

# Easy Guide to The Delphi Technique

The Delphi technique is a method for consensus-building by using a series of questionnaires delivered using multiple iterations to collect data from a panel of selected subjects. It focuses on eliciting expert opinions over a short period of time.

## Main source for this guide:

[http://essentialsofmedicine.com/sites/default/files/Delphi%20Technique\\_%20Making%20Sense%20Of%20Consensus.pdf](http://essentialsofmedicine.com/sites/default/files/Delphi%20Technique_%20Making%20Sense%20Of%20Consensus.pdf)

## Example of published papers

Int J Clin Pharm (2016) 38:1457–1463  
DOI 10.1007/s11096-016-0389-z



RESEARCH ARTICLE

### Development and content validation of an assessment tool for medicine compounding on hospital wards

Eeva Suvikas-Peltonen<sup>1</sup> · Eija Granfors<sup>2</sup> · Ercan Celikkayalar<sup>1</sup> · Raisa Laaksonen<sup>3</sup> · Joni Palmgren<sup>1</sup> · Marja Airaksinen<sup>3</sup>

Received: 19 May 2016 / Accepted: 14 October 2016 / Published online: 5 November 2016  
© Springer International Publishing 2016

**Abstract** *Background* Medicines should be compounded by using an aseptic technique to assure patient safety. The parenteral administration of microbiologically contaminated doses can result in bacteraemia, other morbidity and even death. *Objective* The purpose was to develop and content

possible to develop and content validate, by the Delphi method, an assessment tool for safe aseptic compounding on hospital wards. A two-round Delphi process yielded consensus on 64 items for this purpose.

## Example of published papers

Int J Clin Pharm (2016) 38:1112–1123  
DOI 10.1007/s11096-016-0338-x



RESEARCH ARTICLE

### Medication dispensing errors in Palestinian community pharmacy practice: a formal consensus using the Delphi technique

Ramzi Shawahna<sup>1,2,3</sup> · Aseel Haddad<sup>1</sup> · Baraa Khawaja<sup>3</sup> · Rand Raie<sup>3</sup> · Sireen Zaneen<sup>3</sup> · Tasneem Edais<sup>3</sup>

Received: 4 March 2016 / Accepted: 15 June 2016 / Published online: 30 June 2016  
© Springer International Publishing 2016

**Abstract** *Background* Medication dispensing errors (MDEs) are frequent in community pharmacy practice. A definition of MDEs and scenarios representing MDE situations in Palestinian community pharmacy practice were not previously approached using formal consensus techniques. *Objective* This study was conducted to achieve

second Delphi round, consensus was achieved to accept the proposed definition and to include 49 (59 %) of the 83 proposed scenarios as MDEs. In the third Delphi round, consensus was achieved to include further 13 (15.7 %) scenarios as MDEs, exclude 9 (10.8 %) scenarios and the rest of 12 (14.5 %) scenarios were considered equivocal

## Main Source for this guide, . . .

### Practical Assessment, Research & Evaluation

A peer-reviewed electronic journal.

Copyright is retained by the first or sole author, who grants right of first publication to the *Practical Assessment, Research & Evaluation*. Permission is granted to distribute this article for nonprofit, educational purposes if it is copied in its entirety and the journal is credited.

Volume 12, Number 10, August 2007

ISSN 1531-7714

#### The Delphi Technique: Making Sense Of Consensus

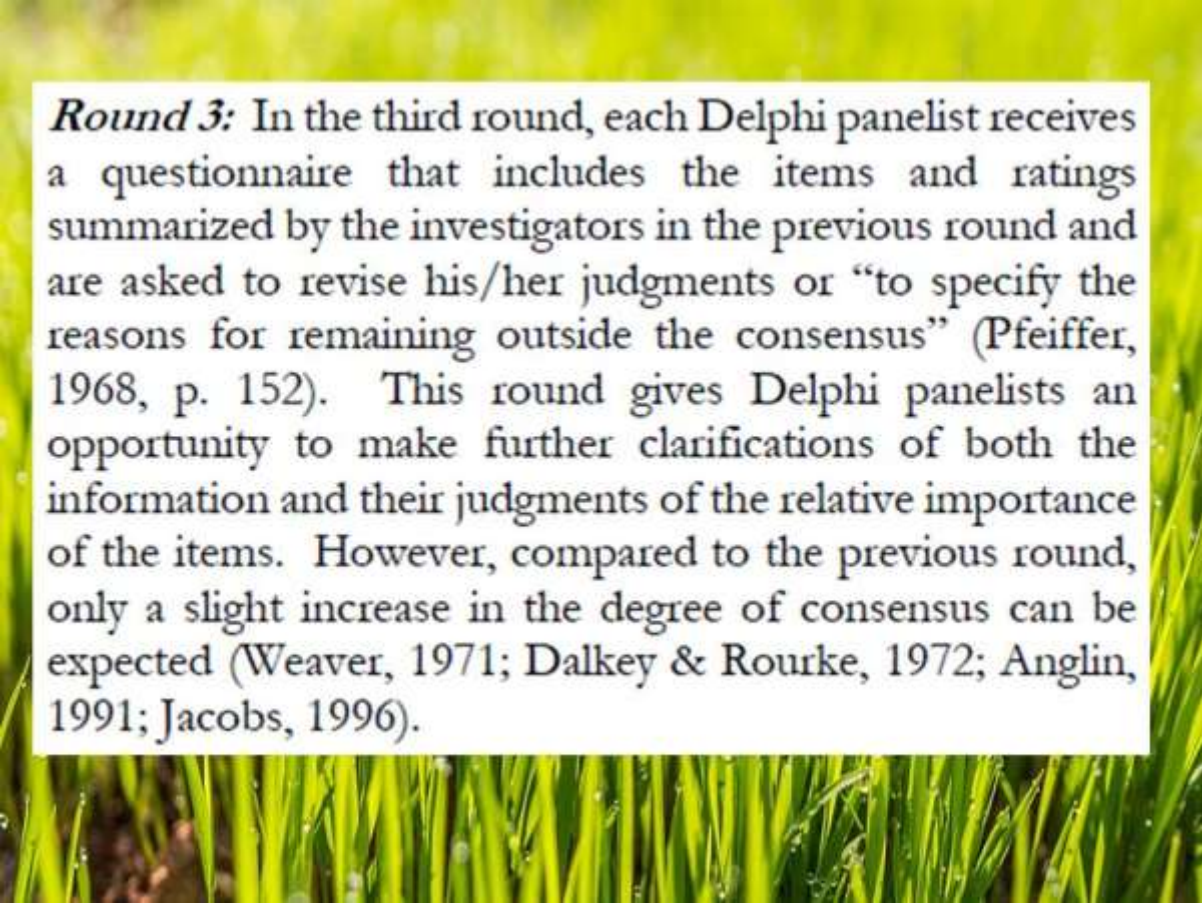
Chia-Chien Hsu, The Ohio State University &  
Brian A. Sandford, Oklahoma State University



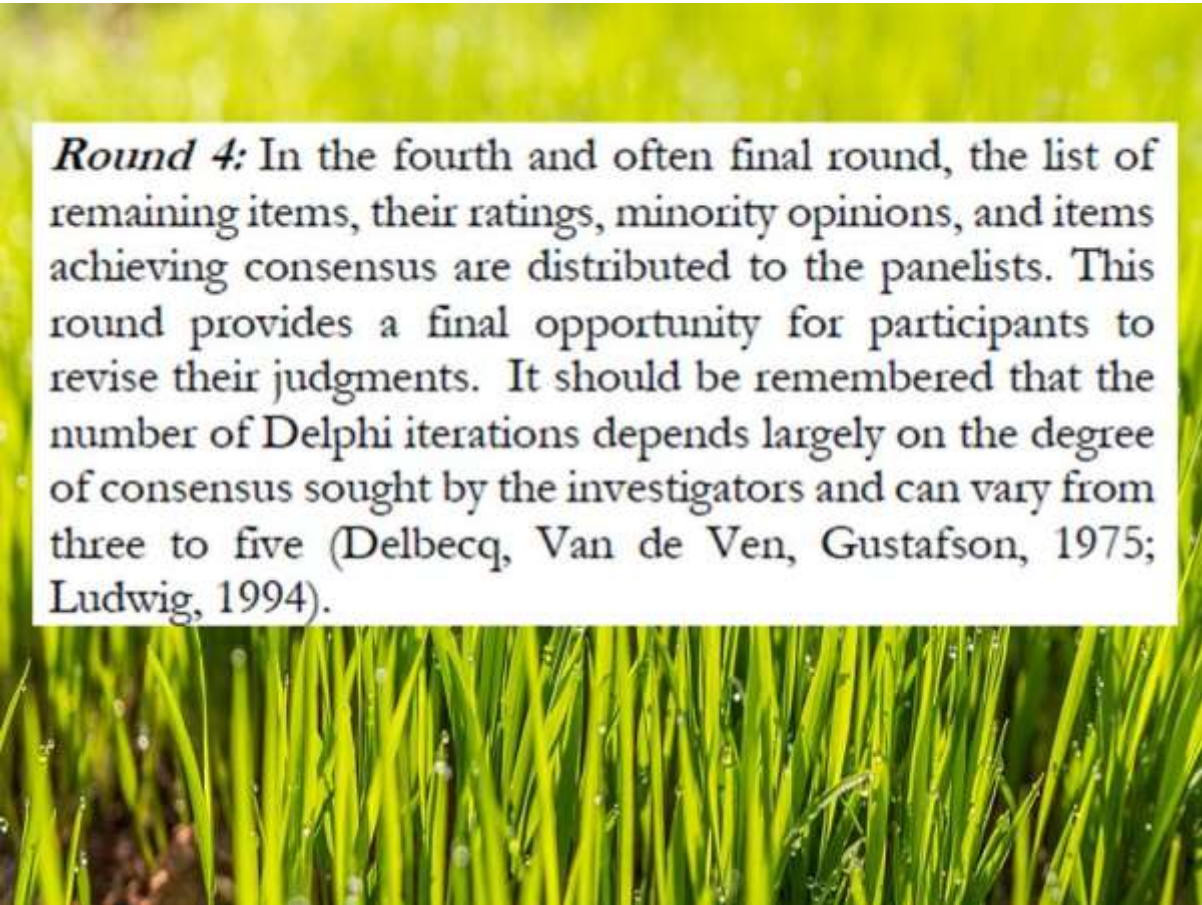
*Round 1:* In the first round, the Delphi process traditionally begins with an open-ended questionnaire. The open-ended questionnaire serves as the cornerstone of soliciting specific information about a content area from the Delphi subjects (Custer, Scarcella, & Stewart, 1999). After receiving subjects' responses, investigators need to convert the collected information into a well-structured questionnaire. This questionnaire is used as the survey instrument for the second round of data collection. It should be noted that it is both an acceptable and a common modification of the Delphi process format to use a structured questionnaire in Round 1 that is based upon an extensive review of the literature. Kerlinger (1973) noted that the use of a modified Delphi process is appropriate if basic information concerning the target issue is available and usable.

*Round 2:* In the second round, each Delphi participant receives a second questionnaire and is asked to review the items summarized by the investigators based on the information provided in the first round. Accordingly, Delphi panelists may be required to rate or "rank-order items to establish preliminary priorities among items. As a result of round two, areas of disagreement and agreement are identified" (Ludwig, 1994, p. 54-55). In some cases, Delphi panelists are asked to state the rationale concerning rating priorities among items (Jacobs, 1996). In this round, consensus begins forming and the actual outcomes can be presented among the participants' responses (Jacobs, 1996).





**Round 3:** In the third round, each Delphi panelist receives a questionnaire that includes the items and ratings summarized by the investigators in the previous round and are asked to revise his/her judgments or “to specify the reasons for remaining outside the consensus” (Pfeiffer, 1968, p. 152). This round gives Delphi panelists an opportunity to make further clarifications of both the information and their judgments of the relative importance of the items. However, compared to the previous round, only a slight increase in the degree of consensus can be expected (Weaver, 1971; Dalkey & Rourke, 1972; Anglin, 1991; Jacobs, 1996).



**Round 4:** In the fourth and often final round, the list of remaining items, their ratings, minority opinions, and items achieving consensus are distributed to the panelists. This round provides a final opportunity for participants to revise their judgments. It should be remembered that the number of Delphi iterations depends largely on the degree of consensus sought by the investigators and can vary from three to five (Delbecq, Van de Ven, Gustafson, 1975; Ludwig, 1994).



## Subject Selection, in general, . . .

- Individuals are considered eligible to be invited to participate in a Delphi study if they have somewhat related backgrounds and experiences concerning the target issue, are capable of contributing helpful inputs, and are willing to revise their initial or previous judgments for the purpose of reaching or attaining consensus (Pill, 1971; Oh, 1974)

## Subject Selection, in particular, . . .

- Considering the necessity of selecting the most qualified individuals, Delbecq, Van de Ven, and Gustafson (1975) specifically state that three groups of people are well qualified to be subjects of a Delphi study.

The authors recommend:

- “(1) the top management decision makers who will utilize the outcomes of the Delphi study;*
- (2) the professional staff members together with their support team; and*
- (3) the respondents to the Delphi questionnaire whose judgments are being sought” (p. 85).*

## Number of subjects to involve

- Delbecq, Van de Ven, and Gustafson (1975) suggest that ten to fifteen subjects could be sufficient if the background of the Delphi subjects is homogeneous.
- In contrast, if various reference groups are involved in a Delphi study, more subjects are anticipated to be needed.
- Witkin and Altschuld (1995) note that the approximate size of a Delphi panel is generally under 50, but more have been employed.

## Time Requirements

- Delbecq, Van de Ven, and Gustafson (1975), Ulschak (1983), and Ludwig, (1994) recommend that a minimum of 45 days for the administration of a Delphi study is necessary.
- With regard to the time management between iterations, Delbecq et al. (1975) note that giving two weeks for Delphi subjects to respond to each round is encouraged.



## Data Analysis

- One criterion recommends that consensus is achieved by having 80 percent of subjects' votes fall within two categories on a seven-point scale (Ulschak, 1983).
- Green (1982) suggests that at least 70 percent of Delphi subjects need to rate three or higher on a four point Likert-type scale and the median has to be at 3.25 or higher.
- In the literature, the use of median score, based on Likert-type scale, is strongly favored (Hill & Fowles, 1975; Eckman, 1983; Jacobs, 1996).

## Considering Delphi Shortcomings And Weaknesses

- Potential of Low Response Rates
  - subject motivation as the key to the successful implementation of a Delphi study
- Consumption of Large Blocks of Time
  - the Delphi technique is iterative and sequential
- Potential of Molding Opinions
  - subtle pressure to conform with group ratings
- Potential of Identifying General Statements vs. Specific Topic Related Information
  - Some panelists may have much more in-depth knowledge of certain topics, whereas other panelists are more knowledgeable about different topics

# Summary of Delphi Technique

The Delphi technique provides those involved or interested in engaging in research, evaluation, fact-finding, issue exploration, or discovering what is actually known or not known about a specific topic a flexible and adaptable tool to gather and analyze the needed data.

Follow me on FB to get more tips like this =)

Syahrir Bin Zaini

<https://www.facebook.com/photo.php?fbid=10202909739021091&set=pcb.10202909759181595&type=3&theater>

Chia-Chien Hsu and Brian A. Sandford, "The Delphi Technique: Making Sense of Consensus," *Practical Assessment, Research & Evaluation* 12, no. 10 (2007): 1–8.

[http://essentialsofmedicine.com/sites/default/files/Delphi%20Technique\\_%20Making%20Sense%20Of%20Consensus.pdf](http://essentialsofmedicine.com/sites/default/files/Delphi%20Technique_%20Making%20Sense%20Of%20Consensus.pdf)