



Department of Health Services Newsletter

"Together Towards A Healthy Nation"

INSIDE THIS ISSUE:

Message from the Honorable Minister of Health	1
Message from Director General of Health Services	2
National TB Reference Lab	2
Tuberculosis (TB) Control in Brunei Darussalam	3
Role of DOTS Centres in Brunei Darussalam	4
Global Tuberculosis Control Report	5
Clinical Tuberculosis	6-7
TB and Health care workers	7
Organisation Chart of Department of Health Services	8

MESSAGE OF YANG BERTHORMAT

PEHIN ORANG KAYA JOHAN PAHLAWAN

DATO SERI SETIA AWANG HAJI ADANAN BIN BEGAWAN PEHIN

SIRAJA KHATIB DATO SERI SETIA AWANG HAJI MOHD YUSOF

MINISTER OF HEALTH, BRUNEI DARUSSALAM

It is my great pleasure to congratulate the Department of Health Services for the launching of the inaugural edition of "Department of Health Services Newsletter".

I hope this Newsletter will not only serve as a milestone in the history of the Department of Health Services, but also will serve as a medium for not only sharing information amongst health professionals but also the public. This is in line with the Ministry of Health's continuous effort in promoting health awareness and education for the public as well as in enhancing the quality of health care services.

Therefore, I would like to see all health professionals – doctors, nurses and other allied health professionals to make use of this Newsletter to contribute articles and share their experience. These should be part of their continuous professional development (CPD) and life-long learning to share knowledge not only with the staff of the Ministry of Health but also the public in general.

To ensure the objectives and the success of this Newsletter are achieved, it is very important for it not only to be published regularly but also at the same time it should be of a quality publication.

With the first issue of the Newsletter focusing on

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tuberculosis (TB) in conjunction with the World TB Day 2011, I would like to call upon our health community to join in the efforts in eliminating TB.

TB has remained an epidemic worldwide. Someone in the world is newly infected with the TB bacterium every second and TB cause deaths of several million people each year.

March 24th commemorates the day in 1882 when Dr Robert Koch announced the discovery of the TB bacillus. At that time, TB was raging throughout the world causing high mortality. Koch's discovery opened the way towards diagnosing and curing TB.

By mid twentieth century, TB rates started falling in many countries, including Brunei Darussalam, due to economic development, public health

measures and better medical treatment. However, our TB incidence rate is constantly ranging around 40 cases per 100 000 populations for the past decade.

But that is only a number; TB is a high burden disease which has significant socioeconomic impact on the patients, families and the society. When a person is infected, his children and dependents suffer too.

Until TB is controlled, World TB Day won't be a celebration.

I believe with everyone joining in the effort, our journey to eliminate TB will be a successful one. Together, let's work toward TB elimination.

Last but not least, I hope this Newsletter will be a showcase for other Departments in upgrading their knowledge so that they will be able to deliver value-added, high quality services to our clients. It is also my wish that this endeavour would now inspire other Departments to follow suit and thereby enhance their services to meet the high expectation of our public as well as in line with our Strategic Themes to achieve the Vision of our Ministry.

"Together Towards A Healthy Nation"



Bismillah Hir Rahman Nir Rahim.

Message from the Director General of Health Services

and supports amongst others the Department's efforts in the promotion of public health issues, increasing awareness on the integrative nature of public health approaches, dissemination of current information and strategies as well as enhancing the visibility of the Department's roles and operational scope.

Allhamdulillah with the blessings of Allah S.W.T, the Department of Health Services proudly introduces the first edition of the Department of Health Services Newsletter. The intention of producing this Newsletter has been mooted a few years back. However, the process has been delayed as the Department had to address and respond to other pressing public health issues of recent years particularly the pandemic influenza H1N1 2009. This inaugural edition indeed marks another milestone in the Department's achievement and its production envisions

For this first edition, the Committee had chosen to highlight TUBERCULOSIS (TB) a very ancient disease but continues to be of significant global public health problem. TB is the second leading killer of adults in the world due to infectious diseases, especially among patients who are immunocompromised such as people living with HIV. The fight to control TB has dated back to the past centuries and in Brunei Darussalam, through the implementation of control and preventive measures, we have seen the outcome as reflected by the initial declining rates which has since stag-

nated in recent years. Meanwhile other challenges has since emerged namely drug resistance TB and in HIV/TB co-infection. Diagnostic technology as well as new treatment modalities has also been continually explored and developed requiring all concerned in the management of the disease to be vigilant and to update in order to benefit from the new approaches and innovations. Some of these elements are captured in the articles included in this edition and I hope is useful to all.

At this juncture, the Department intends to produce 2 editions per year with view of increasing the frequency in the future. As the newsletter matures, it is my sincere hope that this newsletter will also become a useful channel for public health professionals to contribute and share their views and ideas and to be updated on news and happenings on public health issues in general as well as on the health services in Brunei Darussalam

National TB Reference Laboratory (NTRL)

Diagnostic tests currently available for TB

1. Sputum Smear Direct Microscopy

Identify acid-fast-bacilli (AFB) in the sputum smear by:

- * Auramine stain: fluorochrome staining bacilli in stained smears provides presumptive evidence of the presence of mycobacteria
- * Ziehl-Neelsen (ZN) stain: for screening all specimens submitted for acid-fast microscopy examination and for confirmation of the screened Auramine stained slides of positive culture tubes. ZN stain is however less sensitive than Auramine stain

2. AFB Culture

- * BACTEC BBL MGIT liquid medium: for the rapid detection and recovery of mycobacteria in all types of clinical specimens except blood and urine
- * Lowenstein-Jensen (L J) solid medium: for specimens in which mycobacteria with different incubation requirements are suspected

3. BD ProbeTec et system culture identification

- * for direct qualitative identification of Mycobacterium tuberculosis complex DNA from processed clinical samples and cultures
- * This system however cannot differentiate the species that make up Mycobacterium tuberculosis complex namely *M. tuberculosis*, *M. bovis*, *M. bovis BCG*, *M. africanum* and *M. microti*, *M. canetti*.

4. Hain Lifescience Geno Typing

- * a rapid diagnostic system based on DNA strip technology
- * differentiation of the 5 species that make up the *M. tuberculosis* complex from culture samples
- * differentiation of more than 30 clinically relevant Non Tuberculosis Mycobacteria (NTM) / Mycobacteria other than Tuberculosis (MOTT) species
- * identification of *M. tuberculosis* complex and its resistant to rifampicin

and/or isoniazid

5. Anti-mycobacterial susceptibility testing

- * drug susceptibility testing on all Mycobacterium tuberculosis complex isolated from clinical samples using BACTEC MGIT 960 SIRE and PZA kits
- * identification of resistant to streptomycin, isoniazid, rifampicin, ethambutol and pyrazinamide

6. Quantiferon TB Gold test

- * whole blood indirect test for the detection of Cell Mediated Immune (CMI) responses to TB infection
- * can not distinguish between active tuberculosis and latent TB infection (LTBI), and intended for use in conjunction with risk assessment, radiography and other medical and diagnostic evaluation
- * Currently the test can not be processed in NTRL and is sent to overseas if requested.

NTRL

Tuberculosis Control in Brunei Darussalam

“In the recent years, stagnation of the TB incidence rate has been observed. The constant number of cases detected every year indicates a certain level of ongoing transmission in the community”

“Elimination of TB remains a challenging task in Brunei Darussalam”

“The key steps to stop transmission of TB in the community are:

- i) Prompt notification to ensure early treatment;*
- ii) contact tracing,*
- iii) treatment compliance to reduce the risk of drug resistance TB; and*
- iv) ensuring personal hygiene and respiratory etiquette.”*

Historical Background

Like many other Asian countries, Brunei Darussalam has been fighting Tuberculosis (TB) for the past centuries. In the 1960s, TB rates started falling with better TB treatment, control measures, improvement in overall infrastructure and socio-economic development. However, stagnation of TB incidence rates observed over the more recent years call for more intensive TB control programs. In 1999, WHO consultants were invited to Brunei Darussalam for a situational assessment and to provide technical guidance on the implementation of a National Tuberculosis Control Programme (NTP). In March 2000, NTP was launched along with National TB Guidelines and formation of the NTP Committee. The NTP aims to eliminate TB in Brunei Darussalam by early detection and treatment of TB cases, contact tracing, provision of directly observed treatment short course (DOTS) and prevention of multi-drugs resistance TB. The National Tuberculosis Coordinating Centre (NTCC) based at Kiarong was established for implementation of NTP. NTCC oversees all the DOTS centres in the country, conduct contact tracings, screening tests and supervises health workers of the DOTS centres and also those operating at the village level.

Current situation

Brunei Darussalam is considered one of the intermediate burden countries for TB in the world. In 2010, 237 new cases were diagnosed and treated. The gender ratio were M:F =3:2. 73% of the

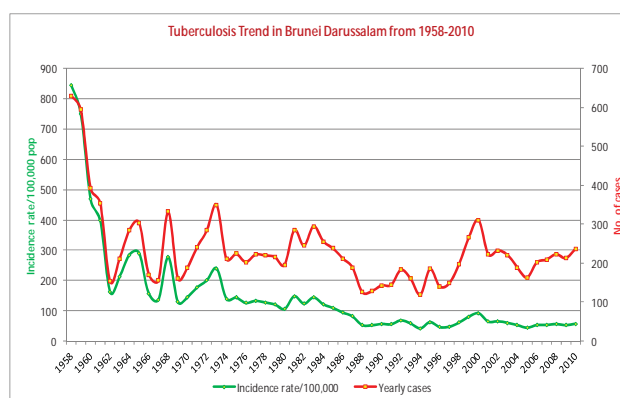
new diagnoses were local Bruneians. 81% were diagnosed as pulmonary TB. Incidence rate was found the highest among the older population (>65 years). In 2009, the case detection rate were 87% (WHO target 70%); the treatment success rate was 89% (WHO target 85%) and DOTS coverage was 100%. In the recent years, stagnation of the TB incidence rate has been observed. The constant number of cases detected every year indicates a certain level of ongoing transmission in the community.

Elimination of TB remains a challenging task in Brunei Darussalam. In addition to non-compliant cases, there are also a number of factors to consider. TB bacilli has a long incubation period and the mycobacterium can live in the body for many years without making the person sick. In addi-

tion, with globalisation of human resources, Brunei Darussalam is one of the destinations for foreign workers from high TB prevalent countries.

The key steps to stop transmission of TB in the community are: i) Prompt notification to ensure early treatment; ii) contact tracing, iii) treatment compliance to reduce the risk of drug resistance TB; and iv) ensuring personal hygiene and respiratory etiquette. Public awareness and education is equally essential in combating the disease particularly for those with history of chronic cough to come for clinical assessment at the earliest and subsequently in understanding the need to complete treatment despite being symptom free.

*Disease Control Division
Environmental Health Services*



Indicators of NTP	2009	2010
Incidence rate (per 100,000 pop)	41.61	41.49
Death rate (per 100,000 pop)	3.45	1.93*
Gender Ratio (M:F)	5:4	3:2
Percentage of Bruneians	79	73
Percentage of Pulmonary TB	77%	81%
Treatment success rate	89%	**

* data as of Dec 2010

** rate can be calculated only at the end of 2011



Role of DOTS Centres in Brunei Darussalam

Under the National Tuberculosis Control Programme (NTP), Directly Observed Treatment Short course (DOTS) centres are units responsible for the implementation of DOTS in collaboration with other health centres. Each district has a main DOTS centre at district level: National Tuberculosis Coordinating Centre (NTCC) in Kiarong for Brunei Muara, Kuala Belait DOTS centre for Belait, Tutong DOTS centre for Tutong and Temburong DOTS centre for Temburong districts. These are located mainly in hospitals and district health offices. They also function as TB referral and reporting units. The DOTS centres collect sputum specimens for diagnosis and follow up, and supervise DOTS to the patients. Currently in Brunei Darussalam, there are seventeen functioning DOTS Centres; eight in Brunei Muara, four each in Tutong and Belait and one in Temburong. New DOTS centres will be set up according to needs of the catchment areas. Once a DOTS centre is set up, training and information will be given to the staffs, in order to understand the importance of DOTS in providing care to the

patients. DOTS ensures accessibility of treatment to the patients; the adequate supply of Antituberculosis (ATTS') drugs and continuous support from the staffs thus encouraging patients confident in taking the ATTS' drugs without interruption. Treatment partner usually next of kin also plays a vital role in managing treatment particularly in resolving difficulties or problems on a daily basis. The availability of the TB fieldworker to provide support and encouragement from time to time is crucial to ensure the success of the treatment.

National Tuberculosis Coordinating Centre (NTCC)

The centre is responsible for programme implementation, monitoring, coordinating and evaluation of tuberculosis prevention and control activities at all levels. This centre is managed by the Programme manager with the help of Hospital and Health NTP Coordinators, DOTS Coordinator and TB Health Visitor.



Supervising DOTS



NTCC, Kiarong



Contact Tracing

Other DOTS Centres

Sputum microscopy and culture services either directly or indirectly are done at this level, where diagnosis of TB is made and the patient register is kept. These are located mainly in hospitals and health centres/ clinics; also function as tuberculosis referral and reporting units.

Responsibilities of DOTS centre

- * ensuring the diagnosis of pulmonary TB is based on sputum smear microscopy and culture
- * ensuring that daily / three times a week, directly observed treatment (DOTS) is applied for the sputum smear positive / culture positive cases
- * keeping the tuberculosis register up to date, preparing and sending to the NTP, at Ministry of Health, the monthly / quarterly reports on the notified cases and outcome of treatment;
- * supervision, training and motivating the health workers of the DOTS Centre as well as those operating at village level.

NTCC (Kiarong)

Fact 1

Do you know?

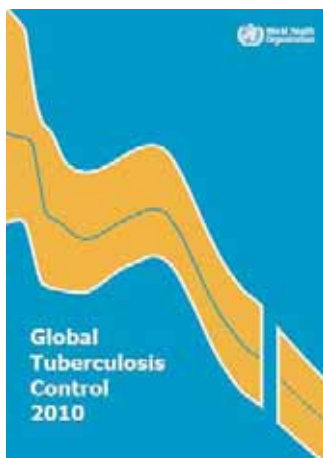
- * *TB bacteria can live in the body without making an individual sick, a condition known as latent TB infection. More than 2 billion people i.e. 1/3 of the world population are infected, many asymptomatic, with TB bacilli.*
- * *It is estimated that 3.3% of all new TB cases are Multi Drug Resistance Tuberculosis (MDR-TB) type in 2009.*

CONTACT US:

National Tuberculosis Control Programme

- ⇒ NTCC (Kiarong)
Ph: 2430409, Fax: 2455055
- ⇒ DOTS clinic (Tutong)
Ph: 4220582
- ⇒ DOTS clinic (KB)
Ph: 3334279, Ext 211,
Fax: 3331923, 3337692
- ⇒ DOTS clinic (Temburong)
Ph: 5221280, Ext 12,
Fax: 5222066

Global Tuberculosis Control Report 2010



Global tuberculosis estimates:

The estimates of the global burden of disease caused by TB in 2009 are as follows:

- * 9.4 million incident cases (range 8.9 million–9.9 million),
- * 14 million prevalent cases (range 12 million–16 million),
- * 1.3 million deaths among HIV-negative people (range 1.2 million–1.5 million) and
- * 0.38 million deaths among HIV-positive people (range 0.32 million–0.45 million).

Most TB cases were in the South-East Asia, African and Western Pacific regions (35%, 30% and 20%, respectively). An estimated 11–13% of incident cases were HIV-positive; the African Region accounted for approximately 80% of these cases.

Case detection and treatment success:

There were 5.8 million notified cases of TB in 2009, equivalent to a case detection rate (CDR,

defined as the proportion of incident cases that were notified) of 63% (range 60–67%), up from 61% in 2008. Of the 2.6 million patients with sputum smear-positive pulmonary TB in the 2008 cohort, 86% were successfully treated.

Public-Private Mix (PPM):

New and compelling data from 15 countries show that efforts by national TB programmes (NTPs) to engage all care providers in

TB control (termed public-private mix, or PPM) can be a particularly effective way to increase the CDR. In areas where PPM was implemented, non-NTP providers accounted for around one-fifth to one-third of total notifications in 2009.

TB/HIV:

In 2009, 26% of TB patients knew their HIV status (up from 22% in 2008). A total of 300 000 HIV-positive TB patients were enrolled on co-trimoxazole preventive therapy, and almost 140 000 were enrolled on antiretroviral therapy (75% and 37% respectively of those who tested HIV-positive). To prevent TB, almost 80 000 people living with HIV were provided with isoniazid preventive therapy. This is an increase from previous years, but still represents less than 1% of the estimated number of people living with HIV worldwide.

Multidrug-Resistant TB (MDR-TB):

In 2008, there were an estimated 440 000 (range 390 000–510 000) multidrug-resistant TB (MDR-TB) cases emerging worldwide.

About 250 000 of these cases (range 230 000 – 270 000) should have been reported to WHO, if countries had tested all the TB patients for drug resistance. However, only just over 30 000 MDR-TB cases (12%) were actually notified globally in 2009. Diagnosis of MDR-TB needs to be rapidly expanded and all cases detected should be placed on suitable treatment.

2015 Millennium Development Goal (MDG) and Stop TB Partnership targets:

Incidence rates are falling globally and in five of WHO's six regions (the exception is the South-East Asia Region, where the incidence rate is stable). If these trends are sustained, the MDG target will be achieved.

Mortality rates at global level fell by around 35% between 1990 and 2009, and the target of a 50% reduction by 2015 could be achieved if the current rate of decline is sustained.

At the regional level, the mortality target could be achieved in five of WHO's six regions; the exception is the African Region.

Prevalence is falling globally and in all six WHO regions. The target of halving the 1990 prevalence rate by 2015 appears out of reach at global level, but could be achieved in three of six regions: the Region of the Americas, the Eastern Mediterranean Region and the Western Pacific Region.

For more information: www.who.int/tb/data

"In 2008, there were an estimated 440 000 (range 390 000–510 000) multidrug-resistant TB (MDR-TB) cases emerging worldwide"

Clinical Tuberculosis

The Facts about Tuberculosis

Tuberculosis (TB) is an infectious disease caused by a bacterium called *Mycobacterium tuberculosis*. It affects mainly the lungs, but also can affect any other organ in the body.

Mode of Transmission

Tuberculosis is spread by airborne droplet nuclei. They are expelled in the air by, for example, coughing, sneezing, singing, laughing, or talking, and can remain suspended in the air for many hours.

Pulmonary tuberculosis (PTB)

A case of TB involving the lung parenchyma. A patient with both pulmonary and extrapulmonary TB should be classified as a case of pulmonary TB.

Extra-pulmonary tuberculosis (EPTB)

A case of TB involving organs other than the lungs, e.g. pleura, lymph nodes, abdomen, genitourinary tract, skin, joints and bones, meninges.

Diagnosis - by history, symptoms and investigations.

History – may include chronic cough usually more than 2 weeks, haemoptysis, breathlessness, weight loss, night sweats, malaise and chest pain.

Symptoms and signs - examination may be normal, lymphadenopathy (particularly cervical), crackles on auscultation, signs of a pleural effusion, signs of consolidation (with extensive disease), signs of weight loss/ underlying immunocompromise and look for evidence of extra-pulmonary disease e.g. skin, joints, CNS, retina and spinal disease.

Investigations – specific investigations are usually carried out on any suspected TB case and these include:-

- * Acid fast bacilli (AFB) identification: sputum in PTB and in EPTB - pus, CSF, urine samples, etc

- * X-ray: Chest x-ray in suspected PTB. X-ray of the affected site can be useful such as lumbar spine X-ray
- * Bronchoscopy is indicated in suspect PTB with non - productive cough symptom or unhelpful sputum culture
- * Biopsy for EPTB and identification of AFB by histology
- * Mantoux Test: More sensitive but less specific. The Mantoux test is used to help detect TB infection. It is performed by injecting a small amount of

fluid (called tuberculin) into the skin in the lower part of the arm and the result read within 48 to 72 hours.

- * Nucleic acid amplification and DNA tests: may be used to confirm *Mycobacteria* serotype and DST
- * Gastric washings: commonly perform in children
- * Blood tests: Base line FBC, RFT, LFT, CRP, ESR will be perform but these are not specific for TB. HIV test in all TB patients.
- * CT scan is more sensitive than Chest X-ray, especially in smaller areas of disease.
- * QFT-G TB IT and T-spot -These are the recent tests that are available to detect the LTBI, which is more specific than TST in MTB

Treatment –the aims of treating active TB cases are:-

- * To cure the patient and restore quality of life and productivity;
- * To prevent death from active TB or its late effects;
- * To prevent relapse of TB;
- * To reduce transmission of TB to others
- * To prevent the development and transmission of drug resistance.

Treatment should always be started as soon as possible and patient may need to be isolated in hospital. The most impor-



Mantoux Test

Table 1. Recommended dose by WHO Guideline 2009

Drugs	Daily		3 times per week	
	Dose and range (mg/kg)	Maximum (mg)	Dose and range (mg/kg)	Daily maximum (mg)
Isoniazid (H)	5 (4-6)	300	10 (8-12)	900
Rifampicin (R)	10 (8-12)	60	10 (8-12)	600
Pyrazinamide(Z)	25 (20-30)	-	35 (30-40)	-
Ethambutol (E)	15 (15-20)	-	30 (25-35)	-
Streptomycin	15 (12-18)	-	15 (12-18)	1000

Clinical Tuberculosis (continued)

tant drugs for the treatment of TB are listed in table 1 with the recommended dosages.

Once the sputum becomes negative, patients can be discharged and followed up by community medical officer where DOTS will be continued. All new cases to be notified as this initiates contact tracing.

In general, treatment of TB cases include:-

- * Initial intensive phase – All new patients (never previously treated for as much as one month) should be given for 2 months of *2HRZE on daily basis.
- * Continuation phase - The recommended drugs in continuation phase is 4 months of HR taken thrice weekly



In extensive TB cases, treatment can be prolonged to 1 year or more.

Directly Observed Treatment Short course (DOTS)

To achieve a cure on newly diagnosed cases of

TB without promoting drug resistance, frequent and careful supervision is necessary. A trained and supervised person (a health care worker whenever possible) must directly observe that patient swallows every dose of the combination of drugs given.

Prevention and Care

TB infection can be prevented, treated and contained. Identification of people infected with Mycobacterium tuberculosis as early as possible before they develop active TB is vital. Infected people will be given prophylaxis, usually isoniazid (INH) to prevent active disease. This is given daily for 6 to 12 months. The World Health Organisation recommends that infants especially from developing countries such as Brunei Darussalam to receive a vaccine called BCG (Bacille Calmette-Guerin) - it is part of the national childhood immunisation programme in Brunei Darussalam. BCG vaccine has a documented protective effect against meningitis and disseminated TB in children. However, it does not prevent primary infection and, more importantly, does not prevent reactivation of latent pulmonary infection. In hospitals, people with TB are isolated in special rooms with controlled ventilation and airflow until they can no longer spread TB bacteria.

Dr Hjh Salizawati bt. Mohd Zainal
Dr Balasubramanian
Senior Medical Officers (NTCC)

TB and Health care Workers

I am a Healthcare worker. Am I at high risk of contracting TB from the patients?

Not all health workers are at high risk. However certain group of all healthcare workers are at high risk. Healthcare workers who are involved in the following activities are at increased risk;

- * Bronchoscopy
- * Dental care
- * ICU work
- * TB laboratory work
- * Respiratory ward work
- * Respiratory Therapy
- * Mortuary work



How should I protect myself from TB at work?

You should wear proper respirators (eg. N95), if you are at high risk of contracting TB at work. In addition you should follow all other infection control procedures thoroughly.

What else should I do to take care of myself?

You should undergo annual Mantoux test, if you are involved in high risk activities. In addition, if you suffer from cough (more than 2 weeks) you must seek medical advice promptly.

My colleague was recently diagnosed as active TB. What should I do?

Inform infection control nurse. Staff from NTCC will visit your workplace and do contact tracing.

Please visit our website at

<http://www.moh.gov.bn/medhealthservices/environmentalservices.htm> for more information on how to prevent TB transmission in health care setting.

Occupational Health Division

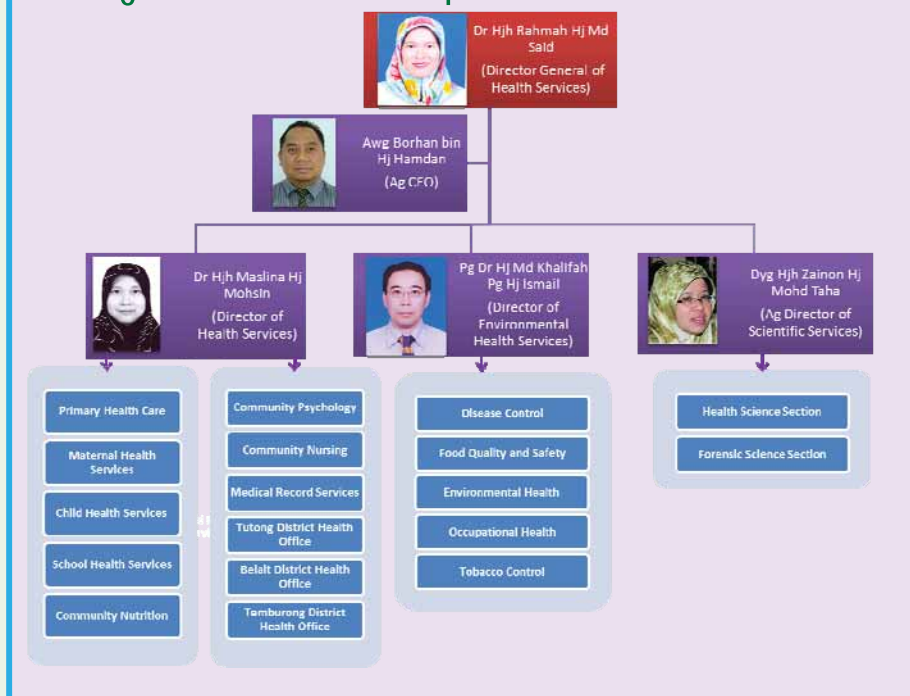
Fact 2

Do you know?

⇒ TB is a notifiable disease under the Infectious Diseases Order (IDO) 2003. Section 6.1 of the IDO states that every medical practitioner are required to notify the Director General of Health Services of patients infected with TB. Failure to notify is liable to guilty of an offence.

⇒ Where to notify: DCD, Brunei Muara (Tel: 2381640, ext: 7710/7732, Fax: 2382755), Tutong (Tel: 4221235, Fax: 4222498), Belait (Ph: 3334279, Fax: 3337662), Temburong (Ph: 5221235, Fax: 5222066)

Organisation chart of Department of Health Services



Upcoming events at JPK

- * **April 7** - World Health Day
- * **April 13-15** - WHO Consultative Workshop on IHR Implementation at Points of Entry
- * **April 19-21** - OSHCAB training in Occupational Health and Safety
- * **April 24**- Launching of Vaccination week and Hep B/ Measles Sero-surveillance survey
- * **April 25**- World Malaria Day
- * **May 31** - World No Tobacco Day
- * **June 15** - ASEAN Dengue Day
- * **June 21-23** - Consultative workshop on National Tobacco Control
- * **June 27-28** - First National Public Health Symposium 2011

Department of Health Services Ministry of Health Brunei Darussalam



Department of Health Services Newsletter

The Department of Health Services Newsletter is a information platform for all health professionals in Brunei Darussalam, published bi-annually.

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Submission of articles

The Newsletter accepts articles along with all short reports, on all aspect of health services in Brunei Darussalam. Articles should be 300-400 words not including tables and figures. Articles should follow the journal style and layout as closely as possible. Articles should be emailed in a Word for Windows format to: dcd.dohbru@gmail.com, accompanied by a covering letter signed by all authors.

Distribution

The Newsletter is freely available in all health facilities (Government & Private) of Brunei Darussalam. For more information, please contact:

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