

Received Date : 05-Aug-2015

Revised Date : 29-Sep-2015

Accepted Date : 23-Oct-2015

Article type : Original Article

## **Motivational Interviewing in Paediatric Residency**

**Nasuh Malas<sup>1,2</sup>, Dana Rofey<sup>3,4</sup>, Anne Marie Kuchera<sup>3</sup>, Jonathan Pletcher<sup>3</sup>, Roberto Ortiz-Aguayo<sup>3,4</sup>, Antoine Douaihy<sup>4</sup> and Melanie Gold<sup>5</sup>**

<sup>1</sup>Division of Child and Adolescent Psychiatry, Department of Psychiatry, University of Michigan Health System

<sup>2</sup>Department of Pediatrics, University of Michigan Health System

<sup>3</sup>Department of Pediatrics, University of Pittsburgh School of Medicine

<sup>4</sup>Department of Psychiatry, University of Pittsburgh School of Medicine

<sup>5</sup>Department of Pediatrics, Columbia University Medical Center

### **Abstract:**

Background: Motivational interviewing (MI) is a collaborative, evidence-based, person-centered counselling style for addressing ambivalence about behaviour change. Despite its proven effectiveness, there is little formal instruction of MI in paediatric training programmes.

Methods: Second year paediatric residents participated in a 4-hour MI workshop, followed by a 1-hour small group review course and hands-on supervision during their Adolescent Medicine rotation. After the MI workshop, and again after their refresher

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/TCT.12503](https://doi.org/10.1111/TCT.12503)

This article is protected by copyright. All rights reserved

course, we assessed resident attitudes and skill with written and online surveys, as well as a modified Helpful Responses Questionnaire (HRQ).

**Results:** Results revealed a statistically significant improvement in resident confidence in eliciting health behaviour change ( $t(59)=3.76, p=0.008$ ). HRQ scores for all three clinical scenarios improved significantly following the workshop ( $p<0.000$ ). Residents most valued the interactive components of the workshop and review course, particularly the practice exercises, videos/video vignettes, feedback, and coaching.

**Discussion:** A standardised MI curriculum for paediatric residency training improved resident confidence in eliciting health behaviour change and use of empathic, reflective language. The curriculum is both feasible and widely accepted by residents with opportunities for resident practice and supervision in MI during resident training. In conclusion, providing a 4-hour MI workshop to paediatric residents with reinforcement through a review course and clinical opportunities to practice MI and receive supervision improved confidence in eliciting health behaviour change and use of MI consistent language. This innovative and time-sensitive effort could serve as a future model for MI training for paediatric residents.

### **Introduction:**

Motivational interviewing (MI) is a collaborative, evidence-based, patient-centered counselling style for addressing ambivalence about behaviour change exploring patient-elicited reasons for change within an atmosphere of acceptance and compassion<sup>1</sup> (Figure 1). MI is an effective tool in health behaviour change with durable effects over time<sup>2</sup>. In paediatric medicine, a large meta-analysis found MI to be effective for health behaviour change counselling across multiple domains<sup>3</sup>. Despite the proven effectiveness of MI in paediatric health care settings, there is little formal instruction in MI within paediatric residency programmes<sup>3</sup>. The literature regarding optimal MI teaching strategies has also been lagging<sup>4-5</sup>. MI training in paediatric residency reported to date has been offered to small groups of eager residents or in the context of a specific health behaviour<sup>6</sup>.

This pilot study represents the first published report of longitudinal MI education provided to all residents at a paediatric residency programme. We hypothesised that providing paediatric residents with a learner-centered, evidence-based longitudinal MI curriculum would enhance their attitudes and skills in behaviour change counselling.

**Methods:**

**Design:**

An MI curriculum was implemented from August 2012 until January 2014 with two consecutive groups of second year paediatric residents at the Children's Hospital of Pittsburgh of UPMC. The residents have no formal teaching of MI in any other aspect of their training. Residents partook in a common 4-hour MI workshop followed by a MI review course during their adolescent medicine rotation (Figure 2). A multidisciplinary advisory group of faculty members guided the study including four members of the Motivational Interviewing Network of Trainers (MINT). The study was approved by the Children's Hospital of Pittsburgh of UPMC Quality Improvement Committee and granted a Minimal Risk exemption by the University of Pittsburgh Institutional Review Board.

**Educational Components:**

**MI Workshop:**

Residents were given a folder including a two-sided MI pocket guide covering MI spirit, processes, and microskills, as well as two seminal MI journal publications<sup>7-8</sup>. The workshop involved didactic component reviewing MI spirit, principles, processes and microskills. The didactic included videos demonstrating MI-adherent and non-adherent language as well as group exercises practicing OARS skills (open-ended questions, affirmations, reflections and summaries).

Following the didactic portion, residents observed a live 15-minute MI interview conducted by a MINT faculty member with a simulated patients. Residents then engaged in role-plays in groups of three with one resident as interviewer, another as patient and another providing feedback using the Behavior Change Counseling Index (BECCI), a 12-item validated tool measuring health care providers' behaviour change counselling

behaviours<sup>9</sup>. Three rounds of role-play were conducted to allow each resident an opportunity to practice each role. No standardised patients were used in the workshop<sup>10</sup>. The three case scenarios used were adolescent asthma and tobacco use, childhood obesity, and adolescent marijuana use (case scenarios available upon request).

#### **Adolescent Medicine MI Review Course:**

Residents each received a 1-hour, case-based, small group MI review course during their 4-week adolescent medicine rotation led by a member of the advisory group or a senior Triple Board fellow. In addition, Adolescent Medicine faculty members received monthly MI training provided by MINT faculty.

#### **Assessment:**

##### **MI Workshop Survey:**

The survey was distributed in print form prior to and after the workshop. It included five-point Likert measures of resident attitudes regarding the importance of behaviour change counselling, familiarity with MI, comfort in providing health behaviour change counselling and confidence in eliciting health behaviour change. As a measure of resident MI skill, we included a modified, abbreviated Helpful Responses Questionnaire (HRQ) with three paediatric clinical scenarios<sup>11</sup>. The post workshop survey included two additional items measuring the value of the workshop and pocket guide.

##### **Adolescent Medicine Rotation MI Course Online Survey:**

An online survey was provided to residents who participated in the review course during their adolescent medicine rotation. The survey included five-point Likert measures of the likelihood of using MI in future practice, the value of components of the MI curriculum, as well as resident reported frequency of MI use. Residents provided free-response feedback on the strengths and weaknesses of the curriculum. The survey was administered within 3 weeks of the review course and responses were collected within 4 weeks of the review course, or no more than 1 week after dissemination of the survey.

##### **Helpful Response Questionnaire (HRQ):**

The HRQ is a brief, free-response questionnaire with six standardised case scenarios administered to groups or individuals to evaluate responses based on quality of reflective, empathic language<sup>11</sup>. In this study, the HRQ was shortened to three cases, and adapted to provide paediatric cases (Figure 3).

### **Statistical Analysis:**

Descriptive statistics were used to characterise the data. We utilised a one-sided, unpaired t-test to compare pre and post intervention data as the survey data was de-identified and pooled without direct pre/post participant comparison. All p values less than 0.05 were considered statistically significant. Analyses were performed using SPSS version 20.0.

### **Results:**

A total of 64 residents (91%) participated in the study. Residents who did not participate were either on vacation, sick leave or had night clinical coverage duties. Of these 64 residents, 60 (94%) completed the MI workshop written survey with 53, 53 and 51 residents providing responses to the modified HRQ scenarios one, two and three, respectively.

Following the workshop, there were statistically significant improvements in resident reported confidence in eliciting health behaviour change and familiarity with MI (Table 1). Residents rated the value of the MI workshop and pocket guide on a 1-5 Likert scale, with 5 being “highly valuable”. The mean score for the workshop was 3.77 (SD 0.93) and for the pocket guide it was 3.38 (SD 0.97). Residents showed statistically significant improvements in the use of empathic, reflective language on the modified HRQ across all clinical scenarios (Table 1).

In addition, 20 of 47 residents (43%) completed the Adolescent Medicine MI review course survey. 65 per cent of residents indicated a “very high” or “high” likelihood of using MI in future practice. Residents reported increased use of MI in their clinical practice in the week following the MI review course, compared to the week prior (Figure 4). Fifty per cent of residents rated the time spent learning MI as sufficient and 35 per

cent requested more time learning MI. The overall curriculum was rated as “good” or “very good” by 75 per cent of residents.

Free-text feedback included requests for more interactive exercises, coaching, and opportunities to observe faculty model MI. Overall, videotaped vignettes were the highest valued component of the curriculum, followed by practice exercises, and feedback (Figure 5).

### **Discussion:**

In this study, offering a 4-hour MI workshop supplemented by a review course and clinical opportunities for practice and feedback resulted in statistically significant improvement in resident confidence in health behaviour change counselling and improved use of empathic, reflective language based on a modified HRQ. Residents most valued the interactive components of the training curriculum. The majority of residents rate the training as “good” or “very good”, and indicated a high likelihood of using MI in future practice. Eighty-five per cent of residents felt the training was sufficient or wanted more training than was offered.

The curriculum was unique as it was provided to all paediatric residents, rather than a subset of eager residents, and not focused on one particular health behaviour. The curriculum is highly interactive with multiple teaching modalities supporting a recent Cochrane review highlighting the key components of medical education<sup>12</sup>. The curriculum was feasible and quickly adopted, both important considerations in a busy academic paediatric training programme with multiple competing interests for resident time.

This study has limitations. Survey data were not paired, limiting the ability to analyse individual participant improvements over time. It is unclear if a 1-year curriculum would result in sustained use of skills as previous studies indicate skills tend to decline over time without regular training or supervision. Future studies should evaluate resident skills and attitudes through more rigorous measures including direct observation of skills

and measures of changes in clinical outcomes related to patient-resident interactions. Furthermore, dose-dependent responses to training, supervision and feedback would be important to explore further. Our study used a modified HRQ to evaluate the use of MI consistent language, This modified paediatric HRQ has yet to be validated. This study also does not provide any standardised, observed measures of MI adherent language.

Despite these limitations, this study suggests that a brief MI workshop, supported with opportunities for instruction, practice, and supervision results in improved confidence in counselling patients on health behaviour change, and use of patient-centered, empathic language. This study demonstrates that a longitudinal MI curriculum, provided to all paediatric residents, is both feasible and well received. Based on feedback, we would revise our curriculum to include more interactive learning including the use of video, role-play and coaching. In our experience, this model of MI education can be adapted to other specialties by adjusting the model to the specifics of a given residency programme, resident-elicited preferences, and the key clinical aspects of a given specialty. Overall, the curriculum fits well with the spirit of the ACGME guidelines for residency training and shows promise as a model of MI education in paediatric residency training, as well as other specialties.

#### **References:**

1. Miller WR, Rollnick S. *Motivational Interviewing: Helping People Change* (3rd edition). Guilford Press. New York, NY. 2013
2. Lundhal B, Burke BL. “The Effectiveness and Applicability of Motivational Interviewing: A Practice-Friendly Review of Four Meta-Analyses.” *Journal of Clinical Psychology* 2009; 65 (11): 1232-1245
3. Gayes LA, Steele RG. “A Meta-Analysis of Motivational Interviewing Interventions for Pediatric Health Behavior Change.” *Journal of Consulting and Clinical Psychology* 2014; 82(3): 521-535.
4. Madison MD, Loinon AC, Lane C. “Training in motivational interviewing: A systematic review.” *Journal of Substance Abuse Treatment*. 2009; 36: 101-109.

5. Soderlung LL, Madson MB, Rubak S, Nilsen P. "A systematic review of motivational interviewing training for general healthcare practitioners." *Patient Education and Counseling*. 2011; 84: 16-26.
6. Lozano et al. "Randomized Trial of Teaching Brief Motivational Interviewing to Pediatric Trainees to Promote Healthy Behaviors in Families". *Arch Pediatr Adolesc Med*. 2010; 164 (6): 561-566.
7. Miller W, Rollnick S. "10 Things that Motivational Interviewing Is Not." *Behavioural and Cognitive Psychotherapy* 2009; 37: 129-140
8. Miller W, Moyers T. "Eight Stages in Learning Motivational Interviewing." *Journal of Teaching in Addictions* 2006; 5(1): 3-17
9. Lane C, Huws-Thomas M, Hood K, Rollnick S, Edwards K, Robling K. "Measuring adaptations of motivational interviewing: the development and validation of the behavior change counseling index (BECCI)." *Patient Education and Counseling*. 2005; 56: 166-173
10. Lane C, Hood K, Rollnick S. "Teaching motivational interviewing: using role play is as effective as simulated patients." *Med Educ* 2008; 42(6): 637-644
11. Miller WR, Hendrick KE, Orlofsky DR. "The Helpful Responses Questionnaire: a procedure for measuring therapeutic empathy." *J Clin Psychol*. 1991; 47(3): 444-448.
12. Satterlee WG, Eggers RG, Grimes DA. "Effective Medical Education: Insights from the Cochrane Library." *CME Review Article- Obstetrical and Gynecological Survey*. 2008; 63(5): 329-333

**Corresponding author's contact details:** Nasuh Malas MD, MPH, University of Michigan Health System, 1500 East Medical Center Drive, F6321 Neuroscience Hospital Ann Arbor, MI 48109-5295, USA. E-mail: [nmalas@med.umich.edu](mailto:nmalas@med.umich.edu)

**Funding:** \$1000 was received from the Family Fund of Pittsburgh and was used to provide two honorariums to faculty members involved in the implementation of the study curriculum

**Conflict of interest:** Dana Rofey receives NIH funding for research purposes unrelated to this study. Melanie Gold discloses a relationship with Novartis Pharmaceutical Corporation. She serves on the speakers' bureau on Motivational Interviewing.

**Acknowledgements:** We would like to acknowledge the Pediatric Residency Program at the Children's Hospital of Pittsburgh for their support of this program, particularly residency leadership and the Division of Adolescent Medicine. Special thanks to the Triple Board residents at the University of Pittsburgh Medical Center for volunteering to assist with the implementation of the motivational interviewing curriculum.

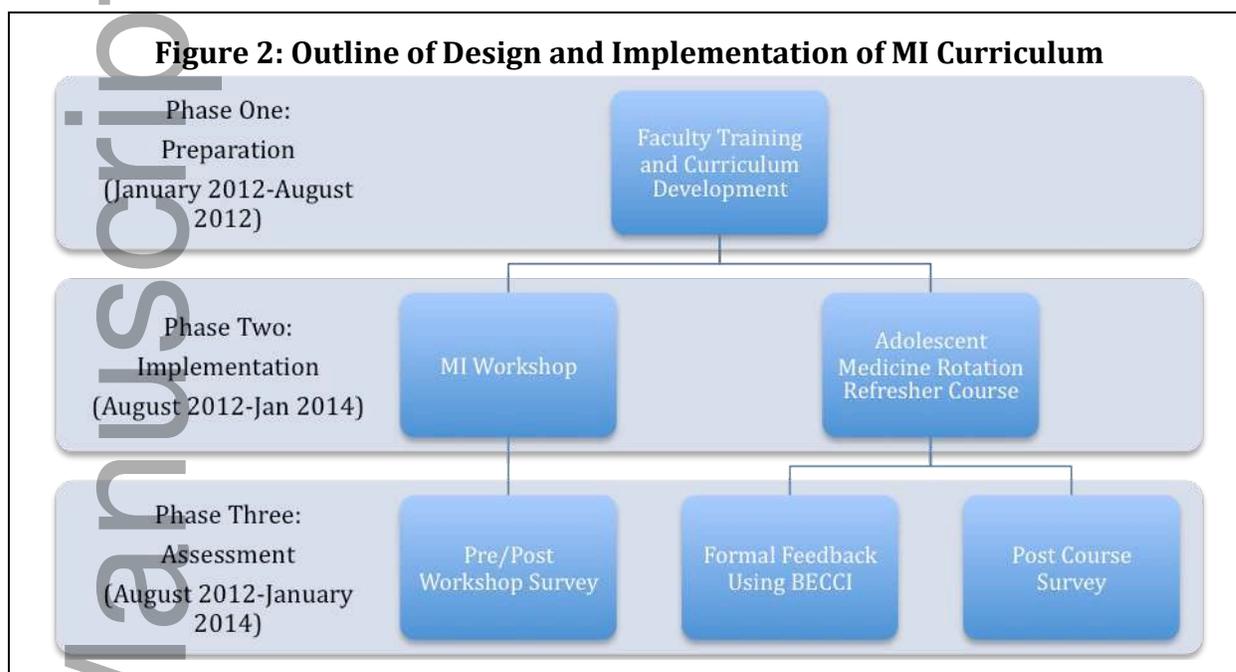
**Ethical approval:** The study was approved by the Children's Hospital of Pittsburgh of UPMC Quality Improvement Committee and granted a Minimal Risk exemption by the University of Pittsburgh Institutional Review Board.

<b>Table 1. MI Workshop Survey Results</b>			
<b>Resident Attitudes on MI and Behavior Change Counseling</b>			
	<b>Pre-Workshop (n=64)</b>	<b>Post-Workshop (n=60)</b>	<b>One-tail score</b>
<b>On a scale of 1-5 (1 being not important and 5 being highly important), how important is it for you to learn skills that could improve healthy behavior change in your patients?</b>	4.69 (SD 0.50)	4.48 (SD 0.68)	t (59)=-2.33, p= 0.03
<b>On a scale of 1-5 (1 being not comfortable and 5 being highly comfortable), how comfortable are you in counseling your patients in behavior change?</b>	3.45 (SD 0.65)	3.55 (SD 0.59)	t(59)=1.40, p=0.17
<b>On a scale of 1-5 (1 being not confident and 5 being highly confident), how confident are you in your ability to elicit healthy behavior changes in your patients?</b>	2.98 (SD 0.75)	3.29 (SD 0.64)	t(59)=3.76, p=0.008
<b>On a scale of 1-5 (1 being not familiar and 5 being highly familiar), how familiar are you with motivational interviewing?</b>	3.13 (SD 0.93)	3.78 (SD 0.76)	t(59)=6.67, p=0.000
<b>Resident Modified HRQ Scores</b>			

	<b>Pre-Workshop</b>	<b>Post-Workshop</b>	<b>One-tail t-score</b>
<b>Case One (Obesity) (n=53)</b>	1.78 (SD 0.96)	2.57 (SD 1.45)	t(52)= 3.95, p=0.000
<b>Case Two (Diabetes) (n=53)</b>	1.93 (SD 0.99)	2.92 (SD 1.34)	t(52)= 5.43, p=0.000
<b>Case Three (High Risk Sexual Behavior) (n=51)</b>	1.69 (SD 0.84)	2.65 (SD (1.43)	t(50)= 4.77, p=0.000

**Table One:**

Author Manuscript

**Figure 2**

**Figure 3**

**Figure 3: Modified Helpful Response Questionnaire Pediatric Case Scenarios**

**Case Scenario 1:**

Please write in 1-2 sentences how you would respond to the following situation:

Patient's caretaker states:

"My little Susie is overweight. She eats whatever she wants and never exercises. The other day, I made her veggies and grilled chicken, but all she will eat is pizza."

Response:

**Case Scenario 2:**

Please write in 1-2 sentences how you would respond to the following situation:

Adolescent in Endocrine clinic states:

"I was just diagnosed with diabetes like 3 months ago. I check my sugars sometimes and for a while they were really good. I think I don't have diabetes and even if I did, I think I'll be fine eating what I want. I'm too busy to check sugars and need to spend more time trying to make the soccer team, rather than track all this stuff."

Response:

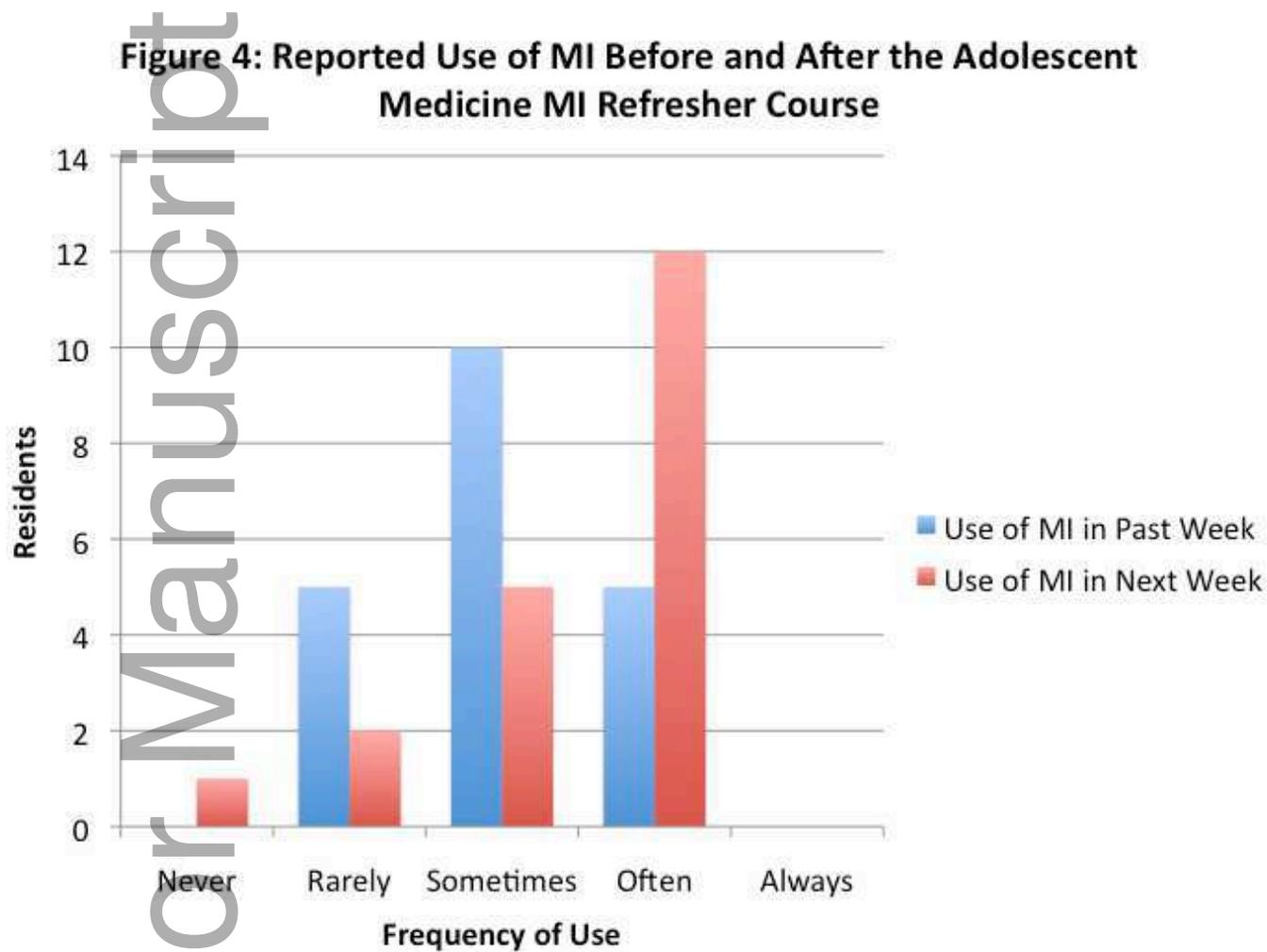
**Case Scenario 3:**

Please write in 1-2 sentences how you would respond to the following situation:

Adolescent male states the following in your primary care clinic:

"Yeah, I have a girlfriend. We do have sex and I wear a condom some of the time. A few months back I found out I had Chlamydia and it scared me. I didn't want to tell my girlfriend, but I don't want to use a condom all the time either. I know she is faithful and I hate how it feels when we are together."

Response:

**Figure 4**

**Figure 5**