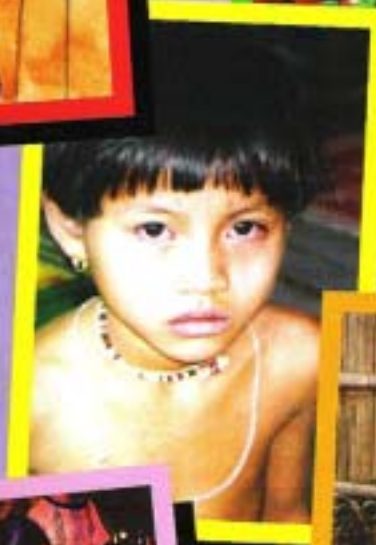


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 Endocrine System
 Diseases of Thyroid-Gland
 Nutrition Survey
 Filariasis Screening

Health Messenger

ISSUE 18
 BURMESE EDITION
 NOVEMBER 2002


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CONTENTS


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ISSUE 18, NOVEMBER, 2002

	taxaxUefrma& / General Health	
	jyerh [mrlf,xlvpepf (Uefrma&apwref)	2
	The Endocrine System (Health Messenger)	
	oil f&uft uslvvif t jzprsn;aoma&m*grsn; (Uefrma&apwref)	8
	Diseases of the Thyroid Gland (Health Messenger)	
	arf&mygi Sufzsn;a&m*g (a'gvlvm&pruf&wv' DSRMU)	35
	Congenital Malaria (Rose McGready, SMRU)	

	a&m*gvvmjicif / Case Study	
	emvwm&sh&m*grsn;/vnyif)Uba&m*gt a-umifom"u	14
	(a'gvlvm pph/bmaloml a'p&um&mpf (AMI))	
	Chronic Diseases: A Case of Hyperthyroidism (Dr. Cécile Barbou Des Courières, AMI)	

	vlyefcfs From the Field	
	r/vpcefEshpcef 2 twof t m [m&z&tr t ajc t aeUlavvmjicif	18
	(t il &mrebb) (refme, fcm; tlypl b/bp))	
	Nutrition Survey in Mae La Camp & Camp # 2 (Andrea Menefee, BBC)	
	r&acj t pcefY qijUba&m*gf&trfoyp&paqjicif	28
	(un&x(f"gvcef)Ubya&t&m&f ar&w&pbibm/ pphUefre&sm r, kvwqm *mrel(trft v'f'f))	
	Filariasis Screening in Mae Khong Kha Camp	
	(Kyi Htwe & Marie-Theres Benner, Malteser Germany (MHD))	
	r, /vpcefY Oububa&m*uyiqll qUba&mujcif (a tr& t pft ulzt oil/r/vpcef 1?)	42
	Measles Epidemic in Mae La Camp (MSF Team, Mae La 1)	

	Uefrma&yrmay; / Health Education	
	uav;rsm; ylf&juDxh;vm&eft w&ur#waom t m [m&"gvf (Uefrma&apwref)	46
	Balanced Nutrition for Proper Growth of Children (Health Messenger)	

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 The procedure, explanations and treatment given in this publication are based on research and consultation with medical and nursing authorities. They all reflect accepted medical practices. Nevertheless they cannot be considered absolute and universal recommendations. The authors, the editor and the publisher disclaim responsibility for any adverse effects resulting directly or indirectly from the suggested procedures, from any undetected errors, or from the reader's misunderstanding of the text.

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Editorial

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Dear Readers,

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Chronic diseases are mostly neglected by people because of the longer duration of treatment. They have very little idea about the importance of continuing medication and follow-up for such diseases. In this issue of Health Messenger we discuss thyroid diseases, based on a case study from a refugee camp.

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The other topics include congenital malaria, filariasis survey at Mae Khong Kha Camp, and nutrition survey in Mae La Camp & Camp #2.

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Most of the articles are contributed by our readers who are working in the camps.

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I do hope this issue will enrich your knowledge on all these topics.

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Enjoy your reading!!!

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Best regards,
Dr. Seerat Nasir
Editor

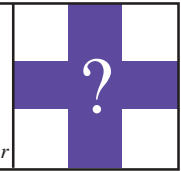
Health Messenger Magazine Program

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The Endocrine System

Health Messenger



The endocrine system is important for the growth & development of the body and also for reproduction. The thyroid is an endocrine gland that plays an important role in metabolism.

The endocrine system comprises several endocrine glands in different locations inside the human body. *Glands that produce secretions that flow directly into the blood (not outside the body or any hollow organs lined with mucous membranes, such as the gastrointestinal tract) are called endocrine glands.* The secretions of the endocrine glands are called ‘*hormones.*’

Hormones are chemical substances created by the body that control numerous body functions. They actually act as ‘messengers’ to coordinate functions of various body parts. Most hormones are proteins consisting of amino acids. Functions controlled by hormones include:

- activities of entire organs
- growth and development
- reproduction
- sexual characteristics
- usage and storage of energy
- levels of fluid, salt, and sugar in the blood

What are the endocrine glands?

The endocrine system consists mainly of the following endocrine glands:

Hypothalamus: The hypothalamus is located in the brain, at the base of the optic chiasm. *Optic chiasm is the part of the*

hypothalamus formed by the crossing of the optic nerve from the medial half of each retina. The hypothalamus secretes hormones that either stimulate or suppress the release of hormones in the pituitary gland, in addition to controlling water balance, sleep, temperature, appetite, and blood pressure.

Pituitary: The pituitary gland is located at the base of the brain. The gland is small, not larger than a pea, but it controls many functions of the other endocrine glands.

Thyroid and Parathyroids: The thyroid and parathyroid glands are located in front of the neck. Their structure and functions are described in detail later.

Thymus: The thymus is located in the upper part of the chest and produces T-lymphocytes. *For more detail please see Health Messenger, Issue 13, June 2001.*

Adrenal Glands: The pair of adrenal glands are located on top of both kidneys. Adrenal glands work together with the hypothalamus and pituitary gland.

Kidneys: The pair of kidneys are located near the middle of the back, just below the rib cage. The kidneys process the blood to sift/clear out waste products and extra water which are excreted from the body as urine. *For more detail please see Health Messenger, Issue 8, March 2000.*

The Pancreas: The pancreas is located across the back of the abdomen, behind the stomach. The pancreas plays a role in digestion, as well as hormone production.

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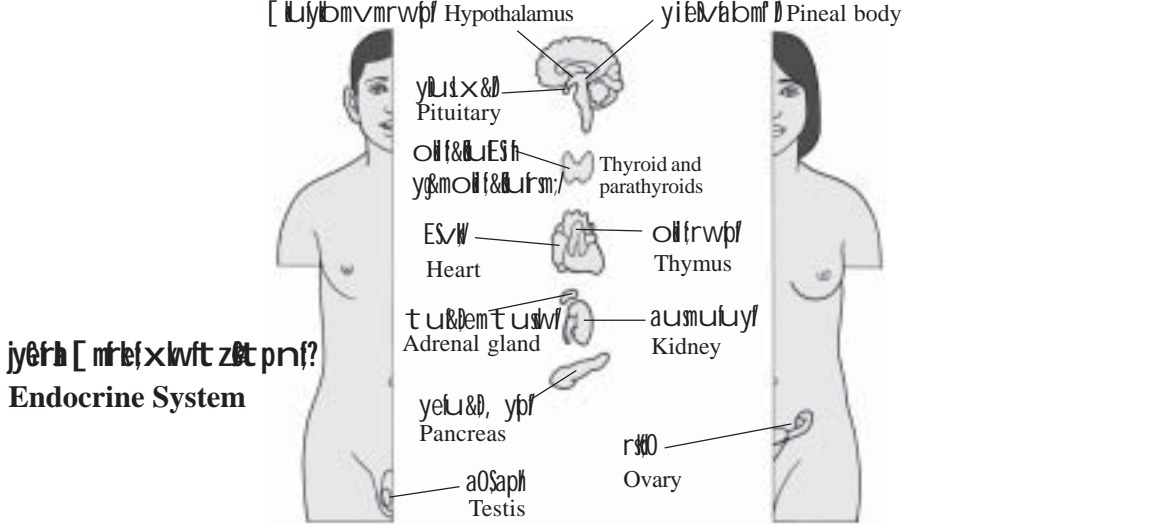
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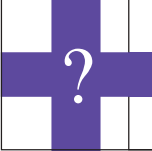
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Endocrine System



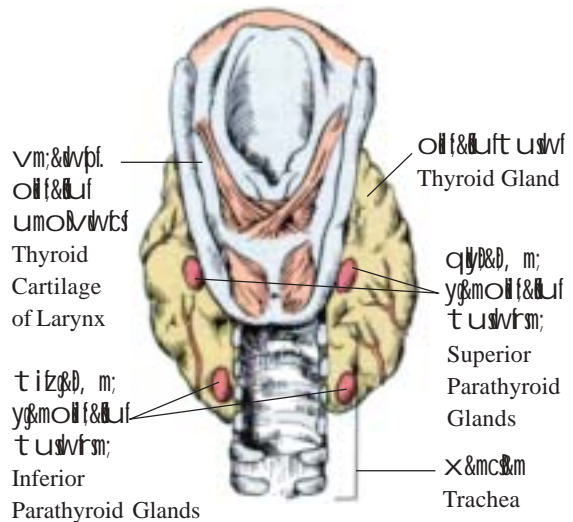
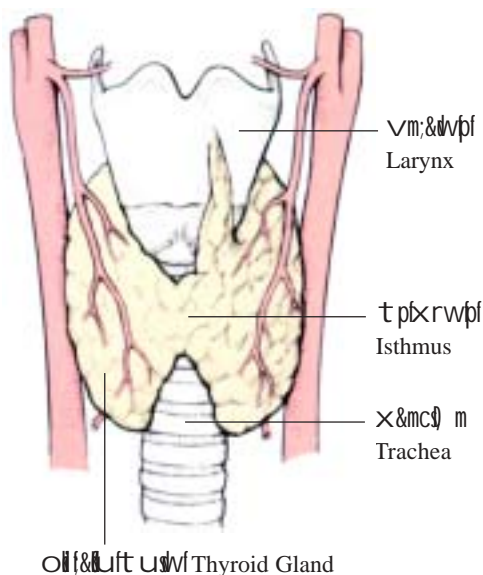
Ovaries: In the female, the ovaries are located on both sides of the uterus, below the opening of the fallopian tubes (tubes that extend from the uterus to the ovaries). In addition to containing the ovum (eggs) necessary for reproduction, the ovaries also produce and secrete oestrogen and progesterone.

Testis: In the male, a pair of testes are located in a pouch called scrotum, that hangs suspended outside the male body, between the thighs. The testes produce testosterone and sperm.

Functions of the Endocrine System

Endocrine glands find out if something needs changing in the body. They usually do this by detecting changes in the blood. The endocrine glands then increase or decrease the supply of their hormones into the blood accordingly. The hormones then go to other parts of the body with messages for those parts of the body to change their function (and occasionally their structure).

In short, the endocrine glands regulate the growth and development of the body and functions of the vital organs.



Thyroid gland

The thyroid gland is located in the front of the neck, below the larynx (voice box). The gland consists of two lobes, one on each side of the trachea (windpipe), connected by a narrow band of thyroid tissue called the **isthmus**.

The thyroid gland is one of the largest endocrine glands with a weight of approximately 20 gm. It is highly vascular and appears more red than its surrounding tissues.

The thyroid tissue is made up of two types of cells: **follicular cells** and **parafollicular cells**. A follicular cell (follicle) is small and round and lined with epithelium cells. The center or lumen of each follicle is filled with a protein called **thyroglobulin**, to which thyroid hormones are bound.

Between the follicles a delicate network of loose connective tissue contains numerous capillaries. Scattered **parafollicular cells** are found between the follicles and among the cells that comprise the wall of the follicle.

Most of the thyroid tissue consists of the follicular cells, which secrete iodine-containing hormones called **thyroxine (T4)** and **triiodothyronine (T3)**, which have important actions throughout the body. The parafollicular

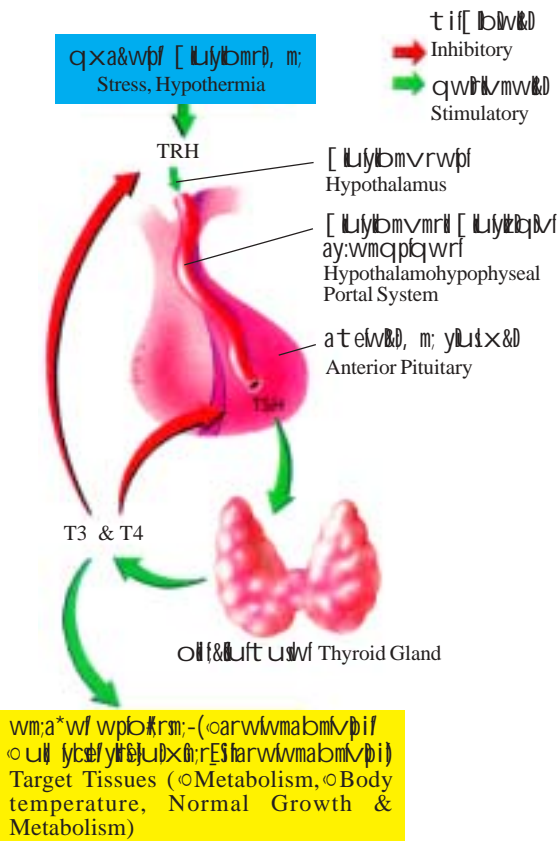
cells secrete the hormone **calcitonin**. The thyroid needs iodine to produce the hormones.

Functions of the Thyroid Gland

The thyroid plays an important role in regulating the body's metabolism and calcium balance. The T4 and T3 hormones stimulate every tissue in the body to produce proteins and increase the amount of oxygen used by cells. The harder the cells work, the harder the organs work. In short, the thyroid "runs" our metabolism. These hormones also have direct effects on most organs, including the heart which beats faster and harder under the influence of thyroid hormones.

The calcitonin hormone works together with the parathyroid hormone to regulate calcium levels in the body.

Levels of hormones secreted by the thyroid



What is metabolism?

Metabolism is the chemical activity that occurs in cells, releasing energy from nutrients or using energy to create other substances, such as proteins. The basal metabolic rate (BMR) is a measurement of energy required to keep the body functioning at rest. Measured in calories, metabolic rates increase with exertion, stress, fear, and illness.

are controlled by the thyroid-stimulating hormone (TSH) secreted by pituitary gland, which in turn is controlled by the hypothalamus.

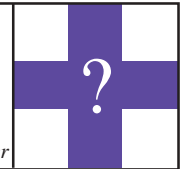
These hormones regulate many aspects of our metabolism, eventually affecting how many calories we burn, how warm we feel, and how much we weigh.

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Regulation of Thyroid Hormone Secretion.
 Thyrotropin releasing hormone (TRH) is released from the hypothalamus and passes to the anterior pituitary through the hypothalamohypophyseal portal blood vessels, where it causes cells to secrete TSH. TSH passes through the general circulation to the thyroid gland where it causes both increased production and secretion of T3 & T4. T3 & T4 have an inhibitory effect on the secretion of both TRH from hypothalamus and TSH from anterior pituitary.

Diseases of the Thyroid Gland

Health Messenger



This article will discuss some common diseases of the thyroid gland.

There are some conditions that may affect the production of thyroid hormones. Excessive or deficient amounts of thyroid hormones may give rise to several symptoms. The most common diseases of the thyroid include:

- 1) Thyroiditis
- 2) Endemic Goitre
- 3) Endemic Cretinism
- 4) Hyperthyroidism or Thyrotoxicosis and
- 5) Hypothyroidism or Myxoedema.

1) Thyroiditis is an inflammation of the thyroid gland. The type of thyroiditis seen most often is Hashimoto's thyroiditis, a painless disease of the immune system that runs in families (hereditary). Hashimoto's thyroiditis affects about 5% of the adult population, particularly in women, as they grow older.

Thyroiditis can cause either hyperthyroidism or hypothyroidism, or one followed by the other. It can also cause goitre (discussed later).



Endemic goitre.

Another form of thyroiditis - postpartum thyroiditis - affects women of childbearing age. This occurs in 5%-9% of women soon after giving birth and is usually a temporary condition. Viral and bacterial infections may also cause thyroiditis.

2) Goitre is an abnormal swelling in the neck caused by an enlarged thyroid gland. It can become quite large.

Worldwide, the most common cause of goitre is lack of iodine, a chemical which the thyroid uses to produce its hormones. If there is a prevalence of goitre in a community the most likely cause is **Endemic Goitre**. When there is not enough iodine in the food, there is also not enough iodine in the blood, which gives rise to endemic goitre. The thyroid gland tries to take more iodine from the blood and as a result, grows bigger.

About 100 million people do not get enough iodine in their diets. This shortage of iodine usually occurs in the mountainous areas and mostly affects adolescent girls and women during pregnancy. Adding iodine to salt (iodized salt) may solve the problem.

The other causes of goitre include hyperthyroidism, hypothyroidism, thyroiditis, and cancer of the thyroid gland. Many goitres may develop with normal thyroid hormone levels and do not require treatment.

3) Endemic Cretinism is a condition that affects babies born to mothers with an iodine deficiency. Endemic cretins are born only in areas where adults have goitres. A child is suspected of having endemic cretinism when he/she shows the following signs/symptoms:

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 r s m ; p h & y g o n ?

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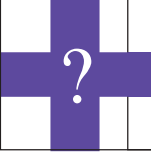
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 o n h u m ; r s t a v ; c e h a v s m q i f v m w w b n ? o h o m f
 w c g v & h v f x l b l y t p m ; a o m u r a u m i f v e m o n l y t h
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Endemic cretinism. Note the spastic legs, large abdomen & umbilical hernia.

- Deafness from birth and unable to speak
- Spastic legs and slower in learning to sit or walk compared with normal children
- Mental subnormality
- Squint

These signs and symptoms may not be present in all patients - deafness and inability to speak being the most common.

4) Hyperthyroidism is the medical term to describe the signs and symptoms associated with an over production of thyroid hormones.

There are several causes of hyperthyroidism:

1) The entire thyroid gland may be overactive, producing too many hormones. Doctors call this problem diffuse toxic goitre, or Graves' disease.

2) The gland may be inflamed, a condition called thyroiditis. It can release the thyroid hormone that was stored in the gland, causing hyperthyroidism that lasts for a few weeks or months.

3) Some patients may have taken more thyroid hormone pills than needed or prescribed.

4) Some drugs containing large amounts of iodine may cause the thyroid to produce excessive amount of hormones.

Common Symptoms and Signs of Hyperthyroidism

Usually, the symptoms of hyperthyroidism are so gradual in their onset that patients do not realize the symptoms until they become more severe. This means the symptoms may continue for weeks or months before patients fully realize that they are sick.

As the body's metabolism is increased, patients often feel hotter than those around them. Patients with hyperthyroidism usually experience fatigue at the end of the day, but have sleep disturbances. Trembling of the hands and a hard or irregular heartbeat (palpitations) may develop. These individuals may become irritable and easily upset. In severe cases, patients can suffer shortness of breath, chest pain, and muscle weakness.

5) Hypothyroidism causes the body to slow down. It occurs when there is too little thyroid hormones in the blood ("hypo" means "not enough"). Hypothyroidism affects more than 5 million people, many of whom do not know they have the disease. Women are more likely than men to have hypothyroidism.

Signs & Symptoms:

Palpitations	Heat Intolerance
Nervousness	Insomnia
Breathlessness	Fatigue
Fast Heart Rate	Weight Loss
Trembling Hands	Muscle Weakness
Warm Moist Skin	Hair Loss
Staring Gaze	
Increased Bowel Movements	
Light or Absent Menstrual Periods	

There are several causes of hypothyroidism:

1) An inflammation of the thyroid gland (thyroiditis) can lower the amount of hormones produced. The number one cause of



hypothyroidism is Hashimoto's thyroiditis, a painless disease of the immune system that runs in families.

2) Iodine deficiency may be the principal cause of hypothyroidism in some regions.

3) Thyroid surgery or radioactive iodine treatment may cause hypothyroidism.

4) Congenital anomaly: one out of every 4,000 infants is born without a working thyroid gland. If the problem is not corrected, the child will become mentally and physically retarded.

5) Some other possible causes of hypothyroidism are radiation therapy to the head and neck, birth defects, certain drugs, problems with the pituitary gland, and a gradual wearing out of the thyroid gland.

Common Symptoms and Signs of Hypothyroidism

The following are the common signs and symptoms of hypothyroidism:

- Feeling slow or tired
- Feeling cold
- Drowsy during the day (even after sleeping all night)
- Slow heart rate
- Feeling depressed
- Poor memory
- Weight gain
- Difficulty in concentrating
- Muscle cramps
- Goitre
- Hoarse (husky) voice
- Infertility
- Thinning hair
- Heavy menstrual flow
- Dry and coarse skin
- Milky discharge from the breasts

Many of the symptoms of hypothyroidism can occur normally with aging. So, if a person has one or two of them, there is probably no reason to worry. However, if she/he is concerned about any of these symptoms, it is better to see a doctor.

Tests for Hyper and Hypothyroidism

As with any disease, it is important that one watches for the early warning signs of hyperthyroidism. However, only health workers/ medics can tell for sure whether or not one has the disease.

For Hyper- and Hypothyroidism the health worker/medic may examine:

- Patient's history and physical appearance.
- The amount of thyroid hormones, thyroid stimulating hormone (TSH), and thyroid stimulating antibodies in the blood (*done in hospitals*).
- The structure and function of the thyroid gland, using thyroid imaging, which takes a picture of the gland after the patient has been given a small amount of radioactive iodine (*done in hospitals for hyperthyroidism*).
- The amount of thyroid hormones, thyroid stimulating hormone (TSH), and antithyroid antibodies in the blood (*done in hospitals for hypothyroidism*).

References

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Chronic Diseases: A Case of Hyperthyroidism

Dr. Cécile Barbou Des Courières, AMI



This case study will show the importance of continuing medication in chronic disease.

Naw Eh Phong was a 22-year-old woman who came to the OPD with complaints of repeated palpitations.

Chief complaints

Fatigue, tiredness and muscular weakness for 2 to 3 years.

Gradual loss of weight (at least 10 kg lost in 2 years) without any loss of appetite.

Loose stool once or twice a day.

Irregular menstrual periods and occasional amenorrhoea without pregnancy.

Findings of clinical examination

- Regular tachycardia. Pulse 100-120/minute.
- BP 150/90 mm. Hg.

• Regular and loud heartbeat without murmur.

• Mild shaking of the hands.

• Slight muscular loss.

The other organs were normal. Checking the thyroid yielded nothing noticeable.

Hyperthyroidism was suspected and Naw Eh Phong's blood sample was sent to the hospital to estimate the levels of thyroid hormones (T3,T4) and Thyroid Stimulating Hormone (TSH) produced by the hypothalamus.

While waiting for the results of the hormone levels, Naw Eh Phong was given Propranolol (40 mg two times daily) to lower the pulse rate and the palpitations.

The result of the blood test showed T3 and T4 above the normal concentration. TSH level was very low. **The level of the TSH is more**



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 Hair loss in hypothyroidism.

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**REMEMBER: NEVER STOP THE
 TREATMENT FOR CHRONIC
 DISEASE.**



sensitive for thyroid diseases than T3 and T4. The low TSH and the high T3, T4 confirmed the clinical diagnosis of hyperthyroidism. **Hyperthyroidism is an imbalance in metabolism that occurs from overproduction of thyroid hormones.**

Treatment given for Hyperthyroidism

Naw Eh Phong was then given Propyl Thio Uracil (PTU) 1 tablet daily for 1 month and added Propranolol 1 tablet daily for 1 month. After one month treatment, the clinical signs were not totally cured, so the dose of PTU was increased to 1 tablet twice daily.

A treatment of more than one month made her feel entirely cured and she had no complaints. *The key issue to thyroid treatment is that, the symptoms may be gone, but the disease can not be cured. The treatment should be continued for the rest of the patient's life.*

Discontinuing the treatment

After continuing the treatment for a couple of years, Naw Eh Phong became tired of taking the medicine everyday and visiting the OPD every week. So she decided to discontinue the treatment.

One year later, she again had complaints of palpitations, tremors, loss of weight, and mild

diarrhoea. She went to the clinic for consultation and hyperthyroidism was again diagnosed. She started the treatment again with PTU 1 tablet daily.

After six months, she complained of considerable increase in weight, loss of appetite, hair loss, fatigue, and constipation. A clinical examination showed a moderate oedema of the whole body, low pulse and low BP, and weak heart sounds. This time hypothyroidism caused by higher dose of PTU was diagnosed.

The dose of PTU was then decreased to 1/2 tablet daily. But she had to continue the hyperthyroidism treatment for life. A few months later, Naw Eh Phong felt much better and she understood clearly that she must never stop her treatment.

Hyperthyroidism is a typical case of chronic disease. The main problem with any chronic disease is that the symptoms can be treated, but the disease is never cured. So, one must continue treatment for life, like that the clinical signs can be reduced. It is also important to visit the clinician regularly for a check up. Other examples of chronic diseases are diabetes mellitus, high blood pressure, hypothyroidism, rheumatic diseases and inflammatory diseases.



Oedematous face in hypothyroidism.



ri/vpcef,ESHpcef, 2 wlt w6f, tm[m&z&lr t ajct aeull avh/mjci f

t i f & m i e b e d (j r e f m e , j c m ; t y p k b b p d)

Taqmifygonfr/vpcef,ESHpcef, 2 tw6f jyk/vlyt/hom tm[m&z&lr,tajctae
avh/mjci fppivrfullt-urft m;jzifaznfyxm;ygpn?

**tb, fa-umih t [m&z&lr,tajctaeull u|Elyw6
avh/m&efvbenf?**

1948 cEpf bbbpS pcef,t wuf t pm; t pmrsm;
pwi axmulyay; pOU pcef,t w6 faexll brsm; onf
t pm; t pmr s p l u p c e f , t w 6 f & E l l c l q e w r s w n f
ubm awmif q t u o n ? ' l u b n r s m ; o n f o p a w m
t w 6 f t p m ; t p m r s m ; u l t r e l w u , f v h v m u p h & & &
w 6 f [i f o d [i f & l u r s m ; p l u y s j c i f E s h w d p m e a r f j r j c i f
o l t [k w f w c g w & h j r e f m e , p y f u l l j z w f a u m f l
aumulybDEfsm; & w b o f j c i f r s m ; v y f u l l E l l c h u o n ?
p c e f , t w 6 f a e x l l b r s m ; o n f t p m ; t p m r s p l u l l
& E l l c h u o n ?

pcef,ythudx6;vm-yd uef e e f r s m ; v m o n E s h t r #
yDgav;/ q d t l f t l i f q m ; / i & k w b o D E s h i y p o n h
t p m ; t p m t r s t p m ; t o p r s m ; & l u t c l w r f x l w 6 f x n h
o f v m c l o n ? o l o m i v n f p c e f , w 6 f & l v r s m ; o n f
v w q w a o m [i f o d [i f & l u f o p b o v h r s m ; / O r s m ; /
t o m ; r s m ; E s h t j c m ; a o m p y g / * s h r s m ; t p & b o n i w l e u l l
& E l l b o n q h o m , l q c u j z i b o m & l u t c l w r f E s h
a x m u l y t h o n ?

, c k t c g p c e f r s m ; p h w l e v 6 f v D b a & x l y f v m - y d
p l u y s d e a e & m t e n f t u o f o l t [k w f a & t e n f



[i f o d [i f & l u E s h y r s m ; V e g e t a b l e s a n d b e a n s .

i , b o m & l v m u m p c e f , t w 6 f & l v r s m ; v n f p c e f , t j y i f
o k u l l t v l y / y j c i f o l t [k w f t p m & h c h t v 6 f
w u l t & & w m l y g t u , l l p c e f , t w 6 f & l v r s m ; o n f
t j c m ; t p m ; t p m r s m ; u l t r e l w u , f v h v m u p h & & &
& l u t c l w r f u l l v h v m u t a p - y d u e f r m p h a e x l l f a &
t w 6 f v l t y a o m t [m & " g v f t m ; v l e & a - u m i f u l l
b b b p S o l v t h o n ?

x h - u m i h T a v h / m j c i f p p i v r f . & n & g t s u r h
p c e f , t w 6 f a e x l l f u a o m ' l u b n r s m ; o n f a & & n f
u e f r m a & ; E s h n h w a p & e f & l u t c l w r f t j y i f t j c m ;
t p m ; t p m r s m ; & & E l l j c i f & f & g z p o n ?

**avh/mjci fppivrfullt tb, b6jy/vlyt/jg
oenf?**

p c e f , t w 6 f & l v r s m ; . u e f r m a & ; t w 6 f
v l t y a o m t m [m & r s m ; t m ; v l u t & f & b o d e f
t w 6 f b b b p S r [a ' g v u b l v E s h y a y g f l
t m [m & z & l r _ a v h / m j c i f p p i v r f u l l y k / y b e f
q h z w f - y d r i / v p c e f , E s h p c e f e l y g w i 2 w l t w 6 f p w i f
v l y a q m i c b n ? r i / v p c e f , w 6 f v u a x m u f
p c e f , w m o e c l u a v h / m a & ; t z e u l l u h d b o m o m
j y e a y ; y d p c e f e l y g w i 2 w 6 f p c e f , t w 6 f & a e x l l f
o r s m ; t m ; o i f w e f a y ; y d a u m u c t h l f c y g o n ?
a v h / m j c i f p p i v r f w 6 f -

- t r a x m i p z p n f w n a q m u r E s h
r o m ; p d i f r s m ; E s h q l l o n h t a x a x a r ; c e f r s m ; ?
- r o m ; p d i f w o b c s i f . w a e v # f t p m ;
t p m w c k s i f t m ; j z i h t a v ; c e f r n f p d p m ; o h
o e n f E s h q l l o n h a r ; c e f r s m ; ?
- t j c m ; t p m ; t p m r s m ; r n u b l e & & &
o e n f / b , E p j u r t p m ; o h b e n f / & & o m t p m ;
t p m . t r s t p m ; E s h y r m % w l e s h o u q l l f
a o m a r ; c e f r s m ; ?

Nutrition Survey in Mae La Camp & Camp # 2

Andrea Menefee, BBC



This article will briefly describe the nutrition survey done in Mae La Camp and Camp # 2.

Why do we need a nutrition survey?

In 1984, when the Burmese Border Consortium (BBC) began supplying food to the camps, people living in the camps were still able to get many foods on their own, and requested only rice. The refugees could forage for foods in the forest, get work in the local fields, plant vegetables and raise animals, or sometimes still harvest crops across the border in Burma. People had access to many different kinds of foods.

As the camps became bigger and more restricted, new foods were added to the ration, such as yellow beans, oil, iodized salt, chilies, and fish paste. But still, the ration was provided with the assumption that people could get other foods, like fresh vegetables and fruits, eggs and meats, other grains, etc.

Now, many of the camps are very crowded, there is little space or water for growing foods, and people are not able to leave the camps as easily to forage or work. BBC wanted to find out if people in the camps are really able to

How was the survey done?

To find out if people are getting all the nutrients they need to stay healthy, BBC decided to work together with Mahidol University to do a nutrition survey, in Mae La Camp and Camp #2. In Mae La, camp assistants helped to translate for the survey team, and in Camp #2, camp residents were trained to conduct the survey.

The survey included:

- General questions about the household composition and family members.
- Questions about how much food each family ate in one day and weighing each of the foods.
- Questions about how people get other foods, how often they eat them, the types and amount of foods they get.



Weighing chilli.



Weighing rice.

uav;a&mv)u)yg t m [m&c&v)jci f &f&u u
 uefrma&ppaq; jci f ES h, i f w t & y f t j r i ES h
 u u f t a v ; c e f w t u p p a q ; c y g o n ?

avlv)jci f. t c s h o m & v ' r s m ; r f i t b , e n f ?

avlv)jci f p p f v r f t c s u f t v u r s m ; r s t c s h o m
 a r ; c e f r s m ; u l l b o p d S a j z E l l c l o n ? t c s h o m t a &
) u p a o m a w e s u r s m ; r f i -

- p c e f & v r s m ; o n f t p m ; t p m u l v h v m u p t h
 p m ; a o m u f e E l l f u j c i f ?

t m ; v h e k u n l v # f r l v p c e f E S h p c e f e l y g v f 2 & d
 v r s m ; o n f v l w o b p d u e f r m a & ; t w l u f o w r s v f
 x m ; o n h t w l l f t w m y r m % u l l p m ; a o m u E l l f u
 o n ? p c e f & v r s m ; a j z u m ; o n h t p m ; t p m r s u , l v d
 r n f & u m i f w l u s u l y d , i f w t u e f r m a & ; t w l u f
 v l t y a o m p l e f y r m % E S h e d f , S j c i f j z i h o e l l c l o n ?
 x l a u m i h t p m ; t p m p l a y g i f y r m % r f i t m ; v h e k
 u n l v # f a u m i f r e a u m i f a w e y g o n ? x l t j y i f

E l z w c p u a v ; r s m ; t w l u f t p m ; t p m r f i & u t h c l v r f
 w l f r y g o m a u m i h u a v ; i , r s m ; o n f t m [m & " g w l u l
 , i f w l u t y b o n x u f a v s m e p h p m ; o h u o n i u l a w e
 & o n ?

p c e f & v r s m ; o n f A d v m r i E S h o f f g v l y g o n h t p m ;
 t a o m u E S h y & l v e f y g o m t p m ; t p m r s m ; v h
 a v m u p t h r p m ; j c i f ? p c e f & v r s m ; . t p m ; t

a o m u l l t u l e l v h e k u n l v # f v h v m u p t h
 p m ; a o m u f e u a o m l v n f t a & ;) u p a o m A d v m r i E S h
 o f f g v r s m ; y g o n h t p m E S h y & l v e f t v l t a v m u f a o m
 t p m ; t p m r s m ; u l l v h v m u p t h r p m ; u y g & u t h c l v r f
 t p m ; t p m r s m ; w l f v n f A d v m r i E S h o f f g v r s m ; t x l
 o j z i h A d v m r i h a t p l b d 1 / b d 2 / o f f g v E S h u , l v q d
 & r f g w l v y g i f y g p c e f & v r s m ; o n l v n f , i f " g v r s m ; u l l
 j z n p l u e f t j c m ; t p m ; t p m r s m ; t v l t a v m u f &
 & E l l f u y g

x l n f w l , i f w l o n l y & l v e f " g w l u l t r s m ; t m j z i h
 q e l u & e y d , i f o n l y & l v e f " g w f t r e l w u , f u e f



t & y f t j r i E S h t a v ; c e f w l f w m a e a o m u a v ; . y l Measuring height and weight of children.



get enough other foods to supplement the ration and to get all the nutrients they need to stay healthy.

The objective of the survey was to find out if refugees living in camps are able to supplement the ration to make a balanced diet for long-term health.

Both children and adults had physical examinations to check for nutrient deficiencies, and everyone had their height and weight checked.

What were some of the survey results?

BBC was able to answer some of our questions from the survey data. Some of the

main points that we found out were:

People are EATING ENOUGH food:

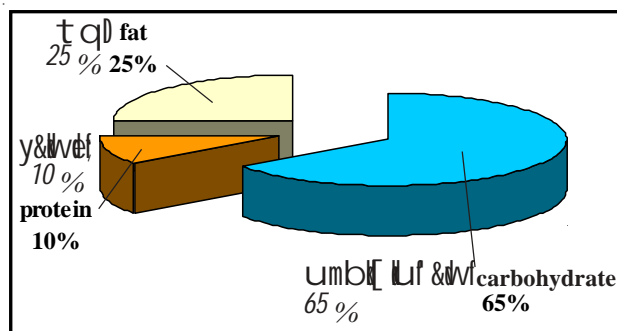
Overall, people in Mae La and Camp #2 are eating the right amounts (quantities) of food, according to how much is recommended. We know this by calculating the total number of calories that people report eating and comparing that with what they need. So, the total amounts of food are ok overall. But, we also found out that younger children tend to eat fewer nutrients than they need, since weaning foods are not part of the ration.

People are NOT EATING ENOUGH vitamins and minerals, and not eating enough of the right protein foods:

Even though people are eating ENOUGH food overall, they are not eating enough foods that have important vitamins and minerals, and not enough protein foods. The ration foods do not contain a lot of some vitamins and minerals, particularly vitamin A and C, B1 and B2, and the minerals iron and calcium, and people are not getting enough other foods to make up for it.

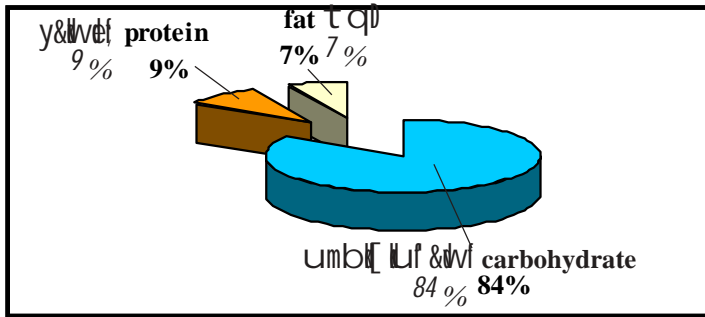
Also, people are getting most of their protein from rice, but it is not enough of the right type of protein. In order to grow and stay healthy,

Recommended Amounts of Nutrients



The pie chart here shows the proper proportion of each nutrient we need to stay healthy. Although we need the most kilocalories from carbohydrate, we also need some from protein and fat.

Amounts of nutrients eaten in Mae La Camp



People in Mae La camp eat a lot of carbohydrate, and not a lot of protein and fat. The chart below shows the proportion of each nutrient that people in Mae La are eating, which is 84% carbohydrate, 9% protein, and 7% fat. Camp #2 was very similar.

People in Mae La camp eat a lot of carbohydrate, and not a lot of protein and fat. The chart below shows the proportion of each nutrient that people in Mae La are eating, which is 84% carbohydrate, 9% protein, and 7% fat. Camp #2 was very similar.

Qaom tpm trstpm; jzplon? vrm; onful tEm }udxh; &ES huse; rme; fyt rstrw/ ajry/ tom; rsm;/ Orsm;/ igt p&bnlv&S&bnlv&v& "gvulvbn? Avmri ES hofgvrm; y&lv&vrm; onful tEm}ud xh; jci; a&m* gzpjcifrsumu; jci; ES hu; tEm. ckh Ell pft; m; u; u; dxh; ap&ef x&f; x; m; jci; ES hit m&h=um rsm;. vlyaqmi b; surm; u; aumi r&ap&eft wuf t v&ft a&}; u; on?

pc&f&vrm; onf q&u; t rsm; t jym; pm; o; h; jci; ES h; t jcm; t pm; t pmrsm; u; v; v; mu; f p&h; rpm; o; h; jci; f?

use; r; m; jci; ES h; y; n; p&h; om vlvO; jz p&ef r&f; ue&om t c&h; t pm; y; o; i; ay; gi; f; py; x; m; on; h; t pm; t pmr; s; p&h; v; h; t yon? u; tEm; z&h; &ES huse; r; m; jci; ES h; n; h; v; f



igESh[ifod[if&ursm;? Fish and vegetables.

ap&ef t "u; t [m&rsm; jzplonh umA; h; u; f; &v; f; y&lv&v&ES h; t q; d; w; h; r; #; v; p&h; y; o; i; &e; v; h; t y; h; d; o; i; h; v; i; h; aomyrm% u; lpm; o; h; e; f; v; h; t yon? u; h; tEm; z&h; &ef vrm; tae; j; i; h; v; h; t y&om u; , h; v; d; 55 &mc; h; Eef; r; S 65 &mc; h; Eef; u; h; umA; h; u; f; &v; f; S; i; f; 10 &mc; h; Eef; r; S; 15 &mc; h; Eef; u; h; y&lv&v; f; S; i; f; ES; f; 25 &mc; h; Eef; r; S; 30 &mc; h; Eef; u; h; t q; d; w; h; S; &S; b; i; on? t u; , h; v; l; v; wa; mu; b; on; f; umA; h; u; f; ' &v; f; t rsm; q; h; p; m; o; h; v; #; i; f; O; yrm; qe; l; v; r; s; h; w; n; f; om; p; m; o; h; v; #; i; f; i; w; h; e; u; h; tEm; }udxh; &ES h; j; y; j; i; f; x&f; o; r; f; &ef; y&lv&v; e; "gv; f; t; v; h; t; av; mu; f; &S; f; n; f; r [k; v; a; =u; m; i; ES; h; t; jcm; t pm; t pmrsm; w; f; a; w; &E; h; a; om; Avmri ES hofgvrm; v; n; f; t; v; h; t; av; mu; f; &S; f; n; f; r [k; v; y; g; x; h; =u; m; i; h; t; m [m&"gv; r; e; l; u; e; r; #; v; p&h; &S; &ef; t; w; u; f; t; v&ft; a&}; u; on?

rlvpc&fES h; p; c&e; f; e; l; y; g; v; i; 2; t; w; f; &S; u; av; rsm; on; f; t; & y; f; t; v&f; y; u; on? rlvpc&fES h; p; c&e; f; e; l; y; g; v; i; 2; t; w; f; &S; t; ou; f; i; g; E; s; h; a; t; mu; f; u; av; 3 a; mu; f; w; f; i; w; p; a; mu; f; x; u; y; h; , i; f; w; h; e; t; ou; f; t; &G; ES; h; &S; b; i; on; h; t; & y; x; u; f; y; h; y; u; on? x; b; h; z; p; j; c; i; f; r; h; t; a; =u; m; i; f; t; r; s; h; s; h; j; z; p; E; h; t; on? y&lv&v; f; Avmri ES hofgvrm; t pm; t pm x; l; w; f; t; v; h; t; av; mu; f; y; g; e; i; f; em; w; m; &S; r; O; r; f; a; &S; g; o; h; [k; w; r; =u; m; c; %; t; ou; &v; r; f; a; =u; m; i; f; y; o; i; f; zsm; em; j; c; i; f; p; on; h; a; &S; g; z; p; j; c; i; f; o; h; [k; w; u; av; u; h; D; e; a; q; m; i; f; a; e; p; O; r; d; i; u; h; f; t; av; c&e; f; t; v; h; t; av; mu; f; w; h; v; m; j; c; i; f; w; h; a; =u; m; i; j; z; p; E; h; t; on?



people also need protein from beans and nuts, or from meat, eggs, fish, etc.

Vitamins, minerals, and protein are very important for growth, preventing disease and keeping the immune system strong, and for proper nervous system function.

People are EATING TOO MUCH rice and NOT EATING ENOUGH other foods: Healthy people need different foods in the right combination. The main nutrients, which are *carbohydrates, protein and fat*, need to be balanced and eaten in the right amounts. For proper growth and health, people should get about 55-65% of their calories from carbohydrates, 10-15% from protein, and 25-30% from fat.

If a person eats too much carbohydrate, because they eat only rice, their body will not have enough protein for growth and repair, and they will not get enough vitamins and minerals that are found in other foods. So, it is important

to have the right balance.

Children in Mae La and Camp #2 are too short: More than 1 in 3 children under 5 years old in Mae La and Camp #2 are shorter than they should be for their age. Shortness can be caused by many things, including a diet with not enough protein and vitamins and minerals, infection, like chronic diarrhea or frequent ARI, or if the mother does not gain enough weight in her pregnancy.

What do the results mean?

The results tell us that people need to eat more different types of foods in addition to rice. The results will help BBC to make sure that the ration is balanced with the right amounts of carbohydrates, protein, and fat and also vitamins and minerals so that everyone can grow properly and stay healthy.

Teachers, clinic workers (medics, MCH workers), and health educators can all help to spread information on good nutrition and a healthy diet by sharing these messages with children and your community:

Children should eat plenty of different kinds of foods, especially during weaning time. Children from 6 months and onwards should be fed a variety of foods, in addition to rice, including fruits, vegetables, eggs, and meat. Children should eat *AT LEAST* 3 meals every day. *Children need all the nutrients in the right balance in order to grow properly.*

Everyone should try to eat as many different kinds of foods as possible. In addition to rice, people should eat other carbohydrate foods, like corn, potatoes and taro; protein foods like yellow beans, eggs, mice, insects, meat, fish; fat foods like oil; and food with many vitamins and minerals, like fresh vegetables and fresh fruits. *The more different foods people eat, the less chance they have of becoming malnourished or having a vitamin or mineral deficiency.*

Some especially important foods to grow, buy, or collect include: *dark, leafy green vegetables*, like cassava and taro leaves, pumpkin and ivy gourd leaves, fern, wild vegetables that have dark, green leaves...

- *yellow or orange fruits and vegetables*, like pumpkin, ripe papaya, mango..
- *sour fruits and leaves*, like tamarind, guava, green papaya, roselle...
- *animal foods*, like eggs, insects, field mice, chicken bones, meat, fish...



UkVom }Ulxr: ? Stunted growth.

maom & v' fsm; rfn bmulzmfEll ypenf?

maom t ajzsm; rSrvpcef t wGf&v' fsm; onf qeft jyif t jcm; aom t pm; t pms t pLul ylr pm; oH

elvt yaumi f azmf ylon? , if & v' fsm; onfvwlf ul tEmz&ES husef rmc ifES hnhwv&eft wLf rfeueaomyrm%&BumAl Ulf &v' y&v' t qD/ Advmri ES hof gvfsm; wLul&Lulc vrfwG fr#v' pñ yD if &eft wLf b b pLul aocmpñ o&ap &v' hfn?



lyfsm; ?? t if & mre&D Pictures: Andrea Menefee.

q&mrsm; aq; cef Oelxrfsm; (aq; rS; rci ES h uav; usef rma& Oelxrfsm;) ES h usef rma& ynmay; vlyom; rsm; rSt m[m&aumi f r&h& t cuf t vufsm; ES husef rma& ES hnhwv&apon hit pm; t pm rsm; ul uav; ES hvxkt wG f oLunH jzela Oay; Ell ygon?

uav; rsm; onf t pm; t pms t pLul t rsm; t jym; pm; oH oion? t xlojzih Ell zwpoium vwf ylr pm; oH oion? 6 vrS vt xufuav; rsm; t wLf qeft jyif op bD v' hsm; [if oD[if & uOrsm; ES h tom; rsm; ponh t pm; t pms t pLul au; oion? wae v' # i tenf qH oL u' f pm; oH oion? uav; oli, fsm; onf ul tEm aumi f r&h& *eft wLf t m[m& "gvf t m; v' Lul r&uef #v' pñ vlt ybn?

vwl f wv Ell br # t pm; t pms t pLul pm; oion? v' fsm; onf qeft jyif t jcm; ajymif t mvf / om* l t p&bn humAl Ulf &v' ygon hit pm; t pms rsm; y&v' "gvf ygon hit pm; t pms rsm; jzpb nh yD gav; Orsm; / v, fuL fsm; ylaumi fsm; tom; / ig ES ht qlygom t pm; t pm jzpb nh qD Advmri ES hof gvfsm; ygon hit pm; t pms rsm; jzpb nh vwl qwaom [if oD[if & uOrsm; ES h op bD v' hsm; ul pm; oH oion? t pm; t pm t rS yaj f pLul rsm; pñ ylr pm; avav t m[m& "gvf t v' r_ oL [kvf Advmri ES hof gvf t v' r_ jz p Ell aceh vav jzpb n?

t jcm; ta& ; ulaom t pm; t pms rsm; ul pLul y' cifo, f, jcif oL [kvfaum t jcif y' kv' y&e? , if v' h t p' f f i h&mi & h om [if oD[if & uOrsm; yavmye u' l a& & ES ht p' f f a&mi & h om [if & uOrsm;?

- t Oga&mi & h [kvf v' r h a&mi & h om op bD v' hsm; ES h [if oD[if & uOrsm; Oyr m a& & h oD oabf moDr S ho&ub?
- cOaom t om&bn hit op t & uOrsm; Oyr m ruD f oD rmvumoD oabf moD p' f / ES f oD?
- w& p' me f & aom t pm; t pms rsm; Oyr m Orsm; / ylaumi fsm; / v, fuL fsm; / uubom; & h rsm; / tom; rsm; ES hi grsm;?

cuŋqft "đ g f- t m [m & z r ES h q l f a o m o m r e f t o h t E e f r s m ;

t m [m & " g v f r s m ; u | E y i w l e u h f E m v y & ñ ; r t w l u f v l t y a o m t p m ; t p m w l f y g a o m t p d v f t y i l f r s m ; j z p o n ? , i f w l e ñ - u m A h [l u f & w v f y & w l e f E S h (y r m % t r s m ; t j y m ; v l t y a o m) t q d A d v m r i f o f f g v f r s m ; E S h a & w l z p o n ?

u m A h [l u ' & w l f u h f E m v y & ñ ; r t m ; v l t w l u f v l t y a o m p e f t i u l i j z n p l u f a y ; o n ? q e f a j y m i f / t m v l / o m * y) u h t j c m ; a o m u p d g v l o l e [k v i o u m ; " g v y g a o m t p m ; t p m r s m ; o n f u m A h [l u f & w v f y g a o m t p m ; t p m r s m ; j z p o n ?

y & w l e f u h f E m & f u l u b o m ; r s m ; o e f m j u d x ñ ; & e S h j y l y i & e f t w l u j z p o n ? y & w l e f y g a o m t p m ; t p m r s m ; r ñ O r s m ; / t o m ; / i g E S h u u b o m ; / y l t r s h E S h a j r y w l e j z p o n ?

t q d p e f t m ; " g v l e & ñ p o n ? , i f w l e v i f q E S h t o m ; r & a o m t q d w l y g i o n ?
A d v m r i E S h o f f g v f r s m ; u h f E m v y f a q m i f r s m ; t w l u f x e f o d f a y j c i f a & m * g l r ñ ; u m u g f a y j c i f / u h f E m j u d x ñ ; j c i f / c l c h t m ; t z e t p n f t m & h - u m t z e t p n f / t p m t r e S h t l v r f a u m i f t z e t p n f t p & l o n h u e f r m j c i f t w l u f v l t y a o m v l y i e f a q m i l v m r s m ; v l y a q m i f a y ; o n ? , i f t w l u f A d v m r i E S h o f f g v f r s m ; t e n f i , f r o m v l t y o n ?

u b v l u , l v l d u h f E m t w l u f t m [m & p e f t i f r n f # x k w a y ; o n i u l w l f w m o n h t w l f t w m w c j z p o n ? O y r m - u m A h [l u f & w v E S h y & w l e f w l e n f u h f E m t w l u f 1 * & r v # f 4 u b v l u , l v l d p e f t i p E S h t q l o n i 1 * & r v # f 9 u b v l u , l v l d x k w a y ; o n ? t & g f a m u l y d o w l l f u e f r m j c i f E S h n h w l a p & e f w a e v # f 2 1 0 0 r s 2 9 0 0 u b v l u , l v l d o m v l t y o n ? A d v m r i E S h o f f g v f r s m ; r S p e f t i f r x k w a y ; a o m l v n f t j c m ; v l y i e f a q m i l v m r s m ; v l y a y ; o n ?

" g v f p m (t p m ; t p m) v l w l f a e p O f y l e p m ; o k a o m t p m ; t p m r s p l u l l a c : o n ? O y r m - u & i f t p m ; t p m o n i q e l u t t " l u x m ; y d i g / i y l q e f y l w l v w q w a o m [i f o d [i f & l u f r s m ; O u b o m ; E S h u u b o m ; t p & l o n l w l y g i o n ? T t a e m u l w l f t p m ; t p m ; o n f a y i f e t m v l w l e t " l u x m ; y d t r b m ; a x m y w l q v y & u f t p & l o n l w l y g i o n ?

t " l u t p m ; t p m u h f E m t w l u f t m [m & p e f t i f t " l u & a p - y d t r s m ; q l o m ; o k a v l e o m t p m ; t p m u l q l w l o n ? q e b o n f u & i E S h u & i e l v r s h r s m ; t w l u f t " l u t p m ; t p m j z p o n ?

c l v j c i f v l w a , m u f . t m [m & " g v f t v l t a v m u f & a o m t c g j z p a y : o n f i c l v i r u l l a c : o n ? A d v m r i f a t E S h o f f g v l e v j c i f a & m * j z p j c i f o l e [k v f y & w l e f E S h p e f t i f t m [m & " g v l e v j c i f a u m i l j z p a o m a & m * g r s m ; v n f j z p E l l o n ?



Glossary – Common Nutrition Terms

- Nutrients :** the components of foods that our bodies need to function. The nutrients are carbohydrates, protein, fat (needed in large quantities), vitamins, minerals, and water.
- Carbohydrate :** provides the body with energy to do all activities. Rice, corn, potatoes, taro, sugarcane and other starchy or sugar foods are called carbohydrate foods.
- Protein :** builds and repairs muscle. Protein foods include meat, chicken, fish, eggs, and beans and nuts.
- Fat :** provides energy. Fat foods include oil, and fat from meat.
- Vitamins and minerals :** do many different things to keep our body functioning, like protecting from disease, helping growth, keeping our immune system, nervous system, digestive system, etc. healthy and functioning. We need only tiny amounts of vitamins and minerals.
- Kilocalorie (kcal) :** measurement of how much energy nutrients give our body. For example, carbohydrates and protein each provide our bodies with 4 kcal per gram, and fat gives 9 kcal per gram. Adults need between 2100 to 2900 kcals per day to stay healthy. Vitamins and minerals do not provide energy, but have other functions.
- Diet :** all the different foods that people normally eat. For example, the Karen diet is based on rice, and includes fish paste, rice porridge, fresh leaves, pork, chicken, etc. The western diet is based on bread and potatoes, and includes beef, butter, lettuce, etc.
- Staple food :** the food that we eat the most of and that provides most of our energy. Rice is the staple food of Karen and Karenni people.
- Deficiency :** when a person does NOT get enough of a nutrient, and has a problem. It is possible to have a vitamin or mineral deficiency, such as vitamin A or iron deficiency, or to have a deficiency of protein and energy, which we usually refer to as ‘protein-energy malnutrition.’

Filariasis Screening in Mae Khong Kha Camp

Kyi Htwe & Marie-Theres Benner, Malteser Germany (MHD)



This article is based on the filaria screening done at Mae Kong Kha Camp and also shows the comparison between the Thick Stained Blood Smear and the Lyzed Capillary Concentration Method.

Introduction

Filariasis is still prevalent along the Thai-Myanmar border. The major vector in South-East-Asia is *Wuchereria bancrofti* and *Wuchereria malayi*. Other forms of *Filariasis* with different vector transmission are prevalent in Africa, the Middle East and Latin America.

Filariasis is a disease of the lymph system and transmitted by *Anopheles*, *Culex* and *Aedes* mosquitoes. Occupation might be an important risk factor in infection, especially in rural areas. Filariasis primarily affects persons of the lowest socio-economic level, owing to inadequate protection from mosquito bites and to unhygienic environmental conditions. (*For more details see Health Messenger, Issue 13, June 2001*).

During a 1998 mass-screening program for Malaria in Camp Mae Khong Kha, Malteser (MHD) noticed that some of the patients were positive with *Wuchereria bancrofti*. For that reason Malteser decided to screen the entire population in Mae Khong Kha camp for *Filariasis*. The result showed a prevalence of 5.8% (238 out of 4097).

There are several possible laboratory investigations for *Filariasis*. We want to introduce you to two of them, which we found to be the most common and appropriate ones for our setting. The **concentration method** is recognized as one of the most reliable methods for *Filariasis* screening. Despite that, the **thick blood smear method** and the **rapid test ICT**

are possible diagnostic tools, while the latter is more expensive. However, working in a remote environment with a limited budget, it was necessary to know if there is any difference in the results between the thick blood smear and the concentration method. Since the concentration method is acknowledged as the most reliable method and likely to show accurate results compared with the thick blood smear method, we decided to compare both tests. The result should help us to decide whether in the future we should use the thick blood smear or the concentration method as a diagnostic tool in our clinics.

Methods

From May 2000 until March 2001, Malteser routinely screened blood from all new arrivals coming into the camp. A total of 1,684 people were checked with a thick blood smear while for 235 people both the thick blood smear and the concentration method were used. Blood was collected between 7 p.m. and 10 p.m.



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 j z i h i f p r f o y t b n f o h o m l v n f a t m u f y g v ' b n f
 e n f E p f r s t v l j z i p r f o y f r s t a j z r s m ; j z p f u o n f T a v h
 v m j c i f w f l y g p i b l t m v l o n f a q ; c e f o l e q ; p p & e f
 t o p a & m u b l v m a o m o r s m ; j z p f u o n f

en f E p f r s t v l j z i p r f o y t b n f o m v D b a & 235
 a, m u f 3 1, 8 % (112 a, m u) o n f r r o r d r s m ; j z p f u o n f
 51, 9 % (122 a, m u) r n t r s t o m ; r s m ; j z p f u o n f
 t o u f t m j z i h 16 E p f r s t o E p f t w f i t " l u j z p f u o n f
 4 i f w l t e u f 34, 9 % (81 / 235) y l a e m u f 21, 7 % (51 /
 235) w l h n t o u b E p f r s t 15 E p f t w f i E s h 20 % (47 / 235)
 r n t o u f 0 E p f r s t 5 E p f t w f i j z p f u o n f

v m u a o m v l t r s m ; p w f i r l a x m e , f 67, 3 % (145 /
 235 a, m u) E s h v l a w m e , f 24, 3 % (57 / 235 a, m u)
 w l z p f u o n f u e f v r s m ; r n t j c m ; a o m a ' o r s m ;
 r f z p a o m u v m v D b o l e [k v i x l a w m e , j z p o n f

235 a, m u l f 3, 4 % (235 a, m u l v l f 8 a, m u)
 r n a o f u l z e f y m ; a y : w f a o f ' g v r f e f y m ; t x b q l c i f E s h
 a o f o y l o n f q r s m ; a t m i j y k l y l l p r f e n f E p f r v l w f f
 y l a w l u o n f x l t j y i f v m a o m t a j z r s m ; r s a & m * g l
 a w l o l t m ; v l o n f r l a x m e , r f z p f u o n f u l w l
 o n f

<p>t o l y l c h o m e n f v r f r s m . t a o ; p l v a z m j y c s u f</p> <p><u>(u)zefym;ay:w f a o f ' g v r f e f y m ; t x b q l c i f e n f</u></p> <p>1? 20 r l u t & l v m (0, 02 r l v l v m) q l t n f # i f a o f a = u m i , f s a o f (e m ; w l b d r a z m u f , b n f) 2? z e f y m ; a y : w f i w i b n f 3? a j c m u b o h ; o n f t x a p m i b n f 4? * r p w m q l a q ; E s h q l o n f 5? 4 i f u l r l u t & p u l y a t m u f w f i p p a q ; u n h o n f 6? a o f u l u w c k l e r l u t & h z d m & l m y l t a & t w l u l 50 E s h j r m u j c i f t m ; j z i h 1 r d v l v m a o f w f i r l u t & h z d m & l m y l t a & t w l u t e f r e f a c s r n f r e a = u m i f o l l b n f O y r m ? o i b n f r l u t & h z d m & l m y l 3 a u m i f a w l # f l w p r l v m a o f w f i r n f r e f n e n f ? 3 x 50 = 150 r l u t & h z d m & l m / r d v l v m</p> <p><u>(c)aofoylonfqrsm;atmi jyklyll prfenf -</u> <u>q l t n f # h o g y l u t e n x l l l p r f e n f</u></p> <p>p r f o y r n h t & m - 100 r l u t & l v m (0, 1 r d v l v m) q l t n f # h o f a = u m i , f s a o f (e m ; w l o d r a z m u f , b n f)</p>	<p>1? u a w m y l e t e n x l l z e a c s m i f x b l w p r l v m v l v m & l q m z l e i a p v l l f t & n f o l e [k v f a & u l k n l y g 2? q l t n f # h a o f 100 r l u t & l v m u l k y x n h y g 3? 10 r e p t e h a r a y ; y g 4? t & e f t e n f i , j z i h 5 r e p t e h p u f z i h t e n x l l y g o w j y & e f - t & e f y i i v # i f y s u p d q l e l a p o n f 5? t a y ; , h t & n f u n i u l t z , l a n ; v l u l y g 6? t e n f r s m ; t m ; v l u l z e f y m ; a v ; a y : w f i w i f y g 7? z l v i q l a q ; a t t p u f t e n f i , l u l x y f x n l y g 8? t e n f r s m ; E s h a & m a E s h v l u l y g 9? t z h y m ; a v ; E s h z h v l u l y g 10? y l v # i r l u t & p u l y f . 10 x r e l o b l j z i h p p a q ; l r l u t & h z d m & l m y l t a & t w l u f u l v l u l y g 11? & v m a o m t a & t w l u l 10 E s h j r m u l y g 12? & v ' b n f r l u t & h z d m & l m / r d v l v m E s h n l b n f O y r m ? o i b n f r l u t & h z d m & l m y l 50 a u m i f a w l # f l w p r l v m a o f w f i r n f r e f n e n f ? 50 x 10 = 500 r l u t & h z d m & l m / r d v l v m</p>
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although the most appropriate time would have been between 10 p.m. and 12 p.m. However, we assumed that not many people would have been willing to come to the clinic during nighttime; therefore, we compromised with the time of blood collection.

The age group of 16-30 yrs. were the majority screened with 34.9% (81/235), followed by 21.7% (51/235) in the age group of 6-15 yrs. and 20% (47/235) in the age group between 0-5 yrs.

The majority of people (67.3% or 145/235),

Description of the methods applied

A) The Thick Stained Smear Technique

1. 20ul (0.02ml) capillary blood (collected from the ear lobe)
2. Put on the slide.
3. Allow the smear to dry.
4. Stain with Giemsa.
5. Check the smear in the microscope.
6. The number of microfilariae counted in the entire smear multiplied by 50 will give an approximate number of mf/ml.

*For example: you find 3 microfilariae.
How many Filariae are in 1 ml of blood?
 $3 \times 50 = 150 \text{mf/ml}$*

B) Concentration Method: Lyzed Capillary Blood Technique

Specimen: 100ul (0.1 ml) of capillary blood (ear lobe).

1. Put 1 ml of saponin-saline solution (or water) in a conical centrifuge tube
2. Add 100ul of capillary blood.
3. Mix 10 minutes
4. Centrifuge for 5 minutes (low speed).

Note: high speed causes loss of sheath.

5. Discard the supernatant fluid.
6. Put all the sediment on the slide.
7. Add one small drop of field stain A.
8. Mix with the sediment.
9. Cover it with cover slip.
10. Examine the entire preparation with a 10x objective and count all the microfilariae.
11. Multiply the number by 10.
12. Result = mf/ml.

*For example : You find 50 microfilariae.
How many you will have in 1 ml of blood?
 $50 \times 10 = 500 \text{mf/ml}$*

Result

During the 10 months of survey, 1684 people were screened for *Filariasis* with the thick blood smear but only 235 for both methods. However, the following result will describe only the number of people where both methods were used. All new arrivals coming to the clinic for medical screening were included in the survey.

From the 235 people screened for both methods, 48.1% (112) were female and 51.9% (122) were male.

came from Mu Traw Province while 24.3% (57/235) came from Lu Thaw Province. The rest came from other places like Kler Lewe or Hto Thaw Province.

From the 235 screened people, 3.4 % (8 out of 235) were positive in the thick blood smear and in the concentration method respectively. Furthermore, the result showed that all positive cases were from Mu Traw Province.

In the female group, 4.4 % showed a positive result while 2.5% were in the male group.



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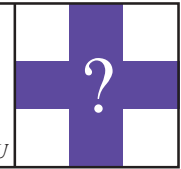
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Congenital Malaria

Rose McGready, SMRU

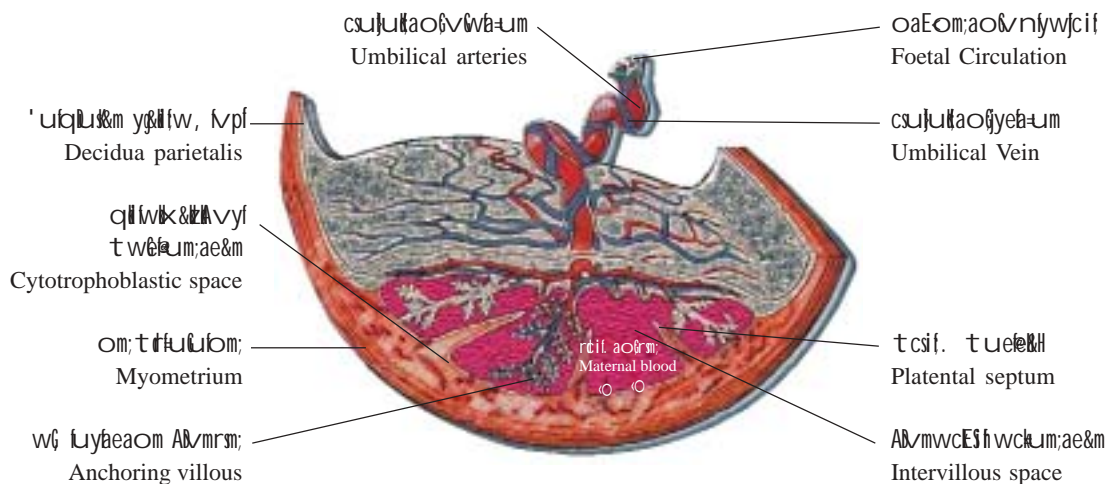


Babies born to mothers with malaria infection may also be infected as well, giving rise to congenital malaria!

Some findings on congenital malaria from scientific literature

In the late 1800's there was a great debate about the existence of congenital malaria. In the early 1900's several papers were published that confirmed the existence of this disease. In 1907, a man called Economos found parasites in the peripheral blood of 6 newborns within 2 days of birth. In 1925 in Kashing, China, a man called Buckingham reported a particularly bold diagnosis: 3 hours before

In 1994 in Shoklo Camp a pregnant women died of cerebral malaria near delivery. Her baby was stillborn and *P. falciparum* parasites were found in his blood and brain, showing he may have died of cerebral malaria in utero. When transmission of malaria is high (like in parts of Africa), women also have high levels of immunity and up to 70% of pregnant women can have malaria at the time of delivery. It seems that when transmission of malaria is high and pregnant women have placentas packed with parasites, lower levels of congenital



Schematic of Human Placenta.

delivery, blood smears were taken from the already prolapsed arm of the foetus, revealing *P. malariae*. What remains very striking from the 200 reported cases in the scientific literature is how rare this disease is.

In Maela Camp less than 0.5% of women have malaria at the time of delivery and even fewer of their infants get congenital malaria.

malaria are reported. The mechanism by which parasites are transferred from the mother to the foetus is not understood. The foetal circulation is separated from the placental circulation by the villous trophoblast. A trophoblast attaches the ovum to the uterine wall and supplies nutrition to the embryo.

It is hard to design a study to detect whether

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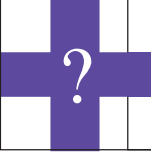
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cells from the mother circulation can cross in the circulation of the foetus. A few studies have detected maternal white blood cells in the circulation of the fetus. It is not known whether these immune cells have been actively transported across the placenta or accidentally crossed when the placenta separates from the uterine wall. Maternal red blood cells have also been found in foetal circulation.

Remember, for congenital malaria to occur the parasite inside maternal red blood cells has to cross into the foetal circulation. The really big question is why don't placental parasites infect the foetus more often? We still have a lot to learn about why congenital malaria occurs.

How to recognize congenital malaria on the Thai-Burmese border

Vertical transmission of malaria can be diagnosed by finding parasites in the neonate within 7 days of birth.

Clinical Features

Most cases are **ASYMPTOMATIC**.

Fever, irritability, feeding problems, hepatosplenomegaly, anaemia, jaundice, prolonged sleepiness.

Differential Diagnosis

Neonatal sepsis, Cytomegalovirus (CMV), herpes simplex, rubella, toxoplasmosis, syphilis



ubri

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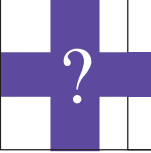
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Investigations

1. EVERY neonate born to a mother who is *P. falciparum* or *P. vivax* slide positive at delivery or who received treatment for malaria in the 7 days before delivery should have a malaria smear irrespective of the clinical picture. This should be done:

- a) at birth
- b) at 5-7 days of age

A neonate would also need the following if the smear is found to be positive:

2. Haemoglobin / HCT $\tilde{\text{O}}$ if positive smear
3. Blood Glucose $\tilde{\text{O}}$ if positive smear

Treatment

P. falciparum : Artesunate or quinine could be used but there is little in scientific literature about treating congenital malaria. We have documented a neonatal death on day 6 after delivery from congenital *P. falciparum* infection in Maela Camp. The evidence suggests babies should receive treatment as soon as possible.

1. Uncomplicated malaria : Due to the risk of poor oral absorption, the first dose should be given parenterally and the parasite count should be checked daily to make sure it is coming down.

- Artesunate alone: IM artesunate 1.2 mg/kg followed by 6 more days of oral artesunate 2mg/kg. Unfortunately, there is no other partner drug for artesunate: doxycycline and tetracycline are contra indicated in children under 8 years old and mefloquine has not been studied in very small infants under 5 kg. Artesunate suppositories are also effective and registered in Thailand.

- Quinine alone - Because of the difficulties with gaining IV access in small babies and because the sucking response may not be very strong, it is recommended to commence with: Quinine 10mg (base) /kg base IM stat and follow with quinine oral 10mg (base) /kg three times daily for 7 days.

Note: 1. Care must be taken with IM Quinine. It is necessary to dilute the dose of quinine by 50% with sterile water to reduce abscess formation.

2. The intake of the neonate must be observed and if it is insufficient or the neonate exhibits signs of hypoglycaemia, a blood glucose level must be checked. Insertion of a nasogastric tube and regular intake of glucose is an efficient way to manage this problem without having to insert an IV line.

2. Uncomplicated hyperparasitaemia: This neonate should be treated like other patients with hyperparasitaemia by giving a loading dose of artesunate and giving artesunate for 7 days but AGAIN the first dose needs to be given parenterally (Artesunate 2.4 mg/kg IM or IV). Oral dose of artesunate would be 2 mg/kg daily for 6 days. It is important to make sure the parasitaemia is coming down and 12 hourly smears would be recommended to confirm this.

If quinine is used, then see the regimen for severe *P. falciparum* malaria.

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Treatment (contd)

3. Severe: Start with IV or IM artesunate (2.4 mg/kg).

After 12 hours give IV artesunate 1.2mg/kg then artesunate 1.2 mg/kg (IM or IV) ..or.. oral artesunate (2 mg/kg) daily, depending on the condition of the patient.

The total dose of artesunate is 18mg/kg over 7 days. **OR**

Quinine IV - in 10% Dextrose and water commencing with 20mg(base)/kg IV over 4 hours, followed with 10mg(base)/kg 8 hourly.

Use a maitrisette or intra-muscular injection. Intravenous is switched to oral quinine at 10mg (base)/kg three times daily as soon as possible. Check blood glucose 2-4 hourly.

P. vivax: Vivax malaria can also cause placental and congenital infection in the neonate. This also needs to be screened for by the medic or midwife if there is malaria at delivery or in the week preceding delivery. This should be treated with chloroquine: day 0-10 mg/kg, day 1-10 mg/kg and day 2-5 mg/kg once per day. The newborn cannot be given primaquine due to the risk of severe haemolysis. Vivax malaria can be fatal in newborn because it causes a severe anaemia.

Please note:

In all cases of congenital malaria, the mother, particularly if under quinine treatment herself, needs to be stimulated to take adequate amounts of glucose and fluids (4-6 litres/day) to help breast milk production and to maintain her blood sugar level and hence, the neonates.

Quinine and chloroquine are excreted in the breast milk, but the suckling neonate would receive only a few mg/day. Maternal hypoglycaemia, a common complication of malaria or its treatment with quinine, may cause marked foetal bradycardia and other signs of foetal distress.

P. vivax can kill small infants.

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Measles Epidemic in Mae La Camp

MSF Team, Mae La 1



Measles is a life-threatening illness and it may be fatal. This article will describe the occurrence of this infection in February 2002 along the Thai-Burmese border.

Measles is caused by a virus and may be highly contagious. It may spread easily from person to person, then to families, and finally to communities.

A good number of children with measles infection from the nearby villages along the Thai-Burmese border were admitted into the IPD (1), Mae La Camp Hospital. Usually it is a four-hour drive to reach our hospital. Some children died because they could not afford to come to the hospital. Some children from the Mae La Camp were also admitted into the hospital with measles infection

Most of the measles patients were very poor in personal hygiene practices, living standards, and education. It was presumed that these conditions played an important role in the death of some patients. It was learnt that some mothers who were breast-feeding, also died of measles infection.

Staff from Mae La hospital (MSF) provided measles vaccination to the children (from 6

months to 12 years old) who accompanied the patients. For those who already had the infection, vitamin A, vitamin B₁, anthelmintics were given. Nutritional supplements were provided to malnourished children. Complications were treated with antibiotics and personal hygiene practices were taken care of by the staff on duty at the Mae La Hospital.

As the patients were cured and on their way back to their villages, we requested them to inform their fellow villagers that the hospital welcomes all who have measles infection and other illnesses. Children from Mae La village had less severe infection than the others because of completing the total immunization.

Although there was a programme for providing immunization to children living near the Thai-Burmese border, it had to stopped because of the danger of attacks and communication difficulties.

Signs and symptoms

- Fever (up to 39.5 °C - 40 °C)
- Rash (red brown blotchy rash) starts from back of the ear lobe and then spreads to the whole body
- Painful and reddened eyes
- Cough
- Running nose
- Loss of appetite
- Sometimes diarrhoea

Complications

- Pneumonia
- Malnutrition (due to ulcer in the mouth)
- Blindness (due to vitamin A deficiency)
- Dehydration (due to diarrhoea)
- Encephalitis (inflammation of the brain)



Treatment

For children aged less than 1 year old

Vitamin A	100,000 I / U	1 st day
Vitamin A	100,000 I / U	2 nd day
Vitamin A	100,000 I / U	after 1 week
Vitamin B1	40 mg 1 OD	for 14 days
Pyrantel	10 mg/ kg / OD	for 3 days

For children aged more than 1 year old

Vitamin A	200,000 I / U	1 st day
Vitamin A	200,000 I / U	2 nd day
Vitamin A	200,000 I / U	after 1 week
Vitamin B1	40 mg 1 OD	for 14 days
Mebendazole	200 mg 2 OD	for 3 days

Prevention

- Prompt treatment and vaccination can prevent life-threatening conditions.
- No one will die if they come to the hospital at an early stage of the disease and seek prompt treatment.

Conclusion

Immunization can save children from deadly diseases. Do not be the one to skip immunization for your children. Everyone needs to receive immunization.

Key Words

- Immunization
- Antibiotics for complications
- Vitamin A supplement



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Mu Hsa Paw was a community health worker and she followed up the health of the mothers and children in the community. One day, she was on a routine visit to Paw Sha's house and to advise her on hygiene.

Paw Sha complained, "Mu Hsa Paw, look at my son. He is 7 years old, but looks like a 5-year-old boy. I give him so much to eat, but still he doesn't grow like my neighbour's son. He is much taller and healthy, even though they are the same age."

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It was lunch time and the children were hungry. Mu Hsa Paw saw that the mother gave a lot of rice to the children to eat, but very little vegetable. No protein was given to them.

Mu Hsa Paw said, "Paw Sha, there is a group meeting of mothers at the clinic on Wednesday afternoon. Will you please join them? It will be helpful for you and your children." "Sure. I'll go to the meeting," replied Paw Sha.

Balanced Nutrition for Proper Growth of Children

Health Messenger



Children need a balanced diet for their growth!



At the meeting the health workers talked about a balanced diet and how to get them from the available food sources. They discussed body

building foods, energy producing foods and protective foods.

One month later, Mu Hsa Paw was visiting Paw Sha again. She brought some fruits for the children. "Please join us for lunch," said Paw Sha. "I am thankful to you for the information on a balanced diet. My children are in better health now. Now, I know that children need a balanced diet, not just rice, for their proper growth."



One month later, Mu Hsa Paw was visiting Paw Sha again. She brought some fruits for the children. "Please join us for lunch," said Paw Sha. "I am thankful to you for the information on a balanced diet. My children are in better health now. Now, I know that children need a balanced diet, not just rice, for their proper growth."