結核（けっかく）のしおり

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第1章 はじめに

東京の野宿問題の始まり

この「結核のしおり」は、東京都内で、野宿を余儀なくされている方々にお配りします。野宿をする方が増え始めたのは、東京では、平成3年、新宿に都庁が引っ越してきたころです。当時は、山谷、上野駅、新宿駅などでしか目立っていませんでした。とくに、新宿駅地下道のダンボール小屋は社会的に注目され、平成6年には、都内で初めての追い立てが行われました。高度経済成長を経験し、貧困やスラムの問題は日本にはもう存在しないと考えられていたので、いくらバブル経済が崩壊したと言っても、野宿をするような人が出現するなどということは当時なかなか信じられませんでした。他に寝る場所がないのではなく怠けて野宿していると思われ、駅の管理者に、「ここは住む場所ではない」と追い立てられたのです。追い立てられた人々は4週間だけ大田寮に入り、また新宿駅地下にもどってきました。他に行くところがなかったからです。平成8年には、「動く歩道」を設置するという名目で2度目の追い立てが行われました。このころには、渋谷や池袋、隅田川などにも野宿の方が目立つようになっていました。新宿駅地下のダンボール村は平成10年2月の火事で消滅しましたが、都内の公園や河川敷、そして、全国の多くの都市に野宿の方が増え続けていました。

自立支援センター

平成9年に、新宿で「自立支援センター」が試験的に開始されました。12年には本格的に、台東寮と新宿寮が設置され、現在では、5つの緊急一時保護センター（千代田寮・荒川寮・世田谷寮・練馬寮・江戸川寮＝もうすぐかわる）と同じく5つの自立支援センター（中央寮・北寮・渋谷寮＝もうすぐかわる・杉並寮・葛飾寮）があり、ステップアップ方式（緊急から自立にすすむ）の自立支援システムが完成しています。そして、今後はセットになっている2つの寮が「新型自立支援センター」として統合されていくことも決まっています。平成14年には「ホームレスの自立の支援等に関する特別措置法」という野宿の方のための法律もでき、国としても自立支援センターを作っていくことになりました。

Illustration by Geff Read

また、路上生活を解消するための手段としては、生活保護を受ける、という方法もあるのですが、すぐにアパートに入れるのではなく、団体生活の宿泊所に入れられることが多いので、安心して長く畳の上の生活を続けられるかどうかはわかりません。

平成16年から19年まで、公園から直接アパートに入る「地域生活移行支援事業」という事業が実施されたのですが、すでに終了しています。

ホームレス問題の新たな段階

昨年の秋ごろから、再び野宿の方が増え始めています。空きのあった自立支援施設もこのところ、満杯状態がつづいています。年末には日比谷公園で「年越し派遣村」が実施されました。製造業などの派遣や契約で働いていた労働者、または常用雇用で働いていた多数の労働者が仕事と住まいを同時に失って路上に押し出されています。東京には、昨年から、新宿歌舞伎町に、チャレンジネット

という、ネットカフェ利用者を対象にした相談窓口が設けられていましたが、有効に機能しなかったのです。このように路上に押し出される人は増えようとしているのに、自立支援システムのほうは縮小が決まっており、東京の路上生活者対策の行方が心配です。

ホームレスの人と結核

野宿の方は結核にかかりやすい、ということが保健所や結核研究所の調査から明らかになっています。その理由ものちほど詳しく述べますが、結核は治療を受ければ治る病気です。みなさんが結核にかかっても、治療を受けて結核を克服なさることをねがって、このしおりを発行いたします。

第2章 結核について

結核のことを知っていますか？

よく知られているように、結核という病気は、日本では撲滅されたと考えられていましたが、平成の初めから再び患者が増え始め、関係者のあいだで心配されています。平成12年ごろからは全体としては患者発生数は落ち着いてきているのですが、野宿の方や外国人労働者など、特定のグループの人が結核にかかりやすい、ということがわかってきています。インターネットカフェでも結核の集団発生がありました。

Illustration by Geff Read

野宿の方になぜ結核が蔓延するのか、原因はたくさんあると言われています。中高年である、ストレスが多い、栄養状態が悪い、治療を中断した人がいることなどです。結核は早期発見、早期治療すれば必ず治る病気です。さらに、治療を中断することは結核の場合、たいへん危険なことです。薬が効かなくなってしまうのです。菌が強くなって、薬の効かない耐性菌という菌になってしまうのです。結核について、早期治療すれば治る、治療中断はたいへん危険だ、ということを頭に入れておいてください。

Illustration by Geff Read

結核ってどんな病気？

- 咳やタンが長くつづきます。ふつうの風邪だと1〜2週間でよくなるのだけれど、結核の場合もっとつづくのです。2週間以上長引く咳は赤信号です。
- 咳・タンと同時に微熱が出たり、身体がだるくなることが多いです。

どんな人が罹りやすいか？

- **栄養状態の悪い人**
- **昔、結核にかかって完全に治るまで治療しなかった人**
- **糖尿病・腎臓病にかかっている人**
- **胃を手術したことのある人**

結核が心配になったら

●2週間以上つづく咳など、症状のある方は、近くの福祉事務所に行き、そう言いましょう。結核のことがわかる病院などでレントゲンを撮る手配をしてくれます。費用はかかりません。

●「路上結核検診」（野宿者のためのレントゲン検診）が実施されている地域もあります。保健所がチラシを配ったりなさるので、そのときはぜひレントゲンを撮ってもらいましょう。これも無料です。

●他の病気の場合もそうですが、血を吐いたり、動けないほど苦しい場合は回りのなかまや通りがかりの人に救急車を呼んでもらいましょう。

治療はどうすればいいの？

最近はよい薬ができているので、初めて結核の治療を受ける人のほとんどはこれらの薬をきちんと飲めば半年から1年以内に完全に治ります。が、きちんと薬を飲まなかったりすると、治らないばかりか薬が効かなくなってしまいます。治療を途中でやめたりすると身体が弱ったときに、ひそんでいた菌が勢いを強くし、前より悪い状態になってしまいます。主治医に「治った」と言われるまできちんと治療をつづけることが大切です。

治療の方法としては、入院が必要なのですが、どうしても事情がある場合は野宿生活のまま治療を完了した方もいるので、専門家とよく相談してください。また、最初は短期間入院するとしても、2〜3ヶ月で退院し、宿泊所、ドヤ、アパートなどに住んで、保健所などに毎日薬を飲みに通う方法（ドッツ）も一般的になってきています。

その費用は？

入院や治療のための費用は公費で負担してくれます。入院中は日用品費が生活保護から支給されるし、退院すれば、生活費は生活保護で出してくれます。第3章の体験談でわかるように、退院したあとは、野宿にもどらずに、生活保護を受けながらパート仕事などをする方がほとんどです。

第3章　結核の治療を受けて

結核の治療を終えた方たちが、「ひまわりの会」という会をつくって集まっています。「ひまわりの会」のメンバーの体験談です。

◎Aさん

病気もしなくて、健康保険料払ってたんだけど、50歳過ぎるまで健康保険証持って病院へ行ったことなかった。国民健康保険っていつも払うばかりで、なんだか損だなあと思ってた。自分が結核になるとか100％思ってなかったわけ。自分は型枠大工なんだけど、

竹中工務店の現場に入るときに身体検査があって、「あなた、肺に影があるよ」って言われて、まさか！と思った。機械が壊れてるとしか思わなかった。保健所でお医者さんに「仕事しながら薬のむのはたいへんだろうけどがんばってください。」と言われて、現場が変わっても帰って来たら保健所に行って薬のんでた。3ヶ月くらいはまじめにのんだかな。仕事クビになって、お金は少しはあったけど、どこへ行けばいいかわからないし、新宿駅で「中央公園行けばいいよ。」と教えられて、脚のつけ根のヘルニアが腫れて歩けないし、中央公園のボランティアの紹介で福祉事務所から病院へ行った。ヘルニアは手術しないといけないんだけど、結核やったことがあると話したら大騒ぎになった。患者としてコンピュータに登録されてて、さきに結核の治療を再開することになった。ドヤから保健所に通って、ドッツやって（保健師さんの前で薬をのむ。いろいろ話をしたりする）ドッツミーティング（薬をのんでいる患者さんのあつまり）にも出た。治療が終わったので仕事捜すことになって施設に移った。お医者さんに「腰も悪いし、糖尿や骨粗しょう症もあるし、今までのようには働けませんよ。もう難しい仕事は無理ですよ」と言われて、福祉事務所の就労指導員と相談して、掃除のパートをやって2年になる。

新宿で歩けなかったときは、自分はもう、はっきり言って人生終わったと思った。働けるだけ働いてそれでダメならもういいやって頭だった。福祉にかかろうって気持ちはこれっぽちもなくて。福祉かかる人はもっと困ってる人だと思ってたから。治療してもらったらぱあっと明るくなった。ドヤに入って薬のみなさい、と言われたときはぱあっと明るくなったもんな。

結核が治ってよかった。あのまま結核の治療をやめたままだったら、耐性菌という強い菌になってしまうところだった。そういうことも治療を再開してから保健所でビデオみて知った。みな、結核だと言われてもたいしたことないと思ってるんだ。だから、入院してても隠れて薬捨てちゃう人がいる。結核かかってるって言われても、自分で治療するとしか思ってなかった。こういうのはただでやってくれるとかそういうの分かんなかった。

◎Bさん

子どもは女房の姉にあずけて、二人で東京の下町で飯場に入ってた。女房はまかない。42歳の区の節目検診で「影がありますよ」と言われた。叔父が結核やってたから「おまえ、俺のがうつったんじゃないか。」なんて叔父も言ってて。自分はそのときはいいかげんに考えてて、薬を途中でやめちゃった。トビやってたもんで病院行くひまがなくて、薬きらしちゃって、もう自分から薬取りに行かなくなっちゃった。7年たってから、咳が止まらないときがあって、女房は持病で福祉事務所によく行くのでそのとき福祉事務所の人に「うちの人また結核じゃないだろうか。」と話した。病院へ必ず行くように言われたし、実際やっぱり結核だった。

新宿区内の生活保護の家族用施設（鉄筋で外見は都営住宅のような建物）に入って新宿保健所のドッツに通った。家で薬のむのではなく保健師さんが見ていてくれたし、患者どおしのあつまりにもよ

く参加したのがよかったと思う。こんどは最後まで治療できた。
結核ってもともと嫌われるもんだと思ってた。会社でも薬飲んでることは隠してた。単身用のドヤや宿泊所でもみんな隠れて薬飲んでる。でも排菌してなければうつることはないんだよね。新宿では、患者どおしや保健師さん、たくさんの人と知り合って、結核についていろいろわかったし安心して治療してた。

◎Cさん

ドッツが終わって、生活保護切って仕事にもどろうかなと思ってる。新宿区内の宿泊所に入って新宿保健所に薬飲みに通った。前の会社の社長に会いに行ったし、宿泊所の寮長にも「出る」と言った。会社の寮に入るので、いったんこういうふうに会社に勤めちゃうと、「仕事に出てくれ」と言われれば無理してでも出るような生活になっちゃうから、ドッツの友達とかは、「生活保護切らないでやる方法はないのか。」と心配してくれるんだけど、やるしかない。

保健所や福祉事務所では、保健師さんやケースワーカーさんて、こっちから言わないとしゃべってくれない、どうしても話さなくちゃならない。それで、俺もずいぶん人と話できるようになった。会社では誰とも話さなくて、黙っていなくなるというのを5、6回やった。こんどは、会社で「結核うつすなよ。」とか嫌味言われても、かっとならないで静かに言い返せると思う。人の言うことよく聞けるようにもなったし。

◎Dさん

具合悪くても医者には行かない。めんどくさいから行かないんじゃない、先立つものがないから。医者行きたいと思っても福祉とおさなくちゃなんないし。

3000円のアパートに入るときにレントゲン検診で「肺に影がある」と言われて入院した。みんなドッツの話をよくするけど、自分は入院してる間、ドッツじゃなかった。他の病気と同じように、ただ、薬置いていくだけ。そして、半年間入院して薬は飲み終わった。退院してから薬飲みに通うというようなことはしなかった。自分はがんこだから、飲まないだろうと言われれば、ちゃんと飲むんだ。人にあれこれ言われたくない。

◎Eさん

タクシー運転手やってて、会社の検診で「肺に影があるから再検査が必要」と言われていた。借金問題で路上生活になって半年たったとき、厳冬期の2週間の大田寮に入った。次の日レントゲン撮って「影がある」と言われ病院へ直行。排菌してることがわかった。タンは出てたし寝汗もかいてたんだけど、路上生活やってる間に急激に悪くなってたんだな。ホームレスやってて、寒いしどうしょうもねえなあと思って。死ぬことはないと言われたけど。

退院してドヤから新宿保健所に通ってドッツをやった。そのあと生活保護の就労支援専門の施設に移ってもとのタクシー運転手にもどった。借金のかたもついている。ドッツについて、薬くれればいいだけなのに、毎日通わせるなんて、と悪く言う人もいるけど、自分なんかは投げ出しちゃうタイプだから、ドッツでよかった。このまま死んでしまうという不安はなかったけど。

結核になったのは不幸なことだけれど、全員が勇気をもって生活の立て直しをはかっておられることがわかってもらえたと思います。

Illusration by Geff Read

結核の治療には「ドッツ」という方法があることがわかっていただけたでしょうか。「ドッツ」は多くの患者さんに歓迎されています。費用のことなども心配せずに、まずは福祉事務所に相談しましょう。

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Delay in TB diagnosis and treatment as a measure of TB burden

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Introduction:

Tuberculosis (TB) is an infectious disease, which spreads through droplets expelled from throat and lungs of patients. It is currently estimated that one third of world's total population are infected with TB bacilli. In 2005, a total of 1.6 million people were estimated to have died from TB. The vast majority of TB deaths are in the developing world and there were an estimated 8.8 million new TB cases in 2005, of which 80% were in just 22 countries[1].

To measure the burden of tuberculosis (TB), incidence, prevalence, and mortality are generally utilized [2] together with Disability-adjusted life years (DALYs) [3]. Treatment success and case detection rates are also utilized to measure success of TB control programs [4]. In addition to these, delay analysis is also a useful measurement. Delay analysis aims to measure delays from onset of the disease to starting of treatment and to analyze their causes.

The World Health Organization (WHO) promoted directly observed treatment, short-course (DOTS) and achieved high success rate in most countries where DOTS was carried out, but case detection rate has not yet reached the target except in some countries[4]. Although DOTS itself is a good strategy, it is not clear whether the services reach the people most in need. Patient delay in seeking TB treatment, and health service delay in TB diagnosis and treatment, leads to more severe TB disease in individual patients and increased transmission in the community. Some patients complete treatment successfully but are left with chronic disability due to delayed diagnosis. Delay analysis can clarify health-seeking behavior of TB patients before starting treatment and can indicate causes of low case finding rate. In this way, delay analysis is able to measure the burden of TB from the standpoint of quality of TB services which are provided by government in each country.

This article reviewed literature related to delay analysis that has been currently conducted throughout the world and discussed how delay can be avoided. It also discussed the possibilities of applying delay analysis to evaluation of TB services, and the methodology for doing so.

Methods:

PubMed was used to search abstracts available in English from 1980 to 2008 using search terms "delay" and "tuberculosis", limiting the search to pulmonary TB in humans. Only observational studies were selected. Selected unpublished articles on delay analysis were also reviewed [5,6,7].

Results:

119 articles were found and among them, 123 articles, which were written in English, were reviewed. Studies on delay in TB have been carried out in more than 40 countries. 89 articles were related to developing countries (including countries of the former Soviet Union, or FSU) while 40 were from developed countries.

The definition of 'delay' varies with researchers. Most researchers define 'total delay' as the period from onset of symptoms to starting of treatment. As shown in Figure 1, total delay is further classified into 'patient delay', 'health care provider delay or health system delay', and 'treatment delay'. Patient delay is defined as the period from onset of symptoms to the initial visit to health care provider or health services, including private health care providers. The definition of health care provider also varies with researchers. In developing countries, there are unqualified health care providers such as traditional healers and chemists, and many patients utilize them for treatment. However, most researchers do not consider traditional healer as a health care provider, and the period in which the patient is treated by a traditional healer is included in patient delay, though most patients who visit traditional healers recognize them as health care providers worthy of being paid. Health care provider delay is defined as the period from the initial visit to health care provider or health services to the date of diagnosis, and treatment delay is defined as the period from the date of diagnosis of TB to the date of initiation of anti-TB treatment. Recently many researchers seem to apply the definition of heath system delay as the period from the initial visit to health care provider to the initiation of anti-TB treatment, rather than health care providers delay. Due to differences in the definition of delays, it is difficult to directly compare delays among articles. However, it will be useful to compare the data over time or between areas using the same definition and methods. Table 1 shows the median of delays in selected articles [8-31].

B. Various causes of delay in TB in developing countries

1. The selection of the initial health care provider

About half the articles relating to developing counties (41out of 89) mentioned initial choice of health care provider as an important factor in prolonging delay. Table 2 summarizes selected articles that reported health care provider or gender as factors in delay [32-43]. From 31% to 81% of patients first visited private health care provider. In India, Nepal, and Bangladesh, longer delays are observed when patients first visited traditional healers [19,21,34] In India, one article reported the median health care provider delay was 15 days when patients first visited government health care providers, while it was 45 days when patients first visited private practitioners [32]. Similar findings were reported in other Asian countries and African countries. In Southeast Asia, self-medication using herbal medicines caused longer delay[14]. In Africa, initial visit to traditional healers is a major cause of delay 8,13,39, 40, 41. Recently, the Eastern Mediterranean Regional Office (EMRO)/WHO conducted delay analysis in many of the countries of their region [44]. They concluded the following: "The private sector was the first choice for more than two-thirds

of the patients. The main determinants of delay were: socio-demographic; economic; stigma; time to reach the health facility; seeking care from non-specialized individuals; and visiting more than one health care provider before diagnosis" [44].

2. Gender

Gender is also reported as an important factor causing delay. In Vietnam, health care provider delay is longer among females than males [15, 45], and one qualitative study showed that women are more sensitive to poor service conditions and staff attitudes, and that they prefer private practitioners and self-medication before seeking care at public services [36]. In particular, married women and housewives are reported to have longer delay in some countries 46. On the other hand, in Iran, patient delay was longer among males than females [38]. In Syria, patient delay was also longer among males than among females [25], while in both, health care provider delay was longer among females than males. Some gender-related factors affect selection of initial health care provider. For example, women tend to prefer private health care provider, which tends to cause longer delay. In Nepal, females have longer health care provider delay, but it was reported that female patients are kept longer on treatment by traditional healers, while men tend to move from traditional healers to others more quickly [19]. Recently, in China also, fewer women are reported to know locally appointed health facility for TB diagnosis and treatment as well as current free TB service policy and a large part of women preferred to visit lower level non-hospital health facilities at first such as village clinics and drugstores 47.

3. Other factors

Other factors affecting delay are shown in table 3 [9,24,27, 48-51]. Social background, literacy, educational level, alcoholism, job loss, geographical distance from provider, age and HIV, were reported to cause longer delay. For example, in Ukraine, the median patient delay among unemployed patients was almost double that among the employed (60 days/30 days) [48]. In Brazil, only unemployment was a factor in longer delay, and the median total delay was 90 days [27] On the other hand, literacy was reported to influence health care provider delay in Ethiopia, Tanzania, Gambia, and Yemen [9,24,43,49]. Age is also an important factor in several countries. In China (Hong Kong SAR), rapid demographic changes have been recently reported; in particular, the age distribution has shifted to elderly people (mean age shifted from 38 years of age to 54 years of age, over a time span of 27 years). A high notification rate among the aged population (162.5/10,0000) is reported and at the same time, longer total delay among aged patients over 60 years [48]. In another article from China, aged patients have longer patient delay as well [37]. Among African countries, in Gambia and Zambia, older patients had longer total delay, [9,42] and in Tanzania older patients had longer patient delay[43]. Distance is also reported to be a factor in some countries. In Argentina, patient delay was associated with availability of transport to nearest public health service [50]. In Cameroon, patients waited less than half as long to access health services as compared with patients in Ethiopia, where literacy, income per capita, and investment in the health sector are lower than in Cameroon[53]. One study in Thailand showed that delay among HIV positive patients was shorter than HIV negative patients due to development of more symptoms[52].

C. Interventional studies related to the delay analysis in developing countries

The main purpose of delay analysis is originally to clarify factors causing longer delays, and determine factors that might be targeted to shorten delay. There are some interventional studies. In Myanmar, a Non-government organization (NGO) reported that technical support to NGO could shorten both patient delay and health care provider delay. The study reported that patient delay was only 5 days and health care provider delay was 6 days after the intervention[54]. In Nepal, the delay was shortened gradually and the percentage of men choosing governmental medical establishment as their initial visit increased from 30% to 80% [55]. In India also, the percentage of patients who initially visited governmental medical establishment increased after DOTS implementation from 27% to 47% [56]. In Cambodia, decentralization of DOTS from TB service center to primary health centers shortened the delay [20]. On the other hand, in China patient delay was longer in DOTS than in non-DOTS areas; though the subjects in this study were chronic cough patients[57].

The differences of Delays in TB among developed countries

In developed countries, immigrants from high burden countries often show longer delay especially in term of patient delay. In the USA, immigrants often experience increase in delay in seeking medical care due to fear of immigration authorities[58]. In Italy, longer patient delay was reported among immigrants, while health care provider delay was longer among patients born in Italy[30]. In Norway, too, shorter health care provider delay was reported among immigrants. However, in Norway, the majority of patients born in Norway are elderly patients and they take longer time to be diagnosed with TB than younger patients (who are mainly immigrants) [31]. In most developed countries, delay among immigrants is the major problem of delay in TB care due to difference in incidence and risk factors between immigrants and non-immigrants. The difference in delays among immigrants however may reflect the difference in control measures for immigrants in each country.

Among developed countries, the percentage of TB among immigrants in Japan is much lower simply because the absolute size of immigrant population is small, while that among the elderly population born in Japan is much higher. In Japan, delay data is available as a part of surveillance, and 25% of TB patients delayed in contacting services for over three months[59]. In Japan health service delay has recently improved, while patient delay is becoming longer, particularly among patients aged 20 to 50, and among those employed for daily wages[59]. An increase in delay has recently been observed among patients who work as teachers, doctors, business people, as well as the unemployed[59].

Patient delay in seeking TB treatment, and health system delay in TB diagnosis and treatment, leads to more severe TB disease in individual patients and increased transmission in the community. Though this fact is clinically correct, no studies have yet been carried out to prove this. Recent study in China documents effect of treatment delay on tuberculosis (TB) latent infection among household contacts of TB

patients, through a cross-sectional TB infection prevalence. Using contacts of non-TB patients as the baseline of TB infection, there was a dose-response relationship between household infection and delay of TB treatment (TB infection prevalence 9.7, 7.8, 19.9, 25.7 and 26.9% for non-TB case, TB case with delay < or =30 d, 30-60 d, 60-90 d and >90 d, respectively). In conclusion, 30 d delay in treatment seems to be the turning point at which a significant increase in risk for TB infection occurs. In South Africa, in high prevalence of HIV settings, it is reported that longer provider delay leads higher mortality rate.

Discussion:

Many articles reported that patient delay was longer when patients initially visited private health care providers (including traditional healers). The results of the review showed that 31% to 81% of patients first visited private health care provider, while government health care providers were reluctantly consulted or less utilized by the community. An article from Hong Kong reported that the effect of campaigns using media to encourage consultation at government medical establishments was temporary and not cost effective[63]. To improve this situation, two approaches may be considered. One is for government health care providers to remodel themselves to be more attractive and provide easier access. The other is to involve private health care providers in DOTS programs or to develop a closer relationship between government health care providers and private health care providers. Improving services at governmental health facilities, for example by opening the health facility for longer hours, is difficult because doctors in government hospitals usually work as private health care providers in the evening and at night. However, providing easier access to government health care provider is possible by implementing DOTS program at all governmental health resources, up to the peripheral level. In Cambodia, decentralization of DOTS from TB service center to primary care health centers shortened delay[20]. In Nepal, after the implementation of DOTS program, the delay gradually shortened and the percentage of patients choosing government clinics as their first visit increased from 30% to 80% [55]. In India also, after implementation of DOTS, the percentage of patients who first visited a governmental medical establishment increased from 27% to 47% though delays themselves did not differ due to the difference in study setting (urban versus rural area)[56]. Even if patients first use a private provider, once TB is diagnosed, patients consult government clinic because the knowledge that TB drugs are always available at government clinics free of charge prevails in the community. Thus, high-quality DOTS may shorten delay though it might take years. In particular, Nepal has promoted DOTS together with community participation, and this might have enhanced community awareness[55]. Gender is also reported as an important factor causing delay. Some gender-related factors affect selection of initial health care provider. For example, women tend to prefer private health care provider, which tends to cause longer delay. In addition, cultural belief and difference in gender roles such as time allowances to visit government facilities seems to affect delays. In addition, aspects of social background such as employment, literacy, or accessibility are related to delays, particularly in patient delay. Comparison between delay in Cameroon and Ethiopia indicates a possible correlation between patient delay and economic development, health-care infrastructure, human resources and education[53]. Broader bottom-up approach to the community such as economic development, as well

as developing health-care infrastructure, may be required together with DOTS expansion, although no intervention studies documenting this effect were found. In 2006, WHO developed a new six point Stop TB Strategy which builds on the successes of DOTS while also explicitly addresses key challenges facing TB.[64]. These components include community participation, high-quality DOTS and strengthening the health system together with public and private mix program which we mention immediately below. Delay can hopefully be shortened by promotion of the new Stop TB strategy. However, in China patient delay was longer in DOTS than in non-DOTS areas[57]. Further interventional studies are necessary to understand the effect of this approach.

High-quality DOTS with good community participation, however, cannot be implemented easily, particularly in urban areas. Residents in urban areas are often transient, and it is difficult to build a community among them in general. This is also seen in developed countries. Moreover, in urban areas, the number of DOTS centers is not sufficient. This is the rationale for the need to involve private practitioners. WHO has recently promoted private / public mix (PPM) approaches, and a successful partnership is reported from India, Nepal, and Myanmar. In India, medical associations in New Delhi promoted DOTS program, and DOTS is available even in private clinics if patients request it[65,66,67]. In Nepal, it was initially difficult to involve private practitioners in DOTS, but NGOs were involved and DOTS centers were managed by NGOs successfully [68,69,704]. In Myanmar, technical supports by an international NGO to general practitioners had a positive effect [54]. This NGO provides other support services such as Mother and Child Health (MCH) and Human Immunodeficiency Virus (HIV) care to general practitioners[54]. Thus, total support to practitioners rather than only for the TB program itself would improve access of residents to health care providers and might shorten patient delay.

It is often not easy to involve private practitioners in DOTS because they fear losing their incomes by referring patients to government medical establishments. It is worth trying to promote PPM, and at the same time, the government needs to promote quality DOTS with full community participation. The Eastern Mediterranean Regional Office (EMRO)/WHO conducted delay analysis and pointed to the importance of involvement of private sector to DOTS in improving delay [44]. Recently, one review of delay analysis also concluded that the core problem in delay of diagnosis and treatment seemed to be a vicious cycle of repeated visits at the same healthcare level, resulting in nonspecific antibiotic treatment and failure to access specialized TB services. Once generation of a specific diagnosis was in reach, TB treatment was initiated within a reasonable period of time." [71]. In spite of these advances, there were no published evaluations of their effects on delay. These are urgently needed to document the impact of engagement of the private sector in reducing delay as consulting private sector has been identified as an important contributor to delay.

In developed countries, immigrants from high burden countries often show longer delay especially in patient delay. In most developed countries, delays among immigrants are the major problem of delays in

TB care due to the difference in incidence and of risk factors between immigrants and non-immigrants. The difference in delays among immigrants however may reflect the difference in control measures for immigrants in different countries as well. Among developed countries, the contribution of immigrants in Japan is much lower because of lower proportion of immigrants among the general population, with much higher proportion of elderly TB patients among those born in Japan. Thus, social, cultural, and economic problems in each society would reflect TB burden either in developed countries or in developing countries.

Delay analysis is a useful tool and can be utilized to measure effects of PPM and to evaluate DOTS program. In addition, delay analysis can show progress or improvement in case detection if compared over time or between areas. However, there are some weaknesses to delay analysis. There is as yet no standardized method for the analysis, which makes it difficult to compare delays among different areas. The delay in terms of duration of symptoms or time gaps are based on the subjective report by patients. Developing skills for soliciting an accurate answer is essential. Furthermore, it often time consuming to conduct delay surveys and analysis. However, it is much less difficult and more economic compared to prevalence surveys for TB, including tests for tuberculin, chest X-ray, or sputum, or home visiting to residents in the community. Furthermore, peripheral health workers can conduct delay analysis if they are properly guided. EMRO/WHO conducted delay analysis, and their definitions may be used as a standard [44]. Quality of Care as seen through the Eyes of the Patient (QUOTE-TB) provides evaluation of quality of TB program, and the questionnaire on it also includes measurement of delay[72]. There is as yet no standardized questionnaire for use in studying delay. In practice, each researcher usually develops a study-specific questionnaire according to the aims of the particular study. A sample questionnaire (in Annex 1) shows the basic framework for the questions. In addition, this questionnaire and delay analysis can be applied to study of other programs such as in mother and child health because delay analysis is used to clarify the health care seeking behavior from the onset of symptoms to starting treatment.

Conclusion:

Delay analysis aims to measure the period from the onset of disease to starting TB treatment and to analyze the causes of delays, and it is a useful tool to measure the burden of TB. In many developing countries, the utilization of the private sectors, including the traditional healers, as an initial health care provider is a major cause of delay. In developed countries, immigrants are a major problem for delay in TB and social, cultural, and economical problems in each society reflect TB burden as well as in developing countries. The involvement of private sector in TB programs, such as PPM, and DOTS with community participation, has a potential to shorten delay in TB. Delay analysis can be used to evaluate TB services, as well as newer approaches such as PPM and community participation and similar methodologies can be applied to other health programs to clarify patient health care seeking behavior.

Figure 1. Components of Delays in TB Diagnosis and Treatment.

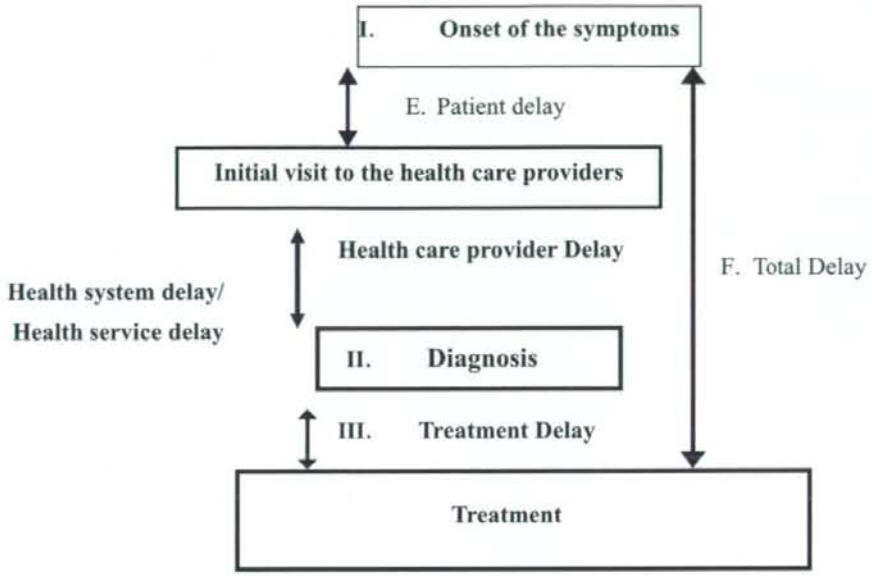

Table 1: Comparisons of median of delays in selected articles (days)

Country	Study year	Total Delay	Patient Delay	Health care provider delay
African countries				
Botswana [8]	1993/94	84	21	35
The Gambia [9]	1997	60	2	58
Malawi [10]	1998	56		
South Africa [11]	1999	70	28	7
Uganda [12]	2002	84		
Ethiopia [13]	2003	80	15	61
Asian countries				
Malaysia [14]	1994/95	88	14	49
Vietnam [15]	1996	83	54	42
Philippines [16]	1997		30	
Vietnam [17]	1997/98	44	7	30
India [18]	1997/98		20	23
Nepal [19]	1997-1999	Male: 69 Female: 99	Male: 24 Females: 18	Male: 24 Female: 39
Cambodia [20]	2002	Pilot area: 58 Control : 232		Pilot area:24 Control:185
India [21]	2003		21	7
Taiwan [22]	2003	44	7	23
Thailand [23]	2003/4	66	31	31
Middle Eastern Countries				
Yemen [24]	2001/02	56		
Syrian Arab Republic[25]	2002	30		

Latin American Countries

Bolivia [26]	2001/02	90	25	43
Brazil [27]	2001-2003	90		
Peru [28]	2004	20		

Developed Countries

Japan [29]	1980/81	54	17	31
Italy [30]	2003	65	7	36
Norway [31]	2003/04	63	28	33

Legend to Table 1. This table shows the median of delays in selected articles by region. The definition of delays differs by articles and direct comparison among studies is not suitable for analysis.

Table 2. Summary of selected articles, with factors causing delays, in particular related to initial health care provider and gender

D. Asian Countries

Country/Author/Year	Traditional healer	Private practitioner	Gender	others	Major Points
India 18		*		*	PD with the initial visit to the government facilities 30days, PD to the private practitioners 15days(p<0.001) HD with the initial visit to the government facilities 7days, HD to the private practitioners 30days(p<0.001)
India 32		*			HD when consulted to governmental facility 16days HD when consulted to the private practitioners first 45days (p<0.001)
India 21	*	*		*	Bivariate analysis: PD>30days in self-medication (p=0.02), use of the traditional healer (p=0.007);choice of governmental facility as the first care provider (p=0.02), alcohol use (p=0.045). Multivariate analysis: HD>7days in the first choice of private practitioners (p<0.001), alcohol use (p=0.006)
Nepal 19	*	*	*		TD:2.3 months for men vs.3.3 months for women (p=0.034); HD:0,8 months for men vs.1.3months for women (p=0.054) HD with the initial visit to traditional healer: 1.5 months for men v.s.3.0 months for women (p=0.03)
Pakistan 33		*			96% patients had already visited other health care providers before visiting health center. 48/154 patients were diagnosed as TB but only 29 (19%) of them received TB treatment.
Bangladesh 34	*		*		Visit to traditional healer: 70.4% for female, 32.4% for male (p<0.001). Delay for prior treatment >60days: 50.0% for female vs. 29.8% for male (p=0.001).
Vietnam 17		*	*		Private physicians order smear examination (only 4%) and X rays (29%) but drugs were administered significantly higher (92% vs. 53%). Long HD is observed among patients who visited private practitioner first than patients who visited TB clinic first (OR 2.48).
Vietnam 15			*		PD is too long for both of sexes (7.6 weeks for men and 7.9 weeks for women). Women has longer health care provider's delay (5.4 weeks) than men (3.8 weeks) and visits more providers (p=0.02).
Vietnam 35			*		The patient-doctor encounter seems to be steered by any equality principle and this result in gender blindness since equal treatment is suggested despites needs being different.
Philippines 16		*			29% went first to health center, 53% to private doctor. Before coming to public health center, 66% had received a prescription for anti-TB drugs, and 29% had purchased and taken anti-TB drugs for at least 3 weeks.
Vietnam 36		*	*		Stigma mediated via denial and concealment of TB diagnosis and disease, causing delay. Women were more sensitive to poor service conditions and staff attitudes. Women preferred private and self medication before seeking care at the public services
Thailand 23	*	*		*	TD (Median 9.4weeks) became longer when patients visited first to traditional healer (10.8 w) or drug store (13.1 w) (p=0.0001). Drug store was most common as first site of visit (43%), while 31.5% sought public health care.
Malaysia 14	*	*			PD: 4 weeks when treated themselves and/or traditional remedies. PD:1 week in non-self-medication (P<0.001). 81.9% patients visited first private practitioners, for whom only 6.2% of private practitioners suspected TB.
Taiwan 22		*	*	*	HD:11days when undergoing Chest X-ray at the first medical facility;35 days when not undergoing. HD:11.5days when first visited hospital; 37 days when first visited private practitioners (p<0.0005)
China 37		*	*	*	Place of first visit clinic 45.8%, town ship health center 20.5%, general hospital 29%, TB control station 4.9%, Health care provider delay is longer when patient visit clinic first (13days vs. 1day), female had longer delay. PD was longer among patients aged 41-60 yrs.

F. Latin American countries

Peru 28	*				2/3 sought alternative health care prior to presentation to NTP and 1/3 used traditional medicines. However, while association with diagnostic delay from traditional medicine use is negligible, western medicine is associated with longer symptom duration.
Bolivia. 26		*	*		Females had longer TD. Consultation with private doctor increased PD and TD.
Middle Eastern countries					
Iran 38		*			PD was higher for men 15.5-12.4 days; 10.5-8.4 days for women, but MD delay was higher for women (108-93 days) than for men (70+-60days)($p<0.05$)
Syrian Arab Republic 25		*			Men preferred to visit the hospital first (19.6% vs. 7.6%), while women visited more private first (81% vs. 66.4%) ($p=0.005$). PD was longer among male than female (63.6 days vs. 40 days).
African countries					
Botswana 8	*				HD was longer when pts first visited to a health post, traditional healer, village without a hospital, or self-rated poor/very poor, or married. TD was longer when pts first visited health post, traditional healer, or with STD treatment in the last 3years.
Burkina Faso 39	*		*		First health care provider consulted: public health unit (24.5%);private health unit (31%) traditional healer (6.5%), fortune teller(1.5%). The average delay to diagnosis was 4 months.
Ethiopia 13	*		*		61% patients initially visited non-formal health provider. Long PD was related with distance, first visit to non-formal health providers, self treatment. Long HD was related with first visit to a health post/clinic or private.
Malawi 10			*		79% patients made one or more subsequent contacts for help.
South Africa 11	*	*		*	PD contributing to TD than HD:72% presented first to health clinics or hospitals. Shorter TD was related with first contact to hospitals. Longer HD was related with female, alcohol drinking, migrant worker, or belief on TB caused by bewitchment.
South Africa 40	*				Patients who consulted traditional healers took longer time to chemotherapy (median 90 days) than those who consulted directly health facilities (median 21 days).
Uganda 12			*	*	Longer PD related to daily alcohol consumption, farming, perception of smoking as a cause of TB. Longer HD>2 health seeking encounters/month, or 29USD medical expenditure
Zambia 41	*	*	*	*	Longer diagnostic delay related to female, education less than 9 yrs, outpatient diagnosis of TB, having visited a private or traditional healer, >6 health-seeking encounters
Zambia 42			*	*	Longer delay among patients with cough was related to older age, severity, poor perception of health services, distance, prior visit to private. There was no relation between delay and knowledge, education level, stigma.
Tanzania 43	*			*	90% of mean TD was PD (its definition is between onset of symptoms to the initial visit to health facility). Longer PD relates aged over 45, rural, distance 10km<, no information on TB prior to diagnosis, education below primary and the initial visit to the traditional healer, One third first visited traditional healer and mean of PD was 266.9days (PD of patients not visited was 94.9days

Legend to Table 3. This table shows the summary of selected articles, with factors causing delays, in particular related to initial health care provider and gender.
(PD: patient delay, HD: health system delay; TD: total delay.)

Table 3. Other Social Factors causing Delays

Country/Author/ Year	Factors	Study results (PD: Patient delay, TD: Total delay, SS: Sputum Smear examination, M:months, W:weeks
Ukraine [46]	Homelessness, Joblessness, Alcohol abuse	Median of PD 30days; in case of jobless 60 days Employed/retired/pupil/housewife: less than 21 days (p=0.003). Alcohol abuser: median of PD 60 days. No alcohol abuse: median of PD 21 days (p=0.007)
Ethiopia [47]	Education, Distance	Patients with severe disease had a longer duration (31 inpatients had mean 6.9 M; 169 outpatients mean 5.6 M). Patients with longer duration had greater number of bacilli in sputum, and married, no formal education and rural residents had longer duration.
The Gambia [9]	Education and lower income, age	TD over16 W relates older age, rural, never gone to school or lower income
Yemen [24]	Illiteracy & pts' recognition	Median diagnostic delay: 8 weeks. By multivariate analysis, literacy was the only factor related to diagnostic delay (p=0.046). .
Brazil [27]	Unemployment	Median TD:90 days); No significant association between delay and gender, age, sex, access or alcohol.. Unemployment contributed to delay (OR=1.4; 95% CI: 1.09-1.81)
China (Hong Kong SAR)[48]	Age & unemployment	47.7% patients were aged over 60 years. Multiple regression analysis shows unemployment predicted longer PD. Patient older than 60 years with no initial sputum examination and chest X-ray predicted longer HD and TD.
Thailand [49]	HIV	Median PDs for HIV (+), HIV (-), unknown were 10, 15 and 15 days respectively. Median HDs for HIV (+), HIV (-), unknown were 7, 7.5 and 10 days respectively. HIV-positive patients had more symptoms and showed a shorter PD. Being married or widowed and being HIV-positive led to the shortest PD.

Sample Questionnaire for Delay Analysis (Annex 1)

Name of the interviewer:_____ Date of interview: ____/_____/____
Name of health center:_____ Place of Interview:_____

Enter the data below (No.1-8) from the treatment card before the interview.

1. Name of patient:..... 2.Registration No:.....
3. Address:..... 4. Age: .....years old
5. Sex: (1) male (2) female 6. Date of sputum collection:
   1st Sputum (YY/MM/DD) ...../...../.....
   2nd Sputum (YY/MM/DD) ...../...../.....
   3rd Sputum (YY/MM/DD) ...../...../.....
7. Date of diagnosis: (YY/MM/DD) .../.../... 8. Starting Date of TB treatment: (YY/MM/DD).../.../...

<Basic patient information> Ask the following questions if needed according to study aims.

1. Occupation (before the onset of disease): ..... 2. Marital status:
3. Relationship with household head:..... 4. No. of family members in the same house:
5. Total income of household per month: ..... 6. Educational level:
7. Kind of transportation used to come to this health facility (health center/clinic/hospital)
8. Time the patient took to come to this health facility:.....
9. Amount of money the patient spent to come to this health facility:.....
10. Ask the patient to list all the health facilities in his/her village/town (as many as he/she knows).....
11. Among those listed in #10 above, ask the patient where he/she usually goes when he/she is sick.....

****

Key Questions on the Process to Diagnosis and Treatment

(to be modified according to the study aims)

1. Introduction
2. Do you know that you have TB?
3. Where or by whom were you first told that you had TB?
4. Who sent you there?
5. What were your major complaints (or symptoms) when you were first told that you had TB? (list and select the major one(s))
6. When did you first become aware of the symptom(s)?
   or, How long were you aware of the symptom(s) before you first consulted any health care provider? (days/weeks/months)
7. When did you first consult/visit the health care provider (drug store; traditional healer; private clinic; health center etc.)?
   (desirably: date/week/month/year)
8. What kind of treatment did you receive there?
9. How far was it from your home?
10. How much money did you use to consult there (traveling/consultation)?
11. Have you consulted/visited any other health care provider with these complaints after the first provider you visited?

(Fill in the table if the patient used many providers.)

Number of visit	Name/type of health care provider	Date of the visit	Kind of treatment received	Distance from home	Expense
1st					
2nd					
3rd					
4th					
5th					

Summary of the process:

(1) The period between the onset of the symptoms and the first visit to a health care provider:.....days/or weeks/or months
(2) The period between the first visit and the TB diagnosis:.....days/or weeks/or months
(3) The period between the first diagnosis and the start of treatment: .....days/or weeks/or months
(4) Total period between the onset of the symptoms and the start of treatment: .....days/or weeks/or months