Southern California CSU DNP Consortium

California State University, Fullerton
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DEVELOPMENT OF GOUT PATIENT EDUCATION PAMPHLET IN CHINESE TO IMPROVE POPULATION HEALTH

A DOCTORAL PROJECT

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By
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ABSTRACT

Gout is a progressive arthritis-related disease typified by acutely painful joints. The acute pain is caused by deposits of monosodium urate (MSU) crystals within joints secondary to chronic hyperuricemia. Gout can become a debilitating chronic condition with joint deformity, physiologic impairment, activity limitation, and societal participation restriction.

The prevalence of gout among adults in the United States is increasing. According to the 2012 Annual Census Report at the Rosemead Clinic, gout is one of the top diagnoses and 68% of patients self-reported as being of Chinese ethnicity. Need assessment revealed it was critical to provide a gout education program for Chinese American patients. However, there are no gout teaching tools made available to patients in any Chinese language dialects found in the clinic or through a literature search. This project was developed as a gout education pamphlet in Chinese in order to target the educational needs of the Chinese patients at the Rosemead Clinic.

This culturally tailored approach gout education pamphlet was developed with a multidisciplinary team and contains key information for self-help directed at the Chinese patients in the Rosemead Clinic and can be introduced as a resource to other clinics providing care to similar Chinese populations.
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BACKGROUND

Gout is a common arthritis caused by deposits of monosodium urate (MSU) crystals within joints secondary to chronic hyperuricemia. Joint damage can occur during the evolution of the disease (CDC, 2011). Gout is one of the earliest forms of clinically diagnosed arthritis and was discovered by the Egyptians, dating back to 2640 B.C. (Bardin & Richette, 2010). Podagra, an acute form of gout that occurs in the metatarsophalangeal joint, was later described by Hippocrates as the “The disease of kings” due to its association with a lavish lifestyle and a rich diet. Arthritis was said to be a disease of the rich, unlike rheumatism which was said to be that of the poor (Bardin & Richette, 2010).

Gout in the United States

The prevalence of gout among adults in the United States is increasing and affects 8.3 million (4%) Americans (Zhu, Pandya, & Choi, 2011). Prevalence of hyperuricemia has also risen, affecting 43.3 million (21%) adults in the United States (Zhu et al., 2011). Data from the California Arthritis Partnership Program (CAPP) shows that arthritis affects 5.3 million Californians (California Arthritis Partnership Program, 2014). Gout accounts for approximately 5% of all cases of arthritis (California Department of Public Health [CDPH], 2013).

Doherty and Roddy (2010) performed a meta-analysis with findings from several studies suggesting the prevalence and incidence of gout has been risen in recent decades. Joseph-Ridge, Riedel, Wallace, and Wortmann (2004) performed a descriptive analysis utilizing an administrative claims database, calculated as cross-sections for each year from 1990 to 1999 which also expressed/compared as rates per 1000 enrollees to
determine 10-year trends in the prevalence of gout and/or hyperuricemia. Analysis showed that in the > 75 year age group, rates increased from 21 per 1000 persons in 1990 to 41 per 1000 in 1999. Furthermore, Wallace et al. (2004) concluded an increasing prevalence of gout and hyperuricemia over a 10 year period among older adults in a Managed Healthcare Organization (HMO) population.

**Gout and Quality of Life**

Gout is a progressive joint disease associated with old age. Left untreated gout can be debilitating and result in tophi, chronic arthropathy, and recurrent kidney stones (Bakris, Doghramji, Keenan, & Silber, 2010). Due to increasing life expectancy in the United States, the prevalence of gout is linked to lower population mortality rates and increased gout-related risk factors such as obesity, changes in diet, and sedentary lifestyle (Hootman, Helmick, & Brady, 2012). Becker, Hunt, Jackson, and MacDonald (2011) found patients with gout also often have multiple comorbidities, such as diabetes, hyperlipidemia and hypertension, which is consistent with the increasing body of knowledge that associates hyperuricemia with incidences of hypertension, diabetes, chronic kidney disease, and heart failure.

Gout significantly affects a person’s ability to perform normal daily functions such as self-care, work, social and recreational activities (Klooster, Vonkeman, & van de Laar, 2012; Mart & Vonkeman, 2012). Klooster et al. (2012) compared three studies and found that health-related quality of life scores in patients with gout were much lower than the norms, and were comparable to patients with debilitating rheumatoid arthritis or active lupus erythematosus.
Gout is also shown to cause a substantial financial burden to patients, employers and society (Brook et al., 2006). Gout treatment represents 6% of the total healthcare costs of elderly patients (Dunham, Hoch, Ogdie, & Von Feldt, 2010). A study demonstrated that the total annual cost for patients with gout versus those without gout was $6870 versus $3705, respectively, due to the high costs associated with medical and prescription claims, sick leave, short-term disability and workers’ compensation benefits (Primastena, 2011).

**Gout and Obesity**

Gout is also closely associated with obesity. Obesity has become an epidemic and is the cause of major health issues in the United States. Data from the Centers for Disease Control (CDC) shows that more than one-third (34.9%) of adults were obese in 2011-2012 (Ogden, 2013). Gout is a common affliction among obese people. The CDC data, analyzed from the Behavioral Risk Factor Surveillance System (BRFSS), shows obesity prevalence among adults with and without arthritis increased from 2003-2009 (See figure 1). Both obesity and gout are associated with poor diet, limited activity, and disability and reduced quality-of-life. Obese people with gouty arthritis may have a difficult time losing weight because pain may limit their mobility and physical activity; a key part of weight loss (CDCa, 2011).

However, low impact physical activity and dietary changes can lead to successful weight loss for persons with arthritis. In fact, losing as little as 10 to 12 pounds can make a difference in pain and function. Aquatic exercise, stationary cycling or walking may be good options for increasing physical activity for most overweight or obese people with arthritis. Several physical activity programs appropriate for those people with arthritis are available within local communities (CDC, 2011c).
According to the 2010 census, the Chinese American population numbered approximately 3.8 million. Half of the China-born population living in the United States reside either in California or New York State (American Fact Finder, 2010). The number of foreign-born Chinese Americans in the United States doubled between 2000 and 2010 (Lee, 2012). Among approximately 3.8 million Chinese now living in the United States, 2.2 million were born in China, according to the report by the UN Department of Economic and Social Affairs [UN-DESA], 2012). In fact, 22,000 visas were issued to Chinese nationals in the United States in 2000, while in 2012, that number jumped to 189,000. Regardless of the type of visa issued or the length of time staying or visiting in the United States, the numbers of Chinese people coming to the United States has made the Chinese American community the fastest-growing ethnic group in the United States (Rytina, 2013).

### Gout and Chinese Americans

Gout, which is preventable through dietary control and lifestyle modification, may potentially lead to chronic destructive deforming arthritis. Gout tends to be less well

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*Figure 1. Obesity prevalence among adults with and without arthritis.*
controlled among Chinese and other ethnic minority groups. Reasons for this include lack of familiarity with the English language, the complexity of the U.S. healthcare system, poor health literacy, cultural barriers, lack of reliable transportation, and financial constraints; therefore, many Chinese immigrants fail to seek or continue healthcare services (Chen, 2010; Lee, 2012). It is important to address chronic disease and gout prevention as a solution to health disparities in the Chinese-American community (CDCd, 2010).

The majority of patients seeking care at the Rosemead Community Clinic, located in heart of the San Gabriel Valley, are Chinese American according to Rosemead Clinic’s 2012 Annual Census Report and, according to the census, 65.84% of clinic patients reported being of Chinese ethnicity (see Appendix A). While a review of the available literature, including the latest CDC census report (2009), did not reveal the prevalence rate of gout in the Chinese-American population in the San Gabriel Valley, gout is a primary diagnosis at the Rosemead Clinic, second only to hypertension and diabetes. The gout prevalence rate was 6.1% in the Rosemead Clinic (Appendix A) compared to a prevalence rate of 4% among the general U.S. population (Zhu et al., 2011).

**Needs Assessment**

California is home to the second largest, nationwide population of Chinese, hosting a total of 3.4% of the overall Chinese population in the United States. The San Gabriel Valley has the most prominent foreign-born Chinese-speaking population in Southern California as per the Census Bureau reports (United States Census Bureau (USCB), 2013; Wikipedia, 2014). It is important to address Chinese-American and Chinese immigrant health as a risk prevention strategy given the fact of the phenomenon
of their growing population (Krishnan, 2008). Chinese immigrants tend to underutilize outpatient care and tend to self-treat with home remedies in general (Arion & Tran, 2005). Common health-seeking behaviors include gathering health information from Chinese language newspapers, non-medical field related magazines, outdated sources, family, friends and co-workers (Chen, Kendall, & Shyu, 2010). What is known about the health needs of Chinese immigrants in the United States is that they encounter language barriers, an unfamiliarity with an intimidating health care system and that certain cultural practices inhibit access to and cloud the understanding of complex health information for newcomers (Chen et al., 2010). Because of language barriers, a genetic predisposition to gout, lack of insurance, acculturation issues, and their potentially questionable immigration status, this population is at high risk for experiencing enormous disparities when accessing health care in their local community, which results in poor health outcomes.

It is important to provide disease-specific information in a familiar language (Chinese) to reinforce treatment regimens, prevent gout recurrence and a progression to chronic arthritis, and tophi (Ferri, 2013) to the target immigrant population. In addition, providing a patient-centered culturally sensitive teaching tool has demonstrated a positive correlation to improve patients’ health behavior and care outcomes (Tucker, Marsiske, Rice, & Nielson, 2011).

Problem Statement

There is a gap in gout education in the Chinese immigrant population in the San Gabriel Valley of southern California. No formal gout teaching tool, formatted in the Chinese language, is available at the Rosemead Clinic to accommodate the large Chinese patient population except a re-printed Chinese language, list of food, which categorizes
the food into high and low purine content groups. Currently most of the patient education
materials at the Rosemead Clinic are written in English, including a tri-folding gout
information pamphlet published by KRAMES (Appendix B).

This author has attempted to locate any Chinese language, gout education
materials written for patients, and a thorough search of Kaiser Permanente Patient Care
Resources, MD Consult, First Consult, WebMD, Nursing Consult and CINAHL found no
available patient education or teaching tools in print. Lack of appropriate Chinese
language gout teaching materials in the clinic for these Chinese immigrants has prompted
a plan for creating a culturally competent teaching tool to provide gout knowledge and
improve health behaviors among this population.

Project Purpose and Aim

The purpose of this project is to develop written, Chinese language, gout
education, patient tools/materials which disseminate self-care knowledge and health
behavior awareness information, relative to gout disease in the diverse Chinese
population at the Rosemead Clinic. Based on the literature review, pamphlets have
proven to be an effective educational tool in understanding and retaining subject-specific
knowledge (Oh, Park, & Seo, 2011; Schnellinger et al., 2010).

The project aim is to develop a gout education pamphlet for Chinese speaking
patients seeking care at the Rosemead Clinic. The pamphlet will address content that
should improve the Chinese patient’s gout awareness, knowledge of medications and
other care strategies, and self-management of the disease. This self-help may achieve
long-term gout remission by aiding in early gout diagnosis, treatment, and risk-behavior
modification. Furthermore, the benefit of this evidence-based product, a Chinese gout
education pamphlet, can be introduced and would serve as a resource for other clinics, providing care to similar Chinese populations in the San Gabriel Valley.

This project resulted in the development of a Chinese language, gout information pamphlet for the purpose of availing the Chinese speaking population at the Rosemead Clinic with an easy to understand, interactive educational tool. It is expected that the clinical knowledge deficit of gout in the target Chinese immigrant population will be eradicated by enacting this program. The linguistically appropriate health information will enable patients and families to achieve greater health literacy regarding gout management and transform the San Gabriel Valley into a healthier community. This project is a multidisciplinary collaboration for improving patient’s health, focused on clinical prevention and population health through providing self-care knowledge and patient education.

**Significance of the Project**

This is a patient-centered quality improvement project which uses evidence-based practice to facilitate patient education that avoids long term complications and produces a better quality of life. This project addresses four key issues contributing to poor quality of care and undesirable health outcomes in the IOM’s *Crossing the Quality Chasm* report. The four key issues are: (a) the complexity of healthcare delivery, (b) the increase in chronic conditions, (c) inefficient and disorganized delivery systems, and (d) challenges to greater implementation of information (Institute of Medicine, 2001). This project creates a gout education pamphlet that will cut through the healthcare system issues discussed and will improve standardized, evidence-based gout awareness between individual providers and the Chinese immigrant population at the Rosemead Clinic. The
intention is for this Chinese immigrant population to make more educated decisions which will prevent, delay or alleviate gout disease through simple patient education intervention and lifestyle changes.

This project will demonstrate inter-professional collaboration from different disciplines who bring their knowledge, education, unique experiences, and values to the production of this grout education pamphlet. The benefits of inter-professional multidisciplinary collaboration includes: reduced treatment errors, better disease management, improved quality of health and higher patient satisfaction (Hall, Gravelle, Thibault, & Weaver, 2007; The Joint Commission, 2008).

This public health project focuses on addressing the needs of the Chinese immigrant community by emphasizing prevention and aims to improve health outcomes in the community through awareness education. The Patient Protection and Affordable Care Act (ACA) enacted in March 2010 called for the creation of a national prevention strategy to focus on the American healthcare system from illness to prevention (Schadewald & Pfeiffer, 2013). Developing effective educational materials is a strategy of system thinking addressing primary, secondary and tertiary prevention from illness to wellness (Monsivais & Reynolds, 2003). Psychosocial, literacy, linguistic, and cultural diversity will be considered when planning the pamphlet. Various English language gout education materials, already available, will be used as references for designing the pamphlet, in addition to information gathered from literature reviews.

This author has conducted a comprehensive assessment of the patient education process using an evidence-based approach and concepts relative to community, local and national populations and the cultural and socioeconomic dimensions of health. The
production of a pamphlet is in keeping with the target population’s cultural literacy habits. This gout educational pamphlet will be helpful to as many Chinese people as it can be, across all groups and working communities.

**Summary**

There is a gap in gout education in the Chinese immigrant population in the San Gabriel Valley of southern California. No formal gout teaching tool, formatted in the Chinese language, is available in the clinic to accommodate the large Chinese patient population at the Rosemead Clinic. The purpose of this project is to develop a written, Chinese language, gout education, patient tools/materials which disseminate self-care knowledge and health behavior awareness information, relative to gout disease in this diverse Chinese population. Furthermore, the benefit of this evidence-based product, a Chinese gout education pamphlet, can be introduced and used to serve as a resource to other clinics proving care to similar Chinese populations in the San Gabriel Valley.
REVIEW OF LITERATURE

The literature reviewed were obtained from medical journals, books, medical field websites and online articles. Articles included in this review were published in peer reviewed journals in English and Chinese. The databases CINAHL, EBSCO, MEDLINE, Academic Search Premier, Health Source Nursing, Master FILE Premier, Academic OneFile and PubMed were used to search the multidisciplinary sources from 2006 through March 2014. Keywords used in searching were gout, arthritis, patient education, Chinese-American, Chinese immigrants health needs, education tools, education theory, adult learning theory, pamphlet, cultural care, cultural competent, chronic disease, self-care, health education, family education, health literacy, literacy, learning, nurse education, nursing, and self-management.

Fourteen articles were critically reviewed. The results of the review are grouped into the following categories: (a) clinical knowledge of gout, (b) effectiveness of patient education, (c) culturally sensitive, patient education materials, (d) linguistically appropriate, health information, (e) pamphlet as an educational tool, (f) health literacy to address educational needs, and (g) available patient education materials.

Clinical Knowledge of Gout

Many patients at the Rosemead Clinic did not understand general gout process or their current stage of gout, which implies that the deficit knowledge in the clinical progression and chronic complication of gout needs to be emphasized (Oh et al., 2011). Knowledge deficits in patients with gout stress the importance of developing educational tools and activities to improve awareness, self-management training and to avoid non-adherence to prescribed therapy (Harrold et al., 2012; Lim et al., 2012). Changes in
provider prescription procedures, enhanced nursing interventions and patient empowerment and education will change patient awareness of gout prevention and control and will contribute to the overall improvement of health with the target population (Lim et al., 2012).

Gout has been described as a heterogeneous disorder that can progress through four different stages if untreated including: asymptomatic hyperuricemia, acute/recurrent gout, inter-critical gout, and chronic tophaceous gout (Montogomery, 2008). The prevalence of gout also increases in direct relation with age. Non-modifiable risk factors for gout include age, gender and ethnicity. Modifiable gout risk factors are serum urate, medications, renal function, diet, alcohol consumption, exercise and obesity (Gaffo & Saag, 2013). Modifiable risk factors in gout development such as lifestyle modification, weight control, dietary changes and hypertension control and medication regimens, may provide adequate control of hyperuricemia.

Risk factors for the development of gout are divided into modifiable and non-modifiable risk factors. Although gout can be hereditary, obesity, regular use of aspirin, niacin and diuretic medicines are modifiable risk factors and are major contributors to the development of gout (Gaffo & Saag, 2013). Diets rich in purine such as, animal meat and offal, and fish, as well as, use of other consumables such as, excessive alcohol, regular use of diuretic medications, medications like cyclosporine which is taken by transplant patients, “fast” weight loss medication, and certain types of diseases like, chronic kidney disease and hypertension are all known contributing factors to the increased development of gout disease.
The development of gout in a patient generally begins with the accumulation of urate crystals in an affected joint and gradually increases when the concentration reaches a certain level—this is when symptoms of gout disease begin to surface (Ferris, 2013). The symptoms of gout generally come on suddenly; mostly at night. The symptoms can be severe pain in the joints including those of the ankles, hands, wrists, knees or feet. The most common affected area is the inner-most toe (hallux) or the “big toe.” Symptoms begin with pruritus which later develops into peeling skin. Typically, once the gout attack subsides, the skin over the affected joint may feel itchy and may also peel. These symptoms are commonly associated with redness and inflammation; symptoms in the most affected areas are sometimes accompanied with tenderness and softness of joints which often affects the flexibility of the afflicted joints. Fever can also be a symptom in some patients. In some cases there are no symptoms at all; however, these cases too can develop into chronic gout. Nodules, often in the hands, ears, or elbows, called gouty tophi, can be noted by patients as the first symptom of gout disease.

The CDC (2011a) describes the four stages of gout as asymptomatic, acute attack, inter-critical periods, and “chronic” gout. Stage one is commonly associated with high uric acid, but is not accompanied by symptoms of gout; patients, while not typically suffering overt symptoms of gout, do have hyperuricemia with tissue-damaging urate crystal deposits in their joint(s). Stage two is characterized by acute flaring pain, redness, and swelling associated with inflammation of the joints that is caused by the accumulation of urate crystals in the joint(s). Stage three is an inter-critical period occurring after an acute flare up has subsided, and a person may enter this stage with the disease being clinically inactive before the next bout of pain begins. The patient
continues to suffer hyperuricemia, which results in continued depositing of urate crystals in tissues and the resulting damage. Inter-critical periods become shorter as the disease progresses. Stage four is the chronic state of gout, which is characterized by chronic arthritis, with soreness and aching of joints. People with gout may also develop tophi (lumps of urate crystals deposited in soft tissue), which usually occurs in cooler areas of the body, such as elbows, ears, and distal finger joints (CDC, 2011a).

The American College of Rheumatology (ACR) states that the treatment for gout includes not only pharmacological approaches, but also lifestyle and dietary changes (ACR, 2012). The goal of treatment is to end the pain of acute flares, and to prevent future attacks and the formation of tophi and kidney stones. Therapy for acute flares consists of non-steroidal anti-inflammatory drugs, steroids, and colchicine (ACR, 2012). An anti-gout diet helps to control the production and elimination of uric acid, which may help prevent gout attacks or reduce their severity. The principle of an anti-gout diet is to avoid foods high in purines, such as animal products, which increase uric acid production. Foods consumed in an anti-gout diet are divided into three groups: foods to avoid, foods to limit, and foods to encourage. Foods to avoid are offal, high-fructose corn syrup, certain vegetables, and excessive alcohol use. Foods to limit are large portions or concentrations of meat and seafood, naturally sweet fruit juices, sugar, desserts, and salt. Foods to encourage include low-fat or non-fat dairy and vegetables. Recommended lifestyle modifications in patients with gout include weight loss in those who are overweight, smoking cessation, and regular exercise (CDC, 2011d).

Bardin and Desideri (2013) conducted a literature search to identify the optimal models of care for patients with gout, and found that despite an increased understanding
of the disease, patients studied lacked knowledge about the possible long-term effect of progressive urate crystal deposit on joints and the probability of irreversible joint damage. Other patients were unaware that uric acid lowering medications were available for eliminating urate crystals and to prevent the onset of gout attacks. Therefore, major gaps exist in patient comprehension of gout disease and there remains a clear need for them to adhere to long-term therapy (Zhang et al., 2011).

**Effective Patient Education**

Stanford University’s arthritis self-management program showed overall improvement in self-efficacy, psychological health, physical health status, health behaviors, and health care utilization when patients attended disease-specific health education programs (CDC, 2011d). Recommended agendas in health education for patients with chronic illness may include disease prevention, disease-specific education, and self-management (U.S. Department of Health and Human Services (HHS), 2010). Disease prevention includes informing the patient about risks associated with the disease and forming patient-specific goals. Disease-specific education includes pathophysiology of the disease and a detailed treatment or rehabilitation plan. Once patients have a working knowledge of their disease, with the aid of a nurse, they can address self-management and focus on problem solving, decision making, resource utilization, and the creation of an action plan (Cameron, 2013). When individualizing an educational strategy for treatment and prevention, the nurse should use repetition and multiple teaching styles to increase knowledge retention and to improve patient outcomes (Brouwer-Goossensen, Dippel, denHertog, Koudstaal, & Maasland, 2011; See et al., 2010). While using multiple
types of education improves overall outcomes, the educator must take learning styles, preferences and abilities into consideration.

**Culturally Sensitive Patient Education Materials**

The growing number of Chinese immigrants in the United States has prompted healthcare regulators to institute culturally competent patient care. The Joint Commission has required health care providers to respect a patient’s culture, religion, spiritual and personal values, beliefs and practices in the care, treatment, and services administered to them (Browson & Davidhizar, 1999). Common cultural and contextual barriers to meeting the health needs of Chinese immigrants include language, dietary habits, lifestyle transition, financial constraints, and incomplete acculturation (Chan & Wang, 2005). Self-care behaviors are enhanced when treatment and education are approached from a culturally specific perspective focused on the patient (Chan & Wang, 2005). Understanding the worldview of the patient population will prevent unintended cultural offenses and help to establish a trusting healthcare relationship (LaVeist, Relosa, Richardson, & Sawaya, 2008). Limited English proficiency not only contributes to poor management of health conditions, but also leads to misinterpretations of cultural practices. Assessing a patient’s culture and understanding their value system can help reduce poor healthcare outcomes and enhance illness management (Drago & Goody 2009).

**Linguistically Appropriate Health Information**

Language differences between ethnic groups are known evidence within communication domains and are associated with clinical outcomes (Johnson, Roter, Powe, & Cooper, 2004). Healthcare providers encounter diverse patient populations,
many of the individuals who they treat may have limited English proficiency. By providing culturally and linguistically appropriate services, racial and ethnic health disparities can be reduced and patient needs met (Harvey & O’Brien, 2011). Linguistically appropriate teaching materials with disease specific information increase patient knowledge and leads to improvements in clinical outcomes (Culkin, Gilbe, & Madden, 2009). Advanced practice nurses are committed to taking steps for providing meaningful health information for these individuals.

The Pamphlet as an Educational Tool

Through the ACA patients are encouraged to be actively involved in their medical care and self-promotion of health. It is important to have effective patient education materials that inform patients about health problems, describe medical treatments, and promote healthy behavior. Pamphlets are reportedly an effective tool in increasing treatment compliance and promoting patient-physician discussion in elderly, low-literate, indigent and minority populations (Abdel & El-Herishi, 2007; Jacobson et al., 1999). Pamphlets can disseminate important disease specific information to assist health professionals in utilizing evidence-based information in communicating with patients regarding interventions and self-management issues (Colman, Dilley, Norman, & Reuer, 2009). When used effectively printed materials enable patients to manage their health better and can also help healthcare professionals maximize their limited teaching time. Printed materials can also convey basic repetitive information, freeing the health professional to concentrate on individualized follow-up instructions. They can also provide consistency in teaching.
Health Literacy for Addressing Educational Needs

The ability to understand and act upon health information is called health literacy (Weekes, 2012). Patient education should be based on individual health literacy (CDC, 2011b). Assessing health literacy is important as it is known to impact health including: behavior, treatment and prevention outcomes, communication with providers and adherence to treatment regimens (Weekes, 2012). Patients with low literacy face numerous challenges in navigating the healthcare system. They often face difficulties in completing healthcare forms, understanding instructions, keeping follow-up appointments for care, self-administering medications and the inability to obtain and analyze basic health information (Chang & Kelly, 2007). One in five adult Americans reads at or below the fifth grade level (Doak, Doak, & Root, 1996). Ethnic minorities have lower literacy levels than their non-minority counterparts (Doak et al., 1996). Understanding a patient's health literacy allows a nurse to provide educational materials and approach teaching in a culturally appropriate manner (Cameron, 2013). Limited health literacy places patients at greater risk for less access to care and less favorable health outcomes (Berkman, Crotty, Donahue, Halpern, & Sheridan, 2011). New immigrants, adolescents, seniors, people with less than a high school education, ethnic minorities, and low income non-native English speaking people (ESL) are “at-risk” for low health literacy (Baur, 2011). Low health literacy is also a major source of economic inefficiency in the healthcare system of the United States. Addressing it is a shared responsibility between individuals and their health care providers (National Network of Libraries of Medicine [NNLM], 2012). Advanced practice nurses have the ability to initiate cost-effective care planning through the use of evidence based nursing
interventions to promote population health and provide accountability in the healthcare system (Vincent, 2009).

This literature review was somewhat limited by a lack of studies and/or projects which directly address the development a gout education pamphlets tailored to the needs of Chinese immigrants. The information gathered for the literature review shows a large body of knowledge regarding gout guidelines and studies addressing clinical aspects of gout management. Few articles address gout patient education in Chinese immigrant population groups in the United States. Therefore, it is important to address specific gout education towards Chinese immigrant communities through a cultural framework and using multidisciplinary approaches.

**Available Patient Education Materials**

A general search for gout information pamphlets was carried out using various sources using the keywords: gout information pamphlet, gout patient education material. The keyword search resulted in discovering five websites containing gout education information in different languages (see Table 2). Two out of five websites provided simple information on gout and low purine diets in Chinese. Neither website addressed dietary restriction, risk factors, behavior modification strategies, or addressed culture.
Table 1

Available Information Pamphlets on Gout

<table>
<thead>
<tr>
<th>Pamphlet titles</th>
<th>Available Language</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gout Information</td>
<td>English</td>
<td><a href="http://www.healthpoint.co.nz/specialists/rheumatology/conditions-manukau-health-rheumatology/gout/">http://www.healthpoint.co.nz/specialists/rheumatology/conditions-manukau-health-rheumatology/gout/</a></td>
</tr>
<tr>
<td></td>
<td>Samoan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tongan</td>
<td></td>
</tr>
<tr>
<td>Purine Restricted Diet</td>
<td>Arabic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chinese</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tereo</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maori</td>
<td></td>
</tr>
<tr>
<td>Purine Restricted Diet</td>
<td>Chinese</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spanish</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tongan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Samoan</td>
<td></td>
</tr>
<tr>
<td>Gout Brochure</td>
<td>English</td>
<td><a href="http://gouteducation.org/medical-professionals/patient-information-resources/">http://gouteducation.org/medical-professionals/patient-information-resources/</a></td>
</tr>
<tr>
<td>Gout &amp; Lifestyle (PDF)</td>
<td>Spanish</td>
<td></td>
</tr>
<tr>
<td>Food list – Which Foods Make the Most Sense for Gout Sufferers?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Summary

The studies examined in this literature review show that it is important to provide clinical knowledge of gout progression and the chronic complications associated with the disease to patients, in order to improve self-management. Effective gout education must focus on problem solving, decision making, resource utilization and creation of an action plan with specific goals based on their individual needs. While using multiple types of education tools can improve overall outcomes, the educator must take learning styles, personal preferences and abilities into consideration. Assessing a patient’s culture and understanding their value system can help alleviate poor healthcare outcomes and enhance health and illness management. Racial and ethnic health disparities can be
reduced by providing culturally and linguistically appropriate services to address patient needs. Linguistically appropriate teaching materials with disease specific information can increase patient knowledge and lead to improvements in clinical outcomes. Pamphlets are an effective tool in disseminating important disease specific information and in assisting health professionals utilize evidence-based information in communicating interventions and self-management issues with their patients. Education should be based on individual health literacy.
METHODS

This section describes the pamphlet design plan and the theoretical framework used in its production. Also included is a description of the strategies used in its development. Discussion of the protection of a human subject will be briefly discussed, as well as, the limitation, delimitation and assumptions of the study. The resources used for information collection have been discussed previously under literature review, the same will be used to develop this proposed linguistically appropriate education pamphlet.

Project planning was divided into five stages (Figure 2):

1. Literature review for identifying patient needs and available resources.
2. Pamphlet planning to address gout patient education needs
3. Pamphlet design and production plan.
4. Translation plan and validation of accuracy.
5. Disseminating gout education pamphlet.

Figure 2. Gout educational pamphlet development plan.
Planning Stage 1: Literature Review: Identifying Needs and Available Resources

An understanding of the patient population, their characteristics and health needs assisted the pamphlet planning activities and recruitment of a multidisciplinary participation to create this project. At this stage the work also included identifying information gaps, in the target population, concerning gout knowledge and focused on the development of effective health promotion and prevention strategies. Effective gout management depends on good communication with patients (Anon, 2010). Bardin and Richette (2010) suggest informing every patient about the disease itself. Gout is avoidable by eliminating risk factors and modifying lifestyle habits. Interventions include drug therapy, and patient education to include strategies for preventing and managing flares and self-help knowledge (e.g., dietary control, lifestyle management). Patient education is likely to be a critical factor in patient adherence to regimen and for optimal management and preventive care of gout. Patient education is a core competency in nursing and is a core aspect of health promotion and disease prevention. At the start of this project, there were no available gout patient education materials written in Chinese at the Rosemead Clinic, which is located at the center of a dense Chinese immigrant population hub. Literature and internet searches failed to find written Chinese language education materials addressing all the following aspects of gout care: self-care needs, development of the disease, drug therapy, dietary and/or lifestyle modification. The combination of high prevalence in diagnosis of gout at the Rosemead Clinic and a lack of cultural and linguistically appropriate gout educational materials for Chinese immigrant patients triggered this project.
Planning Stage 2: Pamphlet Planning to Address Gout Patient Educational Needs

The first step in this stage was to create a multidisciplinary team for the purpose of addressing global educational needs in acute and chronic stages of the disease. The goal was to integrate gout education and risk behavior reduction into everyday practice. The pamphlet consultants were clear of their roles and responsibilities so that content expertise was provided once identified. The four interdisciplinary consultants include: a Chinese-American dietitian who works at San Gabriel Valley Community Hospital, a Chinese-American pharmacist, a family practice physician who works at the Rosemead Clinic, and a certified patient educator who works as patient education materials consultant with an HMO organization.

The dietitian was consulted with a list of purine food and dietary habits which catered to typical Chinese dietary preferences and food culture. The pharmacist categorized a list of medicines for treatment, at different stages, of gout. The family practice physician was consulted for his experience as part of a planning committee for recommending essential medical practices in the management and follow up care of gout. The educator was consulted with the pamphlet design and production.

A diagnosis of gout can be simple and straightforward and treatments are generally safe with few side effects. With the current state of knowledge, gout prevention and treatment should be achievable for the majority of gout patients. However, inadequate treatment is common and leads to repeat gout flares, results in permanent joint damage and diminishes quality of life of patients. Gout can lead to negative impacts on patient health. This education plan focuses on the cultural qualities of foreign-born, Chinese-American, and the non-English speaking Chinese population at the Rosemead
Clinic. The content design was attentive to providing a minimum level of key knowledge concerning gout disease, medication management, risk behavior modification and self-help treatment options during acute flares.

Planning Stage 3: Pamphlet Design and Production Plan

When creating materials for populations with limited literacy, the writer has to simplify complex medical information, include key information to reducing barriers to comprehension and promote motivation (Choi, 2011). The following are guidelines which were used for developing this gout awareness pamphlet (Monsivais & Reynolds, 2003):

- Use short sentences with one and two syllable words as much as possible.
- Keep information concise.
- Present one idea at a time.
- Break complex ideas into basic components, such as medications.
- Use plain text and 2 point font sizes.
- Highlight important information or ideas with bold lettering.
- Use headings to introduce new topics.

Microsoft Publisher was used to design and author the educational pamphlet.

Planning Stage 4: Translation Plan and Validation of Accuracy

The translation plan was part of the overall plan for creating this pamphlet. The best way to ensure the accuracy of the translation is to work with translators who are familiar with the Chinese culture and language. Two Chinese Americans who are fluent both in Chinese and English were referred and recruited to provide translation. One translator had medical experience as a critical nurse, while the other was a retired postal
worker. They were asked not to contribute any of their ideas, but to instead translate the content on the pamphlet. The content was initially translated from English to Chinese by the first translator and that translation was subsequently validated by the other translator. Both of the translators were instructed to use simple and easy to understand vocabulary. Both versions of the pamphlet would be placed side-by-side for readability checks to allow evaluators to move back and forth between the Chinese and English text and ensure clarity and uniformity of meaning and instruction.

**Planning Stage 5: Disseminating Gout Education Pamphlet**

In addition to placing the pamphlet in the exam room for the purpose of serving as a teaching tool for providers, copies of the pamphlets will be made available in the clinic’s waiting room as reading materials during routine office hours. The pamphlet will also be made available through community outreach activities.

**Theoretical Framework**

Leininger’s Cultural Care Theory guided the development of this project. Madeleine Leininger was the first to bring cultural competency into the nursing practice with the development of her “Culture Care Theory.” According to the Merriam-Webster Dictionary (2013), culture is defined as, “the integrated pattern of human knowledge, belief and behavior that depends upon the capacity for learning and transmitting knowledge to succeeding generations.” Cultural competence has emerged as a fundamental strategy for addressing health education disparities in targeted populations (Leininger & McFarland, 2006). The development of language-appropriate, health education materials is a part of the framework of culturally competent interventions (Ananeh-Firempong, Betancourt, Carrillo, & Green, 2003). Leininger’s Cultural Care
Theory addresses the cultural dynamics that influence the nurse-client relationship and provides culturally congruent care through "cognitively based assistive, supportive, facilitative or enabling acts or decisions that are mostly tailor-made to fit with individuals, groups, or institutions’ cultural values, beliefs, and lifeway" (Leininger, 2002).

Health education, when it is presented as patient-focused and emphasizes culturally-based care, leads to the overall well-being and better health of patients. Leininger’s theory is also known as the ‘Sunrise Model’ in which nursing actions are guided by considering all of the cultural impacts that potentially affect health or result in illness (Sagar, 2006). The Sunrise Model emphasizes factors influencing care with regard to religion, politics, economics, worldview, environment, cultural values, history, language, gender and others elements. The purpose of the theory is to provide culturally congruent, safe and meaningful care, to clients of diverse cultures whom perceive, know, and practice care in different ways.

Summary

This section dealt with the pamphlet planning design, methodology and theoretical framework used to guide its development. Description of the utilized strategies is also included. Furthermore, this section reviews the project plan which is divided into five stages including: 1) literature review to identifying patient needs and available resources; 2) multidisciplinary collaboration to decide contents included in the pamphlet; 3) pamphlet design with consideration of reading comprehension skills, levels of knowledge, cultural belief and practices of the target Chinese American population; 4) translation procedures as part of the overall plan to author this information pamphlet; and
5) distribution strategy of pamphlet for making it available to educate target patient population.
PAMPHLET PRODUCTION PROCESS

This section reports the learning and details from each step of the project planning implementation. Consultation from all of the experts played an important role in guiding content development. The multidisciplinary consultants were a dietician, a family practice physician, a pharmacist, and a health educator, who met one hour per week for one month, through conference calls or face-to-face meetings to discuss the content of the pamphlet. A detailed catalogue of the project aims, the shared roles, and responsibilities for planning and authoring was included at the first meeting. All partners attended the first meeting and reached an agreement to perform the assigned roles. Since the pamphlet was targeted at the Chinese community, each team member kept in mind the genetics, eating habits, food selection, and cultural health practices of Chinese Americans, while developing the pamphlet content (Leininger, 2002).

Dietician

Brown and Lv (2010) divided Chinese American Families into ‘‘modified’’ and ‘‘traditional’’ eating patterns based on the degree of parental retention of the Chinese dining pattern, which is reflected in the type of food they typically buy in supermarkets. Chinese Americans typically shop based on an ingrained pattern of matching meat and vegetables that reflect their family food preferences. Brown and Lv (2010) found Chinese American food habits extremely resistant to change because of food patterns established early in their lives. Chinese-American and Chinese immigrant eating patterns include buying take-out meals from convenient Chinese “deli” restaurants; these are of questionable nutritional value. Chinese Americans follow traditional dietary practice to different degrees (Gasevic, Rosenmöller, Lear, & Seidell, 2011).
The eating habits and foods specific to Chinese culture were searched and suggestions were made based upon Chinese recipes; so as to reduce or eliminate the risk of gout in Chinese patients.

Patients with gout should reduce and limit intake of purine rich foods in their diet. Animal proteins such as meat, poultry, and fish/seafood are high in purine (Gaffo & Sagg, 2013). The dietician specified that the pamphlet should instruct the population to limit all meat, poultry and fish to 4 to 6 ounces (113 to 170 grams) daily.

High-fat meals contribute to obesity, which is also linked to gout disease.

Also specified by the dietician was limiting or avoiding alcohol because its consumption interferes with the elimination of uric acid from the body. Drinking beer, in particular, has been linked to gout attacks. Foods sweetened with high-fructose corn syrup (e.g., soft drinks or juice drinks) should also be avoided as fructose is known to increase uric acid (Culkin et al., 2009).

It was further advised that persons with gout drink plenty of fluids, particularly water. Fluids can help remove uric acid from the body and 8 to 16 glasses a day is the target for consumption. Fruits, vegetables, whole grains, and occasionally nuts can be added to the diet as a snack, as long as healthy weight is maintained and calorie intake is within reasonable limits.

Physician

The medical physician highlighted that improving management of gout starts with the early diagnosis of acute, gouty-arthritis, which can be accomplished through a thorough history and physical examination. Gout should be considered to be differential diagnosis when any patient presents pain limited to one joint, particularly in the hallux.
Gout can be visually diagnosed in the late stages when the symptoms surface as does erythematous on a patient’s skin. The doctor stressed that patient education is an important area that must be specific to the disease. For example, patients with hyperuricemia should be instructed that they need to be cautious about what they eat and drink. Patients also need to be aware that acute attacks can be managed with colchicine or non-steroidal anti-inflammatory drugs; early introduction of therapy increases the effectiveness of treatment. Patients with recurrent gout taking allopurinol to lower their urate concentrations also must be advised of the adverse effects and possibility of suffering new onset acute attacks associated with terminating their medications.

**Pharmacist**

As a part of the focus on team-based care, the role of the pharmacist goes beyond dispensing medications and has evolved into active participation in chronic disease management. Medication information was organized into an easy to understand format provided by the pharmacist.

The pharmacist consultant highlighted that medications for treatment of gout are divided into two different categories: one for controlling symptoms and the other to decrease pain and swelling due to acute gout attacks. Examples of medications used in treatment of the first are NSAIDs, Colchicine, and steroids (Micromedex 2.0, 2014). The second category of medications are used to decrease high uric acid in blood and dissolve urate crystal deposits in joints, so as to achieve long term remission. Examples are Allopurinol, Probenecid, and Febuxostat (Mapa & Pillinger, 2010).
Health Educator

A health educator specializing in facilitating educational materials provided valuable guidance in creating a patient-friendly pamphlet. The initial draft of this pamphlet covered overly complex medical information about pathophysiology, risk factors, diagnosis, treatment, medication, side effects, nursing teaching, dietary practice, and ways to avoid gout. The content was edited for clarity, brevity, and was limited to specific guidelines for what this particular population needs to know regarding gout management. The information was printed in Arial/Chinese, 12 point-font, in a two-panel pamphlet measuring 7.25” x 3.5”. The visual impact of the graphic design was considered and a picture of an actual gout patient’s afflicted area (hallux) was incorporated to the introduction of the pamphlet. Controlled vocabulary was used in order to avoid technical jargon, medical terms and long sentences.

Legal Consideration

The goal of this project is to develop a Chinese language, culturally tailored, educational pamphlet that provides specific information on gout for the purpose of increasing the target patients’ knowledge and lead to improvements in clinical outcomes. This project is considered a quality improvement activity, not a research project. The project does not involve human subjects, protected health information, patient identifiers, or patient specific data. There was no plan to manipulate electronic data files or medical records. Steps in pamphlet creation don’t involve data or specimen collection, interviewing, testing hypothesis, evaluation or consent requirement. This is a quality improvement project, not a research activity, and does not warrant an IRB review based
Addressing Gout Patient Educational Needs

The purpose of the multidisciplinary team is to integrate gout education and risk behavior reduction into everyday practice (Robinson & Schumacher, 2013). The consultants were clear about their roles and responsibilities in providing content expertise as identified. With the current state of knowledge, prevention and treatment in a majority of gout patients should be achievable. The diagnosis of gout can be straightforward and treatments are generally safe with few side effects. However, inadequate treatment is common and can lead to repeated gout flares, destructive arthropathy, diminished quality of life, increased work disability and negative health impacts (Zhang et al., 2011). To address the characteristics of the foreign born, non-English speaking, ethnically Chinese patients at the Rosemead Clinic, the content design focused on a minimum level of understanding of key knowledge in gout self-management.

Development of the Bi-fold Pamphlet

The initial draft content was based on information described in the above section. After several iterations, the consultants agreed on major topic headings, contents and the layout of a draft pamphlet. The topic headings inside the pamphlet were as follows:

- What is gout?
- What are the signs and symptoms?
- What are the risk factors to trigger gout flares?
- How to diagnose gout?
- How to use medications to treat gout?
• Medication to treat acute gout flares
• Medication use in stable gout
• Medication use in chronic gout

Common use medications were also subcategorized into 5 groups:
• NSAIDs, Colchicine, Corticosteroids, Antihyperuricemic, and Febuxostat
• Strategies to prevent acute gout flares
• Things to do during acute gout flares
• What should you know about gout
• Food list- low purine food (0-25mcg per 100mg)
• Food list- moderate purine food (25-150mcg/100mg)
• Food list- high purine food (150-1000mcg/100mg)

The outside of the pamphlet included a grid for patients to record their health progress, including blood pressure, serum uric acid level, cholesterol level, triglyceride level, and body weight by date. The draft pamphlet was too long and was edited from 15 to 12 pages. With input from the patient educator, the pamphlet was trimmed down to its current size and altered to make it interactive and patient friendly.

The software used for the pamphlet production was Microsoft Publisher. A blanket format was used throughout the pamphlet and the same color scheme. The pamphlet contains simple illustrations on the first page, to complement text, of food typically associated with gout. The development of the pamphlet, with the cooperation of the multidisciplinary team, took two months. Traditional Chinese font was used as an easy to read text type. The size of this pamphlet allowed it to be carried in a pocket. The
dimensions are length 6.75 inches x breadth 2.25 inches, for a total of 12 bi-folding pages.

The pamphlet was designed for readers with minimal disease knowledge to include only important, relevant information written in short sentences. Two design aspects were considered when authoring the pamphlet. Important elements and key points were highlighted with visual cues. Information was sorted in logical order in simple format. Sentences were written in an active voice and major points emphasized (Akkuzu, Arsalantas, Kosker, & Sen, 2009). Figure 3 below shows the workflow of the pamphlet editing process.

**Figure 3.** Workflow of the pamphlet editing process.

**Translation Process**

Functional illiteracy is often an overlooked problem when designing patient education materials (Aldridge, 2004). The first step in the translation process was to translate the pamphlet information and food list from English to Chinese, then translate back to ensure the consistency of the conversion. Both versions of the gout education pamphlet were placed side-by-side during readability checks to allow evaluators to move
back and forth between the Chinese and English text. The translation was internally consistent with only some minor word replacements necessary. This author believes the translation process back and forth, from English to Chinese, then translated back to English with two different translators (see Figure 4) supported the validation of the translated content and the linguistic aptness of the pamphlet.

Figure 4. Pamphlet Translation Process. The back and forth translation method was used to validate the content so as to ensure a precise translation.

Summary

This section describes the learning process from the multidisciplinary experience, for creating this gout education pamphlet, for use in serving the Chinese immigrants at the Rosemead Clinic. Capturing the key information for presentation in a simple, friendly format for the target population was complex and challenging. This challenge was met successfully with the end result being the production of the bi-fold education pamphlet in accordance with the principles of good communication. See details in Appendix C for the Chinese version of this pamphlet and Appendix D for English version of this pamphlet.
DISCUSSION

California has the second largest population of Chinese in the United States. The San Gabriel Valley has the most concentrated foreign-born, Chinese-speaking population in Southern California per Census Bureau reports (USCB, 2013; Wikipedia, 2013). The Rosemead Clinic is geographically located at the center of San Gabriel Valley. The majority of patients seeking care in the clinic are English as a second language (ESL) Chinese-Americans according to the clinic’s self-report ethnicity census report in 2012. These Chinese immigrants tend to underutilize medical treatment for various reasons and allow acute illness to turn into chronic conditions which impacts their productivity and quality of life. It is important to address Chinese-American, immigrant health as a risk prevention strategy given the phenomenon of this group’s population growth in this geographic area. Evaluation of the impact of socio-economic factors and the cultural beliefs on health issues is necessary to formulate an intervention that will be successful for the target population.

Health promotion and disease-prevention-intervention can be focused on an individual, aggregate or a population and at the primary, secondary and tertiary level at the same time. Psychosocial and cultural influence cannot be ignored. Leininger’s Cultural Theory was used to form interventions of this health project that are unique to the cultural practices of this population. Culture influences the perception of illness and the actions toward illness of this population (Poureslami et al., 2012). Cultural framework minimizes barriers to the delivery of health education to the target population (Zenzano et al., 2010). In this case, the language used was Chinese, and the list of purine-containing
foods includes fruits, vegetable, meats, and seafood that Chinese people frequently consume.

A gap in gout education was noted during needs assessment. Gout is an ancient disease that yet remains under-detected and undertreated. The literature review showed insufficient treatment of gout or other chronic conditions was associated with patient attitudes, level of understanding to the disease process, and self-management skills (Zhang et al., 2011). Cameron (2013) argues that considering patient health literacy in provider-patient interactions improves efficacy in patient education especially with minorities and new immigrants who speak English as a second language.

There are many varieties of print formats available, such as postcards, fact sheets, pamphlets, and websites. A pamphlet format was used because research has concluded that Chinese Americans in the United States obtain and prefer getting health-related information in print format (e.g., newspapers, books, brochures, pamphlets, websites; Farmer et al., 2008). For Chinese Americans, when English is a second language, educational materials are most effective when presented in a friendly format with simple information that is visually attractive, action-oriented, and easy to access. Therefore, a pamphlet format was chosen to best meet patient learning needs. Strategies used to structure this pamphlet are listed as the following:

- Keeping information specific and unambiguous. Patients with low literacy or the elderly may have difficulty interpreting words differently for new situations. Therefore, the message has to be specific and straightforward.

- Using only short sentences. People with limited reading skills often read one word at a time and skip words. Long sentences may pose a challenge to those
readers. Therefore, the pamphlet was written with short, specific, and direct sentences. Short sentences are also helpful to patients with a short attention span.

- **Avoiding medical terminology.** People with limited reading skills tend to skip words they do not know. Therefore, information should be presented in simple, common words that are familiar to the target population.

- **Writing with Chinese culture and practices in mind.** Immigrants or first generation Chinese-Americans have different cultural and environmental backgrounds. Therefore, they tend to learn better when presented with information in a familiar context.

- **Using visual clues.** A combination of visual clues with simple pictures or graphics in conjunction with words is an effective way to convey messages to ESL readers.

The key in content development was the interprofessional collaboration among the medical doctor, pharmacist, dietitian, and education specialist. This ensured information and strategies were consistent, relevant, and persuasive and were offered through appropriate cultural and linguistic lenses. The pamphlet went through a few rounds of editing to enhance its effectiveness and friendliness. The back-translation procedure, from English to Chinese to English, was planned at the beginning of the project and was executed by two Chinese American bilingual persons to ensure consistency in translation and readability. Both translators stated the pamphlet was easy to read; information and instructions were consistent in both versions. After five months of literature search, education material planning, and multidisciplinary partnership, the
Gout Education Pamphlet was created. The Gout Pamphlet in Chinese was printed in-house with a Lexmark Laser Printer. Copies of the gout patient education pamphlet in Chinese are ready to be displayed in the clinic waiting room.

**Limitations**

Two limitations should be considered. This project was to develop a gout education pamphlet in Chinese to target the education gap in the ambulatory clinic, where mostly non-English speaking Chinese Americans are served. There were no pre- and post-tests to evaluate actual reading ability, grade level, comprehension, and linguistic preference. Secondly, this product is aesthetically appealing, but may not adequately educate patients without face-to-face discussion and follow-up with their physicians. Information in the pamphlet is generalized without identifying individual risk factors. Therefore, the second limitation is that the pamphlet should not be used alone, without face-to-face consultation.

**Conclusions**

This project’s aim of creating a gout education pamphlet in Chinese meant to bridge the education gap, was accomplished. A collaborative multidisciplinary partnership improved overall co-ordination of content. A simply designed, evidence-based pamphlet will give patients the ease and clarity to read and this educational material will likely promote gout related, patient-provider discussion. This educational tool empowers patient’s self-care skills and improves patient satisfaction. This project demonstrates the DNP is a resourceful activist, who prioritizes prevention on all levels, is population focused, works collaboratively and bases interventions on the greater good.
Practice Implications

The background and purpose of the project and specific steps for creating culturally tailored patient education materials have been delineated. The next step is to make the pamphlet available in the clinic waiting room and on bookshelves for use by health professionals as a teaching tool that facilitates discussions about gout.

This project provided a model for use in developing future health education materials for other emerging health issues that are culturally relevant to aid both healthcare providers and the Chinese American population. Furthermore, this project demonstrates the practice of nursing as a performing art, which uses nursing knowledge and interprofessional collaboration to promote therapeutic interaction within and between systems and improve human condition (White & Zaccagnini, 2013).
REFERENCES


APPENDIX A

2012 PUBLISHED ROSEMEAD CLINIC REPORT

### Report Date 2013

**12-Month Census Report - Year 2012**

2012 柔似蜜門診中心門診人數統計3932人次

#### Breakout of Age Brackets

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<th>Row Labels</th>
<th>Count of MR#</th>
<th>% of Total</th>
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<td>Child</td>
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<tr>
<td>Teenager</td>
<td>271</td>
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<tr>
<td>Adult</td>
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#### Breakout of Gender

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#### Breakout of Ethnicity

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<td>African American</td>
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<tr>
<td>Other Asian</td>
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<tr>
<td>Grand Total</td>
<td>3932</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Total Visits: 3932 counts (Time frame: 1-1-2012 to 12-31-2012)

- Male: 44%
- Female: 56%

Most of patients self-reported as Chinese ethnicity - 66%

#### Gout Prevalence:

- 6.1% Total clinic population
- 8.1% Asian other than Chinese
- 7.3% Chinese
- 3.5% Hispanic
- 3.5% White

Total Gout Prevalence rate is 6.1% (248/3932 = 6.1%)

% of Gout Patients by Ethnicity - Within Ethnicity and Compared Against Total Population

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<th>No</th>
<th>Grand Total</th>
<th>% Yes (For the Specific Ethnicity)</th>
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<tr>
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<tr>
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<td>0.00%</td>
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<td>9</td>
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<tr>
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<td>3932</td>
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</tbody>
</table>
APPENDIX B

MANAGING GOUT PAMPHLET BY KRAMES

Treating an Attack
You may not always be able to avoid gout attacks, but you can take steps to reduce your symptoms. Medication can help relieve pain and swelling. Simple forms of self-care can also help you feel better.

Medication for Attacks
Your doctor may prescribe a medication for you to take when an attack strikes. For best results, follow these tips:
• Take your medication at the first sign of pain or swelling.
• Be sure to take it as directed.
• Don’t stop taking it until the attack is over.

Self-Care During Attacks
The more swollen the joint, the greater your pain. Try these simple steps to help reduce joint swelling:
• Rest the painful joint as much as you can.
• Raise (elevate) the painful joint so it is at a level higher than your heart.
• Try icing the painful joint (stop if it makes the pain worse).

Taking Control
Gout is an ongoing problem. But it doesn’t have to keep you from doing the things you enjoy. You can help control gout by avoiding triggers, taking medication as directed, and living a healthy lifestyle.

Managing Gout
Exercising, eating right, and watching your weight are all part of a healthy lifestyle.

Consultant
Gretta C. Bernhard, MD, Rheumatology
With contributions by:
Neal S. Brodsky, MD, Rheumatology
Karen N. Bohan, MD, Family Practice
Kerri K. Davis, MD, Orthopedics

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Limiting Painful Attacks
### What Is Gout?

**Gout** is a disease that causes your joints to swell and become painful. It often first appears in men between the ages of 40 and 50. Women tend to be affected after menopause. If you have swollen joints, your doctor will ask about your health history and perform an exam. To diagnose gout, a small amount of fluid may be removed (aspirated) from an affected joint and studied. You may also need x-rays or lab tests to rule out other types of arthritis.

Gout occurs most often in the big toe, ankles, knees, and elbows.

**Cause and Symptoms**

Gout is due to too much uric acid (a waste product made by the body) in the blood. The excess uric acid causes crystals to form in one or more joints and in soft tissue. These crystals can cause severe joint inflammation (pain, swelling, and heat). In many cases, the skin over affected joints appears red. Gout attacks come on suddenly and may last for days or even weeks. For some people, the joints affected differ with each attack.

### Preventing Attacks

Gout attacks often happen more than once. Attacks may occur weeks or months apart, and you can’t always tell when an attack will strike. Left untreated, attacks can become more frequent or last longer. In severe cases, uric acid crystals form large deposits, called tophi. Tophi can damage joints and other tissues, including the heart and kidneys. But gout can be controlled by avoiding triggers and taking the right medications.

**Be Aware of Triggers**

You can help control gout by avoiding triggers (things that cause symptoms or make them worse). A few of the most common triggers are:

- Drinking too much alcohol. Ask your doctor how much alcohol, if any, is safe for you.
- Being overweight.
- Eating foods high in purines (such as organ meats). Ask your doctor for a list of these foods.
- Sudden illness or infection.
- Surgery or injury anywhere on your body.
- Taking water pills (diuretics). Talk with your doctor if you are on a diuretic.

You may be told not to drink alcohol.

**Medication to Prevent Attacks**

Your doctor may prescribe a medication to help prevent gout attacks and tophi. Some medications reduce the amount of uric acid made by your body. Others increase the amount of uric acid passed in your urine. For best results, be aware of the following:

- These medications work slowly. Give them time to take effect.
- Take your medication as directed. Don’t skip doses.
- Your medication may trigger an attack when you first start taking it. Discuss this with your doctor.
- You may need to take it for the rest of your life.
APPENDIX C
GOUT EDUCATION PAMPHLET IN CHINESE

什麼是痛風？
痛風是一種現代病，美國成年人的痛風患病率在不斷增加。增加原因是由於越來越多的生活危險因素，如久坐的生活方式，改變飲食習慣，和人的壽命活得越來越長。早期診斷可以防止進一步的痛風發作，防止永久性關節損傷等併發症。

痛風是最痛的一種關節炎，病因是體內累積過多的尿酸。食物中的某些肉類，海產類，豆類都含豐富嘌呤，當身體分解飲食的嘌呤，尿酸是嘌呤體的最終產品。尿酸通常溶解在你的血液，通過腎臟進入尿道內排泄。當食用過多嘌呤食物，引起過多的尿酸，或超出腎臟的負荷時，尿膜就可能導致血液中尿酸過高的情況。這樣情況尿酸便會以針狀結晶體的形態堆積在關節四周，最後引起發炎反應造成局部紅腫熱疼。

尿酸結晶皮膚之下聚集形成硬塊稱為痛風結晶。

痛風結石於尿管和腎臟便是痛風結石。

(國家網路醫院，2014)
痛風症狀

痛風非常痛如針刺，而且不能行動自由。尤其當你觸摸它，許多人痛風發作或第一次發作是在大腳趾，痛風發作時患者常常會從睡夢中被痛醒。大腳趾非常腫痛、發紅、發熱和腫脹。除了大腳趾，痛風還可累及腳背、踝、足跟、膝盖、腕部、手指和肘部。

- 疼痛
- 腫脹
- 發紅
- 發熱
- 間隔僵直

哪些人容易成為痛風患者呢？

一、家族遺傳史，痛風患者其家族上一代都曾有痛風史。一般認為尿酸代謝障礙的基因發生遺傳，特別中國人更是普遍。
二、肥胖，有充分證據顯示體重的上升和血中的尿酸程度成正比關係，導致痛風發作的機率大增。
三、是男性多於女性。
四、飲酒太多，酒精會阻斷尿酸的代謝，並且引起身體脫水，引起痛風。
五、進食過多富含嘌呤的食物。

六、使用利尿劑、阿司匹靈等藥物。

如何診斷痛風？

醫師會詢問您的症狀、病史和痛風家族史。為確診醫師可能會抽取血或取發炎關節的液體作化驗，查看有沒有尿酸結晶或尿酸結晶體在關節液中。

如何使用藥物治療痛風？

治療痛風的目標是安全迅速的減輕痛風的疼痛和症狀並減少血中高尿酸。治療可以預防未來的痛風和避免關節損傷變形。一般而言，治療藥物分成痛風急性發作期、發作間期，與慢性痛風石關節炎：

一、急性發作期－治療目標為緩解疼痛

1. 非類固醇消炎止痛劑（NSAIDs）
2. 秋水仙素（Colchicine）
3. 類固醇（Corticosteroids）

二、發作間期－治療目標為降低發作頻率與嚴重度

1. 非類固醇消炎止痛劑（NSAIDs）
2. 秋水仙素（Colchicine）

三、慢性痛風石關節炎－治療目標為降低尿酸濃度，長期根本控制血尿酸值

1. 抑制尿酸合成藥物 antihyperuricemic (Micromedex 2.0, 2014)
药物介绍 - 痛风常用的药物分类

非类固醇消炎止痛剂 (NSAIDs)
例如: Ibuprofen, Indomethacin, diclofenac, Celecoxib

作用：消炎, 镇痛, 解热, 可迅速解除关节肿胀, 疼痛。

副作用：一般以胃肠道症状多，如胃痛, 胃灼热感, 胃出血, 食道炎等。

使用时间：急性期消炎止痛的短期使用，不痛时应马上停止使用。若肝肾功能不佳者，剂量应按医师指示。

秋水仙素 (Colchicine)

作用：预防痛风发作，它本身没有降低尿酸的效果，急性发作后12小时内服用效果最佳。

副作用：腹泻、肠胃不适。

使用时间：使用类固醇药物的前几周，目前较少使用止痛，但可依医师指示使用。

类固醇 (Corticosteroids)
肾上腺皮质激素，例如强的松 Prednisone。

作用：消炎, 镇痛, 解热, 可迅速解除关节肿胀, 疼痛。免疫抑制作用。

副作用：类皮质功能亢进。

抑制尿酸合成药物 anti-hyperuricemic
例如: Benzbromaron, Probencid, Allopurinol

作用：使血中尿酸值降低，可以预防痛风的发作及并发症的发生。

副作用：极少，一般为药物过敏, 皮疹, 淋巴肿大, 胃痛, 肠道不適。

使用时间：不痛的时候，長期服用可预防痛风发作。

促进尿酸排泄药物 Febuxostat
例如: Uloric

作用：主要透過抑制近端肾小管對尿酸的重吸收而促进尿酸排泄。

副作用：會引起胃痛不适, 厌食, 嘔吐, 貰皮炎, 骼骨疼痛, 关节痛，頻尿, 过敏反应。

使用时间：喝大量水（每天 2.5-3L）以免产生肾结石。
## 高尿酸血症及痛風患者最新食物選擇表

<table>
<thead>
<tr>
<th>食物類別</th>
<th>可吃</th>
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<tr>
<td></td>
<td>通心粉、小米、高粱、馬鈴薯</td>
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<td>薑黃、芋、冬瓜、樹薯粉、豆漿</td>
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<tr>
<td>豆類及豆製品</td>
<td>豆腐、豆漿</td>
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<td>蛋白、鴨蛋、皮蛋、牌蛋</td>
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</tr>
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<td>皮蛋、海鮮皮</td>
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<td>蘆筍、醃話梅、荔枝、幹梅</td>
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<tr>
<td>水果類</td>
<td>桃子、柳丁、檸檬、葡萄、椰子、燕桃、楊梅、色冬、木瓜、桃乾、鳳梨、香蕉</td>
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<tr>
<td></td>
<td>番茄、西瓜、紅棗、無花果、紅棗、香蕉</td>
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</tr>
<tr>
<td>其他</td>
<td>蔓越莓、蔓越莓、香菇乾、醬油、瓜子、葵花籽、核桃、荔枝</td>
<td></td>
</tr>
</tbody>
</table>

### 高尿酸血症及痛風患者最新食物選擇表

- 奶類：各種乳類及乳製品。
- 主食類：面類、白米、糙米、小麥、燕麥、麥片、糙粉、麵條、玉米、粟米、通心粉、小米、高粱、馬鈴薯、甘薯、芋、冬瓜、樹薯粉、豆漿。
- 豆類及豆製品：豆腐、豆漿。
- 肉類：蛋白、鴨蛋、皮蛋、牌蛋。
- 海產類：皮蛋、海鮮皮。
- 蔬菜類：山東白菜、捲心白菜、菠菜、高麗菜、菠菜、芥蘭菜、高麗菜、芥菜、雪蓮紅、花椰菜、韭菜、韭尖、韭菜花、蒜頭、小黃瓜、冬瓜、絲瓜、胡瓜、血管、香菇、胡蘿蔔、蓮藕、薏仁、薏米、慈菇、大耳、豆芽菜、榨菜、粟米、薑、蘆筍、醃話梅、荔枝、幹梅。
- 水果類：桃子、柳丁、檸檬、葡萄、椰子、燕桃、楊梅、色冬、木瓜、桃乾、鳳梨、香蕉、番茄、西瓜、紅棗、無花果、紅棗、香蕉。
- 其他：蔓越莓、蔓越莓、香菇乾、醬油、瓜子、葵花籽、核桃、荔枝。
# 高尿酸血症及痛風患者最新食物選擇表

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<td>動物類</td>
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<tr>
<td>海產類</td>
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</tr>
<tr>
<td>蔬菜類</td>
<td>麥片、香菇、紫菜乾。</td>
</tr>
<tr>
<td>水果類</td>
<td>酵母粉。</td>
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<tr>
<td>其他</td>
<td>各種酒類（尤其是啤酒）</td>
</tr>
</tbody>
</table>

(長庚紀念醫院, 2011)
如何預防痛風

1. 控制尿酸的藥物:
   如果你的醫生開藥物可以幫助你，治療的效率早日恢復。

2. 飲食治療:
   預防勝於治療，飲食上必須注意的有：多喝水，避免使用高普林飲食，避免高糖、高鹽、過高蛋白、高熱量、高熱和脂肪，並且盡可能的排除反式脂肪的攝取。

3. 維持理想體重:
   對於過重的痛風患者，健康的減肥也可以降低尿酸。因為過度減重，減重的患者，因為體內脂肪的分解，可以加速尿酸的生成，引起加重的痛風症狀。

4. 限制飲酒:
   酒會產生過酸，過酸代謝成乳酸進而影響尿酸排泄。

5. 平常養成多喝水的習慣:
   一天飲用8-16杯（2-4升）的水，避免喝果汁飲料，白水可幫助尿酸順利代謝。

6. 糖尿病治療及預防：痛風合併糖尿病時，因大部份的癲癇病者，因是吃太多及肥胖所引起糖尿病代謝障礙。

7. 痛風需長期治療及控制高尿酸血症到正常為止，不能因不痛就停止控制。

急性痛風治療

1. 卧床休息，將患肢抬高。

2. 尽快找醫師治療，服用藥物。

3. 就診時，檢查，暫時止痛，消炎。

4. 多喝水：可幫助尿酸順利代謝。

5. 避免食用高普林食物控制尿酸。

病患須知：

1. 痛風是一種慢性病，可以完全掌握控制，但需長期配合服藥，治療成功與否大部份決定在自己。

2. 了解並分清楚您所使用的藥物種類（如消炎止痛藥或是降尿酸藥）及其使用時機是重要的。

3. 降尿酸藥物長期使用，可以預防痛風發作及併發症的發生。

4. 控制飲食，維持標準的體重。避免含高嘌呤的海鮮及海產食物。

5. 酒精最容易導致痛風發作，所以應該禁止喝酒。
APPENDIX D

GOUT EDUCATION PAMPHLET IN ENGLISH

What is gout?
Gout is a modern disease and the gout prevalence among U.S. adults is increasing. The increase is believed due to increasing risk factors in the population, such as sedentary lifestyle, changes in dietary habits, and longer life expectancy. Early diagnosis can prevent further gout attack, permanent joints damage and other complication.

Gout is a kind of arthritis caused by uric acid crystals forming in one or more joints. Uric acid is a substance that forms when your body breaks down a substance called purines. This substance normally dissolves in your blood and passes through your kidneys into your urine. In people who have gout, uric acid builds up and can then form sharp crystals in the joint space. This causes pain and swelling in the affected joints.

Over time, uric acid crystals might form lumps under the skin called tophi (say "toe-fee"). You may also develop kidney disease or kidney stones from uric acid crystals in the urinary tract. Even the bone joint may be destroyed by gout.
Gout | Symptoms

Joints are painful during acute attack which affects person's mobility. The symptoms of gout may be sudden. They usually start at night, often in the big toe joint (but can also occur in the joints of the feet, ankles, knees, hands and wrists). The affected joint becomes red, feels hot and hurts. The joint hurts more when you touch it.

- PAIN
- SWELLING
- REDDENED
- WARM TO TOUCH
- STIFF JOINTS

Gout | Causes & Risk Factors

1. Have family members with the disease.
2. Are overweight—Evidence shows positive relation between weight increase and serum uric acid level. Weight gain increases chance of gout attack.
3. Men develop gout more often than women
4. Drink too much alcohol. Alcohol triggers gout by interrupting uric acid metabolism and causing bodily dehydration
5. Eat too many foods rich in purines
6. Use some medicines such as diuretics, aspirin, etc.
7. High cholesterol and diabetes can trigger gout attack as well.

How to Diagnose Gout ?

Your doctor will ask about your symptoms, medical history, and family history of gout. To confirm a diagnosis of gout, your doctor may draw blood test to check serum uric acid level and/or draw a sample of fluid from an inflamed joint to look for crystals associated with gout.

How to Use Medications to Treat Gout ?

The goal of treatment is to reduce pain, inflammation quickly and safely and decrease blood uric acid level. Treatment can prevent future gout flares and joint deformities. Generally medications are used in three phases of gout: Acute flare, stable attack, and chronic phases:

A. Acute Flares—treatment goal is pain relieve
   1. Non-steroidal anti-inflammatory analgesics (NSAIDs)
   2. Colchicine
   3. Corticosteroids

B. Stable attack—treatment goal is decrease the pain, severity, and duration of an attack.
   1. Colchicine
   2. Non-steroidal anti-inflammatory analgesics (NSAIDs)

C. Chronic gout—treatment goal is decrease uric acid level to achieve long term remission.
   1. Antihyperuricemic -Inhibition uric acid synthetic
   2. Uricosuric drugs Febuxostat
Common used Medications - 5 categories

NSAIDs
Ibuprofen, Indomethacin, Diclofenac, Celecoxib

Action: Anti-inflammatory, analgesic, antipyretic, can quickly relieve joint swelling and pain.

Side Effects: Gastrointestinal symptoms and more generally, such as stomach pain, heartburn, stomach bleeding, melena and so on.

Indications: Short-term use in acute onset of arthritis, the pain should stop using them immediately. If kidney function is poor, the dose should be in accordance with physician instructions.

Colchicine

Action: Prevent gout attacks, it does not have the effect of reducing the uric acid. After the acute attack within 12 hours of taking the best results. For acute, short-term use.

Side Effects: Diarrhea, and GI discomfort.

When to use: Use the uric acid lowering drugs in the last few weeks. Currently used less pain, but doctors can follow the instructions to use.

Corticosteroids:
Adrenocorticotropic hormone, such as prednisone.

Action: Anti-inflammatory, analgesic, antipyretic, can quickly relieve joint swelling, pain. Immunosuppression.

Side effects: Cortical hyperfunction.

When to use: If the medication for a long time, before the withdrawal, the disease must avoid tapering rebound.

Antihyperuricemic
Such as: Benz bromarone, Probenecid, Allopurinol

Function: to reduce uric acid levels in the blood, can prevent the onset of gout and complications.

Side effects: rare, usually drug allergies, skin rashes, mild gastrointestinal discomfort.

Direction: For long-term therapy to prevent gout attacks.

Uricosuric drugs
Such as: Febuxostat

Function: primarily through inhibition of proximal tubular reabsorption of uric acid and promote uric acid excretion.

Side effects: may cause stomach upset, loss of appetite, nausea, vomiting, and can be served with food or a total of antacids. Headache, frequent urination, allergic reactions.

Direction: Avoid taking aspirin or other salicylates drugs, in order to avoid the antagonism probenecid. Drink plenty of water (2.5-3L per day) to avoid kidney stones.
How To Prevent Gout

1. Uric Acid Lowering Medications:
   If your doctor says the drug can help you, early treatment can improve the efficiency of the treatment for early recovery.

2. Diet Control:
   Prevention is better than treatment, we must pay attention to the diet: drink plenty of water, avoid using high-protein diet, avoid high refined sugar, high salt, over high-protein, high-calorie, high saturated fat and trans fat as possible exclusion uptake.

3. Maintain Ideal Weight:
   For overweight patients with gout, healthy diet can reduce uric acid. Overweight produces excessive uric acid. Should avoid rapid weight lost as weight loss causes tissue breakdown, results high uric acid, and aggravate gout symptoms.

4. Avoid Alcohol:
   Reception produce dehydration, thereby affecting uric acid excretion.

5. Consume Adequate Water:
   Drink 8-16 cups (2-4 liters) of water a day. Avoid drinking fruit juice, tap water can help improve uric acid metabolism.

6. Diabetes Prevention and Treatment:
   eating too much fat and sugar complicate metabolic disorders

7. Long-term Uric Acid reduction—control uric acid level even when no pain.

Acute Treatment

1. Bedrest, elevated affected extremities.

2. Seek medical attention immediately to start medication.

3. Use ice pack to decrease pain and inflammation.

4. Drink water: help to excrete water.

5. Avoid eating high purine food.

What should you know about gout:

1. Gout is a chronic disease which requires long-term three-prong approach: medication therapy, lifestyle modification and dietary control.

2. Understand your medications (such as pain meds, anti-inflammatory agent or urate-lowering agent) and use it as directed.

3. Urate lowering medication can prevent gout attack and complications.

4. Control your diet, keep up idea weight.
   Avoid high purine— contain food and avoid sea foods.

5. Avoid drinking alcohol.

6. Drink plenty fluid to prevent gout and kidney stones formation.
## Food List with Purine Level

### Low Purine

<table>
<thead>
<tr>
<th>Food Type</th>
<th>Group 1</th>
<th>Purine content: 0—25mg/100g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diary products</td>
<td>A variety of dairy and dairy products.</td>
<td></td>
</tr>
<tr>
<td>Grains</td>
<td>Brown rice, white rice, glutinous rice, wheat, oats, cereal, flour, noodles, corn, water chestnuts, pasta, millet, sorghum, potato, sweet potato, taro, glass noodles, tapioca, yam.</td>
<td></td>
</tr>
<tr>
<td>Soy &amp; Derived</td>
<td>Tofu, soy milk.</td>
<td></td>
</tr>
<tr>
<td>Products</td>
<td>Egg, duck eggs, preserved eggs, pig's blood.</td>
<td></td>
</tr>
<tr>
<td>Meats</td>
<td>Sea cucumber, jellyfish.</td>
<td></td>
</tr>
<tr>
<td>Vegetables</td>
<td>Chinese cabbage, cabbage roll, spinach, lettuce, Aberdeen vegetables, amaranth, kale, cabbage, celery, potherb mustard, broccoli, leeks, chives, chives, gourds, cucumbers, melon, gourd, cucumber, eggplant, green peppers, carrots, radishes, onions, tomatoes, onion, radish, hydrochloric acid vegetables, garlic, chili. Mushrooms, bean sprouts, mustard, coriander, Wando, ginger.</td>
<td></td>
</tr>
<tr>
<td>Fruits</td>
<td>Oranges, oranges, lemons, wax apples, grapes, apples, pears birds, star fruit, mango, papaya, loquat, pineapple, guava, peaches, plums, watermelon, kumquat, tomatoes, bananas, frankincense melons, dates, dates.</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>Raisins, dried longan, ketchup, soy sauce, seeds, candy, melon sugar, honey, jelly.</td>
<td></td>
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</tbody>
</table>

### Moderate Purine—eat 2-3/week

<table>
<thead>
<tr>
<th>Food Types</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy products</td>
<td></td>
</tr>
<tr>
<td>Grains</td>
<td></td>
</tr>
<tr>
<td>Soy &amp; Derived</td>
<td>Tofu, miso, mung beans, red beans, pinto beans, black beans.</td>
</tr>
<tr>
<td>Products</td>
<td></td>
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<tr>
<td>Meats</td>
<td>Chicken breast, thigh meat, chicken heart, chicken gizzard, Duck, pork (lean), tripe, pig heart, kidney, lung, brain, pig, beef, lamb, rabbit.</td>
</tr>
<tr>
<td>Seafood</td>
<td>Swordfish, black pomfret, grass carp, carp, red grouper, Pacific saury, eel, eel, thieves birds, crabs, clams, fish, abalone, red Han, shark skin, shrimp.</td>
</tr>
<tr>
<td>Vegetables</td>
<td>Bok choy, Chinese Chrysanthemum, green beans, Emperor vegetables, beans, peas, mushrooms, abalone, seaweed, hake, bamboo shoots, lily, white fungus, garlic, basil, snow peas, asparagus.</td>
</tr>
<tr>
<td>Fruits</td>
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<tr>
<td>Others</td>
<td>Chestnuts, lotus seeds, almonds, cashew, wallberry, peanuts, cashews, sesame seeds.</td>
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</tbody>
</table>
### Food List with purine level

<table>
<thead>
<tr>
<th>Food Categories</th>
<th>Purine content: 150-1000 mcg/100g</th>
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<tbody>
<tr>
<td>High Purine Food—Avoid Group #3</td>
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</table>

- **Dairy products**
- **Grains**
- **Soy & Derived Products** Soybean products.
- **Meats** Chicken livers, Intestinal, chicken spleen, pig intestine, Liver, duck, beef liver.
- **Seafood** white pomfret, silver carp, milkfish, tilapia, leather saury, four broken fish, White fish, mullet, sharks, moray eels, sardines, small tubes, grass shrimp, oysters, clams, mussels, clams, scallops, dried fish, dried fish, flat, black skin, vaginal skin, kiss fish.
- **Vegetables** Dried mushrooms, dried seaweed.
- **Fruits**
- **Others** Yeast Products. All kinds of wine, liquor, alcohol beverages, especially beer.

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**Health Record:**

Name: ______________________

Telephone: __________________

**HEALTH RECORD:**

NAME: ________  □ M  □ F

Date of birth: ________  RECORD #: __________

**HEALTH STATUS**

<table>
<thead>
<tr>
<th>Item</th>
<th>Blood Pressure</th>
<th>Uric Acid</th>
<th>Cholesterol</th>
<th>Ingestion</th>
<th>Weight</th>
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(Chang Gung Memorial Hospital, 2011)