

# Physician compliance with quality and patient safety regulations: The role of perceived enforcement approaches and commitment

Health Services Management Research

0(0) 1–10

© The Author(s) 2018

Article reuse guidelines:

[sagepub.com/journals-permissions](http://sagepub.com/journals-permissions)

DOI: 10.1177/0951484818813324

[journals.sagepub.com/home/hsm](http://journals.sagepub.com/home/hsm)

Ulrike Weske<sup>1</sup> , Paul Boselie<sup>1</sup>, Elizabeth van Rensen<sup>2</sup> and Margriet Schneider<sup>2</sup>

## Abstract

The implementation of a quality and patient safety accreditation system is crucial for hospitals. Although control systems—such as accreditation—can contribute to quality improvements, they also run the risk of unintended consequences. As a result, ways should be found to avoid or reduce these undesirable consequences. This study aims to answer this call by exploring the association of different approaches to the enforcement of rules (punishment, based on monitoring and threats of sanctions; and persuasion, based on dialog and suggestion) with compliance. To test the relation between perceived enforcement and compliance, this study used survey data collected from medical specialists (N = 92) of a large academic medical center. The findings indicate that the same system is interpreted differently and that only a perceived persuasion approach is related to higher levels of compliance. This effect is fully mediated by affective commitment. No direct or indirect effects on compliance were found for a perceived coercive approach. These results suggest that control systems can be perceived in different ways and that the implementation of a control system does therefore not automatically lead to negative and unintended outcomes.

## Keywords

accreditation, commitment, compliance, enforcement approaches, physicians, quality and patient safety regulations

## Introduction

Social regulation, including programs of accreditation, is widely used within healthcare and aims to change the behavior and performance of organizations and healthcare professionals.<sup>1</sup> Since their introduction in the 1970s, healthcare accreditation programs have spread across the world and have become part of healthcare systems in over 70 countries.<sup>2</sup> In some regions, accreditation is mandated by government, while in others it is voluntary.<sup>3</sup> In the first case, accreditation is essential for hospitals to keep license to operate and in the second case, accreditation is essential to keep their legitimacy and reputation. The latter refers to the pressure from patients, news media, and advocacy groups for responsible quality and patient safety performance.<sup>4</sup> Either way, the successful implementation of a quality and patient safety accreditation system—that is compliance

with the rules and guidelines that are part of such a system—is crucial for hospitals.<sup>5–7</sup>

The increasing importance of accreditation systems within healthcare is in line with a more general rise of “corporate compliance” or “management-based regulation” systems. Such systems locate the design, standard setting, and implementation of regulation closer to the action, within organizations itself.<sup>8–12</sup> The idea is that coordinated components—including checklists and standard operating procedures—provide managers and

<sup>1</sup>Utrecht University School of Governance, Utrecht University, Utrecht, Netherlands

<sup>2</sup>University Medical Center Utrecht, Utrecht, Netherlands

### Corresponding author:

Ulrike Weske, Utrecht University, Bijlhouwerstraat 6, Utrecht 3511ZC, Netherlands.

Email: [u.weske@uu.nl](mailto:u.weske@uu.nl)

external auditors with the opportunity to achieve compliance.<sup>8</sup>

Management-based regulation systems are a type of bureaucratic control system. Bureaucratic control systems emphasize the specification, monitoring, and enforcement of rules.<sup>13</sup> The widespread assumption is that such systems can contribute to performance. Based on motivation crowding theory, however, external interventions such as behavioral control systems can crowd out intrinsic motivation, thereby potentially lowering performance.<sup>14</sup> Research into performance measurement systems—measurement systems to collect, process, and analyze and report data on performance—in healthcare, for example, shows that unintended and dysfunctional consequences can arise,<sup>15</sup> ranging from a tunnel vision to gaming.<sup>16</sup> In short, control systems are increasingly used in healthcare and although they can contribute to an improvement of quality, they also run the risk of unintended consequences. As a result, Mannion and Braithwaite<sup>15</sup> argues that “ways should be found to avert or reduce potential, undesirable consequences.”

This study aims to answer this call by exploring whether different approaches to the enforcement of a rule-based system could mitigate some of the unintended outcomes of a rule-based system. A recent study into the enforcement styles of supervisors<sup>14</sup> indicates that, although behavior control systems can be externally demanded, supervisors can enforce rules in different ways: persuasion (based on dialog and suggestion) and punishment (based on the use of monitoring and threats of sanctions). This distinction is based on a broad distinction between two approaches to rule enforcement that originates from the regulatory enforcement literature.<sup>14,17–20</sup> More importantly, the results indicate that whereas a punishment style is related to lower motivation, a persuasive style is associated with higher intrinsic motivation.<sup>14</sup> These findings indicate that hospitals can use different approaches to rule enforcement and that these approaches are related to distinct outcomes.

Based on these promising findings, this study takes the two broad approaches—punishment and persuasion—to rule enforcement as a starting point to investigate whether these are related to physician compliance with quality and patient safety rules. Moreover, the role of different types of commitment to change is investigated to learn more about *how* enforcement styles are linked to compliance. We argue that it is important to include individual motives since these have been found to play an important role in explaining compliant behavior.<sup>21</sup> The following research question is central to this paper: which enforcement approach is related to compliant behavior of physicians and how can this relation be explained?

## Theory

### Enforcement approaches

In the enforcement literature, a distinction is made between two approaches to ensure compliance: punishment and persuasion.<sup>14,17–20</sup> These different enforcement approaches are viewed as a continuum rather than a dichotomy,<sup>14,19</sup> indicating that combinations of enforcement approaches exist in practice.

The punishment approach draws upon individuals' instrumental concerns and utility maximization goals. This perspective focuses on reaching compliance via incentives (to encourage desired behaviors) and sanctions (to discourage undesired behaviors). The punishment model is based on the view that individuals follow rules to reach the incentives or avoid the punishment used by the organization.<sup>22</sup> According to this approach, increased coercion leads to higher levels of compliance due to increased levels of fear. However, it has been argued that incentives are poorly suited for professionals since their behavior is more difficult to monitor and the provision of incentives to reinforce organizational incentives is problematic.<sup>23,24</sup> Moreover, as we have argued in the “Introduction” section, an approach that relies on incentives runs the risk of unintended consequences. Therefore, we expect that the effectiveness of the punishment approach in ensuring compliance of physicians is limited.

According to the persuasive approach, individuals can be intrinsically motivated to follow organizational rules out of their own desire, rather than to reach the incentives or punishments provided by the organization.<sup>22</sup> Such successful internalization of regulation depends on managers' capacity to engage in dialog with individuals about the content and importance of compliance systems.<sup>9</sup> The persuasive approach is more in line with “professional control.”<sup>25</sup> Desirable behavior is achieved by rules that focus on the individual's experiences and ideas, rather than on direct control of his or her behavior.<sup>25</sup> Therefore, we expect that a persuasive approach is more effective than a punishment approach in a hospital context.

Previous studies on the implementation of control systems<sup>26,27</sup> have noted that, even within the same organization, individuals can interpret interventions differently. These different perceptions have been found to lead to variations in reactions to these interventions.<sup>28,29</sup> As a result, this study focuses on perceptions of enforcement actions. This leads to the following hypotheses:

*H1: A perceived punishment approach has a positive relationship with compliance.*

*H2: The relationship of a perceived persuasive approach with compliance is stronger than the relationship of a perceived punishment approach with compliance.*

### Mediating link: Commitment to change

The punishment approach is a strategy of external regulation, because it depends on supervisors' ability to punish or reward behavior. The persuasive approach, in contrast, focuses on the activation of internal motivations.<sup>22</sup> This distinction is based on Kelman's<sup>30</sup> processes of attitude change.

In more recent organizational research, these processes of attitude change have been labeled commitment to change.<sup>31</sup> Commitment to change is defined as "a force (mind-set) that binds an individual to a course of action deemed necessary for the successful implementation of a change initiative."<sup>31</sup> The mind-set that binds an individual to this course of action can reflect

- (a) a desire to provide support for the change based on a belief in its inherent benefits (affective commitment), (b) a recognition that there are costs associated with failure to provide support for the change (continuance commitment to change), and (c) a sense of obligation to provide support for the change (normative commitment to change).<sup>32</sup>

When affectively committed, individuals *want* to support a change; when continuously committed, individuals feel that they *have* to support a change because there are no other alternatives than doing so; and when normatively committed, individuals support a change because they *ought* to.<sup>31</sup>

We expect that commitment to change is mediating the relation between the enforcement approaches and compliance in different ways. First, we expect that the effect of a perceived punishment approach on compliance is mediated by continuance commitment. The deterrence model behind the punishment approach is based on the assumption that increasing (threats of) punishment will increase compliance because individuals fear the consequences of noncompliance.<sup>33</sup> Similarly, in the commitment literature, it is hypothesized that rewards for compliance and punishments for noncompliance contribute to the development of continuance commitment because individuals perceive that there are no other alternatives than to be compliant.<sup>31,32</sup>

*H3: The relation between a perceived punishment approach and compliance is mediated by continuance commitment to change.*

Second, we expect that the relation of a perceived persuasive approach and compliance is mediated by affective and normative commitment to change. By increasing awareness of the importance of compliance systems, individuals become involved in and recognize the value of a course of action, leading to affective

commitment.<sup>31</sup> In addition, dialog about the importance of a compliance system can contribute to feelings of obligation to comply with such a system, and therefore to normative commitment.<sup>32</sup> This leads to the following hypothesis:

*H4: The relation between a perceived persuasive approach and compliance is mediated by affective and normative commitment to change.*

### Conceptual model

Based on the hypotheses we have formulated above, a conceptual model can be constructed (see Figure 1). This model shows both the direct paths from the enforcement approaches to compliance and the indirect paths through the different forms of commitment. Although the linkages in the model suggest effects of enforcement on compliance, it should be noted that additional causal directions are possible.<sup>34</sup> This is, for example, the case when individuals that are compliant have a more positive perception about the enforcement used due to post hoc justifications or are more committed in order to avoid cognitive dissonance.

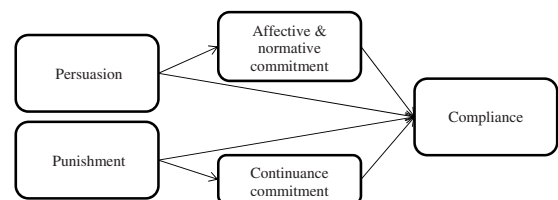
Similarly, it can be argued that the preexisting motivation determines which enforcement approach is valued, and therefore, most effective.<sup>4,35</sup>

## Method

### Setting of the study

We investigated the link between enforcement approaches and compliance in a Dutch academic medical center. Quality and safety of hospital care delivery are high on the agenda in the Netherlands and all hospitals are required to have an accredited safety management system.<sup>36</sup> Therefore, hospitals experience a substantial pressure to keep their accreditation in order to keep their "legal license." This pressure for accreditation and the resulting implementation efforts is found in many other European and North American countries.

The hospital is one of the eight academic medical centers of the Netherlands and provides highly specialized care to patients from the whole country.



**Figure 1.** Conceptual model.

The hospital has 12,000 employees and 1000 beds. The organizational structure can be characterized as a professional concern model, consisting of 12 divisions. These divisions are headed by division leaders (physicians) and function as independent decentralized parts with regard to content, organization, and budgets. Divisions consist of different medical departments, headed by medical managers.

One specific standard was used as a “vehicle” to measure the perceived enforcement approach, commitment, and compliance. Keeping the standard constant allowed us to focus on perceptions of enforcement actions. The standard we used for our data collection concerns the “most responsible physician policy.” Due to the increasing complexity of healthcare, which leads to the admittance of more complex patients that cannot be treated by one physician, the coordination between different care providers is increasingly important. To make this care coordination safe, each patient should have a most responsible physician who coordinates the care of a patient (this includes, for example, overseeing the totality of care provided) and is the central contact for the patient. This policy was chosen since the implementation of the most responsible physician policy played an important role in the hospitals’ quality and safety strategy. Moreover, there was a large emphasis within the organization on the implementation of this policy during the time of the data collection.

### Sample and design

Data for this study were collected using a digital survey distributed to all the medical specialists (N = 620) of the Academic Medical Center in 2015. Only medical specialists were included because these are the only physicians eligible to be most responsible physicians. Moreover, so-called supportive specialisms (including, e.g. clinical genetics, pathology, and radiotherapy) were not eligible to be most responsible physician. Since the policy for the most responsible physician is different for inpatients (admitted to the hospital) and outpatients (not admitted to the hospital), we decided to focus on inpatients only. The main reason for this is that the policy for outpatients is more complicated and might be less relevant, since the physicians do not see these patients on a regular basis. As a result of this focus, 155 medical specialists were excluded as potential respondents. Moreover, nine respondents were excluded because they indicated not working with inpatients at the moment of the survey (e.g. due to pregnancy leave). This leaves 456 potential respondents.

The survey was designed based on the theoretical concepts that were central to this study and, when available, validated measurement scales were used. The survey was designed in collaboration with the team responsible for

implementation of the policy (consisting of policy advisors and one physician) and was pretested with 10 medical specialists. After this pretest, an electronic version of the survey was administered to the medical specialists by the principal investigator and it was emphasized that this investigator was the only one that had access to the data. After a period of two weeks, respondents received a reminder.

### Measures

The *perceived enforcement approaches* were captured by means of a scale measuring different approaches to competency management by Heinsman et al.<sup>37</sup> The items were adapted to measure the perceived enforcement of the “most responsible physician” policy rather than approaches to competency management. The scale consisted of two dimensions (punishment and persuasion), with four items per dimension. Responses were assessed on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Factor analysis showed good results with loadings above .63 and Cronbach’s alpha coefficients were .76 (punishment) and .85 (persuasion) (see Table A1, Supplementary Appendix 1).

*Compliance* was measured by formulating items based on the goal of the most responsible physician policy. Five items that reflected the main behavioral goals of the policy were included. Medical specialists answered the question on how often they perform these tasks, from 1 (never) to 7 (always). EFA showed that the four items loaded onto one factor, with high loadings (above .765) and good Cronbach’s Alpha (.85) (see Table A2, Supplementary Appendix 1).

*Commitment* was measured with Herscovitch and Meyer’s<sup>31</sup> commitment to change scale. Eighteen items in total measured three dimensions of commitment to change: affective, normative, and continuance. EFA showed that the items of normative commitment did not clearly load onto one factor. This is in line with the observation that there remains some disagreement about whether affective and normative commitments are truly distinguishable.<sup>32</sup> As a result, normative commitment was excluded from the analyses. After removing the normative commitment items, two items of continuance commitment were loaded onto a third factor. After removing these items, two clear factors with high loadings and high alpha’s (affective: .939; continuance: .803) remained (see Table A3, Supplementary Appendix 1).

Since all measures are self-reported, we checked for common method bias using the Harman’s single factor method.<sup>38</sup> The first factor accounted for 31% of the variance, indicating that the common method bias does not affect the data.



### Statistical analyses

The relation between a perceived enforcement approach and compliance can be divided into direct and indirect components. The direct effect is the effect of enforcement approach on compliance and the indirect effect is the product of the effect of enforcement approach on commitment and the effect of commitment on compliance. Following Hayes,<sup>39</sup> we computed two models to estimate the direct and indirect effects of enforcement approach on behavior. The first model explains the effect of enforcement approach on commitment to change (path *a*) and the second model explains the effect of enforcement approach on behavior (path *c'*) and the effect of commitment to change on behavior (path *b*). To estimate the inferential test for the indirect effect, we used a bias-corrected bootstrap confidence interval with 10,000 bootstrap estimates. All analyses were done in SPSS 22.0 and the bootstrap confidence intervals were calculated using PROCESS (<http://processmacro.org/index.html>), an add-on for SPSS developed by Hayes for path analysis-based mediation. In line with the hypotheses we formulated, all of the above analyses were done twice: first for the “model” of punishment and second for the “model” of persuasion.

### Results

A total of 92 surveys were returned, resulting in a response rate of 20.2%. Taking into account that

**Table 1.** Overview of representativeness.

Division	Surveys sent	Percent of population	Surveys returned	Percent of sample
Heart and lungs	42	9.21	7	7.61
Surgical specialisms	83	18.20	21	22.83
Brain	56	14.04	11	11.96
Internal medicine and dermatology	64	14.04	15	16.30
Children	69	15.13	14	15.22
Vital functions	57	12.5	8	8.70
Woman and baby	41	8.99	8	8.70
Cancer center	44	9.65	8	8.70

medical specialists are a very difficult group to reach by surveys,<sup>40</sup> we consider this a sufficient response rate. The respondents come from all eight divisions that provide medical care to admitted patients, and from 28 different specialisms and 47 different medical departments. To check whether the data are representative for all medical specialists in the research organization, the distribution of respondents across divisions is compared between the population and the sample (see Table 1). This comparison shows that physicians from four divisions (heart and lungs, brain, vital functions, and the cancer center) are underrepresented, while respondents from two divisions (surgical specialisms, and internal medicine and dermatology) are overrepresented. Therefore, the sample is not fully representative. To test whether respondents from different divisions scored significantly different on the key variables included in this study, we used ANOVA tests. These tests showed no significant differences between respondents from all the divisions on the variables included in this study, indicating that the response bias might play a limited role.

Descriptive statistics are presented in Table 2. Overall, the respondents perceived an emphasis on punishment, they indicate that they often are compliant with the regulation and have a higher level of affective commitment than continuance commitment. The correlations indicate that only persuasion and affective commitment are related to each other and to compliance. No significant correlations were found between a punishment approach, continuance commitment, and compliance, indicating that these variables are not related. Furthermore, the results show that both enforcement approaches show a positive correlation and both types of commitment are negatively correlated.

As explained in the “Method” section, we computed two separate mediation analyses to investigate the associations of the perceived punishment and persuasion approaches, respectively. First, we computed the regression analyses for the direct and indirect effect of a perceived punishment approach on compliance. However, the results from both F-tests were not significant, meaning that the models contained no statistically significant

**Table 2.** Descriptive statistics and correlations.

	Mean (SD)	1	2	3	4
1. Compliance	5.89 (1.06)				
2. Affective commitment	5.84 (1.32)	.296**			
3. Continuance commitment	3.12 (1.57)	-.130	-.285**		
4. Persuasion	3.63 (1.60)	.289**	.430***	-.154	
5. Punishment	4.21 (1.58)	.033	.127	.162	.470***

Note: \*\* $p < .01$ , \*\*\* $p < .001$ .

results (see Table 3). This is in line with the nonsignificant correlations between perceived punishment, continuance commitment, and compliance.

Second, we computed the regression analyses for the direct and indirect effect of a perceived persuasive approach on compliance (see Table 4). The direct effect of perceived persuasion ( $c'$ ) is .041. However, this direct effect is not statistically different from zero,  $t = .835$ ,  $p = .406$ , with a 95% confidence interval from  $-.056$  to  $.138$ .

Next, the indirect association of perceived persuasion and compliance was computed. For the respondents included in our study, a perceived persuasive approach was significantly related to affective commitment ( $\beta = .372$ ,  $p < .001$ ) and affective commitment was significantly related to compliance ( $\beta = .273$ ,  $p < .001$ ). Based on these results, the total indirect effect is calculated by multiplying the effect of perceived persuasion on affective commitment (path  $a$ ) and the effect of affective commitment on compliance (path  $b$ ):  $ab = .372(.273) = .102$ . This indirect effect is statistically different from zero, as revealed by a 95% BC bootstrap confidence interval that is entirely above zero ( $.044-.191$ ). This indirect effect of .102 means that, for our sample, physicians who differ by one unit of perceived persuasion are estimated to differ by 0.102 units in their reported compliance as a result of the tendency for those perceiving more persuasion to have a higher affective commitment (because  $a$  is positive), which in turn translates into greater compliance (because  $b$  is positive).

To summarize, in our sample, we did not find any direct effects of either a perceived punishment or persuasive approach (disconfirming hypotheses 1 and 2). With regards to the indirect effects, continuance commitment was not found to mediate the relation between a perceived punishment approach and compliance (disconfirming hypothesis 3), while affective commitment was found to mediate the relation between a perceived persuasion approach and compliance (confirming hypothesis 4).

## Discussion

The findings of this study indicate that the physicians included in our study perceive different enforcement approaches. Only a perceived persuasive approach is indirectly associated with higher levels of compliance via affective commitment. No such relation was found for perceived punishment and compliance; neither direct nor via continuance commitment. Our findings imply that the implementation of the same system can be perceived differently. This finding is in line with previous studies that have found that the same command system can be perceived differently.<sup>26,27</sup> Whereas some physicians in our sample perceive higher levels of punishment—supporting Waring's<sup>41,42</sup> argument that protocols and guidelines can be experienced as a threat to professional authority—other physicians perceive persuasive enforcement. The finding that a behavioral control system can be perceived in different ways implies

**Table 3.** Regression analyses for the punishment approach.

	Continuance commitment			Compliance		
	Coeff.	SE	$p$	Coeff.	SE	$p$
Punishment	.166	.107		.046	.064	
Continuance commitment	—	—	—	-.123	.062	*
Constant	2.542	.482	***	6.160	.324	***
	$R^2 = .03$			$R^2 = .04$		
	$F = 2.41$			$F = 2.06$		

Note: \* $p < .05$ , \*\*\* $p < .001$ .

**Table 4.** Regression analyses for the persuasive approach.

	Affective commitment			Compliance		
	Coeff.	SE	$p$	Coeff.	SE	$p$
Persuasion	.372	.082	***	.041	.049	
Affective commitment	—	—	—	.273	.056	***
Constant	4.367	.323	***	4.321	.301	***
	$R^2 = .19$			$R^2 = .27$		
	$F = 20.85$ ***			$F = 16.94$ ***		

Note: \*\*\* $p < .001$ .

that the implementation of rule-based systems does not automatically lead to negative outcomes, such as lower motivation and gaming. Rather, it depends on *the way* in which physicians perceive the enforcement of such a control system. Since the results of this study are promising, we suggest that future research investigates how different perceptions of enforcement arise. Previous studies indicate that management roles and individual differences play a role in shaping perception.<sup>27,28</sup> Interesting starting points for future research could therefore be the role of physicians' professional orientation<sup>23</sup>—the extent to which a physician is oriented toward the profession or toward the values or norms of the organization—or the role of attitudes and actions of medical leaders.<sup>43</sup>

The link between perceived persuasion and compliance that we found in our sample is in line with the general view that persuasive styles are more promising means to reach compliance,<sup>22,44</sup> especially in a professional context. Moreover, the results indicate that affective commitment is an important explanatory factor in understanding how a persuasive approach contributes to compliance. The finding that—for the physicians included in our study—affective commitment contributes to explaining the link between a perceived persuasive approach and compliance is in line with previous research showing links between a persuasive approach and increased intrinsic motivation (a motivational state comparable to affective commitment).<sup>12,14</sup> Our findings indicate that a perceived persuasive approach to rule enforcement makes it possible to nurture the affective commitment of physicians.<sup>35</sup>

Although the nonfinding regarding the punishment approach confirms our expectation that such an approach has a lower association with compliance, we did not expect to find no relation at all. This finding could be explained by the possibility of sample bias. However, this effect is probably limited since no significant differences were found between respondents from different divisions on the variables of interest for this study. The nonsignificant effect could also be the result of contextual factors in the research organization. The hospital, for example, monitors whether a most responsible physician is registered in the patient file—possibly leading to perceptions of coercion—but the action following the measurement has to be taken by different actors (e.g. the medical department head). This could lead to “incomplete” punishment actions. This effect is probably limited, however, since the factor and reliability analysis of the measurement scales indicate that these scales are satisfactory.

Moreover, the findings in our particular sample can be explained by insights from other bodies of literature. The absence of any association of perceived punishment actions with compliance can be explained by the fact that punishment actions are more difficult to use in a

context with medical professionals since their actions are more difficult to monitor and applying sanctions can be more complex.<sup>45</sup> Moreover, in the literature on the sociology of professions, it has been shown that professionals can resist managerial “intrusions.”<sup>42,46–48</sup> Whereas medical professionals may perceive a high level of punishment, they have possibilities for noncompliance due to autonomous working practices of professional groups. Moreover, our results could also be the result of physicians (included in our study) not being willing to present themselves as being forced to comply with a punishment system.

These insights could also explain why we did not find a significant relation between perceived punishment actions and continuance commitment in our sample. Due to the difficulty of monitoring professionals and applying sanctions and the possibility professionals have to resist managerial control, it is unlikely that professionals feel that there are no other options than complying with procedures and guidelines. An additional explanation is provided by the observation that people have different ways of responding to incentives and that the resulting behavior is influenced by the social context.<sup>49</sup> This indicates, for example, that individuals have rational incentives to be compliant with a rule, but they choose not to comply because compliance is not in line with their own or the patient's long-term interest. In addition, collective concerns can also play a role in the social context. It can be expected that these collective concerns—for example from professional peers—are particularly influential in a medical context. As a result, physicians reply to their peers rather than to organizational incentives.

For practice, our results suggest that hospitals should be aware of the fact that a rule-based system can be perceived differently and only persuasive perceptions are (indirectly) related to increased levels of compliance. This implies that hospitals should aim to take actions that lead to increased levels of perceived persuasion. Based on the insights from literature on the sociology of professions, these persuasive perceptions might be more likely when physicians do not perceive safety protocols and guidelines as a threat to their professional authority and autonomy. One way to increase persuasive perceptions might be the wide participation of physicians and their medical leaders in shaping the accreditation system and the protocols and guidelines it encompasses. The difficulty of doing so, however, is that it might be more difficult to provide a coherent and comprehensible account of performance for the accreditation agency.<sup>9</sup> Additionally, medical leaders could play an important role by engaging in dialog with the medical professionals regarding the content and benefits of an accreditation program.<sup>9</sup> Since leaders do not take such actions automatically, hospitals could

pay more attention to ensuring that medical leaders themselves have positive attitudes and take actions to engage the medical professionals.

This study also has some limitations. First, we employed a cross-sectional survey, which means we can only investigate associations rather than causal effects of enforcement approach on compliance. This means that the possibility of reversed causality (e.g. preexisting affective commitment leading to perceptions of persuasive enforcement actions, rather than persuasive enforcement actions leading to an increase in affective commitment) cannot be excluded. Determining causality in a mediation model would have needed at least three measurement moments. However, investigating one policy in one hospital with three measurement moments would have practically been impossible since the number of respondents would have been too low. Moreover, based on previous studies within the field of enforcement,<sup>34</sup> it is likely that the causal relationships between the concepts central to this study are multidirectional and complex. Therefore, our suggestion for future research is using research methods that allow determining the different possible causal directions rather than associations. Second, all data were self-reported. However, using the same respondents seemed the best option since the “objective” data available only showed whether physicians “ticked the box” of registering the most responsible physician in the patient file. This does not say anything about their actual compliance. Moreover, using ratings of others also has its shortcomings. When patients are asked for their perception of the behavior of their most responsible physician, they could underrate the behavior, for example when they do not recognize it. Therefore, although measuring compliance with self-rated surveys is not ideal, it is in line with the most used methods in enforcement research.<sup>50</sup> Third, we have used one specific policy to investigate the association of enforcement approach with compliance. Although this allowed us to investigate the specific perceptions and attitudes toward one policy that was implemented, this could also have influenced our results. For example, commitment and compliance are probably determined partly by the content of the policy itself. However, we believe these possible limitations are outweighed by the benefits of having a policy that was currently implemented and—as a result—also perceived to be implemented by physicians. Fourth, the sample was not representative for all physicians working in the research organization, potentially leading to a nonresponse bias.<sup>51</sup> One explanation would be that physicians working in divisions where the issue of most responsible physician is more salient (such as with complex patients from the internal medicine department) are more inclined to participate in the survey. This nonresponse bias could pose a threat to the generalizability of the

results of this study. However, the nonsignificant ANOVA tests on the key variables included in this study indicate that the nonresponse bias is probably limited.

To conclude, this study looked into the effectiveness of different enforcement approaches in reaching compliance with organizational policies that are part of a management-based regulation system. Based on a sample of physicians working in one hospital, the findings indicate that the same rule-based system can be perceived in different ways and that only a perceived persuasive approach is related to higher levels of affective commitment and compliance. These results indicate that behavior control systems do not always have unintended consequences, depending on how the enforcement of rules is perceived.

### Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### ORCID iD

Ulrike Weske  <http://orcid.org/0000-0003-3576-4273>

### Supplemental Material

Supplemental material for this article is available online.

### References

1. Walshe K and Shortell S. Social regulation of healthcare organizations in the United States: developing a framework for evaluation. *Health Serv Manage Res* 2004; 17: 79–99.
2. Greenfield D and Braithwaite J. Health sector accreditation research: a systematic review. *Int J Qual Heal Care* 2008; 20: 172–183.
3. Pomey M-P, et al. Does accreditation stimulate change? A study of the impact of the accreditation process on Canadian healthcare organizations. *Implement Sci* 2010; 5: 1–14.
4. Kagan RA, Gunningham N and Thornton D. Fear, duty, and regulatory compliance: lessons from three research projects. In: Parker C and Nielsen VL (eds) *Explaining compliance: business responses to regulation*. Cheltenham: Edward Elgar, 2011, pp.37–58.
5. Hinchcliff R, et al. Narrative synthesis of health service accreditation literature. *BMJ Qual Saf* 2012; 21: 979–992.
6. Saltman RB, Busse R and Mossialos E. *Regulating entrepreneurial behavior in European health care systems*. Buckingham: Open University Press, 2002.



7. Shaw CD, Kutryba B, Braithwaite J, et al. Sustainable healthcare accreditation: messages from Europe in 2009. *Int J Qual Heal Care* 2010; 22: 341–350.
8. Huising R and Silbey SS. Governing the gap: forging safe science through relational regulation. *Regul Gov* 2011; 5: 14–42.
9. Parker C and Gilad S. Internal corporate compliance management systems: structure, culture and agency. In: Parker C and Nielsen VL (eds) *Explaining compliance: business responses to regulation*. Cheltenham: Edward Elgar, 2011, pp.170–195.
10. Coglianese C and Lazer D. Management-based regulation: prescribing private management to achieve public goals. *Law Soc Rev* 2003; 37: 691–730.
11. Gunningham N and Sinclair D. Organizational trust and the limits of management-based regulation. *Law Soc Rev* 2009; 43: 865–900.
12. Gilad S. Institutionalizing fairness in financial markets: mission impossible? *Regul Gov* 2011; 5: 309–332.
13. Sitkin SB, Cardinal LB and Bijlsma-Frankema KM. *Organizational control*. Cambridge: Cambridge University Press, 2010.
14. Mikkelsen M, Jacobsen CB and Andersen LB. Managing employee motivation: exploring the connections between managers' enforcement actions, employee perceptions, and employee intrinsic motivation. *Int Public Manag J* 2017; 20: 183–205.
15. Mannion R and Braithwaite J. Unintended consequences of performance measurement in healthcare: 20 salutary lessons from the English National Health Service. *Intern Med J* 2012; 20: 569–574.
16. Bevan G and Hood C. What's measured is what matters: targets and gaming in the English public health care system. *Public Adm* 2006; 84: 517–538.
17. Braithwaite J. To punish or persuade: enforcement of coal mine safety. Albany: State University of New York Press, 1985, p.206.
18. Gormley WT. Regulatory enforcement styles. *Polit Res Q* 1998; 51: 363–383.
19. Mascini P and Van Wijk E. Responsive regulation at the Dutch food and consumer product safety authority: an empirical assessment of assumptions underlying the theory. *Regul Gov* 2009; 3: 27–47.
20. Shover N, Lynxwiler J, Groce S, et al. Regional variation in regulatory law enforcement: The Surface Mining Control and Reclamation Act of 1977. In: Hawkins K and Thomas J (eds) *Enforcing regulation*. Boston: Kluwer-Nijhoff, 1984, pp.121–145.
21. Hutter BM. Negotiating social, economic and political environments: compliance with regulation within and beyond the state. In: Parker C and Nielsen VL (eds) *Explaining compliance: business responses to regulation*. Cheltenham: Edward Elgar, 2011, pp.305–321.
22. Tyler TR. The psychology of self-regulation: normative motivations for compliance. In: Parker C and Nielsen VL (eds) *Explaining compliance: business responses to regulation*. Cheltenham: Edward Elgar, 2011, pp.78–99.
23. Abernethy MA and Stoelwinder JU. The role of professional control in the management of complex organizations. *Accounting Organ Soc* 1995; 20: 1–17.
24. Merchant KA and Van der Stede W. *Management control systems: performance management, evaluation and incentives*. Essex: Pearson Education, 2012.
25. Kärreman D, Svenningsson S and Alvesson M. The return of the machine bureaucracy? Management control in the work settings of professionals. *Int Stud Manag Org* 2002; 32: 70–92.
26. Jacobsen CB, Hvitved J and Andersen LB. Command and motivation: how the perception of external interventions relates to intrinsic motivation and public service motivation. *Public Admin* 2014; 92: 790–806.
27. Jacobsen CB and Andersen LB. Performance management for academic researchers: how publication command systems affect individual behavior. *Rev Public Pers Adm* 2014; 34: 84–107.
28. Wright PM and Nishii LH. Strategic HRM and organizational behaviour: integrating multiple levels of analysis. In: Paauwe J, Guest DE and Wright PM (eds) *HRM & performance: achievements & challenges*. Chichester: Wiley, 2013, pp.97–110.
29. Nishii LH, Lepak DP and Schneider B. Employee attributions of the 'why' of HR practices: their effects on employee attitudes and behaviors, and customer satisfaction. *Pers Psychol* 2008; 61: 503–545.
30. Kelman HC. Compliance, identification, and internalization. Three processes of attitude change. *Confl Resolut* 1958; 2: 51–60.
31. Herscovitch L and Meyer JP. Commitment to organizational change: extension of a three-component model. *J Appl Psychol* 2002; 87: 474–487.
32. Meyer JP and Herscovitch L. Commitment in the workplace: toward a general model. *Hum Resour Manag Rev* 2001; 11: 299–326.
33. May PJ. Regulation and compliance motivations: examining different approaches. *Public Adm Rev* 2005; 65: 31–44.
34. Parker C and Nielsen VL. Introduction. In: Parker C and Nielsen VL (eds) *Explaining compliance: business responses to regulation*. Cheltenham: Edward Elgar, 2011, pp.1–33.
35. Mannion R, Goddard M and Bate A. Aligning incentives and motivations in health care: the case of earned autonomy. *Financial Acc Man* 2007; 23: 401–420.
36. Duckers M, Makai P, Vos L, et al. Longitudinal analysis on the development of hospital quality management systems in the Netherlands. *Int J Qual Health Care* 2009; 21: 330–340.
37. Heinsman H, Hoogh AHB, de Koopman PL, et al. Commitment, control, and the use of competency management. *Pers Rev* 2008; 37: 609–628.
38. Podsakoff PM, MacKenzie SB, Lee J-Y, et al. Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J Appl Psychol* 2003; 88: 879–903.
39. Hayes AF. *Introduction to mediation, moderation, and conditional process analysis: a regression-based approach*. New York: The Guilford Press, 2013.

40. Cook JV, Dickinson HO and Eccles MP. Response rates in postal surveys of healthcare professionals between 1996 and 2005: an observational study. *BMC Health Serv Res* 2009; 9: 160.
41. Waring JJ. Patient safety: new directions in the management of health service quality. *Policy Polit* 2005; 33: 675–692.
42. Waring J. Adaptive regulation or governmentality: patient safety and the changing regulation of medicine. *Sociol Heal Illn* 2007; 29: 163–179.
43. Witman Y, Smid GAC, Meurs PL, et al. Doctor in the lead: balancing between two worlds. ■ 2010; 18: 477–495.
44. May PJ and Winter SC. Regulatory enforcement and compliance: examining Danish agro-environmental policy. *J Pol Anal Manage* 1999; 18: 625–651.
45. Glouberman S and Mintzberg H. Managing the care of health and the cure of disease – part I: differentiation. *Health Care Manage Rev* 2001; 26: 56–69.
46. Waring J and Currie G. Managing expert knowledge: organizational challenges and managerial futures for the UK medical profession. *Organ Stud* 2009; 30: 755–778.
47. Noordegraaf M. Reconfiguring professional work. *Adm Soc* 2016; 48: 783–810.
48. Currie G, Lockett A, Finn R, et al. Institutional work to maintain professional power: recreating the model of medical professionalism. *Organ Stud* 2012; 33: 937–962.
49. Taylor-Gooby P. Choice and values: individualised rational action and social goals. *J Soc Policy* 2008; 37: 167–185.
50. May PJ and Winter SC. Regulatory enforcement styles and compliance. In: Parker C and Nielsen VL (eds) *Explaining regulatory compliance: business responses to regulation*. Cheltenham: Edward Elgar Publishing, 2011, pp.222–244.
51. Baruch Y and Holtom BC. Survey response rate levels and trends in organizational research. *Hum Relations* 2008; 61: 1139–1160.