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Development of Patient-Safety-Based Interprofessional Collaboration Instructional Model for the Specialist-1 of Child Health Medical Education Program

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Abstract

This study aims to produce a patient-safety-based Interprofessional Collaboration (IPC) education model to improve the competence of the Specialist-1 of Child Health Medical Education Program (PPDS I) doctors of Child Health Medical Science in Dr. Kariadi Central Hospital, Medical School, Diponegoro University and the students in the nursing profession program. This study was designed using the Research and Development approach. The data of this study were analyzed using qualitative descriptive techniques. The steps of developing the model in this study include (1) preliminary analysis; (2) findings of factual models; (3) development of conceptual models; (4) development of a hypothetical model; (5) final model development. The results of the study show that PPDS I of Child Health at Dr. Kariadi Central Hospital has not implemented the IPC based on safety. The model of safety-based IPC is based on four main indicators, namely (1) Interprofessional Collaborative Competence; (2) Competency of Pediatricians & Nurses; (3) Interprofessional Learning Readiness Scale; (4) Scale of Interprofessional Team Performance. The results of the trials of the interprofessional collaboration education model developed have been able to increase the competence of PPDS I doctors 45.61% and 20.68% in students of the nursing profession program (nurses). The increaseof the competence and professionalism of PPDS I doctors and nurses is also based on moral principles and ethical codes that are actualized as noble attitudes and sincerity. It is suggested that the implementation of the developed patient-safety-based interprofessional collaboration education model needs to be supported by policies or regulations by related parties in order to improve the effectiveness of the specialist medical education programs and nursing professional education programs (*Ners*).

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INTRODUCTION

There are five basic issues related to the safety of persons in hospitals, namely (1) patient safety; (2) safety of workers or health workers, building safety, hospital equipment; (3) care for persons; (4) safety of persons, workers, hospital staff; (5) environmental safety (green productivity) (WHO, 2010). The activity of a hospital is smooth, if the hospital accommodates patients (hereinafter referred to as persons), the safety of persons is a priority to be carried out continuously, monitored and reported through the issue of standardized hospital quality and the image of hospitals that prioritize the safety of persons.

Many complex factors influence the implementation of care for persons in hospitals. These factors include the presence of various pharmaceutical supplies such as medicines with thousands of types, quite varied medical devices, health equipment whose technology is changing rapidly, hundreds of tests are provided for persons according to the needs of each, hundreds of procedures administered whose technology is changing rapidly, professional caregivers whose variations are rapidly growing and many in number, many non-health workers also with a 24-hour period of continuous. With a variety of workforce with varying competencies, pharmaceutical supplies that are very varied, health procedures that change rapidly, people themselves with diverse characteristics, if the hospital does not prioritize the safety of persons then unexpected events can occur.

In fact, data on reports of Unexpected and Nearly Missed Events (KNC) are still rare but reports of malpractice complaints are increasing. Considering that people's safety has become a demand of the community, the program for the persons' safety needs to be implemented. Therefore, it is necessary to carry out a comprehensive safety program that covers human resources that have competency based on the persons' safety as organizers related to the implementation of care for persons' safety by realizing a culture that supports the persons' safety.

Some of the safety-based organizations of persons such as the Canadian Patient Safety Institute (CPSI) and review of research supporting the implementation of a safety program such as the Cochrane review (2008) have recommended that priority is the key to education, collaborative professional training for effectiveness and successful implementation of care for persons' safety-basis, and CPSI that has progressive courage to transform the medical education system into education with a collaborative method to achieve care for persons based on the safety of them. It was explained that the collaborative education and training of professionals providing safety-based care. For instance, persons suffering from nutritional problems need collaboration with the nutrition profession, persons with physiological problems need therapists and others according to the needs of persons introduced from the introductory stage, the apprenticeship stage, and the independent stage to understand that caregivers are the team that provides care based on safety of persons with disabilities, who have behaviors can work together in a team, respect each other, and are able to communicate effectively, based on their respective knowledge with different backgrounds, and can coordinate a decision together with the person in giving care to the person.

This is in accordance with Wagner's statement, that Interprofessional collaboration through the introduction stage, internships, being independent in education, training in the medical field provides participants with experience to achieve effective collaborative practice competencies in an interprofessional manner (Wagner, 2011). Ogrinc et al (2008) explained that participants in the Specialist I Child Health Education Program took a strategic role to improve complex health systems.

According to Bleakely (2014), interprofessional collaboration results in a condition of togetherness in mastering materials of academic and clinical discussion or practice. These conditions are rare and occur spontaneously. Brock et al (2013) explained that with IPE/IPC it turned out that access to services and care provided was in accordance with the needs of the persons because with the collaboration collaboration support occurred in the interprofessional team. Strengthening the above opinion, Laksmi (2015) stated that

Interprofessional Education (IPE) aims to train students to improve competence, both personally and in teams, so that students are expected to be able to collaborate or collaborate well when providing health services to patients.

The problems to be solved through this research are as follows. (1) What is the factual model of the Specialist Medical Education Program I of Child Health at Dr. Kariadi Central Hospital? (2) How is the design of an effective model of professional safety-based collaboration for those participants? (3) What is the effectiveness of the model in improving the competency of the program participants?

The main objectives of the study are (1) To uncover the factual model of the Specialist Medical Education Program I of Child Health at Dr. Kariadi Central Hospital; (2) Producing a design model for professional safety collaboration based on safety in increasing the competency of program participants; 3) Analyzing the effectiveness of the model of collaborative professional education for participants in the Pediatric Specialist Education Program. So, it is necessary to develop a framework for the model of interprofessional education in the Specialist I Medical Education Program of Dr. Kariadi Central Hospital and Nurses who take part in the Nursing Professional Program (Ners) to improve the competence of doctors and nurses based on safety.

METHODOLOGY

This study uses a Research and Development approach. This is related to the general objective of the research, namely to produce a model and assess the effectiveness of professional safety-based collaboration education that can improve the competency of the Program participants. As explained by Borg & Gall (1983: 772), "Educational research and development (R & D) is a process used to develop and validate educational products", Sukmadinata (2006: 176) simplifies ten R & D steps into three steps, namely (1) the preliminary study phase, as a needs and contents analysis, which begins with a literature study, field data study/collection, and a description and analysis of field findings (factual models); (2) the development stage which includes design, development, and evaluations; (3) the stage of product effectiveness testing as a semisumative evaluation. Three stages are expected to function as a result of research, development and validation functions.

The population of the study was all students of the Children's Specialist Medical Education Program at the Faculty of Medicine of Diponegoro University - Dr. Kariadi Central Hospital who was educated in the Education Program for PPDS I of Child Health, as well as all nursing professional education participants (Ners). The study sample was 90 consisting of 60 resident doctors in the Specialist Medical Education Program I of Child Health and 30 Nurses in the Nursing Professional Program.

The instruments used to collect data consist of (1) documentation study, (2) observation, and (3) questionnaire. This research uses construct validity and content validity. The collected data was analyzed using descriptive analysis; the technique used to analyze data is a case study approach.

RESULTS AND DISCUSSION

Based on the results of the preliminary study, it was found that the pattern of education of specialist doctors applied to PPDS I of Child Health was still conventional. Education obtained by students is partial. The purpose of conventional learning is that the problem-based learning process, especially for people, without going through a collaborative process with other health professionals. The case that arises and becomes a concern at the time of observation is that the process of handling, service, and care of patients from the doctor is still partial and not integrated with the process of handling, service, and care from the nurse. The phenomenon that occurs, doctors only provide care to the person fragmented on the scientific aspects of children's health, while nurses provide care from the scientific aspects of nursing only. Such conditions give rise to communication patterns that are not effective in providing care to the person so that there has not been active collaboration between doctors and nurses.

The pattern of education implemented has been supported by a fairly clear organizational

structure, starting from (1) doctors and nurses who become students as the center of the educational model; (2) lecturers/mentors/instructors who become students' assistants; (3) the management system and regulation of medical education implemented by educational institutions and hospitals, as teaching hospitals; (4) universities and medical faculties as their educational management structure; (5) the main supporting structure of the PPDS 1 regulation on Child Health Sciences, starting from the Ministry of Research, Technology and Higher Education (Kemenristek Dikti), the Indonesian Ministry of Health (Ministry of Health), Children's Health Collegium, and Indonesian Medical Council.

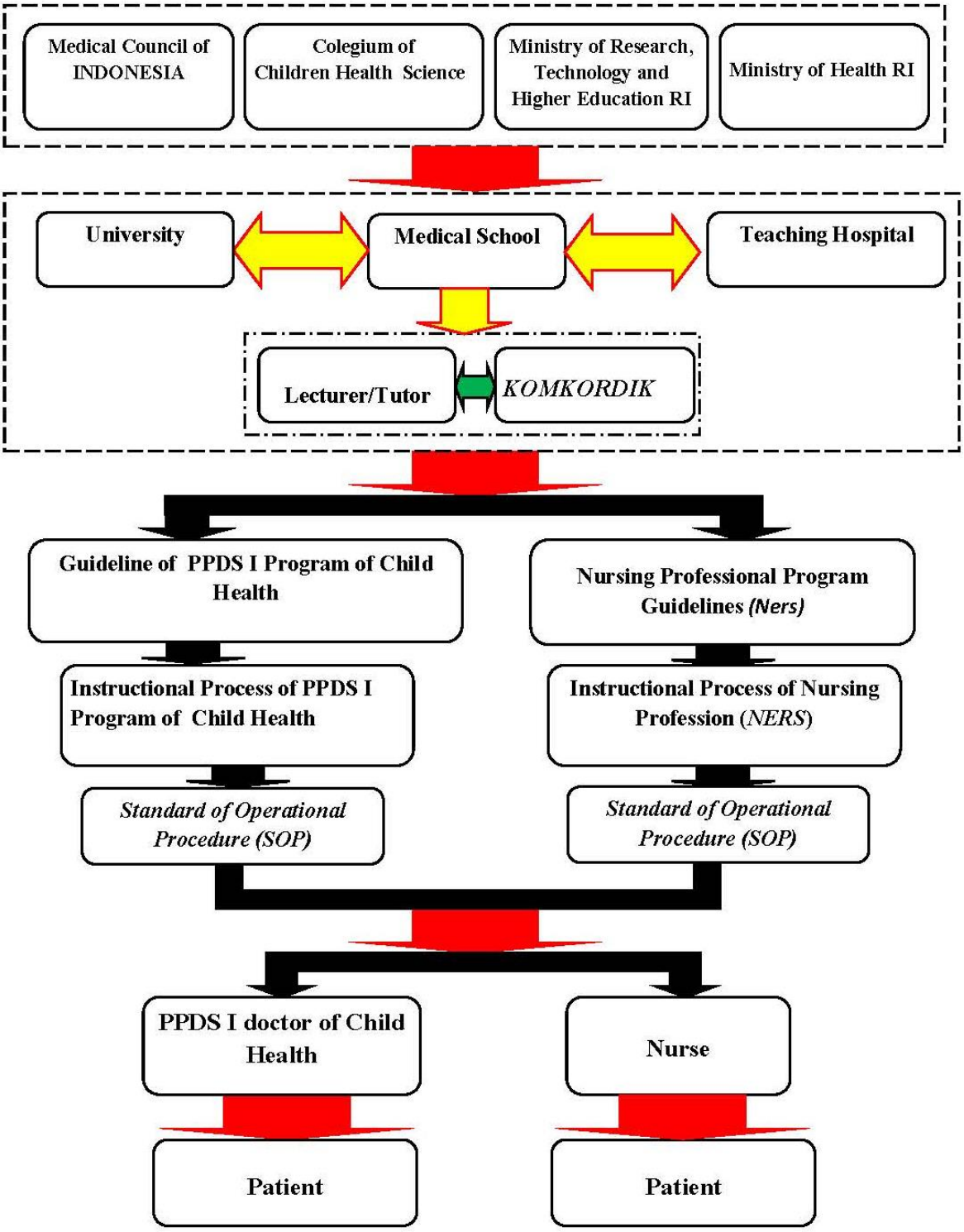

Figure 1. Existing Model of Specialist-1 of Child Health Medical Education Program.

Furthermore, based on the results of the preliminary study, the framework of the conceptual Interprofessional Collaboration education model was built. The conceptual model framework was developed based on a preliminary study that included four indicators of the implementation of Interprofessional Collaboration, namely (1) Interprofessional Collaborative Competence, (2) Competency of Pediatricians and Nurses, (3) Interprofessional Learning Readiness Scale, and (4) Interprofessional Team Performance Scale. The indicator includes the implementation of integrated professional education in a structured learning process.

The next stage is the development of a hypothetical model framework. Based on the conceptual model that has been built, it is necessary to develop a hypothetical model through Focus Gruop Discussion (FGD). The FGD was conducted in a structured manner to find out the shortcomings of the conceptual model. The main topic of discussion in the FGD I is reviewing the strengths and weaknesses of the conceptual model. It is expected that the FGD I will produce a hypothetical model framework that is visible and in accordance with the needs of interprofessional collaboration based on the safety of the person. There are three aspects that are the main focus in the FGD about developing a conceptual model framework so that it becomes a hypothetical model framework, namely (1) structural aspects of the educational model; (2) aspects of implementing the educational model (system / organization); (3) forecast the performance of the organization being built.

The FGD results on the structural aspects of the educational model show that 60% of the PPDS 1 doctors of Child Health strongly agree with the conceptual model framework that was built; The remaining 40% agree with the framework of the conceptual model that is built on the overall components of the structural aspects of the educational model. Furthermore, nurses in professional programs, 80% of nurses strongly agree with the conceptual model built, while the remaining 20% agree on the framework of the conceptual model that is built on the overall components of the structural aspects of the educational model.

In the procedure aspects of the implementation of the education model (system /organization) it was found that 40% of PPDS 1 doctors of Child Health strongly agreed with the conceptual model framework that was built, while the remaining 60% agreed with the conceptual model framework built on the overall components of the model implementation procedures. education (system / organization). Furthermore, nurses in professional programs found that 60% of nurses strongly agree with the conceptual model built, while the remaining 40% agree on the conceptual model framework that is built on the overall components of the procedure aspects of the implementation of the education model (system/organization).

Furthermore, in the aspect of forecasting organizational performance, it was found that 20% of the PPDS 1 doctors of Child Health strongly agreed with the conceptual model framework that was built, while the remaining 80% agreed with the conceptual model framework that was built on the overall components of the organizational performance forecast aspects. Furthermore, nurses in professional programs, 40% of nurses strongly agree with the conceptual model that is built, while the remaining 60% agree on the framework of the conceptual model built on the overall components of the forecast aspects of organizational performance.

Important notes from the results of FGD I state that in the framework of the conceptual education model that is built, it is necessary to deal with an independent management system that is capable of overseeing all components of the implementation of interprofessional education in PPDS 1 Child Health and professional education.

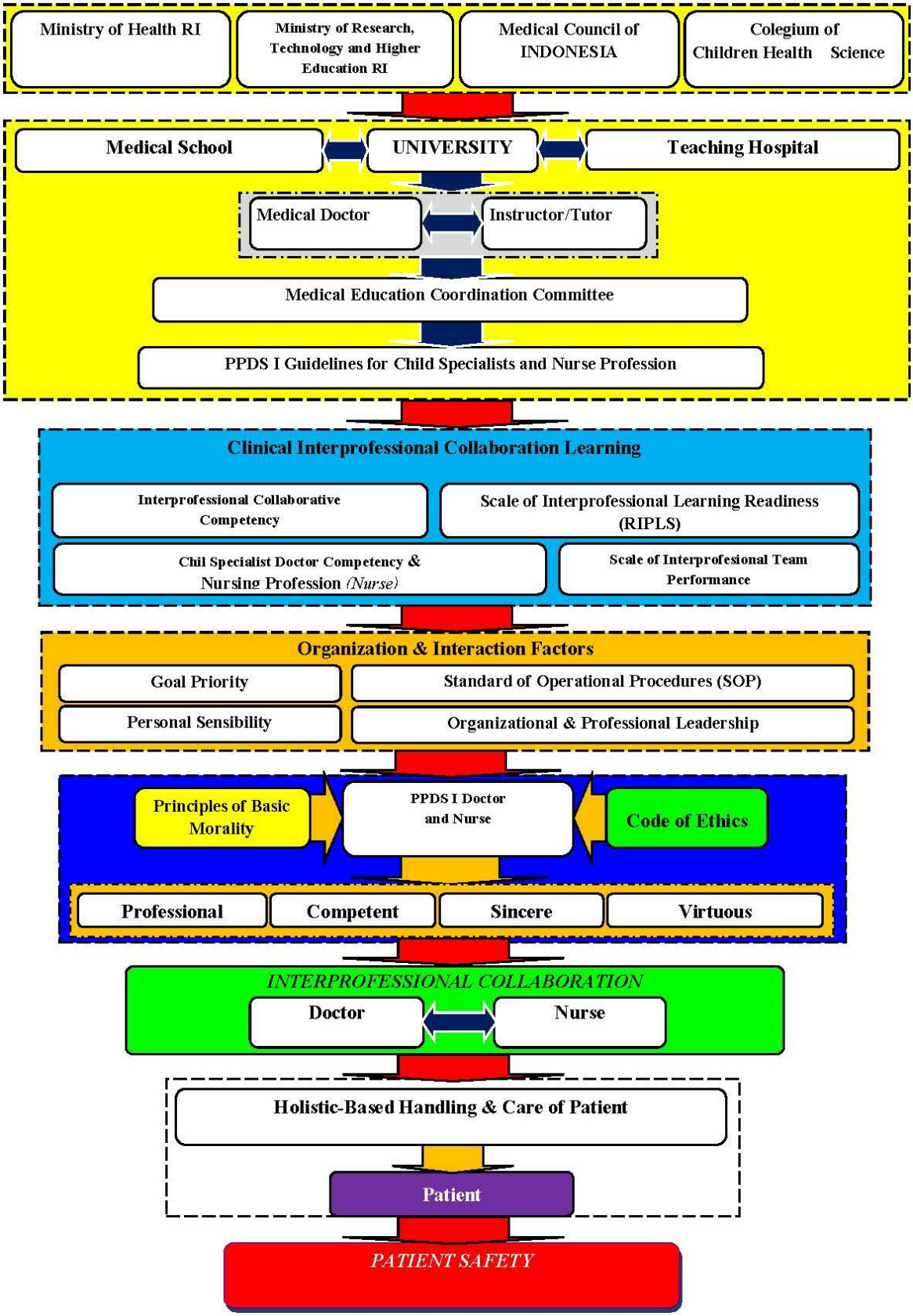

Figure 2. Hypothetical Design of safety-based Interprofessional Collaboration Education Model for Cerebral Palsians

The next stage, the hypothetical model framework that has been compiled is discussed in the second phase of the FGD to get more inputs, before the development of the final IPC education model framework. Input given by FGD II participants and expert / expert opinion can be summed up in the following conclusions. (1) The management system of interprofessional collabroation-based education models for persons with safety must be implemented in an integrated manner and supported by adequate legal aspects from the stakeholders; (2) Basically, the management system that produces regulation is a framework that has been applied in general to the management of the Specialist Medical Education Program (PPDS) so that it can be eliminated in the final design framework for interprofessional collabroation based on safety and focuses on developing the educational process only; (3) Strengthening each component of the implementation structure of interprofessional collabroation based on safety so that the education process produces output as expected; (4) The expansion of the meaning of teamwork in the implementation of interprofessional collaboration is not only in similar professions but can also be carried out through solid teamwork from across professions; (5) The basic principles of the implementation of the safety-based interprofessional collabroation education model must always refer to the moral and ethical principles that are actualized in professional work attitudes based on noble character and sincerity; (6) Strengthening the character of health workers, especially doctors and nurses, must be carried out periodically to maintain the quality of themselves so that they can have a direct impact on the outcome of health services; (7) Openness between individuals in interprofessional teams is very necessary to find out weaknesses and strengths in aspects of service performance so as to strengthen the purpose of health services, namely patient safety.

Based on the results of the FGD II and input from several experts / experts, the final model must be able to represent a valid and reliable interprofessional model of safety-based collabroation education. So, the final model developed will only focus on the framework of the interprofessional collaboration education model that will be implemented in the PPDS I of Child Health and Nursing Professional Programs (NERS). The final model developed does not accommodate top management diagrams or the highest policy makers in educational institutions.

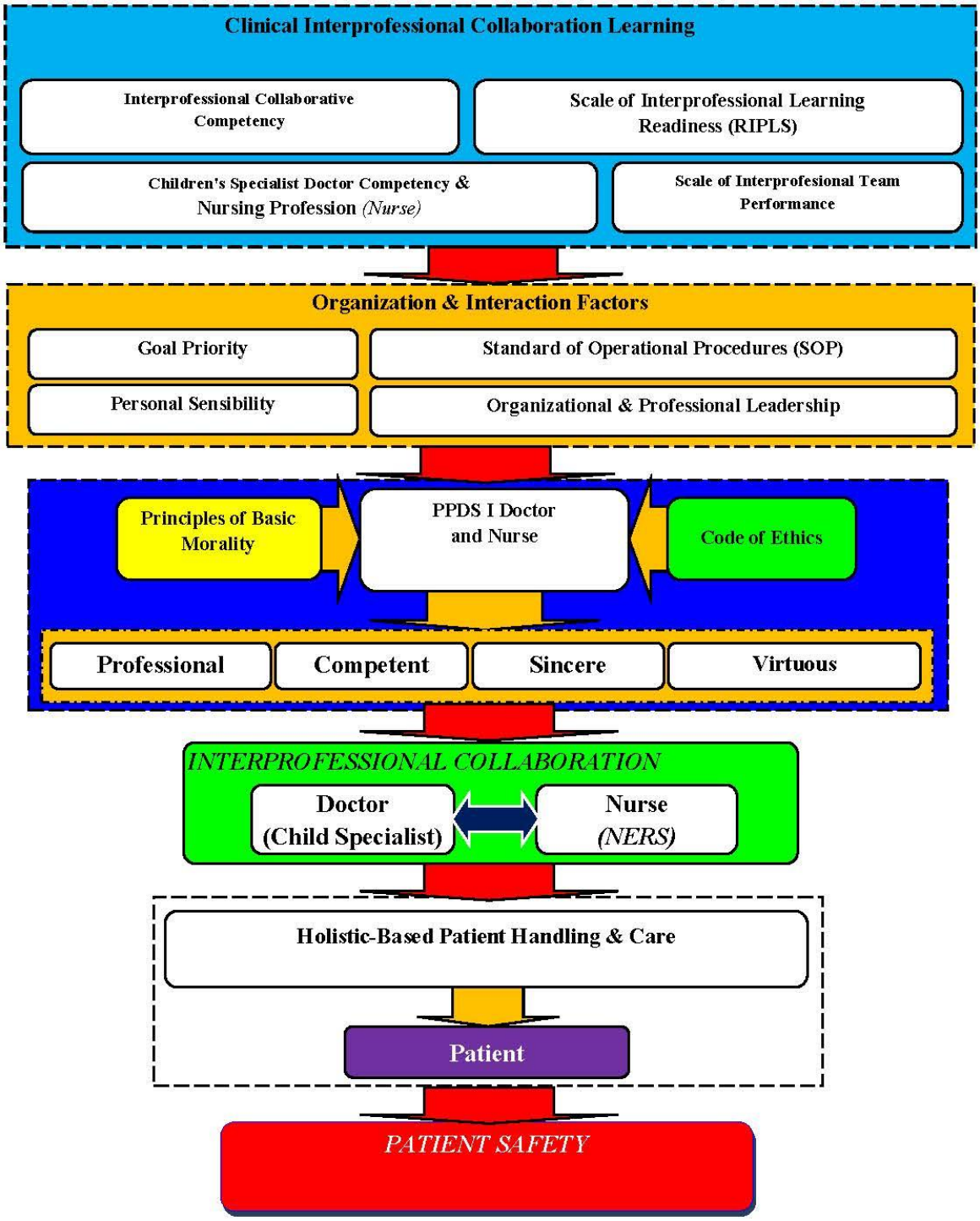

Figure 3. Final design of the safety-based interprofessional collaboration model.

The next stage, is a trial model that has been developed to determine the effectiveness of interprofessional collaboration education models to improve the competency of participants in the Specialist I Medical Education Program for Children and Nursing Professional Program (Ners) participants. Based on the results of data analysis on the four aspects of the implementation of the model it was found that (1) aspects of interprofessional collaborative competence were controlled by 95.8% by PPDS I students and 98% by nursing profession program participants (Ners); (2) the competency of pediatricians is controlled by 98% by PPDS I and 92.2% students by nursing profession program participants (Ners); (9) mastery of 75% interprofessional learning readiness scale in PPDS I students and 75% in nursing profession program participants (Ners);

(4) the scale of performance of interprofessional teams is 57% in PPDS I students and 67.8% in nursing profession program participants (Ners). The average percentage level of effectiveness based on the overall data of respondents, can be seen in Figure 4.

Figure 4. Summary diagram of the results of questionnaire data analysis of respondents to the effectiveness of the Interprofessional Collaboration Education Model

The effectiveness of the four aspects of implementing the interprofessional collaboration model based on safety is as follows. (1) Interprofessional collaborative competency aspects 96.9%; (2) competence of pediatricians 95.1%); (3) the scale of 75% interprofessional learning readiness; (4) the performance scale of the interprofessional team is 62.4%.

Based on the results of the data analysis, it can be inferred that the aspects of interprofessional collaborative competence, competency of pediatricians, and interprofessional readiness scale of the model developed are in a very effective category (score range 81.26 - 100) while in the aspect of professional team performance scales, the model developed exists in the category is quite effective (the score range is 43.76 - 62.50). This is due to the implementation of interprofessional collaboration between doctors and nurses is still limited to trials. The scale of performance of interprofessional teams requires habituation and intensive interaction between individuals in interprofessional teams.

This is consistent with the results of a study conducted by Prentice, et al (2015) whose conclusion of the study stated that:

"The divides that students have experienced are those that pose from the natural clustering of interests, and the difference between what is learned in formal situations and clinical settings."

Inter-professional team performance cannot be instantly instantly ideal. This is due to the differences identified by each individual in the team based on personal experience and the emergence of groups of natural interests, perceptions of roles, perceptions of power, and differences in experience between what is learned in formal situations and clinical settings (Prentice: 2015).

Furthermore, examining whether the model developed can improve the competence of PPDS 1 participants of Child Health using competency test. Competency testing aims to determine whether there is an increase or not as a result of the application of an educational model that has been developed. The competency test is imposed on 31 PPDS 1 students of Child Health and 31 students in the Professional Profession Program. Paired sample t test) was used to determine differences in results before and after treatment.

Based on the results of the t-test using SPSS 24 software, it was found in PPDS I participants

of Child Health Sciences that the result of t count was -17.348 with degree of freedom (df) 30 at a significance level of 0.000 (0.001). Furthermore, from the results of the test results of the respondents of the nursing profession program (Ners) it was found that the results of t count were -8,331 with a degree of freedom (df) 30 and at a significance level of 0.000 (0.001)

From the results of the data analysis, the value of sig <0.05 was obtained so that it can be concluded that there were significant differences in the samples tested between before and after getting treatment, both for PPDS I participants of Child Health and Nursing Professional Programs (Ners).

Furthermore, based on the analysis of the results of the tests conducted, the competence possessed by medical students in PPDS I increased by 45.61% after being given a treatment trial using the clinical Interprofessional Collaboration education model developed. Meanwhile, the competency of the Nursing Professional Program participants increased by 20.68% after being given a treatment trial using the clinical Interprofessional Collaboration education model developed. The percentage increase that occurred when the model was tested in the sample showed a significant level of improvement. The results of this data analysis also reinforce the evidence that the model developed is effective in increasing the competency of PPDS 1 participants of Child Health and Nursing Professional Program participants.

This indicates that there is effective colonization between doctors and nurses. Increased competency of doctors and nurses can be used in the process of handling and caring for patients with actions based on appropriate analysis. The priority of this collaboration is in the context of handling and caring for patients based on patient safety.

Furthermore, the Interprofessional Collaboration (IPC) Education Model based on personal safety in increasing the competence of PPDS 1 Child Health in cerebral palsy developed is an educational model that integrates moral and ethical basic values, and actual noble character and sincerity as the basic manifestations the human nature to try as much as possible is beneficial to others. If doctors and nurses return the nature of handling, care and care of patients to the nature of "humanizing humans" and placing humans as "subjects", then the main goal in building patterns of interprofessional collaboration based on safety will be achieved.

CONCLUSION

Based on the results of the research and development of safety-based interprofessional collaboration education model with PPDS 1 of Child Health, it can be concluded that (1) Preliminary studies have clearly revealed the factual model of the implementation of the PPDS 1 of Child Health at Dr. Kariadi Central Hospital. The factual education model that is implemented is still conventional in terms of the learning process of the PPDS and the Nursing Professional Program still uses the patient as an example of the model without any intensive clinical inter-professional collaboration process between doctors and nurses who provide care; (2) Development of safety-based Interprofessional Collaboration education models for children in PPDS 1 of Child Health that are effective, valid, and reliable integrating indicators of the interprofessional collaboration learning process consisting of (a) interprofessional collaborative competencies, (b) competency of pediatricians and nurses, (c) the scale of interprofessional learning readiness, and (d) the performance scale of the interprofessional team. Integrating interprofessional clinical collaborative learning indicators can improve the professionalism and competency of the PPDS 1 doctors of Child Health and Nursing Professional Program (Ners) based on moral principles and codes of ethics in the frame of virtuous attitude and sincerity in carrying out their roles as doctors and nurses; (3) In testing the effectiveness of the safety-based Interprofessional Collaboration education model for the PPDS 1 of Child Health, it is concluded that the model developed is in the category of being effective to improve the competence of thr PPDS I of Child Health and Nursing Professional (Ners).

The application of the development of the safety-based Interprofessional Collaboration education models to improve the competence of the PPDS 1 of Child Health will strengthen the

process of reforming specialist medical education that has not been efficient, in particular, in efforts to improve the competence of pediatricians and nurses based on the patients' safety. The main support to guarantee the success of the development of the safety-based Interprofessional Collaboration education models to improve the competencies of the PPDS 1 of Child Health doctors is the commitment of policy makers/regulators and leaders both at the level of educational institutions and at the highest level of policy makers, namely the Indonesian Ministry of Health, Research Ministry, the Ministry of Research, Technology and Higher Education, the Indonesian Medical Council, and the Children's Health Colleges.

The support of policy makers and leaders of institutions must be visionary and clearly illustrated, able to foster a conducive and efficient academic atmosphere by building the image of institutions in producing graduates of specialist doctors and nurses who are professional, competent, virtuous and have a sincere attitude. In addition, the education model developed is also an effective debriefing forum for PPDS 1 doctors of Child Health and Nursing Professional Programs in order to develop inter-professional collaboration among health workers, to support the safety-based care process.

Based on the results of the study, conclusions, and implications, it is suggested that for the Implementation of the Model (a) before this model is applied it should be reviewed in terms of the requirements that should be fulfilled first, namely the existence of a legal umbrella in the implementation of the interprofessional collaboration education based on safety and socialization of education programs for all elements, both executors and related institutions; (b) The highest policy/regulatory makers should be able to issue a legal umbrella for the implementation of collaborative professional education. Based on previous research studies, there is one emphasis on research conducted by WHO, in which safety-based professional collaboration is able to give a positive impact on people, and has a positive impact on health workers who are members of interprofessional teams; (c) Before the model is implemented, there needs to be a common perception for the management of educational institutions, PPDS students, and nursing through training and material briefing; (d) Continuous evaluation of the education and learning process of PPDS I is very necessary to maintain the quality of graduates.

It is also suggested that the results of the model development can be disseminated through (a) Scientific publications (articles) through a Journal; (b) Seminar or workshop about the model of professional collaboration based on the safety of patient; (c) Active socialization through official scientific and incidental forum.

For Further Model Development, it is suggested that a step to improve the model in order to provide broader benefits, especially for increasing the competence of PPDS I doctors of Child Health and Nursing Professional Programs (Ners) it is necessary to conduct (a) continuous research by optimizing the role of each component involved to be able to produce measurements of the effectiveness of the safety-based interprofessional collaboration education models to improve the competence of PPDS I of Child Health by implementing all programs that have been designed in a long time span and detailed forecasting; (b) Research needs to be conducted in accordance with the stages of research and development proposed by Gall & Borg (2007), which includes ten stages. This is done to perfect the model of Interprofessional Collaboration based on safety for people to improve the competency of PPDS I of Child Health which has been developed.

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