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(Lower Myanmar)
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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 (LM). 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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News about Medicine & Health

Frequently Asked Questions: *Haemophilus Influenzae* Type B Disease

What is Haemophilus influenzae type b disease?

Haemophilus influenzae is a bacterium that is found in up to 80% of healthy people. There are six serotypes designated a-f. Serotype b (Hib) is a major cause of invasive infections in infants and young children, and its sequelae include pneumonia, epiglottitis, meningitis and permanent brain damage.

What are the symptoms of Hib disease?

Hib infection leads to a manifestation of various disease conditions such as:

- Meningitis

  Inflammation of the membranes of the brain and spinal cord. This is one of the commonest invasive manifestations of Hib and is characterised by fever, headache and stiff neck

- Pneumonia

  The other serious manifestation of Hib disease, characterised by fever, cough with sputum production, chest pain and respiratory distress

- Epiglottitis

  Inflammation of the epiglottitis characterised by a rapid sore throat, noisy breathing and fever

- Complications of Hib disease include hearing loss (as a result of otitis media), vision impairment, mental retardation and cerebral palsy.

Why is Hib disease a health problem in South Africa and the world?

It is estimated that Hib causes at least 3 million cases of serious disease and between 400,000-700,000 deaths each year in young children. Rarely occurring in infants under 3 months and after the age of 6 years, the diseases burden is highest between 4 and 12 months. In both developed and developing countries, Hib is the dominant cause of non-epidemic meningitis in this age group, and is frequently associated with severe neurological sequelae even if treated promptly and adequately with antibiotics.

In Africa, there are between 100,000-160,000 deaths due to Hib disease per annum. A South African study has shown that approximately 20% of serious bacterial pneumonia was caused by the Hib bacterium.

Who is at risk?

- Hib disease is most common in children under five years of age; children between four and 12 months are most at risk.
- Close contact with older children increases the risk of Hib infection.

How is Hib transmitted?

By aerosolised droplets through sneezing or coughing from infected persons to susceptible individuals.

What is the treatment following Hib infection?

Therapy is through cefotaxime, ceftriaxone, or ampicillin in combination with chloramphenicol. Ampicillin is never used alone as therapy since 10% to 40% of Hib isolates are ampicillin resistant.

How is Hib prevented?

Most Hib infections can only be prevented by Hib vaccine. A small proportion of cases can be averted by giving antibiotics to members of households where children have been infected, but this amounts to only 1 to 2% of cases.

Who should get the Hib vaccine?

All children should receive Hib vaccine from the age of six weeks.

How and when is the Hib vaccine given?

Hib vaccine is given by injection to the left thigh for all three doses, administered at 6, 10 and 14 weeks in combination with DTP.

Should HIV positive individuals be vaccinated against Hib?

As Hib can cause opportunistic infections in individuals with HIV infection, it is recommended that they be vaccinated with Hib vaccine. The vaccine is safe, though the response is lower than in individuals with no HIV infection.

What are the side effects of the Hib vaccine?

The Hib vaccine is very safe with no known serious reactions. Mild reactions include soreness, swelling and redness at the site of injection, and a mild fever.

Source: http://www.savic.ac.za.
Contributed by Bacteriology Research Division

Potential Chemical Exposures from Packaging

Different types of packaging materials pose different potential chemical exposures. Researchers at the Institute of Environmental Geochemistry of the University of Heidelberg in Germany assessed 125 brands of drinking water from 28 countries and showed that waters packaged in glass bottles contained 26-57 times more lead than comparable waters bottled in polyethylene terephthalate (PET) plastic.

Other studies have found chemical contamination of food coming not from glass itself but from materials used to seal the metal lids on glass jars.

In work by a Danish group, some foods in glass jars sealed with polyvinyl chloride (PVC) gaskets were found to contain di (2-ethylhexyl) phthalate (DEHP) and other phthalates at levels deemed unacceptable by the European Food Safety Authority. Environmental health concerns associated with the use of paper food packaging have focused on the use of recycled paper products. Printing inks from earlier incarnations of the paper can be trapped in this material, potentially exposing consumers to phthalates as well as to other suspected endocrine disruptors, including benzophenones and mineral oils. There also have been problems with the liners themselves in some paper boxes. Perhaps the hottest current debate regarding food packaging is the use of epoxy-based resins containing bisphenol A (BPA) in metal can liners (BPA is also used in hard, clear polycarbonate plastic). In one Texas-based study of BPA in packaged foods, researchers assessed 105 samples of fresh, plastic-wrapped, and canned foods, and found detectable levels of the chemical in 60% of them (including some of the fresh foods). Despite the relatively low estimated doses from eating any one food, these authors and others point out there are multiple sources of intake of BPA, and evidence increasingly suggests that BPA and other endocrine disruptors-like the hormones they mimic-may cause unexpected effects even at tiny doses, although the extent to which these effects may occur in humans is still under investigation.

Source: http://dx.doi.org/l0.1289/ehp.120-a232
Contributed by Epidemiology Research Division

CT Scan: Weighing Risks and Benefits

By generating detailed anatomical pictures, the technology of Computed Tomography (CT) can improve diagnoses, limit unneeded medical procedures, and enhance treatment. However, CT scans also dose patients with ionizing radiation, a known human carcinogen, posing a potential downside for public health. CT scanners emit X rays. Different tissue types absorb X rays in varying amounts, and the resulting contrasts provide detailed images of anatomy and disease. Absorbed radiation can break chemical bonds in tissues, liberating charged ions (hence the term "ionizing radiation") that can damage DNA and produce cancer should cells be unable to repair themselves. On 13 December 2011, the American Association of Physicists in Medicine (AAPM) issued a statement claiming that risks

from CT imaging are "too low to be detectible and may be non-existent."

The AAPM added that "speculative predictions about cancer incidence and death" should be discouraged because they generate sensationalist media coverage that deters some patients who need CT scans from having them. The AAPM's position statement asserts that cancer risks are negligible at effective doses below 50 millisieverts (mSv) for single CT exposures and below 100 mSv for multiple exposures over short durations.

However, the risk of cancer induction through CT scans performed on children has received special attention. Children are supposed to be at higher risk for developing cancer caused by ionizing radiation compared to adults due mainly to the increased radio sensitivity and a longer lifespan after exposure.

The lifetime cancer mortality risk was estimated attributable to the radiation exposure from abdomen or head CT in a one year old child based on US CT-practice. Of 600,000 CT scans performed in children annually, approximately 140,000 will eventually die of cancer as adults. 500 cancer cases are estimated to be attributable to radiation exposure from CT in early childhood, corresponding to a risk increase of 0.35%.

Source: BMC Health Services Research, 2012, 12: 47.
Contributed by Radiation Toxicology Research Division

Sequence Variation does not Confound the Measurement of Plasma PfHRP2 Concentration in African Children Presenting with Severe Malaria

Plasmodium falciparum histidine-rich protein PFHRP 2 measurement is used widely for diagnosis, and more recently for severity assessment in falciparum malaria. The *Pfhrp2* gene is highly polymorphic, with deletion of the entire gene reported in both laboratory and field isolates. These issues potentially confound the interpretation of PFHRP2 measurements.

Studies designed to detect deletion of *Pfhrp2* and its paralog *Pfhrp3* were undertaken with samples from patients in seven countries contributing to the largest hospital-based severe malaria trial (AQUAMAT). The quantitative relationship between sequence polymorphism and PFHRP2 plasma concentration was examined in samples from selected sites in Mozambique and Tanzania.

There was no evidence for deletion of either *Pfhrp2* or *Pfhrp3* in the 77 samples with lowest PFHRP2 plasma concentrations across the seven countries. *Pfhrp2* sequence diversity was very high with no haplotypes shared among 66 samples equenced. There was no correlation between *Pfhrp2* sequence length or repeat type and PFHRP2 plasma concentration.

These findings indicate that sequence polymorphism is not a significant cause of variation in PFHRP2 concentration in plasma samples from African children. This justifies the further development of plasma PFHRP2 concentration as a method for assessing African children who may have severe falciparum malaria. The data also add to the existing evidence base supporting the use of rapid diagnostic tests based on PFHRP2 detection.

Source: http://www.malariajournal.com/content/ll /1/276.
Contributed by Parasitology Research Division

Live Happier, Live Longer

There is along standing idea that happiness causes people to live longer, healthier lives. However, convincing evidence that subjective well-being (the more scholarly term for happiness) contributes to longevity and health has not been available.

Recently, however, social psychologists Diener and Chan show that many kinds of studies, using different methods, conclude that happiness has a positive causal effect on longevity and physiological health. Previous studies had offered widely different and competing findings. Some found no causation or reverse causation, in particular that healthy people are happier (which is undisputed).

Other suggested that unidentified, unobserved factors influence both happiness and longevity and health. Diener and Chan's survey presents solid evidence for the benefits of happiness. For example, a meta-analysis based on 24 studies estimated that happy people live 14% longer than persons who report that they are unhappy. In a survey of people living in industrial countries, happier people enjoy an increased longevity of between 7.5 and 10 years. Happier people are also less likely to commit suicide, and they are less often the victims of accidents.

How can researcher measure the influence of happiness on physical health and longevity? One important method is the longitudinal study, in which investigators follow individuals over many years, to indentify whether the happier ones live longer. The "nun study" has become particularly famous. Nuns are well suited for a longevity study because they live under very similar conditions. Before young women entered a monastery, researchers asked them about their subjective happiness level. Those who perceived themselves to be happier died at a median age of 93.5 years.

In contrast, those who considered themselves to be less happy died at a median age of 86.6 years. Researchers can also examine how external, or exogenous, factors that induce changes in happiness are related to specific physiological process known to affect health and longevity.

Emotions can be mainpulated in laboratory experiments, for instance, by showing subjects a joyful or a sad film. Investigators can then measure how particular physiological factors, such as blood pressure change. The effect on happiness of naturally occurring events, such as tempests, inundations, and earthquakes, also can be analyzed.

Researchers also study how personal shocks, such as losing a companion, affect health. For example, one study finds that the mortality of men who lose their wives doubles in the first month after the event. For women, the mortality rate after losing their husbands is three times higher than normal. So far, however, an effect of happiness on specific types of illness has not been established. In particular, Diener and Chan note that studies that have explored how happiness influences the outcomes of cases of metastastic cancer have produced findings that are unclear and uncovincing. Philosophers such as Aristole consider happiness to be the major goal most people aspire to in life.

The findings discussed here make the pursuit of happiness even more important, since they demonstrate that high measures of life sastisfaction and positive emotions strongly contribute to better health and a longer life. Future research needs to focus in more depth on the processes causing happy people to live longer and to be in better health. In addition, the cost of raising happiness by policy interventions should be compared to the costs of influencing longevity and health by other pathways.

Source: www.sciencemag.org. Science Vol. 4, Feb, 2011.
Contributed by Physiology Research Division

Diacetyl Intensifies Damaging Effects of Beta-amyloid Proteins Linked to Alzheimer's

A new study raises concern about chronic exposure of workers in industry to a food flavoring ingredient used to produce the distinctive buttery flavor and aroma of microwave popcorn, margarines, snack foods, candy, baked goods, pet foods and other products. It found evidence that the ingredient, diacetyl (DA), intensifies the damaging effects of an abnormal brain protein linked to Alzheimer's disease. The study appears in ACS' journal *Chemical Research in Toxicology.*

Robert Vince and colleagues Swati More and Ashish Vartak explain that DA has been the focus of much research recently because it is linked to respiratory and other problems in workers at microwave popcorn and food-flavoring factories.

DA gives microwave popcorn its distinctive buttery taste and aroma. DA also forms naturally in fermented beverages such as beer, and gives some chardonnay wines a buttery taste. Vince's team realized that DA has an architecture similar to a substance that makes beta-amyloid proteins clump together in the brain-clumping being a hallmark of Alzheimer's disease. So they tested whether DA also could clump those proteins.

DA did increase the level of beta-amyloid clumping. At real-world occupational exposure levels, DA also enhanced beta-amyloid's toxic effects on nerve cells growing in the laboratory. Other lab experiments showed that DA easily penetrated the so-called "blood-brain barrier," which keeps many harmful substances from entering the brain. DA also stopped a protective protein called glyoxalase I from safeguarding nerve cells. "In light of the chronic exposure of industry workers to DA, this study raises the troubling possibility of long-term neurological toxicity mediated by DA," say the researchers.

Source: http://www.news-medical.net/news/
Contributed by Chemical Toxicology Research Division

HBV Genotype Affects Hepatitis B Disease Progression and Outcomes

According to Swedish study, reported in the "May 18, 2012, advance edition of the Journal of Clinical Virology", hepatitis B virus (HBV) genotype influences long-term outcomes including viral clearance. Genotype C in particular appears to be associated with more aggressive disease.

It is well known that genotype is a major determinant of treatment response for people with hepatitis C, although it does not seem to have much influence on disease severity. In contrast, the influence of genotype in people with hepatitis B is not well understood. Sebastian Malmstrom from the University of Gothenburg and colleagues looked at the effect of genotype on long-term virological outcomes of chronic HBV infection.

The analysis included 124 adult chronic hepatitis B patients, 33 of whom were hepatitis B "e" antigen (HBeAg) positive at study entry. The HBV genotype distribution was 28 people with genotype A, 21 with genotype B, 12 with genotype C, and 63 with genotype D. Participants were followed for a median of 9.2 years. The researchers determined patient genotypes and measured HBV DNA viral load, HBeAg, hepatitis B surface antigen (HBsAg), and alanine aminotransferase (ALT) levels.

The study result showed that HBV DNA levels decreased significantly during follow-up among patients with genotypes A, B, or D, but not those with genotype C and 44% of people with genotype C experienced HBeAg loss, compared with 92% for those with other genotypes. HBsAg loss was seen in 36% of patients with genotype A, 5% with genotype B, and 11% with genotype D, but none of those with genotype C. HBV DNA levels decreased over time in patients infected with genotypes A, B or D, however, highly active genotype C or D infection often remained highly active, implying a risk for progressive liver damage.

Source: 1. http://www.hivandhepatitis.com/
2. Journal of Clinical Virology. May 18, 2012.
Contributed by Scientific Groups on Liver & Gastroenterology

Can Proton Pump Inhibitors Be Used During Pregnancy?

Most documented exposures to proton pump inhibitors (PPIs) during pregnancy have occurred with omeprazole. Although there is some suggestion from one or two studies that omeprazole may be associated with a slightly higher risk of stillbirths or cardiac malformations, these findings may have occurred by chance. A meta-analysis of seven cohort studies documenting 1,530 exposed pregnancies found that administration of PPIs during the first trimester of pregnancy, and specifically omeprazole, does not pose an important teratogenic risk and concludes that PPIs are a reasonable therapeutic option in pregnancy. This finding was also seen in a cohort study involving 1,800 infants exposed to omeprazole during the first trimester.

Although the US Food and Drug Administration (FDA) classify omeprazole as a higher risk than other PPIs during pregnancy, this is based on results of animal studies. The UK National Teratology Information Service (UKTIS) recommends that if a PPI is required during pregnancy, omeprazole should be first choice, as the majority of available data concern this agent and are reassuring. In addition, the Summary of Product Characteristics (SmPC) for omeprazole (Losec®) states that there is sufficient evidence of safety to recommend its use during pregnancy if required. The SmPCs for other PPIs recommend caution (esomeprazole), suggest use should be avoided (lansoprazole) or contraindicate use (rabeprazole, pantoprazole). If inadvertent exposure to any PPI does occur there is no information to suggest that this represents a major risk.

Source: http://www.nelm.nhs.uk/en/
Contributed by Pharmaceutical Toxicology Research Division

Slide Reading Device Evaluated for Malaria

A diagnostic system that evaluates scanned images of standard Giemsa-stained slides and reports species and parasitaemia has been appraised. The device uses digital microscopes or imaging scanners to acquire the images that are stored and subsequently serve as the input for the algorithm to locate, identify and count the parasites.

An international team from the USA, UK, and Germany collaborated in the evaluation led by those at Hydas World Health, Hershey, PA, USA). The device was challenged with two independent tests: a 55 slide, expert slide reading test the composition of which is available from the World Health Organization ("WHO55" test, Geneva Switzerland), and a second test in which slides were made from a sample of consenting subjects participating in a malaria incidence survey conducted in Equatorial Guinea (EGMIS).

To use the World Health Technology (WHT; New Albany, OH 43054, USA) system, a slide is placed in the scanner or with an automated scanner many slides can be placed at one time, and the scanner captures images at the selected magnification. Localization, recognition and enumeration of the salient constituents of the scans, parasites and leucocytes, are based on pattern, color and shape recognition of parasites in red blood cells (RBCs) of a thin film and/or parasites that remain in a thick film after lysis of RBCs.

Two scanners were used for this study, IScan Coreo Gold (Ventana Corp., Sunnyvale, CA, USA) and a custom portable device made to WHT specifications called Doctor's Choice (Intracellular, Cincinnati, OH, USA). On the WHO55 test, the sensitivity was 89% and specificity was 70%. Species were correctly identified in 61% of the slides and the quantification of parasites fell within acceptable range of the validated parasitaemia in 10% of the cases. On the EGMIS test, it scored 100% sensitivity and 94% specificity, with 64% of the species correct and 45% of the parasitaemia within an acceptable range. A pooled analysis of the 174 slides used for both tests resulted in an overall 92% sensitivity and 90% specificity with 61% species and 19% quantifications correct.

The authors concluded that the device performs at a level comparable to that of many human slide readers. Because its use requires minimal additional equipment and it uses standard stained slides as starting material, its widespread adoption may eliminate the current uncertainty about the quality of microscopic diagnoses.

Source: Malaria Journal May 6, 2012.
Contributed by Quality Control Division

RECENT ARRIVALS AT CENTRAL BIOMEDICAL LIBRARY, DMR (LM)

1. Circulation Journal 76(9): September, 2012.
2. The Korean Journal of Parasitology 50(3): September, 2012.
3. Unicef: The State of the World's Children 2012 children in an urban world 2012.
4. WHO: Bulletin 90(8): August, 2012.
5. WHO: Capacity building for birth defects surveillance in South East Asia 2012.
6. WHO: Electronic recording and reporting for tuberculosis care and control 2012.
7. WHO: Improving neonatal and child health and development in South East Asia 2012.
8. WHO: Integrated approaches to prevent and manage pneumonia and diarrhea for achievement of MDG4, 2012.
9. WHO: Progress on drinking water and sanitation 2012.
10. WHO: Quality assurance in bacteriology and immunology 2012.
11. WHO: Quality rights tool kit 2012.
12. WHO: Scaling up adolescent health programme in South East Asia 2012.
13. WHO: Technical Report Series (967), 2012.
14. WHO: Technical Report Series (968), 2012.
15. WHO: Technical Report Series (969), 2012.

.(၄၁) ကြိမ်မြောက် မြန်မာနိုင်ငံ ကျန်းမာရေးဆိုင်ရာ သုတေသန ညီလာခံ

(၇-၁-၂၀၁၃) ရက်မှ (၁၁-၁-၂၀၁၃) ရက်အထိ
ဆေးသုတေသနဦးစီးဌာန (အောက်မြန်မာပြည်)

ကျန်းမာရေးဝန်ကြီးဌာနမှ ကြီးမှူးကျင်းပသည့် (၄၁) ကြိမ်မြောက် မြန်မာနိုင်ငံ ကျန်းမာရေးဆိုင်ရာသုတေသနညီလာခံ ညီလာခံတွင် ကျန်းမာရေးသုတေသနစာတမ်းဖတ်ပွဲ၊ ကျန်းမာရေးသုတေသနပိုစတာပြပွဲနှင့် ကျန်းမာရေးပညာရပ်ဆိုင်ရာ ဟောပြောပွဲများ ပါဝင်မည်ဖြစ်ရာ စိတ်ပါဝင်စားသူ ပြည်တွင်းပြည်ပမှ ပညာရှင်များအား ဖိတ်ခေါ်အပ်ပါသည်။ သုတေသန စာတမ်းတင်သွင်းရန်အတွက် စာတမ်းအကျဉ်းကို (၂၆-၁၀-၂၀၁၂) ရက် နောက်ဆုံးထား၍လည်းကောင်း၊ စာတမ်း အပြည့်အစုံကို (၃၀-၁၁-၂၀၁၂) ရက် နောက်ဆုံးထား၍လည်းကောင်း ဆေးသုတေသနဦးစီးဌာန(အောက်မြန်မာပြည်)သို့ ပေးပို့ နိုင်ပါသည်။

ပြည်တွင်း၊ ပြည်ပ NGO အဖွဲ့အစည်းများ၊ ဆေးဝါးကုမ္ပဏီများ၊ ဓာတ်ခွဲခန်း ကရိယာ၊ ဓာတုပစ္စည်း တင်သွင်းသည့်ကုမ္ပဏီများနှင့် ပြည်တွင်း၊ ပြည်ပ ပုဂ္ဂလိကဓာတ်ခွဲခန်းများ၊ ဆေးရုံများ၊ ဆေးခန်းများအားလည်း ဆေးပစ္စည်းကရိယာ ပြခန်းများ၊ ပိုစတာပြခန်းများနှင့် ပညာရပ်ဆိုင်ရာဟောပြောပွဲများတွင် ပါဝင်ဆင်နွှဲနိုင်ပါရန် ဖိတ်ခေါ်အပ်ပါသည်။

(၄၁) ကြိမ်မြောက်မြန်မာနိုင်ငံကျန်းမာရေးဆိုင်ရာသုတေသနညီလာခံကျင်းပရေး လုပ်ငန်းကော်မတီ
ဆေးသုတေသနဦးစီးဌာန (အောက်မြန်မာပြည်)

- ဆေးသုတေသနဦးစီးဌာန(အောက်မြန်မာပြည်) **"ကာကွယ်ဆေးနှင့်ရောဂါရှာဖွေရေးဆေးခန်း"**တွင် အသည်းရောင်အသားဝါဘီ ကာကွယ်ဆေးထိုးနှံပေးခြင်း၊ လိုအပ်သောစစ်ဆေးမှုများနှင့် ခါတ်ခွဲစမ်းသပ်မှုများပြုလုပ်ပေးခြင်း၊ အသည်းရောင်အသားဝါ ဘီပိုး/စီပိုး သယ်ဆောင်သောလူနာများအား ဆွေးနွေး၊ အကြံပြု၊ လမ်းညွှန်၊ ကုသပေးခြင်းများကို နေ့စဉ် (ရုံးဖွင့်ရက်) နံနက် ၁၀ နာရီမှ ညနေ ၃ နာရီအတွင်း ဆောင်ရွက်ပေးနေပါသည်။
- ဆေးအဆိပ်အတောက်ဖြစ်ခြင်း(**Poisoning**) နှင့်ပတ်သက်သည့် သတင်းအချက်အလက်များ သိရှိလိုပါလျှင် ဆေးသုတေသန ဦးစီးဌာန(အောက်မြန်မာပြည်) ရှိ အမျိုးသားအဆိပ်ထိန်းချုပ်ရေးဌာန (ဖုန်း-၃၇၄၄၈၀) သို့မဟုတ် (ဖုန်း-၀၉ ၅၁၃၄၇၀၈) သို့ ဆက်သွယ်ဆွေးနွေးနိုင်ပါသည်။

သို့

ကျန်းမာရေးဝန်ကြီးဌာနမှဝန်ထမ်းများအားဖြန့်ဝေပေးပါရန်မေတ္တာရပ်ခံအပ်ပါသည်။