Rapporteurs' Notes for

Valuing Pain and Suffering and Lost Productivity

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We talked about many issues associated with measuring the benefits of preventing food-borne illness and the session's specific topic, which was pain and suffering and lost productivity. The conversation dealt with these three general questions:

1. What should be included in the measure of lost welfare associated with foodborne (or other) illness? We discussed what we should be trying to measure when we estimate the benefits of increasing food safety.
2. How should we measure the value of preventing foodborne (or other) illness? We mostly talked about the relative merits of quality-adjusted life years (QALY's) and contingent valuation (CV) measures of willingness to pay.
3. What should we do next? We agreed that the goal remains consensus, but we need to find a way to get there.

1. What should be included in the measure of lost welfare associated with foodborne (or other) illness?

The session began with a general discussion of whether pain and suffering should be counted as a cost of illness. Many regulatory agencies do not include the value of pain and suffering in cost-benefit analyses of health and safety regulations. Some agencies only count lives saved, rather than pain and suffering avoided, because lives saved dominates the measure. One discussant pointed out, however, that for chronic conditions and for end-of-life issues, pain and suffering can give you big numbers. An example is post-bacterial reactive arthritis.

Most of us agreed that in principle pain and suffering belonged in a measure of the losses associated with illness. We then discussed some of the problems involved in measuring it. If you use individual valuations, you can weigh the suffering of some people more than the suffering of others. Third-party valuations of pain and suffering also have drawbacks; physicians apparently do not do a good job valuing pain and suffering.

Timing is another issue. If we use individual valuations, should we use the valuations of people who have not had the illness (and must imagine how it would feel) or of those who have had it (and can draw on experience)? For some conditions, the difference is large.

The talk about individual valuations of various health conditions led us to the question of dread. Some risks inspire more dread than others. We discussed the reasons for and against including dread as a cost of illness. Dread tends to vary with education, income, information, risk aversion, and other variables not directly associated with the hazard. Dread can be based on inaccurate

information or unknown risks. People also tend to overvalue small, unknown risks. Perhaps a focus group approach, in which people were given information and a chance to discuss their fears, might isolate the "pure" dread factor. We discussed whether public health policy should be made on the basis of dread; Superfund, for example, may be a response to dread.

The government economists and policy analysts all agreed that a major reason to include all of the benefits of preventing illness in our measures is that the Office of Management and Budget (OMB) asks that all benefits be included. OMB wants full estimates both as a way to value the overall effects of health and safety regulations and as a way to compare regulations.

2. How should we measure the value of preventing foodborne (or other) illness?

By far the greater part of the breakout session was devoted to the relative merits of contingent valuation (CV) and quality-adjusted life years (QALY's) as measures of the value of preventing illness. The group failed to reach consensus on the larger issue of which approach is better, but many smaller issues were resolved.

Several participants described the advantages of quality-adjusted life years as follows:

- QALY's are bounded, running between zero for death and 1 for perfect health.
- QALY's are relatively easy to compute.
- QALY's can be used in cost-effectiveness analyses.
- There is a large medical literature on QALY's.

Many discussants questioned these advantages of QALY's. If some health states are worse than death, then QALY's are not necessarily bounded. The ease of computing QALY's may hide their inaccuracy. The use of QALY's for cost-effective or medical intervention purposes may not be easily transformed into use for cost-benefit analysis of public health policies. Medical interventions convey a very large benefit on a very small number of people, whereas public health policies convey very small benefits on a very large number of people.

We discussed methods of measuring QALY's: expert opinion, surveys, and questionnaires. We agreed that functional disability is much easier to measure than pain, suffering, dread, and other subjective losses.

QALY's alone are not sufficient to value reductions in illness. Most of us agreed that the biggest problem in using QALY's for cost-benefit analysis was transforming them into dollars. One way to do so would be to ask what people are willing to pay to avoid the loss of QALY's (or some other characterization of the hazard). Another discussant suggested that we get monetary values by asking people how they would allocate public funds across different risk reduction programs.

One discussant said that in many instances the values placed on QALY's are arbitrary. In response, a discussant summarized how the speaker from the first day of the conference found a non-arbitrary value for QALY's. The method starts with the value of a statistical life and works down to the value of a life-year, which can then be multiplied by QALY's to get the value of preventing the loss of QALY's. The dollars per life-year measure derived from the value of a statistical life, however, falls linearly with life expectancy, a result that contradicts the direct

empirical evidence on the value of statistical life for people of different ages. We discussed other factors that influence value of a statistical life year (in addition to age), including attitudes toward risk, time preference, other activities, and capital market imperfections. Some people questioned whether we could get good enough measures of the value of statistical life-years to make valuing QALY's worthwhile.

According to some discussants, QALY measures of the loss from illnesses tend to be biased upward. One reason may be that we measure the lost QALY's associated with an illness or condition as the difference between the QALY in the reduced Health State and the QALY for perfect health (1.0). If the average QALY is when health is less than one, then our measure overstates the QALY loss from illness.

We talked about surveys is general, and about the following approaches to getting responses on health states:

- Place a mark on a visual scale (works well)
- Standard gamble—live the rest of your life in state x, or risky operation
- Trade-off: 40 years in impaired health state vs. x years in perfect health

The session participants who disliked the use of QALY's generally supported using direct willingness to pay, based on contingent valuation (CV) studies. The main advantage of CV is that it directly measures what we are interested in—the person's willingness to pay to avoid illness. An advantage of straight CV questions—as opposed to standard gamble or time trade-off questions—is that they usually represent a real choice people could make.

One objection raised to direct surveys is that it is difficult to keep psychological factors out of people's responses. Another potential problem is strategic behavior from respondents. We discussed whether strategic behavior might be more of a problem for health conditions than for environmental issues.

We discussed the problems of misperceptions and attitudes toward risk. For example, should we take a paternalistic attitude toward 20-year-olds? Economists generally say no; if young people have a low willingness to pay for risk reduction, so be it. It seems inconsistent for regulators to say that people have good enough information to value risk, but that their information is so imperfect that we have to regulate risk. Better information might remove the need to regulate, if 20-year-olds simply miscalculate risk. Is the problem attitude or information? We may be regulating attitudes.

Another problem with direct measures of willingness to pay is the private versus social question. Surveys asking for private willingness to pay might give us different answers than surveys asking for social willingness to pay.

The main objection to CV voiced during the session was that the surveys have great practical problems. We discussed how sensitive CV studies are to how the question is posed, for example. Another question was how stated willingness-to-pay deals with sick leave and health insurance. Some participants pointed out that QALY studies are also based on questionnaires and are thus

sensitive to how questions are posed, as well as being sensitive to many of the same issues that affect CV studies.

One participant described how to do a contingent valuation approach to health states associated with various illnesses. We could start with stated willingness-to-pay to not have the illness, and then place implicit values on the various symptoms associated with the illness. For example, diary studies give the data needed to estimate willingness-to-pay as a function of symptoms, severity, frequency, length illness lasted, and other confounding factors. In a manner similar to hedonic housing studies, a well-designed CV study would allow us to compute the marginal willingness to pay for avoiding the different symptoms (of a given severity and length) associated with an episode.

The session's participants appeared to agree on the theory but disagree on what works best. Most participants agreed that a direct measure (such as CV) of willingness to pay was theoretically preferable. We failed to reach consensus on whether the practical difficulties were greater for actual CV studies or for QALY plus value of statistical life-year studies. We did agree that the ideal QALY study and ideal CV study should include the same list of independent variables.

3. What Should We Do Next?

The goal is for the responsible agencies to meet and establish common guidelines for regulating food safety. The guidelines should start with OMB guidelines. How can the different agencies work together to standardize the values placed on symptoms and illnesses?

We discussed the lack of standardization within agencies, much less across agencies. It is probably better to standardize across agencies first, and within-agency differences will take care of themselves. We then discussed the desirability of adopting standards to allow flexibility, given limits imposed by data, time, and political constraints. Standardization must be designed to allow evolution and improvement. Standardization should not be numbers, but should be methods, criteria, ways of thinking, and level of acceptable evidence. We also need some benchmarks to make comparisons.

We discussed the benefits of jointly sponsored studies that would compare CV and QALY approaches. The two studies we identified as desirable were: (1) an empirical study comparing the two approaches, and (2) a conceptual comparison of the two approaches. Both studies should be strongly oriented toward policy applications.