Title: Invest in the Future, Defeat Malaria (Main theme of WHO April 25, 2013)

- **Disease: Malaria**
  A life-threatening disease caused by parasites that are transmitted to people through the bites of infected mosquitoes.
- **Key Information:**
  - **Contraction:**

    Malaria is caused by Plasmodium parasites. The parasites are spread to people through the bites of infected Anopheles mosquitoes, called "malaria vectors", which bite mainly between dusk and dawn.
  - **Who are at risk:**

    1) Young children in stable transmission areas who have not yet developed protective immunity against the most severe forms of the disease
    2) International travelers from non-endemic areas because they lack immunity;
  - **Statistics of Malaria:**

    There were about 219 million cases of malaria in 2010 and an estimated 660,000 deaths. Malaria mortality rates have fallen by more than 25% globally since 2000 and by 33% in the WHO African Region. Most deaths occur among children living in Africa where a child dies every minute from malaria. Country-level burden estimates available for 2010 show that an estimated 80% of malaria deaths occur in just 14 countries and about 80% of cases occur in 17 countries. Together, the Democratic Republic of the Congo and Nigeria account for over 40% of the estimated total of malaria deaths globally.
- **Symptom:**

  Malaria is an acute febrile illness. In a non-immune individual, symptoms appear seven days or more (usually 10–15 days) after the infective mosquito bite. The first symptoms – fever, headache, chills and vomiting – may be mild and difficult to recognize as malaria. If not treated within 24 hours, P. falciparum malaria can progress to severe illness often leading to death.

  Children with severe malaria frequently develop one or more of the following symptoms: severe anemia, respiratory distress in relation to metabolic acidosis, or cerebral malaria. In adults, multi-organ involvement is also frequent. In malaria endemic areas, persons may develop partial immunity, allowing asymptomatic infections to occur.
- **Transmission:**

  Malaria is transmitted exclusively through the bites of Anopheles mosquitoes. Transmission also depends on climatic conditions that may affect the number and survival of mosquitoes, such as rainfall patterns, temperature and humidity. Malaria epidemics can occur when climate and other conditions suddenly favor transmission in areas where people have little or no immunity to malaria.

  Human immunity is another important factor, especially among adults in areas of moderate or intense transmission conditions. For this reason, most malaria deaths in Africa occur in young children, whereas in areas with less transmission and low immunity, all age groups are at risk.

- **Diagnosis and treatment**

  Early diagnosis and treatment of malaria reduces disease and prevents deaths. It also contributes to reducing malaria transmission. The best available treatment, particularly for P. falciparum malaria, is artemisinin-based combination therapy (ACT).

  WHO recommends that all cases of suspected malaria be confirmed using parasite-based diagnostic testing (either microscopy or rapid diagnostic test) before administering treatment. Results of parasitological confirmation can be available in 15 minutes or less. Treatment solely on the basis of symptoms should only be considered when a parasitological diagnosis is not possible. More detailed recommendations are available in the Guidelines for the treatment of malaria (second edition).

  According to the current article of the SciDevNet on May 21, 2013, US$100 chip, The VereTrop chip, can recognize 26 pathogens, detecting 15 different diseases whose versatility and ease of use could alter the diagnostic process in remote areas

- **Prevention and managing**
  - **Two forms of vector control**

    Vector control is the main way to reduce malaria transmission at the community level. It is the only intervention that can reduce malaria transmission from very high levels to close to zero.
    1) Insecticide-treated mosquito nets (ITNs): Long-lasting insecticidal nets (LLINs) are the preferred form of ITNs for public health distribution programs.
    2) Indoor spraying with residual insecticides: Indoor residual spraying (IRS) with insecticides is a powerful way to rapidly reduce malaria transmission. Its full potential is realized when at least 80% of houses in targeted areas are sprayed.
  - **Antimalarial medicines**

    For travelers, malaria can be prevented through chemoprophylaxis, which suppresses the blood stage of malaria infections, thereby preventing malaria disease.
  - **Vaccines against malaria**

    There are currently no licensed vaccines against malaria or any other human parasite. However, according to the SciDevNet on Sep 08,2013, new malaria vaccines shows 100 per cent protection which is needed further tests and hoped for licensing in four years.

- **Wrap up**

  To defeat Malaria,
  - Vaccine of Malaria should be invented
  - Insecticide-treated mosquito nets and indoor spraying with residual insecticide should be supplied to the home of having a risk of Malaria
  - Travelers should take a antimalarial medicines before traveling to the area at risk of Malaria
  - International efforts are needed to defeat Malaria.

- **Reference**

World Health Organization 2013, "Media center for Malaria". Retrieved Sep11,2013 (http://www.who.int/mediacentre/factsheets/fs094/en/index.html)

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