Learn or React? An Experimental Study of Preventive Health Decision Making

Günther Fink[*†§] Margaret McConnell[*] Bich Diep Nguyen[‡]

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Abstract

Despite major public health efforts, uptake of preventive technologies remains low in many settings. We developed a formal model of prevention, where rational agents decide over health technologies that reduce, but do not eliminate the risk of adverse health events, and conducted a laboratory experiment to empirically test model predictions. Consistent with rational learning models, we find that the initial uptake of effective technologies – technologies with a positive net return – is incomplete due to risk averse behavior and diffuse effectiveness priors. We also show that uptake of preventive technologies generally declines over time as technology users experiencing negative health outcomes revise their effectiveness priors towards zero. In the laboratory, we also find some decision patterns that are not consistent with standard rational models: subjects seem to respond most strongly to the most recent health outcomes, and also seem to react to negative health outcomes by increasing their willingness to invest in prevention, even when health risks without prevention are known by all subjects. As a result of these behavioral patterns, we observe much more switching in and out of preventive technologies than predicted by rational models; this, however, does not change the general trend towards non-prevention over time. Overall, the results presented in this paper suggest that high uptake of preventive technologies should only be expected if the risk of adverse health outcomes is high without prevention or the risk of such adverse outcomes is close to zero with prevention.

[*]Harvard T.H. Chan School of Public Health

[†]Current affiliation: Swiss Tropical and Public Health Institute

[‡]University of Basel

[§]Correspondence: Günther Fink, Swiss Tropical and Public Health Institute, Socinstrasse 57, 4051 Basel, Switzerland. Email: guenther.fink@swisstph.ch