
People-centered approach and infection control

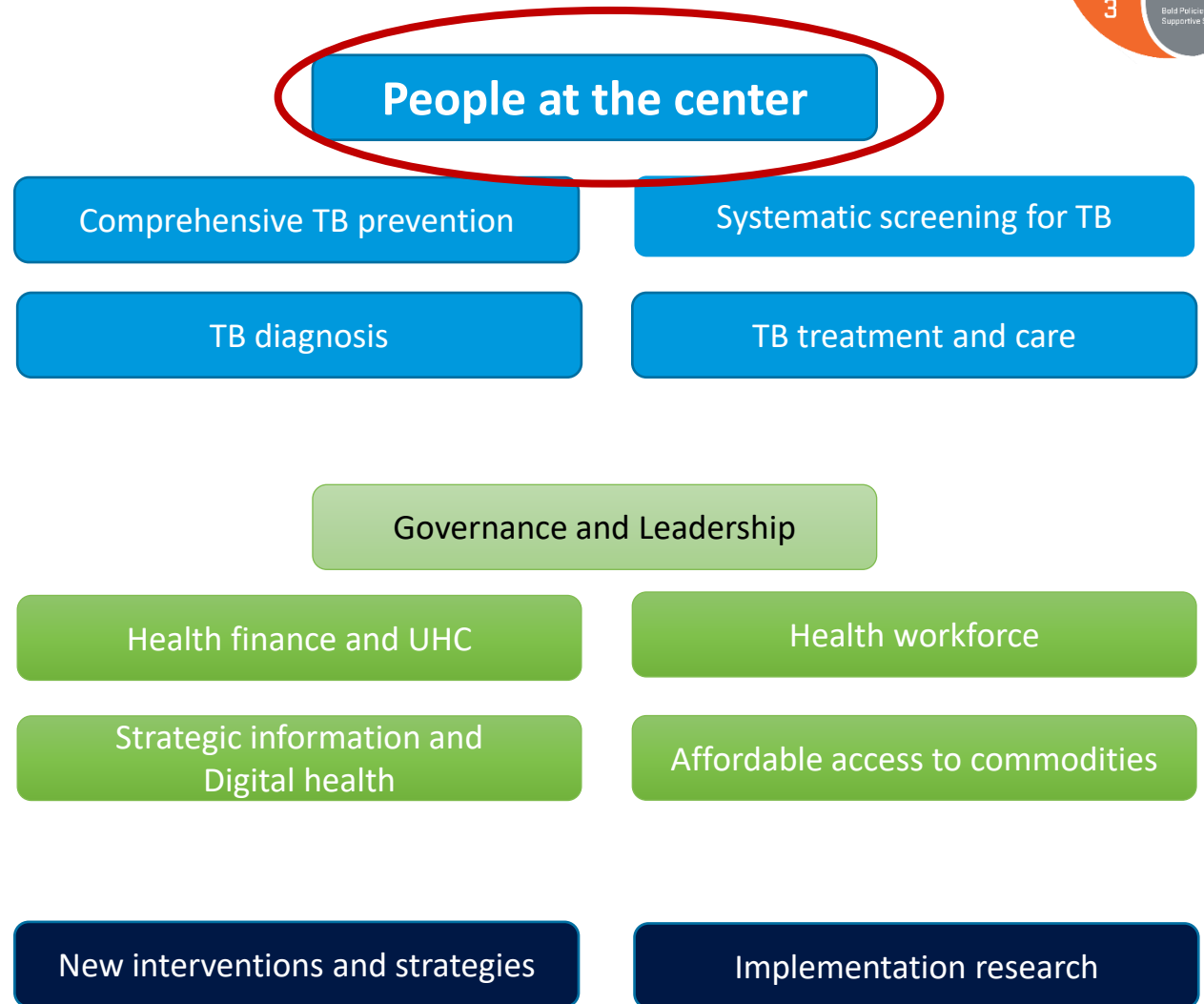
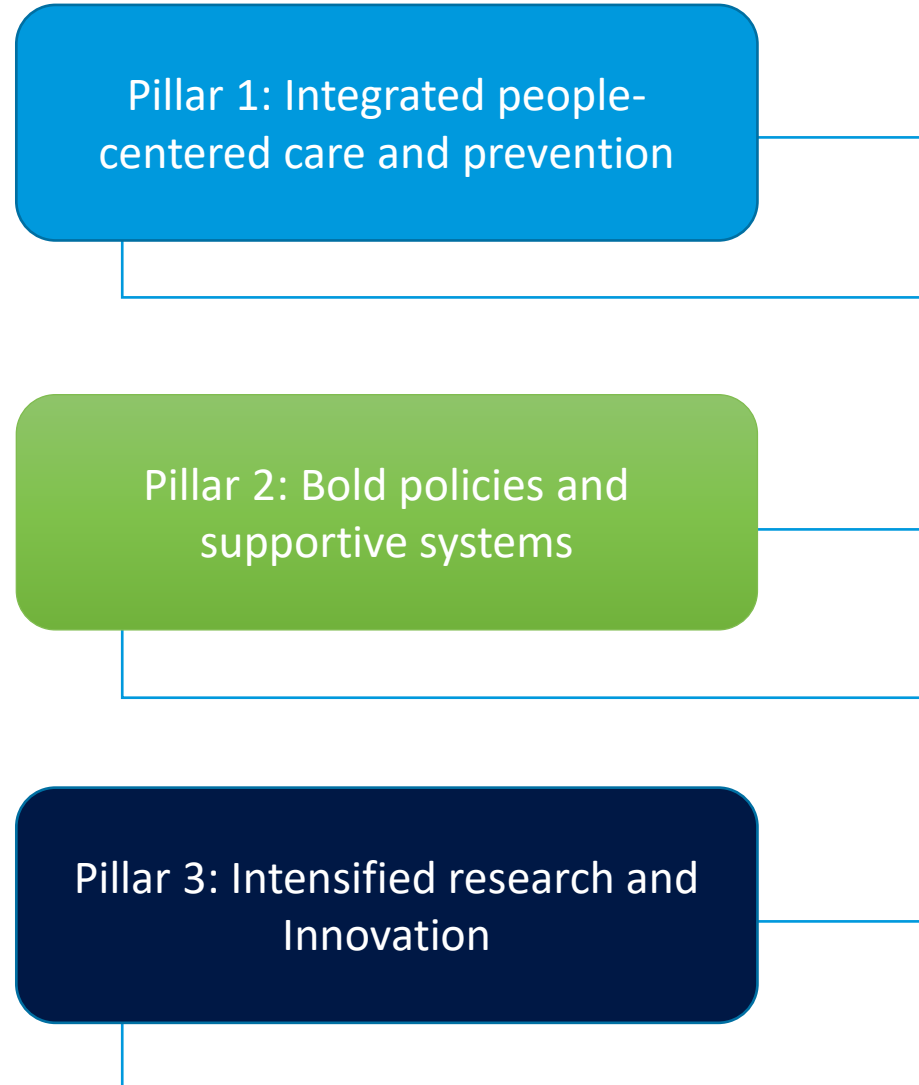
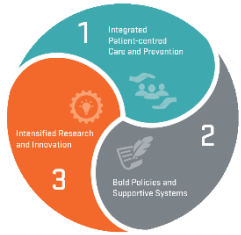
Askar Yedilbayev
Regional TB Adviser



European Region



Structure and content of TB-RAP 2030

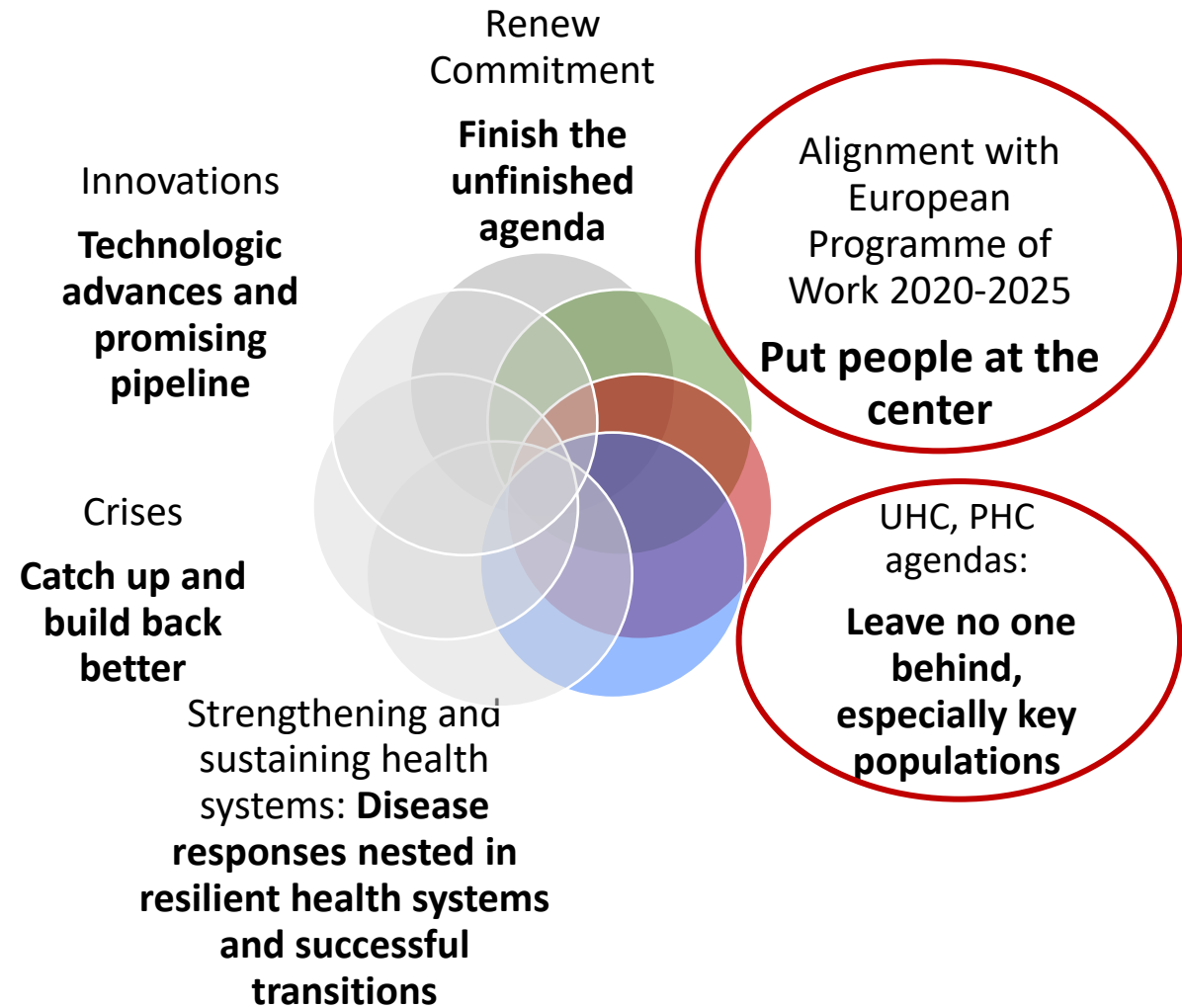


People at the center

Service delivery: partnership with PHC, public health and civil society and communities for united action

Reach key, vulnerable and underserved populations

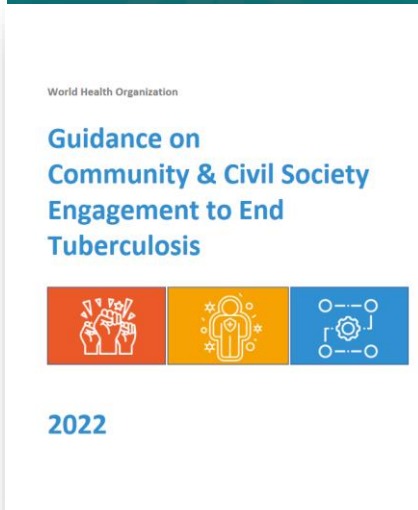
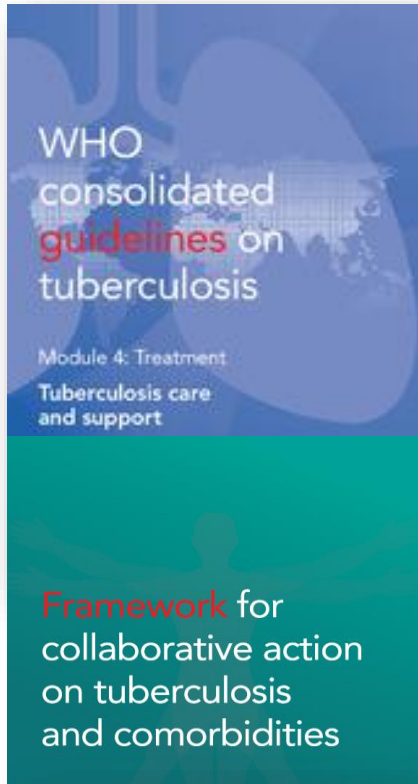
Protect and promote equity, ethics, gender equality and human rights in addressing TB



Regional progress and challenges: PCMC

Key recommendations:

- Decentralized mainly ambulatory model of care
- A package of treatment adherence interventions: material, psychological, tracers, staff education
- Community or home-based treatment support
- Treatment support by trained lay providers or health-care
- Video-supported treatment



<https://eurotb.net/cbs-tb-package>



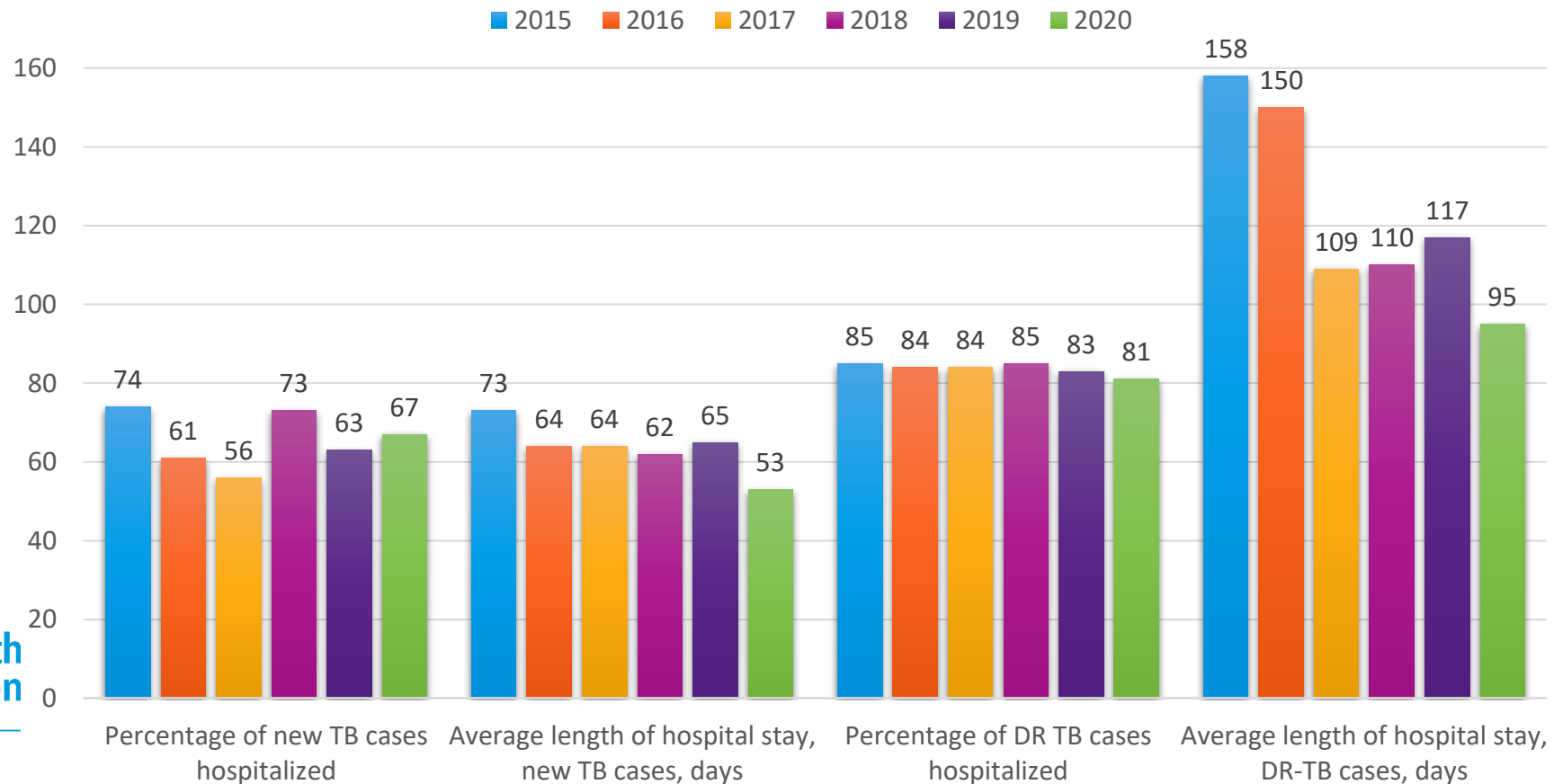
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PEOPLE-CENTERED CARE

Ambulatory TB care versus hospital-based care

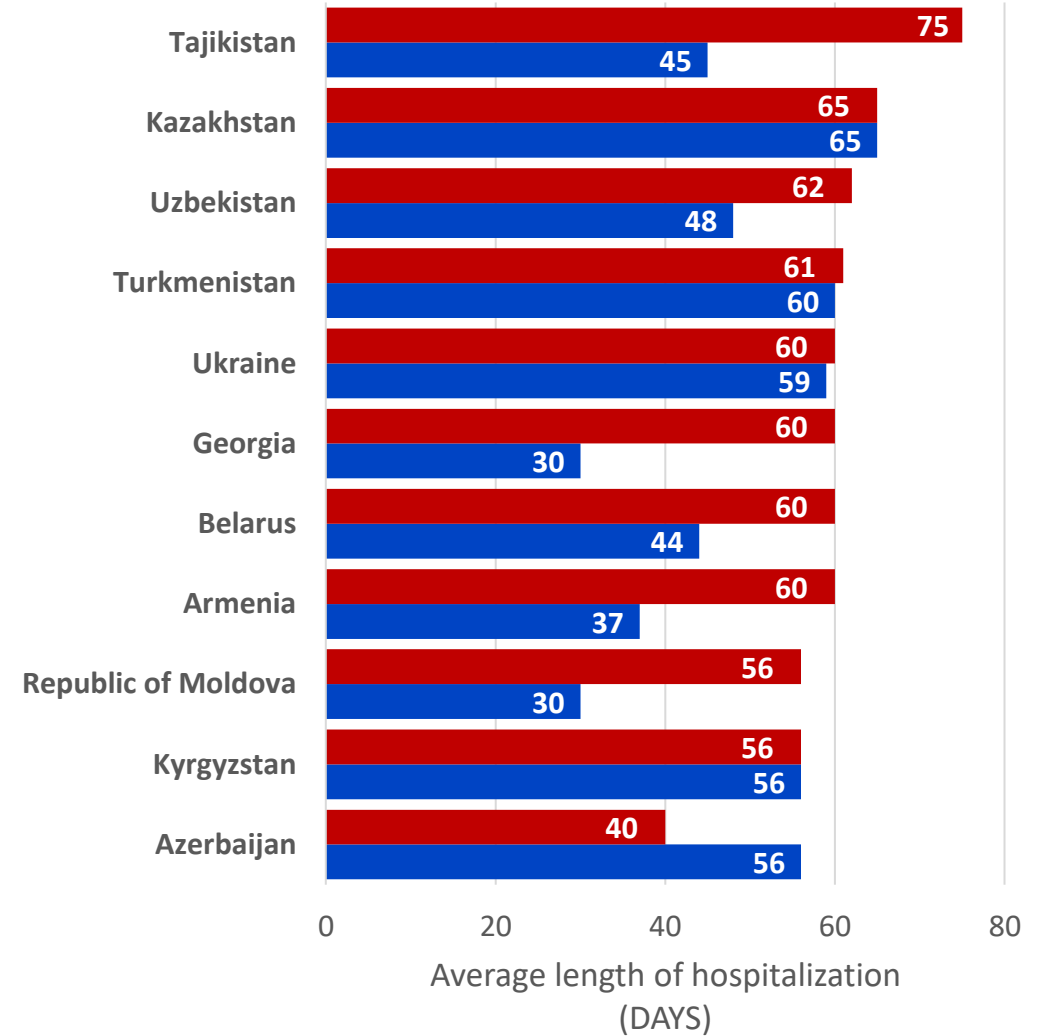
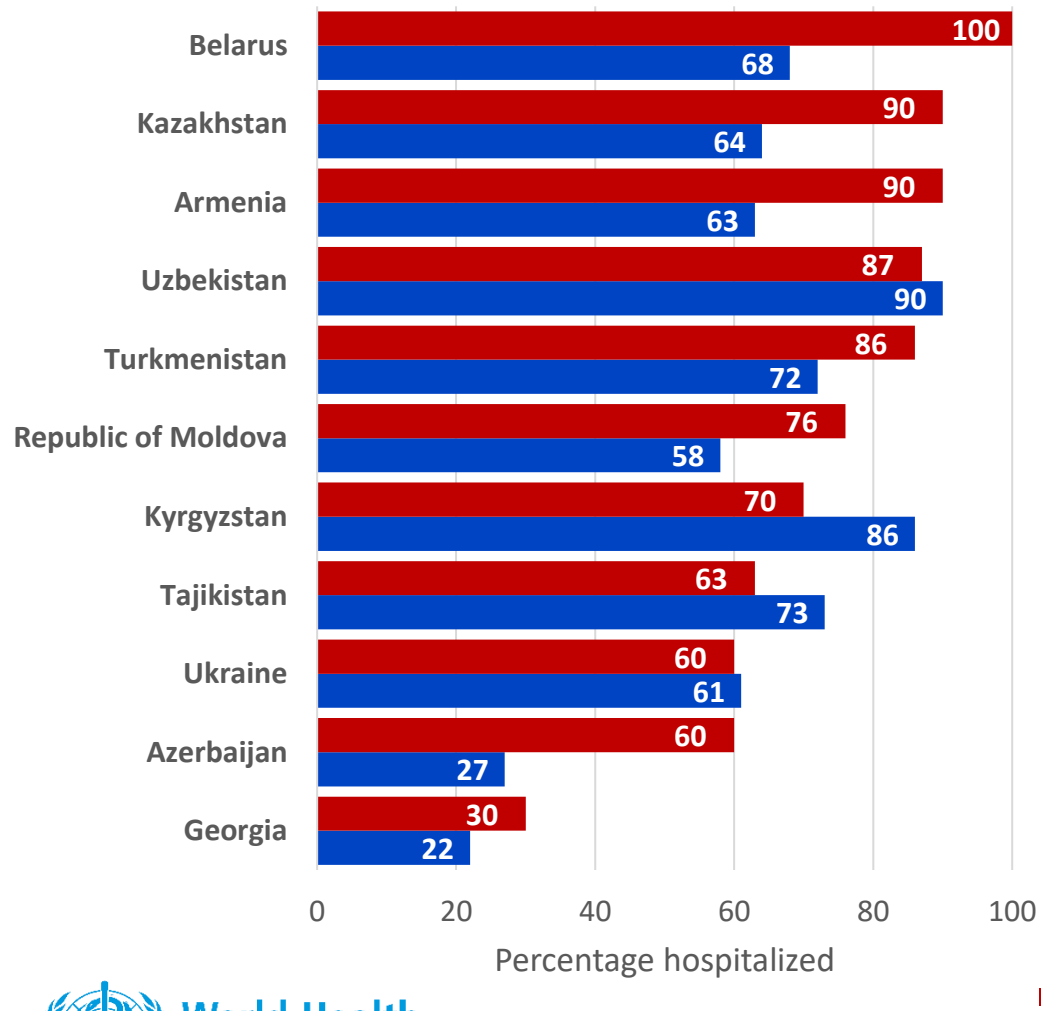
- ✓ non-inferior health outcomes
- ✓ reduced risk of infection transmission and
- ✓ reduced costs of care TB and MDR-TB care

11 EECA countries focused on reducing unnecessary hospitalizations: ARM AZE BLR GEO KAZ KGZ MDA TJK TKM UKR UZB



Hospital admissions and average length of hospital stay for DS-TB

11 EECA countries, 2015 vs. 2020



Effect of chemotherapy on transmission - early publications

- Andrews R.H. Bull WHO. 1960 (Madras, India)
- Crofton J. Bull IUAT. 1962 (Edinburgh, Scotland)
- Brooks S. Am Rev Resp Dis. 1973 (Ohio, USA)
- Riley R. Am Rev Resp Dis. 1974 (Baltimore, USA)
- Gunnels J. Am Rev Resp Dis. 1974 (Arkansas, USA)
- Rouillon A. Tubercle. 1976 (Review)
 - Smear and culture are associated with infectivity only in untreated patients
 - **Evidence that smear-positive and culture-positive TB patients on treatment do not infect close contacts with a negative tuberculin test.**

Transmission of tubercle bacilli: The effects of chemotherapy

– A. Rouillon, 1976 (review)

- *“The impact of chemotherapy is reflected by a two-to-three-fold increase in the speed of decline of the risk of infection, a decline which had started before the introduction of the drugs. While patients given the right combination of drugs lose their infectivity in a few weeks (probably most often in less than two weeks), treatment must of course be continued much longer and regularly in order to ensure the maintenance of conversion and the absence of relapse.*
- *This stresses the importance of providing means to ensure the taking of the drugs by all patients.*
- *The future reduction of transmission will essentially depend on the maintenance of an adequate system ensuring the early diagnosis and correct treatment of cases, which will inevitably continue to appear among the already infected portion of the population”.*



European Region

Tubercle 57 (1976), 275–299

OCCASIONAL SURVEY

TRANSMISSION OF TUBERCLE BACILLI: THE EFFECTS OF CHEMOTHERAPY*

A. Rouillon

International Union against Tuberculosis, 3 rue Georges Ville, 75116 Paris, France

S. Perdrizet

INSERM, DRMS, Section of Tuberculosis and Respiratory Diseases, 44 chemin de Ronde, 78110 Le Vesinet

R. Parrot

Medico-Surgical Centre of Bligny, 91640 Briis-Sous-Forges

Summary

The important differences in the infectivity of the various forms of tuberculosis can be explained by quantitative data concerning the behaviour of the tubercle bacillus in man and the number of bacilli in the lesions and sputum.

Patients in whom tubercle bacilli can be detected by direct examination of the sputum smear are the main sources of transmission. Moreover the individuals infected by them break down more often with the disease.

In the individual patient, the use of antibacterial drugs completely changes the natural history of the disease: not only do patients no longer die but they are cured; their period of infectivity is considerably reduced, relapses are avoided, chronicity disappears. The drugs used prophylactically in individuals of high risk groups prevent development of the disease.

The impact of chemotherapy is reflected by a two-to-three-fold increase in the speed of decline of the risk of infection, a decline which had started before the introduction of the drugs.

While patients given the right combination of drugs lose their infectivity in a few weeks (probably most often in less than two weeks), treatment must of course be continued much longer and regularly in order to ensure the maintenance of conversion and the absence of relapse. This stresses the importance of providing means to ensure the taking of the drugs by all patients.

The future reduction of transmission will essentially depend on the maintenance of an adequate system ensuring the early diagnosis and correct treatment of cases, which will inevitably continue to appear among the already infected portion of the population. Epidemiological surveillance is mandatory as well as the surveillance of the delivery of services, particularly of the quality of diagnosis and therapeutic services.

The roles of public health authorities and perhaps still more that of the practising physician, specialized and not specialized, remain considerable both from an epidemio-

Requests for reprints should be addressed to Dr. A. Rouillon at the above address.

* This article has already been published in French in *Revue Française des Maladies Respiratoires* 1976, 4, 241–272. It is published here in English by permission of the Editor of this journal.

RICHARD L. RILEY, M.D.
Baltimore, Maryland

Respiratory secretions from a patient with an infection of the respiratory tract contaminate surrounding surfaces and also become suspended in the air after coughing, sneezing, spitting and other respiratory acts. Small respiratory droplets evaporate in the air and become tiny droplet nuclei. These disperse throughout the air of enclosed spaces, such as rooms and buildings, and are believed to be responsible for the epidemic spread of many respiratory tract infections. Epidemiologic studies implicate the droplet nucleus mechanism in the transmission of tuberculosis, measles, influenza and smallpox. The expected pattern of spread by droplet nuclei can be expressed in mathematical terms by applying simple principles and reasonable assumptions. The mathematical model reduces to the law of mass action in epidemiology, defines the components of the effective contact rate and is compatible with the epidemic pattern of measles. Ultraviolet air disinfection, which reduces the concentration of viable airborne droplet nuclei without affecting other mechanisms of transmission, is an important technic for identifying droplet nucleus-borne infections and is a potentially important technic for environmental control of airborne infection. More information is needed on the specific susceptibility to ultraviolet of various respiratory pathogens and on the effectiveness of air disinfection systems in hospitals.

Opinions on the importance of airborne infection have swung over the centuries from extremes of belief to extremes of disbelief. Galen [1], in the second century, is credited with the magnificent aphorism: "When many sicken and die at once, we must look to a single common cause, the air we breathe," and Chapin [2], after an extensive survey of available evidence in 1910, concluded: "Without denying the possibility of such (airborne) infection, it may be fairly affirmed that there is no evidence that it is an appreciable factor in the maintenance of most of our common contagious diseases." Chapin made a grudging exception in the case of tuberculosis: "It is assumed that tuberculosis, as it occurs in human beings, is usually an air-borne disease, and . . . there is more reason for such an assumption concerning this than concerning most diseases." Tuberculosis remains the most characteristic and well documented infection which is airborne from man to man, but epidemiologic studies point strongly toward airborne transmission of many other infections, particularly those caused by viruses in the respiratory tract.

The sources of human airborne pathogens are the respiratory secretions of infected people. These secretions harbor large numbers of organisms and contaminate the environment in several ways. The patient's infecting organisms can often be cultured from skin and bedclothes, so the possibility exists of transfer to a susceptible person by direct contact or fomites. The patient also contaminates the air by coughing, sneezing, spitting, singing and even

From the Johns Hopkins University, School of Hygiene and Public Health, Department of Environmental Medicine, 615 North Wolfe Street, Baltimore, Maryland 21205. Requests for reprints should be addressed to Dr. Richard L. Riley.



Reducing tuberculosis transmission: a consensus document from the World Health Organization Regional Office for Europe

Giovanni Battista Migliori^{1,8}, Edward Nardell^{2,8}, Askar Yedilbayev³, Lia D'Ambrosio⁴, Rosella Centis⁵, Marina Tadolini⁵, Martin van den Boom^{6,8}, Soudeh Ehsani⁶, Giovanni Sotgiu^{7,8} and Masoud Dara⁸

Affiliations: ¹Respiratory Diseases Clinical Epidemiology Unit, Clinical Scientific Institutes Maugeri, IRCCS, Tradate, Italy. ²Division of Global Health Equity, Harvard Medical School, Brigham and Women's Hospital, Boston, MA, USA. ³Partners In Health, Boston, MA, USA. ⁴Public Health Consulting Group, Lugano, Switzerland. ⁵Dept of Medical and Surgical Sciences, Alma Mater Studiorum University of Bologna, Bologna, Italy. ⁶Joint Tuberculosis, HIV and Viral Hepatitis Programme, WHO Regional Office for Europe, Copenhagen, Denmark. ⁷Clinical Epidemiology and Medical Statistics Unit, Dept of Medical, Surgical and Experimental Sciences, University of Sassari, Sassari, Italy. ⁸These authors contributed equally to this work.

Correspondence: Giovanni Battista Migliori, Istituti Clinici Scientifici Maugeri, IRCCS, Via Roncaccio 16, 21049 Tradate, Italy. E-mail: giovannibattista.migliori@icsmaugeri.it

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Sound implementation of administrative and environmental controls, personal protection and FAST approach (rapid diagnosis and effective treatment tailored to drug resistance profile with focus on undetected cases) are necessary to reduce TB transmission <http://ow.ly/hEhw30of6Gk>

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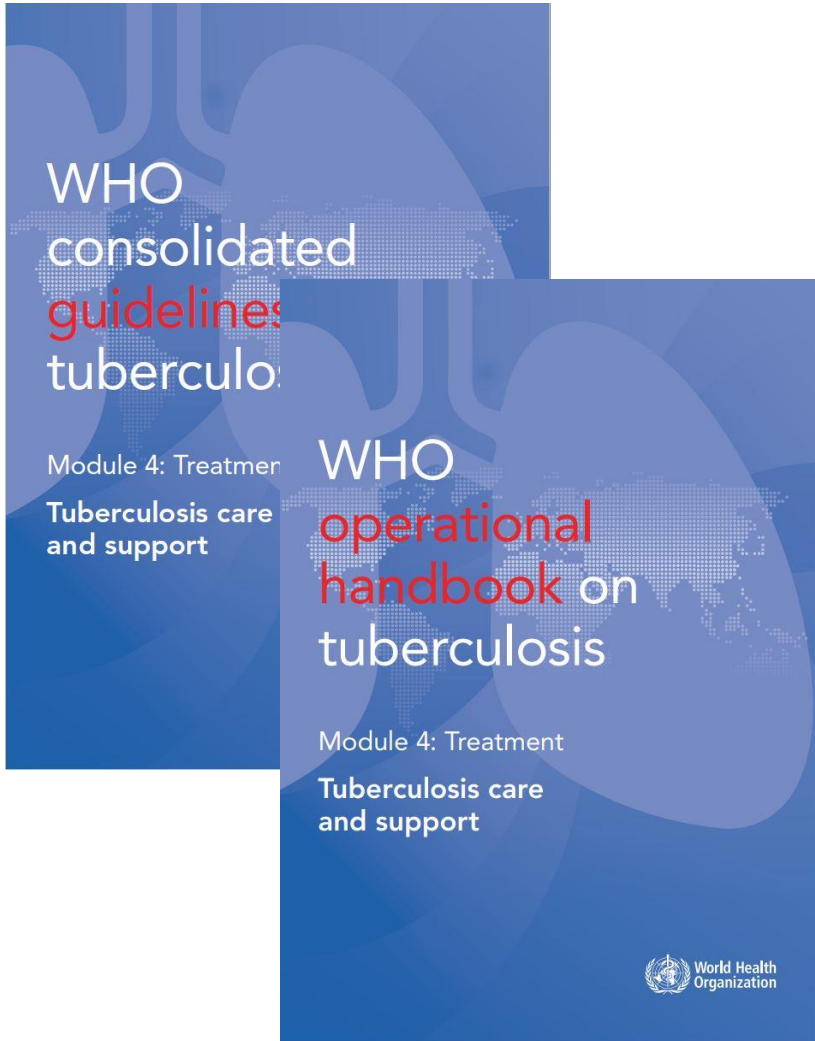
ABSTRACT Evidence-based guidance is needed on 1) how tuberculosis (TB) infectiousness evolves in response to effective treatment and 2) how the TB infection risk can be minimised to help countries to implement community-based, outpatient-based care.

This document aims to 1) review the available evidence on how quickly TB infectiousness responds to effective treatment (and which factors can lower or boost infectiousness), 2) review policy options on the infectiousness of TB patients relevant to the World Health Organization European Region, 3) define limitations of the available evidence and 4) provide recommendations for further research.

The consensus document aims to target all professionals dealing with TB (e.g. TB specialists, pulmonologists, infectious disease specialists, primary healthcare professionals, and other clinical and public health professionals), as well as health staff working in settings where TB infection is prevalent.

People-centered care and support for TB and DR-TB

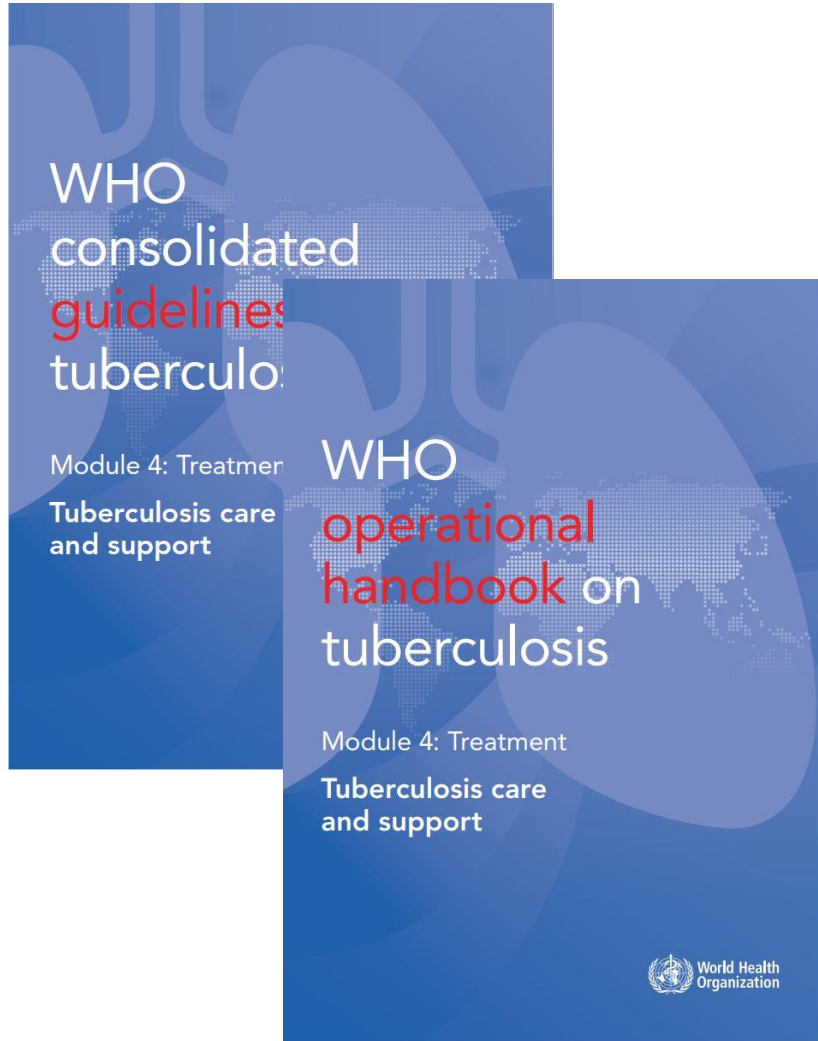
- Care and support interventions for all people with TB



Recommendations:

- 1.1 **Health education and counselling on the disease and treatment adherence should be provided to patients on TB treatment** (*strong recommendation, moderate certainty of evidence*).
- 1.2 **A package of treatment adherence interventions⁸ may be offered to patients on TB treatment in conjunction with the selection of a suitable treatment administration option⁹** (*conditional recommendation, low certainty of evidence*).
- 1.3 **One or more of the following treatment adherence interventions (complementary and not mutually exclusive) may be offered to patients on TB treatment or to health-care providers:**
 - a) **tracers¹⁰ and/or digital medication monitor¹¹** (*conditional recommendation, very low certainty of evidence*);
 - b) **material support¹² to patient** (*conditional recommendation, moderate certainty of evidence*);
 - c) **psychological support¹³ to patient** (*conditional recommendation, low certainty of evidence*);
 - d) **staff education¹⁴** (*conditional recommendation, low certainty of evidence*).

People-centered care and support for TB and DR-TB



- Care and support interventions for all people with TB

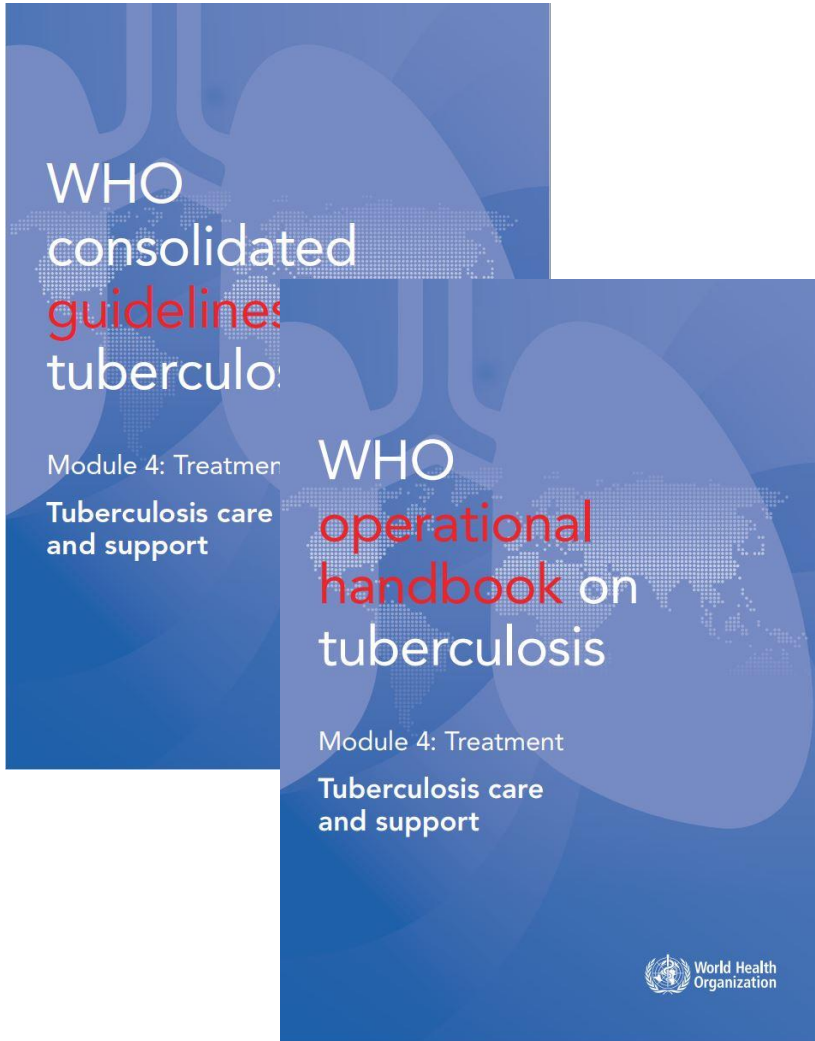
- 1.4 The following treatment administration options may be offered to patients on TB treatment:
- a) **Community- or home-based treatment support is recommended over health facility-based treatment support or unsupported treatment** (*conditional recommendation, moderate certainty of evidence*).
 - b) **Treatment support by trained lay providers or health-care workers is recommended over treatment support by family members or unsupported treatment** (*conditional recommendation, very low certainty of evidence*).
 - c) **Video-supported treatment (VST) may replace in-person treatment support when the video communication technology is available and it can be appropriately organized and operated by health-care providers and patients** (*conditional recommendation, very low certainty of evidence*).

People-centered care and support for TB and DR-TB

- **Models of care for people with drug-resistant TB**

Recommendations:

- 2.1 **Patients with MDR-TB should be treated using mainly ambulatory care rather than models of care based principally on hospitalization**
(conditional recommendation, very low certainty of evidence).
- 2.2 **A decentralized model of care is recommended over a centralized model for patients on MDR-TB treatment**
(conditional recommendation, very low certainty of evidence).



Outpatient models of service delivery



Implementation of video-supported treatment, EECA countries

As of December 2021*



Country	Status	Platform	% ambulatory patients in VST
Armenia	Countrywide	Custom	20%
Azerbaijan	Planned in Q2	Custom	N/A
Georgia	Countrywide	Custom	29%
Kyrgyzstan	Countrywide	Third-party	14%
Belarus	Countrywide	Custom	37%
Kazakhstan	Countrywide	Third-party	57%
Republic of Moldova	Countrywide	Custom	12%
Tajikistan	Planned in 2022	Custom	N/A
Turkmenistan	Planned in 2022	Custom	N/A
Ukraine	Countrywide	Third-party	45%
Uzbekistan	<i>Planned in 2022</i>	Mixed	Up to 120 patients.

*The designations employed, and the presentation of this material do not imply the expression of any opinion whatsoever on the part of the Secretariat of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.



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Countries **highlighted in green**: replication and adaptation of VST supported by WHO and/or partners

*Source: data collected from countries through the survey

Outcomes

PCMC delivered through partnerships

- Increased **decentralized ambulatory care**
- Increased range of **patient support and treatment administration options**
- **Hospital admissions** limited only based for clinical indications
- **Role of CSOs and CBOs** in TB formalized and receiving government support

Key and vulnerable populations

- Populations at highest risk **prioritized based on local data**
- **Cascade** of care for key and vulnerable populations **not different from general**
- **No loss to follow up** across care cascade

Ethics, equity, human rights, gender equality

- Structural barriers **documented and quantified**
- **Funded plans** to remove barriers in place
- **Effective mechanisms** for the promotion and protection of human rights in place
- **Effective stigma reduction** activities

Can it be done?
Countries have the answer!

Thank you

For more information, please contact:

eurotb@who.int



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