Department of Medical Research

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The objective of this Bulletin is to disseminate international news about health and medicine, developments, activities in medical and health research in DMR. The Bulletin is published monthly and delivered to township hospitals.

The Editorial Committee, therefore, invites contributions concerning information about research activities and findings in the field of medicine and health.

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Highlights on Useful Research Findings Applicable to Health

Genome Analysis of Infectious Agents by using Next Generation Sequencing in the Department of Medical Research

Globally, infectious diseases represent the greatest cause of death and burden of disease. Sequencing tools, bioinformatics and information technologies provide to enable faster and more effective infectious disease prevention and control.

Sequencing the entire microbial genome is important for generating accurate reference genomes, for microbial identification and other comparative genomic studies.

Next Generation Sequencing (NGS), one of the latest advanced molecular techniques, is currently the method of choice for whole genome sequencing of infectious agents; bacteria, viruses and parasites.

Recently, NGS technology was established in the Department of Medical Research. DNA samples from *Mycobacterium tuberculosis* cultures, cDNA of Dengue virus, recombinant DNA of Hepatitis B virus and Rabies virus were extracted.

NGS was performed using Illumina Miseq (Illumina, San Diego, CA, USA) with the workflow including: i) library preparation by random fragmentation of the DNA sample, followed by adapter ligation; ii) cluster generation by loading the library into a flow-cell, followed by amplification of each fragment of the library into distinct clonal clusters; iii) sequencing by a reversible terminator-based method that detects the single base as they are incorporated into DNA template strands; iv) data analysis and alignment of the newly identified sequence reads to a reference genome.

Following alignment, a variety of analysis was performed, such as single nucleotide polymorphism (SNP) or insertion-deletion identification, phylogenetic analysis. The resulting whole genome sequences will act as baseline data for further exploring in-depth genetic studies in Myanmar.

As NGS can provide valuable information on outbreak investigations, clinical diagnostics and therapeutics, drug resistance, virulence determinants, and genome evolution, the established NGS technology can be a useful tool for research and clinical applications of communicable as well as non-communicable diseases.

ဆေးသုတေသနဦးစီးဌာနတွင် ကူးစက်ရောဂါပိုးများ၏ မျိုးရိုးဗီဇအစဉ်အတန်းကို Next Generation Sequencing နည်းပညာဖြင့် ခွဲခြမ်းစိတ်ဖြာပြခြင်း

ကမ္ဘာတစ်ဝှမ်းတွင် ကူးစက်ရောဂါများသည် သေနှုန်းအမြင့်ဆုံးနှင့် ဒုက္ခအပေးဆုံးဖြစ်နေပါသည်။ ထို့ကြောင့် ကူးစက်ရောဂါများ ကာကွယ်ရေးနှင့် ထိန်းချုပ်ရေးများကို မျိုးရိုးဗီဇခွဲခြမ်းစိတ်ဖြာသော ကိရိယာများ၊ ဇီဝသတင်းအချက်အလက်များနှင့် သတင်းအချက်အလက်ဆိုင်ရာနည်းပညာများကို အသုံးပြု၍ ပိုမိုလျှင်မြန်စွာနှင့် ပိုမိုထိရောက်စွာ လုပ်ဆောင်နေပါသည်။ အဏုဇီဝပိုးများ၏ မျိုးရိုးဗီဇတစ်ခုလုံးကို အစဉ်အတန်း ခွဲခြမ်းစိတ်ဖြာခြင်းသည် တိကျသော မျိုးရိုးဗီဇအစဉ်အတန်း နမူနာများပြုလုပ်ခြင်း၊ အဏုဇီဝပိုးများကို အမျိုးအစားခွဲခြားခြင်းနှင့် အခြားအဏုဇီဝပိုးများ၏ မျိုးရိုးဗီဇများနှင့်နှိုင်းယှဉ်လေ့လာခြင်းတွင် အရေးပါပါသည်။ NGS သည်နောက်ဆုံးပေါ် အဆင့်မြင့်မော်လီကျူးနည်းပညာဖြစ်ပြီး ရောဂါဖြစ်ပွားစေသော ဘက်တီးရီးယား၊ ဗိုင်းရပ်စ်၊ ကပ်ပါးပိုးတို့၏ မျိုးရိုးဗီဇကိုခွဲခြမ်းစိတ်ဖြာရာတွင် လက်ရှိအကောင်းဆုံးသော နည်းပညာဖြစ်ပါသည်။ ယခုအချိန်တွင် NGS နည်းပညာကို ဆေးသုတေသနဦးစီးဌာနတွင် စတင်အသုံးပြုနေပြီး တီဘီပိုးမွေးမြူခြင်းမှ တီဘီပိုး၏ မျိုးရိုးဗီဇ၊ သွေးလွန်တုပ်ကွေးဗိုင်းရပ်စ်၏ cDNA၊ အသည်းရောင်အသည်းဝါ "ဘီ" ပိုးနှင့် ခွေးရူးရောဂါပိုးတို့မှ ပေါင်းစပ်မျိုးရိုးဗီဇတို့ကို အသုံးပြု၍ဆက်လက်ဆောင်ရွက်နေပါသည်။

NGSသည်Illumina Miseq(Illumina, San Diego,CA,USA) ကိုအသုံးပြုနေပြီး အောက်ပါအဆင့်များပါဝင်ပါသည်။ (၁) မျိုးရိုးဗီဇနမူနာများအား random fragmentation ပြုလုပ်ခြင်းနှင့် adapter ligation ပြုလုပ်ခြင်းဖြင့် library ပြင်ဆင်ခြင်း၊ (၂) flow cell အား library အတွင်းထည့်သွင်းခြင်းနှင့် library ထဲမှ fragment တစ်ခုခြင်းစီအား distinct clonal cluster များအဖြစ် amplification ပြုလုပ်ခြင်းတို့ဖြင့် cluster generation ပြုလုပ်ခြင်း၊ (၃) reversible terminator-based နည်းပညာ (မျိုးရိုးဗီဇ နမူနာပေါ်တွင်ရှိသော single base များကို ရှာဖွေသောနည်းပညာ) ဖြင့် မျိုးရိုးဗီဇခွဲခြမ်းစိတ်ဖြာခြင်း၊ (၄) အချက်အလက်များကို ခွဲခြမ်းစိတ်ဖြာခြင်းနှင့်အသစ်ရှာဖွေတွေ့ရှိထားသော မျိုးရိုးဗီဇအား နမူနာရှာဖွေထားသော မျိုးရိုးဗီဇဖြင့်ချိန်ညှိခြင်း၊ ထိုသို့ချိန်ညှိပြီးနောက် single nucleotide ၏ရုပ်သွင်ကူးပြောင်းခြင်း (SNP) သို့မဟုတ် မျိုးရိုးဗီဇပြောင်းလဲခြင်းကိုခွဲခြားသတ်မှတ်ခြင်း၊ phylogenetic နှင့် metagenomics analysis ပြုလုပ်ခြင်းတို့ကိုလုပ်ဆောင်ပါသည်။ အသစ်ရရှိလာသော မျိုးရိုးဗီဇကြီးတစ်ခုလုံးကို မြန်မာနိုင်ငံရှိ အခြားမျိုးရိုးဗီဇများကို အသေးစိတ်လေ့လာသော သုတေသနများအတွက် အခြေခံမျိုးရိုးဗီဇနမူနာများအဖြစ် အသုံးချမည်ဖြစ်ပါသည်။

NGS သည်ရောဂါဖြစ်ပွားရသော အကြောင်းအရင်းများကိုလေ့လာခြင်း၊ ရောဂါရှာဖွေခြင်းနှင့် ဆေးကုသခြင်း၊ ဆေးယဉ်ပါးမှုကိုရှာဖွေခြင်း၊ ရောဂါပိုးများ၏ဆိုးဝါးပြင်းထန်မှုကို ခွဲခြမ်းစိတ်ဖြာခြင်းတို့တွင် အရေးပါသောအချက်အလက်များကို ပေးစွမ်းနိုင်သောကြောင့် ကူးစက်တတ်သောရောဂါများနှင့် မကူးစက်တတ်သောရောဂါ များ၏ သုတေသနလုပ်ငန်းများနှင့် ကုသရေးတို့တွင် အသုံးဝင်သောနည်းပညာတစ်ခုဖြစ်ပါသည်။

Reference: Kay Thi Aye, Aung Zaw Latt, Nyi Nyi Win, et al. The 46th Myanmar Health Research Congress Programme & Abstracts:113.(Second Prize for Poster)

Elemental Compositions, Phytochemical Screening and Antibacterial Activity of *Aegle Marmelos* (L.) Correa (ဉသျှစ်)

The use of herbs and medicinal plants is universal phenomenon. Traditional medicines have been applied 75% of population in developing and developed countries for primary health care needs estimated by World Health Organization. Many people in Myanmar use traditional medicines due to affordable and widely available. Different parts of plant may absorb and accumulate minerals, which are essential to human nutrition. Trace elements play pivotal role for human and against various diseases. Microorganisms are closely associated with the health and welfare of human beings.

The aim of present study was to determine macro-minerals; (Ca, Mg, Na, K) and microminerals; (Cu, Fe, Mn, Zn) content, phytochemical constituents and anti-bacterial activity of *Aegle marmelos* L. Correa (Ok-shit). Atomic absorption spectrophotometer was used for determination of elemental compositions. Phyto-chemical constituents present in Ok-shit were carried out according to Harbone J.B (1998) and Raaman (2006). The antibacterial activity was determined on three selected organisms (*Staphylococcus aureus, Pseudomonas aeruginosa, and Escherichia Coli*), by applying agar-well diffusion technique, according to modified Kirby and Bauer method (WHO, 2003). Broth dilution method was used for determination of Minimum Inhibitory Concentration (MIC) and Mini-mum Bactericidal Concentration (MBC). The content of macrominerals and microminerals were within per-missible limit of vegetables set by Ajasa, 2004 and FAO/ WHO, 2001, except calcium. Alkaloids, α amino acids, carbohydrates, flavonoids, glycosides, phenols, protein, reducing sugar, saponins and tannins were detected from Ok-shit leaves. Ok-shit extracts showed zone inhibition of 20 mm – 25 mm, 19 mm – 25 mm and 18 mm – 20 mm against on *S. aureus, P. aeruginosa* and *E. coli*, respectively. MIC of Ok-shit extracts was observed in the range from 1-7 mg/ml. MBC of Ok-shit extracts was observed in the range from 2 -8 mg/ml for selected organisms.

Thus, Ok-shit has strong antibacterial activity. These results provide scientific information about elemental composition & antibacterial activity of leaves of *Aegle marmelos* (L.) and also applied as an alternative medicine for antibiotics resistance infectious diseases. These findings revealed that, Ok-shit has potential to provide nutrients for human beings, preventive pro-perties against selected pathogens and helpful for many herbal medicine user by using Ok-shit leaves for different types of ailments.

ဥသျှစ်ရွက်၏ သတ္တုဓာတ်နှင့် ဓာတုဒြပ်ပေါင်းပါဝင်မှု ဘက်တီးရီးယားပိုးမွှားများကို ဆန့်ကျင်နိုင်သော အာနိသင်ရှိမှုများကို လေ့လာခြင်း

ဆေးဖက်ဝင်အပင်များကို ကမ္ဘာတစ်ဝှမ်းလုံး သုံးစွဲလျက်ရှိကြပါသည်။ ဖွံ့ဖြိုးဆဲနိုင်ငံများ၏ လူဦးရေ ၇၅ ရာခိုင်နှုန်းကျော်သည် အခြေခံကျန်းမာရေးစောင့်ရှောက်မှုအတွက်၊ တိုင်းရင်းဆေးဝါးများကိုအသုံးပြုကြသည်ဟု ကမ္ဘာ့ကျန်းမာရေးအဖွဲ့ကြီး၏ ခန့်မှန်းချက်တွင်ဖော်ပြထားပါသည်။ မြန်မာလူမျိုးအများစုသည် တိုင်းရင်းဆေးဝါးများကို ကျယ်ပြန့်စွာလက်ခံအသုံးပြုလျှက်ရှိကြပါသည်။ အပင်များ၏ အစိတ်အပိုင်းအများစုသည် လူသားတို့အာဟာရအတွက် အရေးပါသောသတ္တုဓာတ်များကိုစုပ်ယူနိုင်ပါသည်။ အဏုအာဟာရဓာတ်များသည် လူသားတို့အတွက် အရေးပါသောအခန်းကဏ္ဍတွင် ပါဝင်ပြီး အမျိုးမျိုးသောရောဂါပိုးမွှားများကို တားဆီးဟန့်တားနိုင်ပါသည်။ အဏုဇီဝပိုးမွှားများသည် လူသားတို့၏ကျန်းမာရေးနှင့် ဆက်စပ်လျက်ရှိပါသည်။

ယခုပြုလုပ်သော သုတေသန၏ရည်ရွယ်ချက်မှာ ဥသျှစ်ရွက်၏သတ္တုဓာတ်များပါဝင်မှု၊ ဓာတုဒြပ်ပေါင်းပါဝင်မှုနှင့်ဘက်တီးရီးယားပိုးမွှားများကို ဆန့်ကျင်နိုင်သော အာနိသင်ရှိမှုများကို တိုင်းတာလေ့လာခြင်းဖြစ်ပါသည်။ သတ္တုဓာတ်ပါဝင်မှုကို အက်တမ်စုပ်ရောင်စဉ်ပြင်းအားတိုင်းကိရိယာ (Atomic Absorption Spectophotometer) ဖြင့်တိုင်းတာခဲ့ပါသည်။ ဥသျှစ်ရွက်တွင်ပါဝင်သော သတ္တုဓာတ်များကို Harbone JB (1998) နှင့် Raaman (2006) တို့၏နည်းလမ်းများကိုမှီငြမ်းကိုးကားပြီး စမ်းသပ်ဆောင်ရွက်ခဲ့ပါသည်။ ဘက်တီးရီးယားပိုးမွှားများကို ဆန့်ကျင်သည့် အာနိသင်ရှိမှုအား ပိုးမွေးထားသော ကျောက်ကျောပေါ်တွင် တွင်းငယ်များဖောက်ကာ modified Kirby နှင့်Bouer နည်းဖြင့် ပိုးသေအာနိသင်ကို စမ်းသပ်ခဲ့ပါသည်။ ပိုးဟန့်တားစေနိုင်သော အနည်းဆုံးပမာဏနှင့် ပိုးသေစေနိုင်သော အနည်းဆုံးပမာဏတို့ကို Broth ditution method (WHO 2003) ကို ကိုးကားပြီးလေ့လာခဲ့ပါသည်။

ဥသျှစ်ရွက်တွင် အများလိုအာဟာရဓာတ်ပါဝင်မှုသည် ကယ်လ်ဆီယမ်မှလွဲ၍ Ajasa 2014 ၏ ခွင့်ပြုနိုင်သည့် ပမာဏအတွင်း၌ရှိပြီး၊ အနည်းလို အဏုအာဟာရဓာတ်ပါဝင်မှုသည် ကမ္ဘာ့စားနပ်ရိက္ခာနှင့် လယ်ယာစိုက်ပျိုးရေးအဖွဲ့၊ ကမ္ဘာ့ကျန်းမာရေးအဖွဲ့ (FAO/WHO 2001) မှထုတ်ပြန်ထားသည့် ဟင်းသီးဟင်းရွက်နှင့် အသီးအနှံများတွင် ပါဝင်ရမည့်ခွင့်ပြုနိုင်သော ပမာဏအတွင်း၌သာရှိကြောင်း တွေ့ရှိခဲ့ပါသည်။ ဥသျှစ်ရွက်တွင် Alkaloids, α amino acids, carbohydrates, flavonoids, glycocides, phenols, protein, reducing sugar, saponins and tannins တို့ပါဝင်ကြောင်း တွေ့ရှိရပါသည်။ ဥသျှစ်ရွက်ဆေးနှစ်များ၏ ပိုးသေအာနိသင်သည် *Staphylococuus aureus* ပေါ်တွင် (၂၀-၂၅) မီလီမီတာ၊ *pseudomonas aeruginosa* ပေါ်တွင် (၁၉-၂၅) မီလီမီတာ၊ *Escherichia coli* ပေါ်တွင် (၁၈-၂၀) မီလီမီတာ အသီးသီးဟန့်တားနိုင်ကြောင်းတွေ့ရှိခဲ့ပါသည်။ ဥသျှစ်ရွက်ဆေးနှစ်များ၏ပိုးအားဟန့်တားစေနိုင်သောအနည်းဆုံးပမာဏနှင့် ပိုးအားသေစေနိုင်သော အနည်းဆုံးပမာဏမှာစမ်းသပ်သောပိုးများပေါ်တွင် (၁-၇) မီလီဂရမ်/ မီလီမီတာနှင့် (၂-၈) မီလီဂရမ်/ မီလီမီတာရှိသဖြင့် ဥသျှစ်ရွက်၏ ဘက်တီးရီးယားပိုးမွှားများကို ဆန့်ကျင်နိုင်သည့် အာနိသင်မှာ ကောင်းမွန်ကြောင်းတွေ့ရှိခဲ့ပါသည်။

ဤတွေ့ရှိချက်များအရ ဥသျှစ်ရွက်၏သတ္တုဓာတ်ပါဝင်မှုနှင့် ဘက်တီးရီးယားပိုးမွှားများကို ဟန့်တားနိုင်သည့် အာနိသင်ရှိမှုများအား သိပ္ပံနည်းကျဖော်ထုတ်တင်ပြနိုင်ခဲ့ပြီး ပဋိဇီဝဆေးယဉ်ပါးနေသောရောဂါများအတွက် alternative medicine အဖြစ်အသုံးပြုနိုင်ပါသည်။

ယခုပြုလုပ်သော သုတေသနတွေ့ရှိချက်များသည် လူသားတို့အတွက် လိုအပ်သောအာဟာရသတ္တုဓာတ်များကို ထောက်ပံ့ပေးနိုင်ခြင်း၊ အဏုဇီဝပိုးမွှားများ၏ အန္တရာယ်ကိုကာကွယ်ဟန့်တားစေနိုင်သဖြင့် ဆေးဖက်ဝင်အပင်များကိုသုံးစွဲသော ပြည်သူများအတွက် ဥသျှစ်ရွက်ကို အသုံးပြုပြီး ရောဂါများကို ကာကွယ်ကုသရာတွင် အထောက်အကူပြုနိုင်ကြောင်း တင်ပြအပ်ပါသည်။

Reference: *Lei Lei Win, Kyawt Kyawt Khaing, Saw Myat Thwe, et al.* Paper Presented at 8th Traditional Medicine Research Congress, University of Traditional Medicine, Mandalay, 23-24: March, 2018. (Second Prize for Best Scientific Research Paper Award)

Abstract of Research Paper Published or Read Abroad by DMR Scientists

Serum Asymmetric Dimethylarginine (ADMA) Level and Insulin Resistance in Prediabetes and Diabetes

Both prediabetes and diabetes conditions are associated with insulin resistance and are at higher risk of atherosclerosis-related cardiovascular diseases. As asymmetric dimethylarginine (ADMA), a competitive inhibitor of nitric oxide synthase (NOS), is considered as an endothelial dysfunction marker; increased level could accelerate atherogenesis in prediabetics and diabetics.

To determine association between serum asymmetric dimethylarginine level and insulin resistance status in the study population.

Total 92 participants were classified as normoglycemic group (n=28), prediabetes (n=34) and diabetes (n=30). Insulin resistance was determined by using homeostasis model assessment of insulin resistance; HOMA1-IR. Plasma glucose concentrations were measured spectrophotometrically and serum insulin and ADMA concentrations were measured using ELISA method.

The mean serum ADMA level was significantly higher in prediabetes (0.85±0.1µmol/L) than normoglycemic group (0.61±0.04µmol/L) (p=0.02), while significant difference was not seen between normoglycemic and diabetic groups (0.67±0.06µmol/L) or between prediabetic and diabetic groups (both p>0.05).

The median serum ADMA level of the study popula-

tion was 0.63 µmol/L. Seventy percent of diabetes and 44.1% of prediabetes were found to be insulin resistant. No significant association was found between serum ADMA level and insulin resistance status (p=0.6). The total mean body mass index (BMI) was 26.08± 0.44 and a positive correlation was seen between BMI and serum ADMA level (r=0.26, p=0.01). Increased serum ADMA in prediabetes indicate increase athero-sclerosis risk in that early glycemic impaired state and serum ADMA concentration was seemed to be more related to obesity rather than serum glucose level and insulin resistance status.

Reference: *Thuzar Hla Shwe, Zaw Lynn, Thet Thet Mar, et al.* Poster Presented at 19th ASEAN Federation of Endocrine Societies Congress, Yangon, Myanmar, 9-12: November, 2017. (Second Prize for Best Poster Award)

News about Medicine & Health

Seven Overlooked BBQ Mistakes that can Make You Sick

Having a good old-fashioned BBQ can be lots of fun and makes summer cooking easy. However, there are cookout mistakes that can make you and your guests sick, so keep in mind these safety tips to avoid foodborne illness this summer.

Food safety tips for barbecues

1. *Wash hands often*

   Wash your hands before beginning any food preparation and keep washing them often, especially if you touch raw meat. Germs linger in many places, so something seemingly harmless like touching a doorknob then touching ready-to-eat foods like fruit, chips or the veggies and dip can lead to foodborne illness.

   Properly wash hands with soap and warm running water. If you hum “Happy Birthday To You” while washing (approximately one minute), you will know that you’ve washed long enough to remove most harmful germs from your hands.

2. *Avoid cross-contamination between raw meats and ready-to-eat foods*

   To prevent harmful food bacteria from spreading, bring lots of clean utensils to your BBQ. Cross-contamination happens when you use a cutting board or utensil for raw meat and then use that same utensil for something that is eaten without cooking, such as fresh fruit. It can also happen when the juice from meat gets into other food items. Another important safety tip is to wash melons prior to cutting; this avoids cutting the dirt and germs on the rind into the melon.

3. *Keep foods at the proper temperature before, during and after the BBQ*

   Correct food storage begins once you leave the grocery store. It is important to safely handle raw foods to avoid food poisoning. Food bacteria grows fastest in the food danger zone, which is between 40°F and 140°F. So keep cold foods colder than this and hot foods hotter than this. Bringing a cooler to the store can help you keep foods cold if you have a lengthy trip home.

   When getting ready for your meal, don’t thaw meat on the counter! Meat should be thawed in the refrigerator or allow extra time to cook meat from the frozen state. Quickly cool any leftovers you plan to keep for later. Here’s some more tips on how to properly defrost and store frozen meats.

4. *Clean your grill properly to BBQ safely*

   Research has shown that dirty grills contain a lot of yucky bacteria. Food particles left on the grill can spoil, leaving behind bacteria that can make you sick. Keep yourself healthy by cleaning your grill racks properly. First, brush off food debris with a wire grill brush. Then remove the racks and wash with warm soapy water. Replace the racks, then heat the grill up and brush with a little oil to prevent food from sticking.

5. *Cook foods to the safe food temperature*

   Be sure to use a meat thermometer to properly cook meat when grilling. According to Foodsafety.gov, to destroy food bacteria that can make you sick, the correct minimum cooking temperature for meat and poultry is as follows:

   - Ground meat and meat mixtures: 160°F.
   - Fresh beef, veal or lamb roasts, steaks or chops: 145°F, then let rest 3 minutes.
   - Poultry: 165°F.
   - Fresh pork: 145°F, then let rest 3 minutes.
   - Fish: 145°F or until flesh is opaque and separates easily with a fork

6. *Keep foods properly covered to avoid food contamination*

   Once you have safely prepared your food, keep it covered up to protect it from flies and ants. Use containers with tight fitting lids to serve food. Plastic wrap can also work as long as it is tightly sealed along the edges. These tips also help keep food safe while transporting or storing food.

7. *Throw foods away at the proper times*

   Real food doesn't last forever. Even foods that are cooked and stored properly spoil rather fast. Foods that have been sitting out at air or room temperature should be thrown away after 2 hours. If food is sitting out at temperatures over 90°F, throw it away after 1 hour because germs grow rapidly at this temperature. To make food last longer, keep cold foods packed on ice and hot foods in food warmers, such as a slow cooker.

Source: http://totalgymdirect.com/total-gym-blog.
Contributed by Biological Toxicology Research Division

How Does Food Security Influence Fruit and Vegetable Intake in Low-Income Women?

A study examines the link between food security and the availability of fruits and vegetables and how they affect the diets of low-income pregnant women.

Food security is a public health concern in the United States, where minority and single-parent homes often struggle to afford a nutritionally adequate diet. Low food security typically leads to poor diet quality and high susceptibility to high blood pressure, diabetes, and obesity. Research shows it is more economical for a low-income family to purchase processed and high-fat foods since they satisfy hunger more efficiently than fruits and vegetables. Although this conundrum affects all low-income individuals, it is of even greater concern in women who are pregnant. Excess weight gain in pregnancy and gestational diabetes put both the mother and child at risk for long-term negative health outcomes. Researchers set out to determine whether there was an interrelationship between food security and the availability of fruits and vegetables in the home and whether that influenced fruit and vegetable intake in 198 pregnant women. All the women included in the study, published in *Public Health Nutrition*, were in their second trimester, over 18 years old and happened to be mostly visible minorities (African American, Hispanic, Southeast Asian, etc). The average income was $1126 per month with 13% reporting no income whatsoever. The women were interviewed and asked questions to determine their food security level, how many fruits and vegetable varieties they had available at home and how often they were consuming the fruits and vegetables. The USDA outlines four levels of food security: food secure, marginal food security, low, and very low food security. Out of all the women in the study, 38% were food secure, 19% had marginal security, 24% had low food security and 19% had very low food security. On average they were eating one to two fruits or vegetables a day. The statistical analyses found a relationship between food security level and the presence of fruit and vegetable variety in the home. Further, an increase in the availability of fruits and vegetables was associated with higher fruit and vegetable intake. Also, food secure women were more likely to purchase fresh fruits and vegetables rather than canned or frozen varieties more typical of women lacking food security.

These findings may be biased since all of the results were based on self-reports and the women may have felt pressure to report higher intakes of fruits and vegetables. Also, the absence of exact measurements of quantity and frequency of fruit and vegetable intake creates another limitation in the findings. All of the women included were receiving assistance from WIC (Women, Infants and Children), a social assistance program for women and children at nutritional risk. Thus, actual intake and variety may then be even lower in low-income women who are not receiving such assistance. This is the first study to examine the relationship between food security and the availability of fruits and vegetables in the home.

The study provides information for current social assistance programs and potential public health initiatives in educating low-income women on the importance of nutrition during pregnancy. After all, it isn't just the health of the mother at stake but also the health of her child. Strategies to support food insecure families could mitigate chronic health concerns such as diabetes, high blood pressure, and obesity improving the overall health of the current and future US population.

Source: www.medicalnewsbullentin.com.
Contributed by Scientific Group on Nuclear Medicine

Dark Hair Dye and Chemical Relaxers Linked to Breast Cancer

African-American and white women who regularly chemically straighten their hair or dye it dark brown or black have an elevated risk of breast cancer, new research suggests. The study of 4,285 African-American and white women was the first to find a significant increase in breast cancer risk among black women who used dark shades of hair dye and white women who used chemical relaxers. Black women who reported using dark hair dye had a 51 percent increased risk of breast cancer compared to black women who did not, while white women who reported using chemical relaxers had a 74 percent increased risk of breast cancer, the study found. The risk of breast cancer was even higher for white women who regularly dyed their hair dark shades and also used chemical relaxers, and it more than doubled for white dual users compared to white women who used neither dark dye nor chemical straighteners. The study included adult women from New York and New Jersey, surveyed from 2002 through 2008, who had been diagnosed with breast cancer, plus women of similar age and race but without a history of cancer. Women were

asked if they had ever used permanent hair dye at least twice a year for at least a year. They were also asked if they had ever chemically relaxed or straightened their hair for at least a year. While the vast majority - 88 percent - of blacks had used chemicals to relax their hair, only 5 percent of whites reported using relaxers. For dark hair dye, the numbers flipped, though the differences were not as dramatic. While 58 percent of whites said they regularly dyed their hair dark shades, only 30 percent of blacks did. The most striking results showed increased risk in the minority of black women who used dark hair dye and white women who used chemical relaxers. Black women who used chemical straighteners and white women who used dark hair dyes were also at higher risk for breast cancer, but that might have been due to chance. The researchers said that because so many of the black women used chemical relaxers and so many of the white women used dark hair dye, links would have been hard to detect. There's no reason to believe that chemical relaxers and hair dyes would increase the risk for women of one race and not of another.

The researcher believes the association stems not from genetics but from cultural norms. It could also boil down to products, and women from different cultures might use different straighteners and dyes.

But the study did not ask women to specify the products they used. The study included the largest population of African-American women thus far examined for breast cancer risk and dark hair dye, according to the research team. Previous studies have shown that long-term users of dark dyes have a four-fold increased risk of fatal non-Hodgkin's lymphoma and fatal multiple myeloma, the authors write. Prior research also has associated dark hair dye use with an increased risk of bladder cancer. A 2016 report from the U.S. Centers for Disease Control and Prevention found that breast cancer rates are generally similar for black and white women, at around 122 new cases for every 100,000 women per year, although black women with the disease are more likely to die from it.

Source: www.medscape.com.
Contributed by Blood Programming Division

Recent Arrivals at Central Biomedical Library (http://www.dmrlibrary.org)

1. Circulation Journal. 2018 June; 82(6).
2. Ministry of Social Welfare, Relief and Resettlement – Newsletter. 2018 March.
3. Ministry of Social Welfare, Relief and Resettlement – Newsletter. 2018 April.
4. Myanmar Medical Journal. 2018 June; 60(2).
5. WHO Drug Information. 2018; 32(1).
6. WHO Myanmar Newsletter: Air Pollution. Special issue 2018 April.
7. WHO Myanmar Newsletter: Air Pollution. Special issue 2018 May.
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9. WHO Technical Report Series 1009: WHO Expert Committee on Drug Dependence. 2018.
10. WHO Technical Report Series 1010: WHO Expert Committee on Specifications for Pharmaceutical Preparations. 2018.

ဆေးသုတေသနဦးစီးဌာန၏ လုပ်ငန်းဆောင်ရွက်နေမှုများကို ပြည်သူများပိုမိုသိရှိလာစေရန်၊ ပြည်တွင်းရှိဌာနဆိုင်ရာအဖွဲ့အစည်းများ၊ ပြင်ပအဖွဲ့အစည်းများနှင့် ဆက်သွယ်ဆောင်ရွက်ရာ၌ ပိုမိုလွယ်ကူစေရန်၊ ပြည်ပနိုင်ငံများရှိတက္ကသိုလ်များ၊ အဖွဲ့အစည်းများနှင့်ပူးပေါင်းဆောင်ရွက်ခြင်းကိုလွယ်ကူစေရန်နှင့် နိုင်ငံတော်တွင် တိုးတက်ဖြစ်ပေါ်လာမည့် ဆက်သွယ်ရေးကွန်ရက် အခြေခံအဆောက်အဦ (Network Infrastructure) အားအသုံးပြု၍ e-government ဆိုင်ရာလုပ်ငန်းများကို တိုးမြှင့်ဆောင်ရွက်သွားနိုင်ရန် ရည်ရွယ်လျက် လွှင့်ထူထားသောအောက်ဖော်ပြပါ Website များကိုသုတေသီပညာရှင်များ၊ ကျန်းမာရေးဝန်ထမ်းများနှင့် စိတ်ပါဝင်စားသူများ လေ့လာနိုင်ပါသည်။

၁။ www.dmr.gov.mm (Official Website)
၂။ www.ercdmrlm.org(Ethical Website)
၃။ www.dmrlibrary.org (Central Biomedical Library Website)
၄။ www.dmr-um.gov.mm (Pyin Oo Lwin Branch Website)
၅။ www.myanmarhsrj.com (Myanmar Health Sciences Research Journal Website)
၆။ www.mhrr-mohs.com (Myanmar Health Research Registry Website)

သို့

ကျန်းမာရေးနှင့်အားကစားဝန်ကြီးဌာနမှဝန်ထမ်းများအားဖြန့်ဝေပေးပါရန်မေတ္တာရပ်ခံအပ်ပါသည်။