



**ACTUARIAL STANDARDS BOARD**

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**Actuarial Standard  
of Practice  
No. 23**

**Revised Edition**

**Data Quality**

**Developed by the  
Data Quality Task Force of the  
General Committee of the  
Actuarial Standards Board**

**Adopted by the  
Actuarial Standards Board  
December 2016**

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**Doc. No. 185**

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December 2016

**TO:** Members of Actuarial Organizations Governed by the Standards of Practice of the Actuarial Standards Board and Other Persons Interested in Data Quality

**FROM:** Actuarial Standards Board (ASB)

**SUBJ:** Actuarial Standard of Practice (ASOP) No. 23

This document contains the final version of a revision of ASOP No. 23, *Data Quality*.

### Background

The ASB originally adopted ASOP No. 23, *Data Quality*, in 1993. That ASOP was prepared by the Data Quality Task Force of the Specialty Committee of the ASB. The ASB revised ASOP No. 23 in 2004 to be consistent with the then-current ASOP format, to reflect then-current, generally accepted practice with respect to data quality, and to provide guidance concerning other information relevant to the use of data. ASOP No. 23 was further updated for deviation language, effective May 1, 2011.

In 2014, the ASB concluded that this ASOP should be revised to update language to keep pace with practice changes (for example, increasing use of non-traditional data sources for predictive models, and legislatively mandated data submissions). This revision is the result of that review.

### Exposure Draft

The exposure draft was released in November 2015 with a comment deadline of February 29, 2016. Twenty-two comment letters were received. The task force considered all comments received and made appropriate changes where needed. For a summary of the substantive issues contained in the comment letters on the exposure draft and the responses, please see appendix 2.

### Key Changes

No significant changes have been made, but the wording has been clarified in a number of sections, including the following:

1. Section 1.2 (Scope) has been modified to clarify that if an actuary prepares data, or is responsible for the preparation of data, that the actuary believes will be used by other actuaries in providing actuarial services, the actuary should apply the relevant portions of this standard as though the actuary were planning to use the data, taking into account the preparing actuary's understanding of the assignment for which the data will be used.
2. The defined term "comprehensive" has been replaced with the defined term "sufficient" (with the same definition), because that term fits more naturally with the definition.

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3. The definition of “data” has been changed to clarify that it includes information derived mathematically from data.
4. Section 3.2(b)(3) has been revised to clarify that, in selecting data, the actuary should consider whether the data are reasonable given external data and information only to the extent the external data and information are relevant, readily available, and known to the actuary.
5. Section 3.3 has been modified to clarify that if an actuary performs a review of data, the actuary should consider comparing the current data to data used in the prior analysis, if similar work has been previously performed for the same or recent periods, but only if such consistency can reasonably be expected.
6. Section 3.4(c) has been modified to indicate that, rather than adjusting data to compensate for data deficiencies, an actuary may adjust the results of the analysis (for example, by increasing the range of reasonable estimates).
7. Section 3.4(e) has been modified to clarify that an actuary may, with the consent of the principal, complete any parts of an assignment for which the actuary determines the data are suitable, even though the data may be inadequate to complete the full assignment.
8. Section 3.7 has been added to remind actuaries that confidential information should be handled consistent with Precept 9 of the *Code of Professional Conduct*.

The General Committee would like to thank former committee members Jeremy J. Brown, Charles F. Cook, John C. Lloyd, Cande J. Olsen, and Lance J. Weiss for their contribution to the development of this ASOP.

The ASB voted in December 2016 to adopt this standard.

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*The ASB establishes and improves standards of actuarial practice. These ASOPs identify what the actuary should consider, document, and disclose when performing an actuarial assignment. The ASB's goal is to set standards for appropriate practice for the U.S.*

**ACTUARIAL STANDARD OF PRACTICE NO. 23**

**DATA QUALITY**

**STANDARD OF PRACTICE**

Section 1. Purpose, Scope, Cross References, and Effective Date

- 1.1 Purpose—The purpose of this actuarial standard of practice (ASOP) is to provide guidance to the actuary when performing actuarial services involving **data**.
- 1.2 Scope—This ASOP provides guidance to actuaries when selecting **data**, performing a **review** of **data**, using **data**, or relying on **data** supplied by others, in performing actuarial services. The ASOP also applies to actuaries who are selecting or preparing **data**, or are responsible for the selection or preparation of **data**, that the actuary believes will be used by other actuaries in performing actuarial services, or when making appropriate disclosures with regard to **data** quality. Other actuarial standards of practice may contain additional considerations related to **data** quality that are applicable to particular areas of practice or types of actuarial assignment.

If an actuary prepares **data**, or is responsible for the preparation of **data**, to be used by other actuaries in performing actuarial services, the actuary should apply the relevant portions of this standard as though the actuary were planning to use the **data**, taking into account the preparing actuary's understanding of the assignment for which the **data** will be used.

This standard does not apply to the generation of a wholly hypothetical **data** set.

This standard does not require the actuary to perform an **audit** of the **data**.

If the actuary departs from the guidance set forth in this standard in order to comply with applicable law (statutes, regulations, and other legally binding authority), or for any other reason the actuary deems appropriate, the actuary should refer to section 4.

- 1.3 Cross References—When this standard refers to the provisions of other documents, the reference includes the referenced documents as they may be amended or restated in the future, and any successor to them, by whatever name called. If any amended or restated document

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differs materially from the originally referenced document, the actuary should consider the guidance in this standard to the extent it is applicable and appropriate.

- 1.4 Effective Date—This standard will be effective for any actuarial work product for which **data** were provided to or developed by the actuary on or after April 30, 2017.

### Section 2. Definitions

The terms below are defined for use in this actuarial standard of practice.

- 2.1 Appropriate Data—**Data** suitable for the intended purpose of an analysis and relevant to the system or process being analyzed.
- 2.2 Audit—A formal and systematic examination of **data** for the purpose of testing its accuracy and completeness.
- 2.3 Data—Numerical, census, or classification information, or information derived mathematically from such items, but not general or qualitative information. Assumptions are not **data**, but **data** are commonly used in the development of actuarial assumptions.
- 2.4 Data Element—An item of information, such as date of birth or risk classification.
- 2.5 Review—An examination of the obvious characteristics of **data** to determine if such **data** appear reasonable and consistent for purposes of the assignment. A **review** is not as detailed as an **audit** of **data**.
- 2.6 Sufficient—Containing enough **data elements** or records for the analysis.

### Section 3. Analysis of Issues and Recommended Practices

- 3.1 Overview—**Appropriate data** that are accurate and complete may not be available. The actuary should use available **data** that, in the actuary's professional judgment, allow the actuary to perform the desired analysis. However, if significant **data** limitations are known to the actuary, the actuary should disclose those limitations and their implications in accordance with section 4.1(b). The following sections discuss such considerations in more detail.
- 3.2 Selection of Data—In undertaking an analysis, the actuary should determine what **data** to use. The actuary should take into account the scope of the assignment and the intended use of the analysis being performed to determine the nature of the **data** needed and the number of alternative **data**

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sets or **data** sources, if any, to be considered. The actuary should do the following:

- a. consider the **data elements** that are desired and possible alternative **data elements**; and
- b. select the **data** for the analysis with consideration of the following:
  1. whether the **data** constitute **appropriate data**, including whether the **data** are sufficiently current;
  2. whether the **data** are reasonable with particular attention to internal consistency;
  3. whether the **data** are reasonable given relevant external information that is readily available and known to the actuary;
  4. the degree to which the **data** are **sufficient**;
  5. any known significant limitations of the **data**;
  6. the availability of additional or alternative **data** and the benefit to be gained from such additional or alternative **data**, balanced against how practical it is to collect and compile such additional or alternative **data**; and
  7. sampling methods, if used to collect the **data**.

- 3.3 **Review of Data**—A **review** of **data** may not always reveal defects. Nevertheless, the actuary should perform a **review**, unless, in the actuary’s professional judgment, such **review** is not necessary or not practical. In exercising such professional judgment, the actuary should take into account the purpose and nature of the assignment, any relevant constraints, and the extent of any known checking, verification, or **audit** of the **data** that has already been performed.

If, in the actuary’s professional judgment, it is not appropriate to perform a **review** of the **data**, the actuary should disclose that the actuary has not performed such a **review**, the reason the actuary has not performed such a **review**, and any resulting limitations on the use of the actuarial work product, in accordance with section 4.1(c).

If the actuary performs a **review**, the actuary should do the following:

- a. make a reasonable effort to determine the definition of each **data element** used in the



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analysis; and

- b. make a reasonable effort to identify **data** values that are questionable or relationships that are significantly inconsistent. If the actuary believes questionable or inconsistent **data** values could have a significant effect on the analysis, the actuary should consider taking further steps, when practical, to improve the quality of the **data**. The actuary should disclose in summary form any unresolved questionable **data** values that the actuary believes could have a significant effect on the analysis, in accordance with section 4.1(d). The actuary also should disclose any significant steps the actuary has taken to improve the **data**, in accordance with section 4.1(e).

If the actuary performs a **review**, the actuary should also consider comparing current **data** with the **data** used in the prior analysis for consistency, if similar work has been previously performed for the same or recent periods and if such consistency can reasonably be expected. If the actuary does not have the prior **data**, the actuary should consider requesting the prior **data**.

3.4 Use of Data—Because **appropriate data** that are accurate and complete may not be available, the actuary should make a professional judgment about which of the following are applicable:

- a. the **data** are of acceptable quality to perform the analysis;
- b. the **data** require enhancement before the analysis can be performed, and it is practical to obtain additional or corrected **data** that will allow the analysis to be performed;
- c. judgmental adjustments or assumptions can be applied to the **data** that allow the actuary to perform the analysis. Any judgmental adjustments to **data** or assumptions should be disclosed in accordance with section 4.1(f). If the actuary judges that the use of the **data**, even with adjustments and assumptions applied, may cause the results to be highly uncertain or contain a significant bias, the actuary may choose to complete the assignment but should disclose the potential existence of the uncertainty or bias, and, if reasonably determinable, the nature and potential magnitude of such uncertainty or bias, in accordance with section 4.1(g). Alternatively, the actuary may compensate for the **data** deficiencies by adjusting the results, such as by increasing the range of reasonable estimates, and disclose the adjustments, in accordance with section 4.1(f);
- d. if the actuary believes that the **data** are likely to contain significant defects, the actuary should determine, if practical, the nature and extent of any checking, verification, or **audit** of the **data** that has been performed. Then, if, in the actuary's professional

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judgment, a more extensive **review** is needed, the actuary should arrange for such a **review** prior to completing the assignment; or

- e. if, in the actuary's professional judgment, the **data** are so inadequate that the **data** cannot be used to satisfy the purpose of the assignment, then the actuary should 1) obtain different **data**, 2) complete, with the consent of the principal, any parts of the assignment for which the actuary determines the **data** are suitable, or 3) decline to complete the assignment. However, if the actuary is required by a regulator or other governmental authority to use **data** that the actuary considers unsuitable for use in the actuary's analysis, the actuary may use the **data** subject to the disclosure requirements of section 4.

3.5 Reliance on Data Supplied by Others—In most situations, the **data** are provided to the actuary by others. The accuracy and completeness of **data** supplied by others are the responsibility of those who supply the **data**. The actuary may rely on **data** supplied by others, subject to the guidance in sections 3.3 and 3.4. The actuary should disclose reliance on **data** supplied by others in an appropriate actuarial communication, in accordance with section 4.1(h).

3.6 Reliance on Other Information Relevant to the Use of Data—In many situations, the actuary is provided with other information relevant to the appropriate use of **data**, such as contract provisions, plan documents, and reinsurance treaties. The validity and completeness of such information are the responsibility of those who supply such information. The actuary may rely on such information supplied by others, unless it is or becomes apparent to the actuary in the course of the assignment that the information is unsuitable for use in the actuary's analysis. The actuary should disclose reliance on such information supplied by others in an appropriate actuarial communication, in accordance with section 4.1(h).

If the actuary believes the information is unsuitable, or inconsistencies between the information and the **data** suggest that the information may be unsuitable, the actuary should make a professional judgment about whether to use the information. The actuary should consider disclosing when such relevant information that has been provided is not used.

If the information suggests that the **data** may be unsuitable, the actuary should make a professional judgment about whether to use the **data** based on the considerations described in sections 3.4 and 3.5.

3.7 Confidentiality—The actuary should be aware that **data** may contain confidential information. Such confidential information should be handled consistent with Precept 9 of the *Code of Professional Conduct*.

3.8 Limitation of the Actuary's Responsibility—The actuary is not required to do any of the

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following:

- a. determine whether **data** or other information supplied by others are falsified or intentionally misleading;
- b. compile additional **data** solely for the purpose of searching for questionable or inconsistent **data**; or
- c. perform an **audit** of the **data**.

### Section 4. Communications and Disclosures

4.1 Communication and Disclosure—Any actuarial communication prepared to communicate the results of work subject to this standard should comply with the requirements of ASOP No. 41, *Actuarial Communications*. An actuarial communication can comply with some or all of the specific requirements of this section by making reference to information contained in other actuarial communications available to the intended users (as defined in ASOP No. 41), such as an annual actuarial valuation report. Such communication should contain the following disclosures when relevant and material:

- a. the source(s) of the **data**;
- b. any limitations on the use of the actuarial work product due to uncertainty about the quality of the **data** or other information relevant to the use of the **data**, as discussed in section 3.1;
- c. whether the actuary performed a **review** of the **data** and, if not, the reason for not reviewing the **data** and any resulting limitations on the use of the actuarial work product, as discussed in section 3.3;
- d. in summary form, unresolved concerns the actuary may have about questionable **data** values that are relevant to the use of the **data** and could have a significant effect on the actuarial work product, as discussed in section 3.3(b);
- e. in summary form, discussions of any significant steps the actuary has taken to improve the **data** due to identifying questionable **data** values or relationships, as discussed in section 3.3(b);
- f. in summary form, significant judgmental adjustments or assumptions that the actuary

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applied to the **data** or to the results, or are known by the actuary to have been applied to the **data**, to allow the actuary to perform the analysis, as discussed in section 3.4(c);

- g. the existence of results that are highly uncertain or have a potentially significant bias of which the actuary is aware due to the quality of the **data** or other information relevant to the use of the **data**, and the nature and potential magnitude of such uncertainty or bias, if they can be reasonably determined, as discussed in section 3.4(c);
- h. the extent of the actuary's reliance on **data** and other information relevant to the use of the **data** supplied by others, as discussed in sections 3.5 and 3.6;
- i. the disclosure in ASOP No. 41, section 4.2, if any material assumption or method was prescribed by applicable law (statutes, regulations, and other legally binding authority);
- j. the disclosure in ASOP No. 41, section 4.3, if the actuary states reliance on other sources and thereby disclaims responsibility for any material assumption or method selected by a party other than the actuary; and
- k. the disclosure in ASOP No. 41, section 4.4, if, in the actuary's professional judgment, the actuary has otherwise deviated materially from the guidance of this ASOP.

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### **Appendix 1**

#### **Background and Current Practices**

*Note:* The following appendix is provided for informational purposes, but is not part of the standard of practice.

##### Background

An actuarial analysis is based upon an analysis of data, along with practical knowledge of the area of practice and training in actuarial theory, which together enable the actuary to perform and interpret the results of calculations. Throughout the analytic process, data play an important role. The accuracy and validity of the actuarial analysis are dependent on, among other things, the quality of the data used. Hence, an actuarial standard of practice concerning data quality is appropriate.

Data frequently contain errors, are not complete, and are not precisely appropriate for the intended analysis. Actuaries deal with these limitations, the majority of which are non-critical. However, actuaries are often called upon to perform actuarial services in situations where data limitations may be critical. Actuaries use professional judgment when determining whether and how to refine data or make modifications within the analysis.

##### Current Practices

Actuaries use informed judgment to determine what kinds of data are appropriate for a particular analysis. It is important that the data used are relevant to the system or process being analyzed.

Data have played an increasingly important role in actuarial practice in recent years. In addition to the traditional uses of data that have been in place for many years, actuaries and their principals have been using broader sources of data more recently to support improved business decisions. This has included more sophisticated data analytics to improve functions such as claims processes, underwriting, pricing, loss control, distribution management, and customer service. In addition, there has been expansion of use of sophisticated models for a wide range of purposes, and those models are heavily reliant on the data inputs. Because of their analytical skills, actuaries have been deeply involved in these advancements, including assessing the quality and sufficiency of data for use in various applications.

Persons or organizations responsible for generating, collecting, or publishing data may apply

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different standards of quality assurance, ranging from straightforward compilation of figures to extensive verification. Actuaries, in turn, deal with the question of the quality of data underlying their work products in a variety of ways and with varying levels of review or checking.

Actuaries are called upon to provide analyses for a broad range of audiences, from limited distribution within an organization to public exposure.

Important aspects of data use include documentation and disclosure of 1) the sources of data, 2) review of data, 3) significant biases resulting from data, 4) adjustments or corrections made to the data, and 5) the extent of reliance on data supplied by others. Typically, actuaries do not audit data.

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**Appendix 2**

**Comments on the Exposure Draft and Responses**

The exposure draft of this revision of ASOP No. 23, *Data Quality*, was issued in November 2015 with a comment deadline of February 29, 2016. Twenty-two comment letters were received, some of which were submitted on behalf of multiple commentators, such as by firms or committees. For purposes of this appendix, the term “commentator” may refer to more than one person associated with a particular comment letter. The Task Force carefully considered all comments received, and the General Committee and ASB reviewed (and modified, where appropriate) the proposed changes.

Summarized below are the significant issues and questions contained in the comment letters and the responses to each.

The term “reviewers” includes the Task Force, General Committee, and the ASB. Unless otherwise noted, the section numbers and titles used below refer to those in the exposure draft.

<b>TRANSMITTAL MEMORANDUM</b>	
<b>Question 1: Does this proposed revision provide appropriate guidance for an actuary preparing data for another actuary’s use (for example, legislatively-mandated data submissions)?</b>	
Comment	Most commentators who addressed the question felt the proposed revision provided appropriate guidance.
Comment	One commentator believed the ASOP should address the duty of care owed and the alignment of data with the data request.
Response	The reviewers believe these topics are adequately covered in the <i>Code of Professional Conduct</i> , and in sections 1.2 and 3.2 of this ASOP, and made no change.
Comment	Several commentators believed the ASOP should clarify whether it applies to an actuary preparing data for use by another actuary working in the same firm.
Response	The reviewers note that section 1.2 indicates that the standard applies when an actuary “prepares data or is responsible for the preparation of data to be used by other actuaries in performing actuarial services,” and provides no exception for actuaries working within the same firm, and made no change.
<b>Question 2: Does this proposed revision provide appropriate guidance for working with nontraditional data sources (for example, predictive models)?</b>	
Comment	Most commentators who addressed the question felt the proposed revision provided appropriate guidance.
Comment	One commentator suggested clarifying the extent to which derived data are included under this ASOP.
Response	The reviewers agree that some derived data is subject to this ASOP and clarified the definition of “data.”

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<b>Question 3: Considering the guidance in section 3.6, which discusses the quality of other information relevant to data, is the title of the standard “Data Quality” appropriate?</b>	
Comment	Most commentators who addressed the question felt that the standard was appropriately titled.
<b>GENERAL COMMENTS</b>	
Comment	Several commentators questioned the intent behind the replacement of the word “material” in the existing ASOP with the word “significant” in the revision.
Response	Where a change was made from “material” to “significant”, the reviewers believe that the use of the word “significant” is appropriate and consistent with its definition in ASOP No. 1, <i>Introductory Actuarial Standard of Practice</i> .
<b>SECTION 1. PURPOSE, SCOPE, CROSS REFERENCES, AND EFFECTIVE DATE</b>	
<b>Section 1.1, Purpose</b>	
Comment	One commentator suggested that this section be clarified to indicate that it applies to the performance of any of the activities described.
Response	The reviewers agree and modified the language.
Comment	Several commentators suggested that section 1.1(e) be clarified to apply only to situations in which an actuary is performing an actuarial service by preparing data for use by other actuaries in an actuarial work product.
Response	The reviewers disagree with the suggested change. Sections 1.1 and 1.2 have been reorganized and reworded to be clearer, and section 1.2 now provides that “If an actuary prepares data, or is responsible for the preparation of data, to be used by other actuaries in performing actuarial services, the actuary should apply the relevant portions of this standard as though the actuary were planning to use the data, taking into account the preparing actuary’s understanding of the assignment for which the data will be used.”
Comment	One commentator believed items (a)-(e) are not clear and would benefit from additional definitions or examples.
Response	Sections 1.1 and 1.2 have been reorganized and reworded to be clearer. The reviewers do not believe examples are needed.
<b>Section 1.2, Scope</b>	
Comment	One commentator suggested that the ASOP should apply to actuaries who assume responsibility for preparing data as well as to those who prepare the data.
Response	The reviewers agree and modified the language.
Comment	One commentator suggested that the term “wholly hypothetical data set” needed to be defined or better described.
Response	The reviewers believe the term is clear and made no change.
Comment	One commentator suggested deleting the sentence “This standard does not require the actuary to perform an audit of the data” because it is duplicative with section 3.8.
Response	The reviewers believe this sentence is helpful in understanding the scope and made no change.



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<b>SECTION 2. DEFINITIONS</b>	
Comment	One commentator suggested adding definitions for “reliable data” and “authoritative data,” and retaining the definition of “practical” from the existing ASOP.
Response	The reviewers disagree with adding the definitions and note that the term “practical” is defined in ASOP No. 1. Therefore, the reviewers made no change.
Comment	One commentator requested that a definition for “information” be added.
Response	The reviewers believe the term is used with its general meaning and does not require a definition. Therefore, the reviewers made no change.
<b>Section 2.2, Audit</b>	
Comment	Two commentators suggested that the definition specify that an audit of data should only be performed by a professional auditor.
Response	The reviewers note that the term “audit” has a specific definition in the ASOP that does not correspond with the term under U.S. GAAP and other accounting standards, and therefore made no change.
<b>Section 2.3, Comprehensive (now section 2.6, Sufficient)</b>	
Comment	Two commentators stated that the terms “comprehensive” and “complete” were not sufficiently distinguished from one another.
Response	The reviewers agree and changed “comprehensive” to “sufficient.”
<b>Section 2.4, Data (now section 2.3)</b>	
Comment	Two commentators felt that “qualitative information” should be included rather than excluded from the definition of “data.”
Response	The reviewers disagree and made no change.
<b>Section 2.6, Review (now section 2.5)</b>	
Comment	Two commentators suggested that the definition of “review” be expanded to include both formal and informal examinations of data, and that it be clarified that a review is not as detailed as an audit.
Response	The reviewers agree and removed the word “informal” from the definition, and added language to indicate that a review is not as detailed as an audit.
Comment	One commentator suggested that the meaning of the phrase “obvious characteristics” was not clear.
Response	The reviewers disagree and made no change.
<b>SECTION 3. ANALYSIS OF ISSUES AND RECOMMENDED PRACTICES</b>	
Comment	One commentator suggested adding a provision mandating compliance with applicable data confidentiality laws and regulations.
Response	The reviewers agree and added new section 3.7, Confidentiality, to address this comment.
<b>Section 3.1, Overview</b>	
Comment	Two commentators suggested that the standard address availability of data (e.g., proprietary data) in terms of practicality and the reasonableness of the effort required to obtain it.
Response	The reviewers clarified the language in section 3.2(b)(6).

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<b>Section 3.2, Selection of Data</b>	
Comment	One commentator requested that the phrase “sampling methods” be defined.
Response	The reviewers believe the meaning of the term is clear and made no change.
Comment	One commentator suggested that the word “desired” be replaced with “necessary for the scope of the assignment” because the commentator felt that “desired” seemed too vague and implied subjective preference rather than professional judgement. Another commentator suggested replacing “desired” with “needed” to distinguish between “the most desirable elements” and others that might be suitable.
Response	The reviewers believe that identifying data elements as “necessary” or “needed” for the assignment would be inconsistent with the guidance in section 3.2(a) that the actuary should consider “possible alternative data elements”, and made no change.
Comment	One commentator suggested replacing the first occurrence of “should consider” with “should determine” and the second occurrence with “should take into account.”
Response	The reviewers agree with the suggested wording changes and made the changes.
Comment	One commentator suggested that the meaning of “external consistency” in section 3.2(b) be clarified.
Response	The reviewers agree, removed the reference to “external consistency” from section 3.2(b), and added section 3.2(b)(3) to clarify.
<b>Section 3.3, Review of Data</b>	
Comment	One commentator suggested replacing the word “reason” with “justification” because the commentator believed that the word “justification” indicated a higher level of professionalism was involved in providing a justification.
Response	The reviewers believe that the word “reason” appropriately describes the intended disclosure and therefore made no change.
Comment	One commentator suggested that the standard allow “reasonableness” of the data to be established by reference to the results of using the data, rather than through a review of the data.
Response	The reviewers believe that the data should be evaluated for reasonableness, rather than only requiring that the results be reasonable, and made no change.
Comment	One commentator felt the actuary should be required to request prior data for similar work performed in earlier periods and perform a comparison. Another commentator felt an actuary should be required to perform a comparison with prior data if it is readily available, while other commentators felt the standard should not require a comparison with prior data where it is not relevant.
Response	The reviewers believe that consistency with prior data need only be considered when such consistency can reasonably be expected and changed the wording of section 3.3. The reviewers also note that section 3.3 indicates that the actuary should consider “comparing current data with the data used in the prior analysis for consistency,” and “should consider requesting the prior data,” but do not believe that the standard should be more prescriptive.
Comment	Two commentators felt that data provided by highly credible sources should not require a review.
Response	The reviewers believe this is appropriately covered by the current language in section 3.3, and made no change.

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Comment	One commentator asked whether impracticality was legitimate grounds for not performing a review.
Response	The reviewers believe that this is appropriately covered in section 3.3, including required disclosure in such situations, and made no change.
Comment	One commentator indicated that the last paragraph in this section is redundant and could be deleted.
Response	The reviewers disagree and made no change.
Comment	One commentator suggested that the standard refer to “external control totals.”
Response	The reviewers believe that level of specificity is unnecessary and made no change.
Comment	One commentator suggested that several instances of “should consider” are inconsistent with ASOP No. 1.
Response	The reviewers agree and modified the language.
Comment	One commentator suggested that this section also refer to the selection of data (not just to the preparation of data).
Response	The reviewers modified the language by deleting the reference to “preparation of data.”
Comment	One commentator felt that the review of the data should be performed by someone other than the actuary who selected or prepared the data.
Response	The reviewers do not believe that the guidance should prohibit the actuary who prepares the data from also reviewing the data, and made no change.
Comment	One commentator suggested that the actuary performing the data review must assess whether data are adequate for the purpose of the assignment.
Response	The reviewers believe the modified language in section 3.2 addresses this issue.
Comment	One commentator suggested clarifying section 3.3(b) by inserting “taking” before “further steps” (to read “the actuary should consider taking further steps, when practical, to improve the quality of the data”) and “the actuary has” between “steps” and “taken” (to read “The actuary also should disclose any significant steps the actuary has taken to improve the data”).
Response	The reviewers agree and modified the language.
Comment	One commentator suggested clarifying the responsibilities of the actuary who does not know what steps have been taken to improve the quality of the data.
Response	The reviewers note that sections 4.1(e) and 4.1(f) only require the actuary to disclose steps taken that the actuary knows about, and made no change.
Comment	One commentator felt that this section states that the actuary should review the data in determining whether a review is needed, which seems circular.
Response	The reviewers disagree that the section was circular, but modified the language to clarify.
<b>Section 3.4, Use of Data</b>	
Comment	One commentator suggested that the standard allow for the adjustment of results, rather than the adjustment of data, to compensate for deficiencies in the data.
Response	The reviewers agree and added a sentence to section 3.4(c).

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Comment	Two commentators suggested that completion of part of an assignment be permitted where the data were suitable for that portion of the assignment.
Response	The reviewers agree and modified the language in section 3.4(e).
<b>Section 3.5, Reliance on Data Supplied by Others</b>	
Comment	One commentator felt the standard should encourage positive assurance, and discourage negative assurance and blind reliance.
Response	The reviewers believe that the reference in this section to the requirements in sections 3.3 and 3.4 addresses this concern, and made no change.
<b>Section 3.6, Reliance on Other Information Relevant to the Use of Data</b>	
Comment	One commentator requested that the term “unsuitable” be defined and that the actuary be required to disclose mandated use of unsuitable data.
Response	The reviewers believe the meaning of the term “unsuitable” is clear. The reviewers agree that the actuary should be required to disclose mandated use of unsuitable data, and removed the language from section 3.5 and added it to section 3.4(e) to address this concern.
Comment	One commentator asked if contract provisions, plan documents, reinsurance treaties, etc. should be included in “data” rather than in the separate category of information.
Response	The reviewers believe the definition of data is appropriate as stated and made no change.
Comment	One commentator suggested that this section is redundant and could be deleted.
Response	The reviewers disagree and made no change.
<b>Section 3.7 (now section 3.8), Limitations of the Actuary’s Responsibility</b>	
Comment	One commentator suggested that the nature and extent of the “additional data compilations” referred to here be clarified.
Response	The reviewers agree and clarified the language in section 3.8(b).
<b>Section 3.8, Documentation</b>	
Comment	Several commentators questioned the need for this section and its consistency with other parts of this standard.
Response	The reviewers agree and deleted this section.
<b>SECTION 4. COMMUNICATIONS AND DISCLOSURES</b>	
<b>Section 4.1, Communication and Disclosure</b>	
Comment	One commentator suggested requiring disclosure of “specific outlier data points or data elements whose exclusion (inclusion) could result in materially different conclusions.”
Response	The reviewers disagree that this level of specificity is needed and made no change.
Comment	One commentator suggested changing section 4.1(b) to require disclosure of “the nature of the data review performed by the actuary” and to require disclosure of all adjustments to data, not just the significant ones.
Response	The reviewers disagree and made no change.
Comment	One commentator suggested changing section 4.1(d) to clarify the meaning of “in summary form.”
Response	The reviewers do not believe that additional specificity is needed and made no change.

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Comment	One commentator suggested changing “significant effect” to “impact” in section 4.1(f).
Response	The reviewers disagree and made no change in what is now section 4.1(d).
Comment	Two commentators suggested that the disclosure items need not be included in every actuarial communication. Another commentator requested clarification regarding what “issuing communications” means, and where disclosures in sections 3.3, 3.4, and 3.5 should be made. One commentator suggested incorporating the distinction between actuarial communications and actuarial report under ASOP No. 41, and clarifying which parts of ASOP No. 41 apply to each.
Response	The reviewers modified the beginning of this section to indicate that “An actuarial communication can comply with some or all of the specific requirements of this section by making reference to information contained in other actuarial communications available to the intended users.”, consistent with ASOP No. 41, <i>Actuarial Communications</i> . The reviewers do not believe additional explanation of the requirements of ASOP No. 41 should be added to this standard.
Comment	Several commentators suggested the sections that are now 4.1(i)-(k) are redundant with ASOP No. 41 and could be deleted.
Response	The reviewers note that the disclosure language in (i)-(k) is standard in all ASOPs and made no change.
Comment	One commentator suggested making this section consistent with section 3.3 by restoring the previously deleted wording “and any resulting limitations on the use of the actuarial work product.”
Response	The reviewers agree and made the change in what is now section 4.1(c).
Comment	One commentator questioned why “material” was changed to “significant” in some sections of 4.1 but not in (i), (j) and (k).
Response	The reviewers note that the disclosure language in (i)-(k) is standard in all ASOPs and made no change.
Comment	One commentator requested clarification regarding gathering data not related to actuarial services or communications, and another asked whether it was intended that this section apply ASOP No. 41 requirements even where an actuarial opinion is not the end product.
Response	The reviewers revised section 1.2 to clarify that the standard applies only when data is to be used in performing actuarial services to address this issue.