Direct Observation and Feedback on the Internal Medicine Clinical Teaching Unit

Michael Ke Wang, MD¹,²,³, Daniel Brandt Vegas, MD MHPE¹,⁴

¹Department of Medicine, McMaster University, Hamilton, ON, Canada; ²Population Health Research Institute, McMaster University, Hamilton, ON, Canada; ³Department of Health Research Methods, Evidence & Impact, McMaster University, Hamilton, ON, Canada; ⁴McMaster Education Research Innovation and Theory Program, McMaster University, Hamilton, ON, Canada

Corresponding Author: Michael Ke Wang: wangm7@mcmaster.ca

Submitted: 3 May 2022; Accepted: 8 July 2022; Published: 18 November 2022

DOI: https://doi.org/10.22374/cjgim.v17i4.635

Abstract

Background: Direct observation is an invaluable tool for assessing clinical skills. However, it is unclear whether trainees are regularly observed on internal medicine clinical teaching units (CTUs).

Methods: A web-based survey was distributed to medical students and residents completing rotations on inpatient internal medicine CTUs. Participants recorded the frequency of direct observation and observational feedback received over the past week.

Results: Of the 189 survey respondents, 76% reported receiving direct observation at least once. On average, six skill-specific observations were reported by each learner, with an average of two different skills being observed. Bedside clinical decision-making and physical examination skills were observed most frequently. Feedback was least often provided after the direct observation of physical examination and communication skills.

Conclusions: A quarter of trainees were not regularly observed at the internal medicine CTUs. The optimal frequency of direct observation requires further study.

Résumé

Contexte: L'observation directe est un outil précieux d'évaluation des compétences cliniques. On ne sait pas si les stagiaires sont observés régulièrement dans les unités d'enseignement clinique (UEC) de médecine interne.

Méthodologie: Un sondage en ligne a été transmis à des étudiants en médecine et à des résidents qui font des stages dans des UEC de médecine interne en milieu hospitalier. Les participants ont consigné la fréquence des observations directes et des rétroactions d'observations reçues au cours de la semaine précédente.

Résultats: Sur les 189 répondants au sondage, 76% ont déclaré avoir reçu une observation directe au moins une fois. En moyenne, six observations sur une compétence particulière ont été déclarées par chaque apprenant, avec un nombre moyen de deux compétences différentes qui ont été observées. Les compétences relatives à la prise de décision clinique au chevet du patient et à l'examen physique ont fait le plus souvent l'objet d'une
observation. Une rétroaction est survenue le moins souvent après l’observation directe de l’examen physique et de l’aptitude à communiquer.

Conclusions: Le quart des stagiaires n’ont pas été observés régulièrement à l’UEC de médecine interne. La fréquence optimale de l’observation directe doit faire l’objet d’une étude approfondie.

Keywords: direct observation; feedback; internal medicine; medical education; survey

Introduction

Direct observation enables real-time feedback,1–3 enhances clinical skills development,4 and develops trust between trainees and supervisors.5 Therefore, it has been recommended that observations occur continuously throughout the course of clinical training. However, integrating direct observation into daily practice routines can be challenging for both trainees and supervisors.6 Competing clinical and administrative responsibilities make accommodating regular observations often difficult. Although survey data show that 95% of medical students are directly observed at least once during their internal medicine (IM) clerkship rotations,7,8 it is unknown whether these observations are occurring on a regular basis. In addition, it is not clear whether internal medicine trainees regularly receive feedback after observation. Qualitative data suggest that opportunities for observation remain inadequate for trainees.9–11 To better understand these issues, we conducted a single-center survey study to quantify direct observation and observational feedback practices on internal medicine inpatient clinical teaching units (CTUs).

Methods

Participants and Setting

We conducted this study at three academic and two community-based hospitals affiliated with McMaster University (Hamilton, ON, Canada). Medical students and residents completing rotations at internal medicine CTUs at these places were eligible for study participation. CTU teams had an average patient roster of 20–25 patients. CTU teams at academic hospitals comprised an attending physician, a senior resident (PGY2), three to four junior residents (PGY1), two to three medical students, and occasionally a second senior resident (PGY3 to PGY5). Community hospital teams included an attending physician, up to two junior residents, and up to two medical students.

Survey Tool

The survey tool was newly developed for the purpose of this study (Appendix 1). We consulted several faculty members and residents to inform the development of survey items. We interviewed three medical students, three junior residents, and three senior residents through immediate retrospective probing.12 Survey items were developed around the following three major themes: direct observation of clinical skills, feedback of observed skills, and bedside teaching. We completed a 1-month pilot testing phase, during which we assessed the clarity of survey items and survey length. No significant changes to the survey were made thereafter.

Clinical supervisors were defined as either an attending physician or a resident more senior than the trainee (minimum PGY2). We quantified the number of times each clinical skill was directly observed by a clinical supervisor. The following six bedside clinical skills were included in the survey: (1) history-taking; (2) physical examination; (3) clinical decision-making; (4) providing discharge instructions; (5) providing a medical update for a patient and/or family member; and (6) any procedural skill. Clinical decision-making required the formulation of a differential diagnosis and/or management plan during or directly after a patient was evaluated at the bedside in the presence of a clinical supervisor. The total number of observations was quantified by adding the number of observations reported for each skill together. A composite of observed communication skills was calculated by adding the number of observations for history-taking, providing discharge instructions, and providing medical updates.

We defined feedback as verbal commentary specific to the trainee’s observed skill performance and occurring either directly or shortly after observation. Participants were asked to quantify the frequency of feedback given for each type of observed skill in quintiles (i.e., 0–20%, 20–40%, etc.). We defined feedback to be “consistently provided” when the trainee reported that it was given at least 60% of the time after observation. We further elicited the overall frequency and perceived quality of feedback by the type of clinical supervisor (i.e., a senior resident vs. an attending physician).
Quality of feedback was assessed using a 5-point Likert scale, with score of either 4 (“definitely useful”) or 5 (“extremely Useful”) assigned to high-quality feedback.

We defined bedside teaching as a bedside encounter led by a clinical supervisor in which any form of education was provided about patient care during or immediately after being at the bedside. This included (but was not limited to) teaching provided during planned bedside rounding activities. The total number of patients included in bedside teaching sessions was quantified. The proportion of bedside teaching led by a senior resident was recorded in quintiles.

### Study Design

We distributed a web-based survey to eligible participants between October 2017 and May 2018. We asked participants about their bedside experiences over the preceding 1 week, excluding weekend and overnight call shifts. Surveys were emailed to residents at academic hospitals on a weekly basis, starting at the end of the second rotation week. Medical students and community hospital-based residents received emails every second week. A single reminder email was sent with each notification. Trainees were asked to complete the survey only once during their rotation. Research ethics approval was obtained from the Hamilton Integrated Research Ethics Board and McMaster University Undergraduate Medical Education Program Protocol Review Committee.

### Statistical Analysis

We used basic descriptive statistics (mean ± SD) to describe the frequency of events and items quantified on the 5-point Likert scale. Frequency comparisons between different training levels were performed using unpaired Student’s t-tests. We used Bonferroni correction to adjust for the assessment of multiple clinical skills. We used the Chi-squared test to compare frequency proportions, and Pearson’s coefficient to assess correlations. We considered two-tailed P ≤ 0.05 as statistically significant. Statistical analyses were performed using SPSS 25 (IBM Corporation, Armonk, NY).

### Results

The survey response rate was 62% (189 of 304 participants). Of the respondents, 16% were medical students, 12% were internal medicine PGY1 residents, 43% were PGY1 residents in another training program, 25% were internal medicine PGY2 residents, and 4% were internal medicine PGY3 or PGY4 residents. Almost all participants (98%) were based on a CTU in an academic hospital. The average attendance on the CTU was 4 weekdays (SD ±0.9) each week.

A total of 1177 observations were reported, with 76% of respondents having experienced at least one instance of observation over the past week. An average of 6 observations (SD ±7.2) were reported by each learner, with an average of 1.6 observations (SD ±1.8) reported per learner per day. The number of observations specific to each clinical skill is detailed in Table 1. Respondents with fewer absences from the CTU generally reported a greater number of observations. However, the proportion of respondents reporting at least one instance of observation was similar regardless of CTU attendance (Table A1 in Appendix 2).

The most commonly observed skill was bedside clinical decision-making (45% of total observations). Approximately half of the participants reported being observed performing a physical examination (47%), clinical decision-making (58%), or a communication skill (51%) at least once. The most frequently observed communication skill was the provision of a medical update (39%).

An average of two (SD ±1.7) different types of skills were observed each week (Figure 1). Bedside clinical decision-making was most frequently observed (three events, SD ±3.3). Senior residents reported a higher number of total observations when compared to junior residents (10 vs. 5 events; P = 0.004) and medical students (10 vs. 5 events,
occurring at internal medicine CTUs. Although most trainees were observed regularly, a quarter of trainees reported receiving no direct observation over the preceding week. Furthermore, many trainees reported that observational feedback was infrequent. These findings suggest that trainees are inconsistently exposed to direct observation and observational feedback on internal medicine CTUs.

Some educational experts have expressed concerns regarding a lack of opportunities for direct observation. Reassuringly, we found that three-quarters of trainees were regularly observed on the internal medicine CTU, with the average trainee reporting six different skill observations on a weekly basis. A higher frequency of direct observation could be beneficial for trainees. Having more observations from the same supervisor allows for greater continuity of assessment and provides a higher degree of authenticity to the feedback provided. Serial demonstration of bedside competencies also allows supervisors to make gradual changes to the trainee’s degree of autonomy. For these reasons, direct observation is considered as one of the core educational aspects of internal medicine residency training.

The fact that a quarter of trainees in our study reported receiving no direct observation while on a CTU rotation is worrisome. One possible explanation for these findings is that some trainees avoid seeking opportunities for observation as a consequence of their negative attitudes toward the practice. On the other hand, these findings could be

---

**Discussion**

In this single-center survey study, we quantified the frequency of direct observation and observational feedback occurring at internal medicine CTUs. Although most trainees were observed regularly, a quarter of trainees reported receiving no direct observation over the preceding week. Furthermore, many trainees reported that observational feedback was infrequent. These findings suggest that trainees are inconsistently exposed to direct observation and observational feedback on internal medicine CTUs.

Some educational experts have expressed concerns regarding a lack of opportunities for direct observation. Reassuringly, we found that three-quarters of trainees were regularly observed on the internal medicine CTU, with the average trainee reporting six different skill observations on a weekly basis. A higher frequency of direct observation could be beneficial for trainees. Having more observations from the same supervisor allows for greater continuity of assessment and provides a higher degree of authenticity to the feedback provided.

Serial demonstration of bedside competencies also allows supervisors to make gradual changes to the trainee’s degree of autonomy. For these reasons, direct observation is considered as one of the core educational aspects of internal medicine residency training.

The fact that a quarter of trainees in our study reported receiving no direct observation while on a CTU rotation is worrisome. One possible explanation for these findings is that some trainees avoid seeking opportunities for observation as a consequence of their negative attitudes toward the practice. On the other hand, these findings could be
explained by differences in opportunities available or the educational needs of individual learners, with some requiring more observation than others. Based on these data, it may be tempting to mandate a minimum number of observations to be achieved each week. However, the optimal frequency of observation for internal medicine trainees is unclear. Any potential benefits gained by performing added observations must also be carefully weighed against the time and resources that are otherwise required to fulfill clinical and administrative responsibilities. A time-motion observational analysis found that internal medicine residents currently spend as much as two-thirds of their day reviewing medical records, completing documentation, and communicating with clinical services. Optimizing these processes could allow more time to be dedicated toward direct observation and other educational activities. Integrating direct observation into routine workflows could also be an effective strategy for mitigating its impact on other responsibilities.

Educators tend to observe clinical skills that matter most to their discipline. In internal medicine, diagnostic reasoning and clinical decision-making heavily relies on history-taking and physical examination. If performed properly the diagnostic yield of bedside assessments could outperform the use of imaging tests. It is, therefore, worrisome that junior trainees were rarely observed performing these fundamental diagnostic skills in our study. History-taking can be particularly challenging for supervisors making assessments. Time constraints, poor faculty assessment skills, discomfort in conducting assessments, and a low perceived importance of the skill are potential contributors to the limited number of opportunities for observation.

We found that other communication-based skills were also infrequently observed, and that feedback for these observations was provided sporadically. Poor communication skills in clinical settings are associated with reduced patient satisfaction and patient health outcomes, increased physician burnout, and a greater number of malpractice claims. Despite its importance, trainees are seldom observed communicating with patients. Further studies are required to determine how communication-based encounters can be observed more frequently and in a better manner.

The internal medicine CTU remains an excellent environment for trainees to receive direct observation and feedback. However, it is also worth considering whether the use of direct observation in other care settings could be expanded. As numbers of hospital inpatients continue to grow, and inpatient care becomes increasingly complex in terms of administrative and procedural requirements, there could be fewer opportunities to provide bedside education on CTUs moving forward. One alternative is to shift some of the focus of direct observation to ambulatory care, where patient contact can be scheduled and is often more predictable. Many institutions have successfully implemented direct observation programs into outpatient internal medicine rotations. For example, one study found that 52 out of 57 internal medicine residents participating in a direct observation program were able to complete nine or more observations over a 2–3-month ambulatory care block. In another study comprising internal medicine residents, implementation of a direct observation model in the ambulatory care setting led to 45 out of 46 residents incorporating new behaviors into clinical practice. The advantages and disadvantages of being observed in different internal medicine care settings require further investigation.

Our study has limitations. The quantitative nature of the results limited our ability to compare our findings to previous qualitative research. The retrospective design was prone to recall bias, although we attempted to mitigate this by restricting events reported in the preceding week. Instances of observation sometimes passed unrecognized and feedback perception gaps could exist between supervisors and trainees. Consequently, we could have systematically underestimated the frequency of reported events. We excluded direct observations occurring at weekends and evenings, as most of the observations were felt to occur during the daytime on weekdays at our institution. This could have further underestimated the frequency of reported events. Our study included only trainees on internal medicine CTUs associated with a single academic institution. Further research is required to determine whether our findings can be extrapolated to other educational settings and training disciplines.

Conclusions

Although most trainees on the internal medicine CTUs were observed regularly, a quarter of trainees reported receiving no direct observation over the preceding week. The optimal frequency of direct observation and the best clinical setting for its occurrence in internal medicine requires further study.

Acknowledgments

We thank Drs. Ramy Khalil, Kristyne Onizuka, and Christopher Foster for their input into the study design and for their assistance with survey distribution.
Funding

The authors declared no funding source for this study. Dr. Wang is supported by the Canada Graduate Scholarship, Master’s (Canadian Institutes of Health Research) and the PSI Foundation Research Trainee Award.

Conflict of interest

The authors had no conflict of interest to declare.

References


Appendices

Appendix 1: Distributed survey
This survey encompasses your last 1 week, between Monday and Friday, on CTU.

1. Where are you located for CTU?
   - Hamilton General Hospital
   - St. Joseph’s Healthcare Hamilton
   - Juravinski Hospital
   - Distributed site (Waterloo or Niagara Campus)
2. What is your current training level?
   - Medical student/clinical clerk
   - PGY 1, Junior resident, non-internal medicine (“off-service”)
   - PGY 1, Junior resident, internal medicine
   - PGY2, Junior resident, non-internal medicine (“off-service”)
   - PGY2, Senior resident, internal medicine
   - PGY3 to PGY5, junior attending, internal medicine
3. For how many weekdays were you away (post-call, vacation, illness, etc.) during the last 1 week (Monday to Friday)?
4. (0–5 selection)
5. Did you have a senior medical resident (SMR—internal medicine, PGY2) on your team? – Y/N
6. Did you have a junior attending (JA—internal medicine, PGY3 to PGY5) on your team? – Y/N

Please read carefully
Bedside teaching can occur at any time on CTU—team rounds, clerk/JMR/SMR teaching sessions, etc. We are looking at bedside teaching on weekdays, during the daytime.

**Weekend and on-call/post-call bedside teaching experiences are excluded in this survey.**
In this survey, *bedside teaching* must include both of the following:

1. An educator who is either an attending or a resident more senior than you (at least PGY2 [“SMR”] level) at the bedside, and
2. Teaching—including demonstrating skills to the learner, providing feedback to a learner demonstrating a skill, and providing didactic teaching around a bedside encounter. Skills include history-taking, physical examination, clinical reasoning (differential diagnosis and management), procedures, and communication.

If there is no *teaching* component, it is not a bedside teaching encounter!

1. On how many days last week (Monday–Friday) did you receive bedside teaching on any patient?
   Option selection:
   - Never
   - 1 day per week
   - 2 days per week
   - 3 days per week
   - 4 days per week
   - 5 days per week*
   *Gone everyday in the last week
2. On each day you received bedside teaching, for how many patients did you receive teaching (on average)?
   Dropdown box containing: 0–9, ≥10

3. Who provides your teaching at the bedside (e.g., demonstrates bedside skills, provides feedback to learners demonstrating bedside skills, and provides clinical teaching points)? Please make sure your answers add up to approximately 100%.

<table>
<thead>
<tr>
<th></th>
<th>0–20%</th>
<th>20–40%</th>
<th>40–60%</th>
<th>60–80%</th>
<th>80–100%</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMR (R2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JA (R3–R5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending physician</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you are an SMR, or did not have an SMR, select "N/A" for SMR leading bedside teaching.
If you did not have a JA, select "N/A" for JA leading bedside teaching.
If you are a JA, select "N/A" for both SMR and JA leading bedside teaching.

4. On average, for how many times each week were you observed by an attending or a more senior resident (minimum PGY2) performing the following skills?

<table>
<thead>
<tr>
<th>Skill</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>≥10</th>
</tr>
</thead>
<tbody>
<tr>
<td>History-taking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical examination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical decision-making*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing procedure**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giving medical update to patient/family***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explaining discharge instructions to patient/family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Includes differential diagnosis and/or management skills after having evaluated a patient at the bedside.
**Examples include arterial blood gas (ABG), nasogastric (NG) tube insertion, thoracentesis, paracentesis, lumbar puncture, central line insertion, and skin biopsy.
***Medical updates can be informal (at the bedside) or formal (in family meetings).

5. How often did you receive specific feedback (e.g., what you did well, and what you could improve) from an attending or more senior resident (minimum PGY2) when observed performing a bedside skill? (Select N/A if you were never directly observed performing the bedside skill.)

<table>
<thead>
<tr>
<th>Skill</th>
<th>Almost never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost always</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>History-taking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical examination</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical decision-making*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing procedure**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giving medical update to patient/family***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explaining discharge instructions to patient/family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Includes differential diagnosis and/or management skills after having evaluated a patient at the bedside.
**Examples include ABG, NG tube insertion, thoracentesis, paracentesis, lumbar puncture, central line insertion, and skin biopsy.
***Medical updates can be informal (at the bedside) or formal (in family meetings).
6. How often do different teachers provide feedback after you've been observed performing a bedside skill? Select for what percentage of all observed encounters did you receive feedback from each type of observing teacher.

<table>
<thead>
<tr>
<th></th>
<th>0–20%</th>
<th>20–40%</th>
<th>40–60%</th>
<th>60–80%</th>
<th>80–100%</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMR (R2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JA (R3–R5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending physician</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SMR: Senior medical resident.
If you are an SMR, or did not have an SMR, select “N/A” for SMR feedback.
If you did not have a JA, select “N/A” for JA feedback.
If you are a JA, select “N/A” for both SMR and JA leading bedside teaching.

7. How useful was the feedback provided by different senior team members? Consider if the following were addressed using concrete examples: what you did well, what you can do better, and/or a plan for improvement.

<table>
<thead>
<tr>
<th></th>
<th>Not useful</th>
<th>Limited usefulness</th>
<th>Somewhat useful</th>
<th>Definitely useful</th>
<th>Extremely useful</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMR (R2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JA (R3–R5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending physician</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If you are an SMR, or did not have an SMR, select “N/A” for SMR feedback.
If you did not have a JA, select “N/A” for JA feedback.
If you are a JA, select “N/A” for both SMR and JA leading bedside teaching.
Appendix 2

Table A1. Direct observation by CTU weekday attendance.

<table>
<thead>
<tr>
<th>CTU weekday attendance (days)</th>
<th>Respondents (n)</th>
<th>Observations, all types Mean (SD)</th>
<th>At least one instance of observation N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>55</td>
<td>8.4 (9.4)</td>
<td>41 (74%)</td>
</tr>
<tr>
<td>4</td>
<td>89</td>
<td>5.7 (6.2)</td>
<td>70 (79%)</td>
</tr>
<tr>
<td>3</td>
<td>36</td>
<td>4.4 (5.2)</td>
<td>26 (72%)</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>6.4 (7.5)</td>
<td>5 (71%)</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>2.5 (0.7)</td>
<td>2 (100%)</td>
</tr>
</tbody>
</table>

CTU: clinical teaching unit.