

# Development and Validation of a Survey for Measuring Healthcare Professional Attributes (PTH model)



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## AIMS OF THE STUDY

- To elucidate critical capabilities required for training a workforce for tomorrow's healthcare;
- To develop a validated instrument to facilitate the evaluation of the development of these capabilities.

## METHODOLOGY

### 1. Development of PTH framework and survey tool

- Focus group discussions with educators and practitioners in National Healthcare Group (NHG) were used to elicit attributes required for healthcare professionals in future healthcare. These attributes were organized into the Professional for Tomorrow's Healthcare (PTH) framework (Fig 1).
- Behavioral indicators corresponding to a majority of the above attributes were used to develop a 27-item self-report PTH survey tool, which was administered to 201 residents across various NHG Residency programmes.

### 2. Validation of PTH survey tool

- Exploratory factor analysis (EFA) was used to determine the factor structure of the PTH survey.
- We validated the PTH tool using two instruments which measure adaptive expertise (AE) and intrapreneurial motivation (IM) respectively.
- AE refers to the ability to deal with novel problems, creating new knowledge in the process. The AE instrument<sup>1</sup> measured AE across two dimensions: domain-specific skills and innovative skills.
- The IM instrument was previously developed to measure the motivation of an employee to innovate on behalf of their organization.<sup>2</sup>

### 2. Validation of PTH survey tool

- EFA showed that a 4-factor model for the PTH survey tool resulted in the best fit.
- This corresponded to: future-oriented thinking (F), collective leadership skills(L), K2a (relational attributes) and K2b (systems thinking).
- AE has been operationalised in terms of domain-specific AE skills and innovative AE skills. We regressed each of these on the four PTH factors. K2a significantly predicted domain-specific AE skills ( $\beta = 0.31, p < 0.01$ ), while F significantly predicted innovative AE skills ( $\beta = 0.32, p < 0.01$ ). Regression analyses showed that F significantly predicted IM ( $\beta = 0.41, p < 0.01$ ).
- We also created a shortened PTH measure by taking items with the largest factor loadings from each factor to form a 12-item PTH scale (Fig 2).

	Question
K2a	Coordinate effectively with colleagues from other disciplines/specializations to achieve holistic patient care.
	Build productive relationships with colleagues of different specializations/training in healthcare.
	Communicate sensitively and respectfully with stakeholders and colleagues inside and outside the organization.
K2b	Understand various components of Singapore's healthcare system and my role within it.
	Understand the complexity of healthcare system and know how different parts are related-to and depend on one another.
	Negotiate effectively across different healthcare expert/administrative perspectives to resolve differences.
F	Respond to anticipated changes by goal-setting and planning.
	Learn continuously even while at work in order to improve my job performance.
	Overcome non-routine challenges by taking on and solving new and unfamiliar problems.
L	Think strategically for my team/unit by considering available resources and prioritizing work accordingly.
	Identify changes in internal and external environment of my team/unit and develop a plan to deal with changes accordingly.
	Motivate and rally my team/unit members to work towards a common goal.

Fig 2. The 12-item PTH survey tool.

## RESULTS

### 1. Development of PTH framework and survey tool

The Professional for Tomorrow's Healthcare (PTH)	
PTH = E [K1 + K2 + F + L]	
E	Ethics, professionalism and healthcare ethos
K1	Core (professional or job-specific) knowledge
K2	Cross-cutting knowledge and skills (eg., collaboration, team skills)
F	Future-oriented thinking (adaptability, ability to innovate solutions)
L	Leadership skills (collective or distributed leadership)

Fig 1. The Professional for Tomorrow's Healthcare (PTH) framework

## CONCLUSION

- The abbreviated 12-item scale has comparable psychometric properties as the original PTH tool. This PTH tool can be used to measure important attributes needed for healthcare professionals of the future.

### References

- Bohle Carbonell et al., (2016). *Eur. J. Work and Org. Psychol.* 25.2 :167.
- Chan et al, (2017). *Front. Psychol.* 8:2041.

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