Author Instructions—Original Research Articles (All Study Types)

Evidence-Based Spine-Care Journal (EBSJ) is a leading edge journal dedicated to finding, describing and developing the highest quality evidence. This peer-reviewed journal sets the stage for evidence-based practice and will influence the future of spine surgery for years to come. EBSJ focuses on comparative studies of effectiveness and seeks to stimulate further areas of high quality spine-related research.

EBSJ is a unique concept with regard to format and streamlined presentation of information. The goal is to provide an accurate, concise presentation of information that can be grasped “at-a-glance” by busy spine surgeons. (Please see example and templates. Your assistance in following the guidelines described here is important to reach this goal. Manuscripts which do not follow this format will be returned to the author.

The primary form of the published research is streamlined to focus on and highlight the pertinent information and give the evidence-based “bottom line”. Additional web-based appendices allow the interested reader to obtain additional information and verify study components. They also contain additional study data.

Authorship listing and responsibility

Each author will be asked to certify that he/she has contributed sufficiently to the conception and design of the work, intellectual content, data analysis if applicable and writing of the work and take responsibility for the integrity and accuracy of the data and reporting. Each is required to review the final submission, verify that it represents valid work and approve it for publication. Authors shall produce the data that form the basis of the work for examination should the editors or their assignees request it. Each author must warrant that his/her work and any materials submitted as part of this work (including figures, images) is original and that he/she has full power to enter into the agreements required by EBSJ. Publication of the primary findings from the same original research in multiple journals is not considered acceptable. The form is available on www.aospine.org/ebsj.

Permissions and use of previously copyrighted material

Authors must submit written permission to the copyright owner (usually the publisher) to use direct quotations, tables or illustrations that have appeared in previously copyrighted form elsewhere along with details about the source. Permission fees that might be required by the copyright owner are the author’s responsibility, not the responsibility of EBSJ, its publisher or AOSpine International.

Patient anonymity and informed consent

Authors are responsible for ensuring that patients’ anonymity is carefully protected and to verify that any experimental procedure, drug or device in human subjects reported in the manuscript were performed with informed consent and followed all guidelines for experimental investigation with human subjects (eg, IRB) required by all intuitions represented by the authors. All patient identifying information (eg, name) should be removed from images, figures or data submissions and patient’s eyes and private parts should be masked.
Detailed instructions for manuscript preparation

All original research articles must follow the formats described below. Manuscripts not following the prescribed formats will be returned to the author prior to peer-review.

Original research article components (see example and template)

1. Title page and author information
2. Structured abstract
3. Body of manuscript—prognostic studies
4. Body of manuscript—treatment studies
5. Figures and tables
6. References
7. The review process
8. Selected references
9. Manuscript preparation—font, spacing, and style

1. Title page and author information

Please ensure that the spelling, order and affiliation of authors are correct and that all information is provided. EBSJ will not be responsible for misspellings published due to author error.

• Complete manuscript title
• Authors: full names, highest academic degree(s), affiliation, region/country; and potential conflicts of interests.
• Corresponding author: Name, address, phone number(s), fax number, email address
• Source(s) of funding that require acknowledgement: You must include disclosure of funding received for this work from any of the following: National Institutes of Health (NIH), Wellcome Trust, Howard Hughes Medical Institute (HHMI) or other sources.
• Indication of IRB (or equivalent) approval
• Notation of device status as appropriate (e.g. investigational or approved)

2. Structured abstract (maximum word count 250)

Must be structured as stated below:

• Study design
• Objective or clinical question
• Methods
• Results
• Conclusions
3. Body of the manuscript—prognostic studies

Please note the maximum word counts and formatting of text described in each section (see also template).

Study rationale and context—prognostic studies (maximum word count 50)

This section should briefly describe the context and rationale for the study and lead logically into the statement of the study objective. It is not intended to provide a lengthy background or history regarding the topic.

Objective or clinical question—prognostic studies (maximum word count 40)

This should be a very brief statement that encompasses the PPO concept:

<table>
<thead>
<tr>
<th>Patients:</th>
<th>Age, condition, diagnostic characteristics, etc.</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prognostic factors</td>
<td>What primary factor is being evaluated as one which might be associated with a bad outcome? What other factors may be associated with a bad outcome?</td>
<td>Primary factor: NSAID use Other factors: smoking, age, levels fused, prior spine surgery</td>
</tr>
<tr>
<td>Outcome</td>
<td>What is the outcome?</td>
<td>Nonunion and longer time to fusion</td>
</tr>
</tbody>
</table>

Here is a statement of objective:

- To evaluate perioperative NSAID use as a risk factor for delayed union and nonunion following lumbar fusion in patients with chronic low back pain.

Here is how the clinical question might read:

- Does perioperative use of non-steroidal anti-inflammatory drugs (NSAIDS) result in nonunion and longer time to union following lumbar fusion in patients with chronic low back pain?

You might visit the AOSpine’s EBSS.live to see additional examples of PPO for prognostic studies as applied to already published research.
Methods—prognostic studies (maximum word count 300-325)

Please follow the format below for this section:

- Study design (e.g. retrospective cohort study)
- Objective/aim (clinical question, key question or hypothesis)
- Inclusion criteria
- Exclusion criteria
- Patient population
- Outcomes and prognostic factors
- Analysis

Prognostic studies explore risk factors (also known as risk exposures) for an outcome, generally a less than desirable outcome. An example of a prognostic question would be: Does smoking increase the risk of nonunion following fracture treatment? With regard to methods and study design, it may be important to consider and control for other factors which may be associated with smoking and associated with nonunion.

There should be sufficient information regarding study design, inclusion/exclusion criteria and what factors and how they were explored to permit study replication. For prognostic studies, the following information should be described:

- Study design and outcome(s) of interest
- Factors which may influence that outcome
- Inclusion/exclusion criteria (including how comparison group was chosen)
- Protocol for evaluation of patients
- Measurement instruments for outcome and factors (exposures) that may be associated with it,
- Length of follow-up
- Methods for statistical evaluation, including description of how confounding was controlled that would allow for replication of the study by another investigator

A brief description of treatment characteristics (type, duration etc.) should be provided. Remember that additional detailed information for this section can be included in the web appendix.

The methods for each study accepted for publication will be independently reviewed and an overall “class of evidence” will be assessed based on methodological quality. Authors should ensure that there is sufficient information in the submission (article and/or web appendix) that allows for this assessment.

EBSJ strongly encourages authors to follow guidelines for reporting described by CONSORT and others to ensure the highest quality reporting. Selected references are provided at the end of this document.

The methods section must include the following information on the numbers of patients considered for and completing the study according to the following figure. A template will be provided for you to enter the appropriate data and modify based on your study (see Word-file EBSJ_TemplateForAuthors_PrognosticStudies.doc).
Figure 1. Patient sampling and selection.

**Total patients receiving intervention during time period**
(n = 205)

- Not meeting inclusion criteria* (n = 45)
  - Reason 1 (n = 25)
  - Reason 2 (n = 20)
  - Etc

*patients with incomplete data are not included here

**Eligible**
(n = 160)

- Not enrolled (n = 0)
  - Refused participation (n = 0)
  - Other reasons (specify) (n = 0)

**Enrolled**
(n = 160)

- Excluded (n = 20)
  - Patients with insufficient data (n = 10)
  - Lost to follow-up (n = 5)
  - Death (n = 5)
  - Other reasons (specify) (n = 0)

**Patients available for analysis**
(n = 140)

* Percent follow-up is based on information in the diagram and is calculated by dividing the number of patients available for analysis by the number of patients eligible for the study, or here 140/160 or 85.7%. In general, patients with incomplete data, those who have died, etc. are considered as lost to follow-up for purposes of calculating follow-up percent even if the study restricts enrollment to patients with a certain length of follow-up.

Be sure that reasons for exclusion are noted as well as any loss to follow-up after groups have been identified. Please be sure that the numbers “add-up” and that the % follow-up can be accurately determined. Please note that in a study which includes only patients with a certain length of follow-up, that those who have not been included are considered lost to follow-up.
Results—prognostic studies (maximum word count 150)

The EBJS format is intended to highlight the primary findings and provide an “at-a-glance” summary of pertinent data. This is accomplished via concise, streamlined text in combination with tables, standardized figures and/or diagrams. In general, the bulk of the results will be displayed in a figure, table or graph with very little text for the published portion. Text content should be limited for important explanation of results that are not immediately apparent from tables or graphs. Additional data and text may be provided for the web appendix. Please see example.

The results section should contain the following components:

- Patient characteristics,
- Primary outcome results
- Secondary outcome results

Patient characteristics

A table summary (Table 1) of relevant demographic information, patient characteristics and factors which might logically influence outcomes must be provided. For example, factors might include the following:

Table 1. Example—Patient characteristics and prognostic factors.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years (mean ± SD)</td>
<td>41.0 ± xx</td>
</tr>
<tr>
<td>Male, n (%)</td>
<td>18 (60)</td>
</tr>
<tr>
<td>Diabetes, n (%)</td>
<td>17 (57)</td>
</tr>
<tr>
<td>Current smoking, n (%)</td>
<td>10 (30)</td>
</tr>
<tr>
<td>Spondylosis, n (%)</td>
<td>8 (27)</td>
</tr>
<tr>
<td>Soft disc hernia &amp; spondylosis, n (%)</td>
<td></td>
</tr>
<tr>
<td>Radiculopathy, n (%)</td>
<td></td>
</tr>
<tr>
<td>Myelopathy, n (%)</td>
<td></td>
</tr>
<tr>
<td>Myeloradiculopathy, n (%)</td>
<td></td>
</tr>
<tr>
<td>Other clinical characteristic, n (%)</td>
<td></td>
</tr>
<tr>
<td>Levels treated, n (%)</td>
<td></td>
</tr>
</tbody>
</table>

For prognostic studies it is important to describe the primary factor you are exploring as well as other factors which may influence the outcome of interest. For instance if the primary interest is exploring whether NSAID use delays or inhibits union, additional factors you may want to look at are age and smoking status as they may also be associated with these outcomes independent of NSAID use. These are potentially confounding factors which may need to be controlled for in analysis. A table describing the numbers of patients who had such factors may be helpful also.

Primary outcome results—prognostic studies

The results should focus on the primary study endpoint(s).
Typical outcomes results might include one or more of the following:

<table>
<thead>
<tr>
<th>Outcomes by type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional results</td>
<td>Walking range, return to work</td>
</tr>
<tr>
<td>Validated Outcomes scores</td>
<td>SF -36, ODI, see AOspine books for other scores</td>
</tr>
<tr>
<td>Pain</td>
<td>VAS, Analgesic use</td>
</tr>
<tr>
<td>Radiographic findings</td>
<td>Bone healing, implant integrity, alignment</td>
</tr>
<tr>
<td>Complications</td>
<td>Infection, nonunion, unplanned return to OR, neurologic changes, death</td>
</tr>
<tr>
<td>Disease remission / recurrence</td>
<td>Survival time, return to OR, supplemental interventions</td>
</tr>
</tbody>
</table>

Brief bulleted text, which interprets and compliments information summarized in the tables, figures or diagrams should be provided. Text should provide a synthesis of the finding and not repeat all the data in the table or figure (see example).

An example of a table reporting findings from a prognostic study may look something like this. Sex, indication and neurologic involvement are evaluated as prognostic factors for heterotopic ossification (HO).

Table 2. The risk (%) and unadjusted relative risk (RR) of HO by patient characteristic

<table>
<thead>
<tr>
<th></th>
<th>n/N (%)</th>
<th>RR</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>4/12 (33.3)</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>12/18 (66.7)</td>
<td>2.0</td>
<td>0.8, 4.7</td>
<td></td>
</tr>
<tr>
<td><strong>Indication</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soft disc hernia</td>
<td>8/17 (47.1)</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spondylosis</td>
<td>4/8 (50.0)</td>
<td>1.1</td>
<td>0.4, 2.5</td>
<td></td>
</tr>
<tr>
<td>Soft disc hernia &amp; spondylosis</td>
<td>3/5 (60.0)</td>
<td>1.3</td>
<td>0.5, 3.1</td>
<td></td>
</tr>
<tr>
<td><strong>Neurological involvement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiculopathy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myelopathy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myeloradiculopathy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Secondary outcome results—prognostic studies
Brief bulleted text which interprets and compliments information summarized in the tables, figures or diagrams should be provided.
Discussion—prognostic studies (maximum word count 180)

This section should briefly put your study in the context of previous studies and describe the primary strengths and limitations of your study. We suggest using bullet points to allow for more concise presentation of the key insights gained from your study.

- The first bullet or two should provide a brief, concise synthesis of what is known from previously published studies and how findings from your study compare
- A bullet briefly describing the primary strengths of your study
- A bullet briefly describing study limitations and as possible how they may have affected the results
- A bullet briefly addressing possible surprising findings in your study and list possible reasons
- A bullet providing salient clinical perspective (implications and applications)
- A bullet suggesting future research needs (optional)

Summary and Conclusion—prognostic studies (maximum word count 50 words)

This section should include only a brief summary of primary “take-home messages”, the evidence-based bottom line.

Web-based appendices—prognostic studies

The web-based appendices provide additional context, data and references that allow the interested reader to gain a deeper appreciation of the study and its details. Authors are encouraged to keep these brief while providing sufficient information that the study could be replicated. The following are examples of additional information that might be available.

Required components:

- PPO table: provide addition criteria for inclusion/exclusion

<table>
<thead>
<tr>
<th></th>
<th>Included</th>
<th>Excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prognostic factor(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcome(s)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Study protocol specifications for patient follow-up and technical/surgical procedures not fully described in manuscript
- Specific definitions of prognostic factors and how they were measured; some discussion on potentially confounding factors and how they were addressed.
- Specific definitions of outcomes and how they were measured
- Sufficient detail on statistical methods and interpretation.
- Additional data on secondary outcomes or sub-analyses not represented in table or figures in the main article but described in the results
Optional components:
- Additional background or discussion
- Additional information on devices, detailed technical or procedural aspects, descriptions of outcomes measures used, advanced statistical methods used
- Supplementary data or figures from subanalyses or additional outcomes
- Additional references
- Images, such as clinical pictures or radiographs.
- Acknowledgements

4. Body of the Manuscript—treatment studies

Please note the maximum word counts and formatting of text described in each section.

Study rationale and context—treatment studies (maximum word count 50)
This section should briefly describe the context and rationale for the study and lead logically into the statement of the study objective. It is not intended to provide a lengthy background or history regarding the topic.

Objective/aim or clinical question—treatment studies (maximum word count 40)
This should be a very brief statement that encompasses the PICO concept:

| Patients: | What age, condition, diagnostic characteristics, etc. define the study population? | patients less than 50 years old presenting with acute neurological deficit resulting from disc herniation |
| Intervention: | What treatment is being investigated? | Treatment A |
| Comparator | To what is the investigational treatment being compared? | Treatment B |
| Outcome | What is the primary study end-point or patient outcome on which the two treatments are to be compared? Is there a specific validated measure used? | Oswestry Disability Index (ODI) |

For example, here is how the objective might read:
- To compare Oswestry Disability Index (ODI) scores following treatment A with those following treatment B in patients less than 50 years old presenting with acute neurological deficit resulting from disc herniation.

This may take the form of a clinical question. For example:
- In elderly patients presenting with radiculopathy, is there a clinically significant difference in 12 month, post-surgical NDI scores between those treated with treatment A compared with treatment B?

You might visit the AOSpine’s EBSS.live to see additional examples of PPO for prognostic studies as applied to already published research.
Methods—comparative studies of treatment (maximum word count 300-325)

Please follow the format below for this section:

- Study design (e.g. prospective cohort study)
- Objective/aim (clinical question, key question or hypothesis)
- Inclusion criteria
- Exclusion criteria
- Patient population, intervention and comparator
- Outcomes and analysis

For a study comparing treatments, there should be sufficient information regarding study design, inclusion/exclusion criteria, randomization method (including concealment of allocation) or protocols for assignment of treatment, protocol for evaluation of patients, measurement instruments for primary outcome or endpoints, length of follow-up for primary outcome and methods for statistical evaluation that would allow for replication of the study by another investigator.

The methods for each study accepted for publication will be independently reviewed and an overall “class of evidence” will be assessed based on methodological quality (See section on “independent methods evaluation” below). Authors should ensure that there is sufficient information in the submission (article and/or web appendix) that allows for this assessment. EBSJ strongly encourages authors to follow guidelines for reporting described by CONSORT and others to ensure the highest quality reporting. Selected references can be found at the end of this document.

The methods section must include the following information on the numbers of patients considered for and completing the study according to the following figure based on the CONSORT guidelines for reporting a therapeutic study. A template in will be provided for you to enter the appropriate data and modify based on your study.
Patient sampling and selection flow chart

Assessed for eligibility (n = )

Enrollment (n = )

Excluded (n = )
- Not meeting inclusion criteria (n = )
- Refused to participate (n = )
- Other reasons (n = )

Group or Treatment

Assessed for eligibility (n = )

Excluded (n = )
- Not meeting inclusion criteria (n = )
- Refused to participate (n = )
- Other reasons (n = )

Group A
(n = )
- If study is prospective or RCT complete the following, otherwise delete
  - Received allocated intervention (n = )
  - Did not receive allocated intervention (n = )
    - Give reasons

Lost to follow-up (n = )
- Give reasons

Discontinued intervention (n = )
- Give reasons

Analyzed (n = )
- Excluded from analysis (n = )
  - Give reasons

Group B
(n = )
- If study is prospective or RCT complete the following, otherwise delete
  - Received allocated intervention (n = )
  - Did not receive allocated intervention (n = )
    - Give reasons

Lost to follow-up (n = )
- Give reasons

Discontinued intervention (n = )
- Give reasons

Analyzed (n = )
- Excluded from analysis (n = )
  - Give reasons

Study Groups

Follow-Up

Analysis

Be sure that reasons for exclusion are noted as well as any loss to follow-up after groups have been identified. Please be sure that the numbers “add-up” and that the % follow-up can be accurately determined. Please note that in a study which includes only patients with a certain length of follow-up, that those who have not been included are considered lost to follow-up.
Results—treatment studies (maximum word count 150)

The EBJS format is intended to highlight the primary findings and provide an “at-a-glance” summary of pertinent data. This is accomplished via concise, streamlined text in combination with tables, standardized figures and/or diagrams. In general, the bulk of the results will be displayed in a figure, table or graph with very little text for the published portion. Text content should be limited for important explanation of results that are not immediately apparent from tables or graphs. Additional data and text may be provided for the web appendix. Please see example.

The results section should contain the following components:

- Patient characteristics,
- Primary outcome results
- Secondary outcome results

Patient characteristics—treatment studies

A table summary (Table 1) of relevant demographic information, patient characteristics and factors which might logically influence outcomes must be provided. For example, factors might include the following:

<table>
<thead>
<tr>
<th>Patient characteristics</th>
<th>Group A (n =)</th>
<th>Group B (n =)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years) (± sd)</td>
<td>55.6 (± 8.4)</td>
<td>59.3 (± 6.4)</td>
</tr>
<tr>
<td>Male (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current smoking (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASIA score (admission)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of levels involved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>other baseline characteristic</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For prognostic studies, instead of columns for each treatment, the characteristics of those who had the outcome of interest should be in the 1st column and those who didn’t have the outcome of interest would be in the 2nd column. Factors (exposures), including the primary factor being investigated should be listed in the rows.

Primary outcome results—treatment studies

Brief bulleted text, which interprets and compliments information summarized in the tables, figures or diagrams should be provided. Text should provide a synthesis of the finding and not repeat all the data in the table or figure (see example).

The results should focus on the primary study endpoint(s).
Typical outcomes results might include one or more of the following:

<table>
<thead>
<tr>
<th>Outcomes by type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional results</td>
<td>Walking range, return to work</td>
</tr>
<tr>
<td>Validated Outcomes scores</td>
<td>SF -36, ODI, see AOSpine books for other scores</td>
</tr>
<tr>
<td>Pain</td>
<td>VAS, Analgesic use</td>
</tr>
<tr>
<td>Radiographic findings</td>
<td>Bone healing, implant integrity, alignment</td>
</tr>
<tr>
<td>Complications</td>
<td>Infection, nonunion, unplanned return to OR, neurologic changes, death</td>
</tr>
<tr>
<td>Disease remission / recurrence</td>
<td>Survival time, return to OR, supplemental interventions</td>
</tr>
</tbody>
</table>

**Secondary outcome results—treatment studies**

Brief bulleted text which interprets and compliments information summarized in the tables, figures or diagrams should be provided.

**Discussion—treatment studies (maximum word count 180)**

This section should briefly put your study in the context of previous studies and describe the primary strengths and limitations of your study. We suggest using bullet points to allow for more concise presentation of the key insights gained from your study.

- The first bullet or two should provide a brief, concise synthesis of what is known from previously published studies and how findings from your study compare
- A bullet briefly describing the primary strengths of your study
- A bullet briefly describing study limitations and as possible how they may have affected the results
- A bullet briefly addressing possible surprising findings in your study and list possible reasons
- A bullet providing salient clinical perspective (implications and applications)
- A bullet suggesting future research needs (optional)

**Summary and Conclusion—treatment studies (maximum word count 50 words)**

This section should include only a brief summary of primary “take home” messages, the evidence-based bottom line.
Web-based appendices—treatment studies

The web-based appendices provide additional context, data and references that allow the interested reader to gain a deeper appreciation of the study and its details. Authors are encouraged to keep these brief while providing sufficient information that the study could be replicated. The following are examples of additional information that might be available:

Required components:

- PICO table: provide addition criteria for inclusion/exclusion

<table>
<thead>
<tr>
<th></th>
<th>Included</th>
<th>Excluded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervention:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcome</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Study protocol specifications for patient follow-up and technical/surgical procedures
- Specific definitions of outcomes and how they were measured
- Sufficient detail on statistical methods and interpretation.
- Additional data on secondary outcomes or sub-analyses not represented in table or figures in the main article but described in the results

Optional components:

- Additional background or discussion
- Additional information on devices, detailed technical or procedural aspects, descriptions of outcomes measures used, advanced statistical methods used
- Supplementary data or figures from subanalyses or additional outcomes
- Additional references
- Images, such as clinical pictures or x-rays
5. Figures and tables

EBSJ will use a standardized format for figures and tables. Exceptions must be cleared by the editorial staff prior to submission.

For x-rays, clinical images or similar figures, the following formats are acceptable: .jpeg, .tiff or .gif files with a resolution of 300dpi or higher.

All figures must be submitted (downloaded) separately and be clearly labeled with author name and figure number.

Authors must provide initial figures, tables and diagrams as well as the data used to create the tables and figures in an Excel spreadsheet. The EBSJ editorial staff will finalize the style and format. The Editorial staff will refine the data figures based on data submitted.

Legends and descriptions of all tables, figures and diagrams must provide clear, concise information. As appropriate, data on the number of patients, follow-up time and other pertinent information must be provided so that figures, etc. are self-explanatory.

Color images cannot be used in the printed, hard-copy version of EBSJ, however, color images or figures may be part of the online web appendix.

6. References (10 maximum recommended)

In the manuscript please limit the number of references to the most pertinent ones. This means classic reference articles and the most recent pertinent studies should be used. This section should be limited to references directly related to or quoted in the primary portion of the study report. It is suggested that this be limited to 10. Additional references may be listed in the web appendices. Authors are responsible for the accuracy of references.

EBSJ uses the AO format for citations within the manuscript and formatting of the bibliography. Use a bracket around the citation and place it inside any final punctuation. References should be numbered in the order in which they are cited.

For example:
Age and smoking status have generally been considered risk factors for nonunion in such patients [1] while use of NSAIDs has not [2]. Two previous studies suggested that rates of nonunion may differ with respect to age [3,4], but following adjustment for smoking status, the risk of nonunion was no longer significant in patients over 65 years old in the study by Jones [3].

Bibliography/reference format
All references are listed in the order cited in the text the first time they are used. Each reference retains its number regardless of the number of times cited. When there are more than 3 authors, list only the first 3 authors followed by “et al” and give date on first line (bolded), article title on next line, journal name (italics) and citation information on third line.
An example of bibliography formatting is given in the box:

References


7. The review process

Again, EBSJ is unique in that all original research articles will be reviewed by Ph.D. methodological experts in clinical research as well as clinical peer reviewers. We will do our best to return our reviews to you within 30 calendar days following submission. Authors are expected to respond to comments made by both sets of reviewers within 30 calendar days to maintain eligibility for publication.

Transfer of copyright, financial disclosure and authorship

Download the “Author responsibility, non-duplication statement, financial disclosure, and copyright transfer” form at www.aospine.org/ebsj.

Upon submission of your manuscript for publication

- All authors will be required to complete the form.
- Authors must verify compliance with NIH and other research funding agencies accessibility requirements and report any conflicts of interest.
- Authors will be required to verify compliance with human subjects (e.g., internal review board, IRB) requirements imposed by their institutions.
- Authors will be asked to verify device/drug status with FDA or other regulatory agencies.

Your submission will not be considered or processed further until the forms are received.

Independent methods evaluation

The methodological aspects of the final original research article will be independently reviewed prior to publication and a class of evidence (CoE) rating given based on the criteria described below which will be included in the published version. The criteria described below may assist authors in assuring that the manuscript describes the various methodological components.
Definition of the different classes of evidence (CoE) for articles on prognosis or risk:

<table>
<thead>
<tr>
<th>Class</th>
<th>Study type</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Good quality cohort</td>
<td>• Prospective design&lt;br&gt;• Patients at similar point in the course of their disease or treatment&lt;br&gt;• F/U rate of 85% +&lt;br&gt;• Patients followed long enough for outcomes to occur&lt;br&gt;• Controlling for extraneous prognostic factors*</td>
</tr>
<tr>
<td>II</td>
<td>Moderate quality cohort</td>
<td>• Prospective design, with violation of one of the other criteria for good quality cohort study&lt;br&gt;• Retrospective design, meeting all the rest of the criteria in class I</td>
</tr>
<tr>
<td>III</td>
<td>Poor quality cohort</td>
<td>• Prospective design with violation of 2 or more criteria for good quality cohort, or&lt;br&gt;• Retrospective design with violation of 1 or more criteria for good quality cohort</td>
</tr>
<tr>
<td>IV</td>
<td>Case control</td>
<td>• Any case-control design</td>
</tr>
<tr>
<td></td>
<td>Case series</td>
<td>• Any case-series design</td>
</tr>
</tbody>
</table>

*Authors must provide a description of robust baseline characteristics, and control for those that are potential prognostic factors.

Definition of the different classes of evidence (CoE) for articles on therapy:

<table>
<thead>
<tr>
<th>Class</th>
<th>Study type</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Good quality RCT</td>
<td>• Concealment&lt;br&gt;• Blind or independent assessment for important outcomes&lt;br&gt;• F/U rate of 85% +&lt;br&gt;• Adequate sample size</td>
</tr>
<tr>
<td>II</td>
<td>Moderate or poor quality RCT</td>
<td>• Violation of any of the criteria for good quality RCT&lt;br&gt;• Blind or independent assessment in a prospective study or use of reliable data* in a retrospective study&lt;br&gt;• F/U rate of 85% +&lt;br&gt;• Adequate sample size&lt;br&gt;• Controlling for possible confounding †</td>
</tr>
<tr>
<td>III</td>
<td>Moderate or Poor quality cohort</td>
<td>• Violation of any of the criteria for good quality cohort</td>
</tr>
<tr>
<td>IV</td>
<td>Case control</td>
<td>• Any case-control design</td>
</tr>
<tr>
<td></td>
<td>Case series</td>
<td>• Any case-series design</td>
</tr>
</tbody>
</table>

*Reliable data are data such as mortality or reoperation.<br>†Authors must provide a description of robust baseline characteristics, and control for those that are unequally distributed between treatment groups.

Methods evaluation for prognostic study

<table>
<thead>
<tr>
<th>Methodological Principle</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study design</td>
<td></td>
</tr>
<tr>
<td>Prospective cohort design</td>
<td></td>
</tr>
<tr>
<td>Retrospective cohort design</td>
<td>Yes</td>
</tr>
<tr>
<td>Case-control design</td>
<td></td>
</tr>
<tr>
<td>Case-series</td>
<td></td>
</tr>
<tr>
<td>Patients at similar point in the course of their treatment</td>
<td>Yes</td>
</tr>
<tr>
<td>Complete follow-up of ≥ 85% *</td>
<td>Yes</td>
</tr>
<tr>
<td>Patients followed long enough for outcomes to occur</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### Controlling for extraneous risk factors

<table>
<thead>
<tr>
<th>Evidence class</th>
<th>Yes</th>
</tr>
</thead>
</table>

*Not applicable (NA) for case-control design; blank box indicates criterion not met or information not reported by author.

### 8. Selected references

Several guidelines have been published to assist writers to publish high quality papers based on their clinical research studies. Information is available either through websites dedicated to these guidelines or through published articles.

**For randomized controlled trials:**

**CONSORT (Consolidated Standards of Reporting Trials)**

- [http://rctbank.ucsf.edu/consort/cplus.html](http://rctbank.ucsf.edu/consort/cplus.html)

**For observational studies including cohort studies:**

**STROBE (Strengthening the Reporting of Observational Studies in Epidemiology)**

- [http://www.strobe-statement.org](http://www.strobe-statement.org)

**A more general set of guidelines:**

**SQUIRE (Standards for Quality Improvement Reporting Excellence)**

- [http://www.squire-statement.org/resources/](http://www.squire-statement.org/resources/)
9. Manuscript preparation—font, spacing and style

All submitted manuscripts must be typed double spaced in 12 point font in Times or Times New Roman and formatted for standard 8.5” x 11” or DIN A4 (21x 29,7 cm) paper.

Please format the manuscript to include line numbers and page numbers.

File naming and figures:
- Figure 1 is the “patient sampling and selection” flow chart. Please number all other figures accordingly.
- Color figures are not allowed in the printed version of the published paper but may be put in the web appendix.
- Captions or titles must be provided for each figure and table, footnotes provided where necessary
- For figures with numerical data, supporting data is submitted together with the manuscript—Excel or spreadsheet (for figures) required
- ALL figure files are uploaded as separate files
  1. They must be named as: AUTHORNAME_FIGURE_1_DATE, AUTHORNAME_FIGURE_2_DATE, etc.
  2. Data figures (e.g. graphs, bar charts) must also have an Excel workbook (named AUTHORNAME_EXCEL_DATA_DATE) with the data used to create the figures. Use separate worksheets within Excel for each data figure and make sure that the tab label includes the figure number.
  3. Clinical images, x-rays, etc. must be sent in a high resolution format (e.g. JPEG, TIFF, GIF etc.), not in a Word document.

Official AO language and spelling are American English—on your computer set to US English.
- For reference on weights and measures (SI units should be used): www.unitconversion.org

Punctuation:
Use uppercase after “.” or “:” (if the sentence following the “:” is a complete sentence, if not use lowercase).
Lowercase after “,” or “;”

Quotation marks:
Use the quotation marks that look like 66, 99 (“look” depending on font).

Hyphenation:
Should be avoided wherever possible. Examples: cooperation, posttraumatic, intraarticular, nonunion, preoperative, postoperative, reoperation, unilateral, prebend.
Numbers:
- Put a space between numbers and units, for example, 3 cm, 5 ml. Exceptions: degrees (90°C, 90°) and percent (25%).
- Decimal comma and thousands separator: 1,000.– CHF 25,000.– or US$ 120,000.–.
- Use of numbers in text: Numbers up to and including twelve are spelled in letters. Numbers > 12 and descriptive numbers as in “5-hole plate” are written in numerals. Exceptions: 2–3 hours, 7–12 days/weeks/months/years; also between 3 and 7 days, etc.
- Fractions are expressed as 1/2, 1/4, 4/15,… (exception: one-third tubular plate).

Date format:
- April 1, 2004, or

Abbreviations:
Write the full term of scores, methods, implants, etc, in lower case adding acronyms/initialisms in parentheses if you intend to use them alone in subsequent references. Also, in general, omit periods in abbreviations and acronyms:
ie, eg, et al, Fig, Tab, etc, AAOS, HIV, Dr, Prof, Mr, Mrs.
Always follow these by a comma: ie, eg, et al,…

Statistics:
- The "en dash" is used in numerical ranges, eg, RR, 3.2 (95% CI 1.3–5.4)
- P value (P capitalized in italics)
- Format: P = .001 (no zero before the comma), P < .05
- N = entire population under study
- n = sample of the population under study
- Confidence interval (CI) Format: (95% CI, 0.8–1.6)
- There is always a space between operational symbols and what is on either side of them. Eg, the mean was 75 ± 5.

Most of the text within tables is lower case unless it is a proper noun.

Footnotes:
Each footnote should be on a separate line and there should be a period at the end of the footnote. Order of symbols: * † § ** †† ‡ §§

Titles:
For report titles, including table and figure titles, only the first word is capitalized. If proper nouns or acronyms are included in the title, they are capitalized.