CORRESPONDENCE

Research Letter

The Hospital-Wide Implementation of Shared Decision-Making

Initial Findings of the Kiel SHARE TO CARE Program

The German Law on Patients' Rights (Patientenrechtegesetz) stipulates that all medically reasonable treatment options must be taken into consideration by the physician and the patient, in the light of the best available medical evidence and the patient's preferences, so that a decision on treatment can be jointly taken. The method known as shared decision-making (SDM) is the gold standard (1).

As a model for the universal implementation of SDM, the Innovation Fund of the German Federal Joint Committee (Gemeinsamer Bundesausschuss) currently supports the SHARE TO CARE (S2C) program, in which SDM is to be implemented in every clinical department on the Kiel campus at the University Medical Center Schleswig-Holstein (UKSH) (2).

The UKSH neurology department is the first organizational unit in which the S2C program has been fully implemented. The present study addresses the practical implementability of the S2C program and its effectiveness in making shared decision-making a reality.

Methods

The four intervention modules of the S2C program, which were previously validated in randomized, controlled trials (2), involve the main stakeholders in the hospital:

- All doctors undergo online training and receive individual feedback on video recordings of their own conversations with patients, instructing them how they can effectively bring about SDM.
- Print and film media (employing the ASK3 method and other initiatives) are used to encourage patients to participate more actively.
- The specialized medical experts of the hospital, along with experts on evidence-based medicine, medical writing, and film, together illustrate information on the main types of medical decision that are made in each specialized area, creating evidence-based, multimedia online decision aids.
- Nurses and other non-physician professionals are trained to be decision coaches to give patients additional support in the process of shared decision-making.

In a pre-post design, patients were surveyed by mail with internationally-used patient questionnaires. Data acquisition at baseline (t_0) took place from July to September 2018. Once S2C had been fully implemented, data acquisition after the intervention (t_1) took place from January to March 2020.

The primary endpoint was the SDM level operationalized by the Patient Decision-Making Scale from the Perceived Involvement in Care Scale (PICS_{PDM}). A further endpoint was the patient's preparation for making decisions about treatment, operationalized by the Preparation for Decision Making (PrepDM) questionnaire. Pre-post comparisons were made with the aid of two-tailed t tests. A threshold value of >2.5 points on the PICS_{PDM}, which ranges from 1 to 4 points, was set a priori as an indicator of SDM. Additional items were used to study the quality of patient information (with respect to the presentation of

treatment options and their advantages and disadvantages) descriptively, from the patients' point of view. Multivariate regression was used to study the effects of age, educational level, and sex on the primary endpoint, PICS_{PDM}.

The patients from whom data were acquired during the period of the study were selected at random. They were blinded to the design of the study.

Results

Practical implementability

The four intervention modules of the S2C program were implemented in the neurology department as planned. During the study, 42 (93%) of the department's doctors were trained in SDM, 8 online decision aids for patients were developed and embedded into existing clinical pathways, two nurses were trained as decision coaches, and print and film media to encourage patient participation were continually and systematically offered to patients from the time of their admission to the hospital onward.

Effectiveness

The survey of patients by mail ($n_{t_0} = 69$; $n_{t_1} = 71$, response rates 64%/65%) revealed a significant increase in the subjective level of SDM (PICS_{PDM}: $M_{t_0} = 2.70$ (SD = 0.91); $M_{t_1} = 3.07$ (SD = 0.66); $p = 0.01$; effect size Hedges' $g = 0.47$ ($\approx$ moderate effect)). In the regression analysis of this increase, no relevant impact was found for age, sex, or level of education (regression coefficient $r_{unadjusted} = 0.34$ versus $r_{adjusted} = 0.33$; $p = 0.02$ for each). The percentage of physician-patient conversations with PICS_{PDM} scores above the SDM threshold (PICS_{PDM} > 2.5) rose from 56% to 77%. The patients also reported better preparation for decision-making about treatment (PrepDM: $M_{t_0} = 3.16$ (SD = 1.28); $M_{t_1} = 3.64$ (SD = 1.10); $p = 0.03$; Hedges' $g = 0.40$). Descriptively, the quality of patient information was found to have improved.

Conclusion

After the SHARE TO CARE program had been implemented in the Kiel neurology department, the SDM level, the preparation for medical decision-making, and the information patients received from their physicians about their treatment options improved. The program modules were found to be practically implementable, as was shown, remarkably, by the near-universal training of the department's physicians. Professional working hours temporarily needed to be allocated for this purpose; further analyses will show whether this initial investment yielded a return of equal or greater value, e.g., increased health competence and adherence among the patients, lessening their demand on physicians' time for their care.

A limitation on the interpretation of the findings is that this full-implementation setting, by its very nature, could not be evaluated under randomized and controlled conditions, and, as a

TABLE 1

Sociodemographic data of the patients and endpoints at both times of measurement

	t ₀		t ₁		Overall
	n	%	n	%	
Number of patients	69		71		140
Age (years)					
surveys with this information	67		71		138
18–40	5	7.5	17	23.9	
41–60	24	35.8	21	29.6	
over 60	38	56.7	33	46.5	
Sex					
surveys with this information	64		71		135
female	31	48.4	35	49.3	
male	33	51.6	36	50.7	
Highest educational level attained					
surveys with this information	66		71		137
lower than secondary school certificate	29	43.9	23	32.4	
secondary school certificate	23	34.9	26	36.6	
higher education entrance qualification	14	21.2	22	31.0	
PICS _{SDM} * score					
PICS _{SDM} <2.5	28	44.4	16	23.2	
PICS _{SDM} ≥2.5	35	55.6	53	76.8	
	MW	SD	MW	SD	Sign. (2-tailed)
PICS _{SDM} *	2.70	0.91	3.07	0.66	0.01
PrepDM*	3.16	1.28	3.64	1.10	0.03

*Patients were included in the evaluation of PICS_{SDM} and PrepDM only if they had filled out the relevant scales completely. Mean values (M) were compared with the aid of two-tailed t-tests. Sign., significance; SD, standard deviation

TABLE 2

Multiple linear regression on the effect of the time point of measurement on the primary endpoint “patient participation in decision-making” (PICS_{SDM}), accounting for age, sex, and education

	Regression coefficient	Significance (two-tailed)	95% CI
Time point of measurement			
t ₀ (reference group)			
t ₁	0.33	0.02	[0.05; 0.61]
Age (years)			
18–40 (reference group)			
41–60	–0.19	0.38	[–0.60; 0.23]
over 60	–0.35	0.08	[–0.74; 0.05]
Sex			
female (reference group)			
male	0.10	0.48	[–0.18; 0.37]
Highest educational level attained			
lower than secondary school certificate (reference group)			
secondary school certificate	0.25	0.13	[–0.08; 0.57]
higher education entrance qualification	–0.11	0.55	[–0.56; 0.25]
Regression constant	2.85	0.00	[2.39; 3.32]

Number of questionnaires included: 127. The regression coefficient is to be interpreted in the units of the PICS_{SDM} scale: thus, patients responding at time t₁ displayed a mean SDM level that was 0.33 units higher than that of the reference group (patients at t₀). No significant effect was found other than that of the time point of measurement (p>0.05 for all other effects). The regression constants are given here to provide a full picture of the regression model; they represent the y-intercepts of the computed regression lines. CI, confidence interval.

result, confounding effects cannot be ruled out. Forthcoming replications in other UKSH clinical departments will have to show the generalizability of the findings to other specialty areas. The experience to date makes us optimistic that this will be the case.

The full implementation of SDM, with the involvement of all relevant groups (doctors, nurses, patients), in an entire clinical department, including the development of 8 evidence-based decision aids from scratch as a joint effort with the local clinicians, is unique worldwide. The same holds for implementation in the UKSH (Kiel campus) as a whole, with a total of 83 decision aids developed. The demonstration of successful implementation in the neurology department, and the experience of the UKSH as a whole, suggest that the S2C approach can be upscaled and implemented in other hospitals as well. In the German federal state of Bremen, an adaptation of the S2C program, including health-insurance reimbursement, has already been integrated into family-physician-centered care.

It is fitting, therefore, that a NICE guideline now elevates SDM to a national care standard in the United Kingdom (3)—not least, presumably, because research groups from multiple countries have found that SDM economizes on resources by preventing overtreatment, undertreatment, and inappropriate treatment (see, e.g., Refs. 4, 5). The S2C program is expected to replicate these findings. In a forthcoming study, propensity-score matching will be used to compare the health-economic outcomes achieved at the UKSH with those of control hospitals across Germany.

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Study support

The implementation project is supported by the Innovation Fund of the German Federal Joint Committee (Gemeinsamer Bundesausschuss) (NVF17009).

Conflict of interest statement

Prof. Geiger, Prof. Wehkamp, and Dr. Scheibler are partners in SHARE TO CARE. Prof. Geiger has received reimbursement of meeting participation fees and travel expenses from Roche, and lecture honoraria from Chugai Pharma and Roche. PD Dr. Rüffer is an executive partner in Share to Care and TakePart Media+Science. He has received lecture honoraria from Chugai Pharma. Prof. Wehkamp has received reimbursement of meeting participation fees and travel expenses, as well as lecture honoraria, from Roche. The other authors state that they have no conflict of interest.

Manuscript submitted on 4 November 2020, revised version accepted on 1 February 2021.

Translated from the original German by Ethan Taub, M.D.

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Cite this as:

Geiger F, Novelli A, Berg D, Hacke C, Sundmacher L, Kopeleva O, Scheibler F, Rueffer JU, Kuch C, Wehkamp K: The hospital-wide implementation of shared decision-making—initial findings of the Kiel SHARE TO CARE program. Dtsch Arztebl Int 2021; 118: 225–6. DOI: 10.3238/arztebl.m2021.0144