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Infectious Disease Provider Perspectives on Shorter Tuberculosis Treatment Regimens

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Background. Since 2020, Infectious Diseases Society of America/American Thoracic Society/Centers for Disease Control and Prevention guidelines have preferentially recommended ≤4-month rifamycin-based regimens for tuberculosis infection. Since 2022, recommendations have included all-oral 6-month regimens (bedaquiline, pretomanid, and high-dose linezolid [BPaL] or BPaL plus moxifloxacin [BPaL-M]) for drug-resistant disease and a 4-month regimen (rifapentine, isoniazid, and moxifloxacin [HPMZ]) for drug-susceptible disease. Yet implementation of new regimens often lags behind guidelines. This survey aimed to characterize tuberculosis treatment practices of infectious disease clinicians and barriers to utilizing these regimens.

Methods. A survey about tuberculosis treatment practices was distributed to 1501 North American adult infectious disease physician members of the IDSA's Emerging Infections Network. Percentages of respondents were calculated for each question. Open comment data were qualitatively analyzed.

Results. Three hundred forty-nine clinicians completed the survey. Ninety-three percent of respondents preferentially opted for ≤4-month regimens for tuberculosis infection, with only 12% expressing concerns about treatment effectiveness. In contrast, 1% selected HPMZ for pulmonary drug-susceptible disease, and 5% reported experience with HPMZ. For confirmed drug-resistant disease, 39% reported that they would use BPaL or BPaL-M, with 40% unsure about regimen choice. Forty-three percent reported uncertainty about effectiveness of 4- and 6-month regimens for drug-susceptible disease and drug-resistant disease. Qualitative analysis highlighted barriers to the use of newer regimens for tuberculosis disease, including concerns about treatment toxicities related to HPMZ or linezolid, medication interactions, and rifapentine and bedaquiline availability.

Conclusions. While infectious disease physicians preferentially use shorter regimens for tuberculosis infection, uptake of newer regimens for tuberculosis disease is low due to concerns about effectiveness and treatment toxicities. Enhanced adverse effect management and monitoring and shared decision-making can optimize the implementation of newer tuberculosis disease treatment regimens.

Keywords. BPaL; BPALM; HPMZ; shorter regimens; tuberculosis; tuberculosis treatment.

Tuberculosis is a major cause of morbidity and mortality worldwide [1]. Although the United States is a low-incidence country, tuberculosis incidence has been increasing since 2020 [2], and its impact on patients and public health systems remains significant [3]. Despite being curable, tuberculosis disease treatment requires months of multidrug therapy and is associated with side effects and drug–drug interactions, posing adherence challenges. Since the 1960s, drug-susceptible tuberculosis has been treated with a 6-month regimen that uses four first-line medications: rifampin, isoniazid, ethambutol, and pyrazinamide [4, 5]. Prior national guidelines recommended treatment of tuberculosis infection with a 6- to 12-month regimen of isoniazid [6]. There has subsequently been new research to support "shorter" regimens ≤4 months for tuberculosis infection, ≤6 months for drug-susceptible disease, and 6 months for drug-resistant disease.

In 2022, the World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC) guidelines were updated to include a new 4-month regimen to treat drug-susceptible tuberculosis disease [4, 7]. This regimen consists of rifapentine, isoniazid, moxifloxacin, and pyrazinamide taken for 2 months, followed by 2 months of rifapentine, isoniazid, and moxifloxacin (HPMZ). This recommendation was based on data from a phase III multicountry trial that determined that the 4-month HPMZ regimen was noninferior to the standard 6-month regimen in people with pulmonary tuberculosis [8].

The advent of new shorter treatment options for multidrug-resistant tuberculosis (MDR-TB) and extensively drug-resistant tuberculosis (XDR-TB) has been eagerly

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received [9]. Previous regimens for drug-resistant tuberculosis ranged from 18 to 24 months in duration and typically included injectable medications with severe side effects, and cure rates were low (50% for MDR-TB and 20% for XDR-TB) [10]. The open-label NiX-TB trial in South Africa demonstrated that a 6-month oral regimen with bedaquiline, pretomanid, and high-dose linezolid (BPaL) resulted in 90% of participants with MDR- and XDR-TB achieving cure [11]. High rates of toxicity including peripheral neuropathy and myelosuppression due to the 1200-mg linezolid dose informed the subsequent multicountry ZeNix trial, which demonstrated similar success rates with 600-mg daily linezolid [12]. The multicountry phase 2–3 TB-PRACTECAL trial demonstrated noninferiority and a better safety profile for 6 months of BPaL (with 600 mg daily linezolid for 16 weeks followed by 300 mg daily for 8 weeks) plus moxifloxacin (BPaL-M) compared with standard of care [13]. Shorter drug-resistant tuberculosis disease treatment regimens with BPaL and BPaL-M have been recommended by WHO guidelines since 2022 [4]. While implementation of BPaL has been demonstrated to be feasible in the United States, utilization of these regimens has been limited by drug procurement, availability, and affordability, particularly in the use of newer agents like bedaquiline [9, 14].

Multiple large-scale trials have demonstrated the effectiveness of shorter regimens for tuberculosis infection [15, 16], which are now endorsed as preferable by the CDC and National Tuberculosis Controllers Association (NTCA) guidelines [6]. A 3-month regimen of weekly rifapentine plus isoniazid (3HP) was found to be noninferior to 9 months of daily isoniazid, with improved treatment completion rates (82% compared with 69%) [15]. However, a greater risk of adverse effects has been noted with rifapentine-containing regimens [16]. A 4-month regimen of daily rifampin (4R) has also been shown to be noninferior to 9 months of isoniazid, with improved treatment completion rates (79% compared with 63%) and lower rates of adverse effects leading to discontinuation (1.5% compared with 2.6%) [17]. A systematic review revealed attrition at each step of the tuberculosis infection care cascade, although treatment completion was higher with shorter regimens [18].

While patients have expressed preferences for shorter regimens [19, 20], which can also lower costs for health care systems [21, 22], implementation of new regimens often lags behind scientific trials. This survey aims to explore current treatment practices of North American clinicians who manage tuberculosis to understand how they incorporate evidence from clinical trials and recommendations in national guidelines and elicit perceived barriers clinicians face when making treatment decisions.

METHODS

We distributed a 9-question electronic survey about tuberculosis treatment practices through the Infectious Diseases Society of America's (IDSA's) Emerging Infections Network (EIN) [23], which is a provider-based emerging infections sentinel network supported by the CDC. EIN's infectious disease community membership includes adult infectious disease physicians from North America who have volunteered to participate in regular surveys regarding infectious disease clinical practice [23].

One infectious disease physician with clinical expertise in tuberculosis care and one internal medicine physician developed the initial survey questions (R.R.N. and A.M.), which were revised in collaboration with clinicians with expertise in tuberculosis care and survey design (M.S.) as well as EIN leadership (S.B. and P.P.). The multiple-choice survey used hypothetical clinical case scenarios to elicit treatment preferences for tuberculosis infection and tuberculosis disease. Two questions focused on treatment decisions and barriers for tuberculosis infection, and five questions focused on treatment decisions and barriers for drug-susceptible and drug-resistant tuberculosis disease. The remaining questions requested demographic information and free-text comments. All questions asked respondents to assume that all drugs were available and that cost was not a factor. The survey is included in the Supplementary Data (Supplementary Figure 1). Participation in the survey was voluntary, confidential, and without financial compensation. The Beth Israel Deaconess Institutional Review Board determined that the study was exempt.

We sent 3 emailed requests to complete the survey between October 1 and 15, 2024. Of note, in October 2024 an update to the IDSA/American Thoracic Society (ATS)/CDC guidelines was published endorsing HPMZ and BPaL/BPaLM regimens. Therefore, our study was not timed to account for changing perspectives after publication of this ATS/IDSA/CDC guideline update [4, 14].

Percentages of respondents were calculated for each question using SAS, version 9.4. For some questions, we stratified our results by separating respondents who treat an average of ≥1 tuberculosis disease patient annually from those who treat <1 tuberculosis disease patient annually. This cutoff was chosen to account for providers who rarely treat tuberculosis disease who may be less familiar with new regimens. For the open-comment questions, two authors (A.M. and R.R.N.) systematically reviewed the comments, deriving codes inductively and grouping them into content-related categories.

RESULTS

Survey Respondents

Of 1675 adult infectious disease physicians in the EIN, 174 had never responded to any surveys and were excluded. Of 1501 EIN members who had ever responded to an EIN survey, 418 (28%) submitted responses. Sixty-nine respondents reported

Table 1. Demographics

Characteristic	No. (%)
Adult ID physicians	349 (100)
Region	
New England	25 (7)
Mid-Atlantic	48 (14)
East North Central	50 (14)
West North Central	43 (12)
South Atlantic	65 (19)
East South Atlantic	11 (3)
West South Atlantic	20 (6)
Mountain	13 (4)
Pacific	73 (21)
Canada and Puerto Rico	1 (0.3)
Years of experience since ID fellowship	
<5	74 (21)
5–14	122 (35)
15–24	71 (20)
>25	82 (24)
Primary practice setting	
City/county	19 (5)
Community	88 (25)
Nonuniversity teaching	81 (23)
Outpatient only	2 (0.6)
University	134 (38)
Veterans Affairs Medical Center or Department of Defense	25 (7)
Patients with tuberculosis infection seen in an average year	
<1	21 (6)
1–10	172 (49)
>10	156 (45)
Patients with tuberculosis disease seen in an average year	
<1	104 (30)
1–10	210 (60)
>10	35 (10)

Abbreviation: ID, infectious diseases.

seeing on average 0 patients with tuberculosis infection annually and on average 0 patients with tuberculosis disease annually, making them ineligible for the survey. The remaining 349 respondents practiced in all US Census Bureau divisions. The majority of respondents were based at university settings (38%), with both community settings (25%) and non-university teaching settings (23%) also well represented. Respondents had a range of experience levels: 35% were 5–14 years out of infectious disease fellowship and 24% had >25 years of experience since infectious disease fellowship. Seventy percent of respondents reported caring for at least 1 patient with tuberculosis disease per year, with most (60%) seeing 1–10 patients with tuberculosis disease annually. Tuberculosis infection was managed frequently, with 94% of respondents reporting seeing at least 1 patient with tuberculosis infection per year and 45% seeing >10 patients with tuberculosis infection annually. Respondent demographics and tuberculosis treatment experience are listed in Table 1.

Approach to Tuberculosis Infection Treatment

Participants were asked how they would preferentially approach management of tuberculosis infection in a recent immigrant from a tuberculosis-endemic country with a positive interferon-gamma release assay, normal chest x-ray, and no symptoms. Treatment options included all treatment regimens included in CDC/NTCA guidelines for management of tuberculosis infection and the 1HP regimen (isoniazid and rifapentine daily for 1 month) [6]. Most respondents indicated that they would preferentially initiate treatment with daily rifampin for 4 months (4R, 56%) or isoniazid and rifapentine once weekly for 3 months (3HP, 30%). Participant responses are included in Figure 1.

Respondents were also queried on their concerns with shorter regimens in multiple choice format, with the option of selecting multiple responses. While 42% of respondents reported no concerns with the shorter tuberculosis infection regimens, the most commonly selected concerns included drug interactions (30%), treatment toxicities (25%), and drug availability (22%). Twelve percent selected uncertainty about treatment effectiveness.

One hundred sixteen respondents wrote comments regarding their concerns with using shorter tuberculosis infection treatment regimens, which were thematically coded (Supplementary Table 1). Most comments correlated with barriers listed in the multiple-choice options. An additional theme identified was treatment regimen complexity related to the use of two drugs rather than one and weekly dosing.

Drug interaction concerns included using rifamycins with HIV medications, concurrent use of isoniazid and other hepatotoxic medications, and competing side effect profiles with peripheral neuropathy from isoniazid versus chemotherapy agents. Concerns about treatment toxicities related to the 3HP regimen were often mentioned. Additional concerns included losing patient trust, causing patient harm, and low risk tolerance when treating tuberculosis infection. Drug availability comments focused on rifapentine and concerns related to high cost, drug availability constraints due to shortages and lack of supply at local pharmacies, and lack of insurance coverage.

Approach to Management of Drug-Susceptible Tuberculosis Disease

When asked about their management approach for a patient with drug-susceptible cavitary pulmonary tuberculosis, most participants selected the standard regimen of rifampin, isoniazid, pyrazinamide, and ethambutol (RIPE) for 6 months (58%), while RIPE for 9 months (7-month continuation phase with rifampin/isoniazid) was selected by 36%. The 4-month HPMZ regimen was selected by 1% of participants (Figure 2). A higher percentage of respondents who treat ≥1 tuberculosis disease patient annually selected the 9-month RIPE regimen compared with those who treat <1 tuberculosis disease patient annually (40% vs 27%) (Supplementary Figure 2).

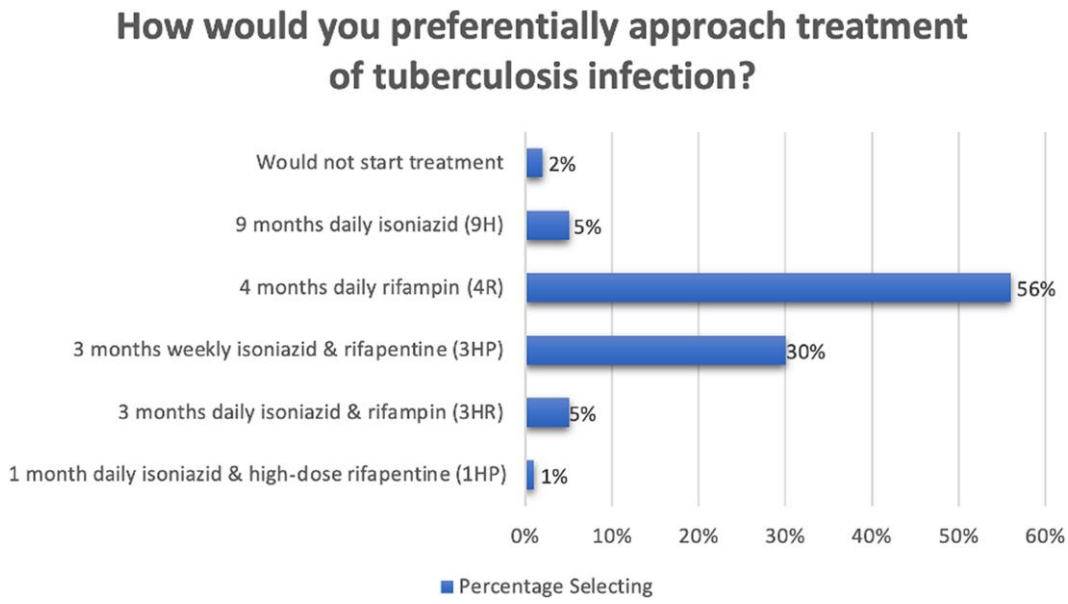

Figure 1. Participant-selected preferential approaches to managing tuberculosis infection.

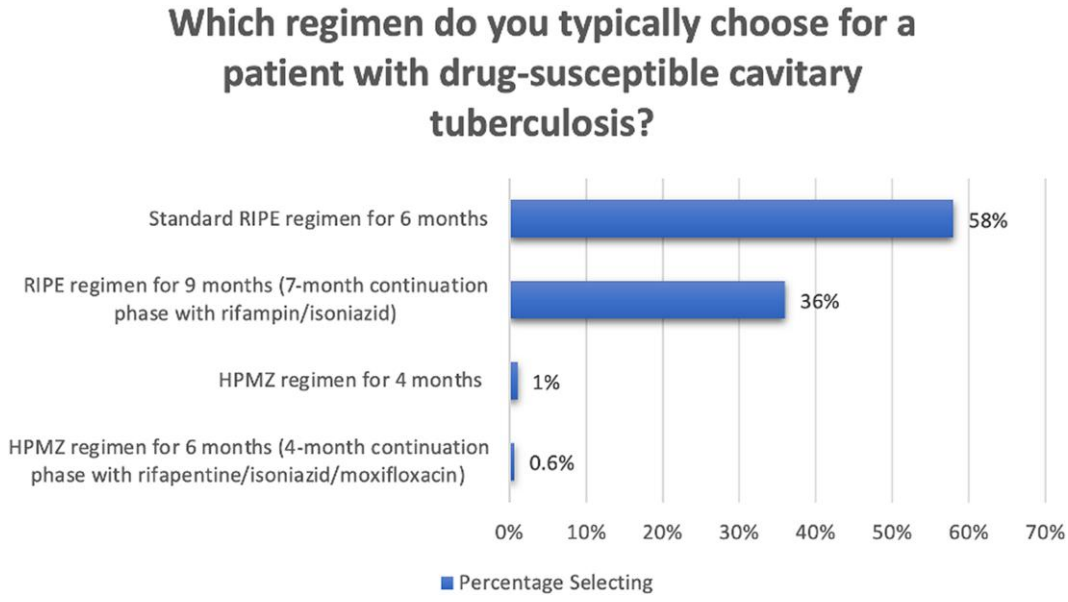

Figure 2. Participant-selected preferential approaches to managing drug-susceptible tuberculosis. Abbreviations: HPMZ, 8-week isoniazid, rifapentine, moxifloxacin, and pyrazinamide followed by 9-week isoniazid, rifapentine, and moxifloxacin; RIPE, regimen of rifampin, isoniazid, pyrazinamide, and ethambutol.

For a patient with well-controlled HIV and a new diagnosis of drug-susceptible pulmonary tuberculosis, the 6-month RIPE regimen was selected by 90% of respondents (Supplementary Figure 3). Among those selecting RIPE, 22% preferred RIPE over HPMZ, and 68% were unaware or uncertain about the HPMZ regimen. Four percent of participants preferentially selected HPMZ over RIPE. More respondents treating ≥1 tuberculosis disease patient annually preferred 6-month RIPE over HPMZ compared with those treating <1 tuberculosis disease patient annually (27% vs 9%) (Supplementary Figure 4).

Experience With HPMZ

Only 5% of respondents reported experience using HPMZ, and 0 respondents had used HPMZ >5 times (Table 2). The 19 participants with experience using HPMZ were asked if they would use HPMZ for patients with HIV or unknown fluoroquinolone

susceptibility. The majority of respondents would only use HPMZ if HIV was well controlled (63%), while 26% would not use HPMZ for any patient with HIV. Responses were mixed on utilizing HPMZ for patients with unknown fluoroquinolone susceptibility; 58% would use HPMZ only with confirmed fluoroquinolone susceptibility, while 42% would use the regimen despite unknown fluoroquinolone susceptibility.

Approach to Management of Drug-Resistant Tuberculosis Disease

When asked about their approach to tuberculosis treatment for patients with risk factors for drug resistance (Figure 3), most participants would not start empiric treatment (34%) and would wait for nucleic acid amplification testing (NAAT; 17%) or both NAAT and molecular detection of drug resistance (MDDR) assay from the CDC (17%). Participants who would start empiric treatment would preferentially start RIPE with moxifloxacin (27%) or RIPE (20%). Among those who treat ≥1 tuberculosis disease patient annually, most participants would start empiric treatment while awaiting drug susceptibility results, with RIPE and moxifloxacin (29%) or RIPE (21%) (Supplementary Figure 5).

When asked to select a regimen for patients with resistance to rifampin and isoniazid and fluoroquinolone susceptibility (Supplementary Figure 6), 42% of participants indicated they were "not sure." Participants who selected a treatment regimen most commonly indicated BPaL-M for 6 months (28%), BPaL for 6 months (8%), or a 9-month regimen with moxifloxacin, linezolid, ethambutol, pyrazinamide, and other tuberculosis drugs like ethionamide/cycloserine/clofazimine and intravenous amikacin (14%).

Results were similar for participants who treat ≥1 tuberculosis disease patient annually, with the majority "not sure" (34%) followed by 32% of respondents selecting BPaL-M (Supplementary Figure 7).

Table 2. Participant Experience With Using HPMZ Regimen for Tuberculosis Disease

Experience With HPMZ	No. (%)
Have you used a 4-month HPMZ regimen?	
No	330 (95)
Yes, 1–5 times	19 (5)
Yes, >5 times	0 (0)
If yes, would you use the HPMZ regimen for people with HIV?	
No	5 (26)
Yes, any HIV patient	2 (11)
Yes, only for well-controlled HIV	12 (63)
If yes, would you use the HPMZ regimen for people with unknown fluoroquinolone susceptibility?	
No, only with proven fluoroquinolone susceptibility	11 (58)
Yes	8 (42)

Abbreviation: HPMZ, 8-week isoniazid, rifapentine, moxifloxacin, and pyrazinamide followed by 9-week isoniazid, rifapentine, and moxifloxacin.

Concerns With Shorter Regimens for Tuberculosis Disease

The majority of participants expressed hesitations with shorter regimens for tuberculosis disease, with only 20% indicating they had no concerns (Supplementary Table 2). The most commonly selected concerns included uncertainty about treatment effectiveness (43%), concern about relapse (29%), and drug

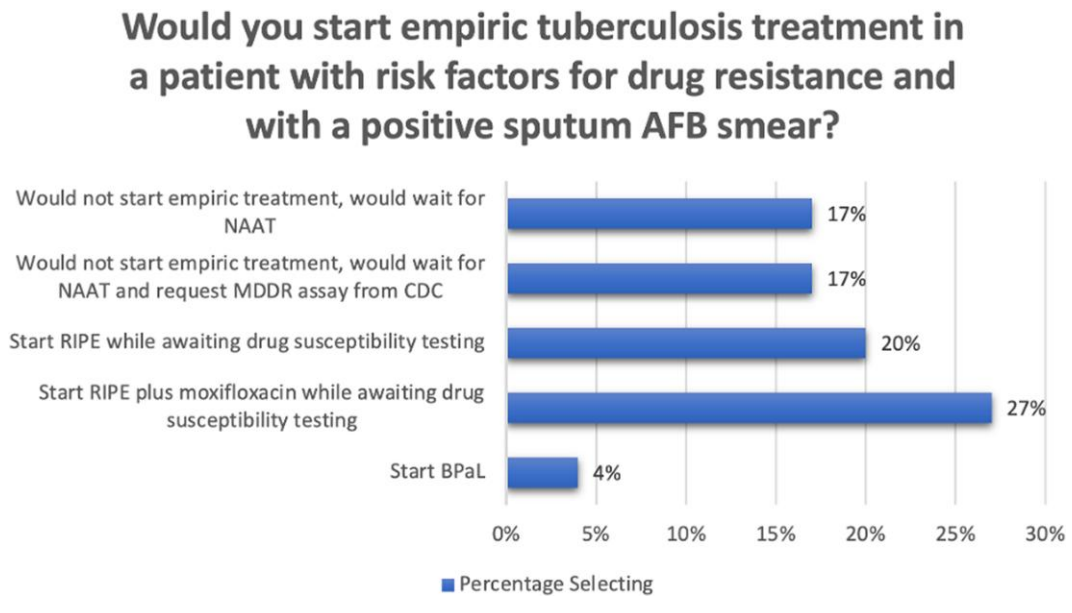

Figure 3. Participant-selected approaches to empiric treatment for patients with risk factors for drug-resistant tuberculosis. Abbreviations: AFB, acid-fast bacillus; BPaL, 6-month regimen of bedaquiline, pretomanid, and high-dose linezolid; CDC, Centers for Disease Control and Prevention; MDDR, molecular detection of drug resistance; NAAT, nucleic acid amplification test; RIPE, regimen of rifampin, isoniazid, pyrazinamide, and ethambutol.

availability (28%). Sixty-six respondents wrote comments that thematically correlated with barriers listed in the multiple-choice options (Supplementary Table 2). Comments regarding uncertainty with treatment effectiveness were focused on participant lack of experience with the newer regimens as well as concerns regarding limited evidence in specific patient populations like those with HIV, immunocompromise, or cavitary disease. Barriers with treatment toxicities included concerns about HPMZ tolerability, linezolid-related peripheral neuropathy, and bone marrow suppression associated with the BPaL regimen. Participants additionally expressed concerns with the availability and cost of newer drugs, particularly bedaquiline.

DISCUSSION

This survey of North American adult infectious disease physicians identified important differences in the uptake, perceived effectiveness, and challenges associated with shorter regimens for tuberculosis infection compared with tuberculosis disease. Preference for shorter regimens for treatment of tuberculosis infection was high. Ninety-three percent of respondents opted for one of the CDC/NTCA-recommended shorter regimens for tuberculosis infection compared with 9 months of isoniazid, with 42% reporting no concerns with the shorter regimens and only 12% expressing concerns about treatment effectiveness. In contrast, knowledge and experience with shorter regimens for tuberculosis disease were limited, with 1% selecting HPMZ as their regimen of choice for drug-susceptible cavitary pulmonary tuberculosis and only 5% reporting experience using HPMZ. Participants reported concerns about the effectiveness of HPMZ for key populations including people with HIV (68%). Knowledge and experience with drug-resistant tuberculosis management were limited, with the majority (42%) reporting uncertainty about how they would treat drug-resistant tuberculosis.

Our qualitative analysis of open-comment responses highlights important barriers to the use of shorter regimens, particularly for tuberculosis disease. These include concerns about treatment effectiveness despite data demonstrating noninferiority to the standard regimen from high-quality multicenter randomized controlled trials [8]. Although the Study 31/A5349 trial included participants with HIV, they only constituted 8% (194/2343) of the study population, which may have led to impaired confidence in the effectiveness of this regimen in people with HIV [8]. In contrast, 73% of the participants in Study 31/A5349 had cavitary disease, including 40% with cavities of ≥4 cm [8], yet 84% of our survey participants chose 6–9 months of RIPE. Only 1% opted to use HPMZ for a hypothetical patient with drug-susceptible cavitary pulmonary tuberculosis.

Concerns about treatment toxicities influence clinician decision-making, and side effects due to rifapentine were often mentioned, particularly related to the HPMZ regimen. Similar to the limited usage of HPMZ reported by survey participants, a retrospective cohort study describing HPMZ use in San Francisco highlighted that >80% did not meet inclusion criteria for receiving HPMZ, primarily due to concerns about clinical condition, comorbidities, or the presence of extrapulmonary disease outside of lymph nodes or pleura [24]. Out of the 22 patients initiated on HPMZ in the San Francisco cohort, 11 (50%) discontinued treatment due to adverse effects including vomiting, elevated transaminases, and rash [24]. Additionally, a recent prospective study in New York City demonstrated that of 40 patients initiated on HPMZ, only 13 (36%) completed treatment, with 15 (42%) discontinuing the regimen due to adverse events [25]. These studies raise concerns that there may be challenges with the adoption of HPMZ in the United States related to older patient populations with greater comorbidity. Of note, a prior study from San Francisco reported a high frequency of adverse effects associated with the standard RIPE regimen: 35% in all patients and 46% in patients over 65 years [26], emphasizing the need for more safe and effective regimens particularly for elderly populations. Nevertheless, the low uptake of the HPMZ regimen among our survey respondents may represent an appropriate, evidence-based interpretation of the available clinical data regarding drug toxicities in the comorbid US population as opposed to a lag in guideline implementation. In contrast, the BPaL Implementation Group (BIG) cohort study in the United States highlights overall excellent treatment outcomes with this regimen, with insights regarding the management of adverse effects [27].

Addressing gaps in clinical trial representativeness and enhancing safety and tolerability reporting are crucial for achieving broader acceptance and uptake of new tuberculosis regimens. A systematic review and meta-analysis of trials of treatment for rifampicin-susceptible tuberculosis identified concerns with the representativeness of trial participants compared with the global population affected by tuberculosis due to exclusion of people under 18 (63% of trials), people >65 years (30%), pregnant or lactating people (85%), people with diabetes (30%), and people with excessive alcohol and/or drug use (28%) [28]. Analyses of adverse effect reporting further highlighted gaps in current trial reporting approaches including the need for patient-reported outcome assessments, standardized definitions of key outcomes, and uniform reporting of measures of regimen acceptability [28]. A 2024 perspective by Berman et al. advocates for improving the safety and acceptability of treatment, rather than shortening the duration of tuberculosis therapy, highlighting the connection between adverse effects and treatment failure and making the case that focusing on safety and acceptability can improve both patient experiences and treatment outcomes [29].

Medication interactions in immunosuppressed and medically complex patients were also highlighted, particularly for the rifamycins [30–32]. Further, drug availability remains an important barrier. Rifapentine and bedaquiline shortages, high

cost, and limited insurance coverage limit provider ability to utilize shorter regimens. This is compounded by additional barriers for public health departments to access newer agents, particularly bedaquiline but also potentially pretomanid [33, 34]. Bedaquiline is produced in the United States by a single drug manufacturer, resulting in vulnerability to drug shortages and prohibitively high costs, which pose further barriers for public health departments [35, 36]. Our study demonstrated that over one-third of infectious disease providers surveyed were unsure of how to treat a patient with MDR tuberculosis with fluoroquinolone susceptibility, highlighting the need for increased education to infectious disease providers regarding bedaquiline-based regimens.

While respondents reported using 3HP, 4R was a more popular tuberculosis infection regimen choice. Concerns about treatment complexity in 3HP were raised, including the potential need for directly observed therapy (DOT), confusion with a two-drug regimen, and remembering to take a weekly drug. Stillo (2024) used ethnographic data from Romania to highlight concerns that directly observed therapy (DOT) can be ineffective and in conflict with the human rights of people being treated [37]. They instead advocate that DOT should be considered as one of several types of adherence supports from which people may choose to serve their individual tuberculosis treatment needs [37]. While initial studies of 3HP used DOT, more recent US-based research has demonstrated the noninferiority of self-administered 3HP as compared with 3HP with DOT [38, 39]. Furthermore, the CDC/NTCA guidelines endorse 3HP administered through both DOT and self-administered therapy; however, our data highlight the need for better dissemination of guidelines to providers [6]. Of note, the 1HP regimen was the least selected option by participants (1%), which may relate to the lack of CDC endorsement for this regimen [40].

Our study has several limitations. First, the EIN is a convenience sample, which may limit generalizability. We did not ask respondents about their experience managing patients with HIV, typical patient population demographics, or if they work in specialized tuberculosis clinics, all of which may impact their responses and data generalizability. Furthermore, the EIN may not fully reflect clinicians treating tuberculosis in the United States, which also includes pulmonologists and primary care providers. Tuberculosis infection in particular is often treated in primary care settings, so the EIN sample may not be representative of this group of practitioners. Infectious disease providers may preferentially care for more complicated tuberculosis infection patients. Further, within the United States, public health departments manage patients with tuberculosis in addition to providing medical consultations and case management, which may impact provider experience and comfort with newer regimens.

Second, these data reflect EIN members' self-reported practice patterns and preferences rather than direct review of their clinical care. Many of our respondents reported seeing patients with tuberculosis infrequently, and therefore may be more prone to recall bias. Third, our response rate was relatively low, raising the possibility of response bias, although this rate remains in the range of prior EIN surveys. Fourth, we specifically asked respondents to assume drug cost and drug availability were not factors in their decision-making. In reality, these factors likely heavily impact treatment decisions. Certain regimens may not be feasible based on insurance coverage, cost to the patient, or cost to the health department, which may impact provider experience with newer drugs and regimens. Furthermore, many respondents reported cost and drug availability in free-text responses as part of their perceived limitations in adopting newer regimens, demonstrating how structural barriers are difficult to ignore in clinical decision-making.

Lastly, it is important to note that our survey was distributed in October 2024, the same month that an update to ATS/IDSA/CDC guidelines was published endorsing HPMZ and BPaL/BPaLM regimens. While the WHO and CDC had previously endorsed these regimens, many infectious disease providers may preferentially follow IDSA guidelines. Therefore, our study does not account for changing perspectives after publication of this ATS/IDSA/CDC guideline update [4, 14].

In conclusion, uptake of shorter regimens for tuberculosis disease lags behind uptake of shorter regimens for tuberculosis infection. While shorter tuberculosis infection regimens have been recommended by guidelines for multiple years, allowing greater experience and comfort with these regimens, our survey data highlight important concerns related to perceived treatment effectiveness and the likelihood of adverse effects with the HPMZ regimen and issues related to drug availability and toxicities that limit uptake of BPaL regimens for drug-resistant tuberculosis. Implementation studies and additional practice guidance to accompany guidelines may help to address concerns and mitigate treatment toxicities while offering patients shorter regimens when possible and preferred.

Supplementary Data

Supplementary materials are available at *Open Forum Infectious Diseases* online. Consisting of data provided by the authors to benefit the reader, the posted materials are not copyedited and are the sole responsibility of the authors, so questions or comments should be addressed to the corresponding author.

Notes

Availability of data. The data underlying this article will be shared on reasonable request to the corresponding author.

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Potential conflicts of interest. Our authorship team has no conflicts of interest to disclose.

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