

ASOP 23 – Data Quality

- Originally adopted in 1993.
- Revised in 2004 to:
 - be consistent with the then-current ASOP format,
 - reflect then-current, generally accepted actuarial practices with respect to data quality, and
 - provide guidance concerning other relevant to the use of data.
- Updated in 2011 to reflect deviation language changes.
- In 2014 the ASB concluded that this should be revised to update language to keep pace with practice changes such as:
 - increasing use of non-traditional data sources for predictive models and
 - legislatively mandated data submissions.



ASOP 23 – Key Changes 1

No significant changes, but wording has been clarified in many sections.

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.



ASOP 23 – Key Changes 2

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.



ASOP 23 – Key Changes 3

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*.



ASOP 23 – Purpose

Section 1.1 - Purpose - Provides guidance to actuaries when performing actuarial services involving data.



ASOP 23 –Scope 1

Section 1.2 – Scope – Applies to actuaries when

- selecting data,
- performing a review of data,
- using data, and
- relying on data supplied by others

in performing actuarial services.



ASOP 23 –Scope 2

Section 1.2 – Scope (continued)

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.



ASOP 23 –Scope 3

Section 1.2 – Scope (continued) - *New Language*

- 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.



ASOP 23 –Scope 4

Section 1.2 – Scope (continued)

- Unchanged - No requirement to perform an audit of the data.
- Unchanged – 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.



ASOP 23 – Cross References and Effective Date

Section 1.3 – Cross References – Unchanged

Section 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.



ASOP 23 – Definitions 1

Change from “comprehensive” to “sufficient.”

- Prior – Comprehensive Data – For the purposes of data quality, data obtained from inventory or sampling methods are comprehensive if they contain sufficient data elements or records needed for the analysis.
- Current –Sufficient – Containing enough data elements or records for the analysis.



ASOP 23 – Definitions 2

Change in the definition of “data.”

- Prior – Data – For the purposes of the standard, the term refers to numerical, census, or classification information and not to general or qualitative information. Assumptions are not data, but data are commonly used in the development of actuarial assumptions.
- Current – 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.



ASOP 23 – Definitions 3

- Audit – A formal and systematic examination of data for the purpose of testing its accuracy and completeness.
- 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.



ASOP 23 – Analysis of Issues and Recommended Practices 1

Section 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.



ASOP 23 – Analysis of Issues and Recommended Practices 2

Section 3.2 – Selection of Data – *Strengthened language and clarified consideration of external data*

In undertaking an analysis, the actuary should **determine** (previously “consider”) what data to use. The actuary should **take into account** (previously “consider”) 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 sets or data sources, if any, to be considered. The actuary should do the following:



ASOP 23 – Analysis of Issues and Recommended Practices 3

Section 3.2 – Selection of Data (continued)

- 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.



ASOP 23 – Analysis of Issues and Recommended Practices 4

Section 3.3 – Review of Data

- Actuary should perform a review unless it is not necessary or practical.
- If the actuary does not perform a review, need to disclose that including the reasons why and any resulting limitations on the use of the actuarial work product.
- In a review,
 - determine the definition of each data element and
 - make a reasonable effort to identify data values that are questionable or relationships that are significantly inconsistent.



ASOP 23 – Analysis of Issues and Recommended Practices 5

Section 3.3 – Review of Data (continued)

- * Actuary should take steps to improve the data, if practical, if the actuary believes questionable or inconsistent data could have a significant effect on the analysis.
- * Actuary should disclose any unresolved data values that could have a significant effect on the analysis.
- * Actuary should disclose steps taken to improve the data.



ASOP 23 – Analysis of Issues and Recommended Practices 6

Section 3.3 – Review of Data (continued)

Clarified review of prior data.

- 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.



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Section 3.4 – Use of Data

Actuary needs to decide if:

- Data are of acceptable quality to perform the analysis
- Data require enhancement before use and it is practical to obtain additional or corrected data
- Judgmental adjustments or assumptions can be applied to the data that will allow the actuary to perform the analysis – need to disclose any adjustments and assumptions



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Section 3.4 – Use of Data (continued)

- If actuary thinks the data even with adjustments and assumptions applied may cause the results to be highly uncertain or contain a significant bias, the actuary may complete the assignment but must disclose the potential existence of those and, if reasonably determinable, the nature and potential magnitude of such uncertainty or bias.
- **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.**



ASOP 23 – Analysis of Issues and Recommended Practices 9

Section 3.4 – Use of Data (continued)

- 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 judgment, a more extensive review is needed, the actuary should arrange for such a review prior to completing the assignment.



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Section 3.4 – Use of Data (continued)

- If the actuary believes that the data are so inadequate that they cannot be used for the assignment, 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.



ASOP 23 – Analysis of Issues and Recommended Practices 11

Section 3.5 – Reliance on Data Supplied by Others

- Minor wording changes.
- May rely on data supplied by others subject to Sections 3.3 (Review) and 3.4 (Use).
- Need to disclose reliance.



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Section 3.6 – Reliance on Other Information Relevant to the Use of Data

- Minor wording changes in first paragraph.
- May rely on information supplied by others.
- Need to disclose reliance.



ASOP 23 – Analysis of Issues and Recommended Practices 13

Section 3.6 – Reliance on Other Information Relevant to the Use of Data (continued) – *New language*

- 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 & 3.5.



ASOP 23 – Analysis of Issues and Recommended Practices 14

Section 3.7 – Confidentiality – *New section*

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*.



ASOP 23 – Analysis of Issues and Recommended Practices 15

Section 3.8 – Limitations of the Actuary's Responsibility *Minor wording changes.*

The actuary is not required to do any of the 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.



ASOP 23 – Communications and Disclosures

- Compiles list of disclosures from Section 3.
- Includes standard disclosures from ASOP No. 41, Sections 4.2, 4.3, and 4.4.



ASOP 23 – Changes for the Reserving Actuary 1

- If you are preparing data or responsible for preparing data to be used by other actuaries in performing actuarial services, this standard applies.
- “Data” definition is expanded to include information derived mathematically from numerical, census, or classification information.
- Need to consider whether the data are reasonable given ***relevant*** external information that is readily available and known to the actuary.



ASOP 23 – Changes for the Reserving Actuary 2

- If the actuary thinks the data even with adjustments and assumptions applied may cause the results to be highly uncertain or contain a significant bias, the actuary now has the option to compensate for the data deficiencies by adjusting the results, such as by increasing the range of reasonable estimates, and disclose the adjustments.
- If the actuary thinks the data are so inadequate that they cannot be used for the assignment, the actuary now has the option to complete, with the consent of the principal, any parts of the assignment for which the actuary determines the data are suitable.



ASOP 23 – Changes for the Reserving Actuary 3

- 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.
- Need to consider the interaction between information and data and whether one indicates the other is unsuitable or inconsistent and take appropriate action.



ASOP 23 – Changes for the Reserving Actuary 4

- Be aware that data may contain confidential information and handle it appropriately.
- Code of Professional Conduct - PRECEPT 9.
An Actuary shall not disclose to another party any Confidential Information unless authorized to do so by the Principal or required to do so by Law.



ASOP 23 – Changes for the Reserving Actuary 5

- New disclosures
 - 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*
 - Reasons for not reviewing the data if actuary does not do such a review



ASOP 23 – Changes for the Reserving Actuary 6

- New disclosures (continued)
 - In summary form, discussions of any significant steps the actuary has taken to improve the data due to identifying questionable data values or relationships
 - 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 data*, and the nature and potential magnitude of such uncertainty or bias, if they can be reasonably determined

