Rx for Prevention

Promoting health through prevention in Los Angeles County

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This Issue

CDC Issues Recommendations for Shorter Treatment Regimen for Latent TB Infection

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The Centers for Disease Control and Prevention recently released guidelines for a new regimen that greatly reduces the duration of treatment and number of doses for latent tuberculosis infection (LTBI)[1]—a prolonged asymptomatic infection that can progress to active TB. This new regimen, called the 12-dose regimen, consists of 12 once-weekly doses of isoniazid (INH) and rifapentine (RPT) under directly observed therapy (DOT). It is considered one of the biggest breakthroughs in the treatment of LTBI since the 1960s.

Status of TB Nationally and Locally

More than 11 million people in the United States have LTBI, and about 5%-10% (550,000 to 1.1 million) of them will develop active TB if not treated. While TB cases in the United States have been declining since 1993, TB remains prevalent worldwide. One-third of the world's population is infected, and each year nearly 9 million people around the world become sick with active TB. In Los Angeles County alone, there were 673 active cases of TB in 2010. As shown in Figure 1, the active TB case rate for 2010 in Los Angeles County was nearly twice the national average.

New Tool for Treating LTBI

The 12-dose regimen reduces treatment from 270 daily doses over nine months to 12 once-weekly doses given over three months. The 12-dose regimen was recommended after a large randomized control trial found a combination of INH and RPT administered in 12 once-weekly doses with DOT was as effective in preventing TB as the 270-dose INH regimen, which is usually self-administered by patients daily over nine months. The 12-dose regimen also had greater rates of completion than the U.S. standard 270-dose INH regimen.

The administration of this new regimen should be provided under DOT by specially trained DOT workers to ensure the completion of all doses. Patients also need to undergo monthly clinical monitoring that includes inquiries about side effects and a physical assessment for signs of adverse events.

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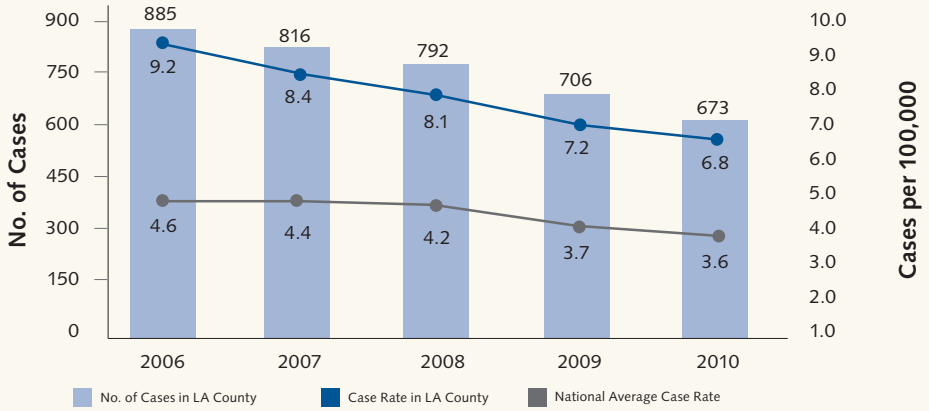
Figure 1. TB Case Rate



County of Los Angeles Public Health

Key Points Regarding the 12-Dose Regimen for Treatment of LTBI

- The 12-dose regimen is recommended as an equal option for treating LTBI in otherwise healthy people, aged 12 years and older, who have any one of the following:
  - Recent contact with someone who has TB
  - Tested positive for TB infection from an Interferon Gamma Release Assays-serum screening or through a tuberculin skin test conversion
  - Radiographic findings of healed pulmonary TB
  - HIV-infected, who are otherwise healthy, and NOT taking antiretroviral medicines.
- The 12-dose regimen can be considered for other groups when it offers practical advantages, such as completion within a limited time frame.
- The 12-dose regimen is NOT recommended for the following:
  - Children younger than 2 years of age
  - People with HIV/AIDS who are taking antiretroviral medicines
  - Pregnant women or women who expect to become pregnant during treatment
  - People who are presumed to have been infected with isoniazid-resistant or rifampin-resistant M. tuberculosis.
- Evidence for broader usage of the 12-dose regimen is currently being gathered.
- DOT is recommended for the 12-dose regimen. Additional studies on self-administration of the 12-dose regimen are underway.
- Treatment of latent TB infection should be initiated after the possibility of TB disease has been excluded.

The 12-dose regimen does not replace existing treatment options for latent TB infection but is another option for treatment with certain patient populations (see Key Points box). The current primary and secondary CDC recommended regimens are still Isoniazid (daily) for 6-9 months or Rifampin (daily) for 4 months, and they do not require DOT protocols.

Moving Forward Toward TB Elimination

Treating LTBI so it does not progress to active TB is a cornerstone of the U.S. strategy for TB elimination. An estimated 300,000 to 400,000 people begin treatment for LTBI each year; however, 40% do not complete the lengthy treatment. Public health officials hope the 12-dose regimen will improve patient adherence.

The three core strategies for eliminating TB within the United States are as follows: 1) Early identification, treatment and isolation of active TB cases; 2) Timely identification, evaluation and treatment of exposed contacts; and 3) Targeted testing and treatment of high-risk persons with LTBI.[2]

All three strategies require partnerships between public health and clinicians. The LA County Department of Public Health focuses on the first two priorities. For the third priority, primary care providers are essential, as they play a crucial role in screening, evaluating, and treating high-risk persons. As an essential primary care service, Medi-Cal and most major medical insurance plans now cover the FDA-approved IGRA (Interferon Gamma Release Assays-serum) screening methods (e.g., Quantiferon, T-Spot), the more specific TB infection tests, as well as INH therapy.

With this 12-dose regimen, primary care providers now have a new option for treatment to strengthen their efforts. Medi-Cal will now reimburse the treatment costs for the new 12-dose regimen, including medications and DOT service.

All patients receiving the 12-dose regimen must receive it as DOT, including monthly clinical monitoring to assess any adverse events and potential side effects. Providers should contact the LA County TB Control Program for any consultative support on LTBI treatment, at (213) 744-6160. Currently, the Department of Public Health is examining the feasibility of using the 12-dose regimen in its high-risk and other clinic settings.

Further, although INH is FDA-approved as preventive therapy for TB infection, approval for the use of rifapentine in TB infection treatment is pending (as of December 9, 2011), and its approval is not expected until 2013. Therefore, if providers use the 12-dose regimen, they will be utilizing rifapentine off-label.

Importance of Treating LTBI

Although the initial cost of the new 12-dose regimen will be higher, the long-term personal and public health benefits can be substantial. Since more patients are expected to complete treatment, a reduction in progression of LTBI to active TB is expected. This will help eliminate the cost of treating future potential TB cases and reduce the associated morbidity, plus decrease the spread of active TB disease in our community. For the most updated information on the treatment options for TB infection and other TB-related issues, visit www.publichealth.lacounty.gov/tb.

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Latest Mortality Report Shows Leading Causes of Death on the Decline

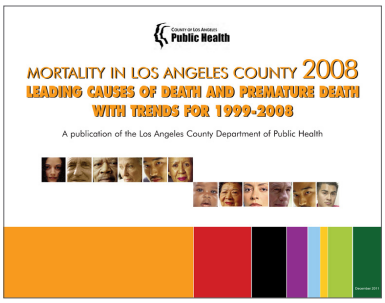
In 2008, the age-adjusted death rate in Los Angeles County was 601 deaths per 100,000 population, which was dramatically lower than the United States rate of 759 deaths per 100,000 population, according to "Mortality in Los Angeles County, 2008: Leading causes of death and premature death with trends for 1999-2008," a December 2011 report from the LA County Department of Public Health.

Continuing a more than 20-year trend in declining death rates in the county, from 1999 to 2008, the overall death rate in the county decreased 25%. During this time, there was a 42% decrease in the death rate from coronary heart disease, a 44% decrease from stroke, and a 28% decrease from lung cancer.

The report also showed that injuries (homicides, motor vehicle crashes, drug overdoses, and suicide) are leading causes of premature deaths among both males and females. (Premature death is defined as death before the age of 75, a standard cut-off used in public health.)

Data highlights for 2008 (rates are age-adjusted)

- In 2008, there were 58,043 deaths, a 0.5% decrease from 2007. The death rate was 601 deaths per 100,000 population, a 4% decrease from 2007.
- On an average day in LA County, 159 people died, including 37 from coronary heart disease, 37 from cancer, 10 from injuries (homicide, suicide, and unintentional), and 9 from stroke. Five deaths were among children and young adults less than 25 years.
- Twenty-three of every 100 deaths were caused by cancer (13,425 deaths). Among those who died of cancer, lung cancer was the most common (2,910 deaths), followed by colorectal cancer (1,365 deaths), and breast cancer (1,079 deaths).



- Death rates were higher for men than women for every leading cause of death and premature death, except Alzheimer's disease and breast cancer.

Data highlights for 1999-2008 (rates are age-adjusted)

- During the last 10 years, the overall death rate decreased 25%, from 798 to 601 deaths per 100,000 population.
- Coronary heart disease, homicide, and motor vehicle crashes have been the three leading causes of premature death since 1999.
- Since 1999, the number of deaths from Alzheimer's disease has nearly tripled from 772 in 1999 to 2,121 in 2008.
- Diabetes became the fifth-leading cause of death in 2008 after nine years as the sixth-leading cause.

For a printed copy of the report, call (213) 240-7785. Or view the report online at www.publichealth.lacounty.gov/dca/dcareportspubs.htm.

SAVE THE DATE
Tuesday, May 15, 2012

46th Annual Meeting of the California Tuberculosis Controllers Association

The Cutting Edge of TB Control: New Challenges and New Solutions

Local and national conference speakers will focus on recent developments in the diagnosis and treatment of tuberculosis:

- CDC Study 26 – New Short Course Therapy for LTBI Treatment Using INH and Rifapentine. Speaker: *Carol Dukes Hamilton, MD*
- Cost-Effectiveness of LTBI Treatment. Speaker: *David Holland, MD*
- Epidemiology of TB in California. Speaker: *Jennifer Flood, MD*
- Laboratory Advances and Challenges. Speaker: *Ed Desmond, PhD*
- Enhanced Focus on HIV/AIDS Screening in the TB Patient Population

California Endowment/Center for Healthy Communities
1000 N. Alameda St., Los Angeles, CA 90012

Advanced registration required. Register at www.ctca.org

For additional information, contact
Robert Miodovski, MPH, Senior Health Educator, at (213) 744-6229

Achieving and Maintaining Asthma Control

Marilyn Li, MD

Janet Scully, MPH

Although asthma occurs in persons of all ages, the highest prevalence of active asthma occurs in children and youth. In Los Angeles County, the prevalence of active childhood asthma is 9.0% while the lifetime prevalence of asthma in children younger than 18 years is 13.8%.[1] Asthma impacts the quality of life of patients, their families, and society, including the cost of routine and urgent medical care, missed school or work days, missed opportunities for participating in activities that may trigger asthma, the expense and adverse effects of medications, and the mortality associated with the disease.

The National Asthma Education and Prevention Program (NAEPP) has developed "Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma—Full Report 2007" (EPR-3). To reduce the burden of asthma, this resource provides detailed asthma recommendations for three age groups: 0-4 years, 5-11 years, and 12 years and older.[2] It also provides evidence-based asthma guidelines for clinicians who care for patients with asthma.

Definition and Diagnosis

Asthma is characterized by airway inflammation, airway hyper-responsiveness, and episodic reversible airway obstruction. To establish the diagnosis of asthma, the recommended methods include a detailed medical history, physical examination, spirometry for all patients 5 years of age and older, and exclusion of alternative diagnoses.[3]

Asthma Severity and Assessment of Asthma Control

Once the diagnosis of asthma is established, the next step is to assess asthma *severity* (which is defined by the intrinsic intensity of the disease process) to guide the initiation of asthma therapy.[2] After the initial visit, the EPR-3 focuses on monitoring asthma *control*, defined by the degree to which the manifestations of asthma are minimized by therapeutic interventions, and the goals of asthma therapy are met.[2]

When assessing asthma severity or control, the EPR-3 defines the two key domains of impairment and risk.[2] *Impairment* is defined by the frequency and intensity of asthma symptoms that the patient is experiencing, and functional limitations, if any.[2] *Risk* is the likelihood of asthma exacerbations, decline in lung function or poor lung growth, or risk of adverse effects from the medication.[2]

At the baseline visit, the EPR-3 provides clear stepwise guidelines for the different age groups for the initiation of therapy.[3] (See Table 1 for youth ≥12 years.) For the 0-4 age group, consider daily long-term controller therapy in children who have a positive Asthma Predictive Index (API), a clinical index based on the presence of wheezing before 3 years of age.[4] The presence of one major risk factor (personal history of atopic dermatitis, or parent history of asthma) or two minor risk factors (allergic rhinitis, eosinophilia >4%, or wheezing apart from colds) is predictive of the presence of asthma after the age of 6 years.[5,6]

For the age groups 5-11 and 12 years and above, involve the patient in developing a written asthma action plan, promote physical activity, and provide education at the appropriate literacy level about asthma triggers and environmental avoidance measures.

At the follow-up visit and all subsequent visits, monitor asthma control by assessing impairment and risk and adjusting asthma therapy by using the stepwise approach[2] (Table 2).

Goals of Asthma Therapy

The goals of asthma therapy are to achieve and maintain asthma control by reducing both impairment and risk.[2] By reducing impairment, the goal is to prevent chronic and troublesome symptoms, require infrequent use (2 days per week or less) of inhaled short-acting beta$_2$-agonists, maintain normal (or near normal) lung function, maintain normal activity levels (including exercise), and meet the patient and their family's expectations of and satisfaction with asthma care.[2] By reducing risk, the goal is to prevent recurrent exacerbations of asthma (including reducing the need for urgent or emergent asthma care), prevent the loss of lung function, and provide optimal pharmacotherapy with minimal or no adverse effects.[2]

To achieve asthma control, there are four identified components of care: assessing and monitoring asthma (Table 3); patient education, including self-monitoring and a written asthma action plan; control of environmental factors and comorbid conditions; and a tailored medication treatment plan.[2]

The general principles for all age groups are to incorporate the four components of care, initiate appropriate asthma therapy based on the asthma severity at the initial visit, and then step up or step down asthma therapy based on asthma control at all subsequent visits.[2] The guidelines have also included information on usual doses for long-term controller therapy and estimated comparative daily dosages for inhaled steroids.

Conclusion

A systematic guidelines-based approach to the treatment of asthma, especially in an inner-city setting, has been shown to improve asthma control significantly.[7,8] The entire EPR-3 document is available at www.nhlbi.nih.gov/guidelines/asthma/asthgdln.pdf.

Consider referral to an asthma specialist if signs and symptoms are atypical, if there is no improvement on therapy, if there are problems with a differential diagnosis, or if additional testing is indicated. Los Angeles County resources can be accessed through the following website, www.asthmacoalitionla.org.

Table 1. Components and Classification of Asthma Severity in Children 12 Years of Age and Older – Not Currently Taking Controllers

Components of Severity		Classification of Asthma Severity ≥ 12 Years of Age			
		Intermittent	Persistent		
			Mild	Moderate	Severe
Impairment Normal FEV_1 /FVC: 8-19 yr 85% 20-39 yr 80% 40-59 yr 75% 60-80 yr 70%	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day
	Nighttime awakenings	≤2x/month	3-4x/month	> 1x/week but not nightly	Often 7x/week
	Short-acting $beta_2$-agonist use for symptom control (not prevention of exercise-induced bronchoconstriction [EIB])	≤2 days/week	>2 days/week but not daily, and not more than 1x on any day	Daily	Several times per day
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
	Lung function	• Normal FEV_1 between exacerbations • FEV_1 >80% predicted • FEV_1/FVC normal	• FEV_1 >80% predicted • FEV_1/FVC normal	• FEV_1 >60% but <80% predicted • FEV_1/FVC reduced 5%	• FEV_1 <60% predicted • FEV_1/FVC reduced >5%
Risk	Exacerbations requiring oral systemic corticosteroids	0-1/year	≥ 0-2/year →		
		← Consider severity and interval since last exacerbation → Frequency and severity may fluctuate over time for patients in any severity category Relative annual risk of exacerbations may be related to FEV_1			
Recommended Step for Initiating Treatment *See Table 3 for steps*		**Step 1**	**Step 2**	**Step 3**	**Step 4 or 5**
				And consider short course of oral systemic corticosteroids	
		In 2-6 weeks, evaluate level of asthma control that is achieved and adjust therapy accordingly			

Source: Adapted from NAEPP EPR-3. Public domain document.

To view Asthma Classification tables for children aged 0-4 and 5-11, visit the National Heart Lung and Blood Institute website at http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm.

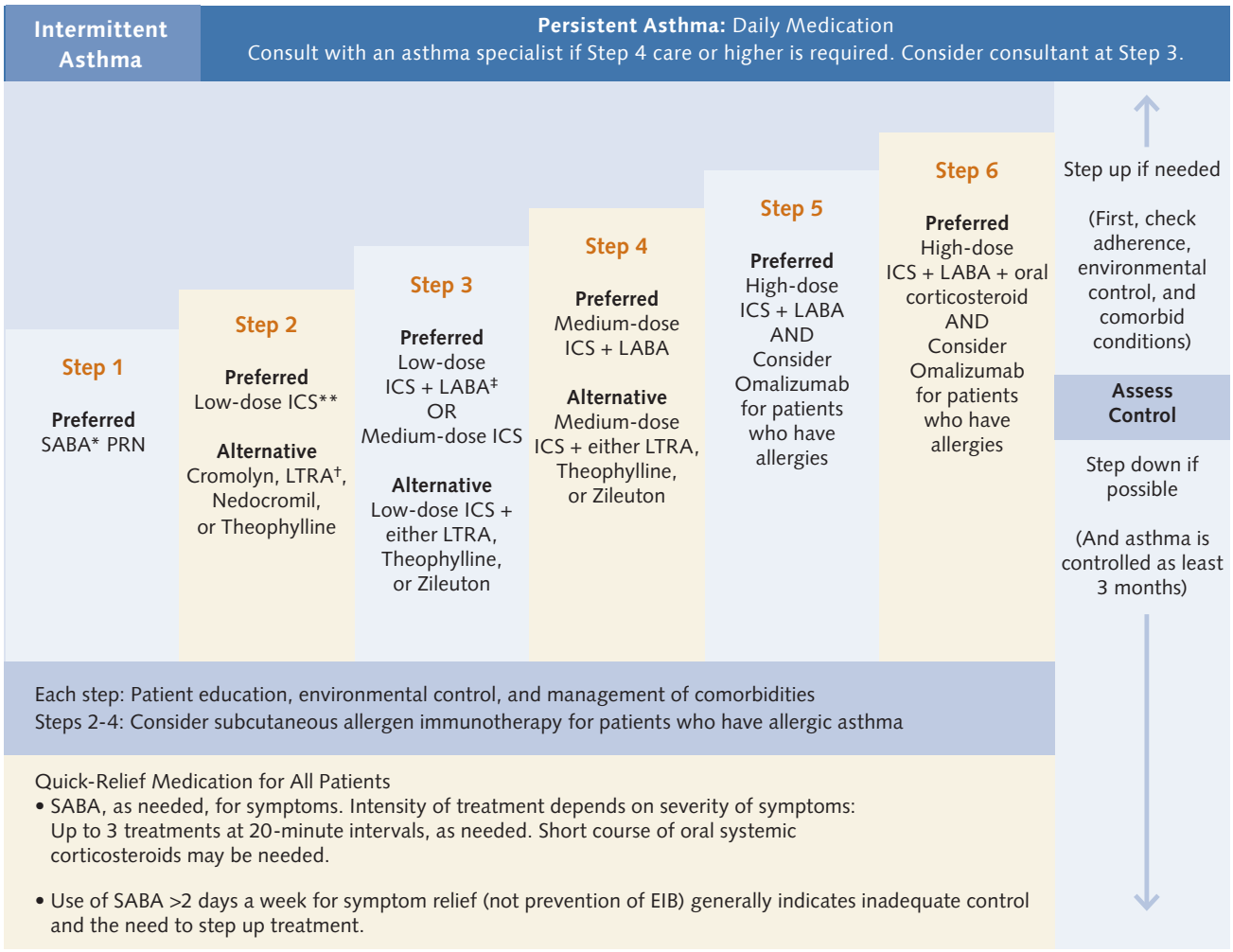
Table 2. Assessing Asthma Control in Youth ≥12 Years of Age and Adults

Components of Control		Classification of Asthma Control (Youth ≥12 Years of Age and Adults)		
		Well Controlled	Not Well Controlled	Very Poorly Controlled
Impairment	Symptoms	≤2 days/week	>2 days/week	Throughout the day
	Nighttime awakenings	1x/month	>1x/month	>1x/week
	Interference with normal activity	None	Some limitation	Extremely limited
	Short-acting $beta_2$-agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week	Several times per day
	FEV_1 or peak flow	>80% predicted/ personal best	60%-80% predicted/ personal best	<60% predicted/ personal best
	Validated Questionnaires ATAQ ACQ ACT	 0 ≤0.75 ≥20	 1-2 ≥1.5 16-19	 3-4 N/A ≤15
Risk	Exacerbations	0-1/year	≥2/year	
		Consider severity and interval since last exacerbation		
	Progressive loss of lung function	Evaluation requires long-term follow-up care		
	Treatment-related adverse effects	Medication side effects can vary in intensity from none to very troublesome and worrisome. The level of intensity does not correlate to specific levels of control but should be considered in the overall assessment of risk.		

Source: Adapted from NAEPP EPR-3. Public domain document.

To view the Asthma Assessment tables for children ages 0-4 and 5-11, visit the National Heart Lung and Blood Institute website at http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm.

Table 3. Stepwise Approach for Managing Asthma in Youths 12 Years and Older and Adults



KEY * SABA = Short-acting beta$_2$-agonist
** ICS = Inhaled corticosteroid
† LTRA = Leukotriene receptor antagonist
‡ LABA = Long-acting beta$_2$-agonist

Source: Adapted from NAEPP EPR-3. Public domain document.

To view the stepwise approach for Managing Asthma tables for children ages 0-4 and 5-11, visit the National Heart Lung and Blood Institute website at http://www.nhlbi.nih.gov/guidelines/asthma/asthgdln.htm

Marilyn Li, MD, is director, Breathmobile Operations, LAC+USC Medical Center, and a steering committee member of the Asthma Coalition of Los Angeles County. **Janet Scully**, MPH, is a staff analyst, Maternal, Child, and Adolescent Health Programs, Los Angeles County Department of Public Health, and coordinator of the Asthma Coalition of Los Angeles County.

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Index of Disease Reporting Forms

All case reporting forms from the LA County Department of Public Health are available by telephone or Internet.

Reportable Diseases & Conditions Confidential Morbidity Report
Morbidity Unit **(888) 397-3993**
Acute Communicable Disease Control **(213) 240-7941**
www.publichealth.lacounty.gov/acd/reports/CMR-H-794.pdf

Sexually Transmitted Disease Confidential Morbidity Report
(213) 744-3070
www.publichealth.lacounty.gov/std/providers.htm (web page)
www.publichealth.lacounty.gov/std/docs/STD_CMR.pdf (form)

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HIV Epidemiology Program
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Pediatric HIV/AIDS Case Report Form
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Animal Diseases and Syndrome Report Form
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