

# Cost and Affordability of Meeting California's Hospital Seismic Safety Requirements

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CT-521

Testimony presented before the California State Assembly and Senate Committees on Health on January 28, 2020.



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Published by the RAND Corporation, Santa Monica, Calif.

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*Cost and Affordability of Meeting California's Hospital Seismic Safety Requirements*

Testimony of Tom LaTourrette<sup>1</sup>  
The RAND Corporation<sup>2</sup>

Before the Committees on Health  
California State Assembly and Senate

January 28, 2020

Chairman Wood, Chairman Pan, Vice-Chairman Mayes, and members of the California State Assembly and Senate Health Committees, thank you for the opportunity to speak with you all today. My name is Dr. Tom LaTourrette, and I am a senior physical scientist at the RAND Corporation. RAND is a nonprofit, nonpartisan research organization headquartered in Santa Monica, California.

Over the past 20 years, I have been researching different aspects of disaster preparedness and response, including infrastructure vulnerability and mitigation, disaster insurance, and emergency response.

Today, I will be summarizing the results of a study that I co-led at RAND that was sponsored by the California Hospital Association. The primary objective of the study was to provide an update to RAND's previous studies of the cost of complying with the 2030 deadline of the Alfred E. Alquist Hospital Facilities Seismic Safety Act as amended by Senate Bill (SB) 1953. Our study also examined the affordability to hospitals of this anticipated spending, as well as opportunities for and challenges to compliance.

SB 1953 requires that, by 2030, hospital buildings that provide acute care services be able to remain operational after a major earthquake.<sup>3</sup> Hospital buildings must demonstrate this capability

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<sup>1</sup> The opinions and conclusions expressed in this testimony are the author's alone and should not be interpreted as representing those of the RAND Corporation or any of the sponsors of its research. In addition, this testimony serves as a representation of oral remarks provided to the committee and may differ slightly from the author's remarks as delivered.

<sup>2</sup> The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest.

<sup>3</sup> SB 1953 also requires these buildings to meet basic life safety requirements in an earthquake (i.e., not collapse) by 2020. At the time of our analysis in 2018, most hospital buildings that intended to remain open past 2020 had met this requirement. Because the majority of work needed to meet this 2020 deadline had already been performed and paid for, we did not address the costs of meeting the 2020 deadline.

by meeting particular structural and nonstructural performance categories (SPC and NPC, respectively) as defined by the California Office of Statewide Health Planning and Development (OSHPD). Our cost analysis estimated the cost of upgrading SPC-2 buildings to SPC-4D and the cost of upgrading NPC-1 and NPC-2 buildings to NPC-5. We assumed that all SPC-1 buildings would be removed from acute care service and did not include them in our cost estimate.

We produced two cost estimates that were designed to represent the upper and lower bound of future costs. The low-end estimate is for upgrading entirely through retrofitting of existing buildings. The high-end estimate is for structural upgrading entirely through new construction of replacement buildings along with nonstructural upgrading through retrofitting of all buildings that require only nonstructural upgrades. We used this bracketing approach because most hospital representatives indicated that they did not yet know whether they would pursue retrofitting, replacement, or some combination of the two.

Data on SPC and NPC ratings and bed numbers for acute care hospital buildings were obtained from OSHPD. Data on retrofit and new construction costs were provided by hospital construction firms and hospitals representing a sample of 147 buildings from 68 hospitals. These cost estimates include preparatory make-ready work and soft costs, such as architecture and engineering, inspections and permits, project management, and equipment and furnishings. We combined cost data with building characteristics to parameterize retrofit and replacement costs in terms of current SPC and NPC rating and number of patient beds. Finally, we adjusted these estimates to account for projected cost escalation between 2019 and 2030 caused by inflation and anticipated competition for construction labor, materials, and contractors.

As of September 2018, 2,717 buildings in 395 hospitals statewide required seismic upgrading. We estimate that the statewide cost for complying with SB 1953 ranges from \$32 billion for retrofitting to \$143 billion for replacement. We independently validated our replacement cost estimate using different data sources and generated results that were consistent with our original estimate, reinforcing our confidence in our cost estimates. The lower end of this range implies an annual hospital construction spending rate between 2018 and 2030 that falls just under the historical average for 2000 to 2018; the upper end of this range exceeds the historical average by more than four times.

Our analysis also examined how well hospitals could afford this estimated spending. We rated each hospital according to a financial health index that considers several financial indicators, including net working capital, net assets, earnings before taxes, and the book value of equity.<sup>4</sup> Threshold values are defined to assign index scores into one of three categories: (1) no indication of financial distress, (2) potential for financial distress, and (3) severe financial

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<sup>4</sup> We used a version of the Altman Z score model that has been adapted for nonmanufacturing industries and used in several prior analyses of hospital financial health (E. I. Altman and E. Hotchkiss, *Corporate Financial Distress and Bankruptcy: Predict and Avoid Bankruptcy, Analyze and Invest in Distressed Debt*, Hoboken, N.J.: Wiley, 2006; J. Langabeer, "Predicting Financial Distress in Teaching Hospitals," *Journal of Health Care Finance*, Vol. 33, No. 2, 2006, pp. 84–92; Z. H. Ramamonjivarivelo, "Is Privatization the Solution to the Financial Distress of Public Hospitals?" *Academy of Management Proceedings*, Vol. 1, 2014, pp. 654–659; J. Langabeer, K. H. Lalani, T. Champagne-Langabeer, and J. R. Helton, "Predicting Financial Distress in Acute Care Hospitals," *Hospital Topics*, Vol. 96, No. 3, 2018, pp. 75–79).

distress. Applying this scoring system, we found that 22 percent of California hospitals are currently in severe financial distress and 12 percent have the potential for financial distress. Greater financial distress occurs disproportionately among public, academic, and community access hospitals and among hospitals that serve higher proportions of Medi-Cal patients.

To assess the impact of seismic upgrading costs on hospital financial health, we recomputed hospitals' financial health index scores to include estimated retrofit costs as a long-term liability. After recomputing, the percentage of hospitals in severe financial distress increases from 22 percent to 40 percent. This increase is disproportionately borne by community access hospitals (from 21 percent to 68 percent), independent private hospitals (from 18 percent to 44 percent), and public health care district hospitals (from 32 percent to 76 percent). In addition to being put into financial distress, these hospital ownership types are comparatively less capable of absorbing financial distress, which magnifies the impact of the increase in distress on overall affordability.<sup>5</sup> This represents an inequitable impact of the effects of SB 1953 compliance on certain geographic areas and on the lower socioeconomic status populations served by these types of hospitals.

Our analysis also examined some alternative approaches to meeting the goals of SB 1953, such as alternative financing models, regionalization, revised scheduling, and streamlining OSHPD approvals. I would be happy to discuss these further if there is interest.

Thank you again for the opportunity to testify at this hearing.

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<sup>5</sup> Independent private hospitals lack the ability to draw upon the systemwide revenue and borrowing capacity of multihospital systems. Similarly, public hospitals owned by health care districts tend to be smaller and serve more rural populations (half are designated as community access hospitals) than public hospitals owned by cities, counties, or the University of California, and they struggle from a lack of visibility that makes it difficult to convince voters to approve bond-related tax increases for seismic retrofitting or other capital needs.