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# The Liver Meeting<sup>®</sup>

Digital Experience

## Country and WHO Regional Trends for Hepatitis C Virus (HCV) Mortality, 1990-2019: An Analysis of the Global Burden of Disease (GBD) Study

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# Abigail Adams



Abigail Adams completed her summer practicum for the University of Georgia with the Coalition for Global Hepatitis Elimination (CGHE) at The Task Force for Global Health in Atlanta, Georgia. Her practicum experience with CGHE included data analytic work and research regarding HCV mortality and prevalence trends globally. Abigail graduated in May 2020 with her undergraduate degree in public health. She plans to attend graduate school after gaining some experience in the public health workforce. She hopes to pursue a career in field epidemiology after finishing her studies.

# Disclosure

**Abigail Adams, Coalition for Global Hepatitis Elimination**

*I have no financial relationships with commercial interests to disclose.*

# Introduction

## Background

- In 2016, WHO set hepatitis elimination targets to reduce HCV-related deaths by at least 10% in 2020 and by 65% by 2030
- The Global Burden of Disease Study (GBD) from the Institute of Health Metrics and Evaluation (IHME) is an important source for hepatitis mortality estimates to monitor progress towards elimination

## Objective

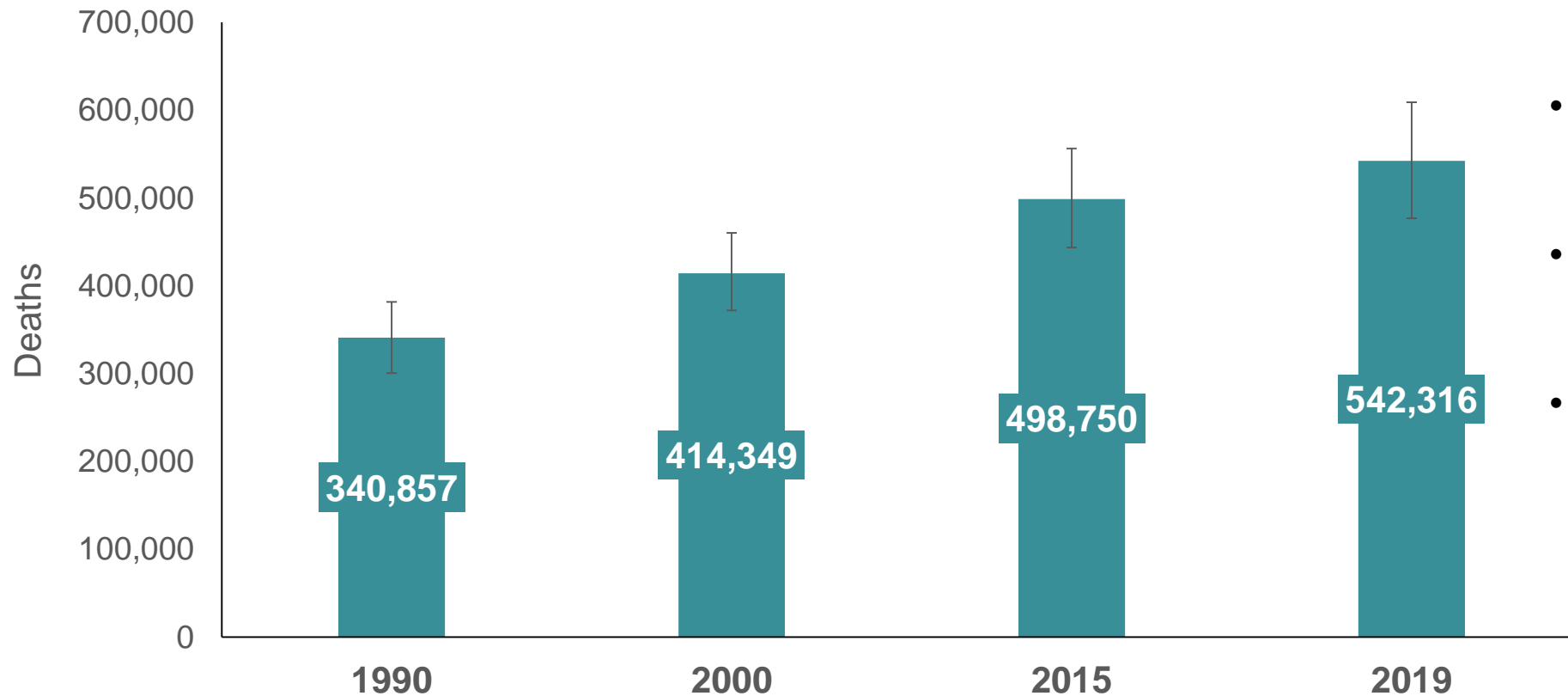
- Estimate trends in country level HCV-related deaths and mortality rate from 1990-2019 and 2015-2019 to monitor progress towards elimination

# Methods

- For the 2019 GBD study, HCV-related all-age mortality, death count, and death rate
  - was aggregated from mortality due to acute HCV, cirrhosis, other chronic liver diseases and primary liver cancer
    - Mortality estimated by country for 1990-2019 using vital registration, verbal autopsy data, case-series data, predictive covariates and GBD's cause of death ensemble model [1]
- Estimate percent change in national HCV death counts and mortality rates for the years 1990-2019 and 2015-2019
- Exclude countries with less than a 250,000 population or not recognized by the United Nations

<sup>1</sup>The Lancet. 8 Nov 2018;392:1789–858. doi: [http://dx.doi.org/10.1016/S0140-6736\(18\)32279-7](http://dx.doi.org/10.1016/S0140-6736(18)32279-7) .

# In 2019, global HCV-related deaths estimated at 542,326



- 59% increase in HCV-related deaths since 1990 (SS)
- 28% increase in HCV-related deaths since 2000 (SS)
- 9% Increase since 2015 (NS) at 95% confidence level

# Only 4 countries on track to meet 2020 WHO Mortality Target

WHO 2020 Mortality Target:  $\geq 10\%$  decline in mortality 2015-2020)

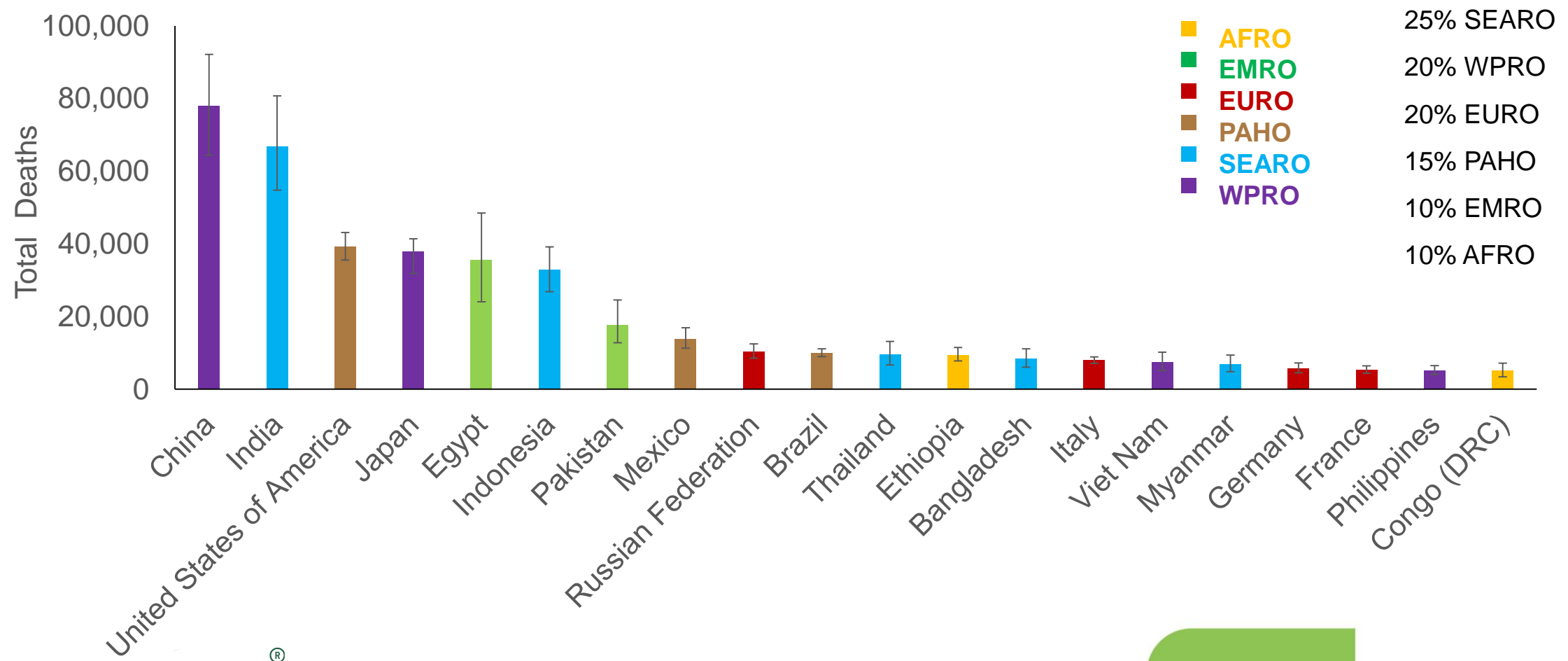
Countries with $\geq 10\%$ Decline in Mortality Rate, 2015-2019	% Decline
Moldova (Republic of)	-15.8%
Russian Federation	-10.7%

Countries with $\geq 10\%$ Decline in Death Count, 2015-2019	% Decline
Moldova (Republic of)	-17.5%
Lithuania	-13.5%
Ukraine	-11.3%

(Defined here by of  $>10\%$  decline in absolute mortality and/or mortality rate 2015-2019)

Note all declines may not be significant at the 95% confidence level

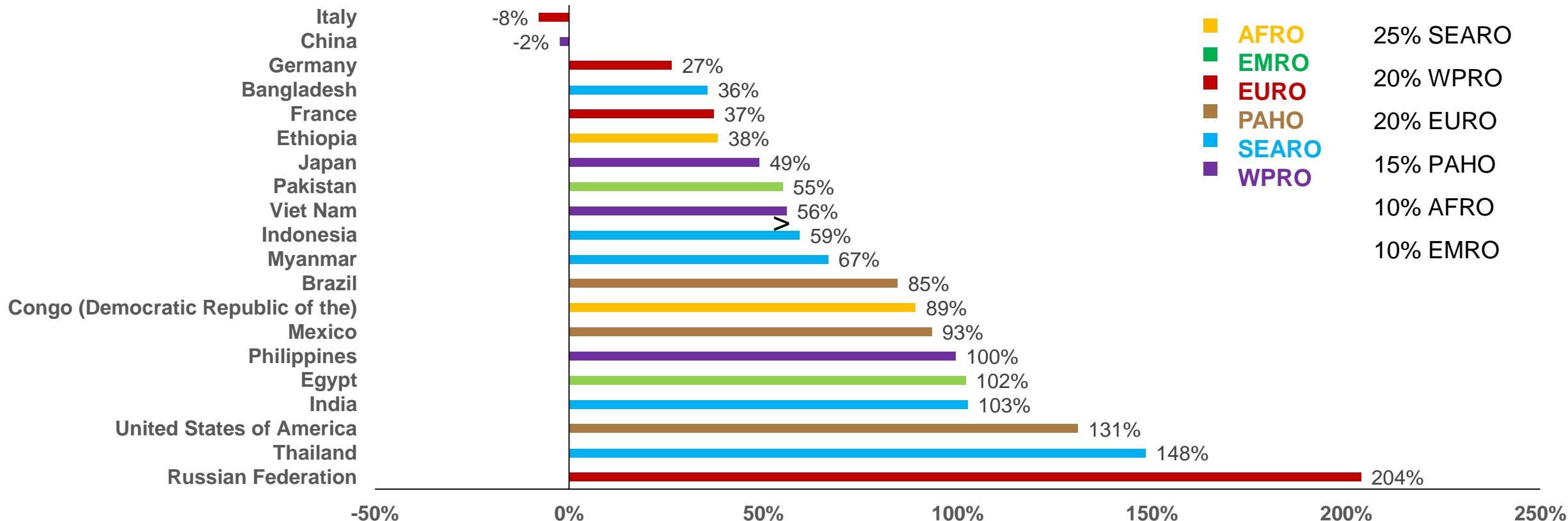
# Top 20 countries for HCV-related death counts represented 76% of global deaths in 2019





# Majority of countries in top 20 for HCV-related deaths have seen large increases in deaths since 1990

Percent change in HCV-related death count, 1990-2019



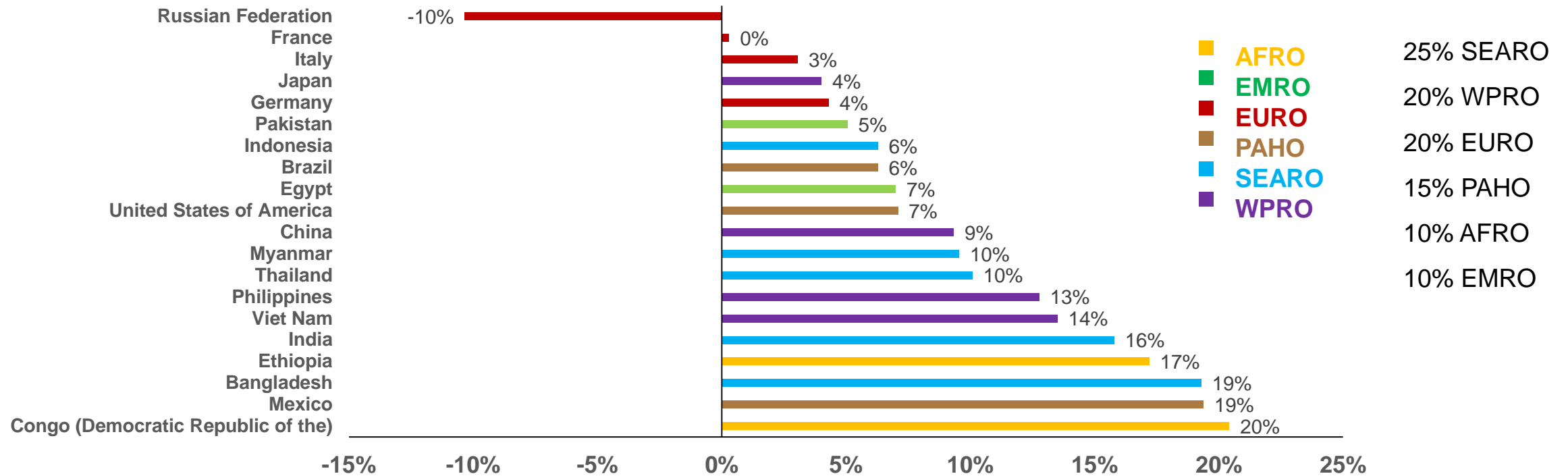
(\*% changes for all countries may not be statistically significant at 95% level)

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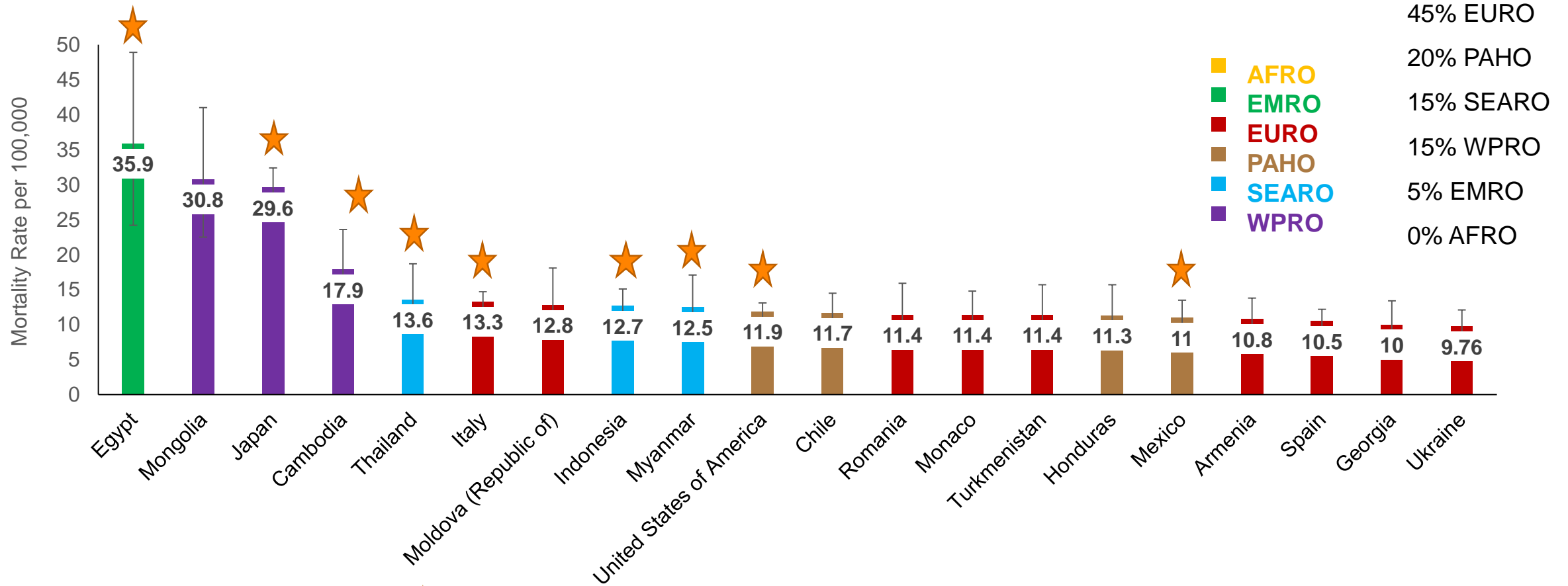
# Estimated HCV mortality continues to increase for most high burden countries

Percent Change in HCV-related Death Count, 2015-2019



(\*% changes for all countries may not be statistically significant at 95% level)

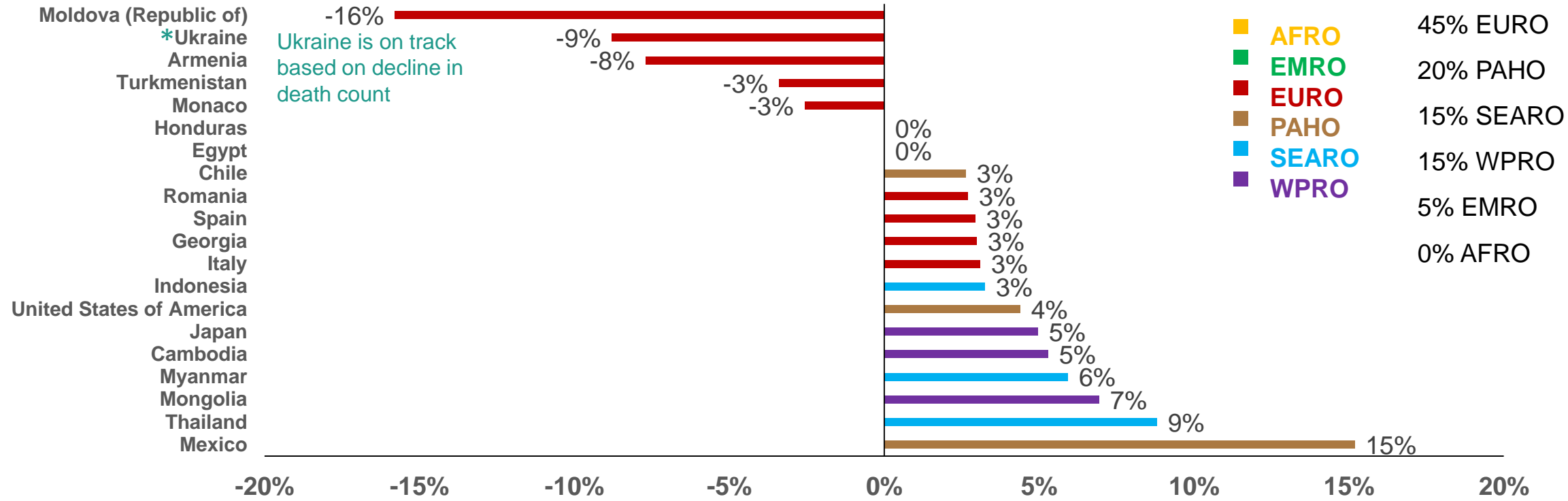
# There are additional countries that face a disproportionate rate of HCV-related mortality



★ = Countries considered high burden by death count

# Only 2 countries in top 20 for HCV-related death rate on track to reach 2020 target for 10% decline in rate

Percent change in HCV-related death rate, 2015-2019



The majority of top countries for death rate continue to see an increase in death rate

(\*% changes for all countries may not be statistically significant at 95% level)



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# Limitations

- Availability of large-scale population surveys of HCV seroprevalence, case-series data for cirrhosis and liver cancer patients
  - assignment of hepatitis C etiologies to cases of cirrhosis and liver cancer death
- Quality of reporting HCV data varies by country
  - 11 of the 20 top-burden countries [by death counts] had primary data for modeling HCV-related mortality (source range: 0-26)
- Methodological changes for GBD 2019 will require dissemination and familiarization among stakeholders

# Key Takeaways

- In 2019, there were an estimated 542,316 HCV-related deaths globally
- 4 countries, defined by either total deaths or mortality rate, were estimated to have met the  $\geq 10\%$  decline in HCV mortality, by either count or rate
  - All countries were in the EURO region: Moldova, Lithuania, Russian Federation, Ukraine
- Over 75% of global HCV deaths occurred in 20 countries in 2019, and only one of these countries is on track to meet 2020 targets (Russian Federation)

# Implications

- Disseminate GBD 2019 results
  - Full set of data for IHME Global Burden of Disease 2019 released on October 15, 2020
- Additional primary data is needed to improve the precision of estimates for monitoring progress towards elimination
- Impact of HCV curative therapy is not fully recognized in data estimates yet
- Few countries are on track to reach 2020 HCV elimination goals
  - program scale-up of prevention, testing, and treatment, especially in high burden countries is necessary

**Thank you!**

**TLM**

