

# The GRE in Public Health Admissions: Barriers, Waivers, and Moving Forward

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10 **Keywords: GRE, graduate applications, Graduate Record Exam, waiver, grad applications**

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## 12 **Abstract**

13 In the wake of COVID-19, there is an urgent need for a diverse public health work force to address  
14 problems presented or exacerbated by the global pandemic. Educational programs that create our  
15 work force both train and shape the makeup of access through graduate applications. The Graduate  
16 Record Exam has a number of standing issues, with additional barriers created by the pandemic. We  
17 trace the GRE waiver movement over several years, focusing on the gradual adoption in CEPH  
18 accredited programs and the rapid expansion of temporary waivers as a response to testing access.  
19 Going forward, we need to consider gaps in waivers during the pandemic and how this data can be  
20 used to shape our future use of the GRE.

21

## 22 1 Introduction

23 As we move forward in the profession of public health, many of the problems presented or  
24 exacerbated by the COVID-19 global pandemic may require new solutions and a diversity of thought  
25 and approaches to problem solving. The future of our public health workforce is shaped by decisions  
26 from our educational programs that decide who can access public health training and who designs the  
27 trainings. It is important that we consider how components of our graduate school applications  
28 currently shape our workforce and the possible barriers we create by the inclusion of testing metrics,  
29 such as the Graduate Record Exam (GRE). As the pandemic has unfolded, I have been active in  
30 collecting and sharing data on issues with the use of the GRE in public health admissions and I  
31 believe now is the time to re-think its problematic role in our public health workforce.

## 32 2 Issues with the GRE

33 Over the last decade, issues with how the GRE increases barriers to graduate education have been  
34 more widely discussed. The GRE may not predict academic success, with correlation between GRE  
35 and academic success appearing to be weak at best (Sealy et al., 2019). Boston University School of  
36 Public Health found no significant difference in mean GRE component scores for achieving >3.0  
37 GPA in 1st year MPH students (Galea, 2019). The Association of Schools and Programs of Public  
38 Health also found no correlation between GRE scores and final GPA after public health degree  
39 completion at several of its member schools (ASPPH, 2020). Colorado SPH found GRE scores to be  
40 a weak predictor of degree completion, with other variables such as undergraduate GPA better  
41 predictors of success (CSU, 2019). And University of Minnesota conducted a randomized  
42 assessment, finding GRE score didn't substantially influence admissions decisions (Wolfson, 2020).

43 Because of the financial burden and gender & racial/ethnic biases within the test, use of the GRE in  
44 public health admissions may create barriers for underrepresented groups. One of the direct barriers  
45 the GRE creates is a financial burden, with testing costing \$205, and \$27 per school submission.  
46 Another issue is the impact on diversity and inclusion efforts. Variation in scores by race and gender  
47 has been reported, with women and members of underrepresented racial and ethnic minority groups  
48 scoring lower than white and Asian men (Miller and Stassun, 2014). Given that the GRE is not a  
49 convincing predictor of graduate school success, these barriers to entry are unnecessary.

50 The inequalities in testing have been increased during the COVID-19 pandemic. In March 2020 as  
51 lockdowns began and testing centers closed, ETS rolled out a solution to testing access: the GRE at  
52 Home. This version allowed testing to continue online, but came with a number of hurdles (Hu,  
53 2020). The requirement of a desktop or laptop and stable internet connection to take the GRE at  
54 Home are particularly problematic, given the digital divide that has become more consequential  
55 during the pandemic. A 2019 Pew Research Center survey found one in four American adults lack  
56 access to high-speed internet. This increases to half for adults with an annual income less than  
57 \$30,000 in major US cities (Anderson, 2019). In another study looking at undergrads at a large  
58 Midwestern university, although 98% of students had access to laptops, 20% of students still had  
59 difficulty accessing necessary education technology (Gonzales et al., 2020). These technology  
60 barriers create a further divide to accessing the test and shut out many students (Hu, 2020).

## 61 3 GRE Waiver Movement

62 Recently, the practice of waiving the GRE in graduate applications has spread. In 2016, the American  
63 Astronomical Society recommended the elimination of the GRE due to the test's poor predictions of  
64 success, correlations with gender, race, and socioeconomic status, and financial burden (AAS, 2016).

65 In November 2017 Joshua Hall director of the Biological & Biomedical Science Program at  
66 University of North Carolina at Chapel Hill, created a list of Bio/Biomedical programs that waive the  
67 GRE requirement (Hall, 2017). By the end of 2018, almost half of all top 50 ranked molecular  
68 biology programs had waived this requirement, with the practice spreading to more STEM  
69 disciplines (Langin, 2019). In 2019, some of the first high-ranked public health programs started to  
70 waive the GRE, including Boston University SPH and University of Colorado SPH (Galea, 2019;  
71 CSU, 2019). In October 2019, a public health GRE waiver list of degrees/concentrations was created  
72 by Jess Millar, an Epidemiology MPH student at University of Michigan (Millar, 2019a). At the time  
73 of its creation, 48 CEPH accredited programs (one in four) had at least one GRE waiver.

74 As COVID-19 started to spread in the United States and lockdowns were initiated, public health  
75 programs began to consider the possibility of temporarily waiving the GRE in light of barriers to the  
76 GRE at Home. By the beginning of April, Rutgers allowed temporary waivers for Fall 2020 (SUNJ,  
77 2020). By the end of May, at least 9 CEPH accredited programs participated in the temporary waiver,  
78 with Emory extending their waivers to Fall 2021 (Emory University, 2020; Millar, 2020a). The  
79 public health GRE waiver list increased 68% during its first 7 months, going from 145 to 243 entries  
80 by May 2020. By the time the SOPHAS application opened in August, the list had increased another  
81 350% to include 880 entries (Millar, 2019b). As of September 20th, 2020, the list contains 1,196  
82 entries from 150 CEPH programs (just over three quarters). 555 of the entries are for concentrations/  
83 degrees with a permanent GRE waiver, while 641 are temporary for COVID-19 (Supplementary  
84 Table).

#### 85 **4 Public Health GRE Waiver Coverage not Evenly Spread**

86 The coverage of GRE waivers in public health programs is not equal, with very few programs  
87 allowing a blanket waiver to all graduate degrees. Among top 50 public health programs ranked by  
88 US World News, only 15 have a waiver for all degrees (permanent or temporary) as of September 20,  
89 2020. Inclusion of a waiver also varies by concentration, with some programs including permanent  
90 waivers for specific degrees or concentrations, and temporary or no waivers for others. 70% of  
91 degrees in CEPH accredited programs currently offer at least a temporary GRE waiver, but that  
92 percent drops as low as 59% for admissions to biostatistics-specific degree programs (Figure 1A).  
93 These numbers drop to 32% and 23% respectively when only counting permanent waivers. The  
94 divide in GRE waivers is more apparent between masters and doctoral degrees. Among CEPH  
95 accredited programs, only 50% of degrees offer at least a temporary GRE waiver offered for doctoral  
96 degrees and 16% offer a permanent waiver (Figure 1B). Most doctoral programs require doctoral  
97 interviews for admission. These can and have been used by other disciplines—such as the  
98 aforementioned STEM programs—to devise interview questions to help identify characteristics found  
99 in successful doctoral researchers and rely less on the GRE (Petersen, 2020).

#### 100 **5 Conclusions**

101 The pandemic has made inequities in access to education more visible, through the digital divide,  
102 financial concerns, and resulting conversations of barriers for minority groups. As we make our way  
103 into the 2020-2021 academic year, public health programs that have not done so may want to  
104 consider instigating or expanding temporary GRE waivers to more degrees and concentrations.  
105 Moving beyond the pandemic, there is a great deal more hesitancy on allowing more permanent GRE  
106 waivers. Several programs, such as Cornell, University of Iowa, and Ohio State, converted their  
107 temporary MPH GRE waivers to permanent (Millar, 2020b; Millar, 2020c). University of

108 Washington took it a step further, and converted their temporary GRE waivers to permanent for both  
109 masters and doctoral degrees (UWSPH, 2020).

110 Few studies on the GRE in public health programs have been conducted, but that is beginning to  
111 change. Boston University and University of North Carolina at Chapel Hill are currently conducting  
112 three-year studies to look at the impact of removing the GRE requirement on diversity and student  
113 success (Galea, 2019; GSGPH, 2020). Several other programs are currently conducting one-year  
114 pilot studies on the GRE waiver effect (UMinnesota SPH, 2020; UMichigan SPH). Temporary  
115 waivers are an opportunity for public health programs to test the relevance of GRE scores in the  
116 application process and their prediction of student success. We have the opportunity to test how  
117 removing a barrier to public health education will affect the professionals we create and I hope we  
118 take it.

## 119 **6 Conflict of Interest**

120 The author declares that they have no competing interests.

## 121 **7 Author Contributions**

122 JAM drafted the initial manuscript, figures, edited, read, and approved the final manuscript.

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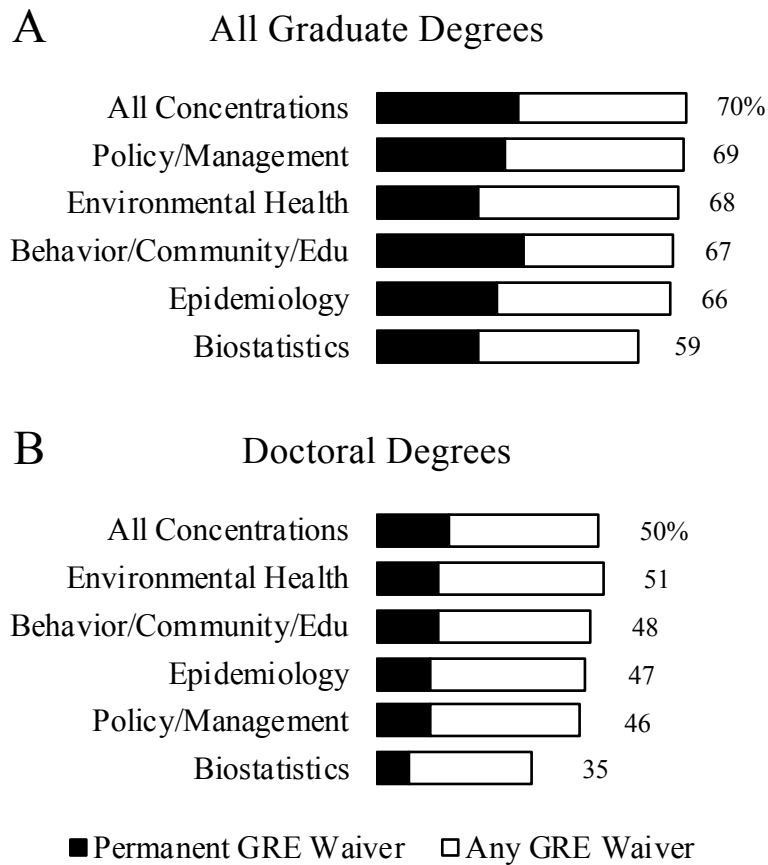
124 **8 References**

- 125 American Astronomical Society. (2016) AAS statement on limiting the use of GRE scores in  
126 graduate admissions in the astronomical sciences. American Astronomical Society website.  
127 Posted January 4, 2016. Accessed August 17, 2020. [https://aas.org/about/governance/society-](https://aas.org/about/governance/society-resolutions#GRE)  
128 [resolutions#GRE](https://aas.org/about/governance/society-resolutions#GRE)
- 129 Anderson, M. (2019). Mobile technology and home broadband 2019. Pew Research Center website.  
130 Posted June 13, 2019. Accessed August 17, 2020.  
131 [https://www.pewresearch.org/internet/2019/06/13/mobile-technology-and-home-broadband-](https://www.pewresearch.org/internet/2019/06/13/mobile-technology-and-home-broadband-2019/)  
132 [2019/](https://www.pewresearch.org/internet/2019/06/13/mobile-technology-and-home-broadband-2019/)
- 133 Association of Schools and Programs of Public Health. (2020). GRE scores and public health  
134 admissions. Association of Schools and Programs of Public Health website. August, 2020.  
135 Accessed September 20, 2020.
- 136 Colorado State University. (2019). Colorado School of Public Health drops its GRE requirement for  
137 admission. Colorado State University website. October 23, 2019. Accessed August 17, 2020.  
138 [https://source.colostate.edu/colorado-school-of-public-health-drops-its-gre-requirement-for-](https://source.colostate.edu/colorado-school-of-public-health-drops-its-gre-requirement-for-admission/)  
139 [admission/](https://source.colostate.edu/colorado-school-of-public-health-drops-its-gre-requirement-for-admission/)
- 140 Emory University. (2020). Admissions. Emory University website. Internet Archive website.  
141 Captured June 3, 2020. Accessed August 17, 2020.  
142 <https://web.archive.org/web/20200603011518/https://sph.emory.edu/admissions/index.html>
- 143 Galea, S. (2019). Rethinking our student admission requirements: A case for equity. Boston  
144 University School of Public Health website. June 20, 2019. Accessed August 17, 2020.  
145 [https://www.bu.edu/sph/announcement/rethinking-our-student-admission-requirements-a-](https://www.bu.edu/sph/announcement/rethinking-our-student-admission-requirements-a-case-for-equity/)  
146 [case-for-equity/](https://www.bu.edu/sph/announcement/rethinking-our-student-admission-requirements-a-case-for-equity/)
- 147 Gillings School of Global Public Health. (2020). Gillings School drops GRE requirement for 8  
148 graduate degrees. Gillings School of Global Public Health website. Posted July 16, 2020.  
149 Accessed August 17, 2020. [https://sph.unc.edu/sph-news/gillings-school-drops-gre-](https://sph.unc.edu/sph-news/gillings-school-drops-gre-requirement-for-8-graduate-degrees/)  
150 [requirement-for-8-graduate-degrees/](https://sph.unc.edu/sph-news/gillings-school-drops-gre-requirement-for-8-graduate-degrees/)
- 151 Gonzales, A.L., Calarco, J.M., Lynch, T. (2020). Technology problems and student achievement  
152 gaps: a validation and extension of the technology maintenance construct. *Commun. Res.* 47,  
153 750-770. doi: 10.1177/0093650218796366
- 154 Hall, J.D. (2017). “Here's the current list of bio/biomedical graduate programs that dropped, or plan  
155 to drop, the GRE. My plan is to maintain this list as a resource, so please let me know if there  
156 are additions/corrections.” Posted November 9, 2017. Accessed August 17, 2020.  
157 <https://twitter.com/jdhallphd/status/928696944821788679>
- 158 Hu, J.C. (2020). Graduate programs drop GRE after online version raises concerns about fairness.  
159 Science Careers website. Posted June 24, 2020. Accessed August 17, 2020.

- 160 <https://www.sciencemag.org/careers/2020/06/graduate-programs-drop-gre-after-online->  
161 [version-raises-concerns-about-fairness](https://www.sciencemag.org/careers/2020/06/graduate-programs-drop-gre-after-online-version-raises-concerns-about-fairness)
- 162 Langin, K. (2019). Ph.D. programs drop standardized exam. *Science*. 364, 816. doi:  
163 10.1126/science.364.6443.816
- 164 Millar, J.A. (2019a). "I created a list of #PublicHealth programs dropping the GRE requirement. Let  
165 me know if there are others that can be added. (And thank you @jdhallphd for creating a  
166 bio/biomedical #GREExit list!)." Posted October 28, 2019. Accessed August 17, 2020.  
167 <https://twitter.com/JAMicrobe/status/1188881433080795137>
- 168 Millar, J.A. (2019b). Public health graduate programs dropping GRE requirement. Google  
169 Spreadsheet website. Posted October 28, 2019. Accessed September 20, 2020.  
170 <https://tinyurl.com/PublicHealthGRE>
- 171 Millar, J.A. (2020a). "You're welcome! I'm going through right now and adding programs that are  
172 temporarily removing the GRE." Posted May 24, 2020. Accessed August 17, 2020.  
173 <https://twitter.com/JAMicrobe/status/1264654847590248462>
- 174 Millar, J.A. (2020b). "I'm updating the public health #GREExit list and it's amazing to see the changes  
175 in the last month! @UIowaCPH originally just waived for #COVID19 and now it's permanent  
176 for MPH. Also permanent for @OSUPublicHealth MPH. Let's keep it going! #EpiTwitter"  
177 Posted June 27, 2020. Accessed September 20, 2020.  
178 <https://twitter.com/JAMicrobe/status/1276985695865839616>
- 179 Millar, J.A. (2020c). "More #PublicHealth #GRE waiver news. @CornellMPH & @ETSUCPH  
180 converted temp waivers to permanent for MPH. No word if @ETSUCPH will extend the  
181 temp waiver for DrPH to Fall 2021. @TulaneSPHTM & @VUmedicine extended temp  
182 waivers for masters to Fall 2021." Posted August 20, 2020. Accessed September 20, 2020.  
183 <https://twitter.com/JAMicrobe/status/1296494659041189893>
- 184 Miller, C., and Stassun, K. (2014). A test that fails. *Nature* 510, 303-304. doi: 10.1038/nj7504-303a
- 185 Petersen, SL. (2020). Developing a more predictive model for identifying STEM doctoral students  
186 who are likely to succeed. *Beyond the GRE website*. Accessed August 17, 2020.  
187 <https://beyondthegre.org/identifying-promising-stem-students/>
- 188 Sealy, L., Saunders, C., Blume, J., Chalkley, R. (2019). The GRE over the entire range of scores  
189 lacks predictive ability for PhD outcomes in the biomedical sciences. *PLoS One* 14,  
190 e0201634. doi: 10.1371/journal.pone.0201634
- 191 State University of New Jersey. (2020). Admissions. Rutgers, The State University of New Jersey  
192 website. Internet Archive website. Captured April 1, 2020. Accessed August 17, 2020.  
193 [https://web.archive.org/web/20200401021900/https://sph.rutgers.edu/admissions/how-to-](https://web.archive.org/web/20200401021900/https://sph.rutgers.edu/admissions/how-to-apply.html)  
194 [apply.html](https://web.archive.org/web/20200401021900/https://sph.rutgers.edu/admissions/how-to-apply.html)

- 195 University of Minnesota School of Public Health. (2020). The role of the GRE in SPH graduate  
196 admissions. University of Minnesota School of Public Health website. Posted May 27, 2020.  
197 Accessed August 17, 2020. [https://www.sph.umn.edu/event/the-role-of-the-gre-in-sph-](https://www.sph.umn.edu/event/the-role-of-the-gre-in-sph-graduate-admissions/)  
198 [graduate-admissions/](https://www.sph.umn.edu/event/the-role-of-the-gre-in-sph-graduate-admissions/)
- 199 University of Michigan School of Public Health. (2020). University of Michigan School of Public  
200 Health removes GRE requirement. University of Michigan School of Public Health website.  
201 Posted August 12, 2020. Accessed August 17, 2020.  
202 [https://sph.umich.edu/news/2020posts/university-of-michigan-school-of-public-health-](https://sph.umich.edu/news/2020posts/university-of-michigan-school-of-public-health-removes-gre-requirement.html)  
203 [removes-gre-requirement.html](https://sph.umich.edu/news/2020posts/university-of-michigan-school-of-public-health-removes-gre-requirement.html)
- 204 University of Washington School of Public Health. (2020). UW department of epidemiology  
205 eliminates GRE requirement in graduate program admissions. University of Washington  
206 School of Public Health website. Posted September 21, 2020. Accessed September 21, 2020.  
207 [https://epi.washington.edu/news/uw-department-epidemiology-eliminates-gre-requirement-](https://epi.washington.edu/news/uw-department-epidemiology-eliminates-gre-requirement-graduate-program-admissions)  
208 [graduate-program-admissions](https://epi.washington.edu/news/uw-department-epidemiology-eliminates-gre-requirement-graduate-program-admissions)
- 209 Wolfson, J. (2020). “In 2 weeks, @PublicHealthUMN will remove its number from ETS, going  
210 #GRExit for all programs. Our decision was largely based on the results of a RANDOMIZED  
211 assessment of how GRE scores influence admissions decisions. What we did and what we  
212 found: a thread. 1/n.” Posted June 29, 2020. Accessed August 17, 2020.  
213 <https://twitter.com/DrJWolfson/status/1277635810410606592>
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## 215 9 Figure Legends



216

217 Figure 1. **GRE Waiver Snapshot.** Percent of degrees at CEPH accredited public health programs at  
 218 U.S. universities that have a GRE waiver. Permanent GRE waivers are shown super imposed (black)  
 219 over all GRE waivers (white). Percentage of degrees with any GRE waiver explicitly stated at the  
 220 right of each bar. Not all degrees and concentrations were offered at each program.

221