A CASE STUDY OF THE IMPLEMENTATION OF SHARED DECISION MAKING IN A MEDICAL CENTER IN TAIWAN

[1]JING-JIA LIN, [2]CHANG-CHIH TSAI, [3]YA-WEI KUO, [4]CHUNG-FENGLIU, [5]KUANG-MING KUO

[1]Department of Information Systems, Chi Mei Medical Center, Tainan, Taiwan
[2]Department of Emergency Medicine, Chi Mei Medical Center, Tainan, Taiwan
[3]Center for Quality Management,Chi Mei Medical Center, Tainan, Taiwan
[4]Department of Information Management,Chia Nan University of Pharmacy & Science, Tainan, Taiwan
[4]Medicine ResearchDepartment, Chi Mei Medical Center, Tainan, Taiwan
[5]Department of Healthcare Administration, I-Shou University, Kaohsiung, Taiwan
E-mail: kuangmingkuo@gmail.com

Abstract - A patient-centered communication platform which lays the foundations for implementing shared decision making is indispensible for and can facilitate interprofessional collaboration for optimal patient care. To that end, weproposed a project to develop a patient-centered platform to supportshared decision making(SDM) in a Taiwanese medical center. ThisSDM platform lay special focuses on patient care area and communication area, allowing the stakeholders to participate in deciding and choosing the most suitable treatment option for the patients. After the implementation of this SDM platform, patients and their relatives reveal a higher percentage of satisfaction and interest in such a joint decision model regarding how patients get their appropriate treatments.

Keywords - Shared decision making, Patient-centered care, Patient decision aids

I. INTRODUCTION

Recently, more and more worldwide studies have advocated that shared decision making (SDM) during patient-care processes is an ideal model especially for medical decision-making(Charles, Gafni, & Whelan, 1997; Elwyn et al., 2012; Guadagnoli & Ward, 1998; Murray, Charles, & Gafni, 2006). It has been called the crux of patient-centered care and identified as a key part of change for improved quality and safety in healthcare. According to the review of Guadagnoli and Ward (1998), patients clearly expressed that they want to be informed of treatment options. Further, they want to be involved in treatment decisions when there are other alternatives (Guadagnoli & Ward, 1998). Prior study also demonstrates the influencing factors of expectations of patient-centered care (Zhou, Kankanhalli, Yang, & Lei, 2017). Nevertheless, SDM is rarely satisfactorily implemented for many reasons(Charles et al., 1997). For example, the benefits of SDM have not been clearly demonstrated (Guadagnoli & Ward, 1998). Further, discussion with patients about treatment options is not sufficiently included in the training courses of most healthcare professionals. However, information technologies such as the Internet and electronic health records may help to resolve this issue. The purpose of our study is therefore to develop SDM tools named Patient Decision Aids (PDAids), and to implement such SDM tools in a large Taiwanese medical center.

II. METHODS

Architecture

We developed the PDAids according to the suggested procedures and requirements for implementation patient decision aids (Elwyn et al., 2012; Mayo Clinic, 2019; The Ottawa Hospital, 2019). In order to better facilitate the process of SDM, we considered various plausible information and communication technologies to develop the PDAids. The proposed PDAids is therefore designed by using various software and techniques including Microsoft Visual Studio 2010®, jQuery Mobile, JavaScript, HTML5, and CSS. PDAids can be accessed from PCs and other mobile devices such as notebooks, smartphones, or tablets. Further, the PDAids offers various types of decision-aid mediums including text, photos, pictures, videos, etc., and can be transmitted to patients and their relatives via short message systems or QR Code. Further, these decision-aid tools canalso be send to patients' relatives via social network communication apps. All these transmissions are conducted under https protocol in order to ensure the safety during data transmission. Patients or their relatives can then feedback their decisions regarding treatments alternatives via electronic questionnaires to healthcare professionals. Fig. 1 depicts the architecture of PDAids.

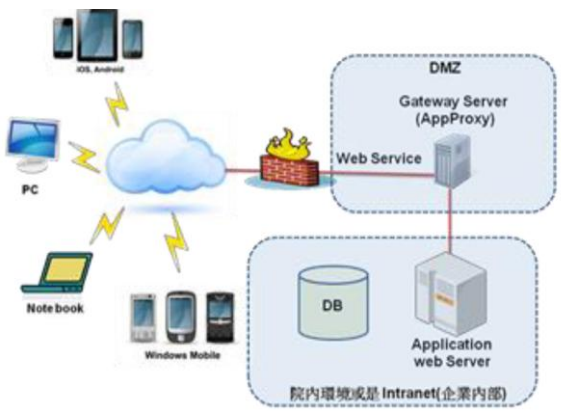


Fig. 1. The system architecture of PDAids

SDM questionnaire design

Since the questionnaire is the key part for implementing SDM, the PDAids provides several easy ways for healthcare professionals (HPCs) to design their expected questionnaires. For example, HPCs can use a text editor such as Microsoft Word ® or NotePad® to design their required questionnaires only with a few extra special symbols such as "#" or "*", then the designed questionnaires can be sent to the PDAids platform for post-processing (See Fig. 2).

HPCs can also use the editors provided by the PAIDs to design their questionnaires in real time (See Fig. 3). Single choice, multiple choices, and free-text questions are all supported by the PDAids. The designed questionnaires are then save in databases in the widely adopted JSON format.

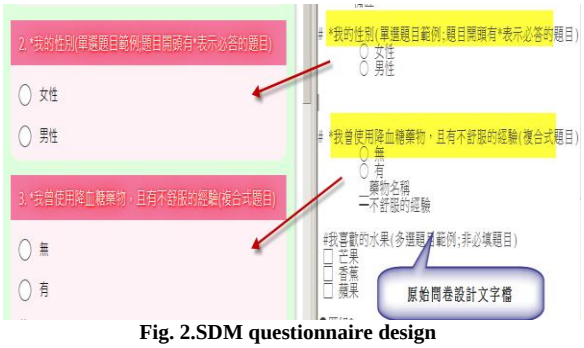


Fig. 2.SDM questionnaire design



Fig. 3. SDM questionnaire design by editors provided by the PDAids

III. RESULTS

With the implementation of PAids, patients and their relatives can now take more important parts in deciding how patients can be treated. In additional to understand patients' intentions regarding how they want to be treated, the PAids also provides related educational materials such as details regarding the onset of patients' diseases, frequently asked questions regarding patients' diseases, treatment alternatives for better informing patients before making their final decision (See Fig. 4). After patients and their relatives are acquainted with the specific disease, they can then begin answering the self-assessment questions, preferred treatments, and other subseqnt questions.



Fig. 4. Patients' view of the PAids

After finishing all the required SDM questionnaires, patients' final decisions can be easily viewed in a graphical way (See Fig. 5).



Fig. 5. Patients' final decision

Further, patients and their relatives can also jointly answer the questions with physicians. Medical recommendations are provided once all the required questions were completed (See Fig. 6). Patients and their relatives can then discuss the available treatment alternatives with physicians according to the suggestions.



Fig. 6. Immediate suggestions after completing the questions

Further, the PAids also provides an integrative view of differing stakeholders' opinions regarding how to treat the patients or what they care most (See Fig. 7). With this view, HPCs can fully understand how to foster the most suitable options for patients by integrating different perspectives from related stakeholders.



Fig. 7. An integrative view of related stakeholders Post preference survey

After the implementation of PDAids, we further conducted a follow-up survey regarding the implementation of SDM. A total of 576 patients participated in this study and completed the questionnaires. The results reveal that 75% of the respondents are satisifed and willing to actively participate in the decision-making process. The results also demonstrate that 78.32% of the respondents considered that SDM is helpful to patients and their relatives for understanding the available treatment options. These findings are consistent with prior evidence (Guadagnoli & Ward, 1998). These figures are considering acceptable during the initial phase of SDM implemention, and these figures are expected to increase in the future after more patients being acquainted with SDM.

IV. DISCUSSION

The expected benefits of traditional implementation of SDM cannot be easily achieved due to many limitations posed by supporting tools. Without appropriate tools, SDM may not be able to exert anticipated effects on promoting healthcare quality. For example, if only text-style questionnaires are supported for facilitating SDM, patient may be unwillingly to participate in SDM since the related materials are unattractive. Further, patients may only be allowed to participate traditional SDM out of treating rooms or even out of hospitals. Without appropriate guidance, patients may be deterred from partaking SDM due to unfamiliarity with the correct procedures. All these issues can pose big limitations when implementing SDM. With the advances of information and communication technologies, those limitations however can be removed. With the introduction of multimedia, for example, SDM can display questionnaires in a more appealing and understandable manners to attract patients to engage in this activity. Further, patients and their relatives can easily access SDM questionnaires just with a QR code instead of memorizing a long URL. Finally, short message systems such as Line®, WeChat®, or Messenger® allow patients and their relatives to participate in SDM without the limitations of time and place. All these advances can contribute to the implementation of SDM.

V. CONCLUSIONS

This paper discusses how a Taiwanese medical center implemented SDM by developing a shared medical decision-making platform with appropriate information and communication technologies. Further, the application of this medical decision-making platform aimed to better improve healthcare quality/efficiency and to achieve patient-centered healthcare.

ACKNOWLEDGEMENTS

The researchers acknowledge the support for the present study by the Ministry of Science and Technology (MOST 107-2637-H-041-004) and Chi Mei Medical Center, Taiwan, R.O.C. The authors also declare no conflict of interest.

REFERENCES

[1] Charles, C., Gafni, A., & Whelan, T. (1997). Shared decision-making in the medical encounter: What does it mean? (or it takes at least two to tango). Social Science & Medicine, 44(5), 681-692. doi:10.1016/S0277-9536(96)00221-3

[2] Elwyn, G., Frosch, D., Thomson, R., Joseph-Williams, N., Lloyd, A., Kinnersley, P., . . . Barry, M. (2012). Shared decision making: A model for clinical practice. Journal of General Internal Medicine, 27(10), 1361-1367. doi:10.1007/s11606-012-2077-6

[3] Guadagnoli, E., & Ward, P. (1998). Patient participation in decision-making. Social Science & Medicine, 47(3), 329-339. doi:10.1016/S0277-9536(98)00059-8

[4] Mayo Clinic. (2019). Mayo clinic shared decision making national resource center. Retrieved from https://shareddecisions.mayoclinic.org/. Accessed March 17 2019.

[5] Murray, E., Charles, C., & Gafni, A. (2006). Shared decision-making in primary care: Tailoring the charles et al. Model to fit the context of general practice. Patient Education and Counseling, 62(2), 205-211. doi:10.1016/j.pec.2005.07.003

[6] The Ottawa Hospital. (2019). Patient decision aids. Retrieved from https://decisionaid.ohri.ca/. Accessed March 17 2019

[7] Zhou, Y., Kankanhalli, A., Yang, Z., & Lei, J. (2017). Expectations of patient-centred care: Investigating is-related and other antecedents. Information & Management, 54(5), 583-598. doi:10.1016/j.im.2016.11.009

★★★