Qualitative evaluation of a narrative reflection program to help medical trainees recognize and avoid overuse: “Am I doing what’s right for the patient?”

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ABSTRACT

Objective: The Do No Harm Project is a novel reflective writing program that encourages medical trainees to reflect on and write up clinical narratives about instances of avoidable medical overuse. Our goal is to describe this program and to explore the effect of the program on those participating.

Methods: Semi-structured interviews were conducted to explore how participating in the project influenced the thinking, attitudes, and behaviors of participating internal medicine residents. Interviews were conducted with 20 out of the 24 participants from the first 15 months of the program.

Results: The following themes emerged from our analysis: 1) learning through reflection (with three sub-themes: empathy for the patient perspective, a critical approach to one’s own clinical practice, and awareness of the problem of overuse); 2) empowerment to discuss instances of overuse and act before it occurs; and 3) perceptions of enhanced evidence-based practice and shared decision-making.

Conclusion: Trainees volunteering to complete a reflective writing exercise perceived improved ability to avoid overuse and improved self-efficacy to change clinical behaviors that do not align with optimal patient care.

Practice implications: Reflective writing may help trainees recognize and avoid medical overuse.

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1. Introduction

Medical overuse – the provision of care where benefits do not outweigh risks – is common [1] and can lead to patient harm [2]. In addition to avoiding underuse of beneficial services, avoidance of overuse is a prerequisite for achieving high value care [3]. However, recognizing overuse at the point-of-care is challenging [4].

In 2011, Weinberger proposed high value care – “the best care for the patient, with the optimal result for the circumstances, delivered at the right price” – as a critical competency for physicians. Yet, the most effective methods for imparting these skills has not been clear [5,6]. While medical educators are increasingly aware that trainees must assess the appropriateness of medical interventions, existing curricula on teaching high value care are not viewed as adequate [7]. A recent systematic review pointed to important ways educational programs can convey high value care principles to learners. Key among them is establishing a supportive environment that encourages reflective practice and critical examination of clinical decisions and their impact on patient care [8]. Though a growing literature supports the idea that self-reflection is a powerful tool to enhance recognition and understanding of complex issues, we are not aware of a program using self-reflection as a tool to educate trainees about identifying and avoiding medical overuse [9].

To improve the prospective recognition of medical overuse among medical trainees, a novel reflective writing program was developed and implemented in 2012 at the University of Colorado School of Medicine [10,11]. This paper describes the writing program and explores how participating in the project influenced the thinking, attitudes, and behaviors of internal medicine residents who completed a vignette during its first year. We hypothesized that the program would increase perceived
awareness about the problem of overuse and promote self-reflection about how to avoid overuse in the future.

2. Methods

The Do No Harm Project encourages internal medicine housestaff (post graduate training years 1–3) to write up clinical vignettes describing instances of potentially avoidable tests or treatments that led to harm in patients they cared for previously. Additionally, trainees are asked to consider the many conscious and unconscious drivers of overuse such as fee for service, gaps in knowledge and/or evidence, fear of litigation, local practice culture, and cognitive biases. Rather than reviewing instances of misuse or malpractice as might be the case in morbidity and mortality conferences or patient safety curricula, the Do No Harm Project requires trainees to focus explicitly (and non-judgmentally) on common practices that seem reasonable but are nevertheless avoidable on the basis of clinical evidence or patient preference. Participants then reflect on the strength and quality of the evidence that informs how to overcome these drivers and provide better care in the future.

The program was introduced in the fall of 2012 as a voluntary opportunity during a month-long outpatient rotation. Clinical faculty were reminded of the program’s goals during a monthly orientation session at the beginning of the rotation and were encouraged to point out instances of overuse to trainees as they arose during clinical encounters. To provide time for reflection, a single writing day – free of clinical duties – was approved by residency program leadership for those who volunteered to participate.

Fig. 1 outlines key aspects of the program. During a brief presentation near the beginning of the rotation, residents and faculty were introduced to the concept of overuse and asked to reflect on patients they cared for in the past who had been harmed or nearly harmed by medical overuse. Interested residents were invited to send a brief summary of an instance of overuse to the local project champions (BC or TC). Appropriate cases depicting an example of overuse were approved for a writing day, arranged by the Chief Medical Resident. Residents were encouraged to involve faculty to help with the writing process—ideally an attending physician personally involved with the case. Participants received guidance from the local project champions throughout the writing process. This included direction to supporting evidence and other readings, critical revisions of vignettes, and encouragement to submit their vignette to professional conferences and peer reviewed medical journals. In addition, a web-page describing the project was added to the local internal medicine residency program’s website. This allowed us to not only provide an overview of the goals, details, and process of participating in the project, but also to easily point to additional relevant readings and resources for interested trainees. Residents were encouraged to explore and discuss issues related to the topic of overuse and preference-sensitive care to as great an extent as they desired. On the other hand, formal didactics, such as training in recognition of medical overuse, were not provided apart from the specific examples shared during the orientation sessions. Also, we did not attempt to standardize feedback that the participating residents received from clinical faculty during the project. Feedback from the project leadership was individualized to the desires of each resident. The voluntary and flexible nature of the program was a key feature of the program’s design. All vignettes are de-identified and posted online for review by peers.

2.1. Study sample and design

Semi-structured interviews were used to explore the question: In what ways might participating in the project influence the thinking, attitudes, and behaviors of the participants? All residents who completed a narrative were eligible to participate. All eligible residents (n = 24) received a standardized recruitment letter electronically. Interviews were scheduled as residents responded to the letter. Residents were interviewed on an ongoing basis until data saturation was achieved. This study was approved by the IRB.

![Fig. 1. Structure of the Do No Harm Project.](image-url)
at the University of Colorado as an exempt protocol and all participants provided verbal consent prior to the interview.

2.2. Data collection

Interviews were conducted from November 2013 to April 2014 by one of the authors, (JT) who had experience with qualitative research but had not been involved in development of the program and was not in a position to create a power differential with interviewees.

The interview guide was developed by the study team (BC and TC) and revised through discussions with the project mentor (DM), all of whom are primary care physicians with both clinical and research expertise on the topic of overuse. In developing the interview guide, we also utilized a previously developed conceptual framework that borrows from the theory of planned behavior to understand overuse and how it might be reduced [12]. Pilot testing of the interview guide was conducted with the first two participants and then further revised after team discussion. Interviews were conducted face-to-face when possible and by phone when necessary. The interviews took an average of 25 min to complete (range 13–52 min) and were audiotaped. The interview guide focused on three main areas – decision to participate in the project, process of participation, and effect of participation – and used open-ended questions and prompts to elicit participant views.

We performed a thematic analysis [13] using a hybrid inductive/deductive approach where we had initial domains we were exploring in the data but also allowed new themes to emerge [14]. After each interview, the interviewer (JT) would listen to the audio recording and write a detailed summary of each question asked; a summary spreadsheet was used and organized by interview question. The summaries focused on capturing the major points of participants’ responses, along with representative direct quotations. A team-based approach was employed whereby another member of the team (BC) listened to each of the interviews and verified initial summaries. In addition, all authors read the de-identified summaries to determine that important information was captured and to identify areas in need of further probing in subsequent interviews. The team met after every 2 to 4 interviews to go over the summaries as a group and identify emerging themes; each meeting resulted in reaching consensus on identified themes and their meanings [15]. Subsequent combined summaries were written based on team discussion, laying out the specific themes, listing the data in support of the themes, and identifying representative quotations. Participants were interviewed consecutively until data saturation was achieved. The team determined data saturation was reached when additional interview data yielded no new patterns or themes. Once all interviews were completed, several longer team meetings occurred to finalize theme categories and count the number of occurrences of each theme across and within interviews. A spreadsheet of concepts, themes, occurrences, and direct quotations was created. To ensure rigor, detailed notes were maintained throughout the process of the decisions made as a team regarding themes [16]. This process of iterative questioning, probing, and frequent meetings was designed to maximize credibility of the findings [17]. Although illustrative quotes have been edited for ease of reading, no substantive changes have been made.

3. Results

Fifteen months after the program was initiated, 32 internal medicine residents had volunteered to participate. Of these, 8 did not complete a final draft and were not approached for interviews. Data saturation was achieved after we interviewed 20 (83%) of the 24 residents agreeing to participate in the study. Table 1 presents characteristics of the interviews and 20 study participants. Eight of the 20 participants were female (40%), 3 had published their vignette in a journal, and most interviews were completed in-person (70%).

Overall, most residents voiced that their participation in the Do No Harm Project had a positive influence. However, one resident noted that the project had only minimal effect:

“To be honest, not a great deal. Over-diagnosis and overtreatment was something I’d thought about kind of well in advance of this project, and so it wasn’t really some revelation. Certainly not in a negative way but neither in really a positive one either.”

On the other hand, a different resident believed that the experience had a substantial effect on clinical decision-making and her interactions with colleagues and patients:

“For me, it was just a very valuable experience, and I think that it would be for most people. So I think that it’s something that we should encourage as many people to get involved in as possible, because I think that it does change the way that you think about the practice of medicine and your own personal tendencies and your interactions with your patients and colleagues. And I think it can be a really powerful driver of culture change.”

Our analysis revealed that participation in the program was associated with the following three themes: 1) learning through reflection, which contained 3 sub-themes: a. empathy for the patient perspective, b. a critical approach to one’s own clinical practice, and c. awareness of the problem of overuse; 2) empowerment to discuss instances of overuse and act before it occurs; and 3) perceptions of enhanced evidence-based practice and shared decision-making. We describe each theme in more detail below.

3.1. Learning through reflection (sub-themes: empathy for the patient perspective: a critical approach to one’s own clinical practice; and awareness of the problem of overuse)

Many residents mentioned the opportunity to reflect more deeply about patient care in a particular case:

Table 1
Do No Harm Project participant characteristics and interview characteristics.

<table>
<thead>
<tr>
<th>Study Participant Characteristics (n = 20)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years, median (range)</td>
<td>29.5 (27–36)</td>
</tr>
<tr>
<td>Female</td>
<td>8 (40%)</td>
</tr>
<tr>
<td>Advanced degree other than MD</td>
<td>2 (10%)</td>
</tr>
<tr>
<td>Position at time of interview</td>
<td></td>
</tr>
<tr>
<td>1st year resident</td>
<td>2 (10%)</td>
</tr>
<tr>
<td>2nd year resident</td>
<td>5 (25%)</td>
</tr>
<tr>
<td>3rd year resident</td>
<td>8 (40%)</td>
</tr>
<tr>
<td>Chief medical resident</td>
<td>2 (10%)</td>
</tr>
<tr>
<td>Fellow</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Hospitalist</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Practicing outpatient primary care</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Future area of interest for current residents (n = 17)</td>
<td></td>
</tr>
<tr>
<td>Hospitalist</td>
<td>5 (29%)</td>
</tr>
<tr>
<td>Geriatrics</td>
<td>4 (24%)</td>
</tr>
<tr>
<td>Primary Care</td>
<td>4 (24%)</td>
</tr>
<tr>
<td>Specialty</td>
<td>3 (17%)</td>
</tr>
<tr>
<td>Unsure</td>
<td>1 (6%)</td>
</tr>
<tr>
<td>Published vignette</td>
<td>3 (15%)</td>
</tr>
<tr>
<td>Poster presentation of vignette</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Written more than one vignette</td>
<td>3 (15%)</td>
</tr>
<tr>
<td>Interview Characteristics</td>
<td></td>
</tr>
<tr>
<td>Interview Setting</td>
<td></td>
</tr>
<tr>
<td>In-person</td>
<td>14 (70%)</td>
</tr>
<tr>
<td>Telephone</td>
<td>6 (30%)</td>
</tr>
<tr>
<td>Interview length in minutes, mean (range)</td>
<td>24.5 (13–52)</td>
</tr>
</tbody>
</table>
“I think it’s good for physicians to reflect on what we’re doing. And I think this kind of project was something that allowed you to really take an example of a patient that you particularly knew well and worked on, and kind of reflect on how their care went.”

Some said the type of self-reflection prompted by the Do No Harm project promoted empathy. For example, one resident voiced:

“... it helps you see the humanity rather than just another scholarly project.”

Similarly, many noted that participation prompted them to consider their own practice in terms of how it might be improved to align with optimal patient care:

“It’s a nice way to reflect on your clinical practice... Am I doing what’s right for the patient?... Looking introspectively, see how you can better yourself... bettering yourself by helping the patient.”

Many residents noticed that reflecting on and writing up a vignette made them more aware of overuse:

“It’s made me a little more aware of overuse of healthcare resources in general and kind of keep an eye out for it more than I did before... I think that will play a pretty big role in being able to look at each case critically and think ‘is this really necessary, is this really in the patient’s best interest?’”

3.2. Empowerment to discuss instances of overuse and act before it occurs

Beyond awareness and critical thinking, many noted that participation in the program empowered them to discuss instances of overuse with colleagues and to act on potential overuse in the future:

“I think knowing that there is some data out there that demonstrates that there’s harms... that there’s actually numbers that have been published, that makes it a little bit easier to stand up for a position that may be not as popular among the medical professionals, in terms of doing everything possible for patients... that sort of gives you some ammunition.”

3.3. Perceptions of enhanced evidence-based practice and shared decision-making

Residents expressed that participation encouraged behavior changes related to patient care. For instance, some noted efforts to increase shared decision-making:

“It’s definitely made me more cognizant of how important it is to have patient centered medicine. To actually involve them in the discussion.”

“Assessing patient preferences is a higher priority than it had been in the past.”

Others described changes related to aspects of evidence-based practice, where quantifying the degree of benefits and harms of an interventions is required for optimal decision-making, in order to fully consider important trade-offs:

“Though I know what the guidelines are, it made me think about where the guidelines come from, analyzing the individual studies on my own rather than just taking the guidelines at face value.”

“When I’m admitting a patient or doing clinical work, it’s kind of affected my thought process to where I think a little bit more about ‘do I really need to get this test?’, ‘will it really change management?’, ‘could it potentially be harmful to the patient?’”

3.4. Promotion of scholarly activity

In addition to the themes mentioned, the project has promoted significant scholarship: to date, 110 trainees from the University of Colorado have submitted vignettes, 12 of which have been published in a peer-reviewed journal [18–27]. Vignettes have often reported on low value testing leading to disease labeling and overdiagnosis. Frequently, overdiagnosis in these cases resulted in interventions such as the prescription of medication or the pursuit of incidental findings with invasive procedures which led to patient harm. A full list of all vignettes written to date can be found on the Do No Harm Project website [10].

4. Discussion and conclusions

4.1. Discussion

Using semi-structured interviews, we explored how, if at all, participating in a novel reflective writing program focused on overuse could influence the thinking, attitudes, and self-perceived behaviors of participating residents. Residents reported that the process of writing up a vignette that focuses on patient-centered aspects of overuse and examines the evidence supporting the case for overuse influenced them in the following ways: promoting critical self-reflection on the topic of overuse; empowering them to identify, discuss and avoid overuse; and creating a desire to improve their own clinical practices. Notably, even though this intervention focused on harms from overuse, no residents mentioned that the project promoted doing less. Rather, residents consistently expressed that participation in the program encouraged thinking more about their own practices and the way they talk with patients.

These findings can be interpreted in the context of work on the importance of narratives in medicine. Storytelling is a familiar and effective way to learn about the world we live in and to communicate the meaning of experiences [9,28–30]. Reflective writing as a part of medical education is thought to give needed form and meaning to clinical experience [29], enhance the professional development of trainees [30,31], and make ‘audible and visible that which otherwise would pass without notice’ [32]. Furthermore, research in non-medical domains indicates that reflection is a key mechanism for translating experience into learning and improved performance – and that learning-by-doing is enhanced when coupled with reflection. Moreover, the effect of reflection on learning is thought to be driven by increased self-efficacy [33].

A conceptual framework for overuse, based on the theory of planned behavior, also provides support for how this intervention could plausibly reduce overuse among participants [12]. This framework suggests that medical overuse is driven by clinician beliefs about outcomes stemming from clinical action, norms that govern acceptable clinical practices, and perceptions around the ability to limit overuse in actual practice. Moreover, the avoidance of overuse requires an assessment of the appropriateness of clinical services at the point of care. The themes we identified fit within this framework in ways that support the potential for this program to reduce overuse. To the extent that resident’s self-perceptions about the effect of the program also reflect real changes in ongoing awareness of overuse as a problem, beliefs about prevailing norms around overuse, and self-efficacy to change actual behaviors, this may lead to a measurable reduction in overuse. Similarly, if the program increases trainee’s tendency to critically assess the appropriateness of clinical services, this could also serve to reduce overuse.
Beliefs about outcomes resulting from clinical action may be influenced by knowledge of clinical evidence, prior experiences, and cognitive biases (or heuristics). Prior adverse experiences associated with less intensive interventions e.g. avoiding imaging for non-specific low back pain that is eventually proven to have a malignant etiology can influence subsequent clinical behavior e.g. routinely offering imaging to all patients with non-specific low back pain [34]. Interventions to influence clinician beliefs have been variably successful though have been mostly focused on education [12]. Successful interventions to promote behavior change have included audit and feedback (which ideally causes clinicians to reflect on the appropriateness of prior clinical actions) as well as academic detailing (which provide personalized messaging and materials based on clinician beliefs and interests). In-depth reflection and personalized feedback are both key aspects of our reflective writing intervention, and these may be important features of our program that could support behavior change around reducing medical overuse [35].

Training culture influences norms that govern acceptable clinical practices and may therefore shape individual clinician practices, perhaps through impacting the “hidden curriculum” [36] where cultural norms are often conveyed during medical training. Sirovich and colleagues reported that internal medicine physicians who trained in low intensity practice settings were more likely, during board certification examinations, to recognize clinical scenarios where conservative care was more appropriate, while being no less likely to recognize when aggressive care was appropriate [37]. It may be that by interacting with clinicians who model restraint, inquire about the tradeoff between benefits and harms of common interventions, and celebrate a more minimalist approach, trainees feel empowered to provide higher value care in their own practices. It is also possible that trainees begin to examine and question widespread assumptions about appropriate care and their ability to limit overuse in actual practice in the course of writing clinical vignettes. This process of exploring and questioning widespread assumptions about “more is better” may then be reinforced when trainees interact with project leadership or clinical mentors who can provide perspective on how avoiding overuse may be actualized in practice. In view of the powerful effect of local training culture on eventual practice, reflecting on instances of overuse through an educational initiative, with institutional buy-in and support of key leadership and clinical faculty, could be an important influence on trainee beliefs and self-efficacy around their ability to recognize and limit overuse in practice.

There are limitations to our study design. First is the potential for response bias and the possibility that interviewees responded in ways that did not reflect their true beliefs. Bias was minimized by using a non-physician interviewer unaffiliated with the program. Second, it is not possible to determine long-term effects of the program as incentives for overuse as well as local practice culture may evolve over time. However, as some participants were interviewed nearly a year after writing up the initial vignette, their identification of continued impact on thinking and practice suggests the potential for at least moderate sustainability of the program’s self-perceived effect. Third, there is selection bias, since only residents who already volunteered to complete the work required were interviewed. Nonetheless, the voluntary nature of the intervention is likely to be an important aspect of the program’s design as it may lead to more in-depth and meaningful individual engagement with the complex issue of overuse. Finally, though interviewees were specifically asked about the impact of participating in the Do No Harm Project, it is possible they found it hard to differentiate between unique effects of the program and changes attributable to other factors, such as interactions with specific teaching faculty or other learning unrelated to the program.

4.2. Conclusion

Since overuse emerges out of the complex and often formless clinical interactions between patient and clinician, reflecting on interactions where a harm from overuse occurred – and especially a process of writing a reflective narrative to give form and meaning to the experience – may plausibly promote at least 3 things: 1) the ability to spot harms from overuse; 2) a greater appreciation for beliefs, attitudes, and norms that drive overuse; and 3) improved self-efficacy to change behavior.

4.3. Practice implications

This educational intervention may be of interest to educators wanting to meet evolving professional standards around patient safety and high value care. This program has several characteristics that could facilitate dissemination to other settings. Although it requires a local faculty champion comfortable with assisting trainees in identifying and writing up examples of overuse, the program does not require development of a curriculum or extensive training of faculty, and requires no significant financial commitment to implement fully. In addition, writing vignettes is a familiar activity. The resident-driven and voluntary nature of the project can be reasonably expected to lead to significant variability in the depth of engagement across participating residents and, in all likelihood, the feedback received from clinical faculty. However, we feel the free, self-guided introspection is a key feature, as it allows the trainee to internalize the concepts in a way that is potentially more meaningful. An implementation tool kit is now available free of charge online [38] and a dedicated series in a peer reviewed medical journal now publishes similar vignettes regularly [4], each serving a potentially positive normalizing force in reducing overuse. Though some trainees and faculty will require additional coaching on identifying overuse and writing vignettes, constructing brief clinical narratives may be more feasible for busy trainees compared to other scholarly projects. We have found that requiring or encouraging participants to work with a mentor during the writing process is important to improve the quality of vignettes—and may also promote a valuable mentoring relationship for trainees. Finally, we believe that ongoing collaboration between project leaders and trainees provides for a supportive environment where reflection on the challenges of delivering optimal care can support a culture of continuous improvement and can strengthen a program-wide commitment to high value care [8].

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Ethical approval

This study was approved by the IRB at the University of Colorado as an exempt protocol.

Declaration of conflicting interests

All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf and declare: no support from
any organization for the submitted work; no financial relationships with any organizations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.pec.2017.09.001.

References