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RESEARCH ARTICLE

Using pharmacists' baseline knowledge to guide implementation of preceptor training at an acute-care hospital

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Abstract

Background: Effective precepting is important to ensure meaningful practical learning experiences and competency for entering pharmacy practice.

Aim: To describe the design, implementation and evaluation of a workplace-based pharmacist preceptor training session at an acute-care hospital.

Methods: A cross-sectional study was conducted in the hospital's pharmacy department. A needs analysis survey was used to identify knowledge gap. A session evaluation survey was used to evaluate satisfaction with the preceptor training session.

Results: A total of 29 pharmacists (response rate: 48.3%) completed the session evaluation survey. Majority of pharmacists reported that the session was helpful (86.2%) and they gained new insights into precepting (89.7%). Most pharmacists, including those who had attended external preceptor training, believed that workplace-based preceptor training was as valuable as such training offered by external organisations (89.7%).

Conclusion: Workplace-based pharmacist preceptor training was well-received by pharmacist preceptors and was perceived to be as useful as training offered by external organisations.

Keywords: *Clinical Practice, Continuing Education, Hospital Pharmacy, Preceptor Training, Professional Training*

Introduction

Preceptors are experienced practitioners who use their practice sites to provide instruction in the real-world practice environment (Nappi, 2010). Pharmacists serve as preceptors in their daily practice as they guide new practitioners and those in training. Regulatory authorities overseeing pharmacist registration often require candidates to obtain a minimum duration of practical experience prior to registration as a pharmacist and effective precepting skills form the basis for ensuring that such practical learning experiences are meaningful, enriching and prepare candidates adequately for entrance into pharmacy practice (Weitzel *et al*., 2012).

In Singapore, pharmacist registration is regulated by the Singapore Pharmacy Council (SPC) which requires an entry-level pharmacy graduate to have undertaken at least 12 months of practical experience prior to registration to practise. For Singapore graduates, six months of this requirement is fulfilled by pre-employment clinical training during the final-year of their Bachelor of Science (Pharmacy) curriculum. The remaining six months is fulfilled as pre-registration training after graduation with a Bachelor degree at approved training centres under the oversight of pharmacist preceptors (SPCa, 2018). To be designated as preceptors for pre-registration training, pharmacists are required to have at least three years of working experience as registered pharmacists and to have attended one of the two SPC-accredited one-day preceptor training programmes (SPCc, 2018). Each of these programmes are offered four times per year on select dates. These programmes review the competency standards for pharmacist registration in Singapore, ensure that pharmacists are aware of their roles and responsibilities as preceptors in facilitating the learning of pre-registration pharmacists and discuss strategies for

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clinical teaching, evaluation and feedback (National Healthcare Group College, 2018; SingHealth, 2018). Additionally, training institutions may provide additional educational opportunities to either supplement the SPC-accredited programmes or to train pharmacists who have yet to attend these accredited programmes (SPCb, 2018).

The importance of preceptor training is recognised internationally. Various pharmacist preceptor training courses are offered by professional organisations and academic institutions. While the format and content of these courses vary, evaluations of several of these courses are consistent in supporting their impact on pharmacists' knowledge of and confidence in precepting (Cerulli & Briceland, 2004; Dalton *et al*., 2007; Assemi *et al*., 2011; American College of Clinical Pharmacy, 2018; American Society of Health-System Pharmacists [ASHP], 2018;). However, most of these programmes either cater to pharmacist preceptors from specific practice settings or require time commitment for training outside of pharmacists' routine workplace (Cerulli & Briceland, 2004; Dalton *et al*., 2007). Therefore, the content of such preceptor training courses may not be tailored to practices of individual settings and the ability of pharmacist preceptors to attend such training courses may also be limited by their institutions' manpower needs and budgetary constraints.

Workplace-based preceptor training then becomes an attractive option for institutions to ensure that their pharmacist preceptors are equipped with the necessary knowledge and skills for precepting. Such training may enjoy greater flexibility to tailor programme content to the specific education needs of the institutions' pharmacist preceptors and may be attended by a larger number of pharmacists who may not have the opportunity to pursue external training. The development of workplace-based preceptor training is also consistent with the Workforce Development Goals (WDGs) put forth by the International Pharmaceutical Federation (FIP), *e.g.*, WDG 7 (service provision and workforce education and training) and WDG 9 (continuing professional development strategies) (FIP, 2016). Besides a workplace-based pharmacist preceptor training course consisting of readings, seminars and structured practical experience at a public healthcare organisation in Canada (Woloschuk & Raymond, 2012), there is a lack of other workplace-based training sessions evaluated in the literature.

In this report, the authors aim to describe the design and implementation of a workplace-based preceptor training session based on a needs analysis at an acute-care hospital. The authors also aim to evaluate pharmacists' satisfaction with workplace-based preceptor training and how such training is perceived relative to preceptor training offered by external professional organisations. This report adds to the limited examples of workplace-based preceptor training available in the literature and may guide other institutions in implementing similar workplace-based preceptor training sessions. To the authors' knowledge, this is the first published report of workplace-based preceptor training in Singapore and also the first in the literature that evaluates pharmacists' perceptions of workplace-based preceptor training relative to such training offered by external professional organisations.

Methods

This report describes a cross-sectional study conducted at a 700-bed acute-care teaching hospital located in western Singapore that provides comprehensive medical and surgical services for adult patients. A workplace-based pharmacist preceptor training course was designed, implemented and evaluated at the acute-care teaching hospital. The hospital's pharmacy department is a SPC-approved training centre for pre-registration pharmacists. The department has 86 full-time pharmacists, among which 66 pharmacists (76.7%) practice in the inpatient, outpatient and non-direct patient care areas where pre-registration pharmacists are also trained in. Twenty-nine (43.9%) of these pharmacists are young practitioners within their first three years of practice. Even though they are not formally designated as preceptors per SPC standards and have not attended SPC-accredited preceptor training programmes, they are in regular contact and frequently guide pre-registration pharmacists in their daily work which highlights the importance of training and education programmes to improve their precepting knowledge and skills.

Therefore, a workplace-based preceptor training session was designed, implemented and evaluated by the pharmacy department. The aim of implementing a workplace-based preceptor training session was to equip pharmacists with the knowledge of preceptors' roles that could support the development of clinical problem solving skills among pre-registration pharmacists. The session also aimed to enable pharmacists to identify the context in which various preceptors' roles could be applied appropriately depending on the knowledge and experiences that the pre-registration pharmacists have. The pharmacy department had not previously offered workplace-based preceptor training.

Session design and objectives

A pre-session needs analysis was performed by administering an anonymous baseline survey to assess pharmacists' knowledge of the four preceptors' roles. The survey was distributed in hard copy and invitations to participate were announced at several department meetings in December 2017 in order to reach out to pharmacists at various locations and on different work shifts. The survey instrument included ten items, including multiple-choice, true or false and five-point Likert-scale questions to assess pharmacists' demographics, experiences with and perceptions of precepting, as well as their knowledge of and familiarity with the four preceptors' roles described by the ASHP (Appendix A).

Table I: Overall pharmacists' perceptions of precepting (N = 44)

Statement	A*	N	D+
Good precepting is important	43 (97.7)	1 (2.3)	0 (0.0)
I am enthusiastic about precepting	23 (52.3)	20 (45.5)	1 (2.3)
Pre-registration pharmacists underperform due to their own failure to learn rather than inadequate precepting	3 (6.8)	11 (25.0)	30 (68.2)
I am a good preceptor	10 (22.7)	33 (75.0)	1 (2.3)
I feel ready to precept	15 (34.1)	18 (40.9)	11 (25.0)

Data presented as N (%)

A = Agreement (strongly agree + agree)*

***N** = Neutral*

***D**+ = Disagreement (strongly disagree + disagree)*

The four preceptors' roles described by ASHP were selected as the framework for the training session because each of the four roles (*i.e.* instructing, modelling, coaching, and facilitating) were well-defined and sequential in nature allowing preceptors to scaffold the learning process for pre-registration pharmacists. Instructing refers to the provision of information by a preceptor to a trainee before tasks can be performed. Modelling refers to demonstrating a skill so that a trainee can observe the problem-solving process of the preceptor. Coaching enables a trainee to perform a task while being observed by a preceptor who provides ongoing feedback and facilitates a trainee to perform a task independently while a preceptor remains available if needed and provides de-briefing afterward (ASHP, 2017). While these preceptors' roles were described by ASHP, their applications are not limited to any practice or cultural settings. They may be applied in any precepting settings and are also accepted in Singapore's context and incorporated into one of the SPC-accredited preceptor training programmes (National Healthcare Group College, 2018). The baseline survey was completed by 44 pharmacists (response rate: 66.7%), among which 42 (95.5%) were pharmacists with direct patient care responsibilities (inpatient: 26 [61.9%]; outpatient: 10 [23.8%]; both inpatient and outpatient: 6 [14.3%]). Consistent with general demographics in the department, many pharmacists reported limited precepting experiences (less than one year: 20 [45.5%]; one to three years: 17 [38.6%]; three to five years: 5 [11.4%]; more than five years: 2 [4.5%]). Pharmacists' perceptions of precepting are summarised in Table I. Many pharmacists were enthusiastic about precepting (52.3%), recognised its importance (97.7%) but fewer felt ready to precept (34.1%). The knowledge gap was evident whereby 34 pharmacists (77.3%) who responded to the baseline survey reported that they had not heard of the four preceptors' roles described by ASHP. There were 10 pharmacists (22.7%) who had heard of the four preceptors' roles, among which only five of them (50.0%) endorsed that they were familiar with the four roles and had utilised at least one of these roles in their previous precepting experiences.

Based on the knowledge gap identified through the baseline survey, a pharmacist preceptor training session was developed by a group of four pharmacists. Each of them had at least four years of practice experience as a registered pharmacists. Three of these pharmacists were preceptors of pre-registration pharmacists and one of them was a faculty member teaching in the country's only Bachelor of Science (Pharmacy) curriculum. Content of the preceptor training session was derived based on ASHP resources that described the four preceptor roles (ASHP, 2017). The session aimed to accomplish the following learning objectives: 1) describe the optimal use of the four preceptors' roles; and 2) recognise the applications of each of these four roles in the learning of pre-registration pharmacists.

Pilot Testing

The preceptor training session was first piloted between December 2017 to February 2018. The pilot sessions targeted pharmacists within their first three years of practice who would oversee pre-registration pharmacists during the first week of their acute-care rotation. Pre-session reading materials that described each of the four preceptors' roles were assigned (ASHP, 2017). The rationale for conducting these pilot sessions were to provide training to pharmacist preceptors who will be overseeing pre-registration pharmacists starting their acute-care rotation, to obtain preliminary feedback on the training session, and to pre-test the session evaluation survey instrument.

Three pilot sessions (90 minutes per session) were necessary because each pilot session was only attended by four to five pharmacists in order to minimise interruptions to pharmacy workflow and patient care activities. During each session, the authors explained the objectives and learning activities for pre-registration pharmacists during the first week of their acute-care rotations (30 minutes) and demonstrated the four preceptors' roles through the use of example cases (30 minutes) and role play (20 minutes). The remaining 10 minutes were used to address questions from the pharmacists and to allow time to complete the session evaluation survey.

A total of 14 pharmacists participated in the pilot sessions, all of which completed the session evaluation survey. All of these pharmacists found the session helpful, reported that they gained new insights and planned to utilise at least one of the four preceptor roles in their future precepting experiences. The session evaluation survey instrument was clear to all pharmacists except for one question which asked pharmacists whether workplace-based preceptor training can be as valuable as preceptor training offered by external organisations. Three pharmacists indicated 'not applicable' in the

margin of the survey because they felt that the question did not apply to them since they had not attended external preceptor training. In fact, the question was intended to assess pharmacists' perceptions of whether workplace-based preceptor training can be as valuable as external preceptor training. This was clarified in the final version of the session evaluation survey instrument (see Appendix B).

Session implementation

The preceptor training session was formally implemented for all pharmacists in the department in May 2018 prior to the start of the next class of pre-registration pharmacists. Pre-session reading materials describing each of the four preceptors' roles were also assigned (ASHP, 2017). The final session was 60 minutes in duration instead of 90 minutes during the pilot. This was because the final session targeted all pharmacists who interact with pre-registration pharmacists at various stages of training. Time was devoted to achieve the session objectives of describing the optimal use of the four preceptors' roles and to recognise the applications and limitations of each of these four roles in the learning of pre-registration pharmacists. Pharmacists were reminded of the structure, objectives and learning activities of pre-registration training via announcements made at other department meetings and such content were not repeated in the preceptor training session. Furthermore, the final preceptor training session was delivered in-person by the faculty member who was part of the four-member team that developed the session during the pharmacy department's routine morning continuing education time slot which was 60 minutes in duration. This was done to minimise disruption to pharmacy workflow during the day and to maximise attendance at the session. Except those covering night shifts or on leave, pharmacists in the department are required to attend morning continuing education sessions.

During the 60-minute preceptor training session, pharmacists first reflected on the characteristics of good preceptors that they had interacted with during their own training (5 minutes), general traits and behaviours of good preceptors were communicated (5 minutes) and baseline survey results were shared (5 minutes) to set the stage for discussing the four preceptors' roles. The remaining time was used to illustrate the application of the four preceptors' roles through example cases and to offer practical tips on applying each of the four roles in the context of pre-registration training at an acute-care hospital (35 minutes). Active learning strategies were employed through the use of an online audience participation system available free-of-charge (Mentimeter) that allowed pharmacists to contribute their descriptors of good preceptors to form a word cloud and to review example cases and vote for the correct preceptor role demonstrated in each case. The last 10 minutes were reserved to address additional questions from pharmacists in attendance and to allow for completion of the session evaluation survey.

Session evaluation

The session evaluation survey instrument included 15 items including multiple-choice (items 1-3 and 15), yes or no (item 11), 5-point Likert-scale (items 4-10 and 12-14) and open-ended (item 10) questions to assess pharmacists' demographics, satisfaction with the session, perceptions of workplace-based preceptor training and preferences for future preceptor training opportunities (Appendix B).

Ethics approval was not sought because this preceptor training session was implemented as part of the pharmacy department's routine education activities and completing the evaluation survey at the end of a continuing education session was also a routine process. Prior to distribution of the evaluation, pharmacists were informed that completing the survey was voluntary and no identifiable personal information would be collected. Pharmacists were also informed that data gather might be shared within and outside of the institution for the purposing of informing future preceptor training.

Data analysis

All survey results were transcribed onto a Microsoft Excel spreadsheet for further analysis. Data from incomplete surveys were retained for analysis if at least 80% of questions were answered. Descriptive statistics were used to summarise quantitative survey results. Qualitative comments were reviewed to identify topics of interest for future preceptor training. *Chi*-square test was used to compare perceptions between seasoned versus new preceptors and between preceptors who had attended external preceptor training versus those who had not. An a *priori* *p*-value of less than 0.05 was used as the criterion for statistical significance. Data analysis was performed using STATA version 14.0 for Mac (College Station, Texas, USA).

Results

Demographics

Sixty pharmacists attended the 60-minute workplace-based preceptor training session among which 29 completed the session evaluation survey (response rate: 48.3%). Most of the pharmacists who attended the preceptor training session had direct patient care responsibilities (inpatient: 12 [41.4%]; outpatient: 13 [44.8%]; both inpatient and outpatient: 3 [10.3%]). Consistent with demographics within the department, most pharmacists had limited precepting experiences as evident from their years of precepting experience (less than one year: 16 [55.2%]; one to three years: 10 [34.4%]; three to five years: 1 [3.4%]; more than five years: 2 [6.9%]) and number of pre-registration pharmacists precepted (less than two: 14 [48.3%]; three to five: 9 [31.0%]; six to nine: 3 [10.3%]; ten or more: 3 [10.3%]).

Satisfaction with preceptor training session

Pharmacists' satisfaction with the preceptor training session is summarised in Table II. The session was well-received with majority of pharmacists reporting that the session was helpful (86.2%), they gained new insights (89.7%) and planned to utilise at least one preceptor role in their future precepting experiences (100%). In particular, new pharmacist preceptors within their first year of precepting particularly found the session helpful as compared to their seasoned counterparts (100% versus 76.9%, p=0.042). Duration of the programme and the amount of content covered were perceived to be appropriate (79.3%).

Perceptions of workplace-based preceptor training

Most pharmacists believed that workplace-based preceptor training was as valuable as those programmes offered by external organisations (89.7%). There were 12 pharmacists (41.4%) who had previously attended external preceptor training programmes. The proportion of pharmacists who perceive that workplace-based preceptor training to be as valuable as external training programmes was similar among pharmacists who previously attended external preceptor training programmes versus those who had not (91.7% versus 88.2%, p=0.765).

Most pharmacists were also interested in more preceptor training (72.4%) and were willing to devote time outside of regular work hours to pursue these training opportunities (55.2%). Of those who expressed interest in future preceptor training, monthly or quarterly programmes were perceived to be the ideal frequency. The most useful training modalities were perceived to be online learning modules with example cases (22 [75.9%]), live lectures with example cases and role play (22 [75.9%]) and live lectures with pre-assigned reading materials (21 [72.4%]). Based on qualitative comments from pharmacists, topics of interest included identifying and handling trainees in difficulty and sharing of precepting experiences by senior pharmacist preceptors in the department.

Discussion

This report described the process of designing and implementing a workplace-based preceptor training session based on pharmacists' knowledge gaps at an acute-care hospital. The findings demonstrated that such sessions were well-received by pharmacist preceptors who found the training useful and applicable to their future precepting experiences. Workplace-based preceptor training was perceived to be as valuable as training offered by external professional organisations. Pharmacists were interested in precepting, enthusiastic about preceptor training opportunities, and live or online training that incorporated example cases or role play were perceived to be most useful.

The authors believe that this report has several notable strengths. Published experiences describing workplace-based preceptor training programmes were limited and many involved only select groups of pharmacists (*e.g.,* community pharmacists, pharmacy residents) (Cerulli & Briceland, 2004; Romanelli *et al*., 2005). This report adds to the knowledge and experiences with implementing workplace-based preceptor training. Firstly, workplace-based preceptor training was well-received among pharmacists included in this study who represented those practising in both inpatient and outpatient settings and in non-direct patient care roles. Secondly, to the authors' knowledge, this is the first report that demonstrated that most pharmacists perceived workplace-based preceptor training to be as useful as such training offered by external professional organisations. In addition, the preceptor training session was conducted during routine time slots allocated to department's continuing education programmes and did not require pharmacists to travel off-site for training. The implementation approach described in this report minimised disruption to pharmacy workflow and patient care activities, required no additional resources from the department (*e.g.*, paid time) and therefore, may be readily adopted in other practice settings. While the four preceptors' roles described by ASHP were used as the training framework in this report, content of the training session could be modified and the approach to design and

Table II: Pharmacists' satisfaction of workplace-based preceptor training session (N = 29)

Statement	Agreement*	Neutral	Disagreement+
Session is helpful	25 (86.2)	4 (13.8)	0 (0)
I found the following topics helpful			
Traits of good preceptors	25 (86.2)	3 (10.3)	1 (3.4)
Discussion of four preceptors' roles	28 (96.6)	1 (3.4)	0 (0)
Example cases to illustrate application of four preceptors' roles	26 (89.7)	3 (10.3)	0 (0)
I gain new insights from the session	26 (89.7)	3 (10.3)	0 (0)
Plan to utilise at least 1 preceptor role	29 (100.0)	0 (0)	0 (0)
Length of session is about right	23 (79.3)	4 (13.8)	2 (6.9)
Amount of content covered is about right	23 (79.3)	3 (10.3)	3 (10.3)

Data presented as N (%)

Agreement = strongly agree + agree*

Disagreement+ = strongly disagree + disagree

implementation described in this report could still be utilised by other institutions to deliver other preceptor training content to meet specific learning needs of their pharmacist preceptors.

Woloschuk and Raymond also reported their experiences with a workplace-based preceptor training course at a large public healthcare organisation where a total of 28 pharmacists participated in the course from 2006 to 2011. Similar to the preceptor training session described in this report, their course also included readings and seminars. However, their course offered a structured practical experience where participants were paired with preceptor coaches who provided guidance on precepting via telephone, e-mail and direct observation. Similar to findings in this report, their course was also well-received by their participants. All interviewed participants reported that the course was helpful and they found the structured practical experience particularly beneficial (Woloschuk & Raymond, 2012). While the authors acknowledge the value of direct observation and feedback, the time commitment and manpower needs to sustain such a training model may not be feasible for many practice settings. This is particularly true for newer pharmacy departments with disproportionately larger number of young pharmacists. In this report, the authors aimed to improve the general precepting knowledge and skills among pharmacists and using one-on-one coaching to achieve this aim would not have been realistic given the limited numbers of seasoned preceptors available. Additionally, the previous course also required at least five extra hours of paid time per participant (Woloschuk & Raymond, 2012) which might not be feasible in this era of declining healthcare funding and increasing emphasis on cost containment affecting pharmacy (Robinson, 2015; McConnell *et al*., 2017).

Cerulli and Briceland described the implementation of a preceptor training programme for community pharmacists. Their programme included an element of workplace-based training in the form of performing stipulated precepting or patient-care tasks. However, community pharmacists participating in the programme also had to spend 12 hours off-site attending interactive sessions at an academic institution. Similar to findings in this report where most participants of the workplace-based preceptor training session felt that they gained new insights into precepting, community pharmacists participating in the previous programme also felt that content was relevant and enhanced their knowledge (Cerulli & Briceland, 2004). However, a pharmacist taking 12 hours away from the workplace might not be conducive for his or her workload and unfeasible for the pharmacy department's workflow. Authors of the previous study also acknowledged the challenges in scheduling their programme to accommodate participants' availabilities (Cerulli & Briceland, 2004).

Pharmacists who attended the preceptor training session, including those who had attended external preceptor training, believed that workplace-based preceptor training can be as valuable as those offered by external professional organisations. The authors postulate that this is due to similar content covered in this session relative to the two local programmes accredited by SPC (National Healthcare Group College, 2018; SingHealth, 2018) and practice site-specific tips and examples that were deemed more relevant by the pharmacists as evident from their interests in learning from the precepting experiences of senior pharmacist preceptors within the department.

In this report, most pharmacist preceptors were interested in preceptor training opportunities. This finding was congruent to a previous study where 73.5% of pharmacist preceptors expressed interest in training on precepting skills (Assemi *et al*. 2011). Findings from this report also indicated that training modalities incorporating example cases or role play were perceived to be most useful. Live lectures and on-line learning were perceived to be equally useful. This finding was also supported by existing literature demonstrating pharmacists' acceptance of e-learning (Salter *et al*., 2014; Nesterowicz *et al*. 2016). However, this was in contrast to a previous study where live training programmes were of greater interest to a group of pharmacist preceptors than web-based courses (70.7% versus 55.1%) (Assemi *et al*., 2011). This contrast might be explained by differing demographics. On average, pharmacist preceptors in the previous study had 14 years of practice experience (Assemi *et al*., 2011), consequently e-learning might not have been as prevalent during their training. Younger pharmacists had been shown to utilise e-learning platforms for continuing education more frequently than their older colleagues (Nesterowicz *et al.,* 2016).

The primary limitation of this report is the single-centre experience with a small sample size. The preceptor training session was implemented in the pharmacy department at an acute-care institution with a relatively large proportion of younger practitioners within their first three years of practice. The report might be underpowered to fully assess differences in perceptions between seasoned versus new preceptors and between pharmacists who had attended external preceptor training versus those who had not. Secondly, the survey instrument was self-developed and did not undergo rigorous validation. Hence the report could be limited by the quality of the survey instrument used to assess pharmacists' baseline knowledge and satisfaction with the preceptor training session. However, the authors did conduct pre-testing and made revisions to enhance clarity of questions in the session evaluation survey. Thirdly, course content was developed within the institution and might not have robust academic or pedagogical rigour. However, course content in this report was developed based on resources from professional organisations (ASHP, 2017). Fourthly, pharmacists who completed the session evaluation survey provided limited qualitative comments and therefore, the authors' were unable to thoroughly understand the rationale and differences in perceptions. Additionally, the authors did not perform longitudinal assessments and direct observations to assess the direct impact on pharmacists' precepting skills.

However, the time commitment and manpower it takes to do so may not be readily available in many practice settings.

The longitudinal impact of workplace-based preceptor training and pharmacists' perceptions of workplace-based preceptor training at other institutions remain areas of future research. Session evaluation could be repeated subsequently (*e.g.*, six months following session completion) to assess knowledge retention, pre-registration pharmacists' performance, impact on precepting skills from the perspectives of the pharmacist preceptors and preceptors' evaluations completed by pre-registration pharmacists. Interviews or focus groups may be conducted to further understand the rationale for pharmacists' perceptions, to elucidate the enablers and barriers to effective precepting, and to identify learning needs of senior pharmacist preceptors. Other topics (*e.g.,* handling trainees in difficulty) may be offered in the future and e-learning may be explored as a possible medium to deliver preceptor training with increased accessibility and availability, especially for pharmacists with rotating shifts. Other institutions may also consider implementing and evaluating workplace-based preceptor training with larger sample sizes.

Conclusions

In conclusion, this report demonstrated that a workplace-based preceptor training session developed based on pharmacists' baseline knowledge was well-received, and perceived by pharmacist preceptors to be as useful as those programmes offered by external professional organisations. The approach used to design and implement this session required minimal additional sources and minimised workflow disruptions which increased the practicality of applying the approach in this report to other practice settings. Other institutions may also consider repeating, adapting or extending this work in developing their own workplace-based preceptor training to address their pharmacist preceptors' specific learning needs.

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Appendix A

Baseline Survey for Needs Analysis

This anonymous survey is intended to assess your baseline awareness of the four preceptor roles and your perceptions on precepting pre-registration pharmacists. Please answer the following questions PRIOR to the start of the training session. Thank you for your participation!

1) My primary location of practice is: (please circle one)

Inpatient Outpatient

Both (e.g. year 1 pharmacist)

2) The number of years I have been a preceptor for pre-registration pharmacists is: (please circle one)

Less than 1 year Between 1 to 3 years

Between 3 to 5 years Greater than 5 years

3) The number of pre-registration pharmacists that I have precepted so far is: (please circle one)

2 or less 3 to 5 6 to 9 10 or more

4) I have heard of the 4 preceptor roles prior to the pre-readings and the sessions today: (please circle one)

- Yes (proceed to questions 5 and 6)
- No (skip questions 5 and 6, proceed to question 7

5) I am familiar with the 4 preceptors' roles prior to the pre-readings and the session today: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

6) I have consciously utilized at least 1 concept related to the 4 preceptor roles in my previous precepting experiences: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

7) I am a good preceptor for the pre-registration pharmacists: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

8) I feel prepared to precept pre-registration pharmacists: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

9) I am enthusiastic about precepting pre-registration pharmacists: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

10) Good precepting is important for the growth in clinical knowledge and skills of pre-registration pharmacists: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

Appendix B

Session Evaluation Survey Instrument

This voluntary and anonymous survey is intended to gather feedback on the preceptor training course that you just attended in an effort to improve the quality preceptor training in the future. Please answer the following questions AFTER the training session.

1) My primary location of practice is: (please circle one)

Inpatient Outpatient

Both (e.g. year 1 pharmacist)

2) The number of years I have been a preceptor for pre-registration pharmacists is: (please circle one)

Less than 1 year Between 1 to 3 years

Between 3 to 5 years Greater than 5 years

3) The number of pre-registration pharmacists that I have precepted so far is: (please circle one)

2 or less 3 to 5 6 to 9 10 or more

4) Overall, I find this preceptor training session helpful: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

5) Overall this preceptor training session allowed me to gain new insights into precepting: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

6) I find the following components of the preceptor training helpful: (please circle)

6.1 Discussion of traits and behaviors of good preceptors

Strongly agree Agree Neutral

Disagree Strongly disagree

6.2 Discussion of 4 preceptors' roles

Strongly agree Agree Neutral

Disagree Strongly disagree

6.3 Example cases to illustrate the 4 preceptors' roles

Strongly agree Agree Neutral

Disagree Strongly disagree

7) The length of this training session is just about right: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

8) The amount of content covered in this training session is just about right: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

9) I plan to utilise at least 1 concept related to the 4 preceptor's roles with the next pre-registration pharmacist that I will be precepting: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

10) I am interested in more training opportunities to improve my precepting skills: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

Please state your topic(s) of interest. You may skip this box if you answered disagree or strongly disagree above.

11) I have attended preceptor training programs offered by external agencies (e.g. Singapore Pharmacy Council, other institutions or professional organisations, etc.): (please circle)

Yes No

12) In my perception, I believe that in-house preceptor training can be as valuable as training programs offered by external organisations: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

13) I believe that the following methods will be helpful to me in improving my precepting skills. (please circle)

13.1 Readings only

Strongly agree Agree Neutral

Disagree Strongly disagree

13.2 Live lectures only

Strongly agree Agree Neutral

Disagree Strongly disagree

13.3 Pre-readings followed by live lectures

Strongly agree Agree Neutral

Disagree Strongly disagree

13.4 In-person case discussions and/or role plays

Strongly agree Agree Neutral

Disagree Strongly disagree

13.5 Online lectures

Strongly agree Agree Neutral

Disagree Strongly disagree

13.6 Online modules with lectures, example cases and self-assessment questions

Strongly agree Agree Neutral

Disagree Strongly disagree

13.7 Feedback from my preceptees

Strongly agree Agree Neutral

Disagree Strongly disagree

14) I am willing to devote additional time outside of regular work hours (*e.g.* before or after my shift, lunch hour) for training to improve my precepting skills: (please circle)

Strongly agree Agree Neutral

Disagree Strongly disagree

15) The optimal frequency for in-house preceptor training sessions (regardless of whether within or outside or regular work hours) is: (please circle)

Once a week Twice a month Once per month

Once every 3 months Once every 6 months