

Guiding Principles for Data Management

The proper management, interpretation, and representation of scientific data are central to all scientific inquiry. A wide range of scientific approaches are incorporated into the research carried out at the NIH, but two guiding principles underlie all data management and presentation. First, data should faithfully reflect the experimental results, qualitatively and quantitatively, without misrepresentation. Images (microscopy, blots, gels, etc.) should be representative of all the results obtained. Second, sufficient documentation of the experimental methods and the data should be kept in the laboratory for at least five years, such that any trained individual would be able to independently examine and interpret the data. The cases selected for 2005 ([available as a pdf file](#) with [Figure 1 as a separate image](#)) cover these topics thoroughly. There are five cases related to the management and representation of different types of data in laboratory settings, and an additional four cases related to [epidemiological and clinical data management](#), and we encourage each group to discuss those cases that most pertain to the types of experiments they carry out.

We strongly encourage facilitators to provide the following two documents as supplements to the 2005 case discussions.

Document 1 -- The NIH Catalyst article entitled "[What's in a Picture? The Temptation of Image Manipulation](#)" which provides guidelines for proper handling of digital image data with powerful examples of what can go wrong (the images from the article can also be found in the [pdf file](#)).

We strongly recommend that this brief article be required reading before the case discussions.

Document 2 -- Three retractions published in Cell in 2004 ([pdf file](#)). How could these retractions have been avoided?