Assessment of the quality of health information on the Internet: evidence-based accuracy indicators for tuberculosis

Avaliação da qualidade da informação de saúde na internet: indicadores de acurácia baseados em evidência para tuberculose

Rodolfo Paolucci[1], André Pereira Neto[2], Paulo Nadanovsky[2,3]

DOI: 10.1590/0103-11042022135011

ABSTRACT Not long ago, someone had to buy a newspaper, a book, or a magazine or go to a library to obtain information. Today, the Internet quickly facilitates a myriad of information. However, the information provided may be obsolete, incomplete, incorrect, or deliberately false: fake news. In the health field, this information can affect well-being or harm individuals and society. Thus, professionals, researchers, and institutions have assessed the quality of information on health websites to address this issue. Evaluations often verify the accuracy of the information provided. However, the information accuracy indicators have yet to be constructed from Evidence-Based Medicine (EBM). This article aims to build indicators from EBM practices, analyzing the case of tuberculosis. This manuscript proposes 43 information accuracy indicators that evaluated the tuberculosis information available on the Brazilian Ministry of Health. The results indicate that much information needs to be included, and some data must be corrected. This evaluation reiterates the importance of building EBM accuracy indicators. This work intends to encourage new studies about assessing the quality of health information on the Internet.

KEYWORDS Evidence-based medicine. Internet. Access to information. Indicators (statistics). Tuberculosis.

RESUMO *Pouco tempo atrás, para alguém obter informação, era preciso comprar um jornal, um livro, uma revista ou ir até uma biblioteca. Hoje, a internet disponibiliza uma miríade de informação rapidamente. Entretanto, as informações veiculadas podem estar desatualizadas, incompletas, incorretas ou deliberadamente mentirosas: as fakenews. Na saúde, essas informações podem afetar o bem-estar ou causar dano ao indivíduo e à sociedade. Para enfrentar esse problema, avaliações da qualidade da informação de sites de saúde têm sido realizadas por profissionais, pesquisadores e instituições. As avaliações verificam frequentemente a exatidão da informação oferecida. Contudo, os indicadores de acurácia da informação não têm sido construídos a partir da Medicina Baseada em Evidências (MBE). O objetivo desse artigo é construir indicadores a partir das práticas da MBE, analisando o caso da tuberculose. O artigo propõe 43 indicadores de acurácia da informação. Com eles, foi avaliada a informação disponível sobre tuberculose no site do Ministério da Saúde do Brasil. Os resultados indicam que falta muita informação e há informação incorreta. Essa avaliação reitera a importância da construção de indicadores de acurácia da informação a partir da MBE. Este trabalho pretende incentivar a realização de novos estudos sobre avaliação da qualidade da informação de saúde na internet.*

PALAVRAS-CHAVE *Medicina baseada em evidências. Internet. Acesso à informação. Indicadores (estatística). Tuberculose.*

[1] Fundação de Apoio às Escolas Técnicas do Estado do Rio de Janeiro (Faetec) – Rio de Janeiro (RJ), Brasil. *rpprjbr@gmail.com*

[2] Fundação Oswaldo Cruz (Fiocruz) – Rio de Janeiro (RJ), Brasil.

[3] Universidade do Estado do Rio de Janeiro (Uerj) – Rio de Janeiro (RJ), Brasil.

Introduction

Not long ago, someone had to buy a newspaper, a book, or a magazine or go to a distant, not very accessible library to obtain information. Letters were sent by post, and took some time to reach their final destination. Today, the Internet offers new opportunities for access and production of information[1]. Anyone can access, produce, and share the information previously restricted to certain sociocultural groups[2]. To this end, it is necessary to acquire an electronic communication device, to have technological conditions of access to the network, and to have the ability to handle these tools. For example, information can be accessed, produced, and shared on a website, blog, or Facebook profile. The volume of information available on the Internet is countless and covers any subject[3]. Citizens can have all kinds of information at their disposal very quickly. Much information would only be accessed at the same speed[4] with the Internet. Digital media are increasingly pervasive and ubiquitous, reaching the point of building 'smart cities' and marking their presence in all things that surround and serve us[5].

Health stands out as one of the areas with a growing volume of information available to an increasing number of interested people. The national survey coordinated by the Brazilian Internet Steering Committee (CGI.br) indicates that 45% of Internet users searched for information related to health or health services[6]. This type of information has remained Brazilians' second-largest information search activity, behind only information about products and services. In 2020, the total number of Brazilian Internet users who sought this type of information reached 53%[7].

Access to quality health information on the Internet can positively affect health system managers[8,9] and citizens[10]. Quality information promotes health promotion, as it facilitates the development of skills that give citizens greater decision-making power over their health and self-care[11,12]. It can also interfere with the traditional asymmetrical doctor-patient relationship[13]. On the other hand, incorrect, incomprehensible, or outdated information can trigger decision-making harmful to health. Therefore, access to low-quality information can adversely affect the health of citizens.

In this context, Lemos[14] makes a distinction between mass and post-mass media. The first has a centralized flow of information, where firms control the information to serve their financing agents. They play an important social and political role in shaping public opinion. The information is addressed to people in an undifferentiated way, with little interacting possibility. In turn, post-mass media work from networks where anyone can produce information. In this case, there is neither a content producer pole nor dependence on advertising funds. The product is customizable and multidirectional, aimed at particular niches that translate specific interests. These conditions facilitate the flourishing outdated, incomplete, incorrect, or deliberately lying posts: fake news.

Oliveira[15] admits three possibilities for addressing disinformation. In his view, this can be accomplished through fact-checking tools. The author also understands that citizens have the competency to make rational decisions based on their search for information. She suggests media and information literacy. Given the amount of information disseminated on a large scale in digital media, quality assessment can be considered another possibility to tackle fake news. It seems imperative to us vis-à-vis websites linked to public institutions.

In the last decade, researchers evaluating the quality of health information on the Internet have advanced in producing knowledge on how to deal with this issue. In a systematic review[16] on evaluation methods, no study used Evidence-Based Medicine (EBM) practices for developing indicators for the criterion of information accuracy: "a criterion to assess the conformity of information with the best and most current scientific evidence available"[16(159)]. In these studies, as analyzed

in two previous reviews[17,18], the information accuracy indicators were constructed through the consensus of experts, scientific and technical manuals, medical guidelines, textbooks, or literature. Paolucci, Pereira Neto, and Nadanovsky[19] developed a set of methods to fill this gap.

This article aims to build evidence-based indicators addressing the specific case of tuberculosis. Tuberculosis was chosen due to its high incidence and mortality in Brazil, especially among the poor population living in urban areas[20].

Material and methods

We employed the methods developed by Paolucci, Pereira Neto, and Nadanovsky[19] to build indicators. They propose that information accuracy indicators be based on the best available scientific evidence. This article followed the seven-step set of methods: search strategy, evidence-based information source selection, topic collection and selection, development of the first version of indicators, group analysis, topic analysis, and indicator analysis.

Developing information accuracy indicators

In the first step, carried out on April 17, 2019, we applied the search strategy using the word "tuberculosis" in the ACCESSSS[21] meta-search service, which returned 140 results in the fourth level of organization of evidence distributed in three sources of information.

In the second step, we selected DynaMed Plus[22] as a source of information to develop the indicators as it currently offers evidence-based guidance[19]. We also considered other similar platforms for collecting adequate information to construct accuracy indicators when making this option. A recent study[19] compared sources of information similar to DynaMed Plus. In this study, we used DynaMed Plus, as this platform provides synthesized summaries for clinical reference. It stands out for its quality and way of presenting the results[19], and we also managed to narrow down the search results to 40.

In the third stage, we collected and selected TB-related topics. We applied the exclusion criteria proposed by the authors of the method on topics addressing specific drugs and tests, meta topics, or topics without information[19]. Thus, we arrived at a total of 20 topics included in our sample.

In the fourth step, we read the topics and wrote the initial version of the indicators. Next, we classified the indicators into groups representing issues relevant to tuberculosis. As a result, we developed the first version of 180 information accuracy indicators (*annex 1*). However, we considered this number of indicators too extensive to be applied in evaluating health sites aimed at users.

In the fifth step, the group analysis allowed gathering of all indicators in at least one of the dimensions we specified for tuberculosis: prevention, transmission, symptoms, diagnosis, and treatment. In this analysis, we identified 27 indicators that needed to be grouped. The total number of indicators by dimension was as follows: prevention (30), transmission (22), symptoms (22), diagnosis (54), and treatment (60). Some indicators were classified into two dimensions simultaneously. This overview of the number of indicators in each group and possible intersections between them allowed us to reflect on how the sample could be circumscribed to meet the research objectives. It is necessary to shortlist the number of indicators to a feasible set containing essential information to evaluate websites on TB aimed at users. Furthermore, the purpose of health site reviews is not to gather all available evidence on tuberculosis. In this regard, we decided to circumscribe the selected sample of topics found in DynaMed Plus. We, therefore, returned to ponder on the topics included.

In the sixth step, we applied an exclusion criterion in the analysis of topics following the ideas proposed by the authors of the method[19].

The criterion is related to the incidence of different types of TB. This information was found on the service pages themselves. We can include the types of tuberculosis in the pulmonary and extrapulmonary groups.

Pulmonary TB is estimated to have reached ten million people and caused 1.6 million deaths worldwide in 2017 alone[23]. Regarding extrapulmonary TB, we have the following data: abdominal tuberculosis accounts for 5% of cases of extrapulmonary TB; bone and joint, for 10% of cases; disseminated or miliary, for 20% of cases; genitourinary, for about 5-6% of cases; and TB lymphadenitis, for 35% of cases[24]. Given the higher incidence of pulmonary TB than other forms of the disease, we excluded 99 indicators that contained specific information on extrapulmonary TB and reached a total of 81 indicators.

In the seventh and final stage, we analyzed the included indicators. We evaluated the wordings of the initial version as they were written almost as translations of the original clinical texts found in DynaMed Plus. The wording of the indicator should be intelligible to health professionals and users. Thus, they will be able to observe their presence or not on health websites[19]. In this analysis, we applied three methods of reformulating, gathering, and excluding indicators, as guided by Paolucci, Pereira Neto, and Nadanovsky[19].

First, the three exclusion criteria proposed by the authors were used: technical information; considerations about diagnoses or treatments; and information intended for professionals or managers of health systems. The application of these criteria excluded 26 indicators, reducing the total to 55.

Then, we combined indicators with similar or complementary contents. The gathering was made with the information included in more than one indicator and by developing a new indicator wording based on information from two or three indicators. These methods reduced the number of indicators by twelve, totaling 43 information accuracy indicators in the final sample (*table 1*).

Finally, we gathered content differently. However, it did not reduce the total because our analysis identified that the indicators involved were better written by transferring a piece of evidence from one indicator to the other. This procedure was performed in only one case.

Table 1. Final version of the 43 'accuracy' indicators for tuberculosis

Id	Indicators
	Prevention and BCG Group dimension
23	**[Indicator]** The BCG vaccine should be given soon after birth in countries with a high prevalence of tuberculosis. It should also be applied if there is no information about the mother having HIV, as the benefits outweigh the risks. **[Evidence]** 1) BCG vaccination as soon as possible after birth in countries with a high tuberculosis (TB) prevalence revaccination not recommended. 2) benefits outweigh risks in infants born to women of unknown HIV status and should be immunized **[Reference]** 1) http://www.dynamed.com/topics/dmp-AN-T905489#Overview 2) http://www.dynamed.com/topics/dmp-AN-T905489#Overview
26	**[Indicator]** Babies should not be vaccinated with BCG in the following two cases: suspected HIV infection; or are born to women with HIV. **[Evidence]** Risks usually outweigh benefits for infants and should not be immunized if HIV infection is suspected or if born to woman with HIV infection **[Reference]** http://www.dynamed.com/topics/dmp-AN-T905489#Overview
29	**[Indicator]** In countries with a low prevalence of tuberculosis, the BCG vaccine should only be considered for children under the following conditions: negative skin test for tuberculosis; continuous exposure to tuberculosis; and cannot receive long-term primary preventive treatment. Besides these conditions, the vaccine should be considered if children cannot be separated from adults under the following conditions: ineffectively treated for tuberculosis; did not receive treatment; or have strains of tuberculosis resistant to isoniazid and rifampicin. **[Evidence]** Centers for Disease Control and Prevention (CDC) recommendations - consider BCG vaccination only in children - with negative TB skin test - with continual exposure - who cannot be separated from adults who - are ineffectively treated or untreated for TB and child cannot be given long-term primary preventive treatment for TB infection - have TB strains resistant to isoniazid and rifampicin **[Reference]** http://www.dynamed.com/topics/dmp-AN-T905489#Overview

Table 1. (cont.)

Id	Indicators
41	**[Indicator]** Revaccination of the BCG vaccine as a booster is not recommended. Moreover, the vaccine is unreliable against pulmonary tuberculosis for adults and older children. **[Evidence]** 1) revaccination not recommended 2) BCG is unreliable against adult forms of pulmonary tuberculosis. - efficacy variable (0% to > 80%) in older children and adults, with some reports of net harm (JAMA 2004 May 5;291(17):2127) **[Reference]** 1) http://www.dynamed.com/topics/dmp-AN-T905489#Overview 2) http://www.dynamed.com/topics/dmp-AN-T905489#Efficacy
	Prevention and HIV Group dimension
20	**[Indicator]** HIV patients traveling or working in TB endemic regions should be counseled about the risks of the disease and the need to be tested for latent TB infection. **[Evidence]** Counsel patients with HIV who travel or work in tuberculosis (TB)-endemic regions about the risks of TB and need for testing for latent TB infection (LTBI) upon return. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Prevention-and-Screening
21	**[Indicator]** Patients with HIV and latent tuberculosis infection, with no previous treatment, should receive preventive therapy with isoniazid. **[Evidence]** Patients with HIV and LTBI, no evidence of active TB, and no previous treatment for active or latent TB should receive isoniazid preventative therapy (IPT) (CDC/NIH/IDSA Grade A-I) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Prevention-and-Screening
22	**[Indicator]** Antiretroviral therapy can reduce the incidence of tuberculosis in patients with HIV infection. **[Evidence]** Antiretroviral therapy may reduce incidence of tuberculosis in patients with HIV infection regardless of baseline CD4 T-cell count (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Prevention-and-Screening
102	**[Indicator]** Preventive therapy with isoniazid for children with HIV infection is associated with reduced mortality and incidence of tuberculosis, but only if they do not receive antiretroviral therapy. However, if babies were immunized with the BCG vaccine, this preventive therapy may not improve TB-free survival, whether or not they have HIV. **[Evidence]** Efficacy of IPT in children with HIV infection IPT may not reduce mortality or active TB in children with HIV infection receiving ART (level 2 [mid-level] evidence) IPT in children with HIV infection not receiving ART associated with reduced mortality and incidence of TB (level 2 [mid-level] evidence) IPT may not improve TB-disease-free survival in infants with or without HIV infection immunized with Bacille Calmette–Guérin (BCG) vaccine (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909352#Isoniazid-preventative-therapy--IPT
	Prevention and Child Guardian Group dimension
28	**[Indicator]** If the mother has a positive sputum smear (sputum test) for tuberculosis, the baby should receive 6 months of preventive therapy with isoniazid, followed by immunization with the BCG vaccine. An alternative is to perform a tuberculin skin test after 3 months of isoniazid. If the test is negative, isoniazid should be stopped and the BCG vaccine given. If positive, isoniazid should be continued for another 3 months before the BCG vaccine. **[Evidence]** Breastfeeding infant - has high risk of infection from mother with smear-positive pulmonary TB and high risk of developing TB - should receive 6 months of isoniazid preventive therapy, followed by BCG immunization alternative policy is to give 3 months of isoniazid, then perform tuberculin skin test (TST) - if TST negative, isoniazid should be stopped and BCG vaccination given - if TST positive, isoniazid should be continued for another 3 months, after which it should be stopped and BCG given **[Reference]** http://www.dynamed.com/topics/dmp-AN-T905489#Overview http://www.dynamed.com/topics/dmp-AN-T905489#Recommendations
160	**[Indicator]** When a child guardian has a positive result for tuberculosis and a normal chest radiograph, the recommendations are: it is not necessary to separate the mother from the baby; no special evaluation or therapy for the baby; other family members should be evaluated for tuberculosis; and the mother can breastfeed the baby. **[Evidence]** If mother (or household contact) has positive tuberculin skin test or IGRA and normal chest x-ray(8) no separation of mother and infant required no special evaluation or therapy required for infant other household members should be evaluated for tuberculosis as positive test may represent unrecognized case of contagious tuberculosis mother can breastfeed infant **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Management-of-infant-born-to-mother-with-tuberculosis
161	**[Indicator]** Some measures must be taken when a child guardian has clinical symptoms or X-ray abnormalities compatible with tuberculosis. First, evaluate the baby for congenital tuberculosis and separate the guardian from the child until a complete evaluation is performed. If congenital tuberculosis is excluded, preventive therapy with isoniazid should be used for 3 to 4 months. When the child receives isoniazid, separation is no longer necessary, except under the following conditions regarding those responsible: suspected infection with drug resistant tuberculosis; low adherence to therapy; and directly observed therapy is impossible. If the mother has non-resistant tuberculosis and is treated properly for more than 2 weeks, she is allowed to breastfeed the baby. **[Evidence]** If mother (or household contact) has clinical signs and symptoms or abnormal findings on x-ray consistent with tuberculosis disease(8) immediately report to local health department evaluate infant for congenital tuberculosis separate mother (or household contact) from infant until full evaluation can be done, and if tuberculosis suspected, until mother found not to have tuberculosis mother and child both receive appropriate therapy mother understands and is willing to adhere to infection-control measures once infant receives isoniazid, separation not required unless mother (or household contact) has suspected drug resistant tuberculosis infection has poor adherence to therapy and directly observed therapy not possible women with drug-susceptible infection treated appropriately for ≥ 2 weeks may breastfeed if congenital tuberculosis excluded, give isoniazid for 3-4 months and perform skin test if skin test is positive reassess for tuberculosis disease if tuberculosis disease excluded, continue isoniazid for total of 9 months evaluate infants for signs of tuberculosis monthly during treatment if skin test is negative, and mother has good treatment adherence, discontinue isoniazid **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Management-of-infant-born-to-mother-with-tuberculosis
162	**[Indicator]** The following measures should be taken when a child guardian tests positive for tuberculosis, abnormal chest radiograph results and has no evidence of tuberculosis disease: the child can be considered at low risk of disease and separation is not necessary; the mother should be treated for latent tuberculosis infection; and other family members should be evaluated. **[Evidence]** If mother (or household contact) has positive skin test or IGRA and abnormal findings on chest x-ray but no evidence of tuberculosis disease(8) infant can be assumed to be at low risk of disease, and separation not necessary treat mother for latent tuberculosis infection evaluate other household members **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Management-of-infant-born-to-mother-with-tuberculosis

Table 1. (cont.)

Id	Indicators
	Prevention and Child Group dimension
153	**[Indicator]** Preventive therapy with isoniazid is considered for all infants and children with latent tuberculosis and no history of previous tuberculosis treatment. Therapy consists of the use of isoniazid for 6 months for children under 5 years of age. **[Evidence]** 1) consider isoniazid preventative therapy for all infants and children with latent tuberculosis infection who have no evidence of active disease or history of previous tuberculosis treatment 2) both the World Health Organization (WHO) and American Academy of Pediatrics (AAP) recommend preventative therapy for children with latent tuberculosis infection (LTBI)(6, 8) WHO recommends isoniazid preventative therapy (10 mg/kg/day, maximum 300 mg/day) for 6 months to children aged < 5 years who are household or close contacts of people with tuberculosis but do not have active disease (WHO Strong recommendation, High-quality evidence) **[Reference]** 1) http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease 2) http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease
154	**[Indicator]** Preventive therapy should be initiated in all children under 4 years of age with impaired immunity who are exposed to patients with contagious tuberculosis, regardless of the results of diagnostic tests. **[Evidence]** Initiate preventative therapy in all children < 4 years old with impaired immunity exposed to patients with contagious tuberculosis regardless of diagnostic testing results **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease
157	**[Indicator]** In the prevention of tuberculosis in children with latent infection, rifapentine and isoniazid directly observed once a week for 3 months appear to be as effective as isoniazid once a day for 9 months. **[Evidence]** Directly observed rifapentine plus isoniazid once weekly for 3 months appears as effective as isoniazid once daily for 9 months in preventing tuberculosis in children with LTBI (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease
158	**[Indicator]** Four-month rifampicin may be as effective as 9-month isoniazid in children with latent tuberculosis infection. **[Evidence]** Four-month rifampicin may be as effective as 9-month isoniazid in children with LTBI (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease
	Transmission and General Group dimension
131	**[Indicator]** Tuberculosis is transmitted through the air from one person to another when the bacteria are sprayed in an aerosol by a person with pulmonary tuberculosis. **[Evidence]** M. tuberculosis is spread through the air from one person to another when bacteria are aerosolized from a person with pulmonary TB. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T116300#Background
	Transmission and General Risk Factors Group dimension
132	**[Indicator]** Risk factors for pulmonary tuberculosis are: (1) close contact with a person with infectious tuberculosis; (2) children under 5 years of age with a positive tuberculin skin test; (3) people who immigrated from regions of the world with high rates of tuberculosis; (4) groups with high rates of tuberculosis transmission, including people with HIV infection, injecting drug users and people living on the street; (5) work or reside with people at high risk of tuberculosis in facilities or institutions; (6) medical conditions that weaken the immune system such as treatment with immunosuppressive drugs, diabetes, malignancy, organ transplantation, silicosis, substance abuse disorder, severe kidney disease, or low body weight. **[Evidence]** Risk factors for developing TB include: Close contacts of a person with infectious TB disease. Children < 5 years old who have a positive tuberculin skin test. Persons who have immigrated from regions of the world with high rates of TB. Groups with high rates of TB transmission including persons with HIV infection, injection drug users, and homeless persons. Working or residing with people at high risk for TB in facilities or institutions. Medical conditions that weaken the immune system such as HIV infection, treatment with immunosuppressive medications, diabetes, malignancy, organ transplantation, silicosis, substance abuse disorder, severe kidney disease, or low body weight. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T116300#Background
	Transmission and Risk Factors and HIV Group dimension
93	**[Indicator]** HIV is the most important risk factor for tuberculosis. People with HIV are 20 to 30 times more likely to develop tuberculosis than HIV-negative people. Risk factors include: (1) residence in tuberculosis-endemic regions, (2) close contact with tuberculosis patients, (3) crowded housing (including incarceration), (4) poor ventilation in home or work environments, (5) malnutrition and (6) limited access to quality health care. **[Evidence]** About 32% of patients with TB are co-infected with HIV. HIV is the single most important risk factor for TB and persons with HIV are 20-30 times more likely to develop TB than HIV-negative persons. Additional risk factors include residence in TB-endemic regions, close contact with patients with TB, crowded housing (including incarceration), poor ventilation in living or working quarters, poor nutrition, and limited access to quality health care. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909352#Background
	Transmission and Risk Factors and Children Group dimension
27	**[Indicator]** There is a high risk of infection and development of tuberculosis while breastfeeding if mothers test positive for a sputum smear (sputum test). **[Evidence]** breastfeeding infant - has high risk of infection from mother with smear-positive pulmonary TB and high risk of developing TB **[Reference]** http://www.dynamed.com/topics/dmp-AN-T905489#Overview
139	**[Indicator]** Factors associated with an increased risk of developing tuberculosis in children include recent acquisition of infection, younger age, compromised immunity (particularly HIV infection), and chronic comorbidities such as diabetes mellitus. **[Evidence]** Major risk factors for acquisition of infection include birth or residence in an endemic area, exposure to adults with active TB, and exposure to second hand smoke. Factors associated with increased risk of progressing from latent infection to active disease include recent acquisition of infection, younger age, immunocompromise, particularly HIV infection, and chronic comorbidities such as diabetes mellitus. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Background

Table 1. (cont.)

Id	Indicators
	Transmission and Risk Factors and Resistant TBs dimension
52	**[Indicator]** The risk factors for resistant tuberculosis are: (1) previous treatment exceeding one month; (2) history of treatment failure or TB relapse; (3) poor adherence or non-completion of medications during previous treatment; (4) exposure to people with this type of disease; (5) or to persons whose standard treatment is failing or has failed; (6) delayed treatment; (7) positive sputum smear (sputum test) after two months of combination therapy; (8) HIV; (9) foreign birth; (10) younger age; (11) female; (12) previous arrest; (13) and residence or travel to an area with a high prevalence of drug resistant tuberculosis. **[Evidence]** 1) Risk factors for MDR and XDR TB: - prior TB treatment (> 1 month) - failure of a TB treatment regimen containing second-Line drugs including an injectable agent and a fluoroquinolone - close contact with a patient with MDR TB, XDR TB, or with a patient whose treatment regimen including second-line drugs is failing or has failed - delayed treatment - HIV - foreign birth - younger age - female sex - previous imprisonment 2) Risk factors for MDR TB include: exposure to persons with MDR TB a history of TB with treatment failure or relapse poor adherence to or not completing anti-TB medications during previous TB treatment positive sputum smears after 2 months of standard anti-TB combination therapy residence in or travel to area with a high prevalence of drug resistance **[Reference]** 1) http://www.dynamed.com/topics/dmp-AN-T908130#Background 2) http://www.dynamed.com/topics/dmp-AN-T907301#Background
	Symptoms and General Group dimension
133	**[Indicator]** Symptoms suggestive of pulmonary tuberculosis are fever, fatigue, weight loss, night sweats, cough, or hemoptysis (blood in the sputum). These symptoms combined with pleuritis (chest pain on inspiration and expiration) can also indicate tuberculosis. **[Evidence]** 1) Suspect pulmonary tuberculosis (TB) in patients with suggestive symptoms including fever, fatigue, weight loss, night sweats, cough, or hemoptysis. 2) inflammation of parietal pleura resulting in sudden and intense chest pain on inhalation and exhalation(1) ask about symptoms that may appear in combination with pain malaise may indicate malignancy(3) pleural effusion(1) tuberculosis(1) rheumatoid arthritis(1) weight loss may indicate malignancy(3) pleural effusion(1) tuberculosis(1) rheumatoid arthritis(1) fever may indicate(1) pneumonia tuberculosis familial Mediterranean fever systemic lupus erythematosus medication-induced pleuritis (Clin Chest Med 2004 Mar;25(1):141) other infection night sweats may indicate malignancy(3) pleural effusion (including malignant pleural effusion)(1) tuberculosis(1) rheumatoid arthritis(1) 3) Diagnostic testing for cause of hemoptysis may include: - blood tests, including coagulation testing and interferon-gamma release assay or Mantoux screen if suspected tuberculosis **[Reference]** 1) http://www.dynamed.com/topics/dmp-AN-T116300#Evaluation 2) http://www.dynamed.com/topics/dmp-AN-T922350#Description http://www.dynamed.com/topics/dmp-AN-T922350#History-of-present-illness--HPI 3) http://www.dynamed.com/topics/dmp-AN-T920582#Evaluation
	Symptoms and Children Group dimension
144	**[Indicator]** Symptoms suggestive of tuberculosis in children are cough and/or fever, weight loss or failure to thrive, lymphadenopathy (enlarged lymph nodes), hepato/splenomegaly (enlarged liver/spleen), meningitis, ascites, or others. **[Evidence]** Consider the diagnosis of tuberculosis (TB) in children born in endemic areas or with known exposure to an adult with active TB, presenting with cough and/or fever, weight loss or failure to thrive, lymphadenopathy, hepato- or splenomegaly, meningitis or ascites, or other suggestive signs and symptoms. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Evaluation
	Diagnosis and General Group dimension
130	**[Indicator]** Pulmonary tuberculosis is the clinical syndrome of infection of the respiratory system caused by the mycobacterium tuberculosis. **[Evidence]** Pulmonary tuberculosis (TB) refers to the clinical syndrome associated with infection of the respiratory system caused by Mycobacterium tuberculosis. The World Health Organization estimates that in 2017, 10 million people developed TB and 1.6 million died from the disease, with 9,093 cases reported in the United States. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T116300#Background
134	**[Indicator]** The diagnosis of pulmonary tuberculosis is confirmed with the identification of mycobacteria in the respiratory sample of patients with symptoms of the disease. Tests used for diagnosis include sputum smear (sputum test), nucleic acid amplification test, and liquid and solid mycobacterial culture test (gold standard for diagnosis). The diagnosis is often complemented with radiological abnormalities of the chest and evidence of the immune response by the tuberculin skin test and/or by the interferon gamma release test. **[Evidence]** Identification of Mycobacterium tuberculosis in respiratory specimen confirms diagnosis of pulmonary TB in patients with compatible clinical symptoms. Tests used for bacteriologic diagnosis include: Acid fast bacillus (AFB) smear microscopy, though this test is not specific to M. tuberculosis. Nucleic acid amplification testing (NAAT). Liquid and solid mycobacterial culture (gold standard for diagnosis). Diagnosis often supplemented with additional evidence such as: Chest x-ray abnormalities. Evidence of immune response by tuberculin skin test (TST) and/or interferon gamma release assay (IGRA), though these tests will also be positive in patients with previously treated TB or latent TB infection. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T116300#Evaluation
	Diagnosis and HIV Group dimension
12	**[Indicator]** The diagnosis of tuberculosis in patients with HIV is challenging due to the high frequency of negative cases on sputum smear (sputum test), the atypical radiographic presentation, and even extrapulmonary manifestations. **[Evidence]** Diagnosis of tuberculosis (TB) in patients with HIV is challenging due to high frequency of smear-negative cases, atypical radiographic presentation, and extrapulmonary manifestations. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Evaluation
13	**[Indicator]** All patients with HIV and suspected tuberculosis should have a chest X-ray immediately. For symptomatic patients with normal chest radiographs, sputum test and culture should be considered. **[Evidence]** All patients with suspected TB should have chest x-ray early in the course of investigation (Strong recommendation). - Radiologic presentation of chest x-ray varies with state of immunodeficiency. - In patients with CD4 T-cell count > 350 cells/mm3, presentation may resemble that in patients uninfected with HIV including upper lobe infiltrates, cavitation, and pleural disease. - In patients with profound immunocompromise, cavitation is less common and x-ray findings may include pleural effusion, lower or middle lobe infiltrates, miliary infiltrates, mediastinal adenopathy, interstitial nodules, or normal x-ray. - Consider sputum smear and culture in symptomatic patients with normal chest x-rays. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Evaluation

Table 1. (cont.)

Id	Indicators
	Diagnosis and Children Group dimension
145	**[Indicator]** Children with suspected tuberculosis infection should have a tuberculin skin test or interferon gamma release test. If the result is positive, they should have a complete physical examination, including a careful neurological evaluation and a chest X-ray. If the result is negative, further evaluation is considered in children who remain at risk of acquiring tuberculosis, as a negative result does not exclude active disease. **[Evidence]** Screen children with suspected latent or active infection using either a tuberculin skin test (TST) or interferon gamma release assay (IGRA). TST is preferred in children < 5 years old, but IGRA is preferred in children ≥ 5 years old with history of bacille Calmette-Guérin (BCG) vaccination. Either test is acceptable in children > 5 years old who lack a history of BCG vaccination. In children who screen positive, perform a thorough physical examination, including a careful neurologic assessment and a chest x-ray. In children who screen negative, consider additional evaluation in those who remain at increased risk for TB, as a negative result does not rule out active disease. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Evaluation
146	**[Indicator]** In the absence of bacterial confirmation, the diagnosis of tuberculosis can be made clinically based on risk factors, symptoms, and/or chest X-ray features. **[Evidence]** In the absence of bacterial confirmation, the diagnosis can be made clinically based on risk factors, signs and symptoms and/or characteristic chest x-ray findings. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Evaluation
	Diagnosis and Resistant TB Group dimension
51	**[Indicator]** Multi-resistant tuberculosis is the form of tuberculosis resistant to at least isoniazid and rifampicin. Extensively resistant tuberculosis, in addition to these two drugs, is resistant to any fluoroquinolone and at least one of the three injectable drugs: amikacin, kanamycin or capreomycin. **[Evidence]** 1) MDR TB is defined as TB caused by Mycobacterium tuberculosis resistant to at least isoniazid and rifampicin. An estimated 460,000 cases of MDR TB emerged globally in 2017. 2) XDR TB is defined as TB caused by Mycobacterium tuberculosis resistant to isoniazid, rifampicin, any fluoroquinolone, and at least 1 of 3 injectable second-line drugs (amikacin, kanamycin, or capreomycin). **[Reference]** 1) http://www.dynamed.com/topics/dmp-AN-T907301#Background 2) http://www.dynamed.com/topics/dmp-AN-T908130#Background
105	**[Indicator]** The signs of multi and extensively resistant tuberculosis do not differ from common tuberculosis. The diagnosis is traditionally confirmed with culture and drug susceptibility testing. **[Evidence]** 1) The clinical presentation of MDR TB does not differ from that of drug-susceptible TB. MDR TB diagnosis is traditionally confirmed with culture and drug-susceptibility testing. 2) Clinical presentation of XDR TB does not differ from that of drug-susceptible TB. XDR TB diagnosis is confirmed with culture and drug-susceptibility testing. **[Reference]** 1) http://www.dynamed.com/topics/dmp-AN-T907301#Evaluation 2) http://www.dynamed.com/topics/dmp-AN-T908130#Evaluation
	Treatment and General Group dimension
58	**[Indicator]** Every patient hospitalized with suspected tuberculosis should be allocated to airborne infection isolation with appropriate infection control measures for both healthcare workers and visitors. **[Evidence]** Any hospitalized patient with suspected TB or who has acid-fast bacilli (AFB) smear-positive sputum should be placed in airborne infection isolation with appropriate infection control measures for providers and visitors. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908130#Management
115	**[Indicator]** Directly observed therapy is preferable to self-administered therapy for the routine treatment of patients with all forms of tuberculosis. **[Evidence]** Directly observed therapy (DOT) is preferred over self-administered therapy (SAT) for routine treatment of patients with all forms of tuberculosis (Weak recommendation). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T910018#Management
135	**[Indicator]** The recommended treatment for pulmonary tuberculosis is: initial phase of two months with isoniazid, rifampicin, pyrazinamide and ethambutol; and a 4-month continuation phase with isoniazid plus rifampicin. **[Evidence]** The recommended empiric treatment for newly diagnosed pulmonary TB caused by Mycobacterium tuberculosis susceptible to all first-line drugs is a 2-month initial or intensive phase followed by a 4-month continuation phase (Strong recommendation). The 2-month initial phase consists of isoniazid, rifampicin, pyrazinamide, plus ethambutol. The 4-month continuation phase consists of isoniazid plus rifampicin. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T116300#Management
	Treatment and HIV Group dimension
17	**[Indicator]** Treatment in patients with HIV and suspected tuberculosis should be started immediately, even before the full diagnosis is confirmed. Treatment regimens for adults with HIV infection follow the same principles as treatment for adults without HIV. **[Evidence]** Start empiric treatment in patients with HIV and suspected tuberculosis (TB) until diagnostic work-up is complete (Strong recommendation). - Recommendations for antituberculosis treatment regimens in adults with HIV infection follow the same principles as for adults without HIV infection. - Initial phase consists of a 4-drug regimen of isoniazid (INH), rifampicin (or rifabutin), pyrazinamide, and ethambutol daily for 2 months (Strong recommendation). - Continuation phase consists of a 2-drug regimen of INH plus rifampicin (or rifabutin) daily for drug-susceptible TB (Strong recommendation). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Management
18	**[Indicator]** Corticosteroids are recommended for the treatment of tuberculosis in HIV patients with central nervous system involvement or pericardial disease. **[Evidence]** Corticosteroids are recommended for patients with CNS or pericardial disease (Strong recommendation). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Management

Table 1. (cont.)

Id	Indicators
	Treatment and Resistant TB Group dimension
55	**[Indicator]** Multi- and extensively resistant tuberculosis should only be treated by specialists in these types of disease. Before obtaining drug susceptibility test results, appropriate treatment should be initiated in patients suspected of having these types of tuberculosis. **[Evidence]** 1) MDR TB should be managed by experts with experience in the treatment of drug-resistant TB. Prior to receipt of drug-susceptibility testing results, empiric treatment for MDR TB should be started in those in whom MDR TB is suspected. 2) XDR TB should be managed by only those expert in the treatment of drug-resistant TB. Prior to receipt of drug-susceptibility testing results, empiric treatment for XDR TB should be started in those in whom XDR TB is suspected. **[Reference]** 1) http://www.dynamed.com/topics/dmp-AN-T907301#Management 2) http://www.dynamed.com/topics/dmp-AN-T908130#Management
56	**[Indicator]** Treatment of extensively drug-resistant tuberculosis is guided by the results of drug susceptibility testing as follows: always try to use 3 or more previously unused drugs that have passed testing and consider regimens of four to six drugs, including one injectable. **[Evidence]** Treatment is guided by drug-susceptibility testing results: - Always try to use ≥ 3 previously unused drugs that have demonstrated in vitro susceptibility and consider regimens with 4-6 medications, including an injectable (Strong recommendation). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908130#Management
57	**[Indicator]** For treatment of extensively resistant tuberculosis, therapy directly observed at home or in hospital should be performed daily. **[Evidence]** - Institute daily hospital-based or home-based directly observed therapy (DOT) (Strong recommendation). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908130#Management
107	**[Indicator]** The initial treatment of multidrug-resistant tuberculosis includes at least 5 antibiotics. It lasts at least 9 to 12 months. It may last longer depending on the results of drug susceptibility tests. **[Evidence]** Initial treatment includes ≥ 5 antibiotics. Duration is at least 9-12 months, and may be longer depending on drug susceptibility results. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T907301#Management
108	**[Indicator]** None of the potential treatments for people infected with multidrug resistant tuberculosis have been fully tested for efficacy and these treatments are often poorly tolerated. **[Evidence]** None of the potential regimens for persons infected with MDR TB have been tested fully for efficacy, and these regimens are often poorly tolerated **[Reference]** http://www.dynamed.com/topics/dmp-AN-T907301#Contact-investigation
	Treatment and Side Effects Group dimension
136	**[Indicator]** The treatment of pulmonary tuberculosis with isoniazid should be supplemented with pyridoxine to prevent side effects in patients with nutritional deficiency, diabetes, HIV infection, renal failure, alcoholism, in pregnant and lactating women and in children. **[Evidence]** Supplement isoniazid treatment with pyridoxine 25 mg/day in patients with nutritional deficiency, diabetes, HIV infection, renal failure, or alcoholism, in pregnant and breastfeeding women, and in children to prevent adverse events. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T116300#Management

Source: Own elaboration.

Website selection

We arbitrarily selected a website to apply the developed indicators[16]. The chosen one is hosted on the Ministry of Health (MS) portal and is a glossary called 'Health from A to Z'[25]. The pages of this glossary provide official information on health approved by the Brazilian Federal Government. For this reason, they are highlighted in Google Search and easily accessible by managers, health professionals, and users. This MS portal can be considered the main information reference for all state and municipal health secretariats. The information available it contains can be considered reliable. We located the topic 'Tuberculosis'[26] under the letter 't' of the glossary. So, we decided to evaluate the information available on this topic with the developed indicators.

Applying the indicators

Our proposed procedure for applying the accuracy indicators uses the same scale across the board: 'incorrect', 'not found', 'incomplete', and 'complete'. This scale represents our judgment on the information found on the site when comparing it with the information from the indicators developed. The wording of the indicators was designed to contain all essential and evidence-based information that allows for assessing the quality of the information contained in a website.

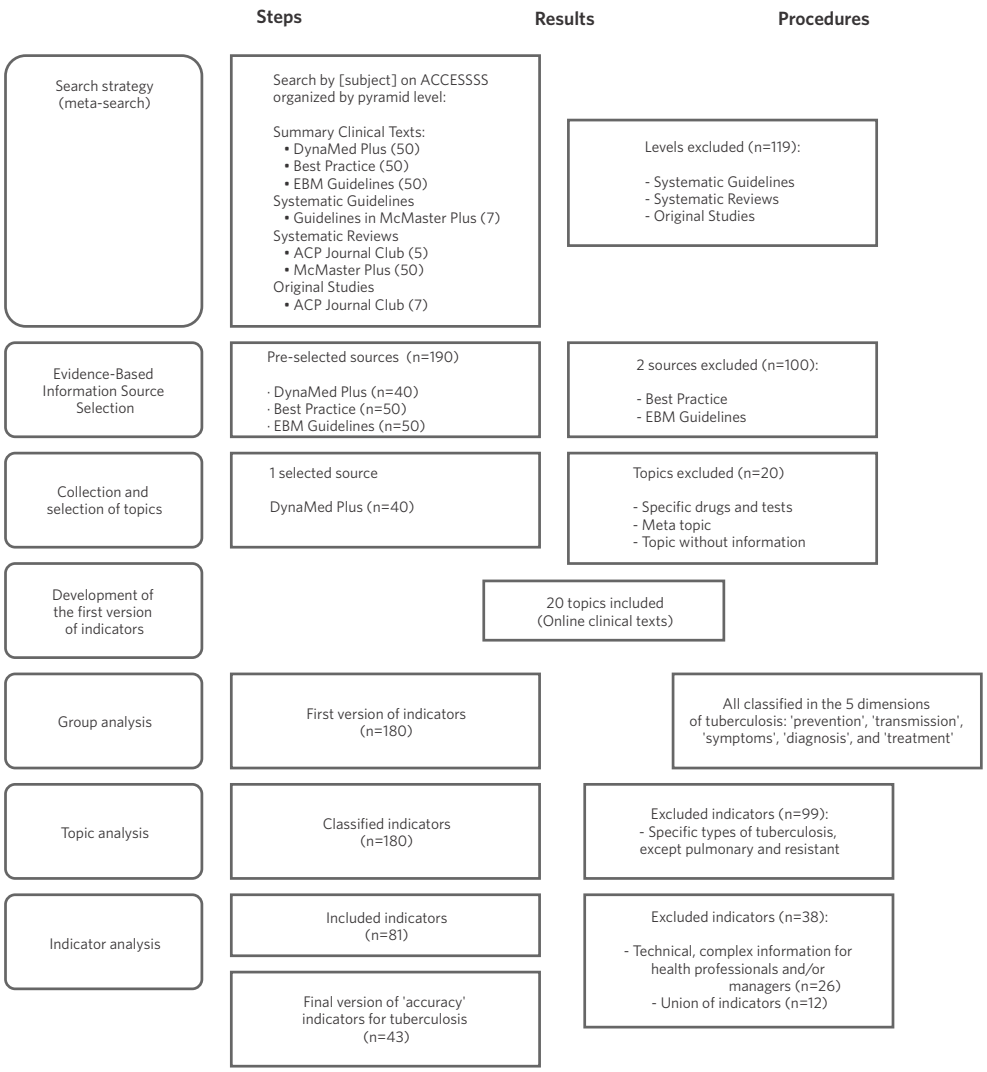
Thus, both health professionals and users can evaluate the information. The idea is that the evaluator checks whether the indicator is available on the website and how it is arranged. If the information is not found, the evaluator should consider it 'not found'.

If it is found but is wrong, the evaluator should consider it 'incorrect'. Where the information is partial, the evaluator should consider it 'incomplete'. However, if any part of the information contained in the indicator is wrong, even if another part is correct, we recommend that the evaluator deems it 'incorrect' for the indicator. Information should only be assessed as 'complete' if found and is correct as per the indicator. We employed this procedure on the selected page on February 24, 2022.

Results

Figure 1 presents the results of the seven stages[19] for developing information accuracy indicators. We developed 43 indicators to assess the quality of information on tuberculosis for Internet users (*table 1*). We defined dimensions for tuberculosis to show how they were organized: prevention, transmission, symptoms, diagnosis, and treatment. The indicators are organized into groups within each dimension.

Figure 1. Methodological flowchart



Source: Own elaboration.

The prevention dimension contains 16 indicators. It holds the most significant number of indicators, evenly distributed into four groups. The 'BCG' group contains information related to the Bacillus Calmette-Guérin (BCG) vaccine as its main subject. The 'HIV' group contains indicators with this virus as the main related subject. The group 'Child guardian' contains information on preventive actions when those responsible for the children have had contact with TB. The main subject in the fourth group is 'Children'.

The 'transmission' dimension contains six information accuracy indicators organized into five groups. There is only one indicator per group, except the group involving the population of 'Children'. The 'General' group does not contain indicators based on specific information about a population, health condition, or intervention. Indicators in this group include information intended for the general population. This group was also created for all the next dimensions we defined. The group 'General risk factors' includes information intended for the general population. The group 'Risk factors and HIV' contains indicators of factors specific to people with HIV. The group 'Risk Factors and Children' contains two information accuracy indicators for this population. The fifth group, 'Risk Factors and Resistant Tuberculosis', is based on information on factors related to drug-resistant types of tuberculosis.

The 'symptoms' dimension contains two indicators classified into two groups: 'General' and 'Children'. The 'TB diagnosis' dimension contains eight indicators organized into four groups, each with two indicators. The first group is 'General', the second is 'HIV', and the third is 'Children'. The fourth group, 'Resistant Tuberculosis' contains indicators based on information related to the diagnosis of drug-resistant tuberculosis.

The 'TB treatment' dimension contains eleven indicators categorized into four groups. The first group, 'General', contains three indicators. The second group was classified as 'HIV' and contained two indicators. The 'Resistant Tuberculosis' group contains five indicators. The fourth group, 'Side effects', contains an indicator based on information whose main subject is the possible side effects resulting from a treatment.

We used the procedure for applying the 43 information accuracy indicators on the TB page in the 'Health from A to Z' glossary of the MS[26] portal. The information was considered 'incorrect' in one indicator, 'not found' in 29, 'incomplete' in eleven, and 'complete' in only two indicators, which reveals poor compliance. Much evidence-based information could be available on this site entirely and correctly. Most of the information was not found or needed to be completed. Also, some information was found to need to be corrected. The complete evaluation result is shown in *table 2*.

Table 2. Evaluation of the topic 'Tuberculosis' in the MS glossary

Id	Indicator	Evaluation	Excerpt extracted from the topic 'Tuberculosis' of the Glossary 'Health from A to Z' of the Ministry of Health
	Prevention and BCG Group dimension		
23	The BCG vaccine should be given soon after birth in countries with a high prevalence of tuberculosis. It should also be applied if there is no information about the mother having HIV, as the benefits outweigh the risks.	Incomplete	The BCG (Bacillus Calmette-Guérin) vaccine, offered in the Unified Health System (SUS), protects children from the most severe forms of the disease, such as miliary tuberculosis and meningeal tuberculosis. The vaccine is available in the vaccination rooms of the basic health units and some maternity hospitals. IMPORTANT: This vaccine must be given to children at birth, or, at most, up to four years, 11 months and 29 days.
26	Babies should not be vaccinated with BCG in the following two cases: suspected HIV infection; or born to women with HIV.	Not found	
29	In countries with a low prevalence of tuberculosis, the BCG vaccine should only be considered for children under the following conditions: negative skin test for tuberculosis; continuous exposure to tuberculosis; and cannot receive long-term primary preventive treatment. Besides these conditions, the vaccine should be considered if children cannot be separated from adults under the following conditions: ineffectively treated for tuberculosis; did not receive treatment; or have strains of tuberculosis resistant to isoniazid and rifampicin.	Not found	
41	Revaccination of the BCG vaccine as a booster is not recommended. Moreover, the vaccine is unreliable against pulmonary tuberculosis for older adults and children.	Not found	
	Prevention and HIV Group dimension		
20	HIV patients traveling or working in TB endemic regions should be counseled about the risks of the disease and the need to be tested for latent TB infection.	Complete	Thus, diagnosing and treating LTBI is an important prevention strategy to prevent the development of the active form of the disease, especially for: - household contacts of people diagnosed with TB - children - HIV infection - people using immunosuppressive treatments IMPORTANT: Latent infection with Mycobacterium tuberculosis should be investigated and treated and active tuberculosis diagnosed and treated early for people living with HIV.
21	Patients with HIV and latent tuberculosis infection, with no previous treatment, should receive preventive therapy with isoniazid.	Incomplete	Thus, it is important that the health team evaluate the contacts of people with TB and offer the exam for the diagnosis of LTBI to the population groups mentioned above, per the criteria for indicating the preventive treatment. Learn more about the Surveillance Protocol for Latent Infection by Mycobacterium tuberculosis in Brazil
22	Antiretroviral therapy can reduce the incidence of tuberculosis in patients with HIV infection.	Incomplete	Early diagnosis of HIV infection in people with tuberculosis and timely initiation of antiretroviral treatment reduce mortality.
102	Preventive therapy with isoniazid for children with HIV infection is associated with reduced mortality and incidence of tuberculosis, but only if they do not receive antiretroviral therapy. However, if babies were immunized with the BCG vaccine, this preventive therapy may not improve TB-free survival, whether or not they have HIV.	Not found	
	Prevention and Child Guardian Group dimension		
28	If the mother has a positive sputum smear (sputum test) for tuberculosis, the baby should receive 6 months of preventive therapy with isoniazid, followed by immunization with the BCG vaccine. An alternative is to perform a tuberculin skin test after 3 months of isoniazid. If the test is negative, isoniazid should be stopped and the BCG vaccine given. If positive, isoniazid should be continued for another 3 months before the BCG vaccine.	Not found	
160	When a child guardian has a positive result for tuberculosis and a normal chest radiograph, the recommendations are: it is not necessary to separate the mother from the baby; no special evaluation or therapy for the baby; other family members should be evaluated for tuberculosis; and the mother can breastfeed the baby.	Not found	

Table 2. (cont.)

Id	Indicator	Evaluation	Excerpt extracted from the topic 'Tuberculosis' of the Glossary 'Health from A to Z' of the Ministry of Health
161	Some measures must be taken when a child guardian has clinical symptoms or X-ray abnormalities compatible with tuberculosis. First, the baby should be evaluated for congenital tuberculosis and the guardian should be separated from the child until a complete evaluation is carried out. If congenital tuberculosis is excluded, preventive therapy with isoniazid should be used for 3 to 4 months. When the child receives isoniazid, separation is no longer necessary, except under the following conditions regarding those responsible: suspected infection with drug resistant tuberculosis; low adherence to therapy; and directly observed therapy is not possible. If the mother has non-resistant tuberculosis and is treated properly for more than 2 weeks, she is allowed to breastfeed the baby.	Not found	
162	The following measures should be taken when a child guardian tests positive for tuberculosis, abnormal chest radiograph results, with no evidence of tuberculosis disease: the child can be considered at low risk of disease and separation is not necessary; the mother should be treated for latent tuberculosis infection; and other family members should be evaluated.	Not found	
	Prevention and Child Group dimension		
153	Preventive therapy with isoniazid is considered for all infants and children with latent tuberculosis and no history of previous tuberculosis treatment. Therapy consists of the use of isoniazid for 6 months for children under 5 years of age.	Not found	
154	Preventive therapy should be initiated in all children under 4 years of age with impaired immunity who are exposed to patients with contagious tuberculosis, regardless of the results of diagnostic tests.	Not found	
157	In the prevention of tuberculosis in children with latent infection, rifapentine and isoniazid directly observed once a week for 3 months appear to be as effective as isoniazid once a day for 9 months.	Not found	
158	4-month rifampicin may be as effective as 9-month isoniazid in children with latent tuberculosis infection.	Not found	
	Transmission and General Group dimension		
131	Tuberculosis is transmitted through the air from one person to another when the bacteria are sprayed in an aerosol by a person with pulmonary tuberculosis.	Complete	Tuberculosis transmission occurs via the respiratory route, through the elimination of aerosols produced by coughing, speaking or sneezing of a person with active (pulmonary or laryngeal) TB, without treatment; and inhalation of aerosols by a susceptible individual.
	Transmission and General Risk Factors Group dimension		
132	Risk factors for pulmonary tuberculosis are: (1) close contact with a person with infectious tuberculosis; (2) children under 5 years of age with a positive tuberculin skin test; (3) people who immigrated from regions of the world with high rates of tuberculosis; (4) groups with high rates of tuberculosis transmission, including people with HIV infection, injecting drug users and people living on the street; (5) work or reside with people at high risk of tuberculosis in facilities or institutions; (6) medical conditions that weaken the immune system such as treatment with immunosuppressive drugs, diabetes, malignancy, organ transplantation, silicosis, substance abuse disorder, severe kidney disease, or low body weight.	Incomplete	Besides factors related to each person's immune system and exposure to the bacillus, illness from tuberculosis is often linked to substandard living conditions. Thus, some population groups may be in greater vulnerability. The table below shows some of these populations and their respective risks of illness compared to the general population. Poorly ventilated cells, reduced sunlight and difficult access to health services: these are some of the factors that contribute to the high number of tuberculosis cases in the prison system.
	Transmission and Risk Factors and HIV Group dimension		
93	HIV is the most important risk factor for tuberculosis. People with HIV are 20 to 30 times more likely to develop tuberculosis than HIV-negative people. Risk factors include: (1) residence in tuberculosis-endemic regions, (2) close contact with tuberculosis patients, (3) crowded housing (including incarceration), (4) poor ventilation in home or work environments, (5) malnutrition and (6) limited access to quality health care.	Incomplete	People Living with HIV (PLHIV) Tuberculosis in people living with HIV is one of the conditions with the greatest impact on HIV and tuberculosis mortality in the country. These people are at higher risk of developing TB, and are often only diagnosed with HIV infection during investigation/confirmation of TB.
	Transmission and Risk Factors and Children Group dimension		
27	There is a high risk of infection and development of tuberculosis while breastfeeding if mothers have a positive sputum smear test.	Not found	
139	Factors associated with an increased risk of developing tuberculosis in children include recent acquisition of infection, younger age, compromised immunity (particularly HIV infection), and chronic comorbidities such as diabetes mellitus.	Not found	

Table 2. (cont.)

Id	Indicator	Evaluation	Excerpt extracted from the topic 'Tuberculosis' of the Glossary 'Health from A to Z' of the Ministry of Health
	Transmission and Risk Factors and Resistant TBs dimension		
52	The risk factors for resistant tuberculosis are: (1) previous treatment for more than one month; (2) history of treatment failure or relapse of tuberculosis; (3) poor adherence or non-completion of medications during previous treatment; (4) exposure to people with this type of disease; (5) or to people whose standard treatment is failing or has failed; (6) delayed treatment; (7) positive sputum smear (sputum test) after two months of combination therapy; (8) HIV; (9) foreign birth; (10) younger age; (11) female; (12) previous arrest; (13) and residence or travel to an area with a high prevalence of drug-resistant tuberculosis.	Not found	
	Dimensão Sintomas e Grupo Geral		
133	Symptoms suggestive of pulmonary tuberculosis are fever, fatigue, weight loss, night sweats, hemoptysis (blood in the sputum), or coughing for two or more weeks. These symptoms combined with pleuritis (chest pain on inspiration and expiration) can also indicate tuberculosis.	Incorrect	What are TB symptoms? - Cough for 3 weeks or more - Evening fever - Night sweats - Slimming The main symptom of pulmonary tuberculosis is coughing. This cough can be dry or productive (with phlegm). IMPORTANT: It is recommended that every person with respiratory symptoms, that is, who has had a cough for three weeks or more, be investigated for tuberculosis.
	Dimensão Sintomas e Grupo Children		
144	Symptoms suggestive of tuberculosis in children are cough and/or fever, weight loss or failure to thrive, lymphadenopathy (enlarged lymph nodes), hepato- splenomegaly (enlarged liver/spleen), meningitis, ascites, or others.	Not found	
	Dimensão Diagnóstico e Grupo Geral		
130	Pulmonary tuberculosis is the clinical syndrome of infection of the respiratory system caused by the mycobacteria tuberculosis.	Incomplete	Tuberculosis is an infectious and transmissible disease caused by the bacterium Mycobacterium tuberculosis, also known as Koch's bacillus. The disease primarily affects the lungs (pulmonary form), although it can affect other organs and/or systems.
134	The diagnosis of pulmonary tuberculosis is confirmed with the identification of mycobacteria in the respiratory sample of patients with symptoms of the disease. Tests used for diagnosis include sputum smear (sputum test), nucleic acid amplification test, and liquid and solid mycobacterial culture test (gold standard for diagnosis). The diagnosis is often complemented with radiological abnormalities of the chest and evidence of the immune response by the tuberculin skin test and/or by the interferon gamma release test	Incomplete	How is TB diagnosed? The following tests are used to diagnose TB: - smear - rapid molecular test for tuberculosis - culture for mycobacteria IMPORTANT: These tests are essential to identify the tuberculosis bacillus and are used to confirm the bacteriological diagnosis of the disease.
	Diagnosis and HIV Group dimension		
12	The diagnosis of tuberculosis in patients with HIV is challenging due to the high frequency of negative cases on sputum smear (sputum test), the atypical radiographic presentation, and even extrapulmonary manifestations.	Incomplete	ATTENTION: For the diagnosis of tuberculosis among the most vulnerable populations (deprived of liberty, indigenous people, people living with HIV, people living on the street, and health professionals), it is recommended that everyone with cough REGARDLESS OF THE TIME OF DURATION and/or chest X-ray suggestive of tuberculosis be evaluated by the health team and perform sputum collection for sputum smear or TRM-TB, culture and sensitivity test.
13	All patients with HIV and suspected tuberculosis should have a chest X-ray immediately. Sputum tests and culture should be considered for symptomatic patients with normal chest radiographs.	Incomplete	ATTENTION: For the diagnosis of tuberculosis among the most vulnerable populations (deprived of liberty, indigenous people, people living with HIV, people living on the street, and health professionals), it is recommended that everyone with cough REGARDLESS OF THE TIME OF DURATION and/or chest X-ray suggestive of tuberculosis be evaluated by the health team and perform sputum collection for sputum smear or TRM-TB, culture and sensitivity test.

Table 2. (cont.)

Id	Indicator	Evaluation	Excerpt extracted from the topic 'Tuberculosis' of the Glossary 'Health from A to Z' of the Ministry of Health
	Dimensão Diagnóstico e Grupo Children		
145	Children with suspected tuberculosis infection should have a tuberculin skin test or interferon gamma release test. If the result is positive, they should have a complete physical examination, including a careful neurological evaluation and a chest X-ray. If the result is negative, further evaluation is considered in children who remain at risk of acquiring tuberculosis, as a negative result does not exclude active disease.	Not found	
146	TB diagnosis can be made clinically based on risk factors, symptoms, and/or chest X-ray features In the absence of bacterial confirmation.	Not found	
	Diagnosis and Resistant TB Group dimension		
51	Multi-resistant tuberculosis is the form of tuberculosis resistant to at least isoniazid and rifampicin. Extensively resistant tuberculosis, in addition to these two drugs, is resistant to any fluoroquinolone and at least one of the three injectable drugs: amikacin, kanamycin or capreomycin.	Not found	
105	The signs of multi and extensively resistant tuberculosis do not differ from common tuberculosis. The diagnosis is traditionally confirmed with culture and drug susceptibility testing.	Not found	
	Treatment and General Group dimension		
58	Every patient hospitalized with suspected tuberculosis should be allocated to airborne infection isolation with appropriate infection control measures for both healthcare workers and visitors.	Not found	
115	Directly observed therapy is preferable to self-administered therapy for the routine treatment of patients with all forms of tuberculosis.	Incomplete	One of the main strategies to promote treatment adherence is Directly Observed Treatment (DOT). DOT consists of observing the person with tuberculosis taking the medication under the observation of a health professional or other trained professionals, such as social assistance professionals, among others, provided they are supervised by health professionals. This treatment regimen should ideally be carried out on every working day of the week, or exceptionally, three times a week. The place and time for performing DOT must be agreed with the person and with the health service.
135	The recommended treatment for pulmonary tuberculosis is: initial phase of two months with isoniazid, rifampicin, pyrazinamide and ethambutol; and a 4-month continuation phase with isoniazid plus rifampicin.	Incomplete	Tuberculosis treatment lasts at least six months, is free of charge and is available through the Unified Health System (SUS). Four drugs are used for the treatment of tuberculosis cases using the basic regimen: rifampicin, isoniazid, pyrazinamide, and ethambutol.
	Treatment and HIV Group dimension		
17	Treatment in patients with HIV and suspected tuberculosis should be started immediately, even before the full diagnosis is confirmed. Treatment regimens for adults with HIV infection follow the same principles as treatment for adults without HIV.	Not found	
18	Corticosteroids are recommended for the treatment of tuberculosis in patients with HIV who have central nervous system involvement or pericardial disease.	Not found	
	Treatment and Resistant TB Group dimension		
55	Multi- and extensively resistant tuberculosis should only be treated by experts in these types of disease. Before obtaining drug susceptibility test results, appropriate treatment should be initiated in patients suspected of having these TB types.	Not found	
56	Treatment of extensively drug-resistant tuberculosis is guided by the results of drug susceptibility testing as follows: always try to use 3 or more previously unused drugs that have passed testing and consider regimens of four to six drugs, including one injectable.	Not found	
57	Directly observed therapy at home or in hospital should be performed daily for treatment of extensively resistant tuberculosis.	Not found	
107	The initial treatment of multidrug-resistant tuberculosis includes at least 5 antibiotics. It lasts at least 9 to 12 months. It may last longer depending on the results of drug susceptibility tests.	Not found	
108	None of the potential treatments for people infected with multidrug resistant tuberculosis have been fully tested for efficacy and these treatments are often poorly tolerated.	Not found	

Table 2. (cont.)

Id	Indicator	Evaluation	Excerpt extracted from the topic 'Tuberculosis' of the Glossary 'Health from A to Z' of the Ministry of Health
	-Treatment and Side Effects Group dimension		
136	the treatment of pulmonary tuberculosis with isoniazid should be supplemented with pyridoxine to prevent side effects in patients with nutritional deficiency, diabetes, HIV infection, renal failure, alcoholism, in pregnant and lactating women, and in children.	Not found	

Source: Own elaboration.

Discussion

We highlight four cases that represent the existence of 'complete', 'incomplete', 'not found', and 'incorrect' information on the evaluated page.

The first is from the indicator developed within the TB transmission dimension that belongs to the 'General' group: 'Tuberculosis is transmitted by air from one person to another when bacteria are expelled as aerosols by someone with pulmonary tuberculosis' (Id 131, *table 2*). When investigating the glossary page, the information found is complete despite being written differently. The evidence supporting this indicator's development refers to two book chapters[23]. The first is from a manual of clinical microbiology in its tenth edition[27]. The second is from a book that is in its eighth edition[28]. Both references are traditional teaching textbooks and contain consolidated knowledge. They can also be considered outdated because the time required for their production cannot keep up with advances in medical knowledge[29]. However, they are referred to as the best evidence in this case. Information on the 'transmission of tuberculosis' can be considered consolidated knowledge or has undergone a few changes over the years. In this sense, it is traditionally known information that the glossary makes available in full.

The second case concerns the indicator developed within the 'TB transmission' dimension that is part of the group 'Risk factors and HIV': HIV is the most critical risk factor for tuberculosis. People with HIV are 20 to 30 times more likely to develop tuberculosis than HIV-negative people. Risk factors include: (1) residence in tuberculosis-endemic regions, (2) close contact with tuberculosis patients, (3) crowded housing (including incarceration), (4) poor ventilation in the home or work environments, (5) malnutrition, and (6) limited access to quality health care. (Id 93, *table 2*). We found the following in the glossary:

> People Living with HIV (PLHIV)
> Tuberculosis in people living with HIV is one of the conditions with the most significant impact on HIV and TB mortality in the country. These people are at greater risk of developing tuberculosis and are often only diagnosed with HIV infection during the investigation/confirmation of TB[26].

In this case, we considered the glossary information 'incomplete'. The evidence[29] that supported the construction of this indicator refers to a review that investigated the state-of-the-art knowledge about the HIV-TB relationship[30]. The authors define this relationship as a syndemic, i.e., "convergence of two or more diseases that act synergistically to increase the burden of disease"[31(352)]. It has had lethal consequences globally. The MS glossary only reports that HIV is "one of the conditions with the greatest impact on mortality"[26]. This information is close to the indicator's assertion that HIV is the most important risk factor for TB. However, there is a relevant difference: HIV is highlighted in DynaMed Plus, which

gives greater centrality to the relationship between the two diseases, a relationship that is currently considered inseparable[30]. The same can be said about developing the disease. The MS glossary states that people with HIV are at greater risk of developing TB[26]. The indicator contains information that this population is 20 to 30 times more likely to develop TB than people without HIV (Id 93, *table 2*). The indicator provides accurate and quantified risk information, highlighting the problem of this interaction between HIV and TB. Moreover, only some risk factors contained in the indicator are available in the glossary. Therefore, we assessed this information as 'incomplete'.

The third case is the indicator built within the TB prevention dimension and the 'BCG' group, which states that 'Babies should not be vaccinated with BCG in the following two cases: suspected HIV infection; or born to women with HIV' (Id 26, *table 2*). When investigating the glossary page[26], we did not find any information about vaccine contraindications. We considered this information to be 'not found' in the glossary. The evidence[32] that supported the development of this indicator refers to two publications linked to the World Health Organization (WHO). The first is a 2007 publication of its weekly epidemiological bulletin[33]. The second document was published in 2015 by one of the prominent international organizations fighting tuberculosis: Stop TB Partnership[34]. The first evidence reference is a review of the BCG vaccine guidelines for children at risk for HIV[33]. The document states that the review originated from the Global Advisory Committee on Vaccine Safety (GACVS) after analyzing more recent data at the time. This review refers to two studies that produced evidence of contraindication for BCG. Published in 2005, the first analyzed the late complications of BCG vaccination in HIV-infected children[35]. The second was conducted at a South African hospital and concluded:

> [...] the risk of disseminated BCG disease increases by several hundredfolds in HIV-infected infants, compared to the documented risk in HIV-uninfected infants[36](14).

Revising the guidelines and changing the vaccine recommendation in these cases show the relevance of EBM practice to keep up with the advancement of medical knowledge. The findings of the two mentioned studies are the evidence that triggered the update of guidelines, which, in turn, led to the update of the online clinical text found in DynaMed Plus. The MS glossary is not guided by such practices, as there is no information on cases of contraindication for the BCG vaccine. Moreover, the documents that formed the basis for DynaMed Plus were published at least seven years ago.

This third case is that of the 'not found' indicator. The lack of information prevailed in our assessment in 29 out of 43 indicators used. Given this reality, we consider it relevant to make a few more comments on this case. There needs to be more information on all five dimensions defined for TB. Information on the BCG vaccine is missing under 'prevention'.

Moreover, no data is available on prevention aimed at people living with HIV, children, and those responsible for children who are vulnerable to tuberculosis in some way. Regarding 'transmission', no information on risk factors for children and infection with resistant tuberculosis was found. Data on specific symptoms for the child population is also missing. Specific information for the HIV-infected population needs to be included under the 'diagnosis'. This dimension needs more information on the child population and resistant tuberculosis. Finally, there is a lack of information on treatments aimed at the general population and people with HIV and information on the treatment of resistant tuberculosis and its side effects.

The fourth and final case is the indicator developed within the tuberculosis symptoms dimension and the 'General' group: 'Symptoms suggestive of pulmonary tuberculosis are fever, fatigue, weight loss, night sweats, hemoptysis

(blood in the sputum), or cough for two or more weeks; these symptoms combined with pleuritis (chest pain on inspiration and expiration) may also indicate tuberculosis' (Id 133, *table 2*). We found the following information in the MS glossary:

> What are the symptoms of tuberculosis?
> Cough for three weeks or more
> Evening fever
> Night sweats
> Slimming
> The main symptom of pulmonary tuberculosis is coughing. This cough can be dry or productive (with phlegm).
> IMPORTANT: We recommend that every person with respiratory symptoms, that is, with a cough for three weeks or more, be investigated for tuberculosis[26].

We considered the glossary information to be 'incorrect' in this case. We returned to the DynaMed Plus website to verify the evidence supporting this indicator's development. It is the result of the analysis of information from three topics: 'Hemoptysis – Approach to the Patient'[37], 'Pleuritis – Approach to the Patient'[38], and 'Pulmonary Tuberculosis'[23]. The evidence available on these topics makes three references.

The first is the book chapter presented in the first case of the indicator on TB transmission[28]. The second is a paper and concerns the evidence that allowed including pleuritis as one of the possible TB symptoms in the indicator[18]. The wording of the indicator considers pleuritis as a symptom. However, this information is not included in the glossary. The third reference is the document entitled 'International Standards for Tuberculosis Care, Edition 3'[40], published in 2014 with funding from important institutions addressing TBs[41]. The document addresses diagnosis, treatment, and Public Health issues, especially norms. The point we highlight in this document is related to information about the cough symptom.

The discussion of the standard emphasizes the importance of including not only cough but also fever, night sweats, and weight loss as indicators for evaluating tuberculosis[40(6)].

There is a concern about highlighting other symptoms besides cough. In another part of the document, the following guidance appears in the description of the same standard:

All patients, including children, with an unexplained cough lasting two or more weeks or with suggestive unexplained TB findings on chest radiographs should be evaluated for tuberculosis[40(9)].

Then, the document justifies and summarizes the evidence supporting the standard. The data shown in the document consider that cough is one of the symptoms, but it is not the only or the main one.

According to the TB CARE I[40], research indicates that 10 to 25% of patients with diagnosed tuberculosis report no cough. The document cites a study conducted in India with 55,561 patients that compared coughing for two or more weeks with coughing for three or more weeks as a reason for performing a diagnostic test[42]. It states that the investigation of patients who had a cough for two or more weeks increased the number of suspected TB cases by 61% and confirmed cases by 46%. Santha et al.[42] concluded that the screening criterion for sputum microscopy is cough after two weeks.

As mentioned, this fourth and last case is considered 'incorrect' according to the evaluation carried out on the page on TB in the MS glossary. Besides not presenting the hemoptysis and pleuritis symptoms, the glossary describes the cough symptom inaccurately. It characterizes cough as the primary symptom, while the evidence guides the importance of highlighting the other symptoms. Another issue is a persistent glossary with outdated information on the duration of cough as a symptom suggestive of TB. The study that identified the benefits of investigating tuberculosis in patients with a cough of two weeks or more dates from 2005[42].

Cough is the traditionally known and reported symptom. For example, the official channel of the Ministry of Health on YouTube has a video of a campaign to encourage early TB diagnosis[43]. It addresses only the cough as a symptom. As in the MS glossary, it is stated that coughing for three or more weeks may indicate TB, and the disease's cure depends on early diagnosis. The duration of cough, available in the evidence used in the document[40], is shorter than the time reported in the glossary[26] and the campaign[43]. Thus, investigating TB in patients with cough from two weeks onwards could contribute to the early diagnosis of TB and the cure of the disease.

Final considerations

The four cases discussed confirm the importance of the indicators developed in this work based on the EBM practices[19]. The 43 information accuracy indicators can be translated into other languages and used to assess the quality of TB websites in any country.

In Brazil, the indicators can be used to update the MS TB page[26] 'Health from A to Z' glossary and align it with the best and most current scientific evidence. Evaluating the glossary with these indicators can be understood as a diagnosis of the quality of the information on this site. Those responsible for the website can access the result and verify the changes or inclusions of information that can be made.

In this sense, all topics in the 'Health from A to Z' glossary could be submitted to the same evaluation process. The methods can be replicated for other health issues contained in the glossary[19]. They will facilitate retrieving reliable scientific evidence to develop information accuracy indicators on any health issue. This glossary evaluation work should be performed urgently to ensure that the website of this national reference public institution is constantly updated and provides correct information.

The problems of low quality and lack of information on portals such as the MS are directly related to the low importance of health information and communication on the Internet for public health managers and researchers. Brazilian science, technology, and innovation policymakers must be aware of new information and communication technologies' role in societies around the planet.

In the fourth case discussed in this article, the investigation of patients who had a cough for two weeks increased the number of suspected TB cases by 61% and confirmed TB cases by 46%[40]. These data indicate a significant increase in early diagnosis and, consequently, in the early treatment of the disease. This essential information should be corrected in the MS 'Health from A to Z' glossary. Correct information per high information accuracy standards can prevent complications that lead to death and, thus, save lives.

Therefore, this paper addresses a relevant subject in the current academic setting, where the Internet has become one of the most sought-after sources of health information, especially after the SARS-CoV-2 pandemic. However, interest in information security has remained the same. We recommend that further studies be carried out addressing this discussion.

Collaborators

Paolucci R (0000-0003-3986-1118)* and Pereira Neto A (0000-0003-3631-8857)* equally contributed to the conception and design of the work; data acquisition, analysis, and interpretation for the work; paper writing and critical review for important intellectual content; final approval of the version to be published; and agree to be responsible for all work aspects to ensure that issues relating to the accuracy or completeness of any part of the work are appropriately investigated and resolved. Nadanovsky P (0000-0003-3345-9873)* contributed to the conception and design of the work; and the critical review of important intellectual content. ■

*Orcid (Open Researcher and Contributor ID).

References

1. Pereira Neto A, Barbosa L, Flynn M. Prefácio da edição brasileira – Há décadas em que nada acontece. Há semanas em que décadas acontecem. In: Pereira Neto A, Flynn M, organizadores. Internet e saúde no Brasil: desafios e tendências. 1. ed. São Paulo: Cultura Acadêmica; 2021. p. 7-18.

2. Pereira Neto A, Paolucci R. Avaliação da qualidade da informação de saúde na internet: análise das iniciativas brasileiras. In: Pereira Neto A, Flynn M, organizadores. Internet e saúde no Brasil: desafios e tendências. 1. ed. São Paulo: Cultura Acadêmica; 2021. p. 257-291.

3. Pereira Neto A, Ferreira EC, Domingues RLAMT, et al. Avaliação da qualidade da informação de sites sobre Covid-19: uma alternativa de combate às fake news. Saúde debate. 2022; 46(132):30-46.

4. Cheng C, Dunn M. Health literacy and the Internet: a study on the readability of Australian online health information. Aust New Zeal J Public Heal. 2015; 39(4):309-14.

5. João BN, Souza CL, Serravo FA. A systematic review of smart cities and the internet of things as a research topic. Cad EBAPEBR. 2020; 17(4):1115-30.

6. Martinhão MS. Pesquisa sobre o uso das tecnologias de informação e comunicação nos domicílios brasileiros: TIC domicílios 2018. São Paulo: Comitê Gestor da Internet no Brasil; 2019. [acesso em 2022 out 5]. Disponível em: https://www.cgi.br/media/docs/publicacoes/2/12225320191028-tic_dom_2018_livro_eletronico.pdf.

7. Barbosa AF. Pesquisa sobre o uso das Tecnologias de Informação e Comunicação nos domicílios brasileiros: TIC Domicílios 2020: edição COVID-19: metodologia adaptada. São Paulo: Comitê Gestor da Internet no Brasil; 2021. [acesso em 2022 out 5]. Disponível em: https://www.cgi.br/media/docs/publicacoes/2/20211124201233/tic_domicilios_2020_livro_eletronico.pdf.

8. Park H, Lee S-I, Hwang H, et al. Can a health information exchange save healthcare costs? Evidence from a pilot program in South Korea. Int J Med Inf. 2015; 84(9):658-66.

9. Spoelman WA, Bonten TN, Waal MWM, et al. Effect of an evidence-based website on healthcare usage: an interrupted time-series study. BMJ Open. 2016; 6(11).

10. Eysenbach G. The impact of the Internet on cancer outcomes. CA-A CANCER J Clin. 2003; 53(6):356-71.

11. Garbin H, Guilam M, Pereira Neto A. Internet na promoção da saúde: um instrumento para o desenvolvimento de habilidades pessoais e sociais. Physis. 2012; 22(1):347-363.

12. Pereira Neto A, Ribeiro B, Guljor AP, et al. Eu quero entrar na rede: análise de uma experiência de inclusão digital com usuários do Caps. Saúde debate. 2020; (44):58-69.

13. Garbin HB, Pereira Neto A, Guilam MCR. A internet, o paciente expert e a prática médica: uma análise bibliográfica. Interface – Comum. Saúde, Educ. 2008; (26):579-88.

14. Lemos A. Cidade e mobilidade. Telefones celulares, funções pós-massivas e territórios informacionais. MATRIZes. 2007; 1(1):121-37.

15. Oliveira T. Como enfrentar a desinformação científica? Desafios sociais, políticos e jurídicos intensificados no contexto da pandemia. Liinc em Revista. 2020; (16):e5374.

16. Paolucci R, Neto AP. Methods for evaluating the quality of information on health websites: Systematic Review (2001-2014). Lat Am J Dev. 2021; 3(3):994-1056.

17. Eysenbach G, Powell J, Kuss O, et al. Empirical Studies Assessing the Quality of Health Information for Consumers on the World Wide Web. JAMA. 2002; 287(20):2691-700.

18. Zhang Y, Sun Y, Xie B. Quality of health information for consumers on the web: A systematic review of indicators, criteria, tools, and evaluation results. J Assoc Inf Sci Technol. 2015; 66(10):2071-84.

19. Paolucci R, Neto A, Nadanovsky P. Avaliação da acurácia da informação em sites de saúde: Métodos para construção de indicadores baseados em evidência. Em Questão. 2021; 27(4):137-88.

20. Brasil. Ministério da Saúde, Secretaria de Vigilância em Saúde. Boletim Epid. 2019 [acesso em 2018 jan 13]; (9). Disponível em: http://portalarquivos2.saude.gov.br/images/pdf/2019/marco/22/2019-009.pdf.

21. McMaster U. About. 2019. [acesso em 2019 maio 30]. Disponível em: https://www.accessss.org/Pages/About.

22. DynaMed. About DynaMed Clinical Decision Support Tool. 2019. [acesso em 2019 maio 7]. Disponível em: https://www.dynamed.com/home/about.

23. DynaMed. Record No. T116300. Pulmonary Tuberculosis. 2018. [acesso em 2019 jul 23]. Disponível em: https://www.dynamed.com/topics/dmp~AN~T116300.

24. Paolucci R. Avaliação da qualidade da informação em sites de saúde: indicadores de acurácia baseada em evidência para tuberculose. [tese]. Rio de Janeiro: Fundação Oswaldo Cruz; 2020. 149 p.

25. Brasil. Ministério da Saúde. Saúde de A a Z – Português (Brasil). 2022. [acesso em 2022 fev 24]. Disponível em: https://www.gov.br/saude/pt-br/assuntos/saude-de-a-a-z.

26. Brasil. Ministério da Saúde. Tuberculose – Português (Brasil). 2022. [acesso em 2022 fev 24]. Disponível em: https://www.gov.br/saude/pt-br/assuntos/saude-de-a-a-z/t/tuberculose/tuberculose.

27. Pfyffer G, Palicova F. Mycobacterium: General characteristics, laboratory detection, and staining procedures. In: Versalovic J, Carroll K, Funke G, et al., editores. Manual of Clinical Microbiology. 10. ed. Washington: American Society for Microbiology Press; 2011. p. 472-502.

28. Fitzgerald D, Sterling T, Haas D. Mycobacterium tuberculosis. In: Bennett J, Dolin RBM, editores. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases. 8. ed. New York: Saunders; 2015. p. 2787-2818.

29. Burwell DS. Acquiring the evidence: How to find current best evidence and have current best evidence find us. In: Straus SE, Glasziou P, Richardson WS, et al., editores. Evidence-based medicine: how to practice and teach EBM. 5. ed. Elsevier Health Sciences; 2019. p. 57-90.

30. DynaMed. Record No. T909352, Latent Tuberculosis Infection in Patients With HIV. 2019. [acesso em 2019 jul 22]. Disponível em: https://www.dynamed.com/topics/dmp~AN~T909352.

31. Kwan C, Ernst JD. HIV and tuberculosis: A deadly human syndemic. Clin Microbiol Rev. 2011; 24(2):351-76.

32. DynaMed. Record No. T905489, Bacille Calmette-Guerin (BCG) Vaccine. 2018. [acesso em 2019 jul 18]. Disponível em: https://www.dynamed.com/topics/dmp~AN~T905489.

33. World Health Organization. Revised BCG vaccination guidelines for infants at risk for HIV infection. Wkly Epidemiol Rec. 2007; 82(21):193-6.

34. Stop TB. Partnership. The global plan to stop TB 2011-2015: Transforming the fight towards elimination of tuberculosis. 2011 [acesso em 2022 out 5]. Disponível em: http://www.stoptb.org/assets/documents/global/plan/TB_GlobalPlanToStopTB2011-2015.pdf.

35. Fallo A, Torrado L, Sanches A, et al. Delayed complications of Bacille Calmette-Guerin (BCG) vaccination in HIV-infected children. In: 3 IAS Conference on HIV Pathogenesis and Treatment. 2005 jul 25-27. Rio de Janeiro: International AIDS Society; 2005.

36. Hesseling AC, Marais BJ, Gie RP, et al. The risk of dis-

seminated Bacille Calmette-Guerin (BCG) disease in HIV-infected children. Vaccine. 2007; 25(1):14-8.

37. DynaMed. Record No. T920582, Hemoptysis – Approach to the Patient. 2018. [acesso em 2019 jul 19]. Disponível em: https://www.dynamed.com/topics/dmp~AN~T920582.

38. DynaMed. Record No. T922350, Pleuritis – Approach to the Patient. 2018. [acesso em 2019 jul 22]. Disponível em: https://www.dynamed.com/topics/dmp~AN~T922350.

39. Reamy BV, Williams PM, Odom MR. Pleuritic Chest Pain: Sorting Through the Differential Diagnosis. Am Fam Physician. 2017; 96(5):306-12.

40. World Health Organization. International Standards for Tuberculosis Care. 3. ed. 2014. [acesso em 2019 dez 5]. Disponível em: https://www.who.int/publications/m/item/international-standards-for-tuberculosis-care-(istc).

41. Management Sciences for Health. Home. 2020 [acesso em 2020 jan 4]. Disponível em: https://www.msh.org.

42. Santha T, Garg R, Subramani R, et al. Comparison of cough of 2 and 3 weeks to improve detection of smear-positive tuberculosis cases among out-patients in India. Int J Tuberc Lung Dis. 2005; 9(1):61-8.

43. Brasil. Ministério da Saúde. (472) #Tuberculose Filme oficial. [YouTube]. 2011. [acesso em 2019 ago 8]. Disponível em: https://www.youtube.com/watch?v=Dt5zJQsnWzw.

Received on 07/15/2022
Approved on 09/21/2022
Conflict of interests: non-existent
Financial support: non-existent

Annex 1

Annex 1. First version of 180 'accuracy' indicators for TB

Id	Indicators	Topics	Groups	Registration dates
1	**[Indicator]** Abdominal tuberculosis is a form of extrapulmonary tuberculosis that involves the peritoneum, the gastrointestinal tract, solid organs such as the liver, spleen, and pancreas, or abdominal lymph nodes. It is responsible for about 5% of cases of extrapulmonary tuberculosis. **[Evidence]** Abdominal tuberculosis (TB) is a form of extrapulmonary tuberculosis involving the peritoneum, the gastrointestinal tract, solid organs such as the liver, spleen, and pancreas, or abdominal lymph nodes. Abdominal TB accounts for about 5% of cases of extrapulmonary TB. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T910286#Background	Abdominal tuberculosis	- Definitions	17/07/2019 at 14:47
2	**[Indicator]** Abdominal tuberculosis can be contracted in the as follows: ingestion of infected food or milk; transmission through the bloodstream from the lung or other infected body site; or even through the spread of adjacent organs or lymphnodes. **[Evidence]** Infection may result from ingestion of infected food or milk, swallowing infected sputum, hematogenous spread from the primary pulmonary site or other site of infection, or direct spread from adjacent organs or lymph nodes. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T910286#Background	Abdominal tuberculosis	- Transmission	17/07/2019 at 14:57
3	**[Indicator]** Abdominal tuberculosis symptoms may be nonspecific: fever, weight loss, abdominal pain or tenderness, bloating, constipation, diarrhea, enlarged liver, or an enlarged spleen. **[Evidence]** Patients may present with nonspecific symptoms including fever and weight loss. Other symptoms may include abdominal pain or tenderness, abdominal distention, constipation, diarrhea, hepatomegaly, or splenomegaly. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T910286#Background	Abdominal tuberculosis	- Symptoms	17/07/2019 at 15:06

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
4	**[Indicator]** Risk factors for abdominal tuberculosis include alcoholic liver disease and cirrhosis, continuous ambulatory peritoneal dialysis for chronic kidney failure, diabetes mellitus, and HIV infection. **[Evidence]** Risk factors for abdominal TB include alcoholic liver disease and cirrhosis, continuous ambulatory peritoneal dialysis for chronic renal failure, diabetes mellitus, and HIV infection. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910286#Background	Abdominal tuberculosis	- Risk factor - Transmission	17/07/2019 at 15:17
5	**[Indicator]** The diagnosis of abdominal tuberculosis should include images of the suspected site. Images including barium studies, CT scans, and abdominal ultrasound may be helpful. **[Evidence]** The diagnostic evaluation should include imaging of the suspected site of involvement. Imaging including barium studies, computed tomography (CT) scans, and an abdominal ultrasound may be helpful to visualize findings associated with abdominal tuberculosis (TB), including strictures, fistulae, erosions, regional adenopathy, thickened omentum, or ascitic fluid. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910286#Evaluation	Abdominal tuberculosis	- Diagnosis	17/07/2019 at 15:23
6	**[Indicator]** An ascitic fluid (excessive fluid in the abdominal cavity) culture or a biopsy sample is required for the definitive diagnosis of abdominal tuberculosis. **[Evidence]** A culture of ascitic fluid or of a biopsy specimen is required for definitive diagnosis, and drug-susceptibility testing aids in the selection of the proper anti-TB therapy. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910286#Evaluation	Abdominal tuberculosis	- Diagnosis	17/07/2019 at 15:27
7	**[Indicator]** If abdominal tuberculosis is confirmed, a chest X-ray is required because of a possible concomitant lung disease. **[Evidence]** Because of the possibility of concomitant pulmonary disease, perform a chest x-ray for all persons with confirmed or suspected abdominal TB. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910286#Evaluation	Abdominal tuberculosis	- Diagnosis	17/07/2019 at 15:31
8	**[Indicator]** Treatment of abdominal tuberculosis follows the standard multidrug anti-tuberculosis regimen: intensive initial phase with isoniazid, rifampicin, pyrazinamide and ethambutol for 2 months; and a continuation phase with isoniazid and rifampicin for 4 months. **[Evidence]** Treat patients with abdominal TB caused by drug-susceptible organisms with the standard antituberculosis multidrug regimen: - initial intensive phase with isoniazid, rifampicin, pyrazinamide, and ethambutol for 2 months - continuation phase with isoniazid and rifampicin for 4 months **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910286#Management	Abdominal tuberculosis	- Treatment	17/07/2019 at 15:36
9	**[Indicator]** Patients in whom drug-resistant abdominal TB is suspected or confirmed should be treated based on the drug susceptibility profile and after consulting with an expert. **[Evidence]** Treat patients with suspected or confirmed drug-resistant organisms based on the drug-susceptibility profile and in consultation with an expert. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910286#Management	Abdominal tuberculosis	- Treatment - Resistant tuberculosis	17/07/2019 at 15:42
10	**[Indicator]** HIV infection is the most important risk factor for tuberculosis, as people with HIV are 20 to 30 times more likely to develop the disease. **[Evidence]** HIV infection is the most important risk factor for TB, and persons with HIV are 20-30 times more likely to develop TB than persons who are HIV-negative. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909161#Background	Active tuberculosis in patients with HIV infection	- Risk factor - HIV	17/07/2019 at 16:11
11	**[Indicator]** Additional risk factors for people with HIV include residence in TB-endemic regions, close contact with TB patients, crowded housing (including incarceration), poor ventilation in living or working environments, poor nutrition, and limited access to quality health care. **[Evidence]** Additional risk factors include residence in TB-endemic regions, close contact with patients with TB, crowded housing (including incarceration), poor ventilation in living or working quarters, poor nutrition, and limited access to quality health care. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909161#Background	Active tuberculosis in patients with HIV infection	- Risk factor - HIV - Transmission	17/07/2019 at 16:15
12	**[Indicator]** The diagnosis of tuberculosis in patients with HIV is challenging due to the high frequency of negative cases in sputum smears (sputum tests), atypical radiographic presentation, and extrapulmonary manifestations. **[Evidence]** Diagnosis of tuberculosis (TB) in patients with HIV is challenging due to high frequency of smear-negative cases, atypical radiographic presentation, and extrapulmonary manifestations. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909161#Evaluation	Active tuberculosis in patients with HIV infection	- Diagnosis - HIV	17/07/2019 at 16:21
13	**[Indicator]** All patients with HIV and suspected TB should have a chest X-ray immediately. Consider sputum testing and culture in symptomatic patients with normal chest radiographies. **[Evidence]** All patients with suspected TB should have chest x-ray early in the course of investigation (Strong recommendation). - Radiologic presentation of chest x-ray varies with state of immunodeficiency. - In patients with CD4 T-cell count > 350 cells/mm3, presentation may resemble that in patients uninfected with HIV including upper lobe infiltrates, cavitation, and pleural disease. - In patients with profound immunocompromise, cavitation is less common and x-ray findings may include pleural effusion, lower or middle lobe infiltrates, miliary infiltrates, mediastinal adenopathy, interstitial nodules, or normal x-ray. - Consider sputum smear and culture in symptomatic patients with normal chest x-rays. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909161#Evaluation	Active tuberculosis in patients with HIV infection	- Diagnosis - HIV	17/07/2019 at 16:31

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
14	**[Indicator]** Additional diagnostic tests such as needle aspiration or biopsy for histopathological examination, acid resistant bacilli, sputum, culture should be considered for patients with HIV and suspected lymphadenitis (infection of the lymph nodes) from tuberculosis, including a sample of pleural fluid, pericardial fluid, ascites, or cerebrospinal fluid, if there is evidence of involvement. **[Evidence]** Additional diagnostic testing is directed at sites of disease. - For patients with suspected TB lymphadenitis, consider needle aspiration or biopsy for histopathology, acid fast bacilli, smear, and culture. - Sample pleural fluid, pericardial fluid, ascites, or cerebrospinal fluid (CSF) if there is evidence of involvement. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Evaluation	Active tuberculosis in patients with HIV infection	- Diagnosis - HIV	17/07/2019 at 16:38
15	**[Indicator]** Consider nucleic acid amplification tests in patients with advanced immunodeficiency, as the test is faster than culture, more sensitive than sputum smear, and allows distinguishing between tuberculosis and nontuberculous mycobacterial infections. **[Evidence]** Consider nucleic acid amplification tests in patients with advanced immunodeficiency, as testing is more rapid than culture, more sensitive than smear microscopy, and allows distinction between tuberculosis and nontuberculous mycobacterial infections. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Evaluation	Active tuberculosis in patients with HIV infection	- Diagnosis - HIV	17/07/2019 at 16:43
16	**[Indicator]** Skin and interferon gamma-releasing tests (IGRAs) may be useful in supporting the diagnosis of tuberculosis if specimens are difficult to obtain for sputum and culture tests, or if specimens are not revealing. **[Evidence]** Tuberculin skin tests and interferon gamma release assays (IGRAs) may be useful to corroborate diagnosis of TB if samples for smear and culture are difficult to obtain or are unrevealing, although tests do not distinguish between latent and active disease. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Evaluation	Active tuberculosis in patients with HIV infection	- Diagnosis - HIV	17/07/2019 at 16:51
17	**[Indicator]** Treatment in patients with HIV and suspected tuberculosis should be initiated even before the full diagnosis is confirmed. Treatment regimens for adults with HIV infection follow the same principles as treatment for adults without HIV. **[Evidence]** Start empiric treatment in patients with HIV and suspected tuberculosis (TB) until diagnostic work-up is complete (Strong recommendation). - Recommendations for antituberculosis treatment regimens in adults with HIV infection follow the same principles as for adults without HIV infection. - Initial phase consists of a 4-drug regimen of isoniazid (INH), rifampicin (or rifabutin), pyrazinamide, and ethambutol daily for 2 months (Strong recommendation). - Continuation phase consists of a 2-drug regimen of INH plus rifampicin (or rifabutin) daily for drug-susceptible TB (Strong recommendation). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Management	Active tuberculosis in patients with HIV infection	- HIV - Treatment	17/07/2019 at 17:03
18	**[Indicator]** Corticosteroids are recommended for the treatment of tuberculosis in HIV patients who have central nervous system involvement or pericardial disease. **[Evidence]** Corticosteroids are recommended for patients with CNS or pericardial disease (Strong recommendation). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Management	Active tuberculosis in patients with HIV infection	- HIV - Treatment	17/07/2019 at 17:07
19	**[Indicator]** Patients with HIV infection and tuberculosis are at risk of developing immune reconstitution inflammatory syndrome (IRIS) with deteriorating signs and symptoms after initiation of antituberculosis and antiretroviral therapy. **[Evidence]** Patients with HIV infection and TB are at risk of developing immune reconstitution inflammatory syndrome (IRIS) with worsening of signs and symptoms after beginning antituberculosis and antiretroviral therapy. - Risk of IRIS is higher in those who start ART within 2 weeks of starting antituberculosis treatment compared to those who started at 8-12 weeks. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Management	Active tuberculosis in patients with HIV infection	- Side effects - HIV	17/07/2019 at 17:14
20	**[Indicator]** HIV patients traveling or working in TB endemic regions should be counseled about the risks of the disease and the need for testing for latent infection when they return. **[Evidence]** counsel patients with HIV who travel or work in tuberculosis (TB)-endemic regions about the risks of TB and need for testing for latent TB infection (LTBI) upon return. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Prevention-and-Screening	Active tuberculosis in patients with HIV infection	- HIV - Prevention	17/07/2019 at 17:41
21	**[Indicator]** Patients with HIV and latent tuberculosis infection, with no previous treatment, should receive preventive therapy with isoniazid. **[Evidence]** patients with HIV and LTBI, no evidence of active TB, and no previous treatment for active or latent TB should receive isoniazid preventative therapy (IPT) (CDC/NIH/IDSA Grade A-I) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Prevention-and-Screening	Active tuberculosis in patients with HIV infection	- HIV - Prevention	17/07/2019 at 17:44
22	**[Indicator]** Antiretroviral therapy can reduce the incidence of tuberculosis in patients with HIV infection. **[Evidence]** antiretroviral therapy may reduce incidence of tuberculosis in patients with HIV infection regardless of baseline CD4 T-cell count (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909161#Prevention-and-Screening	Active tuberculosis in patients with HIV infection	- HIV - Prevention	17/07/2019 at 17:46
23	**[Indicator]** The BCG vaccine should be given after birth in countries with high TB prevalence. **[Evidence]** BCG vaccination as soon as possible after birth in countries with a high tuberculosis (TB) prevalence revaccination not recommended. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T905489#Overview	Bacille Calmette-Guerin vaccine (BCG)	- Babies - Prevention	18/07/2019 at 10:59

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
24	**[Indicator]** Revaccination of the BCG vaccine as a booster is not recommended. **[Evidence]** revaccination not recommended **[Reference]** http://www.dynamed.com/topics/dmp~AN~T905489#Overview	Bacille Calmette-Guerin vaccine (BCG)	- Prevention	18/07/2019 at 11:00
25	**[Indicator]** Babies born to women with unknown HIV status should be vaccinated with BCG, as the benefits outweigh the risks. **[Evidence]** benefits outweigh risks in infants born to women of unknown HIV status and should be immunized **[Reference]** http://www.dynamed.com/topics/dmp~AN~T905489#Overview	Bacille Calmette-Guerin vaccine (BCG)	- Babies - HIV - Prevention	18/07/2019 at 11:02
26	**[Indicator]** Babies suspected of having HIV infection or if born to an HIV-infected woman should not be vaccinated with BCG, as the risks often outweigh the benefits. **[Evidence]** risks usually outweigh benefits for infants and should not be immunized if HIV infection is suspected or if born to woman with HIV infection **[Reference]** http://www.dynamed.com/topics/dmp~AN~T905489#Overview	Bacille Calmette-Guerin vaccine (BCG)	- Babies - HIV - Prevention	18/07/2019 at 11:05
27	**[Indicator]** During breastfeeding, there is a high risk of infection and development of tuberculosis by a mother with a positive sputum smear (sputum test). **[Evidence]** breastfeeding infant - has high risk of infection from mother with smear-positive pulmonary TB and high risk of developing TB - should receive 6 months of isoniazid preventive therapy, followed by BCG immunization **[Reference]** http://www.dynamed.com/topics/dmp~AN~T905489#Overview	Bacille Calmette-Guerin vaccine (BCG)	- Breastfeeding - Babies - Transmission	18/07/2019 at 11:17
28	**[Indicator]** If the mother has a positive sputum smear (sputum test) for tuberculosis, the baby should receive 6 months of preventive therapy with isoniazid, followed by immunization with the BCG vaccine. An alternative is to perform a tuberculin skin test after 3 months of isoniazid. If the test is negative, isoniazid should be stopped and the BCG vaccine given. If positive, isoniazid should be continued for another 3 months before the BCG vaccine. **[Evidence]** breastfeeding infant - has high risk of infection from mother with smear-positive pulmonary TB and high risk of developing TB - should receive 6 months of isoniazid preventive therapy, followed by BCG immunization alternative policy is to give 3 months of isoniazid, then perform tuberculin skin test (TST) - if TST negative, isoniazid should be stopped and BCG vaccination given - if TST positive, isoniazid should be continued for another 3 months, after which it should be stopped and BCG given **[Reference]** http://www.dynamed.com/topics/dmp~AN~T905489#Overview http://www.dynamed.com/topics/dmp~AN~T905489#Recommendations	Bacille Calmette-Guerin vaccine (BCG)	- Breastfeeding - Babies - Prevention	18/07/2019 at 11:20
29	**[Indicator]** In countries with a low prevalence of tuberculosis, the BCG vaccine should only be considered for children in the following conditions: negative skin test for tuberculosis; continuous exposure to tuberculosis; cannot be separated from adults who are ineffectively/untreated for tuberculosis or have isoniazid and rifampicin resistant strains of tuberculosis; and cannot receive long-term primary preventive treatment. **[Evidence]** Centers for Disease Control and Prevention (CDC) recommendations - consider BCG vaccination only in children - with negative TB skin test - with continual exposure - who cannot be separated from adults who - are ineffectively treated or untreated for TB and child cannot be given long-term primary preventive treatment for TB infection - have TB strains resistant to isoniazid and rifampicin **[Reference]** http://www.dynamed.com/topics/dmp~AN~T905489#Overview	Bacille Calmette-Guerin vaccine (BCG)	- Children - Prevention - Resistant tuberculosis	18/07/2019 at 11:35
30	**[Indicator]** The BCG vaccine for healthcare professionals should be considered on a case-by-case basis under the following conditions: high percentage of patients with tuberculosis resistant to isoniazid and rifampicin; continuous transmission of resistant tuberculosis to health professionals; and when precautions taken to control tuberculosis are unsuccessful. **[Evidence]** consider BCG vaccination in healthcare workers on case-by-case basis in settings with - high percentage of TB patients infected with TB strains resistant to isoniazid and rifampicin - ongoing transmission of drug-resistant TB strains to healthcare workers and subsequent infection likely - comprehensive TB infection-control precautions implemented but not successful **[Reference]** http://www.dynamed.com/topics/dmp~AN~T905489#Overview	Bacille Calmette-Guerin vaccine (BCG)	- Prevention - Health professional - Resistant tuberculosis	18/07/2019 at 11:41
31	**[Indicator]** Bone and joint tuberculosis can involve any bone in the body. About half of the cases involve the spine of which half in the thoracic spine. Common extraspinal sites are the large bones and weight-bearing joints, including the hip, knee, foot, and ankle. About 10% of patients with extrapulmonary tuberculosis are compromised by it. **[Evidence]** About 10% of patients with extrapulmonary tuberculosis (TB) have skeletal involvement. Skeletal TB can involve nearly any bone in the body. - About one-half of cases involve the spine, and one-half of those are located in the thoracic spine. - Large weight-bearing bones and joints including the hip, knee, foot, and ankle are common extra-spinal sites. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909571#Background	Bone and joint tuberculosis	- Definitions	18/07/2019 at 11:55
32	**[Indicator]** Bone tuberculosis is associated with localized heat, swelling, and sensibility. Joint tuberculosis is associated with sensibility, soft tissue swelling/effusion, and restricted movements. Back pain is the most common symptom, along with neurological losses, fever, and back swelling. **[Evidence]** Osseous involvement is associated with localized warmth, swelling, and tenderness. Articular involvement is associated with tenderness, soft tissue swelling/effusion, and a restriction of movement. Back pain is the most common symptom of spinal tuberculosis (TB), with other symptoms including neurologic deficits, fever, and back swelling. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909571#Evaluation	Bone and joint tuberculosis	- Symptoms	18/07/2019 at 12:03

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
33	[Indicator] If bone or joint tuberculosis is suspected/confirmed, concomitant pulmonary tuberculosis should be investigated. [Evidence] Concurrent pulmonary TB should be sought in all patients with suspected or confirmed skeletal TB. [Reference] http://www.dynamed.com/topics/dmp-AN-T909571#Evaluation	Bone and joint tuberculosis	- Diagnosis	18/07/2019 at 12:06
34	[Indicator] Radiography, CT and MRI can be used to evaluate bone and soft tissue, but it is not a diagnosis for bone and joint tuberculosis. [Evidence] Radiographic testing can be used to define bony and soft tissue involvement but is not diagnostic for tuberculosis. - Plain x-ray may identify substantial bony destruction, but early findings may not be visualized. - Computed tomography provides bony detail and may be helpful in guiding biopsy. - Magnetic resonance imaging is preferred for assessing vertebral collapse, involvement of vertebral bodies, soft tissue involvement, or the presence of abscess. - Abscesses appear as paravertebral soft tissue shadows, and the detection of calcifications within an abscess is virtually diagnostic of spinal TB. - A retropharyngeal abscess may be diagnosed in cervical spine films by the presence of an increased prevertebral soft tissue space. [Reference] http://www.dynamed.com/topics/dmp-AN-T909571#Evaluation	Bone and joint tuberculosis	- Diagnosis	18/07/2019 at 12:12
35	[Indicator] Confirmatory diagnosis of bone and joint tuberculosis can be made by image-guided biopsy or needle aspiration of the involved site to collect samples for testing. [Evidence] A confirmatory diagnosis may be made by image-guided biopsy or needle aspiration of the involved area with specimens tested for mycobacterial smear and culture, nucleic acid amplification test, histology and cytology. [Reference] http://www.dynamed.com/topics/dmp-AN-T909571#Evaluation	Bone and joint tuberculosis	- Diagnosis	18/07/2019 at 12:15
36	[Indicator] Treatment of bone and joint tuberculosis follows the standard multi-drug anti-TB drugs regimen, including isoniazid, rifampicin, pyrazinamide, and ethambutol. [Evidence] Treat patients with bone and joint TB with the standard first-line antituberculosis regimen including isoniazid, rifampicin, pyrazinamide, and ethambutol (Strong recommendation). [Reference] http://www.dynamed.com/topics/dmp-AN-T909571#Management	Bone and joint tuberculosis	- Treatment	18/07/2019 at 12:27
37	[Indicator] If bone and joint tuberculosis is due to infection with drug-susceptible organisms, pyrazinamide and ethambutol should be discontinued after 2 months and treatment continued with isoniazid and rifampicin for 4 to 7 months. The decision on the duration of treatment must be made on a case-by-case basis. [Evidence] With infections by fully susceptible organisms, stop pyrazinamide and ethambutol after 2 months and continue isoniazid and rifampicin for 4-7 months; a decision on duration of therapy should be made on a case-by-case basis (Strong recommendation). [Reference] http://www.dynamed.com/topics/dmp-AN-T909571#Management	Bone and joint tuberculosis	- Treatment	18/07/2019 at 12:30
38	[Indicator] Bone and joint tuberculosis caused by drug-resistant organisms or multidrug-resistant organisms usually responds well to appropriate individualized therapy. [Evidence] Bone and joint TB caused by drug-resistant organisms or multidrug-resistant organisms usually responds well to appropriate individualized therapy. [Reference] http://www.dynamed.com/topics/dmp-AN-T909571#Management	Bone and joint tuberculosis	- Treatment - Resistant tuberculosis	18/07/2019 at 12:32
39	[Indicator] If the patient has no neurological impairment, an unstable spine, or spinal cord compression, drug therapy for bone and joint tuberculosis is usually sufficient. [Evidence] Medical therapy is usually sufficient if the patient does not have neurologic impairment, an unstable spine, or spinal cord compression. [Reference] http://www.dynamed.com/topics/dmp-AN-T909571#Management	Bone and joint tuberculosis	- Treatment	18/07/2019 at 12:37
40	[Indicator] For bone and joint tuberculosis, the role of surgery is controversial, but it can be used to debride infected tissue, stabilize the spine, or relieve spinal cord or nerve compression. [Evidence] The role of surgery is controversial but may be used to debride infected tissue, stabilize the spine, or relieve spinal cord or nerve compression. [Reference] http://www.dynamed.com/topics/dmp-AN-T909571#Management	Bone and joint tuberculosis	- Treatment	18/07/2019 at 12:41
41	[Indicator] The BCG vaccine is unreliable against pulmonary tuberculosis for adults and older children. [Evidence] BCG is unreliable against adult forms of pulmonary tuberculosis. - efficacy variable (0% to > 80%) in older children and adults, with some reports of net harm (JAMA 2004 May 5;291(17):2127) [Reference] http://www.dynamed.com/topics/dmp-AN-T905489#Efficacy	Bacille Calmette-Guerin vaccine (BCG)	- Adults - Prevention	18/07/2019 at 12:46
42	[Indicator] Disseminated tuberculosis is a systemic disease that can result in infection of multiple organ systems. This disease is also called miliary tuberculosis. For immunocompetent adults, it accounts for less than 2% of tuberculosis cases and up to 20% of extrapulmonary cases. [Evidence] Disseminated tuberculosis (TB) is a systemic disease resulting from massive lymphohematogenous dissemination of Mycobacterium tuberculosis that can result in infection of multiple organ systems. This disease is also called miliary tuberculosis. In immunocompetent adults, disseminated TB is reported to account for less than 2% of all cases of TB and up to 20% of all cases of extrapulmonary TB. [Reference] http://www.dynamed.com/topics/dmp-AN-T901421#Background	Disseminated tuberculosis	- Definitions	18/07/2019 at 14:17
43	[Indicator] Symptoms of disseminated (miliary) tuberculosis are nonspecific, including fever and weight loss, anorexia, weakness, cough, night sweats, and chills. Due to the systemic nature of the disease, other symptoms may vary depending on the organ(s) involved. [Evidence] Patients may present with nonspecific symptoms including fever and weight loss, anorexia, weakness, cough, night sweats, and chills and rigors. Due to the systemic nature of the disease, other presenting signs and symptoms can vary depending on the organ(s) involved. [Reference] http://www.dynamed.com/topics/dmp-AN-T901421#Background	Disseminated tuberculosis	- Symptoms	18/07/2019 at 14:20

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
44	**[Indicator]** Risk factors for disseminated (miliary) tuberculosis include HIV infection, young and old, female gender, and Asian or African origin. **[Evidence]** Risk factors for extrapulmonary TB and disseminated TB include HIV infection, young and old age, female gender, and Asian or African origin. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T901421#Background	Disseminated tuberculosis	- Risk factor	18/07/2019 at 14:23
45	**[Indicator]** The definitive diagnosis of disseminated (miliary) tuberculosis is made by culture or detection of mycobacterium tuberculosis at the affected site. However, this method can take up to 8 weeks. The use of nucleic acid amplification tests provides an alternative and faster means of diagnosis. **[Evidence]** A definitive diagnosis requires either culture or detection of Mycobacterium tuberculosis from the affected site. Culture of the organism provides a definitive diagnosis but it may take up to 8 weeks. The use of nucleic acid amplification tests (NAATs) provide an alternate and more rapid means of diagnosis. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T901421#Evaluation	Disseminated tuberculosis	- Diagnosis	18/07/2019 at 14:26
46	**[Indicator]** Disseminated (miliary) tuberculosis may be evident in about 50% of chest radiographs. However, computed tomography can show the disease even in patients with normal radiography. **[Evidence]** Perform a chest x-ray for all persons to rule out concurrent pulmonary tuberculosis for all patients. - The characteristic miliary pattern may be evident in about 50% of chest x-rays. High-resolution computed tomography may reveal a miliary pattern even in patients with a normal x-ray. - Other findings on the chest x-ray may include nodules, ground glass appearance, air-space consolidation, or, more rarely, parenchymal lesions and cavitation or pleural effusion. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T901421#Evaluation	Disseminated tuberculosis	- Diagnosis	18/07/2019 at 14:47
47	**[Indicator]** Treatment of non-drug resistant disseminated (miliary) tuberculosis follows the standard multidrug regimen: intensive initial phase with isoniazid, rifampicin, pyrazinamide and ethambutol for 2 months; and a continuation phase with isoniazid and rifampicin for 4 months. **[Evidence]** Treat patients with disseminated TB caused by drug-susceptible organisms with the standard antituberculosis multidrug regimen: - initial intensive phase with isoniazid, rifampicin, pyrazinamide, and ethambutol for 2 months - continuation phase with isoniazid and rifampicin for 4 months **[Reference]** http://www.dynamed.com/topics/dmp~AN~T901421#Management	Disseminated tuberculosis	- Treatment	18/07/2019 at 14:50
48	**[Indicator]** Patients in whom drug-resistant disseminated (miliary) tuberculosis is suspected or confirmed should be treated based on the drug susceptibility profile and consulting with an expert. **[Evidence]** Treat patients with suspected or confirmed drug-resistant organisms based on the drug-susceptibility profile and in consultation with an expert. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T901421#Management	Disseminated tuberculosis	- Treatment	18/07/2019 at 14:51
49	**[Indicator]** Corticosteroids are not recommended in patients with disseminated (miliary) tuberculosis without central nervous system involvement. **[Evidence]** Corticosteroids are not recommended in patients with disseminated TB without central nervous system involvement. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T901421#Management	Disseminated tuberculosis	- Treatment	18/07/2019 at 14:54
50	**[Indicator]** Endobronchial tuberculosis, bronchial stenosis, or strictures can be treated with: laser therapy; cryosurgery; electrocautery; argon plasma coagulation. **[Evidence]** Endobronchial tuberculosis - bronchial stenosis or strictures may be treated with - laser therapy - cryosurgery - electrocautery - argon plasma coagulation **[Reference]** http://www.dynamed.com/topics/dmp~AN~T916926#Overview	Endobronchial ablative therapies	- Treatment	18/07/2019 at 15:19
51	**[Indicator]** Extensively drug-resistant tuberculosis is the form of the disease resistant to isoniazid, rifampicin, any fluoroquinolone, and at least one of three injectable drugs: amikacin, kanamycin, or capreomycin. **[Evidence]** XDR TB is defined as TB caused by Mycobacterium tuberculosis resistant to isoniazid, rifampicin, any fluoroquinolone, and at least 1 of 3 injectable second-line drugs (amikacin, kanamycin, or capreomycin). **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908130#Background	Extensively drug-resistant tuberculosis (XDR TB)	- Definitions - Resistant tuberculosis	18/07/2019 at 15:22
52	**[Indicator]** Risk factors for resistant tuberculosis are: (1) previous treatment for more than one month; (2) failure of a tuberculosis treatment regimen containing second-line drugs, including an injectable agent and a fluoroquinolone; (3) close contact with a patient who has resistant tuberculosis or whose treatment regimen with second-line drugs is failing or has failed; (4) delayed treatment; (5) HIV; (6) foreign birth; (7) younger age; (8) female; and (9) previous arrest. **[Evidence]** Risk factors for MDR and XDR TB: - prior TB treatment (> 1 month) - failure of a TB treatment regimen containing second-line drugs including an injectable agent and a fluoroquinolone - close contact with a patient with MDR TB, XDR TB, or with a patient whose treatment regimen including second-line drugs is failing or has failed - delayed treatment - HIV - foreign birth - younger age - female sex - previous imprisonment **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908130#Background	Extensively drug-resistant tuberculosis (XDR TB)	- Risk factor - HIV - Deprivation of liberty - Sex - Resistant tuberculosis	18/07/2019 at 15:29

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
53	**[Indicator]** As the clinical presentation of resistant tuberculosis does not differ from that of non-resistant tuberculosis, the diagnosis is confirmed with culture and drug susceptibility tests. **[Evidence]** Clinical presentation of XDR TB does not differ from that of drug-susceptible TB. XDR TB diagnosis is confirmed with culture and drug-susceptibility testing. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908130#Evaluation	Extensively drug-resistant tuberculosis (XDR TB)	- Diagnosis - Resistant tuberculosis	18/07/2019 at 15:32
54	**[Indicator]** One should suspect resistant tuberculosis before receiving culture test results if risk factors for multidrug resistant tuberculosis are identified; positive sputum smears (sputum tests) and/or cultures persist; or little/no improvement in tuberculosis symptoms with the standard regimen of treatment. **[Evidence]** XDR TB may be suspected prior to receipt of culture results if risk factors for multidrug-resistant (MDR) TB are present or there are persistently positive sputum smears and/or cultures or little/no improvement in signs and symptoms of TB, despite standard anti-TB treatment. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908130#Evaluation	Extensively drug-resistant tuberculosis (XDR TB)	- Diagnosis - Resistant tuberculosis	18/07/2019 at 15:37
55	**[Indicator]** Resistant tuberculosis should only be treated by experts in this type of disease. However, before receiving drug susceptibility test results, appropriate treatment should be initiated in patients suspected of having resistant tuberculosis. **[Evidence]** XDR TB should be managed by only those expert in the treatment of drug-resistant TB. Prior to receipt of drug-susceptibility testing results, empiric treatment for XDR TB should be started in those in whom XDR TB is suspected. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908130#Management	Extensively drug-resistant tuberculosis (XDR TB)	- Treatment - Resistant tuberculosis	18/07/2019 at 15:42
56	**[Indicator]** Treatment of resistant tuberculosis is guided by the results of drug susceptibility tests as follows: always try to use 3 or more previously unused drugs that have passed the tests and consider regimens with four to six drugs, including one injectable. **[Evidence]** Treatment is guided by drug-susceptibility testing results: - Always try to use ≥ 3 previously unused drugs that have demonstrated in vitro susceptibility and consider regimens with 4-6 medications, including an injectable (Strong recommendation). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908130#Management	Extensively drug-resistant tuberculosis (XDR TB)	- Treatment - Resistant tuberculosis	18/07/2019 at 16:04
57	**[Indicator]** Daily hospital-based therapy or directly observed therapy at home should be established for the treatment of resistant tuberculosis. **[Evidence]** - Institute daily hospital-based or home-based directly observed therapy (DOT) (Strong recommendation). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908130#Management	Extensively drug-resistant tuberculosis (XDR TB)	- Treatment - Resistant tuberculosis	18/07/2019 at 16:05
58	**[Indicator]** Any hospitalized patient with suspected tuberculosis should be placed in airborne infection isolation with appropriate infection control measures for both healthcare workers and visitors. **[Evidence]** Any hospitalized patient with suspected TB or who has acid-fast bacilli (AFB) smear-positive sputum should be placed in airborne infection isolation with appropriate infection control measures for providers and visitors. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908130#Management	Extensively drug-resistant tuberculosis (XDR TB)	- Treatment	18/07/2019 at 16:08
59	**[Indicator]** The management of patients with latent tuberculosis infection who have contact with other patients with multidrug resistant tuberculosis should be guided, when possible, by the drug susceptibility results of the source patient. **[Evidence]** Treatment for latent TB infection in contacts of multidrug-resistant (MDR) TB patients should be guided by drug-susceptibility results in the source patient, when possible. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908130#Management	Extensively drug-resistant tuberculosis (XDR TB)	- Treatment - Resistant tuberculosis	18/07/2019 at 16:11
60	**[Indicator]** As multidrug-resistant tuberculosis can have a prolonged infectious period if treatment is ineffective, patients should be continually re-assessed by consulting experts. **[Evidence]** - since multidrug-resistant TB (MDR TB) can have an extended infectious period if treatment is ineffective, continually reassess patients for recent contacts - seek expert consultation for treatment of persons exposed to patients with MDR TB **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908130#Contact-investigation	Extensively drug-resistant tuberculosis (XDR TB)	- Prevention - Resistant tuberculosis	18/07/2019 at 16:18

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
61	**[Indicator]** The recommended program for tuberculosis infection control consists of the following actions: (1) implement administrative control to reduce the risk of exposure to patients who may have tuberculosis; (2) assign responsibility for tuberculosis infection control; (3) perform a tuberculosis risk assessment; (4) develop and implement a written tuberculosis infection control plan to ensure prompt detection of people who have suspected or confirmed tuberculosis, air precautions, and treatment; (5) ensure availability of recommended laboratory processing, testing, and reporting of results to the requesting physician; (6) implement effective work practices for the management of patients with suspected or confirmed tuberculosis; (7) perform adequate cleaning and sterilization or disinfection of equipment that may be contaminated with tuberculosis; (8) train and educate healthcare professionals about tuberculosis, including symptoms, transmission and prevention; (9) implement a tuberculosis screening program to assess workers at risk of disease or who may be exposed; (10) apply environment-related infection control data and other epidemiology-based prevention principles; (11) use appropriate signage advocating cough mask and respiratory hygiene; (12) coordinate efforts with local and state health departments. **[Evidence]** implementation of infection control program recommended, consisting of - administrative controls to reduce risk for exposure to patients who might have tuberculosis (TB) - assign responsibility for TB infection control - conduct a TB risk assessment - develop and implement a written TB infection-control plan to ensure prompt detection of persons who have suspected or confirmed TB, airborne precautions, and treatment - ensure timely availability of recommended laboratory processing, testing, and reporting of results to the ordering physician - implement effective work practices for the management of patients with suspected or confirmed TB - proper cleaning and sterilization or disinfection of equipment that may be contaminated with M. tuberculosis - train and educate healthcare workers about TB including symptoms, transmission, and prevention - implement TB screening program to evaluated workers at risk for TB disease or who might be exposed to M. tuberculosis - apply setting-related infection-control data and other epidemiologic-based prevention principles - use appropriate signage advocating cough etiquette and respiratory hygiene - coordinate efforts with state and local health departments **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908130#Infection-control	Extensively drug-resistant tuberculosis (XDR TB)	- Prevention - Health System	18/07/2019 at 16:26
62	**[Indicator]** Environmental control must be performed to prevent the spread of infectious droplet nuclei in the air: primary environmental control; local exhaust ventilation (hoods, tents or cabins) to control the source of infection; general ventilation to dilute and remove contaminated air; secondary environmental control includes high-efficiency particulate air filtration or ultraviolet germicidal irradiation to control airflow, preventing air contamination in areas adjacent to the source, and cleaning the air. **[Evidence]** environmental controls to prevent spreading of infectious droplet nuclei in ambient air - primary environmental controls - local exhaust ventilation (hoods, tents, or booths) to control the source of infection - general ventilation to dilute and remove contaminated air - secondary environmental controls include high efficiency particulate air filtration or ultraviolet germicidal irradiation to control the airflow to prevent contamination of air in areas adjacent to the source and clean the air **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908130#Infection-control	Extensively drug-resistant tuberculosis (XDR TB)	- Prevention - Health System	18/07/2019 at 16:44
63	**[Indicator]** Respiratory protection control should be conducted to reduce the risk of exposure of healthcare workers to infectious droplets expelled into the air by patients with tuberculosis: implement respiratory protection program; train health professionals in respiratory protection; train patients in cough mask and respiratory hygiene procedures. **[Evidence]** respiratory protection controls to reduce risk for exposure of healthcare workers to infectious droplet nuclei that have been expelled into the air from a patient with infectious TB disease - implement a respiratory protection program - train healthcare workers on respiratory protection - train patients on cough etiquette procedures and respiratory hygiene **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908130#Infection-control	Extensively drug-resistant tuberculosis (XDR TB)	- Prevention - Health professional - Health System	18/07/2019 at 16:48
64	**[Indicator]** Genitourinary tuberculosis is a form of extrapulmonary tuberculosis that involves any part of the male or female reproductive or urinary tract. It accounts for about 5% to 6% of cases of extrapulmonary tuberculosis. **[Evidence]** Genitourinary tuberculosis (TB) is a form of extrapulmonary TB that involves any part of the male or female reproductive or urinary tracts. Genitourinary TB accounts for about 5%-6% of cases of extrapulmonary TB. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909302#Background	Genitourinary tuberculosis	- Definitions	19/07/2019 at 10:04
65	**[Indicator]** Risk factors for genitourinary tuberculosis include congenital urogenital anomalies, renal cysts, urolithiasis, renal failure, and renal transplantation. The infection usually occurs through the bloodstream from the lung infection and subsequently spreads from the kidney to the ureter and bladder. **[Evidence]** Specific risk factors for genitourinary TB include congenital urogenital anomalies, renal cysts, urolithiasis, renal failure, and renal transplantation. Genitourinary infection typically occurs by hematogenous dissemination from pulmonary infection and subsequently spreads from kidney to ureter to bladder. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909302#Background	Genitourinary tuberculosis	- Risk factor - Transmission	19/07/2019 at 10:32

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
66	**[Indicator]** Symptoms of genitourinary tuberculosis can be similar to other urinary tract infections and include dysuria (discomfort, pain, or burning when urinating), frequency, urgency, and hematuria (blood in the urine). Moreover, there may be pain in the back or flank (abdominal region). In all cases, systemic symptoms associated with tuberculosis, such as fever, weight loss, or sweating may be identified. **[Evidence]** When TB affects the urinary tract, symptoms may be similar to other urinary tract infections and include dysuria, frequency, urgency, and hematuria. With upper tract involvement, back or flank pain may be present. The finding of sterile pyuria, with or without proteinuria and hematuria, should also prompt investigation, particularly in patients with previous or current pulmonary tuberculosis. Also consider genitourinary TB in patients with a suspected urinary tract infection that does not respond to antibiotics (except fluoroquinolones). In all cases, systemic symptoms associated with TB including fever, weight loss, or sweating can be present. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909302#Evaluation	Genitourinary tuberculosis	- Symptoms	19/07/2019 at 10:43
67	**[Indicator]** Sterile pyuria (pus in the urine), with or without proteinuria (excess protein in the urine) and hematuria (blood in the urine) can be symptoms of genitourinary tuberculosis, particularly in patients with previous or current pulmonary tuberculosis. Another sign is a urinary tract infection that does not respond to antibiotics (except fluoroquinolones). Also, infertility can be the only sign of this type of TB in both men and women. **[Evidence]** The finding of sterile pyuria, with or without proteinuria and hematuria, should also prompt investigation, particularly in patients with previous or current pulmonary tuberculosis. Also consider genitourinary TB in patients with a suspected urinary tract infection that does not respond to antibiotics (except fluoroquinolones). Infertility may be the sole presenting sign of genital TB in both males and females. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909302#Evaluation	Genitourinary tuberculosis	- Sex - Symptoms	19/07/2019 at 10:52
68	**[Indicator]** Additional signs of genitourinary tuberculosis in women include abdominal pain, menstrual irregularity, abnormal vaginal discharge, postcoital bleeding, and the presence of uterine enlargement or an adnexal mass on physical examination. **[Evidence]** Additional signs of genital tract involvement in females include abdominal pain, menstrual irregularity, abnormal vaginal discharge, postcoital bleeding, and the presence of uterine enlargement or an adnexal mass on physical examination. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909302#Evaluation	Genitourinary tuberculosis	- Sex - Symptoms	19/07/2019 at 10:55
69	**[Indicator]** Additional signs of genitourinary tuberculosis in men include epididymitis (inflammation of the tube at the back of the testicle that stores and transports sperm) or epididymal orchitis (in the testicles), prostatitis (pain, swelling or inflammation in the prostate glands), scrotal mass or epididymal, scrotal sinus secretion, or decreased semen volume. **[Evidence]** Additional signs of genital tract involvement in males include epididymitis or epididymo-orchitis, prostatitis, scrotal or epididymal mass, scrotal sinus discharge, or decreased semen volume. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909302#Evaluation	Genitourinary tuberculosis	- Sex - Symptoms	19/07/2019 at 11:00
70	**[Indicator]** Diagnosis of genitourinary tuberculosis includes images of the site of suspected involvement. The approach varies with anatomy and may include IV urography, CT scan, ultrasound, cystoscopy, hysteroscopy, or diagnostic laparoscopy. **[Evidence]** The diagnostic evaluation should include imaging of the suspected site of involvement. The approach will vary with anatomy and may include IV urography, computed tomography, ultrasound, cystoscopy, hysteroscopy, or diagnostic laparoscopy. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909302#Evaluation	Genitourinary tuberculosis	- Diagnosis	19/07/2019 at 11:02
71	**[Indicator]** Definitive diagnosis of genitourinary tuberculosis requires detection at the affected site (typically urine with or without tissue biopsy) by culture or nucleic acid amplification testing. **[Evidence]** Definitive diagnosis requires detection of Mycobacterium tuberculosis at the affected site (typically urine with or without tissue biopsy) by culture or nucleic acid amplification testing (NAAT). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909302#Evaluation	Genitourinary tuberculosis	- Diagnosis	19/07/2019 at 11:05
72	**[Indicator]** Genitourinary tuberculosis can occur concomitantly with pulmonary tuberculosis. Review and chest radiography should be performed in all patients, as well as HIV testing due to high rates of co-infection. **[Evidence]** Note that genitourinary tuberculosis can occur concurrently with pulmonary TB, and a review of systems and a chest x-ray should be performed in all patients to rule out active pulmonary disease. Due to high rates of HIV co-infection, testing for HIV is also recommended. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909302#Evaluation	Genitourinary tuberculosis	- Diagnosis	19/07/2019 at 11:10
73	**[Indicator]** Treatment of genitourinary tuberculosis follows the standard multidrug anti-tuberculosis regimen: intensive initial phase with isoniazid, rifampicin, pyrazinamide and ethambutol for 2 months; and a continuation phase with isoniazid and rifampicin for 4 months. **[Evidence]** Treat patients with genitourinary TB caused by drug-susceptible organisms with the standard antituberculosis multidrug regimen (Strong recommendation): - initial intensive phase with isoniazid, rifampicin, pyrazinamide, and ethambutol for 2 months - continuation phase with isoniazid and rifampicin is for 4 months **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909302#Management	Genitourinary tuberculosis	- Treatment	19/07/2019 at 11:18
74	**[Indicator]** Patients in whom drug-resistant genitourinary tuberculosis is suspected or confirmed should be treated based on the drug susceptibility profile and consulting an expert. **[Evidence]** Treat patients with suspected or confirmed drug-resistant organisms based on the drug susceptibility profile and in consultation with an expert. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909302#Management	Genitourinary tuberculosis	- Treatment - Resistant tuberculosis	19/07/2019 at 11:20

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
75	**[Indicator]** For genitourinary tuberculosis, surgery should be considered for patients with extensive disease or a recurrent infection. Surgical options include excision (extraction) of affected tissue such as nephrectomy (kidney removal) or epididymectomy (removal of the duct that collects and stores sperm) and reconstructive therapy such as enterocystoplasty (bladder enlargement) and stent implantation. **[Evidence]** Consider surgery for patients with extensive disease or a recurrent infection. Surgical options include excision of affected tissue such as nephrectomy or epididymectomy, reconstructive therapy such as enterocystoplasty, and stenting. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909302#Management	Genitourinary tuberculosis	- Treatment	19/07/2019 at 11:27
76	**[Indicator]** Hemoptysis (blood mixed with sputum) can be a symptom of tuberculosis. The clotting test is used to find out the cause of hemoptysis. The interferon gamma release assay or Mantoux assay is used to identify tuberculosis if this is suspected. **[Evidence]** Diagnostic testing for cause of hemoptysis may include: - blood tests, including coagulation testing and interferon-gamma release assay or Mantoux screen if suspected tuberculosis **[Reference]** http://www.dynamed.com/topics/dmp~AN~T920582#Evaluation	Hemoptysis - approach to the patient	- Diagnosis - Symptoms	19/07/2019 at 15:45
77	**[Indicator]** Bronchovascular artery embolization may be an effective treatment for massive hemoptysis (blood in sputum) secondary to tuberculosis in adults. **[Evidence]** bronchovascular artery embolization may be effective treatment for massive hemoptysis secondary to tuberculosis in adults (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp~AN~T920582#Tuberculosis	Hemoptysis - approach to the patient	- Adults - Treatment	19/07/2019 at 15:49
78	**[Indicator]** Bronchovascular artery embolization may be an effective treatment for life-threatening hemoptysis secondary to tuberculosis in patients 16 years of age or older. **[Evidence]** bronchovascular artery embolization may be effective treatment for life-threatening hemoptysis secondary to tuberculosis in patients ≥ 16 years old (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp~AN~T920582#Tuberculosis	Hemoptysis - approach to the patient	- Adults - Treatment	19/07/2019 at 15:52
79	**[Indicator]** Isoniazid-resistant tuberculosis generally refers to infections resistant to isoniazid alone. It is also called mono isoniazid-resistant tuberculosis. Estimated rates of isoniazid resistance in all TB cases were about 50% in Eastern Europe and 14% outside Eastern Europe from 1994 to 2009. **[Evidence]** Isoniazid-resistant tuberculosis (TB) generally refers to infections caused by Mycobacterium tuberculosis that are resistant to isoniazid only and it is also called isoniazid mono-resistant tuberculosis. The estimated rates of resistance to isoniazid among all TB cases was about 50% in Eastern Europe and 14% outside of Eastern Europe during 1994-2009. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T913244#Background	Isoniazid-resistant tuberculosis	- Definitions	19/07/2019 at 15:56
80	**[Indicator]** Risk factors for isoniazid-resistant tuberculosis include: failure of the initial treatment or retreatment regimen; close contact with people with drug-resistant tuberculosis; relapse after apparently successful treatment; and low adherence to TB drugs. **[Evidence]** Risk factors include failure of initial or retreatment regimen, close contact with persons with known drug-resistant TB, relapse after apparently successful treatment, and poor adherence to TB medications. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T913244#Background	Isoniazid-resistant tuberculosis	- Risk factor	19/07/2019 at 15:58
81	**[Indicator]** The clinical presentation of mono isoniazid-resistant tuberculosis does not differ significantly from that of common tuberculosis. Accurate diagnosis is performed using culture and sensitivity tests or nucleic acid amplification tests. **[Evidence]** Clinical presentation of isoniazid mono-resistant tuberculosis (TB) does not significantly differ from that of drug-susceptible TB. Determination of isoniazid mono-resistance can be determined through culture and susceptibility testing or nucleic acid amplification tests. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T913244#Evaluation	Isoniazid-resistant tuberculosis	- Diagnosis - Symptoms	19/07/2019 at 16:03
82	**[Indicator]** The recommended treatment for patients with isoniazid-resistant tuberculosis includes rifampicin, ethambutol and pyrazinamide for a minimum period of 6 to 9 months. A fluoroquinolone may be added to this regimen, especially for patients with extensive and/or cavity (injury) disease. **[Evidence]** The recommended regimen for patients with confirmed resistance to isoniazid alone includes rifampicin, ethambutol, and pyrazinamide for a minimum of 6-9 months. A fluoroquinolone may be added to the above regimen, especially in patients with extensive and/or cavitary disease. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T913244#Management	Isoniazid-resistant tuberculosis	- Treatment	19/07/2019 at 16:06
83	**[Indicator]** Latent tuberculosis infection occurs when a patient is infected with tuberculosis but does not have the disease. About a quarter of the world's population has this type of infection. When untreated and without HIV infection, 5% to 10% of patients develop active tuberculosis throughout their lives. **[Evidence]** LTBI is defined as infection with Mycobacterium tuberculosis in the absence of clinical disease and is detected by the presence of an immune response to M. tuberculosis antigens. About one-quarter of the world's population has LTBI. When untreated, in the absence of HIV infection, 5%-10% of patients with LTBI develop active TB over the course of their lifetimes. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T114028#Background	Latent tuberculosis infection (LTBI)	- Definitions	22/07/2019 at 11:42

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
84	**[Indicator]** The following populations are most at risk of acquiring tuberculosis infection: close contacts of people with active pulmonary tuberculosis; infants, children and adolescents exposed to adults at increased risk of latent or active tuberculosis; people born in or visiting areas with a high prevalence of tuberculosis; health professionals; residents or workers in clustered settings such as prisons or shelters for people living on the street; low-income populations, medically disadvantaged and people who abuse alcohol or illicit drugs. **[Evidence]** Populations at an increased risk for acquiring M. tuberculosis infection include: - close contacts of persons with known active pulmonary TB - infants, children, and adolescents exposed to adults at a higher risk for LTBI or active TB - persons born in areas or who visit areas with a high prevalence of TB - healthcare workers - residents or workers in congregate settings such as prisons or homeless shelters - the medically underserved, low-income populations, and persons who abuse alcohol or illicit drugs **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114028#Background	Latent tuberculosis infection (LTBI)	- Low income - Children - Risk factor - People living on the street - Deprivation of liberty - Health professional - Drug user	22/07/2019 at 11:48
85	**[Indicator]** At-risk populations should be tested for latent tuberculosis infection. Options include the tuberculin skin test and the interferon gamma release test (IGRA). IGRA is preferred in patients with a history of BCG vaccination or when patients are unlikely to return for skin test results. **[Evidence]** Testing for LTBI should be performed in at-risk populations. - Options for testing include the tuberculin skin test (TST) and interferon-gamma release assays (IGRAs). - Use of IGRAs for testing is preferred in patients with a history of Bacille Calmette-Guérin (BCG) vaccination or when patients are unlikely to return to obtain TST results. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114028#Evaluation	Latent tuberculosis infection (LTBI)	- Diagnosis	22/07/2019 at 11:54
86	**[Indicator]** Patients who test positive for latent infection on the tuberculin skin test or interferon gamma release test should have a symptom review and a chest X-ray to exclude the possibility of having active tuberculosis. **[Evidence]** For patients with a positive TST or IGRA, exclude active tuberculosis by a review of symptoms and a chest x-ray. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114028#Evaluation	Latent tuberculosis infection (LTBI)	- Diagnosis	22/07/2019 at 11:58
87	**[Indicator]** One treatment option for latent tuberculosis infection is isoniazid monotherapy. It should be administered with vitamin B6 (pyridoxine) orally in patients at risk of neuropathy and pregnant women. Dosage and duration of treatment varies for adults and children. Moreover, the incidence of tuberculosis in the region where patients live also influences treatment. **[Evidence]** Isoniazid (INH) monotherapy - Should be given with vitamin B6 (pyridoxine) 25-50 mg/day orally in patients at risk for neuropathy and those who are pregnant - Centers for Disease Control and Prevention (CDC) dosing recommendations: - Adults 5 mg/kg or children 10-20 mg/kg (maximum 300 mg/day) orally once daily for 9 months - Adults 15 mg/kg or children 20-40 mg/kg (maximum 900 mg) orally twice weekly for 9 months - Adults 5 mg/kg (maximum 300 mg) orally once daily for 6 months (not recommended for children) - Adults 15 mg/kg (maximum 900 mg) orally twice weekly for 6 months (not recommended for children) - World Health Organization (WHO) dosing recommendations: - Adults 5 mg/kg or children 10 mg/kg (maximum 300 mg) orally once daily for 6 months - Once daily 9-month regimen may be considered in regions with low TB incidence **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114028#Management	Latent tuberculosis infection (LTBI)	- Associated disease - Pregnant women - Treatment	22/07/2019 at 12:10
88	**[Indicator]** One treatment option for latent tuberculosis infection is rifampicin monotherapy. **[Evidence]** Rifampicin (rifampicin) monotherapy in adults 10 mg/kg or children 15-20 mg/kg (maximum 600 mg/day) orally once daily for 4 months **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114028#Management	Latent tuberculosis infection (LTBI)	- Treatment	22/07/2019 at 12:14
89	**[Indicator]** One treatment option for latent tuberculosis infection is isoniazid plus oral rifapentine once a week for 3 months. Dosages vary depending on the age and weight of the patient. **[Evidence]** Isoniazid plus rifapentine orally once weekly for 3 months For adults and children > 12 years of age: Isoniazid 15 mg/kg (maximum 900 mg) Rifapentine 300 mg for patients 10–14.0 kg 450 mg for patients 14.1–25.0 kg 600 mg for patients 25.1–32.0 kg 750 mg for patients 32.1–49.9 kg 900 mg for patients ≥ 50.0 kg For children 2-11 years of age: Isoniazid 25 mg/kg (maximum 900 mg) Rifapentine weight-based dosing same as above **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114028#Management	Latent tuberculosis infection (LTBI)	- Treatment	22/07/2019 at 12:17
90	**[Indicator]** Treatment for patients with latent tuberculosis infection and exposed to multidrug resistant tuberculosis should be managed by an expert. **[Evidence]** Treatment for patients with known exposure to multidrug-resistant TB (MDR-TB) should be determined by the resistance pattern identified in the source case and managed by a specialist. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114028#Management	Latent tuberculosis infection (LTBI)	- Treatment - Resistant tuberculosis	22/07/2019 at 12:20
91	**[Indicator]** Most treatments are associated with hepatotoxicity (liver damage). Although liver function testing is not routinely recommended, it should be monitored in patients with chronic liver disease, HIV infection, those who consume alcohol regularly, during pregnancy and postpartum. **[Evidence]** Most regimens are associated with hepatotoxicity; liver function testing is not recommended routinely but should be monitored in patients with chronic liver disease, HIV infection, those who use alcohol regularly, and during pregnancy and postpartum. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114028#Management	Latent tuberculosis infection (LTBI)	- Associated disease - Side effects - Pregnant women - HIV - Treatment - Drug user	22/07/2019 at 12:26

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
92	**[Indicator]** HIV is the most important risk factor for tuberculosis. People with HIV are 20 to 30 times more likely to develop tuberculosis than HIV-negative people. About 32% of tuberculosis patients are coinfected with HIV. HIV-endemic regions are also endemic for tuberculosis. **[Evidence]** About 32% of patients with TB are co-infected with HIV. Regions endemic for HIV are also endemic for TB. HIV is the single most important risk factor for TB and persons with HIV are 20-30 times more likely to develop TB than HIV-negative persons. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909352#Background	Latent tuberculosis infection in patients with HIV	- Risk factor - HIV	22/07/2019 at 12:35
93	**[Indicator]** HIV is the most important risk factor for tuberculosis. People with HIV are 20 to 30 times more likely to develop tuberculosis than HIV-negative people. About 32% of tuberculosis patients are coinfected with HIV. Additional risk factors include residence in tuberculosis-endemic regions, close contact with tuberculosis patients, crowded housing (including incarceration), poor ventilation in living or working environments, poor nutrition, and limited access to quality health care. **[Evidence]** About 32% of patients with TB are co-infected with HIV. HIV is the single most important risk factor for TB and persons with HIV are 20-30 times more likely to develop TB than HIV-negative persons. Additional risk factors include residence in TB-endemic regions, close contact with patients with TB, crowded housing (including incarceration), poor ventilation in living or working quarters, poor nutrition, and limited access to quality health care. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909352#Background	Latent tuberculosis infection in patients with HIV	- Low income - Risk factor - HIV - Deprivation of liberty	22/07/2019 at 12:38
94	**[Indicator]** All people with HIV should be tested for latent tuberculosis infection. Testing options include tuberculin skin test and interferon gamma release tests. However, a negative result in these tests does not definitively exclude a diagnosis of tuberculosis. All patients with HIV infection and suspected tuberculosis or with symptoms should undergo chest radiography and clinical evaluation to exclude the possibility of active tuberculosis. **[Evidence]** Perform testing for latent tuberculosis infection (LTBI) in all persons with HIV. Options for testing include the tuberculin skin test (TST) and interferon-gamma release assays (IGRAs). A negative TST or IGRA does not definitively exclude a diagnosis of tuberculosis (TB). In all patients with HIV infection and suspected LTBI or symptoms of TB, perform chest radiography and clinical evaluation promptly to rule out active TB. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909352#Evaluation	Latent tuberculosis infection in patients with HIV	- Diagnosis - HIV	22/07/2019 at 12:41
95	**[Indicator]** Patients with HIV should be treated for latent infection with latent tuberculosis when: the diagnosis test is positive, there is no evidence of tuberculosis disease and there is no previous history of treatment for active or latent tuberculosis; and there is close contact with people with infectious pulmonary tuberculosis, regardless of latent infection status. **[Evidence]** Treat patients with HIV for latent tuberculosis infection (LTBI) when: the patient has a positive diagnostic test for LTBI, no evidence of tuberculosis (TB) disease, and no prior history of treatment for active or latent TB (Strong recommendation) the patient is a close contact of persons with infectious pulmonary TB, regardless of LTBI status (Strong recommendation) **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909352#Management	Latent tuberculosis infection in patients with HIV	- HIV - Treatment	22/07/2019 at 12:50
96	**[Indicator]** Active tuberculosis (presence of the disease) must be ruled out before starting treatment for latent tuberculosis, as treating active disease as if it were latent can lead to the development of drug-resistant tuberculosis. **[Evidence]** Rule out active TB prior to initiating treatment for LTBI, as treatment of active disease with regimens to treat LTBI can lead to development of drug-resistant TB. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909352#Management	Latent tuberculosis infection in patients with HIV	- Treatment - Resistant tuberculosis	22/07/2019 at 12:54
97	**[Indicator]** For HIV patients exposed to drug resistant tuberculosis, drugs should be advised in consultation with experts or public health authorities. **[Evidence]** For patients exposed to drug-resistant Mycobacterium tuberculosis, select anti-TB drugs after consultation with experts or public health authorities (Strong recommendation). **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909352#Management	Latent tuberculosis infection in patients with HIV	- HIV - Treatment - Resistant tuberculosis	22/07/2019 at 12:57
98	**[Indicator]** Antiretroviral therapy for HIV patients should be added to the treatment of latent tuberculosis infection to reduce the risk of developing the disease. Drug dose adjustments may be necessary due to drug interactions. **[Evidence]** Give ART in addition to LTBI treatment to reduce the risk of TB disease (Strong recommendation). Dose adjustments of antiretroviral drugs and/or TB drugs may be required due to drug-drug interactions. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909352#Management	Latent tuberculosis infection in patients with HIV	- HIV - Treatment	22/07/2019 at 12:59
99	**[Indicator]** Treating latent tuberculosis infection reduces the risk of developing the disease by 60%. **[Evidence]** Treatment for LTBI reduces the risk of developing active TB by about 60%. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909352#Management	Latent tuberculosis infection in patients with HIV	- Prevention - Treatment	22/07/2019 at 13:02
100	**[Indicator]** HIV patients traveling or working in TB endemic regions should be counseled about the risks and to be tested for latent TB infection when they return. **[Evidence]** counsel patients with HIV who travel or work in TB-endemic regions about the risk of TB and testing for latent TB infection (LTBI) upon return **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909352#Prevention-and-Screening	Latent tuberculosis infection in patients with HIV	- Prevention	22/07/2019 at 13:05

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
101	**[Indicator]** The treatment of latent tuberculosis infection and the restoration of immunodeficiency is important for the prevention of tuberculosis in patients with HIV infection. Preventive therapy with isoniazid is associated with reduced mortality in patients with HIV and reduced incidence of tuberculosis in adults with HIV infection (treated with antiretroviral therapy). (level 2 [medium level] evidence) Empirical TB therapy may not improve outcomes compared with IPT in patients with advanced HIV disease starting ART in high HIV/TB prevalence (level 2 [medium level] evidence) **[Evidence]** Isoniazid preventative therapy (IPT) both treatment of LTBI and restoration of immunity with ART important for prevention of TB in patients with HIV infection efficacy of IPT in adults with HIV infection IPT associated with reduced mortality in patients with HIV in high TB prevalence setting (level 2 [mid-level] evidence) IPT appears to reduce incidence of TB in adults with HIV infection receiving ART (level 2 [mid-level] evidence) empiric TB therapy may not improve outcomes compared to IPT in patients with advanced HIV disease initiating ART in high HIV/TB prevalence setting (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909352#Isoniazid-preventative-therapy--IPT	Latent tuberculosis infection in patients with HIV	- Adults - HIV - Prevention - Treatment	22/07/2019 at 13:22
102	**[Indicator]** Preventive therapy with isoniazid for children with HIV infection is associated with reduced mortality and incidence of tuberculosis if they do not receive antiretroviral therapy. Therapy may not reduce mortality or active tuberculosis in children with HIV infection who receive antiretroviral therapy. In addition, it may not improve tuberculosis-free survival in babies with or without HIV infection, immunized with the BCG vaccine. **[Evidence]** efficacy of IPT in children with HIV infection IPT may not reduce mortality or active TB in children with HIV infection receiving ART (level 2 [mid-level] evidence) IPT in children with HIV infection not receiving ART associated with reduced mortality and incidence of TB (level 2 [mid-level] evidence) IPT may not improve TB-disease-free survival in infants with or without HIV infection immunized with Bacille Calmette–Guérin (BCG) vaccine (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T909352#Isoniazid-preventative-therapy--IPT	Latent tuberculosis infection in patients with HIV	- Babies - Children - HIV - Prevention - Treatment	22/07/2019 at 13:34
103	**[Indicator]** Multi-resistant tuberculosis is the form of tuberculosis resistant to at least isoniazid and rifampicin. A total of 460,000 cancer cases were estimated in 2017 globally. **[Evidence]** MDR TB is defined as TB caused by Mycobacterium tuberculosis resistant to at least isoniazid and rifampicin. An estimated 460,000 cases of MDR TB emerged globally in 2017. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T907301#Background	Multidrug-resistant tuberculosis (MDR TB)	- Definitions - Resistant tuberculosis	22/07/2019 at 15:49
104	**[Indicator]** Risk factors for multi-resistant tuberculosis include exposure to people with this type of disease; history of treatment failure or relapse of tuberculosis; low adherence or non-completion of medications during previous treatment; positive sputum smear (sputum test) after two months of combined therapy; residing or traveling to an area with a high prevalence of drug-resistant tuberculosis. **[Evidence]** Risk factors for MDR TB include: exposure to persons with MDR TB a history of TB with treatment failure or relapse poor adherence to or not completing anti-TB medications during previous TB treatment positive sputum smears after 2 months of standard anti-TB combination therapy residence in or travel to area with a high prevalence of drug resistance **[Reference]** http://www.dynamed.com/topics/dmp-AN-T907301#Background	Multidrug-resistant tuberculosis (MDR TB)	- Risk factor - Resistant tuberculosis	22/07/2019 at 15:55
105	**[Indicator]** The signs of multidrug-resistant tuberculosis do not differ from those of drug-susceptible tuberculosis. The diagnosis is traditionally confirmed with culture and drug susceptibility tests. **[Evidence]** The clinical presentation of MDR TB does not differ from that of drug-susceptible TB. MDR TB diagnosis is traditionally confirmed with culture and drug-susceptibility testing. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T907301#Evaluation	Multidrug-resistant tuberculosis (MDR TB)	- Diagnosis - Resistant tuberculosis	22/07/2019 at 15:58
106	**[Indicator]** For multidrug resistant tuberculosis, molecular testing can quickly identify resistance to rifampicin and isoniazid and is preferable to conventional testing for initial management. When molecular testing is not performed, this type of tuberculosis should be suspected if one or more of the following conditions is found: risk factors; persistence of positive smears and culture tests; and negligible improvement in symptoms, both despite adherence to standard treatment. **[Evidence]** The addition of molecular testing can rapidly identify resistance to rifampicin and isoniazid and is preferred to conventional testing for initial management. When molecular testing is not performed, MDR TB may be suspected prior to receipt of drug susceptibility results if 1 or more of the following: risk factors for MDR TB are present there are persistently positive sputum smears and/or serial cultures despite adherence to standard anti-TB treatment there is little improvement in signs and symptoms of TB despite adherence to standard anti-TB treatment **[Reference]** http://www.dynamed.com/topics/dmp-AN-T907301#Evaluation	Multidrug-resistant tuberculosis (MDR TB)	- Diagnosis - Resistant tuberculosis	22/07/2019 at 16:05
107	**[Indicator]** Multi-resistant tuberculosis should be managed by experts with experience in the treatment of this type of tuberculosis. Before receiving drug sensitivity test results, treatment should be initiated for patients suspected of having multidrug resistant tuberculosis. Initial treatment includes at least five antibiotics. It lasts at least 9-12 months. It may last longer depending on drug susceptibility results. **[Evidence]** MDR TB should be managed by experts with experience in the treatment of drug-resistant TB. Prior to receipt of drug-susceptibility testing results, empiric treatment for MDR TB should be started in those in whom MDR TB is suspected. Initial treatment includes ≥ 5 antibiotics. Duration is at least 9-12 months, and may be longer depending on drug susceptibility results. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T907301#Management	Multidrug-resistant tuberculosis (MDR TB)	- Treatment - Resistant tuberculosis	22/07/2019 at 16:13

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
108	**[Indicator]** None of the potential treatments for people infected with multidrug resistant tuberculosis have been fully tested for efficacy and these treatments are often poorly tolerated. **[Evidence]** none of the potential regimens for persons infected with MDR TB have been tested fully for efficacy, and these regimens are often poorly tolerated **[Reference]** http://www.dynamed.com/topics/dmp~AN~T907301#Contact-investigation	Multidrug-resistant tuberculosis (MDR TB)	- Treatment - Resistant tuberculosis	22/07/2019 at 16:18
109	**[Indicator]** Pericardial tuberculosis is caused by infection and inflammation of the pericardium. This type is the most common cause of pericarditis (swelling and irritation of the membrane surrounding the heart) in countries with endemic tuberculosis. However, it represents only 4% of patients with pericardial effusion in developed countries. **[Evidence]** Pericardial tuberculosis is caused by infection and inflammation of the pericardium by Mycobacterium tuberculosis. In tuberculosis (TB)-endemic countries, pericardial TB is the most common cause of pericarditis, however it only accounts for 4% of patients with pericardial effusion in developed countries. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910018#Background	Pericardial tuberculosis	- Definitions	22/07/2019 at 16:25
110	**[Indicator]** Pericardial infection can occur from the spread of tuberculosis from the mediastinal, peritracheal, and peribronchial lymph nodes, hematogenous (bloodstream) spread during primary infection, or direct spread from a tuberculous lesion in the lung, pleura, rib cage, diaphragm, or peritoneum to the pericardium. **[Evidence]** Infection of the pericardium can occur by M. tuberculosis spreading from mediastinal, peritracheal, and peribronchial lymph nodes, hematogenous spread during primary infection, or direct spread from a tuberculous lesion in lung, pleura, rib cage, diaphragm, or peritoneum to the pericardium. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910018#Background	Pericardial tuberculosis	- Transmission	22/07/2019 at 16:28
111	**[Indicator]** Pericardial tuberculosis often has nonspecific systemic symptoms, including fever, night sweats, fatigue, weight loss, chest pain, and cough. **[Evidence]** Pericardial tuberculosis (TB) typically presents with nonspecific systemic symptoms including fever, night sweats, fatigue, weight loss, chest pain, and cough. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910018#Evaluation	Pericardial tuberculosis	- Symptoms	22/07/2019 at 16:54
112	**[Indicator]** The first step in diagnosing pericardial tuberculosis is a chest X-ray, which usually shows an enlarged cardiac shadow and may also show changes suggestive of pulmonary tuberculosis. An echocardiogram should be performed in patients with suspected pericardial effusion. **[Evidence]** Imaging is typically the first step in patient evaluation. Order a chest x-ray, which typically shows enlarged cardiac shadow and may also show changes suggestive of pulmonary TB. Echocardiography should be performed for patients suspected of having a pericardial effusion. Presence of fibrinous strands suggest an exudate, but are not specific for TB. Almost all patients have abnormal findings on electrocardiography in the form of ST-T wave changes, but none of these are specific for TB. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910018#Evaluation	Pericardial tuberculosis	- Diagnosis	22/07/2019 at 17:00
113	**[Indicator]** All patients with suspected pericardial tuberculosis with effusion should be evaluated for signs of cardiac tamponade or compromise, as they constitute a medical emergency. **[Evidence]** Assess all patients suspected of having pericardial TB with an effusion for signs of cardiac tamponade or compromise, as these constitute a medical emergency. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910018#Evaluation	Pericardial tuberculosis	- Diagnosis	22/07/2019 at 17:06
114	**[Indicator]** Diagnosis of pericardial tuberculosis can be confirmed by examination of culture from pericardial fluid samples, biopsy specimens, and evidence of acid-resistant bacilli. However, due to the low yield of these specimens, a negative result does not exclude the diagnosis of pericardial tuberculosis. Finding acid-resistant granulomas and bacilli on pericardial biopsy also provides a definitive diagnosis. **[Evidence]** Diagnosis can be confirmed by culturingMycobacterium tuberculosis from pericardial fluid or biopsy specimens or demonstration of acid-fast bacilli, but because yield is low from these specimens, a negative result does not rule out the diagnosis of pericardial TB. Finding of granulomas and acid-fast bacilli on pericardial biopsy also provides definitive diagnosis. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910018#Evaluation	Pericardial tuberculosis	- Diagnosis	22/07/2019 at 17:10
115	**[Indicator]** Directly observed therapy is preferable to self-administered therapy for the routine treatment of patients with all forms of tuberculosis. **[Evidence]** Directly observed therapy (DOT) is preferred over self-administered therapy (SAT) for routine treatment of patients with all forms of tuberculosis (Weak recommendation). **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910018#Management	Pericardial tuberculosis	- Treatment	22/07/2019 at 17:13
116	**[Indicator]** Concerning pericardial tuberculosis, adjuvant corticosteroids are recommended during the first eleven weeks of treatment in patients without HIV infection, although recommendations vary for patients with HIV infection. **[Evidence]** Use adjunctive corticosteroids during the first 11 weeks of treatment in patients without HIV infection (Strong recommendation), although recommendations vary for patients with HIV infection. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T910018#Management	Pericardial tuberculosis	- HIV - Treatment	22/07/2019 at 17:16

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
117	[**Indicator**] Patients with pericardial tuberculosis, unstable with cardiac tamponade, require immediate drainage of pericardial fluid by pericardiocentesis or surgery. [**Evidence**] Unstable patients with cardiac tamponade require immediate drainage of pericardial fluid by needle pericardiocentesis or surgery. [**Reference**] http://www.dynamed.com/topics/dmp-AN-T910018#Management	Pericardial tuberculosis	- Treatment	22/07/2019 at 17:19
118	[**Indicator**] Surgical pericardiectomy (removal of part of the pericardium) should be considered in patients with constrictive tuberculous pericarditis who do not improve or deteriorate after 4 to 8 weeks of antituberculosis therapy. [**Evidence**] Consider surgical pericardiectomy in patients with constrictive tuberculous pericarditis who do not improve or deteriorate after 4-8 weeks of anti-TB therapy. [**Reference**] http://www.dynamed.com/topics/dmp-AN-T910018#Management	Pericardial tuberculosis	- Treatment	22/07/2019 at 17:22
119	[**Indicator**] Pleural tuberculosis refers to a pleural effusion that results from infection of the pleura (lung membrane) combined with a delayed hypersensitivity response to that infection. It is one of the most common forms of extrapulmonary tuberculosis worldwide. [**Evidence**] Pleural tuberculosis refers to a pleural effusion that results from infection of the pleura with Mycobacterium tuberculosis combined with a delayed hypersensitivity response to that infection. It is one of the most common forms of extrapulmonary tuberculosis (TB) worldwide. [**Reference**] http://www.dynamed.com/topics/dmp-AN-T909686#Background	Pleural tuberculosis	- Definitions	22/07/2019 at 17:28
120	[**Indicator**] Pleural tuberculosis can result from primary infection or from reactivation of latent infection. Concomitant tuberculosis infection of the lung parenchyma is common and found in about 20% to 50% of patients. [**Evidence**] Pleural TB may result from primary infection or from reactivation of latent TB infection. Concurrent TB infection of the lung parenchyma is common, and present in about 20%-50% of patients. [**Reference**] http://www.dynamed.com/topics/dmp-AN-T909686#Background	Pleural tuberculosis	- Transmission	22/07/2019 at 17:30
121	[**Indicator**] Symptoms of acute pleural tuberculosis include fever, cough, and pleuritic chest pain. Pleural tuberculosis must be suspected in a patient with a pleural effusion on chest radiography and a history of exposure to someone with tuberculosis or a history of living in or traveling to an area where tuberculosis is endemic. Most effusions are unilateral and small to moderate. [**Evidence**] Symptoms associated with acute pleural tuberculosis (TB) include fever, cough, and pleuritic chest pain. With long-standing infection, draining empyema (empyema necessitans) can develop. Suspect pleural TB in a patient with a pleural effusion on chest x-ray and a history of exposure to someone with TB or history of living in or travelling to an area where TB is endemic. Note that most effusions are unilateral and small to moderate in size. [**Reference**] http://www.dynamed.com/topics/dmp-AN-T909686#Evaluation	Pleural tuberculosis	- Diagnosis - Symptoms	22/07/2019 at 17:34
122	[**Indicator**] Additional imaging such as computed tomography can help detect complications such as concomitant infection with pleural tuberculosis, for example tuberculosis infection of the lung parenchyma. [**Evidence**] Additional imaging, such as a computed tomography (CT) scan, may help detect complications such as loculations or concurrent TB infection of the lung parenchyma. [**Reference**] http://www.dynamed.com/topics/dmp-AN-T909686#Evaluation	Pleural tuberculosis	- Diagnosis	22/07/2019 at 17:36
123	[**Indicator**] Definitive diagnosis of pleural tuberculosis requires evidence of tuberculosis in sputum, pleural fluid by culture, or nucleic acid amplification testing. Pleural biopsy may be necessary when the organism cannot be detected in sputum or pleural fluid analysis. [**Evidence**] Definitive diagnosis requires demonstration of Mycobacterium tuberculosis in either sputum or pleural fluid by culture or nucleic acid amplification testing. Pleural biopsy may be needed when the organism cannot be detected in sputum or pleural fluid analysis. [**Reference**] http://www.dynamed.com/topics/dmp-AN-T909686#Evaluation	Pleural tuberculosis	- Diagnosis	22/07/2019 at 17:39
124	[**Indicator**] In regions with high tuberculosis rates, where resources are limited, the diagnosis of pleural tuberculosis can be inferred by the detection of an exudative lymphocytic effusion. [**Evidence**] In regions with high rates of TB where resources are limited, diagnosis can be inferred by detecting an exudative lymphocytic effusion with high ADA levels. [**Reference**] http://www.dynamed.com/topics/dmp-AN-T909686#Evaluation	Pleural tuberculosis	- Diagnosis	22/07/2019 at 17:42
125	[**Indicator**] Patients diagnosed with or suspected pleural tuberculosis should also be tested for HIV infection due to high rates of co-infection and/or co-endemicity. [**Evidence**] In all cases, patients with known or suspected pleural TB should also be tested for HIV infection due to high rates of coinfection and/or co-endemicity. [**Reference**] http://www.dynamed.com/topics/dmp-AN-T909686#Evaluation	Pleural tuberculosis	- Diagnosis - HIV	22/07/2019 at 17:43

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
126	**[Indicator]** The recommended treatment for patients with pleural tuberculosis caused by non-resistant organisms includes: initial phase of 2 months with isoniazid, rifampicin, pyrazinamide and ethambutol; and a 4-month continuation phase with isoniazid and rifampicin. **[Evidence]** The recommended regimen for patients with pleural TB caused by drug-susceptible organisms includes (Strong recommendation): a 2-month initial phase with isoniazid, rifampicin, pyrazinamide, and ethambutol PLUS a 4-month continuation phase with isoniazid and rifampicin **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909686#Management	Pleural tuberculosis	- Treatment	22/07/2019 at 17:46
127	**[Indicator]** For pleural tuberculosis, drainage of pleural effusions is not routinely recommended, but may be considered for patients with a large effusion causing difficulty breathing or for patients with empyema (accumulation of pus). **[Evidence]** Drainage of pleural effusions is not routinely recommended but can be considered for patients with a large effusion causing difficulty in breathing or in patients with empyema. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909686#Management	Pleural tuberculosis	- Treatment	22/07/2019 at 17:49
128	**[Indicator]** After the initiation of anti-tuberculosis treatment, the patient may worsen due to an increased size of pleural effusion or the development of new lesions. In most cases, reactions resolve without further therapy. **[Evidence]** Be aware that paradoxical worsening after initiation of antituberculosis treatment can occur and may be characterized by an increase in size of a pleural effusion or development of new lesions. Paradoxical reactions resolve without additional therapy in most cases. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T909686#Management	Pleural tuberculosis	- Side effects	22/07/2019 at 17:53
129	**[Indicator]** Pleuritis is inflammation of the parietal pleura that results in sudden, severe chest pain on inspiration and expiration. This pain combined with malaise, weight loss, fever, or night sweats could indicate tuberculosis. **[Evidence]** inflammation of parietal pleura resulting in sudden and intense chest pain on inhalation and exhalation(1) ask about symptoms that may appear in combination with pain malaise may indicate malignancy(3) pleural effusion(1) tuberculosis(1) rheumatoid arthritis(1) weight loss may indicate malignancy(3) pleural effusion(1) tuberculosis(1) rheumatoid arthritis(1) fever may indicate(1) pneumonia tuberculosis familial Mediterranean fever systemic lupus erythematosus medication-induced pleuritis (Clin Chest Med 2004 Mar;25(1):141) other infection night sweats may indicate malignancy(3) pleural effusion (including malignant pleural effusion)(1) tuberculosis(1) rheumatoid arthritis(1) **[Reference]** http://www.dynamed.com/topics/dmp~AN~T922350#Description http://www.dynamed.com/topics/dmp~AN~T922350#History-of-present-illness--HPI	Pleuritis - approach to the patient	- Symptoms	22/07/2019 at 19:06
130	**[Indicator]** Pulmonary tuberculosis refers to the clinical syndrome associated with infection of the respiratory system caused by the mycobacteria tuberculosis. In 2017, the World Health Organization estimated that 10 million people developed tuberculosis and 1.6 million died from the disease. **[Evidence]** Pulmonary tuberculosis (TB) refers to the clinical syndrome associated with infection of the respiratory system caused by Mycobacterium tuberculosis. The World Health Organization estimates that in 2017, 10 million people developed TB and 1.6 million died from the disease, with 9,093 cases reported in the United States. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T116300#Background	Pulmonary tuberculosis	- Definitions	23/07/2019 at 10:45
131	**[Indicator]** Tuberculosis is transmitted by the air from one person to another when the bacteria are sprayed in an aerosol by a person with pulmonary tuberculosis. **[Evidence]** M. tuberculosis is spread through the air from one person to another when bacteria are aerosolized from a person with pulmonary TB. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T116300#Background	Pulmonary tuberculosis	- Transmission	23/07/2019 at 10:48
132	**[Indicator]** Risk factors for pulmonary tuberculosis are: (1) close contact with a person with infectious tuberculosis; (2) children under 5 years of age with a positive tuberculin skin test; (3) people who immigrated from regions of the world with high rates of tuberculosis; (4) groups with high rates of tuberculosis transmission, including people with HIV infection, injecting drug users and people living on the street; (5) work or reside with people at high risk of tuberculosis in facilities or institutions; (6) medical conditions that weaken the immune system such as treatment with immunosuppressive drugs, diabetes, malignancy, organ transplantation, silicosis, substance abuse disorder, severe kidney disease, or low body weight. **[Evidence]** Risk factors for developing TB include: Close contacts of a person with infectious TB disease. Children < 5 years old who have a positive tuberculin skin test. Persons who have immigrated from regions of the world with high rates of TB. Groups with high rates of TB transmission including persons with HIV infection, injection drug users, and homeless persons. Working or residing with people at high risk for TB in facilities or institutions. Medical conditions that weaken the immune system such as HIV infection, treatment with immunosuppressive medications, diabetes, malignancy, organ transplantation, silicosis, substance abuse disorder, severe kidney disease, or low body weight. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T116300#Background	Pulmonary tuberculosis	- Associated disease - Risk factor - HIV - People living on the street - Drug user	23/07/2019 at 11:04
133	**[Indicator]** Pulmonary tuberculosis has symptoms suggestive of fever, fatigue, weight loss, night sweats, cough, or hemoptysis (blood in the sputum). **[Evidence]** Suspect pulmonary tuberculosis (TB) in patients with suggestive symptoms including fever, fatigue, weight loss, night sweats, cough, or hemoptysis. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T116300#Evaluation	Pulmonary tuberculosis	- Symptoms	23/07/2019 at 11:07

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
134	**[Indicator]** The diagnosis of pulmonary tuberculosis is confirmed with the identification of mycobacteria in the respiratory sample of patients with compatible clinical symptoms. Tests used for bacteriological diagnosis include bacilloscopy (sputum test), nucleic acid amplification test, and liquid and solid mycobacterial culture test (gold standard for diagnosis). The diagnosis is often supplemented with radiological abnormalities of the chest and evidence of the immune response by the tuberculin skin test and/or the interferon gamma release test, although these tests are also positive in patients with previously treated tuberculosis or latent tuberculosis infection. **[Evidence]** Identification of Mycobacterium tuberculosis in respiratory specimen confirms diagnosis of pulmonary TB in patients with compatible clinical symptoms. Tests used for bacteriologic diagnosis include: Acid fast bacillus (AFB) smear microscopy, though this test is not specific to M. tuberculosis. Nucleic acid amplification testing (NAAT). Liquid and solid mycobacterial culture (gold standard for diagnosis). Diagnosis often supplemented with additional evidence such as: Chest x-ray abnormalities. Evidence of immune response by tuberculin skin test (TST) and/or interferon gamma release assay (IGRA), though these tests will also be positive in patients with previously treated TB or latent TB infection. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T116300#Evaluation	Pulmonary tuberculosis	- Diagnosis	23/07/2019 at 11:15
135	**[Indicator]** The recommended treatment for newly diagnosed pulmonary tuberculosis susceptible to all first-line drugs is: initial phase of two months with isoniazid, rifampicin, pyrazinamide and ethambutol; and a 4-month continuation phase with isoniazid plus rifampicin. **[Evidence]** The recommended empiric treatment for newly diagnosed pulmonary TB caused by Mycobacterium tuberculosis susceptible to all first-line drugs is a 2-month initial or intensive phase followed by a 4-month continuation phase (Strong recommendation). The 2-month initial phase consists of isoniazid, rifampicin, pyrazinamide, plus ethambutol. The 4-month continuation phase consists of isoniazid plus rifampicin. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T116300#Management	Pulmonary tuberculosis	- Treatment	23/07/2019 at 11:21
136	**[Indicator]** The treatment of pulmonary tuberculosis with isoniazid should be supplemented with pyridoxine in patients with nutritional deficiency, diabetes, HIV infection, renal failure, alcoholism, in pregnant and lactating women and in children to prevent side effects. **[Evidence]** Supplement isoniazid treatment with pyridoxine 25 mg/day in patients with nutritional deficiency, diabetes, HIV infection, renal failure, or alcoholism, in pregnant and breastfeeding women, and in children to prevent adverse events. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T116300#Management	Pulmonary tuberculosis	- Children - Associated disease - Side effects - Pregnant women - HIV - Treatment	23/07/2019 at 11:25
137	**[Indicator]** For pulmonary tuberculosis, if cavities are present on initial chest X-ray and if a sample culture obtained within 2 months of treatment remains positive, extending the continuation phase to 7 months (9 months in total) should be considered. **[Evidence]** If cavities are present on an initial chest radiograph and if a culture of a specimen obtained at 2 months remains positive, consider extending the continuation phase to 7 months (9 months total). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T116300#Management	Pulmonary tuberculosis	- Treatment	23/07/2019 at 11:30
138	**[Indicator]** Isoniazid prophylaxis may reduce the risk of tuberculosis in kidney transplant patients. **[Evidence]** isoniazid prophylaxis may reduce risk of tuberculosis in patients having kidney transplant (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T116300#Treatment-of-latent-tuberculosis-infection	Pulmonary tuberculosis	- Prevention	23/07/2019 at 11:35
139	**[Indicator]** The main risk factors for acquiring tuberculosis in children include birth or residence in an endemic area and exposure to adults with active tuberculosis and exposure to secondhand smoke. Furthermore, factors associated with increased risk of developing the disease include recent acquisition of infection, younger age, compromised immunity (particularly HIV infection), and chronic comorbidities such as diabetes mellitus. **[Evidence]** Major risk factors for acquisition of infection include birth or residence in an endemic area, exposure to adults with active TB, and exposure to second hand smoke. Factors associated with increased risk of progressing from latent infection to active disease include recent acquisition of infection, younger age, immunocompromise, particularly HIV infection, and chronic comorbidities such as diabetes mellitus. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Background	Tuberculosis in children	- Babies - Children - Associated disease - Risk factor - HIV	23/07/2019 at 11:41
140	**[Indicator]** The most common clinical presentation of tuberculosis in children is parenchymal lung disease with associated intrathoracic lymphadenopathy. **[Evidence]** The most common clinical presentation of tuberculosis in children is pulmonary parenchymal disease with associated intrathoracic lymphadenopathy. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Background	Tuberculosis in children	- Children - Symptoms	23/07/2019 at 11:47
141	**[Indicator]** Extrapulmonary tuberculosis is more common in children than adults, most often manifesting as tuberculous lymphadenitis or pleural disease. Less common are the extrapulmonary forms in the pericardium, central nervous system, skeletal and miliary. **[Evidence]** Extrapulmonary disease is also more common in children than in adults, most often manifesting as tuberculous lymphadenitis or pleural disease. Less common extrapulmonary manifestations include pericardial, central nervous system, skeletal, and miliary disease. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Background	Tuberculosis in children	- Children - Diagnosis - Symptoms	23/07/2019 at 11:48
142	**[Indicator]** Congenital tuberculosis is very rare, but it is reported. It may present with fever, respiratory distress, hepato/splenomegaly (enlarged liver/spleen) or nonspecific symptoms such as poor diet or lethargy. **[Evidence]** Congenital TB is very rare, but reported, and may present with fever, respiratory distress, hepato/splenomegaly, or with nonspecific symptoms such as poor feeding or lethargy. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Background	Tuberculosis in children	- Babies - Symptoms	23/07/2019 at 11:56

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
144	**[Indicator]** Children born in endemic areas or exposed to an adult with tuberculosis should be investigated for cough and/or fever, weight loss or failure to thrive, lymphadenopathy (enlarged lymph nodes), hepato/splenomegaly (enlarged liver/spleen) , meningitis, ascites, or other suggestive symptoms. **[Evidence]** Consider the diagnosis of tuberculosis (TB) in children born in endemic areas or with known exposure to an adult with active TB, presenting with cough and/or fever, weight loss or failure to thrive, lymphadenopathy, hepato- or splenomegaly, meningitis or ascites, or other suggestive signs and symptoms. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Evaluation	Tuberculosis in children	- Babies - Children - Symptoms	23/07/2019 at 12:00
145	**[Indicator]** Children with suspected tuberculosis infection should have a tuberculin skin test or interferon gamma release test. Skin testing is preferred for children under 5 years of age. The second test is preferred for children 5 years and older who have a history of the BCG vaccine. However, any test is acceptable in children over 5 years of age who have no vaccine history. Children who test positive should have a complete physical examination, including a careful neurological assessment and a chest X-ray. If the result is negative, further evaluation is considered in children who remain at risk of acquiring tuberculosis, as a negative result does not exclude active disease. **[Evidence]** Screen children with suspected latent or active infection using either a tuberculin skin test (TST) or interferon gamma release assay (IGRA). TST is preferred in children < 5 years old, but IGRA is preferred in children ≥ 5 years old with history of bacille Calmette-Guérin (BCG) vaccination. Either test is acceptable in children > 5 years old who lack a history of BCG vaccination. In children who screen positive, perform a thorough physical examination, including a careful neurologic assessment and a chest x-ray. In children who screen negative, consider additional evaluation in those who remain at increased risk for TB, as a negative result does not rule out active disease. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Evaluation	Tuberculosis in children	- Children - Diagnosis	23/07/2019 at 12:06
146	**[Indicator]** In the absence of bacterial confirmation, the diagnosis of tuberculosis can be made clinically based on risk factors, symptoms, and/or chest X-ray features. **[Evidence]** In the absence of bacterial confirmation, the diagnosis can be made clinically based on risk factors, signs and symptoms and/or characteristic chest x-ray findings. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Evaluation	Tuberculosis in children	- Children - Diagnosis	23/07/2019 at 13:17
147	**[Indicator]** HIV testing should be performed on all children with suspected or confirmed tuberculosis due to the association between HIV infection and tuberculosis. **[Evidence]** Due to the association between HIV infection and TB, consider HIV testing in all children with suspected or confirmed TB. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Evaluation	Tuberculosis in children	- Children - HIV	23/07/2019 at 13:18
148	**[Indicator]** The diagnosis of tuberculosis in children usually represents a recent transmission. Therefore, it is necessary to investigate the source case. **[Evidence]** The diagnosis in children often represents a recent transmission and should trigger a source case investigation. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Management	Tuberculosis in children	- Children - Diagnosis - Treatment	23/07/2019 at 13:22
149	**[Indicator]** In children, the recommended treatment for pulmonary tuberculosis not resistant to all first-line drugs is a 2-month initial phase, followed by a 4-month continuation phase. The initial phase includes isoniazid, rifampicin, pyrazinamide, and ethambutol. The continuation phase includes isoniazid and rifampicin. **[Evidence]** American Thoracic Society/Centers for Disease Control and Prevention/Infectious Diseases Society of America (ATS/CDC/IDSA)- recommended empiric treatment for tuberculosis in children with pulmonary tuberculosis caused by Mycobacterium tuberculosis known or suspected to be susceptible to all first-line drugs is a 2-month initial phase followed by a 4-month continuation phase (Strong recommendation). The 2-month initial phase includes: isoniazid 5 mg/kg/day (maximum 300 mg/day, 10 mg/kg/day in children) orally, IV, or intramuscularly rifampicin 10 mg/kg/day (maximum 600 mg/day, 15 mg/kg/day in children) orally or IV pyrazinamide 25 mg/kg/day (maximum 2 g/day, 15-30 mg/kg/day in children) orally ethambutol 15 mg/kg/day (maximum 1.6 g/day, 20 mg/kg/day in children) orally The 4-month continuation phase includes: isoniazid 5 mg/kg/day (maximum 300 mg/day, 10 mg/kg/day in children) orally, IV, or intramuscularly rifampicin 10 mg/kg/day (maximum 600 mg/day, 15 mg/kg/day in children) orally or IV **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Management	Tuberculosis in children	- Children - Treatment	23/07/2019 at 13:29
150	**[Indicator]** The continuation phase of tuberculosis treatment in children should be extended if there is cavitation on the initial chest X-ray, sputum cultures that are positive after 2 months of therapy, tuberculous meningitis, or skeletal tuberculosis. **[Evidence]** Extend the continuation phase for patients with cavitation on initial chest radiograph and positive sputum cultures after 2 months of therapy, tuberculous meningitis, or skeletal tuberculosis. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Management	Tuberculosis in children	- Children - Treatment	23/07/2019 at 13:31
151	**[Indicator]** Adjuvant corticosteroids are recommended for all children with tuberculous meningitis and/or airway involvement by lymphadenopathy (enlarged lymph nodes). They may also be considered for children with severe pleural, pericardial, abdominal, or miliary disease. **[Evidence]** Adjunctive corticosteroids are recommended for all children with tuberculous meningitis, airway impingement from lymphadenopathy, and can be considered for those with pleural, pericardial, abdominal, or severe miliary disease. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Management	Tuberculosis in children	- Children - Associated disease - Treatment	23/07/2019 at 13:35

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
152	**[Indicator]** Preventive therapy is recommended for children with latent tuberculosis infection. It consists of the use of isoniazid for 6 months for children under 5 years of age who are in close contact with people with tuberculosis, but who do not have the disease. **[Evidence]** Both the World Health Organization (WHO) and American Academy of Pediatrics (AAP) recommend preventative therapy for children with latent tuberculosis infection (LTBI)(6, 8) WHO recommends isoniazid preventative therapy (10 mg/kg/day, maximum 300 mg/day) for 6 months to children aged < 5 years who are household or close contacts of people with tuberculosis but do not have active disease (WHO Strong recommendation, High-quality evidence) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease	Tuberculosis in children	- Children - Prevention	23/07/2019 at 13:43
153	**[Indicator]** Preventive therapy with isoniazid is considered for all infants and children with latent tuberculosis who do not have active disease or a history of previous treatment for tuberculosis. **[Evidence]** Consider isoniazid preventative therapy for all infants and children with latent tuberculosis infection who have no evidence of active disease or history of previous tuberculosis treatment **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease	Tuberculosis in children	- Babies - Children - Prevention	23/07/2019 at 13:45
154	**[Indicator]** Preventive therapy should be initiated in all children under 4 years of age with impaired immunity who are exposed to patients with contagious tuberculosis, regardless of the results of diagnostic tests. **[Evidence]** Initiate preventative therapy in all children < 4 years old with impaired immunity exposed to patients with contagious tuberculosis regardless of diagnostic testing results **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease	Tuberculosis in children	- Babies - Children - Prevention	23/07/2019 at 13:48
155	**[Indicator]** Preventive therapy for children with latent tuberculosis infection includes isoniazid for 9 months. There are alternative regimens with different doses and durations per the child's age. Furthermore, rifampicin can be included for a 3-month duration regimen. For children who were started on therapy and had no active disease, 2 months of rifampicin and pyrazinamide given as part of the four-drug regimen is considered sufficient. If the source of the infection is tuberculosis resistant to isoniazid but susceptible to rifampicin, rifampicin should be administered daily for 4 months (some experts recommend 6 months in children over 12 years of age). **[Evidence]** Regimens for children with latent tuberculosis infection isoniazid 10 mg/kg/day (maximum 300 mg/day) for 9 months preferred consider isoniazid 20-30 mg/kg/dose (maximum 900 mg/dose) twice weekly as directly observed therapy for 9 months if adherence to daily therapy cannot not assured alternative regimens isoniazid 15 mg/kg (maximum 900 mg) plus rifampicin 300-900 mg weekly for 12 weeks may be used in children ≥ 12 years old can be considered in children < 12 years old if low likelihood of completion of other therapies (note regimen unstudied in this age group) should not be used in children < 2 years old isoniazid 10 mg/kg/day (maximum 300 mg/day) plus rifampicin 10-15 mg/kg/day (maximum 600 mg) for 3 months for children who have been started on empiric therapy and subsequently found not to have active disease, 2 months of daily rifampicin and pyrazinamide given as part of the empiric 4-drug regimen considered sufficient for treatment of LTBI if source of infection found to have isoniazid-resistant, rifampicin-susceptible tuberculosis, give rifampicin daily for 4 months (some experts recommend 6 months in children < 12 years old) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease	Tuberculosis in children	- Babies - Children - Prevention	23/07/2019 at 13:59
156	**[Indicator]** Children with a negative tuberculin skin test or gamma interferon release test should be retested 8 to 10 weeks after the last exposure to the source of infection. Preventive therapy can be discontinued in immunocompetent patients who continue to test negative. The full regimen of preventive treatment should be continued in immunocompromised patients in whom latent infection cannot be excluded. **[Evidence]** Retest children with negative tuberculin skin test (TST) or interferon gamma release assay (IGRA) 8-10 weeks after last exposure to source of infection therapy can be discontinued in immunocompetent patients who continue to have negative TST or IGRA continue full treatment regimen in patients with immunocompromised in whom LTBI cannot be excluded **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease	Tuberculosis in children	- Children - Prevention	23/07/2019 at 14:03
157	**[Indicator]** Directly observed rifapentine and isoniazid once weekly for 3 months appear as effective as isoniazid once daily for 9 months in preventing tuberculosis in children with latent infection. **[Evidence]** Directly observed rifapentine plus isoniazid once weekly for 3 months appears as effective as isoniazid once daily for 9 months in preventing tuberculosis in children with LTBI (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease	Tuberculosis in children	- Children - Prevention	23/07/2019 at 14:06
158	**[Indicator]** Four-month rifampicin may be as effective as 9-month isoniazid in children with latent tuberculosis infection. **[Evidence]** 4-month rifampicin may be as effective as 9-month isoniazid in children with LTBI (level 2 [mid-level] evidence) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T908867#Prevention-of-active-disease	Tuberculosis in children	- Children - Prevention	23/07/2019 at 14:09

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
159	**[Indicator]** Tuberculosis in children is rarely contagious. However, children with adult-type tuberculosis features can be potentially contagious, and these features are cough, productive cough, skin drainage/soft tissue injury, lack of adequate treatment for tuberculosis or having only been started with medication for short duration and airway instrumentation. The radiographic features are cavity lesions, apical and laryngeal involvement. Furthermore, they can be contagious if they are smear positive. **[Evidence]** Children with tuberculosis (TB) rarely contagious (Tuberculosis (Edinb) 2011 Dec;91 Suppl 1:S11) children with features of adult-type TB may potentially be contagious, including clinical symptoms presence of cough productive cough draining skin/soft tissue lesion lack of appropriate treatment for TB, or only having been started on TB medications for short duration airway instrumentation radiographic features cavitary lesions apical involvement laryngeal involvement positive acid-fast sputum smear **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Isolation-of-children-with-active-tuberculosis	Tuberculosis in children	- Children - Transmission	23/07/2019 at 14:16
160	**[Indicator]** If the mother or household contact has a positive tuberculin skin test or interferon gamma release assay, but a chest radiograph is normal, the recommendations are: it is not necessary to separate the mother from the baby; no special evaluation or therapy required for the baby; other family members should be evaluated for tuberculosis, as the positive test may represent an unrecognized case of contagious tuberculosis; and the mother can breastfeed the baby. **[Evidence]** If mother (or household contact) has positive tuberculin skin test or IGRA and normal chest x-ray(8) no separation of mother and infant required no special evaluation or therapy required for infant other household members should be evaluated for tuberculosis as positive test may represent unrecognized case of contagious tuberculosis mother can breastfeed infant **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Management-of-infant-born-to-mother-with-tuberculosis	Tuberculosis in children	- Breastfeeding - Babies - Prevention	23/07/2019 at 14:21
161	**[Indicator]** If the mother or family member has clinical symptoms or abnormal X-ray results compatible with tuberculosis, the following measures should be taken: evaluate the baby for congenital tuberculosis; separate the mother or family member from the child until a complete evaluation is performed; when the child receives isoniazid, separation is not necessary, unless the mother or family member is suspected of being infected with drug-resistant tuberculosis or has poor adherence to therapy and directly observed therapy is not possible; women with a drug-susceptible infection who have been treated properly for more than 2 weeks can breastfeed. If congenital tuberculosis is excluded, isoniazid should be used for 3 to 4 months and the skin test performed afterwards. If the test is negative and the mother or family member has good adherence to treatment, isoniazid can be discontinued. If the test is positive, tuberculosis should be investigated again. If not detected, isoniazid should be continued for 9 months and the child evaluated monthly during treatment. **[Evidence]** If mother (or household contact) has clinical signs and symptoms or abnormal findings on x-ray consistent with tuberculosis disease(8) immediately report to local health department evaluate infant for congenital tuberculosis separate mother (or household contact) from infant until full evaluation can be done, and if tuberculosis suspected, until mother found not to have tuberculosis mother and child both receive appropriate therapy mother understands and is willing to adhere to infection-control measures once infant receives isoniazid, separation not required unless mother (or household contact) has suspected drug resistant tuberculosis infection has poor adherence to therapy and directly observed therapy not possible women with drug-susceptible infection treated appropriately for ≥ 2 weeks may breastfeed if congenital tuberculosis excluded, give isoniazid for 3-4 months and perform skin test if skin test is positive reassess for tuberculosis disease if tuberculosis disease excluded, continue isoniazid for total of 9 months evaluate infants for signs of tuberculosis monthly during treatment if skin test is negative, and mother has good treatment adherence, discontinue isoniazid **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Management-of-infant-born-to-mother-with-tuberculosis	Tuberculosis in children	- Babies - Children - Prevention	23/07/2019 at 14:35
162	**[Indicator]** The following measures should be taken if the mother or family member has a positive tuberculin skin test or interferon gamma release assay and abnormal chest radiograph results but no evidence of tuberculous disease: illness and separation is not necessary; the mother should be treated for latent tuberculosis infection; other family members should be evaluated. **[Evidence]** If mother (or household contact) has positive skin test or IGRA and abnormal findings on chest x-ray but no evidence of tuberculosis disease(8) infant can be assumed to be at low risk of disease, and separation not necessary treat mother for latent tuberculosis infection evaluate other household members **[Reference]** http://www.dynamed.com/topics/dmp~AN~T908867#Management-of-infant-born-to-mother-with-tuberculosis	Tuberculosis in children	- Babies - Children - Prevention	23/07/2019 at 14:39
163	**[Indicator]** Tuberculous lymphadenitis is the most common form of extrapulmonary tuberculosis, occurring in about 35% of patients with extrapulmonary tuberculosis. Tuberculous lymphadenitis may occur in the presence of disease at other anatomical sites. **[Evidence]** Tuberculous lymphadenitis is the most common form of extrapulmonary tuberculosis (TB), occurring in about 35% of patients with extrapulmonary TB. Tuberculous lymphadenitis may occur in the presence of disease in other anatomical sites. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T901422#Background	Tuberculous lymphadenitis	- Definitions - Associated disease	23/07/2019 at 14:42
164	**[Indicator]** Risk factors for lymphadenitis tuberculosis include female sex, peak age of 30 to 40 years, residence in endemic countries, particularly in Southeast Asia and Africa, and immunocompromise, including HIV infection. **[Evidence]** Risk factors include female sex, peak age 30-40 years, residence in endemic countries, particularly in Southeast Asia and Africa, and immunocompromise, including HIV infection. **[Reference]** http://www.dynamed.com/topics/dmp~AN~T901422#Background	Tuberculous lymphadenitis	- Risk factor - HIV - Sex	23/07/2019 at 14:43

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
165	**[Indicator]** The definitive diagnosis of tuberculosis lymphadenitis is made by culture or molecular identification of tuberculosis mycobacteria in the tissue of an affected lymph node. The preferred method of collecting a biopsy specimen is fine-needle aspiration, as it is safer and less invasive than excisional biopsy. However, commonly used diagnoses include microbiological testing, cytology, and nucleic acid amplification tests. Chest radiography should be performed to determine the presence of pulmonary tuberculosis. **[Evidence]** Definitive diagnosis is made by culture or molecular identification of Mycobacterium tuberculosis in tissue from an affected lymph node. Fine needle aspiration is the preferred method of collecting biopsy samples, as it is safer and less invasive than excisional biopsy. Commonly used diagnostics include: microbiologic testing cytology nucleic acid amplification tests Chest x-ray should be performed to determine the presence of pulmonary tuberculosis. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T901422#Evaluation	Tuberculous lymphadenitis	- Diagnosis	23/07/2019 at 14:46
166	**[Indicator]** The total duration of treatment for lymphadenitis tuberculosis is 6 months. The initial phase is 2 months and includes isoniazid, rifampicin, pyrazinamide and ethambutol. The continuation phase is 4 months and includes isoniazid and rifampicin. **[Evidence]** Treatment recommendations derived from the American Thoracic Society/Centers for Disease Control and Prevention/Infectious Diseases Society of America (ATS/CDC/IDSA) and World Health Organization (WHO) (Strong recommendation): The total length of therapy is 6 months. The 2-month initial phase includes: isoniazid orally, IV, or intramuscularly 5 mg/kg/day (maximum 300 mg/day, 10 mg/kg/day in children) rifampicin orally or IV 10 mg/kg/day (maximum 600 mg/day, 15 mg/kg/day in children) pyrazinamide orally 25 mg/kg/day (maximum 2 g/day, 15-30 mg/kg/day in children) ethambutol orally 15 mg/kg/day (maximum 1.6 g/day, 20 mg/kg/day in children) The 4-month continuation phase includes: isoniazid orally, IV, or intramuscularly 5 mg/kg/day (maximum 300 mg/day, 10 mg/kg/day in children) rifampicin orally or IV 10 mg/kg/day (maximum 600 mg/day, 15 mg/kg/day in children) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T901422#Management	Tuberculous lymphadenitis	- Treatment	23/07/2019 at 14:48
167	**[Indicator]** Excision (extraction) of the affected lymph nodes is usually reserved for unusual cases or treatment failure. **[Evidence]** Excision of affected lymph nodes is generally reserved for unusual cases or treatment failure. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T901422#Management	Tuberculous lymphadenitis	- Treatment	23/07/2019 at 14:50
168	**[Indicator]** During treatment, monitoring should be done for drug toxicities, paradoxical amelioration reaction and immune reconstitution inflammatory syndrome. **[Evidence]** During treatment, monitor for drug toxicities, a paradoxical upgrading reaction, and immune reconstitution inflammatory syndrome **[Reference]** http://www.dynamed.com/topics/dmp-AN-T901422#Management	Tuberculous lymphadenitis	- Treatment	23/07/2019 at 14:51
169	**[Indicator]** Tuberculous meningitis (also called meningeal tuberculosis) is caused by an infection of the central nervous system. It is the most serious form of tuberculosis, with high morbidity and mortality, and neurological complications are common when diagnosis or treatment is delayed. **[Evidence]** Tuberculous meningitis (also called meningeal tuberculosis) is caused by infection of the central nervous system with Mycobacterium tuberculosis. It is the most severe form of tuberculosis, with high morbidity and mortality, and neurologic complications are common with delayed diagnosis or treatment. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Background	Tuberculous meningitis	- Definitions	23/07/2019 at 14:57
170	**[Indicator]** Populations most at risk of contracting tuberculous meningitis include children and people with HIV infection. **[Evidence]** Those at highest risk for tuberculous meningitis include children and persons with HIV infection. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Background	Tuberculous meningitis	- Children - Risk factor - HIV	23/07/2019 at 14:58
171	**[Indicator]** The spread of tuberculosis to the central nervous system occurs by hematogenous (bloodstream) spread of organisms to the brain. **[Evidence]** Spread to the central nervous system occurs by hematogenous dissemination of organisms to the brain. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Background	Tuberculous meningitis	- Transmission	23/07/2019 at 14:59
172	**[Indicator]** Tuberculous meningitis is difficult to diagnose and requires a lot of suspicion. The initial clinical presentation may be nonspecific and similar to other types of meningitis. Diagnosis should be considered when a patient has consistent signs and symptoms combined with risk factors for tuberculosis. **[Evidence]** Tuberculous meningitis is difficult to diagnose and a high index of suspicion is required. Diagnosis should be considered when a patient presents with consistent signs and symptoms combined with risk factors for tuberculosis (TB). Early clinical presentation may be nonspecific, and similar to other types of meningitis. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Evaluation	Tuberculous meningitis	- Diagnosis - Symptoms	23/07/2019 at 15:02
173	**[Indicator]** Meningeal tuberculosis symptoms in children can include meningeal irritation, poor weight gain or weight loss, altered consciousness, and fever. Symptoms often emerge within 3 months of primary pulmonary tuberculosis. Meningeal tuberculosis is closely associated with disseminated (miliary) tuberculosis, with more rapid progression of symptoms and neurological complications compared to adults. **[Evidence]** Symptoms in children may include meningeal irritation, poor weight gain or weight loss, altered consciousness, and fever. It often presents within 3 months of primary pulmonary TB. It is closely associated with disseminated TB with more rapid progression of symptoms and neurological complications compared to adults. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Evaluation	Tuberculous meningitis	- Children - Symptoms	23/07/2019 at 15:04
174	**[Indicator]** The meningeal tuberculosis symptoms in adults include stiff neck, headache, fever, and vomiting. **[Evidence]** Symptoms in adults include stiff neck, headache, fever, and vomiting. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Evaluation	Tuberculous meningitis	- Symptoms	23/07/2019 at 15:05

Annex 1. (cont.)

Id	Indicators	Topics	Groups	Registration dates
175	**[Indicator]** About a third of patients with tuberculous meningitis have cranial neuropathies with involvement of the sixth most common nerve. **[Evidence]** About one-third of patients with tuberculous meningitis have cranial neuropathies, with involvement of the sixth nerve most common. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Evaluation	Tuberculous meningitis	- Symptoms	23/07/2019 at 15:06
176	**[Indicator]** Patients with HIV typically have a similar clinical presentation of tuberculous meningitis to patients without HIV. **[Evidence]** Patients with HIV typically have a similar clinical presentation of tuberculous meningitis as patients without HIV. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Evaluation	Tuberculous meningitis	- HIV - Symptoms	23/07/2019 at 15:07
177	**[Indicator]** A careful neurological examination should be performed in search of motor deficits, cranial nerve palsies, and photophobia to make the diagnosis of meningeal tuberculosis. Diagnosis is typically based on detection of mycobacteria in cerebrospinal fluid by microscopy, mycobacterial culture, or a nucleic acid amplification test. Imaging abnormalities may include basal cistern enhancement, subarachnoid space enlargement, hydrocephalus, cranial nerve changes, and chest X-ray abnormalities. **[Evidence]** A careful neurologic exam should be performed looking for motor deficits, cranial nerve palsies, and photophobia. Diagnosis is typically based on detection of mycobacteria in cerebrospinal fluid (CSF) by smear microscopy, mycobacterial culture, or a nucleic acid amplification test. Abnormalities on imaging may include basal cistern enhancement, widening of subarachnoid space, hydrocephalus, changes to cranial nerves, and abnormalities on chest x-ray. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Evaluation	Tuberculous meningitis	- Diagnosis	23/07/2019 at 15:10
178	**[Indicator]** Prompt treatment for meningeal tuberculosis is very important. Due to the nature of the disease, the time required for culture results, and the morbidity and mortality, initial treatment is necessary in most cases. **[Evidence]** Prompt treatment is very important. Because of the paucibacillary nature of tuberculous meningitis, time required for culture results, and morbidity and mortality that may delay treatment of tuberculous meningitis, initial empiric treatment is necessary in most instances. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Management	Tuberculous meningitis	- Treatment	23/07/2019 at 15:17
179	**[Indicator]** Treatment of meningeal tuberculosis is based on the standard anti-tuberculosis regimen, but with a longer continuation phase: initial phase with isoniazid, rifampicin, pyrazinamide and ethambutol for 2 months; continuation phase with isoniazid plus rifampicin for 7 to 10 months. **[Evidence]** Treatment is based on the standard antituberculosis regimen but with a longer continuation phase, including: initiation phase of isoniazid, rifampicin, pyrazinamide, ethambutol for 2 months (Strong recommendation) continuation phase of isoniazid plus rifampicin for 7-10 months (Weak recommendation) **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Management	Tuberculous meningitis	- Treatment	23/07/2019 at 15:18
180	**[Indicator]** Although their role remains controversial, adjuvant corticosteroids are strongly recommended in the context of tuberculous meningitis. **[Evidence]** Although their role remains controversial, adjunctive corticosteroids are recommended in the context of tuberculous meningitis (Strong recommendation). **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Management	Tuberculous meningitis	- Treatment	23/07/2019 at 15:19
181	**[Indicator]** For meningeal tuberculosis, surgery may be indicated in patients with hydrocephalus, tuberculous brain abscess, or vertebral tuberculosis with paraparesis. **[Evidence]** Surgery may be indicated in patients with hydrocephalus, tuberculous cerebral abscess, or vertebral tuberculosis with paraparesis. **[Reference]** http://www.dynamed.com/topics/dmp-AN-T114554#Management	Tuberculous meningitis	- Treatment	23/07/2019 at 15:20

Source: Own elaboration.