



# Evaluation of Individual Research Proposal Development in the 4<sup>th</sup> year Medical Students, Phramongkutklao College of Medicine

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## Background

- ❖ Both principles of medical research and quantitative methods (QM) are important for the development of evidence-based medicine and lifelong learning.
- ❖ In the 4<sup>th</sup> year medical curriculum, **individual research proposal development** has been added to stimulate and fulfill the student's potential in medical research performance since 2018.
- ❖ Each medical student had to establish his/her research question in health science area and its proper research design.
- ❖ The assignment included 3 parts, i.e. **(1) research question, backgrounds, literature reviews, and objectives (2) methodology, and (3) case report form**.
- ❖ Each part was sequentially submitted via the online system. The advisors accessed the assignment and provided the comments.
- ❖ This study aimed **to determine the performance of medical students for the development of the individual research proposal**.

## Summary of Work

- ❖ The assignment of each individual was accessed using a rubric score determining the contents of each part.
- ❖ The score was presented in percentage.
- ❖ Linear regression analysis was used to determine the association factors of the performance for the individual research proposal development.

### Sequential Process

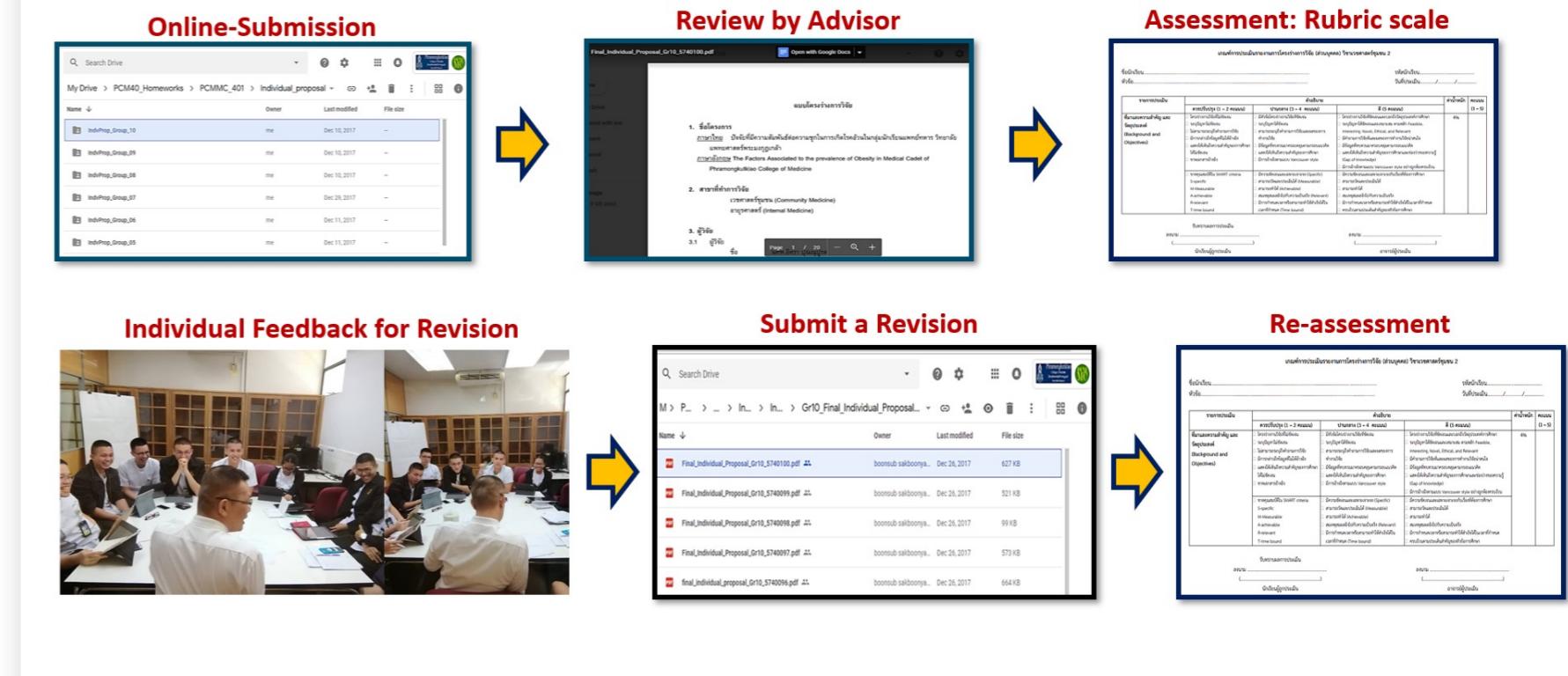


Fig 1. Individual Proposal Development (Sequential Process)

## Results

- ❖ A total of 301 students between 2018 and 2020 were included in the analysis.
- ❖ The majority of the students chose the **observational study design (82.0%)** for his/her research proposal.
- ❖ In contrast, the experimental study design (16.3%) and basic science research (1.7%) were less adopted.
- ❖ The average scores of the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> part of the assignment were **92.0±12.6**, **91.9.0±12.7**, and **93.1±13.1**, respectively ( $p=0.459$ ).
- ❖ After adjusting for academic years and study design, **there was an association between the grade in the prior QM course and the average performance scores ( $p<0.001$ )**.

Table 1. Study designs of individual proposal by academic years

Year	2018 n (%)	2019 n (%)	2020 n (%)	p-value
<b>Total</b>	103	100	98	
<b>Study designs</b>				0.590
Basic science	2 (1.9)	2 (2.0)	1 (1.0)	
Observational study	89 (86.4)	79 (79.0)	79 (80.6)	
Experimental study	12 (11.7)	19 (19.0)	18 (18.4)	

Table 2. Association between the grade in the prior QM course and the average performance scores

Score	Total	Grade QM course				p-for trend*
		C+	B	B+	A	
Part 1						
mean±SD	92.03±12.60	80.0±28.3	82.9±17.3	88.2±14.9	94.1±10.5	<0.001
Part 2						
mean±SD	91.88±12.67	80.0±28.3	90.0±13.0	89.1±15.5	93.1±11.2	0.012
Part 3						
mean±SD	93.07±13.08	70.0±42.4	82.4±18.0	91.0±14.7	94.7±11.1	<0.001
Total						
mean±SD	92.33±10.27	76.7±33	85.1±15.0	89.5±11.7	94.0±8.5	<0.001

\*Adjusted for academic year and study design.

## Discussion and Conclusion

- ❖ Research proposal is the starting point for research.
- ❖ To be able to accomplish this task, each individual have to develop and use a number of knowledge and skills including reasoning, literature search and review, critical appraisal, research methodology and development of case record form.
- ❖ This study showed that the medical students performed well in the development of research proposal especially in those who had a better grade in QM course.

## Take Home Message

The assignment of individual research proposal development would make our medical students to familiarize with the research cycle and establish a number of research skills.