

# We Will Live or Die by R

## Key findings from 'Coronavirus: The Hammer and the Dance'

**R is the contagion rate:** how many additional infections each infected person produces. For the Coronavirus, **R** ranges from **2.4** (the natural rate of infection) down to **0.32** (under the total lockdown in Wuhan, China). Government policies that limit in-person interaction, and our compliance (or lack thereof) with those policies are the major determinants of **R**.

**The future of the United States depends on R. If we get this wrong, millions will die, our healthcare system will collapse, and we will enter a severe economic depression.**

Strategy	R	U.S. COVID-19 Deaths	Probability of Healthcare Collapse	Duration of Health Crisis*	Economic Consequences
None	2.4+	Many millions	Certain	4-6 months	Catastrophic
	2.2				
	2.0				
Minimal Half-measures	1.8	Many millions	Certain	7+ months	Catastrophic
	1.6				
	1.4				
Flattening the Curve	1.3	Millions down to hundreds of thousands	Almost certain	7+ months	Catastrophic
	1.2		Possible		
	1.1				
Bending the Curve	1.0	Tens of thousands	Unlikely	7+ months	Catastrophic
	0.9				
Weak Hammer	0.8	Many thousands	Very unlikely	4-6 months	Severe
	0.7				
Strong Hammer	0.6	Many thousands	Very unlikely	3 months	Significant
	0.5				
Max Hammer	0.4	Many thousands	Very unlikely	2 months	Significant

These results assumes that intervention begins on March 30<sup>th</sup>. Even with a strong hammer strategy (R=0.6), **a one week delay would triple the number of deaths and extend the crisis by three weeks.**

Text and figures by Samuel A. Shapero, PhD. March 22, 2020.

Based on Tomas Pueyo's in-depth epidemiological analysis 'Coronavirus: The Hammer and the Dance':

<https://medium.com/@tomaspuoyo/coronavirus-the-hammer-and-the-dance-be9337092b56>.

Results generated by the epidemic calculator <https://gabgoh.github.io/COVID/index.html> using model parameters from 'Coronavirus: The Hammer and the Dance', but assumes 10000 infectious individuals on March 10<sup>th</sup>. Additional details can be found at <https://github.com/samshap/liveordiebyr> \*Defined to end when fewer than 1000 infectious persons remain, at which point testing and containment should be sufficient to manage spread.

Stay informed. Share. Organize. Advocate. We can make it happen, together!