

# Stanford

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## Mehlika Toy

Basic Life Res Scientist, Surgery - General Surgery

### Bio

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#### BIO

Trained in epidemiology and decision science, I embrace the opportunity to add traditional health services techniques with digital health platforms, including (1) electronic medical records (EMRs); (2) machine learning applications; (3) prediction models; (4) patient-provider portals with clinical decision support (CDS), to my skillset.

I am currently one of only a few researchers in the United States and the world who has developed robust, evidence-based chronic hepatitis B care and treatment cost-effectiveness models, and have published several high impact and highly cited articles on this topic. I have also developed a mathematical model for the World Health Organization to use as a tool to calculate country specific clinical and economic impact of increasing screening, care and treatment interventions in order to eliminate the public health burden of viral hepatitis by year 2030.

Clinical decision support tools are becoming the way of the future. We need simplified tools to communicate complex information to patients. I ultimately want to implement my skills on how best to inform people on their risks, and bring evidence to health care providers, patients and policy makers to guide decisions related to disease management and prevention.

#### CURRENT ROLE AT STANFORD

My current duties as a Research Scientist at Stanford University include developing cost-effectiveness models to estimate clinical outcomes and program costs to inform health policy. Recently, I was commissioned by the National Academies of Sciences, Engineering and Medicine to model the potential impact of improving chronic hepatitis B patient care and treatment in the United States. The study published by the National Academies formed the basis of a national strategy which concluded that eliminating the public health problem of CHB in the US by 2030 is feasible through strategies including linkage to care for monitoring and treatment to reduce disease complications. Subsequently, I was invited by the Centers for Disease Control and Prevention to give a talk on the national hepatitis B model at the viral hepatitis summit in Atlanta.

#### INSTITUTE AFFILIATIONS

- Member, Stanford Cancer Institute

#### HONORS AND AWARDS

- The 2016 Stanford Cancer Institute Translational Research Grant, Stanford Cancer Institute (January 2016)
- Spectrum Accelerator Innovation Seed Grant, Stanford Center for Clinical and Translational Research and Education (2014)
- Takemi Fellow in International Health, Harvard School of Public Health (2011-2013)
- Gratification for Exceptional Research, Erasmus Medical Center (2008)
- Sheila Sherlock Fellowship, European Association for the Study of the Liver (2008)

## SERVICE, VOLUNTEER, AND COMMUNITY WORK

- Global Hepatitis Report 2017
- Public Health Internship (2006)
- Research Hepatitis B (2010)
- Research Hepatitis B (2009)

## LINKS

- The Hep B Calculator: <http://hepbcalculator.org>

## Professional

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### PROFESSIONAL AFFILIATIONS AND ACTIVITIES

- Member, ICE-HBV International Coalition to Eliminate HBV (2017 - present)
- Member, Strategic Information and Modeling Reference Group, World Health Organization (2016 - present)
- Expert Panel, European Association for the Study of the Liver (EASL) (2015 - present)
- Expert Panel, The Asian Pacific Association for the Study of the Liver (APASL) (2015 - present)
- Member of the Liver Cancer Working Group, Stanford University (2014 - present)
- Editorial Board, World Journal of Gastroenterology (2013 - present)
- Member, International Society for Pharmacoeconomics and Outcomes Research (ISPOR) (2012 - present)
- Advisor, Burden of Disease Study Bielefeld, Germany (2010 - 2011)
- Member of Knowledge Team, LiverDoc (2007 - present)
- Platform Member, European Vigilance Network for the Management of Antiviral Drug Resistance (VIRGIL) (2007 - 2008)

## Publications

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### PUBLICATIONS

- **Knowledge, attitudes and practices of hepatitis B prevention and immunization of pregnant women and mothers in northern Vietnam.** *PloS one*  
Hang Pham, T. T., Le, T. X., Nguyen, D. T., Luu, C. M., Truong, B. D., Tran, P. D., Toy, M., So, S.  
2019; 14 (4): e0208154
- **Barriers to Disease Monitoring and Liver Cancer Surveillance Among Patients with Chronic Hepatitis B in the United States.** *Journal of community health*  
Ispas, S., So, S., Toy, M.  
2018
- **Population Health And Economic Impacts Of Reaching Chronic Hepatitis B Diagnosis And Treatment Targets In The US.** *Health affairs (Project Hope)*  
Toy, M., Hutton, D. W., So, S.  
2018; 37 (7): 1033–40
- **Racial/ethnic- and county-specific prevalence of chronic hepatitis B and its burden in California** *Hepatology, Medicine and Policy*  
Toy, M., Wei, B., Virdi, T. S., Le, A., Trinh, H., Li, J., Zhang, J., Hsing, A. W., So, S. K., Nguyen, M. H.  
2018; 3 (6)
- **Age and gender-specific disease progression rates to cirrhosis and hepatocellular carcinoma (HCC) in treated and untreated patients with chronic hepatitis B**  
Le, A. K., Toy, M., Yang, H., Trinh, H. N., Zhang, J. Q., Wong, C., Wong, C., Li, J., Nguyen, M. H.  
WILEY.2017: 994A
- **Suboptimal rates, trends and predictors of hepatitis B vaccination in a population-based sample of children and adolescents in the United States (US) between 1999 and 2014**  
Le, M. H., Toy, M., Gane, E. J., So, S., Nguyen, M. H.

WILEY.2017: 1003A

- **Prevalence and predictors of hepatitis B immunization in adults without immunity for hepatitis B from 1999-2014: a population-based study of 27,713 adults in the US**  
Le, M. H., Toy, M., Gane, E. J., So, S., Nguyen, M. H.  
WILEY.2017: 1004A
- **Population Health Impact and Cost-Effectiveness of Chronic Hepatitis B Diagnosis, Care, and Treatment in the United States** *A National Strategy for the Elimination of Hepatitis B and C: Phase Two Report*  
Toy, M.  
The National Academies of Sciences.2017: Appendix 1
- **Viral Hepatitis Strategic Information and Modelling Reference Group Meeting report 14–16 June 2016 WHO headquarters, Geneva, Switzerland**  
Hutin, Y., Aggarwal, R., Cowie, B., Hallet, T., Hutchinson, S., Razavi, H., Abu-Raddad, L., Toy, M., Chhatwal, J.  
World Health Organization.  
2016
- **Emerging Technologies for Point-of-Care Management of HIV Infection** *ANNUAL REVIEW OF MEDICINE, VOL 66*  
Shafiee, H., Wang, S., Inci, F., Toy, M., Henrich, T. J., Kuritzkes, D. R., Demirci, U.  
2015; 66: 387-405
- **Cost-Effectiveness and Cost Thresholds of Generic and Brand Drugs in a National Chronic Hepatitis B Treatment Program in China.** *PloS one*  
Toy, M., Hutton, D. W., So, S. K.  
2015; 10 (11)
- **Recent advances in micro/nanotechnologies for global control of hepatitis B infection** *BIOTECHNOLOGY ADVANCES*  
Yildiz, U. H., Inci, F., Wang, S., Toy, M., Tekin, H. C., Javaid, A., Lau, D. T., Demirci, U.  
2015; 33 (1): 178-190
- **Population Health Impact and Cost-Effectiveness of Monitoring Inactive Chronic Hepatitis B and Treating Eligible Patients in Shanghai, China** *HEPATOLOGY*  
Toy, M., Salomon, J. A., Jiang, H., Gui, H., Wang, H., Wang, J., Richardus, J. H., Xie, Q.  
2014; 60 (1): 46-55
- **Preventing hepatocellular carcinoma: the crucial role of chronic hepatitis B monitoring and antiviral treatment** *Hepatic Oncology*  
Toy, M., Demirci, U., So, S.  
2014; 1 (3): 255-257
- **Cost-effective interventions in the control of chronic hepatitis B infection** *European Medical Journal: Hepatology*  
Toy, M.  
2014; 1: 71-76
- **Cost-effectiveness of viral hepatitis B & C treatment** *BEST PRACTICE & RESEARCH IN CLINICAL GASTROENTEROLOGY*  
Toy, M.  
2013; 27 (6): 973-985
- **A Mathematical Approach for Evaluating Markov Models in Continuous Time without Discrete-Event Simulation** *MEDICAL DECISION MAKING*  
van Rosmalen, J., Toy, M., O'Mahony, J. F.  
2013; 33 (6): 767-779
- **Cost-effectiveness of Augmenting Universal Hepatitis B Vaccination With Immunoglobulin Treatment** *PEDIATRICS*  
Chen, S. C., Toy, M., Yeh, J. M., Wang, J., Resch, S.  
2013; 131 (4): E1135-E1143
- **High disease progression and medical costs if not detected in a high endemic chronic hepatitis B region: a cost-effectiveness analysis** *Journal of Antivirals and Antiretrovirals*  
Li, S., Onder, F. O., Xie, Q., Liu, Y., Toy, M.  
2013; 5: 154-159
- **The cost-effectiveness of treating chronic hepatitis B patients in a median endemic and middle income country** *EUROPEAN JOURNAL OF HEALTH ECONOMICS*

Toy, M., Onder, F. O., Idilman, R., Kabacam, G., Richardus, J. H., Bozdayi, M., Akdogan, M., Kuloglu, Z., Kansu, A., Schalm, S., Yurdaydin, C.  
2012; 13 (5): 663-676

- **Age- and region-specific hepatitis B prevalence in Turkey estimated using generalized linear mixed models: a systematic review** *BMC INFECTIOUS DISEASES*

Toy, M., Onder, F. O., Woermann, T., Bozdayi, A. M., Schalm, S. W., Borsboom, G. J., van Rosmalen, J., Richardus, J. H., Yurdaydin, C.  
2011; 11

- **Screening and Early Treatment of Migrants for Chronic Hepatitis B Virus Infection Is Cost-Effective** *GASTROENTEROLOGY*

Veldhuijzen, I. K., Toy, M., Hahne, S. J., de Wit, G. A., Schalm, S. W., de Man, R. A., Richardus, J. H.  
2010; 138 (2): 522-530

- **Potential Impact of Long-Term Nucleoside Therapy on the Mortality and Morbidity of Active Chronic Hepatitis B** *HEPATOLOGY*

Toy, M., Veldhuijzen, I. K., de Man, R. A., Richardus, J. H., Schalm, S. W.  
2009; 50 (3): 743-751

- **Transmission routes of hepatitis B virus infection in chronic hepatitis B patients in the Netherlands** *JOURNAL OF MEDICAL VIROLOGY*

Toy, M., Veldhuijzen, I. K., Mostert, M. C., de Man, R. A., Richardus, J. H.  
2008; 80 (3): 399-404