

# Physicians' Attitudes and Experiences with Medical Aid in Dying in Colorado: a "Hidden Population" Survey



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**BACKGROUND:** Approximately 20% of the US population live in states where MAiD is a legal, though highly contentious, practice. Little generalizable data exists on the experiences of MAiD providers who comprise a small, and intentionally hidden, population.

**OBJECTIVE:** To examine the nature, extent, and consequences of physicians' participation in MAiD.

**DESIGN:** An anonymous, multi-wave, mailed survey (RR=55%).

**PARTICIPANTS:** An enriched sample (n=583) of Colorado physicians caring for potential MAiD patients.

**MAIN MEASURES:** Physician willingness, preparedness, and participation in a continuum of MAiD activities. Other outcomes include the effects of providing MAiD and the barriers physicians face related to MAiD.

**KEY RESULTS:** Overall, 81.1% of respondents were willing to discuss MAiD with a patient, 88.3% to refer for MAiD, 46.3% to be a consultant, and 28.1% to be an attending. Fewer felt prepared to discuss MAiD (54.4%), provide a MAiD referral (62.8%), be a consultant (30.7%), or be an attending (18.0%). More than half of respondents (52.3%) had discussed MAiD with a patient, 27.3% provided a MAiD referral, 12.8% had been a MAiD consultant, and 8.5% had been a MAiD attending. Among MAiD consultants and attendings, 75% reported that their most recent MAiD case was emotionally fulfilling and professionally rewarding, though 75% also reported that it was time consuming and 46.9% reported that it was ethically challenging. Common barriers to physician participation in MAiD include lack of knowledge about MAiD (46.8%), the emotional (45.6%) and time (41.7%) investments, and ethical concerns (41.7%).

**CONCLUSIONS:** Many physicians in our sample are both willing and prepared to discuss MAiD with patients and to

provide MAiD referrals. Fewer are prepared and willing to serve as an attending or consultant and fewer have provided these services. MAiD consultants and attendings largely report the experience to be emotionally fulfilling and professionally rewarding, but all respondents reported multiple barriers to participation.

**KEY WORDS:** physician assisted death; physician assisted suicide; medical aid in the dying.

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## BACKGROUND

Medical aid in dying (MAiD) occurs when a physician provides a competent, terminally ill patient with a prescription for a lethal dose of medications.<sup>1</sup> Approximately 20% of the US population lives in states (Oregon, Washington, Vermont, Colorado, California, District of Columbia, Maine, New Jersey, New Mexico, and Hawaii) where MAiD is legal.<sup>2</sup>

Physician participation in MAiD represents a continuum of activities, from MAiD discussions with patients, MAiD referrals, to serving as a MAiD consultant or attending. MAiD activities can be contentious in several ways.<sup>3-5</sup> Ethical concerns include, but are not limited to, issues of equity and justice, patient autonomy, the nature of human suffering, slippery slope arguments, the proper roles of physicians, and the potential for devaluing human life.<sup>1,6-8</sup> Religious beliefs have led some religiously affiliated hospitals to prohibit employed physicians from providing MAiD.<sup>9,10</sup> And surveys<sup>11</sup> consistently find the medical community evenly split on the issue.<sup>12-15</sup> Some prominent professional organizations oppose the practice,<sup>8</sup> while others have recently removed their opposition.<sup>16</sup>

Studying physician experiences with MAiD has been hampered because MAiD providers comprise a small, intentionally "hidden population"<sup>17</sup> that cannot be systematically identified and studied because (1) state law forbids the state, employers,

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**Note on Terminology** The terminology around this practice is controversial and value-laden. Some readers might strongly prefer "physician assisted suicide," "physician assisted death," or "medical aid in dying" (MAiD) among terms. Because this is an empirical study of Colorado, and MAiD is the term used in Colorado's state law, we use that term for consistency.

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and physician groups from releasing the identities of MAiD patients or providers; (2) pharmacies are legally prohibited from identifying physicians who write MAiD prescriptions; (3) neither MAiD prescriptions nor MAiD visits are covered by insurance and, thus, are not directly observable in claims; and (4) death certificates do not include MAiD information by statute, and so cannot be used to find participating physicians or patients.<sup>18</sup> Finally, some physicians may refuse to participate in MAiD research if doing so creates the possibility of them being “outed” as a MAiD provider.<sup>19</sup>

As a result, prior MAiD studies have been predominately small and qualitative in nature.<sup>20–24</sup> Surveys typically focus on physicians' opinions and intentions rather than actual behaviors, though some have used large samples to eventually winnow down to a small number of MAiD providers—making these studies expensive and inefficient.<sup>12,25,26</sup> Efforts to improve survey efficiency, such as sampling physicians in specialties corresponding to diseases with higher likelihood of MAiD participation (e.g., oncology), have shown only modest success and also limit the generalizability of findings.<sup>27–30</sup> Thus, the overall aim of the proposed research was to develop and employ a novel methodology to conduct a small, anonymous survey of Colorado physicians, enriched along several dimensions for those more likely to care for patients seeking MAiD, to learn about their experiences along the continuum of MAiD activities.

## METHODS

### Setting

From 2017 to 2020, 554 patients in Colorado received a MAiD prescription from 159 physicians (representing 0.01% of physicians in Colorado).<sup>18</sup> Under the law, an attending physician and a consulting physician are required to independently confirm that the patient has a terminal illness, is expected to live less than 6 months, has mental capacity, is informed about MAiD, and is making this decision voluntarily. The attending physician alone writes the MAiD prescription. However, other physician may participate in MAiD by discussing this issue with patients, providing MAiD referrals or serving as a consultant.

### Sampling

We developed a sampling strategy to identify Colorado physicians likely to have cared for patients potentially seeking MAiD. The state of Colorado reports that 75% of MAiD patients were enrolled in hospice, and the most common conditions were malignant neoplasms, progressive neurodegenerative diseases, and chronic lower respiratory and heart diseases. Thus, using the Colorado All-Payer Claims Database, we identified a cohort of patients ( $n=8,922$ ) with diag-

noses similar to those of patients receiving MAiD prescriptions using (i) ICD-10 codes to identify patients with the diagnoses above and (ii) Current Procedural Technology (CPT) and Healthcare Common Procedure Coding System (HCPCS) codes to identify patients that received hospice services. Next, we identified the cohort of 6,369 physicians who had provided outpatient care to these patients using National Provider Identifier (NPI) numbers associated with CPT codes for new and return patient visits. Using data from IQVIA,<sup>31</sup> we identified the names and addresses of physicians associated with each NPI.

Next, we ranked the physicians according to what we believed was their likelihood of participating in MAiD using three criteria; first, physician practice specialty, which was based on the diagnoses of known MAiD patients in Colorado and expert opinion of the research team (medical oncologists and palliative care physicians were ranked highest); second, the number of unique patients that each physician saw (i.e., physicians who saw more than 1 unique patient in the cohort were ranked higher); third, whether a physician was identified by an individual or group practice NPI (individually identified physicians were ranked higher).

There were 3 waves of the survey, which allowed us to slightly modify the ranking algorithm after each wave based on responses from the prior wave—for example, in the third wave, only physicians with individual NPIs were surveyed, since the first two waves showed that a higher proportion of respondents with individual NPIs had ever discussed MAiD with a patient. In each wave, only physicians with the highest scores who had not been selected in a prior wave were sampled. Thus, no individual physician was included in more than one wave of the survey. The total sample was 583 physicians (wave 1  $n=200$ , wave 2  $n=200$ , and wave 3  $n=183$ ). The size of waves 1 and 2 ( $n=200$ ) was determined by preliminary sample size calculations necessary for statistically and clinically significant bivariate analyses; the final wave ( $n=183$ ) was smaller because our targeting strategy resulted in only 183 physicians meeting inclusion criteria for that wave.

### Survey Methods

A multi-step process was used to develop the survey. First, we conducted a review of prior physician surveys and recent literature on MAiD to identify existing items and concepts to consider measuring. Second, we interviewed 4 physicians who were known MAiD providers. From these activities, we developed a list of concepts to measure on the survey. For each concept, we developed and iteratively refined the survey questions. The survey was pretested using cognitive interviews with 4 different physicians. The final survey (see [online appendix](#)) was 4 pages long and took approximately 10 min to complete.

The survey was administered by mail in 3 waves 12 weeks apart beginning in July 2020. Each wave consisted of a unique

sample and each subject received one survey with no identifiers, a cover letter, a postage paid return envelope with no identifiers, and a \$50 cash incentive. The survey was *completely anonymous*, and thus, we were unable to perform traditional, follow-up activities with non-respondents that are proven to increase response rates such as additional mailings, telephone calls, and email prompting. Despite this, and the fact that this study was conducted during the Covid-19 pandemic, we received 300 completed surveys yielding an overall, weighted response rate of 55% (using the AAPOR #4 response rate calculation).<sup>32</sup>

## Key Measures/Variables

The survey asked physicians how prepared they were to discuss MAiD with patients, refer patients for MAiD, serve as a MAiD consultant, and serve as a MAiD attending. The response categories were “Very Unprepared,” “Generally Unprepared,” “Generally Prepared,” and “Very Prepared.” For analyses, we dichotomized variables with “Generally Prepared” and “Very Prepared” coded as 1 representing those who felt prepared and all other responses coded as 0 representing those who felt unprepared.

To measure willingness to participate in MAiD, we asked, “In general, if you were asked today would you be willing to discuss MAiD with a patient?, refer an eligible patient to another physician for MAiD?, serve as the MAiD Consulting Physician for an eligible patient?, serve as the MAiD Attending Physician for an eligible patient?” The response categories were “Definitely Not,” “Probably Not,” “Probably Yes,” and “Definitely Yes.” We dichotomized variables for each activity with “Probably Yes” and “Definitely Yes” coded as 1 representing those with yes responses and other responses coded as 0 representing those with non-yes responses.

To measure participation in MAiD we asked, “Since 2017, when MAiD became legal in Colorado, have you discussed MAiD with at least one patient?, referred a patient to another physician for MAiD?, served as the MAiD Consulting Physician on a MAiD case?, served as the MAiD Attending Physician on a MAiD case?” The response categories were “Yes” coded as 1 and “No” coded as 0.

To assess barriers to participation in MAiD, we asked, “In general, how much of a barrier is each of the following for you to be involved in a MAiD case?...Your lack of knowledge about MAiD?, Concern of being known as a “MAiD provider”?, The time investment required by MAiD?, The emotional investment required by MAiD?, Professional ethics concerns you have about MAiD, Religious concerns you have about MAiD?, Lack of support by your colleagues?, The policies of your employer/practice?” The response categories were, “Not a barrier”, “Small Barrier”, “Moderate Barrier” and “Large Barrier.” For analyses, we grouped “Moderate Barrier” and “Large Barrier” into a single category representing significant barriers coded as 1 and the other responses coded as 0 representing less significant barriers.

Given the highly sensitive nature of MAiD, and to further assure physicians of their anonymity to the research team and society more broadly, we asked a very limited number of demographic questions with intentionally broad response categories related to gender, specialty, length of medical practice, race/ethnicity, and characteristics of practice setting.

## Analyses

Data were analyzed using R version 4.0.5. Differences in proportions were tested using Pearson’s chi-square tests and Fisher’s exact tests for bivariate comparisons with small *n*’s. The analyses were weighted to adjust for differential response rates and probability of selection between the 3 survey waves. Given the weighted results were virtually identical to the unweighted results, we chose to present the unweighted results.

## FINDINGS

### Respondent Characteristics

Respondents were primarily male (60.0%), white (78.8%), and non-Hispanic (95.0%, Table 1). More than a quarter were

Table 1. Characteristics of Respondents

Characteristics***	n (%)
Gender	
Female	120 (40)
Male	180 (60)
Ethnicity	
Hispanic	15 (5.1)
Non-Hispanic	282 (95)
Race	
White	234 (78.8)
Asian	36 (12.1)
Other	27 (9.1)
Years practicing medicine	
<10 years	52 (17.3)
11+ years	248 (82.7)
Specialty** <sup>α</sup>	
Cardiology	12 (4.2)
Gen internal medicine	66 (22.9)
Family medicine	85 (29.5)
Hematology/oncology	52 (18.1)
Hospice palliative care	8 (2.8)
Hospital medicine	14 (4.9)
Neurology	13 (4.5)
Other	38 (13.2)
Provides outpatient care	
Yes	273 (91.6)
No	25 (8.4)
Provides care in a nursing home or SNF	
Yes	38 (13.2)
No	251 (86.8)
Provides care in a hospice setting	
Yes	28 (9.7)
No	261 (90.3)

\*\*\**n*’s vary slightly due to missing data by item

\*\*Coded based on report of respondents. If more than 1 specialty listed, we coded the first mentioned as the primary specialty

<sup>α</sup>For subsequent analyses, we grouped FM/GIM into primary care, everyone else into specialist

family practitioners (29.5%) followed by general internists (22.9%), oncologists (18.1%), hospitalists (4.9%), neurologists (4.5%), cardiologists (4.2%), hospice/palliative care (2.8%), and other specialists (13.2%). Most respondents (91.6%) provided care in an outpatient setting, 13.2% provided care in a nursing home or skilled nursing facility, and 9.7% provided care in a hospice setting/program.

**Willingness, Preparedness, and Participation in MAiD**

Overall, 81.1% of respondents were willing to discuss MAiD with a patient, 88.3% to refer for MAiD, 46.3% to be a consultant, and 28.1% to be an attending (see Fig. 1). Fewer felt prepared to discuss MAiD (54.4%), provide a MAiD referral (62.8%), be a consultant (30.7%), or be an attending (18.0%).

In terms of MAiD experience, 52.3% had discussed MAiD with at least one patient, 27.3% had referred a patient for MAiD, 12.8% had been a MAiD consultant, and 8.5% had been a MAiD attending. On average, those who served as a MAiD consultant had done so for 2 or 3 patients (mean=2.8, range 1–10). Attendings had provided MAiD for 3 or 4 patients, on average (mean=3.9, range 1–20) (data not shown in table). Among MAiD consultants and attendings, 85.7% had cared for their most recent MAiD patient prior to providing MAiD (data not shown in table).

**Characteristics of MAiD Providers**

Young physicians were significantly less likely to have discussed MAiD with a patient than older physicians (38.5% vs. 55.2%,  $p=0.04$ ) (Table 2). Female physicians were significantly more likely than males to have provided a MAiD referral (34.2% vs. 22.8%,  $p=0.04$ ). Primary care physicians (family medicine and general internal medicine) were less likely than specialists to have served as a consultant on a MAiD case (8.0% vs. 19.1%,  $p=.01$ ).

**Effects of Providing MAiD**

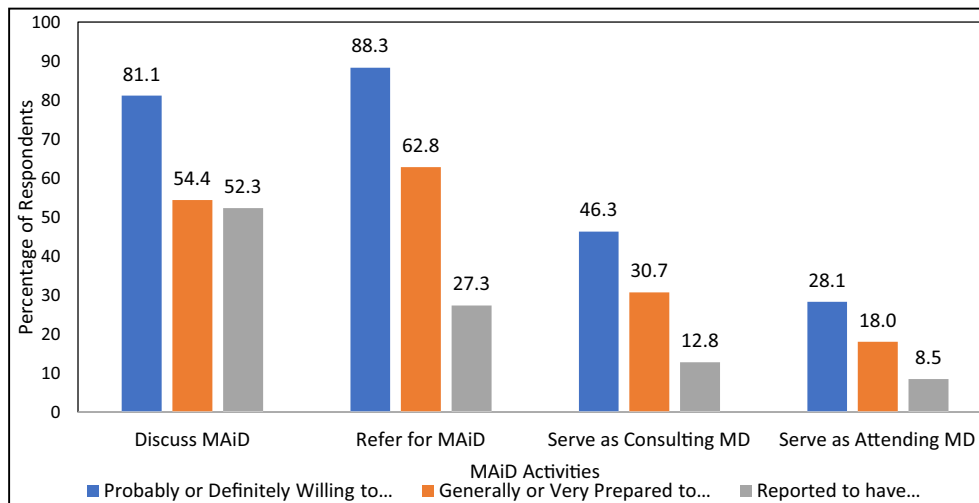
Among MAiD consultants and attendings, 75.5% felt their most recent MAiD case was emotionally fulfilling and 75.5% felt it was professionally rewarding (Fig. 2). Yet, many physicians also reported their most recent MAiD case as time consuming (75.5%) and ethically challenging (46.9%), and some considered it professionally risky (14.3%).

**Barriers to Participation in MAiD**

Barriers to participation in MAiD differed significantly between physicians who had served as a MAiD attending and/or consultant and those who had not (Figure 3). For example, 12.2% of MAiD consultants and/or attendings described their lack of knowledge as a moderate or large barrier compared to 54% of those who had not served in these roles ( $p\leq 0.001$ ). Similar differences were found related to the emotional investment (22.5% vs. 50.2%,  $p=0.004$ ), ethics concerns (20.4% vs. 45.8%,  $p<0.002$ ), being known as a MAiD provider (18.4% vs. 42.3%,  $p=0.003$ ), the time required (22.5% vs. 45.7%,  $p<0.001$ ), religious concerns (12.2% vs. 29.8%,  $p=0.02$ ), lack of support from colleagues (6.1% vs. 18.9%,  $p=0.05$ ), and policies of employers/practice (8.6% vs. 37.2%,  $p<0.001$ ).

**DISCUSSION**

We captured the views and experiences of 300 physicians in one state who were likely to have participated in MAiD activities; illustrating this, 8.5% of our sample ( $n=25$ ) had participated as a MAiD attending, compared to 0.01% of all Colorado physicians who are known to have done so. To put this in perspective, a 1996 national survey of 3,102 physicians in states where MAiD was legal only found 3.3% of respondents ( $n=42$ ) who had provided MAiD, suggesting that our sampling methodology is considerably more effective and efficient at locating physicians likely to care for patients seeking MAiD than prior methods.<sup>27</sup>



**Figure 1** Respondents' preparedness, willingness, and actual participation in MAiD activities.

Table 2 Respondents' Participation in MAiD Activities

	Discussed MAiD w/ Pt.	Referred Pt. for MAiD	Served as consulting MD	Served as attending MD
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
<b>Gender:</b> ( <i>p</i> -value)*	0.69	<b>0.04</b>	0.14	0.51
Female	65 (54.2)	41 ( <b>34.2</b> )	20 (16.7)	8 (6.7)
Male	92 (51.1)	41 ( <b>22.8</b> )	18 (10.1)	17 (9.6)
<b>Specialty:</b> ( <i>p</i> -value)*	0.77	0.12	<b>0.01</b>	0.1
Primary care	79 (52.3)	36 (23.8)	12 ( <b>8</b> )	9 (6)
Specialty care	75 (54.7)	45 (32.8)	26 ( <b>19.1</b> )	16 (11.8)
Years practicing medicine: ( <i>p</i> -value)*	<b>0.04</b>	0.35	0.65	0.27
<10 years	20 ( <b>38.5</b> )	11 (21.2)	5 (9.6)	2 (3.9)
11+ years	137 ( <b>55.2</b> )	71 (28.6)	33 (13.4)	23 (9.4)
Provides outpatient care: ( <i>p</i> -value)*	0.1	0.1	<b>0.05</b>	0.15
Yes	146 (53.5)	79 (28.9)	38 ( <b>14.0</b> )	25 (9.3)
No	9 (36.0)	3 (12.0)	0 ( <b>0.0</b> )	0 (0.0)
NH/SNF/hospice setting: ( <i>p</i> -value)*	0.69	0.26	0.16	0.59
Yes	28 (54.9)	10 (19.6)	3 (5.9)	3 (5.9)
No	121 (50.6)	68 (28.5)	33 (13.9)	22 (9.3)

\**p*-values calculated using Pearson's chi-squared test for cells >10, Fisher's exact test used for cells <10  
 Bolded values reflect statistically significant findings.

Because prior surveys have focused on more general physician populations, our findings also shed important new light on the views and behaviors of this "hidden population" of physicians. First, among our respondents, more than 80% are willing to discuss MAiD with patients and provide a referral.<sup>12,14,15,25–29</sup> These findings should be comforting to

patients seeking MAiD information and referrals. There has been concern that some physicians might perceive providing information about MAiD or a referral as "complicity" in an act that some believe to be immoral.<sup>5</sup> Our data suggest that reticence to discuss MAiD among those physicians most likely to care for patients seeking it is not common.

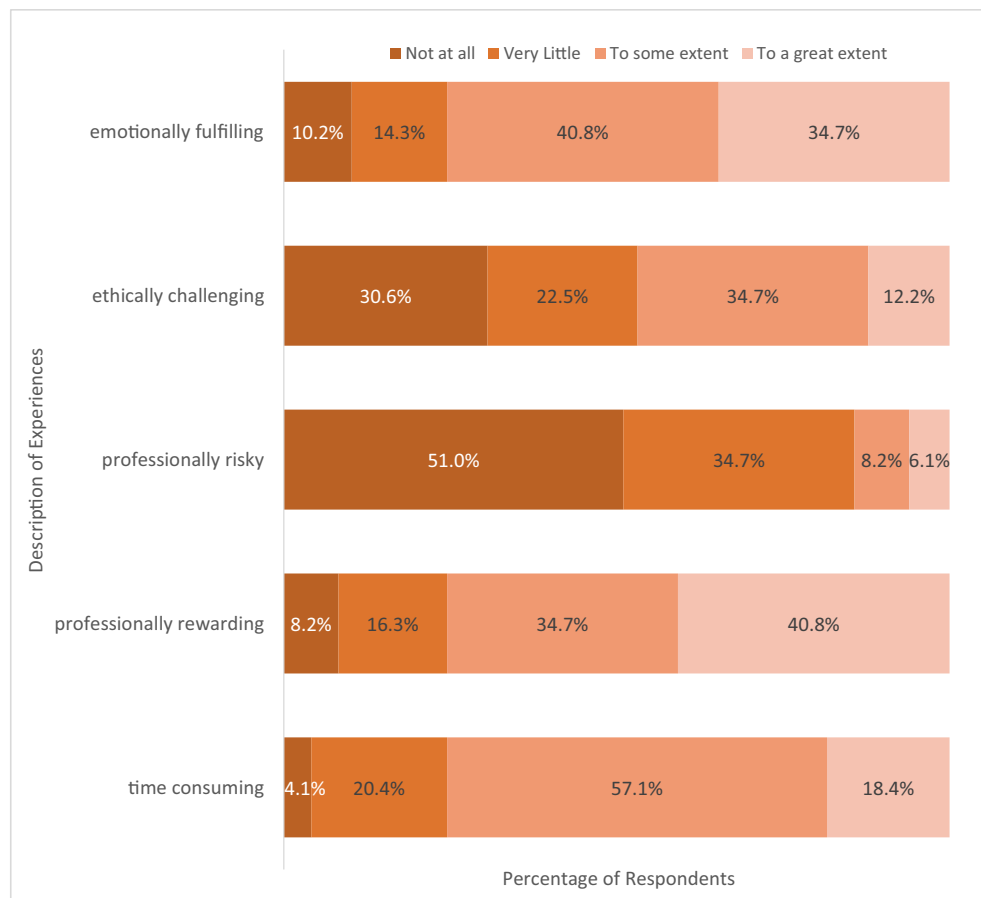


Figure 2 Respondents' experiences with most recent MAiD case.

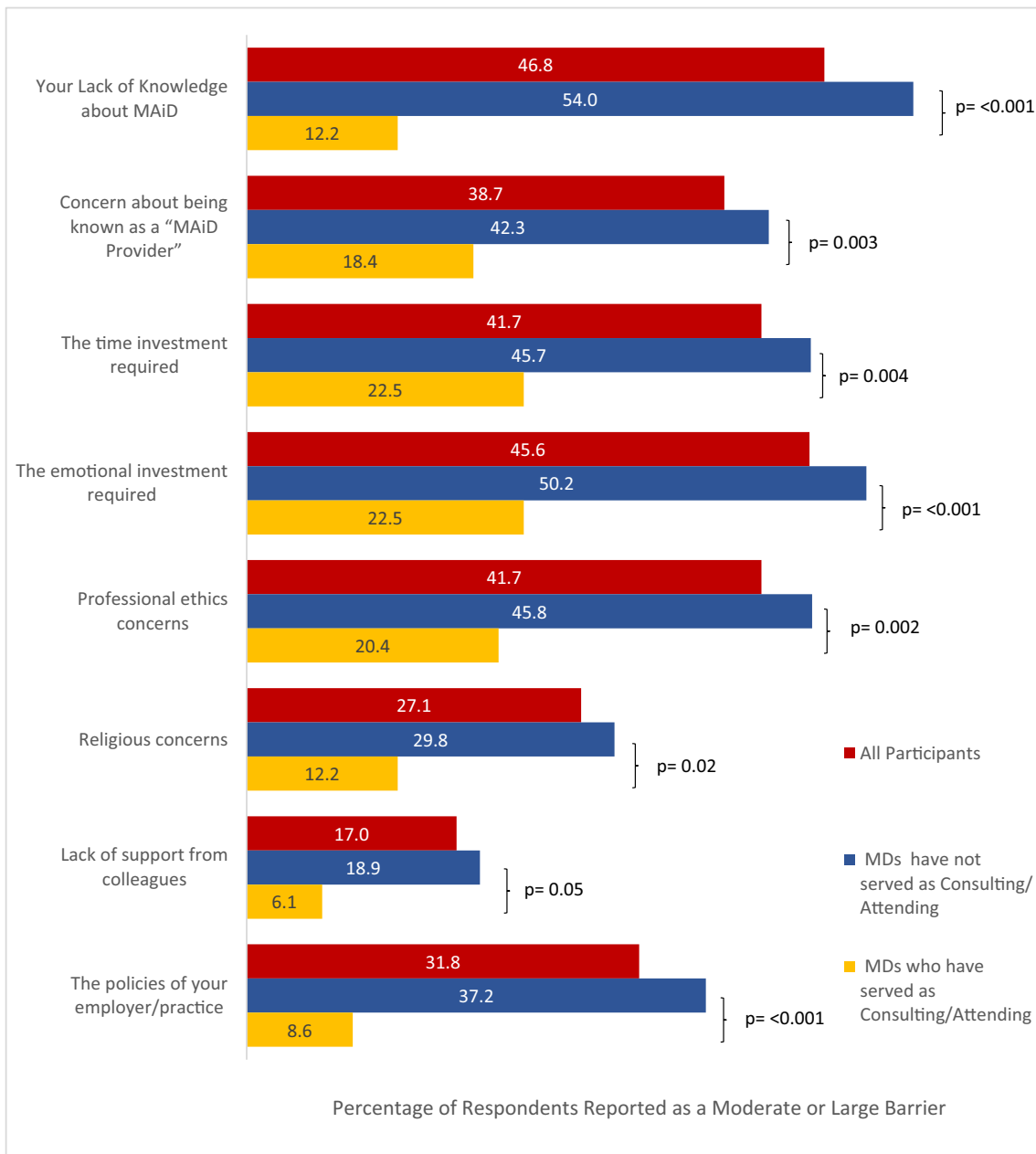


Figure 3 Barriers to involvement with a MAiD case.

Second, 52.3% of respondents had discussed MAiD with a patient and slightly more than a quarter had provided a MAiD referral. The percentages who had served as a MAiD consultant and/or an attending are much smaller (12.8% and 8.5%, respectively). These findings likely reflect the reality that MAiD in Colorado is rare; from 2017 to 2020, only 159 physicians wrote MAiD prescriptions for 514 patients. This finding also suggests unused, potential MAiD capacity in Colorado, with more physicians reporting being willing (28.1%) and prepared (18.0%) to serve as a MAiD attending than have done so to date (8.5%). Further study could help elucidate potential barriers facing patients seeking access to these providers, such as geographic, financial, communication, or other barriers.

Third, there is concern that many MAiD patients might have to secure MAiD from physicians unfamiliar with them or their care. Our data suggest that this is not often the case; more than 80% of MAiD attendings and consultants reported providing care to their most recent MAiD patient prior to providing MAiD. This finding should be comforting to physicians, patients, and family members, since longitudinal doctor/patient relationships promote trust and facilitate communication and the sharing of information, values, and fears—all of which seem essential in MAiD decision-making.

Fourth, we found interesting effects of providing MAiD on physicians themselves. In our sample, most MAiD attendings and consultants report that providing this service was

emotionally fulfilling and professionally rewarding, yet most also report that serving in these roles is time consuming, nearly half (46.9%) felt it was ethically challenging, and some (14.3%) considered that doing so was professionally risky. Future research should explore the amount of time required by MAiD, how that time is allocated in the MAiD process, and the extent to which payment intersects with time as to influence physician decisions about participating in MAiD. In addition, perceptions of professional risk and ethical challenges suggest the need for ongoing exploration of the ethics of MAiD; though some surveys show growing public and professional acceptance of MAiD,<sup>11</sup> our results demonstrate that these debates are not resolved.

We explored several potential barriers to physician participation in MAiD among those with and without experience providing it. Among those without direct experience, the most common barriers are lack of knowledge about MAiD, the emotional investment it requires, professional ethics concerns, the time it requires (which presumably reflects payment issues), and becoming known as a “MAiD provider.” Employer policies are a significant concern for 1 in 3 physicians who have not participated in MAiD, which might reflect a rising number of physicians in Colorado contracted to religiously affiliated health care delivery organizations.<sup>33</sup> Meanwhile, personal religious concerns and lack of support from colleagues also arise, but they are less commonly cited as barriers. These findings suggest a particular need to focus attention on improving physician knowledge about the clinical practice of MAiD, on research to understand time and other financial barriers to physician participation, and on empirical bioethics research to better understand the complex role that professional ethics plays in physician decisions regarding participation in MAiD.

### LIMITATIONS

These results are not generalizable beyond the subset of physicians who care for patients with conditions and using services similar to those of patients who choose MAiD. Our results are not generalizable to physicians outside Colorado. Finally, because of our intentionally small sample size and because we could not collect detailed demographic information on respondents and still protect their anonymity, we are unable to perform multivariate analyses exploring physician demographic factors that might predict MAiD participation.

### CONCLUSION

Most of the physicians in our sample—which was enriched for those most likely to care for patients who might ultimately seek MAiD—are both willing and prepared to discuss MAiD with patients and to provide MAiD referrals. Fewer are prepared and willing to serve as an attending or consultant and fewer still have provided these services. There appears to be

excess MAiD capacity in that larger numbers of physicians in Colorado are willing and prepared to participate in MAiD than the number who have done so to date. While those who have participated in MAiD largely report the experience to be emotionally fulfilling and professionally rewarding, both those who have participated and those who have not report several critical barriers to participation, especially around clinical knowledge, time and emotional investments, and professional ethics concerns.

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### Declarations:

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