

# Shared Decision-Making Training in Internal Medicine: A Multisite Intervention Study

Simon Ritter, MD, MME  
Jerome Stirnemann, MD, PhD  
Jan Breckwoldt, MD, MME  
Hans Stocker, PhD  
Manuel Fischler, MD

Sarah Mauler, Med Pract  
Valérie Fuhrer-Soulier, Med Pract  
Christoph A. Meier, MD  
Mathieu Nendaz, MD, MHPE

## ABSTRACT

**Background** Research shows that when patients and health care providers share responsibility for clinical decisions, both patient satisfaction and quality of care increase, and resource use decreases. Yet few studies have assessed how to train residents to use shared decision-making (SDM) in their practice.

**Objective** We developed and evaluated a SDM training program in internal medicine.

**Methods** Senior internal medicine residents from 3 hospitals in Switzerland were assessed shortly before and 2 months after completing a program that included a 2-hour workshop and pocket card use in clinical practice. Encounters with standardized patients (SPs) were recorded and SDM performance was assessed using a SDM completeness rating scale (scores ranging from 0 to 100), a self-reported questionnaire, and SPs rating the residents.

**Results** Of 39 eligible residents, 27 (69%) participated. The mean (SD) score improved from 65 (SD 13) to 71 (SD 12; effect size [ES] 0.53;  $P = .011$ ). After training, participants were more comfortable with their SDM-related knowledge (ES 1.42,  $P < .001$ ) and skills (ES 0.91,  $P < .001$ ), and with practicing SDM (ES 0.96,  $P < .001$ ). Physicians applied SDM concepts more often in practice (ES 0.71,  $P = .001$ ), and SPs felt more comfortable with how participants discussed their care (ES 0.44,  $P = .031$ ).

**Conclusions** The SDM training program improved the competencies of internal medicine residents and promoted the use of SDM in clinical practice. The approach may be of interest for teaching SDM to residents in other disciplines and to medical students.

## Introduction

Involvement of patients in health care decisions is associated with increased patient satisfaction, quality of care, and reduced use of resources.<sup>1</sup> Shared decision-making (SDM) is defined as “an approach where clinicians and patients share the best available evidence when faced with the task of making decisions, and where patients are supported to consider options, to achieve informed preferences.”<sup>2</sup> When making clinical decisions based on best available evidence, the values of the patient are incorporated by discussing the choice process, different options, and consecutive decisions.<sup>2,3</sup> Use of SDM involves patients in an active conversation about their needs, values, and preferences.<sup>1,4</sup> Guided by the health care team’s experience, patients and/or their families are better informed about treatment options and potential benefits, risks, and costs. SDM with decision aids has been associated with better outcomes, including better medication adherence<sup>5</sup> and

improved patient knowledge and perception of risks when making treatment decisions.<sup>6</sup>

Consequently, SDM training should be implemented in physician education. Successful SDM training provides participants with a solid understanding of the concept of SDM and the communication skills necessary to use it.<sup>7</sup> Unlike the notion of informed consent, SDM concepts may not be familiar to many practicing physicians and are not yet widely adopted in patient encounters.<sup>8,9</sup> Although continuing professional development may promote SDM in clinical practice,<sup>10</sup> there are few SDM training programs available for internists, and their effectiveness has yet to be evaluated.<sup>1,11</sup> We developed and assessed the impact of a brief SDM training program for senior internal medicine residents.

## Methods

The study was conducted at 3 teaching institutions in Switzerland, the 900-bed University Hospital in French-speaking Geneva, and the 550-bed Triemli City Hospital and 260-bed Waid City Hospital in German-speaking Zurich. The background and study design were presented to 39 senior internal medicine residents, and 27 (69%) agreed to participate. All were involved in general internal medicine patient

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*Editor’s Note: The online version of this article contains a shared decision-making (SDM) pocket card, a SDM completeness scale, a questionnaire for the pre- and postintervention surveys, and participant characteristics.*

care on inpatient units and in the emergency department.

The study used a single group, pretest-posttest crossover design. SDM training consisted of a 2-hour workshop and pocket material for use in daily practice following the workshop. The impact of the intervention was measured through objective assessment by MD evaluators during standardized patient (SP) encounters, participants' self-assessments, and SP assessment of resident performance. The postintervention measurement took place no sooner than 2 months after the intervention. We used Elwyn and colleagues' framework for the definition, elements of training,<sup>12</sup> and assessment of SDM.<sup>13</sup> We also considered other sources, such as the integrative model of SDM,<sup>14</sup> the MAGIC Program,<sup>15</sup> and other competencies for SDM.<sup>16,17</sup>

### Development of the SDM Training Program

We developed a 2-hour interactive workshop on SDM concepts and practical training that included presentations, discussions, introduction of a pocket card reminder showing the steps of a SDM encounter (provided as online supplemental material), and role play in simulated physician-patient encounters. Training was provided by senior physicians experienced in SDM (S.R., J.S., M.N.). Participants were encouraged to use the pocket card after the workshop, apply SDM concepts to patient care, and teach the acquired SDM knowledge and skills to medical students and junior residents.

### Standardized Patient-Based Evaluation of Encounters

Two to 4 months after the intervention participants were assessed during observed encounters with SPs. SPs were non-medical individuals with experience in portraying patients. Two SPs were used in the German-speaking hospitals (Zurich) and 2 in the French-speaking (Geneva). We developed 2 scripts. The first involved a patient with newly diagnosed atrial fibrillation and provided the option of oral anticoagulation versus observation. The second was a patient with advanced pancreatic cancer choosing between chemotherapy and supportive treatment only. SPs were trained according to pre-established script scenarios in both French and German. One of the 2 scenarios was randomly assigned for the preintervention SP encounter and the other was used for the postintervention encounter (crossover design), so that each participant encountered both scenarios. Participants were provided with a brief medical history immediately before the encounter and asked to interact with the SP for no longer than 20 minutes.

#### What was known and gap

Shared decision-making (SDM) with patients has benefits for adherence to care and use of resources, but is not formally taught to physicians in training.

#### What is new

A brief intervention to teach SDM skills to senior internal medicine residents, and scoring with an expanded version of the OPTION (observing patient involvement in decision-making) tool.

#### Limitations

Single specialty study; expanded OPTION scale lacks validity evidence.

#### Bottom line

The intervention improved objective assessments of SDM encounter completeness and residents' self-assessed competence.

All SP encounters were video-recorded and assessed by 2 raters, using an adapted OPTION (observing patient involvement in decision-making) scale<sup>13</sup> (provided as online supplemental material). Raters were MDs who had been trained to score the SDM approach and were blinded to the participants' assignment group. To minimize differences due to rater stringency, we averaged the scores provided by each rater to a given participant.

The ratings database was anonymized. To measure patient involvement in decision-making during the encounters, an adaptation of the OPTION scale was used that included additional behaviors related to SDM competencies.<sup>14,16,17</sup> The resulting SDM completeness scale was deemed more appropriate for inpatient settings and included 20 elements, compared to 12 in the original OPTION scale designed to assess primary care encounters.<sup>13</sup> The BOX shows the added SDM behaviors assessed in our study.

We also developed a more comprehensive, observation-based inventory based on the OPTION scale. This additionally considered the patient's and the clinician's perspectives, as well as discussions of the evidence (ie, uncertainties associated with the decision). Behaviors were appraised in half-point increments on a 5-point scale (as in the original scale<sup>13</sup>), ranging from not fulfilled (0 point), partially fulfilled (1 point), and fulfilled (2 points). The raw score for each encounter had a maximum of 40 points, and was converted to a percent score. The duration of encounters was assessed from the video recordings.

### Participants' Self-Assessment

A self-reported questionnaire using a 5-point Likert scale was used to assess participants' perception of SDM competencies, application of SDM concepts, and the use of support tools (decision aids, visual

**Box** Added Shared Decision-Making Behaviors for Inpatient Care

1. Formulates that physician and patient are contributing equally to the final care decision.
2. Discusses the patient's self-efficacy or ability to adhere to the decision.
3. Discloses the experience of the health care team associated with each option.
4. Discusses uncertainties associated with the decision.
5. For "Explaining pros and cons," 2 behaviors were assessed: discusses possible benefits or increased quality of life associated with the options; and discusses possible risks, side effects, or decreased quality of life associated with the options.
6. For "Exploring expectations," 2 behaviors were assessed: encourages active patient participation in the decision-making process; and explores the patient's medical preferences and values.
7. For "Indicating need for decision," 3 behaviors were assessed: asks the patient what option he or she prefers; achieves consensus about the treatment course most consistent with the patient's values and preferences (mutual agreement); and makes or explicitly defers decision.

methods, and option grids) to facilitate decision-making.

### SP Assessment of the Participants

SPs rated the physicians' performance immediately after each encounter, using a 5-point scale. Assessment tools and information provided to participants, raters, and SPs are provided as online supplemental material.

The study was approved by the Ethics Committee of the Canton of Zurich, Switzerland. Written informed consent of all participating physicians and SPs was obtained before baseline survey.

### Statistical Analysis

A power calculation performed prior to the study considered a minimum 4-point increase in SDM competence to be meaningful and assuming a standard deviation (SD) of 5 of the within-subject differences, as measured by the SDM completeness scale (raw score). With a 2-sided significance level of 0.05 and a power of 80%, 25 subjects were needed. Pre- and postintervention outcome parameters were compared using descriptive statistics and paired sample *t* tests. All analyses were 2-tailed, and a *P* value below .05 was considered significant. Effect sizes were calculated using Cohen's *d* to describe the magnitude of observed differences, and classified as small ( $d = 0.2$ ), medium ( $d = 0.5$ ), or large ( $d \geq 0.8$ ).

## Results

Of the 27 physicians in the study, 11 were from Geneva and 16 were from Zurich (participant characteristics provided as online supplemental material). All participants were internists, with experience as senior residents ranging from 6 months to 16 years. None had prior training in SDM; the majority had previous training in communication skills and evidence-based medicine. Gender ratio and mean age were similar for participants and non-participants (female 50%, mean age 36.8 years).

A total of 54 data points were analyzed from pre- and postintervention testing. There was a mean of 74 days between testing sessions (range 63–104), and the workshop took place no longer than 3 days after preintervention testing.

Postworkshop, mean (SD, range) objective ratings of SDM completeness improved from 65 (13, 37–84) to 71 (12, 48–89), a relative increase of 9.2% (ES 0.53), and participants reported being more comfortable with related knowledge (ES 1.42) and skills (ES 0.91), and practicing SDM (ES 0.96). Self-rated communication skills were unchanged. Participants reported they more often applied SDM concepts in practice (ES 0.71), but did not use the associated supporting tools and decision aids. SPs rated the overall competence in discussing the treatment decision as high, without significant change between the 2 sessions (ES 0.19). SPs felt more comfortable with how participants discussed treatment options posttraining (ES 0.44).

The average length of consultations did not differ statistically. Before the training, encounters ranged from 12.9 to 20.7 minutes (mean 17.5); postintervention they ranged from 13.0 to 27.0 minutes (mean 18.4). All outcome data are shown in the TABLE.

## Discussion

A brief training intervention improved the competencies of senior internal medicine residents for shared decision-making with their patients, as measured by objective SDM completeness ratings and participant self-reports. Of note, participants involved patients in decision-making at a remarkable high degree at baseline (percent score of 65), potentially reflecting senior residents' acquisition of SDM competencies through clinical experience, and training in communication skills and evidence-based medicine. In a systematic review of 33 published studies,<sup>18</sup> only 1 study using a preintervention assessment reported a comparably high OPTION total score at 68.<sup>19</sup> Postintervention, 2 studies showed high average OPTION total scores of 63 and 50, respectively,<sup>20,21</sup> lower than the scores in our study. Of all health care providers rated with OPTION, none of the studies included in

**TABLE**  
Outcomes for Evaluation of Shared Decision-Making Training Program

Outcomes	Pretest (n = 27)	Posttest (n = 27)	P Value	Effect Size <sup>a</sup>
SDM completeness scale, % score <sup>b</sup>	65 (13)	71 (12)	.011	0.53
Duration of encounter with SP, min	17.5 (2.2)	18.4 (3.8)	.25	0.20
Senior resident's self-assessment of competencies and motivation <sup>c</sup>				
Very comfortable with practicing SDM	2.67 (0.8)	3.56 (0.7)	< .001	0.96
SDM competencies rated as "very good"	2.44 (0.6)	3.04 (0.7)	.002	0.67
Communication skills rated as "very good"	3.44 (0.6)	3.59 (0.6)	.29	0.21
Very comfortable with SDM knowledge	2.00 (0.6)	3.30 (0.7)	< .001	1.42
Very comfortable with SDM skills	2.26 (0.7)	3.15 (0.7)	< .001	0.91
Very interested to learn more about SDM	4.59 (0.5)	4.11 (0.7)	< .001	-0.75
Very interested to teach SDM to others	4.37 (0.8)	4.11 (0.6)	.09	-0.34
Senior resident's self-perception on applying concepts and tools in practice <sup>d</sup>				
SDM concepts (how often applied)	2.78 (1.4)	3.81 (0.6)	.001	0.71
Decision aids (how often used)	2.30 (1.5)	2.96 (1.2)	.08	0.36
Visual methods (how often used)	1.19 (0.5)	1.56 (0.9)	.05	0.40
Option grids (how often used)	1.26 (0.7)	1.41 (0.6)	.17	0.28
SP assessment of senior resident immediately after the encounter <sup>c</sup>				
Overall competence of the physician in discussing the decision rated as "excellent"	4.41 (0.8)	4.63 (0.6)	.22	0.19
SP subjective overall feeling after the encounter	4.44 (0.6)	4.81 (0.5)	.031	0.44

Note: Results are given as mean (SD).

Abbreviations: SDM, shared decision-making; SP, standardized patient.

<sup>a</sup> Effect size calculated as Cohen's *d*, whereas *d* = difference between the group means / SD of either group (Cohen's *d* of 0.2 = a small effect, 0.5 = a moderate effect, and 0.8 = a large effect).

<sup>b</sup> Assessed by analysis of videotapes of encounters with SP, using a newly developed rating scale score derived from the OPTION scale, ranging from 0 (least involved) to 100 (most involved).

<sup>c</sup> Assessed by means of a questionnaire, using a 5-point scale with ratings between 1 point (lowest for "strongly disagree") and 5 points (highest for "strongly agree").

<sup>d</sup> Assessed by means of a questionnaire, using a 5-point scale with ratings between 1 point (lowest for "never") and 5 points (highest for "daily").

the systematic review assessed hospital-based inter-nists.<sup>18</sup> Studies mostly included general practitioners, and their mean score of 23 was lower than that of medical specialists, who more frequently had average scores  $\geq 25$ . The approach to SDM may differ between hospital and outpatient care, due to differences in length and context of the medical encounter. General practitioners know their patients for longer time periods, and may complete a SDM approach over several encounters. The context of the hospital-based encounter may require physicians to involve the patient in decision-making at a single time.

Brief interventions can have a positive effect, as shown by an increase in teacher effectiveness after focused training<sup>22</sup> and improved SDM performance of internal medicine residents in an ambulatory context.<sup>23</sup> In our study, the improvement was moderate, potentially reflecting a ceiling effect due to participants' high degree of patient involvement before the intervention. Longitudinal data suggest that SDM training resulted in improvement that was sustained over time.<sup>20,24</sup>

From an economic perspective, there may be concerns that SDM use will result in longer patient contact times and be regarded as "nice to have, but difficult to afford." Our data showed an increase in contact time of less than 1 minute (5% of total time) after the training, with no statistical difference. This is a relevant point in the discussion around the cost and benefits of improving patient communication and involvement.

Limitations of our study include use of a multi-component intervention that makes it impossible to assess which aspect was responsible for the improved SDM competence. In addition, the modified OPTION scale to assess completeness of the SDM process was not validated. Finally, referring to Kirkpatrick's model,<sup>25</sup> we used objective measures for the impact of training on learning and performance, but data on changes in practice were self-reported.

Future studies are needed to examine which interventions work best, and whether the pocket card alone may increase residents' SDM abilities.

## Conclusion

A brief intervention improved the objective SDM competencies of senior residents in internal medicine, improved evaluations of patient-resident encounters, and promoted self-reported use of SDM in practice. This approach may be useful in training junior residents and physicians in internal medicine and other disciplines as well as medical students.

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At the time of writing, **Simon Ritter, MD, MME**, was a Consultant, Department of Internal Medicine, Triemli City

Hospital, Zurich, Switzerland, and is now Head of Internal Medicine, Department of Internal Medicine, Spitalverbund Appenzell Ausserrhoden, Herisau, Switzerland; **Jerome Stirnemann, MD, PhD**, is a Consultant, Department of General Internal Medicine, University Hospitals of Geneva, Geneva, Switzerland; at the time of writing, **Jan Breckwoldt, MD, MME**, was Head of Office, Vice-Deanery of Education, Faculty of Medicine, University of Zurich, Zurich, Switzerland, and is now Supervising Anesthetist, Institute of Anesthesiology, University Hospital Zurich, Zurich, Switzerland; **Hans Stocker, PhD**, is Statistical Consultant, Schaffhausen, Switzerland; **Manuel Fischler, MD**, is Associate Professor of Medicine, Department of Internal Medicine, Waid City Hospital, Zurich, Switzerland; **Sarah Mauler, Med Pract**, is a Resident, Department of Internal Medicine, Triemli City Hospital, Zurich, Switzerland; **Valérie Fuhrer-Soulier, Med Pract**, is a Resident, Department of General Internal Medicine, University Hospitals of Geneva, Geneva, Switzerland; at the time of writing, **Christoph A. Meier, MD**, was Professor of Medicine, Department of Internal Medicine, Triemli City Hospital, Zurich, Switzerland, and is now Chief Medical Officer, University Hospital Basel, Basel, Switzerland; and **Mathieu Nendaz, MD, MHPE**, is Professor of Medicine and Medical Education, Department of General Internal Medicine, University Hospitals of Geneva, and Unit of Development and Research in Medical Education, Faculty of Medicine, University of Geneva, Geneva, Switzerland.

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Corresponding author: Simon Ritter, MD, MME, Spital Herisau Appenzell Ausserrhoden, Spitalstrasse 6, 9100 Herisau, Switzerland, simon.ritter@svar.ch

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