



## Policy Brief

### What is the value of a Quality-Adjusted Life Year and How Much Is It?

The value of a Quality-Adjusted Life Year (QALY) used to screen medicines for inclusion in the National List of Essential Medicines (NLEM) in 2013 was 160,000 baht per QALY. Any medicines that cost less than this amount is considered to be cost-effective. However, is this figure consistent with public opinion? What is the actual value for the Thai population? Research has shown that the value of a QALY for Thai people is consistent with the figures found in the study, i.e. between 113,000 baht and 325,000 baht. This can be divided into two scenarios. If treatment increases the quality of life but does not increase the lifespan of the patient, one QALY will be similar to the currently used value. However, if treatment increases the lifespan of a terminally-ill patient but does not increase the quality of life, the value of one QALY will be higher than 160,000 baht per QALY. Since research has shown that the value of one QALY is not the same depending on the scenario, the value used should also vary by considering the suitability for each situation.

### Quality-Adjusted Life Year – What is the value per QALY for Thai people?

Quality-Adjusted Life Year (QALY) is a method of valuing the cost-effectiveness of medicines by considering both the patient's lifespan and quality of life. By definition, one QALY means one year of living a quality life, both physically and mentally. QALY is used to measure health technology by considering whether the medicine or technology assessed is more cost-effective when compared with other health technologies. A research project conducted by the Health Intervention and Technology Assessment Program (HITAP) called "Asian Collaborative Research Project to Determine WTP/QALY" showed that the Thai population is more willing to pay for one QALY if it increases their lifespan rather than quality of life. The value of one QALY that Thai people are willing to pay for which results in the extension of lifespan came out to between 195,000 and 325,000 baht, or approximately 1.2 to 2 times GDP per capita. However, the value of one QALY for increasing quality of life came out to between 113,000 and 156,000 baht, or 0.68 to 0.95 times GDP per capita.

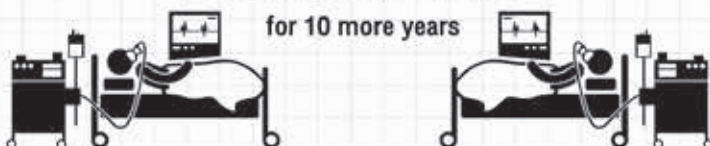
Thai people are willing to pay more to extend their lifespan rather than increase quality of life

#### Case 1

1 QALY where treatment extends lifespan

Treatment extends lifespan

for 10 more years



0.1

Utility

0.1



195,000 – 325,000 baht  
(1.2 – 2 times GDP per capita)

#### Case 2

1 QALY where treatment improves quality of life

Treatment improves quality of life

within 2 years



0.1

Utility

0.6



113,000 – 156,000 baht  
(0.68 – 0.95 times GDP per capita)

# Getting to Know QALY

## Quality-Adjusted Life Year

QALY comes from the term Quality-Adjusted Life Year. 1 QALY means 1 year lived with maximum quality of life or 1 year lived of being at the healthiest state in terms of both physical and emotional well-being.

## How to Calculate QALY

QALY can be calculated using this equation:

$$\boxed{\text{Number of Years to Live}} \times \boxed{\text{Quality of Life Measured in utility}} = \text{QALY}$$

For example, Mr. A will have 10 more years to live with a utility score equal to 0.8. As such, the QALY of Mr. A is 8 years (0.8 x 10). Essentially, what this means is that even if Mr. A has 10 more years to live, he has only 8 more years of living with maximum quality of life.

QALY can be derived from different scenarios such as:

1 Extending a dead patient's lifespan – with a utility score of 0 – by 10 years, with each year having a utility score of 0.1

$$0.1 \times 10 \text{ yrs remaining lifespan} = 1 \text{ QALY}$$

2 Increasing a terminally ill patient's utility score from 0.1 to 0.6 but with the same remaining lifespan of 2 years.

$$0.6 - 0.1 \times 2 \text{ yrs remaining lifespan} = 1 \text{ QALY}$$

3 Increasing a patient's utility score from 0.8 to 1.0 but with the same remaining lifespan of 5 years.

$$1 - 0.8 \times 5 \text{ yrs remaining lifespan} = 1 \text{ QALY}$$

4 Extending a terminally ill patient's lifespan – with a utility score of 0.1 – by 10 years, with the utility score being unchanged at 0.1 for the remainder of the life expectancy.

$$0.1 \times 10 \text{ yrs remaining lifespan} = 1 \text{ QALY}$$



From the example in the diagram, it can be seen that the second and third cases are examples of situations where medicines or health technologies are able to improve quality of life without extending lifespan. For the first and fourth cases though, it is able to extend lifespan. The fourth example, in particular, is similar to the case when the medicine or health technology is able to extend life in terminally-ill patients without improving quality of life.

Currently, QALY is a health measure that is widely used to evaluate effectiveness of the medicine or other measures from the clinic all the way to economic evaluations. The reason for this is that QALY takes quantitative measures into account such as the amount of life years and qualitative measures such as the quality of life.



## Value for money or no? What does it have to do with QALY?

In deciding whether to include any medicine or health technology into the NLEM under the government's healthcare scheme, various factors must be considered such as effectiveness, safety, ethical concerns, impact on budget, and economic value. For economic value, any medicine or health technology that costs less than the value of one QALY is considered cost-effective, with this value being 20,000 – 30,000 British pounds sterling per QALY in the United Kingdom. What this means is that any medicine or technology that is able to increase the QALY of a patient by one year while costing less than 20,000 – 30,000 British pounds sterling is a health technology that is economically cost-effective. In the United States, the value of one QALY that is popularly referenced is 50,000 U.S. dollars per QALY. For Thailand, the value that the Sub-Committee for the Development of the National List of Essential

Medicines uses in considering medicines that should be included in the NLEM was 160,000 baht per QALY in 2013, or approximately 1.2 times Gross National Income (GNI).

Regardless, there are still some concerns whether the value of one QALY currently used in these various countries is consistent with the public's opinions and views. Essentially, in the Thai context, how much are Thai people willing to pay per QALY? Should the value used be the same for various situations? In cases where treatment is able to extend lifespan but does not improve quality of life, should it have the same value for one QALY of a treatment that is able to improve quality of life but does not extend lifespan?

**Medicines or medical technologies that cost less than 160,000 baht per QALY are considered cost-effective.**



### Determining Willingness-To-Pay per QALY

In 2012, a research team at HITAP, together with research teams from South Korea, Japan, and Malaysia – which are all members of HTAsiaLink – collaborated on a research project to determine the willingness-to-pay per QALY.

For Thailand, data was collected by interviewing the 4,320 people in 11 provinces to determine the willingness-to-pay per QALY for the Thai population in various scenarios.

It was found that Thai people are willing to pay more for one QALY that extends lifespan as compared to one QALY that improves quality of life. The amount that the Thai population is willing to pay per QALY to extend lifespan is approximately between 195,000 and 325,000 baht, or around 12 to 20 times GDP per capita. That amount decreases to approximately between 113,000 and 156,000 baht for improving quality of life, or around 0.68 to 0.95 times GDP per capita.

### Policy Recommendations

In summary, the willingness-to-pay per QALY for Thai people ranges from 113,000 to 325,000 baht depending on how that QALY is acquired. For cases where treatments are able to improve quality of life but not extend lifespan, the amount per QALY is similar to the figure used by the Subcommittee for Developing the National List of Essential Medicines – which is currently at 160,000 baht per QALY. However, when treatments are able to extend the lifespan of terminally-ill patients without improving quality of life, this value is higher than what the Subcommittee currently uses. Therefore, suitability for various contexts should be considered when determining an appropriate standard.





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