MedBiquitous Survey Items
Specifications and Description Document

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Version History

Version No.	Date	Changed By	Changes Made
0.1	9 Jun 2008	Valerie Smothers	Initial draft
0.2	10 June 2008	Valerie Smothers	Added Comparison as parent to SurveyItemForComparison. Removed source and id attributes from free text response.

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2 Introduction

Founded by Johns Hopkins Medicine and leading professional medical societies, the MedBiquitous Consortium is the ANSI-accredited developer of information technology standards for healthcare education and competence assessment. Our members are creating a technology blueprint for professional healthcare education. Based on XML and Web services standards, this blueprint will seamlessly support the learner in ways that will improve patient care and simplify the administrative work associated with education and competence assessment. MedBiquitous also provides a neutral forum for educators and industry alike to exchange ideas about innovative uses of Web technologies for healthcare education and communities of practice.
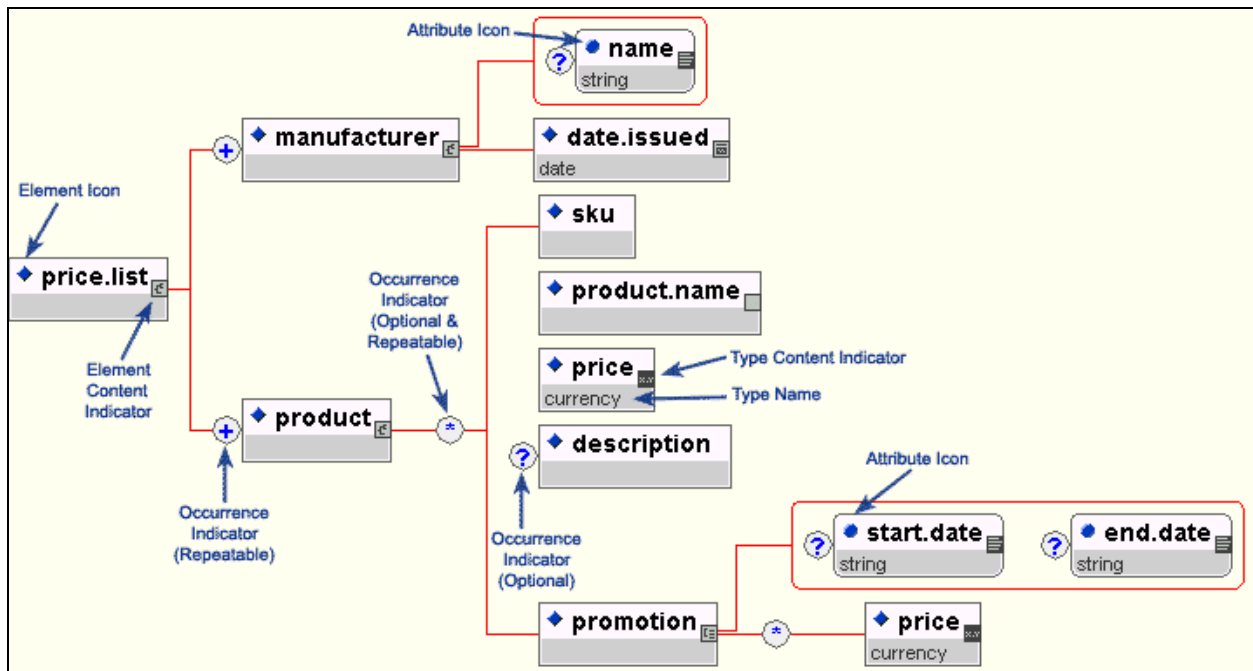
This document describes a data specification for describes Survey Items in detail. It is intended for use by anyone who wants to develop tools or implement electronic systems for aggregating or exchanging survey items for use in measuring healthcare education activities, particularly continuing education activities. The status of the document is indicated at the bottom of the page.

3 Documentation Conventions

This document uses the following conventions.

Documentation Conventions

Convention	Description
`monospaced type`	Sample XML tags, code, schema, or portion thereof
BoldText	When used with an XML tag name, indicates that the element contains sub-elements
Italicized Text	When used in an XML tag description, an attribute of the XML tag.
Tag description	Shading indicated that the tag is further described elsewhere in the document

The following graphical standards are used for the XML diagrams in this document.

Graphical Standards from TIBCO's Turbo XML, Copyright TIBCO Software Inc.

4 Data Elements

The Survey Items XML schema, surveyitems.xsd, includes the following data elements. In most cases, these elements contain subelements.

1. SurveyItems
2. SurveyItem
3. Question
4. Responses
5. SurveyItemForComparison
6. IntendedTiming
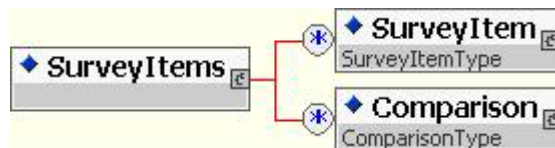
The root element is SurveyItems.

5 Survey Items Schema Grammar

The following sections explain the Survey Items schema grammar. Values in **bold** under XML Tags column indicate that the element has sub-elements.

All the elements having sub-elements will be defined in separate sections. All elements without sub-elements will be defined within the appropriate element sections that use them.

5.1 *SurveyItems*

SurveyItems is the root element. It is required and must occur once within a SurveyItems document. It contains subelements that describe individual survey items.

SurveyItems Information

Element	Description	Required	Multiplicity	Datatype
SurveyItems	SurveyItems is the root element. It contains subelements that describe individual survey items.	Required	1	Container
SurveyItem	SurveyItem is the subelement of SurveyItems. It contains subelements that define a single survey item.	Optional	0 or more	Container
Comparison	Comparison is the subelement of SurveyItems. It contains a set of related survey items. See section Comparison for more information.	Optional	0 or more	Container

Example:

```
<SurveyItems>
   <SurveyItem source="medbiq.org" id="10">
      . . .
   </SurveyItem>
   <SurveyItem source="medbiq.org" id="10">
      . . .
   </SurveyItem>
   <SurveyItem source="medbiq.org" id="10">
      . . .
   </SurveyItem>
   <Comparison>
```
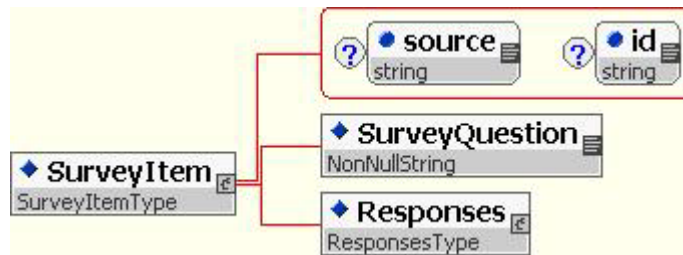
```
   . . .
   </Comparison>
   <Comparison>
   . . .
   </Comparison>
   <Comparison>
   . . .
   </Comparison>
</SurveyItems>
```

5.2 SurveyItem

SurveyItem describes a single survey item in detail.

SurveyItem Information

Element	Description	Required	Multiplicity	Datatype
SurveyItem	SurveyItem contains subelements that define a single survey item. SurveyItem has the following attributes: *source* Indicates a source vocabulary for the survey item. *id* Indicates the item identifier in the source vocabulary referenced.	Optional	0 or more	Container
SurveyQuestion	SurveyQuestion is the subelement of survey item. It provides the text of the survey question.	Required	1	Non-null string
Responses	Responses is the subelement of survey item. It provides the potential answers or response structure associated with the survey item.	Required	1	Container

Example:

```
<SurveyItem source="medbiq.org" id="10">
    <SurveyQuestion>The course achieved its educational
objectives.</SurveyQuestion>
    <Responses>
        <Scale type="likert" points="5">
            <One label="Strongly agree" source="medbiq.org" id="20"/>
            <Two label="Agree" source="medbiq.org" id="30"/>
            <Three label="Neutral" source="medbiq.org" id="40"/>
            <Four label="Disagree" source="medbiq.org" id="50"/>
            <Five label="Strongly disagree" source="medbiq.org" id="60"/>
        </Scale>
    </Responses>
</SurveyItem>
```
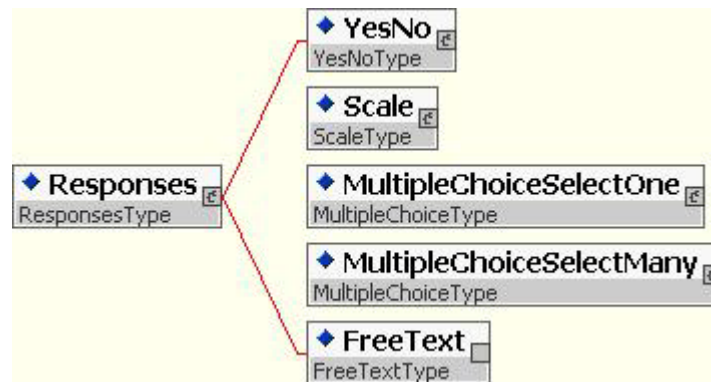
5.3 Responses

Responses provides the potential answers or response structure associated with the survey item.

Responses Information

Element	Description	Required	Multiplicity	Datatype
Responses	Responses is the subelement of survey item. It provides the potential answers or response structure associated with the survey item.	Required	1	Container
YesNo	YesNo is the subelement of Responses. It describes the response structure for a yes/no question. See section YesNo for more information.	YesNo or another subelement of Responses is required	0 or 1	Container
Scale	Scale is the subelement of Responses. It describes the response structure of	Scale or another subelement of	0 or 1	Container

Element	Description	Required	Multiplicity	Datatype
	a scale, such as a likert scale. See section Scale for more information.	Responses is required		
MultipleChoiceSelectOne	MultipleChoiceSelectOne is the subelement of Responses. It describes the potential responses to a multiple choice question where the learner selects one answer only. See section MultipleChoiceSelectOne for more information.	MultipleChoice SelectOne or another subelement of Responses is required	0 or 1	Container
MultipleChoiceSelectMany	MultipleChoiceSelectMany is the subelement of Responses. It describes the potential responses to a multiple choice question where the learner may select one or more answers. See section MultipleChoiceSelectMany for more information.	MultipleChoice SelectMany or another subelement of Responses is required	0 or 1	Container
FreeText	FreeText is the subelement of Responses. It defines a response structure as a free text response. FreeText is an empty element.	FreeText or another subelement of Responses is required	0 or 1	Empty

Example:

```
<Responses>
   <Scale type="likert" points="5">
      <One label="Strongly agree" source="medbiq.org" id="20"/>
      <Two label="Agree" source="medbiq.org" id="30"/>
      <Three label="Neutral" source="medbiq.org" id="40"/>
      <Four label="Disagree" source="medbiq.org" id="50"/>
      <Five label="Strongly disagree" source="medbiq.org" id="60"/>
   </Scale>
</Responses>
```
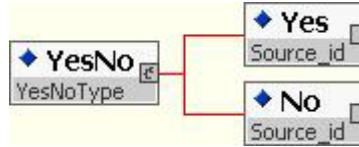
5.3.1   YesNo

YesNo describes the response structure for a yes/no question and provides a unique identifier and source for each response. These identifiers help when aggregating data from multiple sources for analysis.
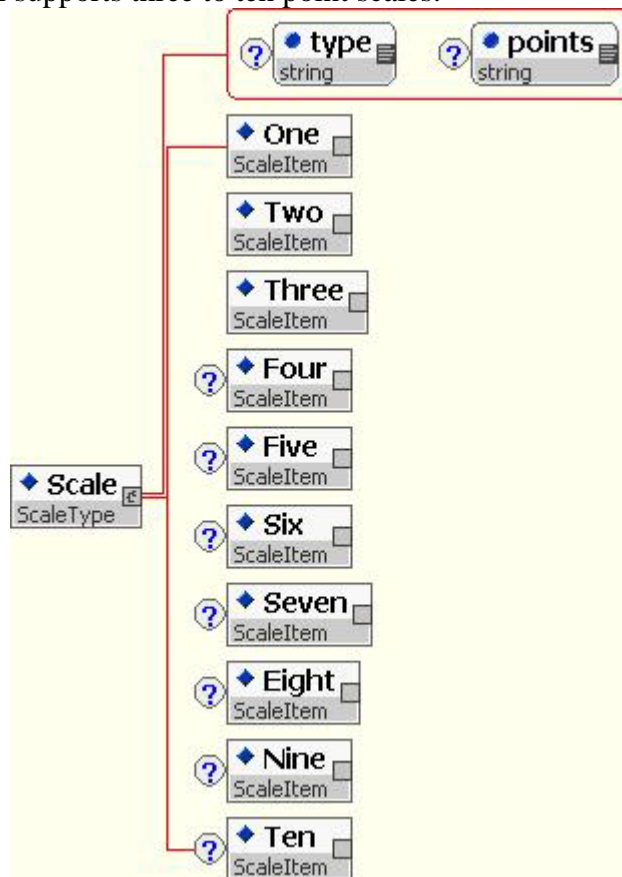

YesNo Information

Element	Description	Required	Multiplicity	Datatype
YesNo	YesNo is the subelement of Responses. It describes the response structure for a yes/no question.	YesNo or another subelement of Responses is required	0 or 1	Container
Yes	Yes is the subelement of YesNo that defines the Yes response to a Yes/No question. Yes is an empty element. Yes has the following attributes. *source* Indicates a source vocabulary for the response. *id* Indicates the item identifier in the source vocabulary referenced.	Required	1	Empty
No	No is the subelement of YesNo that defines the No response to a Yes/No question. No is an empty element. No has the following attributes. *source* Indicates a source vocabulary for the response. *id* Indicates the item identifier in the source vocabulary referenced.	Required	1	Empty

Example:

```
<Responses>
   <YesNo>
      <Yes source="medbiq.org" id="220"/>
      <No source="medbiq.org" id="230"></No>
   </YesNo>
</Responses>
```

5.3.2   Scale

Scale describes the response structure of a scale, such as a likert scale or an confidence level scale. This specification supports three to ten point scales.

Scale Information

Element	Description	Required	Multiplicity	Datatype
Scale	Scale is the subelement of Responses. It describes the response structure of a scale, such as a likert scale. Scale has the following attributes. *type* Indicates the type of scale. For example, likert, unsafe/safe, ineffective/effective. *points* Indicates the number of points in the scale. The value must be an integer that is equal to or higher than 3 and no higher than 10.	Scale or another subelement of Responses is required	0 or 1	Container
One	One is the subelement of Scale. It defines a label and unique identifier for the first point on a scale. One is an empty element and has the following attributes: *label* Indicates a label for this point on the scale. For example, Strongly Agree. Labels should be used for the first and last point on a scale at a minimum. *source* Indicates a source vocabulary or instrument for the item response. *id* Indicates the unique response identifier in the source referenced.	Required	1	Empty

Element	Description	Required	Multiplicity	Datatype
Two	Two is the subelement of Scale. It defines a label and unique identifier for the second point on a scale. Two is an empty element and has the following attributes: *label* Indicates a label for this point on the scale. For example, Strongly Agree. Labels should be used for the first and last point on a scale at a minimum. *source* Indicates a source vocabulary or instrument for the item response. *id* Indicates the unique response identifier in the source referenced.	Required	1	Empty
Three	Three is the subelement of Scale. It defines a label and unique identifier for the third point on a scale. Three is an empty element and has the following attributes: *label* Indicates a label for this point on the scale. For example, Strongly Agree. Labels should be used for the first and last point on a scale at a minimum. *source* Indicates a source vocabulary or instrument for the item response. *id* Indicates the unique response identifier in the source referenced.	Required	1	Empty

Element	Description	Required	Multiplicity	Datatype
Four	Four is the subelement of Scale. It defines a label and unique identifier for the fourth point on a scale. Four is an empty element and has the following attributes: *label* Indicates a label for this point on the scale. For example, Strongly Agree. Labels should be used for the first and last point on a scale at a minimum. *source* Indicates a source vocabulary or instrument for the item response. *id* Indicates the unique response identifier in the source referenced.	Optional	0 or 1	Empty
Five	Five is the subelement of Scale. It defines a label and unique identifier for the fifth point on a scale. Five is an empty element and has the following attributes: *label* Indicates a label for this point on the scale. For example, Strongly Agree. Labels should be used for the first and last point on a scale at a minimum. *source* Indicates a source vocabulary or instrument for the item response. *id* Indicates the unique response identifier in the source referenced.	Optional	0 or 1	Empty

Element	Description	Required	Multiplicity	Datatype
Six	Six is the subelement of Scale. It defines a label and unique identifier for the sixth point on a scale. Six is an empty element and has the following attributes: *label* Indicates a label for this point on the scale. For example, Strongly Agree. Labels should be used for the first and last point on a scale at a minimum. *source* Indicates a source vocabulary or instrument for the item response. *id* Indicates the unique response identifier in the source referenced.	Optional	0 or 1	Empty
Seven	Seven is the subelement of Scale. It defines a label and unique identifier for the seventh point on a scale. Seven is an empty element and has the following attributes: *label* Indicates a label for this point on the scale. For example, Strongly Agree. Labels should be used for the first and last point on a scale at a minimum. *source* Indicates a source vocabulary or instrument for the item response. *id* Indicates the unique response identifier in the source referenced.	Optional	0 or 1	Empty

Element	Description	Required	Multiplicity	Datatype
Eight	Eight is the subelement of Scale. It defines a label and unique identifier for the eighth point on a scale. Eight is an empty element and has the following attributes: *label* Indicates a label for this point on the scale. For example, Strongly Agree. Labels should be used for the first and last point on a scale at a minimum. *source* Indicates a source vocabulary or instrument for the item response. *id* Indicates the unique response identifier in the source referenced.	Optional	0 or 1	Empty
Nine	Nine is the subelement of Scale. It defines a label and unique identifier for the ninth point on a scale. Nine is an empty element and has the following attributes: *label* Indicates a label for this point on the scale. For example, Strongly Agree. Labels should be used for the first and last point on a scale at a minimum. *source* Indicates a source vocabulary or instrument for the item response. *id* Indicates the unique response identifier in the source referenced.	Optional	0 or 1	Empty

Element	Description	Required	Multiplicity	Datatype
Ten	Ten is the subelement of Scale. It defines a label and unique identifier for the tenth point on a scale. Ten is an empty element and has the following attributes: *label* Indicates a label for this point on the scale. For example, Strongly Agree. Labels should be used for the first and last point on a scale at a minimum. *source* Indicates a source vocabulary or instrument for the item response. *id* Indicates the unique response identifier in the source referenced.	Optional	0 or 1	Empty

Example:

```
<Scale type="likert" points="5">
    <One label="Strongly agree" source="medbiq.org" id="20"/>
    <Two label="Agree" source="medbiq.org" id="30"/>
    <Three label="Neutral" source="medbiq.org" id="40"/>
    <Four label="Disagree" source="medbiq.org" id="50"/>
    <Five label="Strongly disagree" source="medbiq.org" id="60"/>
</Scale>
```

5.3.3   MultipleChoiceSelectOne

MultipleChoiceSelectOne describes the potential responses to a multiple choice question where the learner selects one answer only.

MultipleChoiceSelectOne Information

Element	Description	Required	Multiplicity	Datatype
MultipleChoiceSelectOne	MultipleChoiceSelectOne is the subelement of Responses. It describes the response structure for a multiple choice question where the learner selects one answer only.	MultipleChoice SelectOne or another subelement of Responses is required	0 or 1	Container

Element	Description	Required	Multiplicity	Datatype
ResponseItem	ResponseItem is the subelement of MultipleChoiceSelectOne that describes one of the response choices in a multiple choice question. ResponseItem has the following attributes. *source* Indicates a source vocabulary for the response. *id* Indicates the item identifier in the source vocabulary referenced.	Required	1 or more	String

Example:

```
<Responses>
   <MultipleChoiceSelectOne>
      <ResponseItem source="medbiq.org" id="240">Hospital based
      </ResponseItem>
      <ResponseItem source="medbiq.org" id="250">Community based - more than
10 physicians</ResponseItem>
      <ResponseItem source="medbiq.org" id="260">Community-based - less than
10 physicians</ResponseItem>
      <ResponseItem source="medbiq.org" id="270">Other</ResponseItem>
   </MultipleChoiceSelectOne>
</Responses>
```

5.3.4   MultipleChoiceSelectMany

MultipleChoiceSelectMany is the subelement of Responses. It describes the potential responses to a multiple choice question where the learner may select one or more answers.

MultipleChoiceSelectMany Information

Element	Description	Required	Multiplicity	Datatype
MultipleChoiceSelectMany	MultipleChoiceSelectMany is the subelement of Responses. It describes the response structure for a multiple choice question where the learner selects one or more answers.	MultipleChoice SelectMany or another subelement of Responses is required	0 or 1	Container

Element	Description	Required	Multiplicity	Datatype
ResponseItem	ResponseItem is the subelement of MultipleChoiceSelectMany that describes one of the response choices in a multiple choice question. ResponseItem has the following attributes. *source* Indicates a source vocabulary for the response. *id* Indicates the item identifier in the source vocabulary referenced.	Required	1 or more	String

Example:

```
<MultipleChoiceSelectMany>
    <ResponseItem source="medbiq.org" id="280">Cultural</ResponseItem>
    <ResponseItem source="medbiq.org" id="290">Economic</ResponseItem>
    <ResponseItem source="medbiq.org" id="300">Lack of clinician
training</ResponseItem>
    <ResponseItem source="medbiq.org" id="310">Access to
care</ResponseItem>
</MultipleChoiceSelectMany>
```

5.4 Comparison

Comparison is the subelement of SurveyItems. It contains a set of related survey items.

Comparison Information

Element	Description	Required	Multiplicity	Datatype
Comparison	Comparison is the subelement of SurveyItems. It contains a set of related survey items.	Optional	0 or more	Container

Element	Description	Required	Multiplicity	Datatype
SurveyItemForComparison	SurveyItemForComparison is the subelement of Comparison. It contains detailed information about a single survey item within a set of survey items grouped for comparison. See section SurveyItemForComparison for more information.	Required	1 or more	Container

Example:

```
<Comparison>
   <SurveyItemForComparison id="70">
    . . .
   </SurveyItemForComparison>
   <SurveyItemForComparison id="150">
    . . .
   </SurveyItemForComparison>
</Comparison>
```
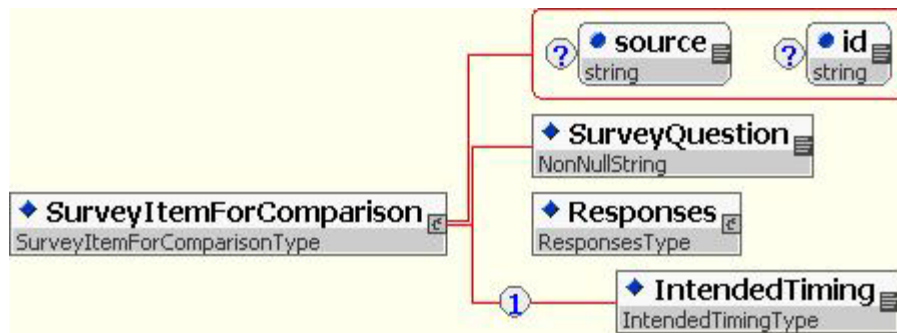
5.4.1   SurveyItemForComparison

SurveyItemForComparison is the subelement of Comparison. It contains detailed information about a single survey item within a set of survey items grouped for comparison.

SurveyItemForComparison Information

Element	Description	Required	Multiplicity	Datatype
SurveyItemForComparison	SurveyItemForComparison contains subelements that define a single survey item within a group and its intended timing. it has the following attributes: *source*	Optional	1 or more	Container

Element	Description	Required	Multiplicity	Datatype
	Indicates a source vocabulary for the survey item. *id* Indicates the item identifier in the source vocabulary referenced.			
SurveyQuestion	SurveyQuestion is the subelement of SurveyItemForComparison. It provides the text of the survey question.	Required	1	Non-null string
Responses	Responses is the subelement of SurveyItemForComparison. It provides the potential answers or response structure associated with the survey item. See section Responses for more information.	Required	1	Container
IntendedTiming	IntendedTiming is the subelement of SurveyItemForComparison. It indicates the timing of the survey item in relation to the learning activity. Valid values are: Before, During, After. IntendedTiming has the following attribute: *duration* The time gap between the learning activity and the delivery of the survey item. For example, If the IntendedTiming is After and the duration is 3 months, the survey item is intended to be delivered to the learner 3 months after the activity. duration uses the xml schema duration datatype.	Required	1	Restricted

Example:

```
<SurveyItemForComparison id="150">
    <SurveyQuestion>Thinking about my participation in this CME
activity, I thought it was able to provide fair and balanced content.
```

```xml
</SurveyQuestion>
        <Responses>
           <Scale type="Low/High" points="7">
              <One label="Low" id="150"/>
              <Two id="160"/>
              <Three id="170"/>
              <Four id="180"/>
              <Five id="190"/>
              <Six id="200"/>
              <Seven label="High" id="210"/>
           </Scale>
        </Responses>
        <IntendedTiming>After</IntendedTiming>
     </SurveyItemForComparison>
```

6 Sample XML Documents

```xml
<?xml version="1.0" encoding="UTF-8"?>
<SurveyItems xmlns="http://ns.medbiq.org/surveyitem/v1/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://ns.medbiq.org/surveyitem/v1/ surveyitems.xsd">
   <SurveyItem source="medbiq.org" id="10">
      <SurveyQuestion>The course achieved its educational
objectives.</SurveyQuestion>
      <Responses>
         <Scale type="likert" points="5">
            <One label="Strongly agree" source="medbiq.org" id="20"/>
            <Two label="Agree" source="medbiq.org" id="30"/>
            <Three label="Neutral" source="medbiq.org" id="40"/>
            <Four label="Disagree" source="medbiq.org" id="50"/>
            <Five label="Strongly disagree" source="medbiq.org" id="60"/>
         </Scale>
      </Responses>
   </SurveyItem>
   <SurveyItem>
      <SurveyQuestion>How would you characterize your
practice?</SurveyQuestion>
      <Responses>
         <MultipleChoiceSelectOne>
            <ResponseItem source="medbiq.org" id="240">Hospital
based</ResponseItem>
            <ResponseItem source="medbiq.org" id="250">Community based - more
than 10 physicians</ResponseItem>
            <ResponseItem source="medbiq.org" id="260">Community-based - less
than 10 physicians</ResponseItem>
            <ResponseItem source="medbiq.org" id="270">Other</ResponseItem>
         </MultipleChoiceSelectOne>
      </Responses>
   </SurveyItem>
   <SurveyItem>
      <SurveyQuestion>What factors do you see as barriers to patient's
receiving proper treatment? Select all that apply.</SurveyQuestion>
      <Responses>
         <MultipleChoiceSelectMany>
            <ResponseItem source="medbiq.org"
id="280">Cultural</ResponseItem>
            <ResponseItem source="medbiq.org"
id="290">Economic</ResponseItem>
            <ResponseItem source="medbiq.org" id="300">Lack of clinician
training</ResponseItem>
            <ResponseItem source="medbiq.org" id="310">Access to
care</ResponseItem>
         </MultipleChoiceSelectMany>
      </Responses>
   </SurveyItem>
   <Comparison>
      <SurveyItemForComparison id="70">
         <SurveyQuestion>Thinking about my expectations for this CME
activity, it was important that it provide fair and balanced content.
```

```xml
</SurveyQuestion>
        <Responses>
            <Scale type="Low/High" points="7">
                <One label="Low" id="80"/>
                <Two id="90"/>
                <Three id="100"/>
                <Four id="110"/>
                <Five id="120"/>
                <Six id="130"/>
                <Seven id="140" label="High"/>
            </Scale>
        </Responses>
        <IntendedTiming>Before</IntendedTiming>
    </SurveyItemForComparison>
    <SurveyItemForComparison id="150">
        <SurveyQuestion>Thinking about my participation in this CME
activity, I thought it was able to provide fair and balanced content.
</SurveyQuestion>
        <Responses>
            <Scale type="Low/High" points="7">
                <One label="Low" id="150"/>
                <Two id="160"/>
                <Three id="170"/>
                <Four id="180"/>
                <Five id="190"/>
                <Six id="200"/>
                <Seven label="High" id="210"/>
            </Scale>
        </Responses>
        <IntendedTiming>After</IntendedTiming>
    </SurveyItemForComparison>
  </Comparison>
</SurveyItems>
```

7 References

ANSI /MEDBIQ ME.10.1-2009 Medical Education Metrics Specifications and Description Document,
http://medbiq.org/working_groups/metrics/MedicalEducationMetricsSpecifications.pdf