and continuing to work within the
16 community on a daily basis. This enabled a depth of involvement in an attempt to
17 integrate the authors' investigation as a trusted member of the Aeta Magbukún
18 community. The narrative analysis of ethnographic data focused primarily on health-
19 related topics and ethnomedical practice. These stories were either observed first-hand by
20 the authors or were relayed through informal interviews with key informants, such as
21 traditional healers, the patient, or the patient's parents. The community health survey
22 questionnaire was taken from the overall health and nutrition survey component of a
23 series of questionnaires to build community data used by the Anthropology Field School

1 at the Department of Anthropology, University of the Philippines (Diliman Campus). To
2 conduct the community health survey, a trained community health worker of Aeta
3 ethnicity was employed during the earlier phase of the research. The health worker visited
4 each household and conducted one-on-one interviews with a selected member of the
5 household. Pre-testing of the survey enabled appropriate and meaningful translation of the
6 terms used within the survey. The health worker was raised in an Aeta home (outside of
7 the village which is the subject of this research), and possessed a balance of local/ethnic
8 and conventional Western medical knowledge. Therefore, the health worker was deemed
9 to have sufficient understanding of the cultural sensitivities of existing ethnomedical
10 practices to enable extraction of basic, subtle references to traditional cosmology and
11 ethnomedicine within a cultural context. The entire Aeta Magbukún community was
12 sampled as the population was too small to allow for random or stratified methods of
13 sampling. The health worker conducted the survey and collated the various traditional
14 herbal/medicinal practices in use. For clarification, the community worker was not an
15 author in this research. The primary author undertook the majority of the remaining field
16 research. While not an Aeta, the primary author is fluent in the Magbukún Aeta/Mariveles
17 Aeta, the language of the Aeta Magbukún. As such, the author was able to document and
18 translate first-hand the Aeta Magbukún stories, knowledge, opinions, and perspectives
19 while living in the village. The field notes were examined by Aeta Magbukún community
20 elders and Aeta individuals relevant to the information collected to ensure an accurate
21 account and interpretation.

22

23 **Results**

1 ***Background derived from field notes***

2 There has been a marked increase in attention regarding the plight of the Aeta
3 Magbukún in recent years. This has resulted in NGOs and governments investigating
4 the Aeta Magbukún's access to health, education, services, and infrastructure. The NGO
5 influence (primarily of Christian missionary orientation) in particular has seen many
6 changes. In a relatively short interval, the Aeta Magbukún have experienced the
7 construction of an Aeta elementary school, public toilets, water tanks, small permanent
8 housing, and electricity, in addition to a concrete highway passing through the newly
9 established permanent settlement. Caritas Bataan – Indigenous People's Apostolate
10 (CB-IPA), an arm within the Diocesan Commission on Social Services established in
11 1998, was the pioneering NGO that gave attention to the Aeta Magbukún tribe in
12 Mariveles. The CB-IPA facilitated ancestral domain claims and offered education
13 scholarships to Aeta children. Separately, through a collaborative government-NGO
14 initiative, the two-classroom Aeta school in the present village site was established in
15 2003, called the Morpeth Concord Aeta School. The school was funded and constructed
16 by a collaboration between the Philippine's National Commission on Indigenous
17 Peoples (NCIP) and the Entrepreneurs Volunteer Association Charity Foundation
18 (EVACF), with funding from several Anglican Churches in Morpeth, Northumberland,
19 UK. Around the same time another NGO, the Institute for Foundational Learning (IFL),
20 facilitated families to settle on the present permanent village site near the school. IFL is
21 a Christian NGO focussed on medical missions, adult literacy, and community
22 development. Numerous IFL volunteers constructed permanent houses and structures, a
23 potable water supply, and several public toilets, and two of the volunteers (a husband
24 and wife) have become the teachers in the now renamed Biaan Aeta School. The new

1 developments presents a view of successful development, and the Aeta Magbukún
2 themselves expressed satisfaction with the elementary school and the provision of basic
3 services that they did not enjoy half a decade ago. However, there is concern stemming
4 from the Aeta village over the continual encroachment of non-Aeta people and culture
5 into the region, which has increased markedly since the major works to improve the
6 road (primarily upgraded from an overgrown dirt track to a paved dual highway as an
7 access road to a new large tourist resort several km away). Yet, the improved road is
8 also viewed positively as it enables easier access to the nearby town and the Aeta
9 community now have improved access to local public health institutions like the
10 Barangay Health Center and the Municipal Health Center. The influx of NGOs also
11 brought with them medical missions by Singaporean doctors, established a village
12 pharmacy where generic medicines can be accessed, and government health workers
13 undertake scheduled visits at no cost to the Aetas. Furthermore, Aeta medical
14 emergencies are treated in the government funded Municipal Health Office at no cost,
15 although some specialised services and treatment may require payment, it is now a more
16 accessible option with the new road.

17 The new road has also brought a greater exposure to a range of new products,
18 such as packaged refined foods (and a new issue of unbiodegradable littering), alcohol,
19 modern appliances, which in turn necessitate the need for cash income generation and
20 financial skills, rather than the traditional bartering practices. These new influences on
21 the Aeta Magbukún of Biaan, all occurring within roughly ten years, is an example of
22 extremely rapid acculturation processes for a functional hunter-gatherer community.

1 ***Demographics and self-reported health***

2 As of December 2008, the total population in the Aeta *bayan-bayanan* was 107,
3 with a total of 21 families. The average size of an Aeta nuclear family in the *bayan-*
4 *bayanan* is five family members including the mother and father. The total population is
5 composed of 63 (59%) males and 44 (41%) females. It is a very young population with
6 72 (67%) of the total *bayan-bayanan* population between 0-30 years of age, with an
7 average of three live births per year from 1990 to 2008. In recent years (~10) it has been
8 more common for non-Aeta spouses to be welcomed into the community, and now 10
9 (9%) of the *bayan-bayanan* population are non-Aeta. Therefore, 10 out of 21 or 47% of
10 married couples in the *bayan-bayanan* are now of mixed marriage. In 2007, a total of 19
11 household representatives were interviewed for the survey. The Aeta household
12 representatives, consisting of 14 mothers (around 50% of all mothers) and five fathers,
13 were asked to rate their own and their household members' health using a five point
14 Likert scale (very sickly, sickly, quite healthy, healthy, excellent health). The basis for
15 each rating in the scale was left entirely up to the Aeta's subjective opinion to indicate a
16 respective scale rather than an absolute (Table 1). Almost half of the Aeta community
17 considered themselves and their family members *madalang*
18 *magkasakit/malusog*/healthy, while a considerable number see themselves as *paminsan-*
19 *minsan magkasakit*/quite healthy (Table 2). Almost 10% were rated to be
20 *napakadalang/hindi nagkakasakit*/excellent health. Very few are rated as *sakitin* /sickly,
21 and *napaka-sakitin*/very sickly, at 6.4% and 2.4%, respectively.

22 **[Insert Table 1 and 2 approximately here]**

23

1 *Perception of common Aeta illnesses*

2 For Aetas participating in this study, being healthy was generally understood as
 3 being without illness. In relation to their self-assessment of health, the Aeta community
 4 was asked to recall *sakit/karamdaman* (illnesses) that they experienced over the past
 5 two weeks (within a 2-week morbidity recall). This recall provides a glimpse of what
 6 the Aeta consider as their common illnesses. The majority of the informants were Aeta
 7 mothers. Table 3 shows the top three rated illnesses reported for children and adult
 8 males and females are *lagnat* (fever), *ubo* (cough), and *sipon* (colds). It was not
 9 uncommon that these three illnesses were experienced at the same time as having the
 10 *trangkaso* (flu). However, a considerable number of individuals (17) were reported as
 11 being *Walang sakit* (without any illness) in the 2-week period. When asked what
 12 remedies or medications were administered for their illnesses, several answers were
 13 given, both from conventional Western medicines and traditional ethnomedicines (Table
 14 4). As part of a community survey, when asked what traditional remedies or
 15 medications were administered for their illnesses over the previous two weeks, several
 16 traditional ethnomedicines were sought and administered, not simply kagun rituals
 17 (described below). These included (from most frequently used to least): Pulot (honey);
 18 Talbos ng Bayabas (guava leaves/psidium guajava); Bawang (garlic, *Allium sativum*);
 19 Tawas (alum, hydrated potassium aluminium sulfate); Kagun; Oregano
 20 (oregano/suganda/*Coleus aromaticus*); Sambong (blumea camphor/*Blumea*
 21 *balsamifera*); Tangan-tangan Tuba (leaves from *Jatropha curcas*); Repolyong Gubat
 22 (literally means ‘wild cabbage’); Buko (Green coconut); Kamias (cucumber
 23 tree/*Averrhoa bilimbi*); Tabako (leaves of *Nicotiana tabacum*); Kalamansi (calamondin
 24 orange/*Citrus microcarpa*); Malasuka (literally means ‘vinegar-like vine’); Balon-

1 balunang Manok (literally means ‘chicken gizzard plant’). An inclination towards using
2 generic Western medicines can be clearly seen, with paracetamol the leading choice, in
3 direct proportion with its use for the leading common illness (fever). As for the herbal
4 remedies, honey is often used for a cough and colds. The relatively high use of generic
5 conventional Western medicines was due to the relatively recent establishment of the
6 community pharmacy. For example, the use of Paracetamol for the most commonly
7 reported illness, fever, as previously mentioned.

8 The field notes and the simple survey show that despite the exposure to and
9 improved access of conventional Western medicine, the Aeta’s traditional ethnomedical
10 systems continue to be revered and used by the Aeta community as an essential healing
11 practice. This research suggests an integration of two complementary healthcare
12 systems exists at present, which retains traditional mental wellbeing
13 practices/knowledge while improving community acute healthcare. However, the rapid
14 uptake of Western medicines since the community pharmacy and the medical missions
15 suggests it may come to dominate much healthcare practise over time. This is
16 fundamentally due to practical reasons: modern medicine efficacy, and the arduous task
17 of travelling deep into the forest to access seasonally available traditional medicines
18 when Western alternatives are available at no cost within the newly established
19 settlement year-round. Nonetheless, Western medicines did have their traditional
20 counterparts in terms of herbs/substances. The most commonly used traditional remedy
21 was honey, particularly for a cough and cold. The minimal use of traditional spiritual
22 healing practices, such as ‘kagun’ healing (described below), in the two week period
23 can be attributed to the general use of the approach reserved for medium to major crises.
24 Nonetheless, an elder kagun has also taken to both self-administration and prescribing

1 the Western alternatives for minor illness, such as paracetamol. This is primarily due to
2 the kagun's personal experience of efficacy of Western alternatives in a relatively short
3 period in comparison to some traditional alternatives. Furthermore, the kagun was
4 known to have not taken the full prescription given by the Singaporean doctor,
5 preferring to save the medicine for future use.

6 **[Insert Table 3 and 4 approximately here]**

7

8 *Aeta cosmology and the kagun*

9 The Aeta Magbukún cultural and spiritual worldview is linked to traditional
10 animistic concepts which have merged to an extent with basic Christian values and
11 beliefs over the last few centuries. This syncretism is ascribed to Aeta identifying as
12 predominantly Catholic Christians, while at the same time staying true to their
13 remarkable relationship with nature. The Aeta believe in the existence of *Diyos* (God) as
14 a supreme being, and also believe in *anitos* (or spirits). Anito are believed to dwell both
15 in the physical and meta-physical world, in the rocks, trees, rivers, in the underworld, in
16 the clouds, and even in their *nawini* (the physical body of the Aeta). Anitos are
17 categorised as either 'good' or 'bad' anitos, and within this opposition lies the core of
18 the Aeta ethnomedical beliefs and tradition: illnesses are caused by *malaut na anito*
19 (bad anitos), and the cure can only come from the opposing benevolent forces of the
20 *mabuting anito* (good anitos). Belief in anitos is the basis of this system of traditional
21 healing, which is generally called *kagun*.

22 Kagun, in the general sense, refers to the consolidated system of traditional Aeta
23 beliefs of the eternal opposition of the good and bad anitos. An integral part of this

1 system of belief is that it involves only the Aeta and how they relate to these anitos and
2 is not applicable to non-Aetas. Once displeased, the bad anitos may cause illness in an
3 Aeta. They may also dwell in the Aeta body, as a form of possession. Good anitos are
4 able to heal an Aeta afflicted by the bad anito. However, good anitos need human
5 assistance to heal Aetas, which gives prominence to the traditional healer. The word
6 *kagun* is complex in itself and can refer to the good anito, the Aeta healer, and also the
7 Aeta healing ritual. The essence of *kagun* is difficult to capture through objective
8 experience, as the term itself is subjectively defined. To the Aeta, *kagun* is a cohesive
9 term that encompasses the whole experience and practice of the Aetas with the anitos.
10 Therefore, *kagun* can be best described as a complex system of Aeta ethnomedical
11 knowledge, experience, belief, and faith, and their associated healing practices. The
12 *kagun* healers, who can be both male and female, are first and foremost an Aeta
13 individual who, by virtue of either transference or acquisition of the *kagun* (i.e. the anito
14 spirit), becomes labelled as a *kagun* (i.e. healer/sharman). Thus, while an individual
15 Aeta may be a *kagun*, they are only “at one” with their *kagun* or anito spirit when they
16 reach a healing trance state. Most of the time, however, the *kagun* (healer) is an ordinary
17 Aeta who shares experiences, thoughts, and biases with their fellow Aeta and the non-
18 Aetas around them.

1 ***The practice of pangangagun (kagun healing ritual): narrative of two cases***
2 **requiring urgent healthcare¹**

3 Despite the collective Aeta Magbukún experience of the efficacy of Western
4 medicine and the integration of the use of these medicines, the Aeta continue to adhere
5 to their traditional ethnomedical aetiology of illness. The kagun healers similarly
6 acknowledge the efficacy of Western medicine for certain symptoms of illness.
7 However, a kagun would not attribute illness to an infection, and would instead explain
8 symptoms as a spirit-induced ailment. As observed by the primary author, a kagun
9 healer treated himself for fever using paracetamol after using herbal remedies, based on
10 previous experience that he felt really better when he took paracetamol before.
11 Interestingly, however, he did not attribute this ailment as a symptom of flu or
12 influenza, but rather as spirit-induced.

13 In another incident observed by the primary author, a 12 year old Aeta girl
14 accidentally slipped and hurt her arm while playing at school one evening. It was
15 obvious to her mother that she needed attention, as her daughter might have a fractured
16 arm. To soothe her daughter's arm she used herbal remedies coupled with pain relievers
17 from the community pharmacy. Before bringing her daughter to the Municipal Health
18 Center, the mother brought the girl to the kagun to perform a healing ritual. After the
19 pangangagun, it was determined that a disturbed spirit caused the girl to slip. In the
20 kagun's trance, it was revealed that the anitos around the school premises were
21 disturbed by the raucous playing of the Aeta children, and the children should refrain

¹ This information was derived from the author's first-hand discussions with the female kagun in the Aeta native language. At the present time, the number of kagun has reduced to two, one middle aged female and one older male.

1 from playing when it is dark to respect the anitos. The kagun noted that during the
2 healing trance, the anitos did not reveal what could be done to heal the girl. So, the
3 kagun advised the mother to take the girl to the Municipal Health Center for assistance.
4 The girl received an x-ray, which revealed that that there was no dislocation or fracture
5 and she was prescribed pain relief which she took along with herbal remedies.

6 On another occasion, as relayed to the primary author by the kagun who
7 conducted the healing ritual, an Aeta boy was experiencing severe stomach pain, so his
8 parents brought him to the nearest kagun healer at the time. The kagun undertook a
9 pangangagun and the anito ordered her to tell the boy's parents to immediately bring
10 him to the nearest hospital, as the boy's illness was apparently one the anito could not
11 help. The kagun explained to the primary author that the anitos cannot give instant relief
12 to this kind of intense pain, and this is why he needed to be taken to the hospital. The
13 boy's parents immediately followed the kagun's advice and brought him to the hospital
14 where he was diagnosed with appendicitis. The boy underwent an appendectomy with
15 his parents assured that he would survive the surgery because he underwent the kagun
16 ritual first.

17 In the case of mild or common Aeta illness or ailments, a kagun should be able
18 to explain its cause and therefore, its treatment. In severe cases, the kagun have begun to
19 prescribe Western medicine, however this is still done through the kagun ritual trance
20 experience and thus holds traditional spiritual beliefs concerning health as valid. While
21 the Aeta make use of Western medicines and healthcare, most believe that they should
22 not seek medical care before first consulting the kaguns, or as they would say *bago mag*
23 *pa ineksyon* (translated literally as 'before getting an injection'). Both kaguns
24 interviewed by the authors are adamant that inoculations, if given to an Aeta without

1 undergoing a kagun healing ritual first, can be the reason for one's untimely death. So
2 long as treatment follows a kagun ritual, the Aetas do not appear to have any aversion to
3 medical diagnostic or therapeutic procedures. However it is not their first preference,
4 and despite an increase in the availability of Western medical treatment, the most
5 convenient modality of treatment remains through the kagun.

6

7 **Discussion**

8 It is commonly acknowledged that cultural survival requires the use and practice of
9 traditional knowledge (Mauro and Hardison 2000), including knowledge concerning the
10 health and wellbeing of a community. Furthermore, individual and community health are
11 not independent of their social context, resource accessibility, and political structures
12 (Yen and Syme 1999), and are influenced by a plethora of cultural beliefs, values, and
13 practices along with other social, political, and economic issues (Panelli and Tipa 2007).
14 As such, illness and injury can generally be considered both biological and cultural
15 (Romanucci-Ross et al. 1997) and Indigenous perspectives on health commonly take
16 into consideration overall community wellbeing, and not just individual physical health,
17 thus encapsulating cultural, communal, and social elements (National Aboriginal Health
18 Strategy Working Party 1996; Kingsley et al. 2009). For Indigenous peoples, the social
19 determinants of health include cultural and environmental elements which add complexity
20 to the understanding and treatment of the individual.

21 The field and survey data show that over half of the Aetas considered themselves
22 to be in good or excellent health, and there has been little resistance to the use of
23 Western medicines and pharmaceuticals in the treatment of symptoms of common

1 illnesses, such as colds, coughs and fever. Yet while the self-reported treatment
2 practices may have changed, like other Indigenous peoples, Aeta beliefs in the causes of
3 illness remain strongly influenced by traditional health perspectives (Reid 1983; Morgan
4 et al. 1997). The Aeta Magbukún reconcile differences between the application of their
5 own healing and health practices to non-Aetas because they view themselves, their
6 people, and culture, as truly distinct from non-Aetas and in the main believe their
7 kagun-based understanding of the causes of their illness and subsequent treatment apply
8 only to them. Although with recent intermarriage of Aetas with non-Aetas, it will be
9 interesting to observe how these notions of difference are reconciled over time, and
10 particularly how ideologies of cultural and spiritual distinctiveness apply to their mixed
11 Aeta-Tagalog descendants.

12 With the adoption of Western forms of medicine and treatment the Aeta
13 Magbukún engage in what is known as medical pluralism. Thus, where medical
14 pluralism exists, healthcare decisions are often made based on consideration of the
15 perceived causes, the treatments available, and their relative physical and cultural
16 consequences (Strathern and Stewart 1999). Within this context, it appears that the Aeta
17 assimilated the newly available Western medicines primarily because of their availability
18 through the pharmacy, compared to the often arduous task of gathering traditional
19 remedies from the forest, and recognise the efficacy of Western medical practice,
20 generally, for providing fast relief from the symptoms of illness. However, even with a
21 seemingly growing preference for, and access to conventional Western medicine, the
22 Aeta Magbukún's ethnomedical system of kagun continues to be revered by the Aeta
23 community as a framework for understanding the causes of illness and their ongoing or
24 future prevention.

1 While it may often be the case there is an inherent conflict between Western and
2 Indigenous understanding of illness, the use of modern medicines and healthcare may not
3 always be prevented or jeopardised through the continued employment of traditional
4 Indigenous health and healing practices (Strathern and Stewart 1999). Thus, barriers to
5 both the perceived and actual accessibility of Western medical treatment may still remain,
6 despite a substantial increase in availability to the Aeta community. Thus, the most
7 convenient modality of treatment remains the kagun, reinforced by the belief that they
8 should present to the kagun *bago mag pa ineksyon* (before getting an injection). Thus, the
9 use of Western medical treatment is based on a recommendation that the kagun has
10 endorsed its use, and not necessarily because it is the primary place to present for the
11 treatment of illness. A culturally responsive Western healthcare system can thus
12 complement both systems of healing, while maintaining Aeta Magbukún traditional
13 healthcare knowledge and cultural integrity, and ensuring a sustainably healthy
14 population. Furthermore, the non-Indigenous medical and healthcare professionals
15 provide not just their skills and knowledge, but also the potential to build capacity of
16 local people to deal with critical health challenges, as long as these interventions
17 continue to be sensitive to the socio-political structures of the traditional healthcare
18 system (Bopp and Bopp 2004; Wahbe et al. 2007).

19 While this research was limited to a consideration of the spiritual determinants of
20 health, a model for individual health needs to include the breadth of social and
21 environmental dynamics as determinants of health, such as the quantity and quality of
22 social support relationships within a relatively traditional hunter-gatherer society. By
23 definition, changes in social relationships, such as the death of a loved one, influences
24 individual health status in many ways (Ware et al. 1981). Furthermore, the relationship

1 with ancestral or traditional Indigenous lands and territory has been shown to have
2 implications for individual and community health, particularly when that relationship is
3 disrupted or restored (Panelli and Tipa 2007; Garnett et al. 2009). The complexity of these
4 social and environmental dynamics on health for Indigenous peoples, such as the Aeta
5 Magbukún, are not always explicitly acknowledged within the context of the Aetas values
6 and culture. This is a result of the limitations imposed by Western health practices, which
7 have been dominated by a physical health focus at the expense of mental, social, and
8 spiritual health, among other health determinants, in healthcare governance and policy
9 making (Hawks 2004; Johnston et al. 2007). Thus, the treatment of physical symptoms
10 can be inadequate in addressing Indigenous health inequities and has prompted calls for
11 health professionals to respect Indigenous knowledge and values, including the
12 connection of social relations, spirituality, family, and land (Stephens et al. 2006; King et
13 al. 2009; Kingsley et al. 2009). Consideration of traditional healthcare priorities held by
14 Indigenous peoples during an acute medical emergency is also required by healthcare
15 professionals, as Western values and priorities may not be of primary value to the
16 community or the individual, and how that healthcare is delivered will likely have
17 unforeseen consequences for both Indigenous individual and community health (Garnett
18 et al. 2009).

19

20 **Conclusions**

21 This research sought to document, contextualise, and analyse the contemporary
22 transition of a unique traditional Indigenous hunter-gatherer healthcare system as it
23 experiences increasing exposure and accessibility to Western medicine and health care
24 practices. The authors hope to follow in the tradition of increasing the level of

1 awareness of both Indigenous and non-Indigenous peoples of how new influences may
2 engender cultural change, and in some cases cultural extinction, of traditional healthcare
3 system elements (Bruner 1986). Improving the health of Indigenous peoples requires
4 consideration of both access to adequate healthcare, and maintaining a right to access and
5 maintain traditional healthcare systems of knowledge (Dove 2006). The Aeta community
6 should, therefore, expect greater engagement of their own perspectives on their needs
7 and necessary health services. As with most Indigenous peoples globally, poor health
8 outcomes are associated with poverty, malnutrition, poor hygiene, and environmental
9 contamination , thus improving opportunity and access to healthcare, services, and
10 education should be a parallel priority (Dunbar et al. 2007; Wahbe et al. 2007; Gracey
11 and King 2009). As a living culture, Indigenous identity, and its ultimate survival is
12 dependent on the capacity to adapt beliefs and practices to new influences (Mauro and
13 Hardison 2000), and the question of how traditional and Western healthcare systems can
14 adapt to each other, and the associated consequences over time is unknown. While
15 useful and effective, Western methods of healing may compromise traditional beliefs
16 and knowledge (Cunningham 2010), yet there is scope for a complementary existence
17 of both healthcare systems. To date, there is remarkable resilience of the traditional
18 Aeta healthcare system, despite the introduction of new Western influences,
19 infrastructure, formal education, monetary incomes, high food availability, and the
20 availability of Western healthcare services. Although, the currently observed preference
21 for generic medicines among the Aetas may risk the loss of much potentially valuable
22 herbal plant knowledge, traditional healthcare practices, and socio-political support
23 systems. As Durlé (2004) established, the experience of Indigenous health knowledge
24 illuminates opportunities for expanding the understanding of healthcare within both

1 Indigenous and non-Indigenous cultures. Therefore, Western health institutions with
2 sufficient knowledge of the cultural beliefs and practices of a tribe or culture can be
3 mindful of how Western healthcare interventions may undermine traditional
4 ethnomedical systems and socio-political structures. Enabling the continuity of access to
5 appropriate healthcare knowledge (both the transfer of knowledge from Western
6 medicine to the Aeta Magbukún, and vice-versa), can assist many cultures through the
7 inherent stresses of increasingly rapid acculturation and development. At the Aeta
8 village level, the changing socio-political influence between the kagun, the NGOs, and
9 the Municipal Council in terms of healthcare provision is pivotal, as the kagun have
10 chosen to integrate the Western medicine and healthcare services into their traditional
11 healthcare system, without simply rejecting them. In turn, Western-style healthcare
12 interventions have the potential to be carefully managed to integrate traditional Aeta
13 Magbukún socio-political structures, healthcare, and cultural continuity. Additionally,
14 the cumulative influence of numerous other novel aspects to Aeta life (permanent
15 housing, a highway through the village, reading and writing, and in foreign languages,
16 electric appliances, modern communication/entertainment devices, the need for
17 employment and cash incomes, the transfer from mobile traditional hunting and
18 gathering to more sedentary lifestyle, and the highly available energy-dense food and
19 drink, etc.) will place additional pressure on the traditional ethnomedical healthcare
20 system. Further work is required to document the traditional Aeta Magbukún cultural
21 information while the elders who lived traditional lifestyles remain alive and healthy.

22

23

1 **References**

- 2 Balilla VS, Anwar McHenry J, McHenry MP, Parkinson RM, and Banal DT (2012). Aeta
3 Magbukún of Mariveles: traditional Indigenous forest resource use practices and the
4 sustainable economic development challenge in remote Philippine regions. *Journal of*
5 *Sustainable Forestry* **31**(7):687-709
- 6 Balilla VS, Anwar McHenry J, McHenry MP, Parkinson RM, and Banal DT (2013).
7 Indigenous Aeta Magbukún self-identity, sociopolitical structures, and self-
8 determination at the local level in the Philippines. *Journal of Anthropology*
9 **2013**(Article ID 391878):1-6.
- 10 Bopp M, and Bopp J (2004). Welcome to the swamp: addressing human capacity in
11 ecohealth research and intervention. *Ecohealth* **1**(2):24-34.
- 12 Bruner EM, editor. (1986). *Ethnography as narrative*. University of Illinois Press,
13 Urbana, Illinois, USA.
- 14 Cunningham C (2010). Health of indigenous peoples. *British Medical Journal* **340**:1209-
15 1210.
- 16 David RS (1989). Poverty in the Philippines: its social roots. *Kasarinlan* **4**(4):9-24.
- 17 Delfin F, Salvador JM, Calacal GC, Perdigon HB, Tabbada KA, Villamor LP, et al.
18 (2011). The Y-chromosome landscape of the Philippines: extensive heterogeneity
19 and varying genetic affinities of Negrito and non-Negrito groups. *European Journal*
20 *of Human Genetics* **19**:224-230.
- 21 Dove MR (2006). Indigenous people and environmental politics. *Annual Review of*
22 *Anthropology* **35**:191-208.

- 1 Dunbar T, Scrimgeour M, and editors. (2007). *Education*. Allen & Unwin, Crows Nest,
2 Australia.
- 3 Durle M (2004). Understanding health and illness: research at the interface between
4 science and indigenous knowledge. *Journal of Epidemiology* **33**:1138-1143.
- 5 Garnett ST, Sithole B, Whitehead PJ, Burgess C, Paul J, Fay H, et al. (2009). Healthy
6 country, healthy people: policy implications of links between Indigenous human
7 health and environmental condition in tropical Australia. *The Australian Journal of*
8 *Public Administration* **68**(1):53-66.
- 9 Gracey M, and King M (2009). Indigenous health part 1: determinants and disease
10 patterns. *The Lancet* **374**(9683):65-75.
- 11 Hawks S (2004). Spiritual wellness, holistic health, and the practice of health education.
12 *American Journal of Health Education* **35**:11-16.
- 13 Headland TN (1984). Hunters and gatherers: the search for survival
14 <http://www.culturalsurvival.org>. Accessed on 20 December, 2011
- 15 Headland TN (1987a). Kinship and social behaviour among Agta Negrito Hunter-
16 Gatherers. *Ethnology* **26**(4):261-280.
- 17 Headland TN (1987b). The wild yam question: how well could independent hunter-
18 gatherers live in a tropical rain forest ecosystem? *Human Ecology* **15**(4):463-491.
- 19 Johnston FH, Jacups SP, Vickery AJ, and Bowman DMJS (2007). EcoHealth and
20 Aboriginal testimony of the nexus between human health and place. *Ecohealth*
21 **4**:489-499.

- 1 King M, Smith A, and Gracey M (2009). Indigenous health part 2: the underlying causes
2 of the health gap. *The Lancet* **374**(9683):76-85.
- 3 Kingsley J, Townsend M, Phillips R, and Aldous D (2009). “If the land is healthy... it
4 makes people healthy”: the relationship between caring for country and health for the
5 Yorta Yorta nation, Boonwurrung and Bangerang tribes. *Health and Place* **15**:291-
6 299.
- 7 Lopez-Class M, Gonzalez Castro F, and Ramirez AG (2011). Concepts of acculturation: a
8 review and statement of critical issues. *Social Science and Medicine* **72**:1555-1562.
- 9 Maher P (1999). A review of ‘traditional’ Aboriginal health beliefs. *Journal of Rural*
10 *Health* **7**:229-236.
- 11 Mauro F, and Hardison PD (2000). Traditional knowledge of Indigenous and local
12 communities: International debate and policy initiatives. *Ecological Applications*
13 **10**(5):1263-1269.
- 14 McHenry MP, Anwar McHenry J, Balilla VS, and Parkinson RM (2013). The Indigenous
15 Aetas of Bataan, Philippines: extraordinary genetic origins, modern history, and land
16 rights. *Singapore Journal of Tropical Geography* **34**(3):292-306.
- 17 Morgan DL, Slade MD, and Morgan CMA (1997). Aboriginal philosophy and its impact
18 on health care outcomes. *Australian and New Zealand Journal of Public Health*
19 **21**(6):597-601.
- 20 Nathan P, and Japanangka DL (1983). *Health Business*. Heinemann Educational
21 Australia, Richmond, Victoria, Australia.
- 22 National Aboriginal Health Strategy Working Party (1996). A national Aboriginal health
23 strategy. Australian Government Publishing Service, Canberra, Australia.

- 1 Panelli R, and Tipa G (2007). Placing well-being: a Maori case study of cultural and
2 environmental specificity. *Ecohealth* 4:445-460.
- 3 Rai NK (1982). From forest to field: a study of Philippine Negrito foragers in transition
4 Thesis. University of Hawaii, Hawaii, USA.
- 5 Reid J (1983). *Sorcerers and healing spirits: continuity and change in an Aboriginal*
6 *medical system*. Australian National University Press, Canberra, Australia.
- 7 Romanucci-Ross L, Moerman DE, and Tancredi LR (1997). Medical anthropology:
8 convergence of mind and experience in the anthropological imagination. Pages 369-
9 381 in L. Romanucci-Ross, D. E. Moerman, and L. R. Tancredi, editors. *The*
10 *anthropology of medicine: from culture to method (3rd ed)*. Bergin & Garvey,
11 Westport, Connecticut, USA.
- 12 Stephens C, Porter J, Nettleton C, and Willis R (2006). Disappearing, displaced, and
13 undervalued: a call to action for Indigenous health worldwide. *The Lancet*
14 **367**(9527):2019-2028.
- 15 Strathern A, and Stewart PJ (1999). *Curing and healing: medical anthropology in global*
16 *perspective*. Carolina Academic Press, Durham, North Carolina, USA.
- 17 Ting MTGJ, Bagsic AC, Equilos-Ryan Jaen MM, Respicio MLP, and Tan CRT (2008).
18 Modernity vs. Culture: protecting the indigenous peoples of the Philippines.
19 *European Journal of Economic and Political Studies* 1(1):77-98.
- 20 Wahbe TR, Jovel EM, Silva Garcia DR, Pilco Llagcha VE, and Rose Point N (2007).
21 Building international Indigenous people's partnerships for community-driven health
22 initiatives. *Ecohealth* 4:472-488.

- 1 Walter M, and Saggors S, editors. (2007). *Poverty and social class*. Allen & Unwin,
2 Crows Nest, Australia.
- 3 Ware JE, Brook RH, Davies AR, and Lohr KN (1981). Choosing measures of health
4 status for individuals in general populations. *American Journal of Public Health*
5 **71**(6):620-625.
- 6 Yen IH, and Syme SL (1999). The social environment and health: a discussion of the
7 epidemiologic literature. *Annual Review of Public Health* **20**:287-308.
- 8
- 9
- 10

1 **Tables and Table captions**

2

3 Table 1: Relative health rating scale translations in Tagalog and Aeta Magbukún, with
 4 English translations and revisions in brackets (Revisions were included for translation
 5 rigor).

Rating	<i>Tagalog</i> (English)	→ <i>Aeta Magbukún</i> (English)
1	<i>Hindi malusog</i> (Unhealthy/Poor health)	→ <i>Napaka-sakitin</i> (Very sickly)
2	<i>Medyo hindi malusog</i> (Quite unhealthy)	→ <i>Sakitin</i> (Sickly)
3	<i>Medyo malusog</i> (Quite healthy)	→ <i>Paminsan-minsan magkasakit</i>
4	<i>Malusog</i> (Healthy)	→ <i>Madalang magkasakit</i>
5	<i>Malusog na Malusog</i> (Excellent health)	→ <i>Napakadalang/Hindi Nagkakasakit</i>

6

7

8

- 1 Table 2: Subjective health ratings of the 93 individuals in the study. (The majority of the
2 informants were Aeta mothers).

Scale	Total no. of male household members rated	Total no. of female household members rated	Total (%). N= 93.
5	9	0	9 (9.6%)
4	23	20	43 (46.2%)
3	19	14	33 (35.4%)
2	2	4	6 (6.4%)
1	1	1	2 (2.4%)

- 3
4
5
6
7
8

1 Table 3: Adult male and female, and children's reported illness within a 2 week recall
2 period. (The majority of the informants were Aeta mothers).

Reported illness	No. of Children (0-15 y.o.)	No. of Adult Males	No. of Adult Females	Totals
<i>Lagnat</i> (fever)	23	4	2	29
<i>Ubo</i> (cough)	9	4	4	17
<i>Sipon</i> (cold)	10	0	2	12
<i>Nahihilo</i> (dizziness)	3	2	3	8
<i>Sakit ng ngipin</i> (toothache)	5	0	1	6
<i>Sakit ng ulo</i> (headache)	1	1	3	5
<i>Sakit ng tiyan</i> (stomachache)	3	1	0	4
<i>Namumula/nangangating mata</i> (eye irritation)	2	1	1	4
<i>Sumasakit ang batok</i> , 'high blood' (nape pain)	0	2	2	4
<i>Sumasakit balakang/puson</i> (pubic pain)	0	1	3	4
<i>Nanghihina ang katawan</i> (general weakness)	0	1	2	3
<i>Napilay</i> (sprain)	0	1	0	1
<i>Rayuma</i> (rheumatitis).	0	1	0	1
<i>Asthma</i>	1	0	0	1
<i>Walang sakit</i> (without any illness)	6	9	2	17

3 Illness translations: *Lagnat* (fever), *Ubo* (cough), and *Sipon* (cold); *Nahihilo* (dizziness);
4 *Sakit ng ngipin* (toothache); *Sakit ng ulo* (headache); *Sakit ng tiyan* (stomachache);
5 *Namumula/nangangating mata* (eye irritation); *Sumasakit ang batok* ('high blood')
6 (literally means pain in the nape, which is associated with hypertension); *Sumasakit*
7 *balakang/puson* (pain in the pubic area, commonly associated with urinary tract
8 infection); *Nanghihina ang katawan* (general weakness); *Napilay* (sprain); *Rayuma*
9 (rheumatitis).

10

11

- 1 Table 4: Number of individuals in the survey group who used either a Western medicine
2 or traditional herbal/plants/substances in the two week interval.

Western medicine	No. of Individuals	Herbal/medicinal plants/ethnomedicine	No. of Individuals
Paracetamol	23	<i>Pulot</i> (honey)	7
Mefenamic	4	<i>Talbos ng Bayabas</i> (<i>P. guajava</i>)	3
Topical ointment	4	<i>Bawang</i> (<i>A. sativum</i>)	3
Amoxicillin	2	<i>Tawas</i> (alum)	3
Salbutamol	2	<i>Oregano</i> (<i>C. aromaticus</i>)	1
Cloxacillin	2	<i>Sambong</i> (<i>B. balsamifera</i>)	1
Carbocistene	2	<i>Tangan-tangan Tuba</i> (<i>J. curcus</i> leaf)	1
Alaxan	1	<i>Repolyong Gubat</i> ('wild cabbage')	1
Biogesic	1	<i>Buko juice</i> (green coconut)	1
Colvan	1	<i>Kamias</i> (<i>A. bilimbi</i>)	1
Atenolol	1	<i>Tabako</i> (<i>N. tabacum</i>)	1
Bromhexine	1	<i>Kalamansi</i> (<i>C. microcarpa</i>)	1
Planax	1	<i>Malasuka</i> ('vinegar like vine')	1
GenTeal eye drops	1	<i>Balon-balunang Manok</i> (See below)	1
		<i>Kagun</i> (See below)	1
Totals (N=73)	46		27

- 3 Full translations: *Pulot* (honey); *Talbos ng Bayabas* (guava leaves/psidium guajava);
4 *Bawang* (garlic, *Allium sativum*); *Tawas* (alum, hydrated potassium aluminium sulfate);
5 *Oregano* (oregano/suganda/*Coleus aromaticus*); *Sambong* (blumea camphor/*Blumea*
6 *balsamifera*); *Tangan-tangan Tuba* (leaves from *Jatropha curcas*); *Repolyong Gubat*
7 (no English equivalent name, though it literally means 'wild cabbage'); *Buko* (Green
8 coconut); *Kamias* (cucumber tree/*Averrhoa bilimbi*); *Tabako* (leaves of *Nicotiana*
9 *tabacum*); *Kalamansi* (calamondin orange/*Citrus microcarpa*); *Malasuka* (no English
10 equivalent name, though it literally means 'vinegar-like vine'); *Balon-balunang Manok*
11 (no English equivalent name, though it literally means 'chicken gizzard plant'; *Kagun*
12 (is a complex concept, although in the general sense, it refers to the consolidated system
13 of traditional Aeta spiritual beliefs of the eternal opposition of good and bad, the
14 traditional practitioner who administers the healthcare, or the ritual itself).

1 **Figure caption**

2 Figure 1. A representatively healthy Aeta Magbukún family in Mariveles, taken around
3 2010. Photo by Nathaniel Salang.

4