# Clinical Literature Appraisal

The following section outlines the criteria for suitability and data contribution used to appraise the literature to be included in this clinical evaluation (adapted from MEDDEV 2.7/1, Rev.4).

|  |  |
| --- | --- |
| Criteria | Description |
| CK0 | No SoTA information. |
| CK1 | Establishment of current knowledge/ the state of the art on the medical condition |
| CK2 | Establishment of current knowledge/ the state of the art on alternative therapies/treatments |
| CK3 | Determination and justification of criteria for the evaluation of the risk/benefit relationship |
| CK4 | Determination and justification of criteria for the evaluation of the acceptability of undesirable side-effects |
| CK5 | Determination of equivalence |
| CK6 | Justification of the validity of surrogate endpoints |

Table 01 Criteria for State of the Art

|  |  |  |
| --- | --- | --- |
| Contribution Criteria | Description | Grading System |
| Appropriate device | Were the data generated from the device in question? | D1 Actual Device  D2 Comparable Device  D3 Other Device |
| Appropriate device application | Was the device used for the same intended use (e.g., methods of deployment, application, etc.)? | A1 Same use  A2 Minor deviation  A3 Major deviation |
| Appropriate patient group | Were the data generated from a patient group that is representative of the intended treatment population (e.g., age, sex, etc.) and clinical condition (i.e., disease, including state and severity)? | P1 Applicable  P2 Limited  P3 Different |
| Acceptable report/data collation | Do the reports or collations of data contain sufficient information to be able to undertake a rational and objective assessment? | R1 High quality  R2 Minor deficiencies  R3 Insufficient information |

Table 02 Criteria for Data Suitability

|  |  |  |
| --- | --- | --- |
| Accountability Level | Description | Grading |
| Data source type | Was the design of the study appropriate? | T1 Yes  T2 No |
| Outcome measures | Do the outcome measures reported reflect the intended performance of the device? | O1 Yes  O2 No |
| Appropriate follow-up | Is the duration of follow-up long enough to assess treatment effects and identify complications? | F1 Yes  F2 No |
| Statistical significance | Has a statistical analysis of the data been provided and is it appropriate? | S1 Yes  S2 No |
| Clinical significance | Was the magnitude of the treatment effect observed clinically significant? | C1 Yes  C2 No |

Table 03 Criteria for Data Contribution

|  |  |  |
| --- | --- | --- |
| Rank | Types of clinical data and evidence | Considerations / comments |
| 1 | Results of high quality clinical investigations covering all device variants, indications, patient populations, duration of treatment effect, etc | This may not feasible or necessary for certain well-established devices with broad indications (eg Class IIb legacy sutures, which could be used in every conceivable patient population) |
| 2 | Results of high quality clinical investigations with some gaps | Gaps must be justified / addressed with other evidence in line with an appropriate risk assessment, and clinical safety, performance, benefit and device claims. Assuming the gaps can be justified, there should be an appropriate PMCF plan to address residual risks. Otherwise, manufacturers shall narrow the intended purpose of the device until sufficient clinical data has also been generated. |
| 3 | Outcomes from high quality clinical data collection systems such as registries | Is there sufficient evidence of the quality of the data collected by the registry? Are the devices adequately represented? Are the data appropriately stratified? Are the endpoints appropriate to the safety, performances and endpoints identified in the clinical evaluation plan? |
| 4 | Outcomes from studies with potential methodological flaws but where data can still be quantified and acceptability justified | Many literature sources fall into this category, due to limitations such as missing information, publication bias, time lag bias, etc. This applies equally to publications in the peer-reviewed scientific literature. However, for legacy devices where no safety or performance concerns have been identified, these sources can be sufficient for confirmation of conformity to the relevant GSPRs if appropriately appraised and the gaps are identified and handled. High quality surveys may also fall into this category. |
| 5 | Equivalence data (reliable / quantifiable) | Equivalence must meet MDR criteria. It is normally expected that manufacturers should gather data on their own devices in the post-market phase, therefore reliance on equivalence should be duly justified, and linked to appropriate PMCF or proactive PMS. |
| 6 | Evaluation of state of the art, including evaluation of clinical data from similar devices as defined in Section 1.2 of 'MDCG 2020-6' | This is not considered clinical data under the MDR, but for well-established technologies only can be considered supportive of confirmation of conformity to the relevant GSPRs. Data from similar devices may be also important to establish whether the device under evaluation and similar devices belong to the group of devices considered as “well established technologies” (WET). See section 1.2 in 'MDCG 2020-6' for the criteria for WET. Data from similar devices may be used, for example, to demonstrate ubiquity of design, lack of novelty, known safety and performance profile of a generic group of devices, etc. |
| 7 | Complaints and vigilance data; curated data | data; curated data This falls within the definition of clinical data under MDR Article 2(48), but is not generally considered a high quality source of data due to limitations in reporting. It may be useful for identifying safety trends or performance issues. High volume data collected within a robust quality system may provide supportive evidence of device safety. |
| 8 | Proactive PMS data, such as that derived from surveys | This falls within the definition of clinical data under MDR Article 2(48), but is not generally considered a high quality source of data due limitations associated with sources of bias and quality of data collection. It may be useful for Page 22 of 22 identifying safety concerns or performance issues. |
| 9 | Individual case reports on the subject device | This falls within the definition of clinical data under MDR Article 2(48), but is not considered a high quality source of data due to limitations in generalising findings to a wider patient population, reporting bias, etc. It may provide supportive or illustrative information with respect to specific claims. |
| 10 | Compliance to non-clinical elements of common specifications considered relevant to device safety and performance | Common specifications which address clinical investigation or data requirements directly would rank higher in this hierarchy. Common specifications may address clinically relevant endpoints through non-clinical evidence such as mechanical testing for strength and endurance, biological safety, usability, etc. |
| 11 | Simulated use / animal / cadaveric testing involving healthcare professionals or other end users | This is not clinical data, but may be considered evidence of confirmation of conformity to relevant GSPRs, particularly in terms of usability, such as for accessories or instruments. |
| 12 | Pre-clinical and bench testing / compliance to standards | Pre-clinical and bench testing may address clinically relevant endpoints through non-clinical evidence such as mechanical testing for strength and endurance, biological safety, usability, etc |

Table 04 MDCG Ranking

## Criteria For State of the Art

{% if review.appendix\_c.sota\_table.rows %}

| ID | Citation | {%tc for header in review.appendix\_c.sota\_table.rows[“headers”]%} | {{header}} | {%tc endfor %} |
| --- | --- | --- | --- | --- |
|  |  |  | {%tr for content\_row in review.appendix\_c.sota\_table.rows.content%} |  |
| {{content\_row.id}} | {{content\_row.citation}} | {%tc for item in content\_row.cols %} | {{ item }} | {%tc endfor %} |
|  |  |  | {%tr endfor %} |  |

Table 05 Classifications for State of the Art

**{% else %}**

No SoTA results to display.

**{% endif %}**

## Criteria for Data Suitability - Retained and Included Citations

The following tables summarize the suitability of the clinical literature on the criteria described above.

The articles selected in this table were both Retained for evaluation AND Included for the full review.

{% if review.appendix\_c.suitability\_retinc\_table.rows %}

| ID | Citation | {%tc for header in review.appendix\_c.suitability\_retinc\_table.rows[“headers”]%} | {{header}} | {%tc endfor %} |
| --- | --- | --- | --- | --- |
|  |  |  | {%tr for content\_row in review.appendix\_c.suitability\_retinc\_table.rows.content  %} |  |
| {{content\_row.id}} | {{content\_row.citation}} | {%tc for item in content\_row.cols %} | {{ item }} | {%tc endfor %} |
|  |  |  | {%tr endfor %} |  |

Table 06 Criteria for Suitability - Retained and Included Citations

**{% else %}**

No retained and included citations to display.

**{% endif %}**

## Criteria for Data Suitability Level - All Retained Citations

The following table summarizes the suitability of the clinical literature on the criteria described above.

{% if review.appendix\_c.suitability\_all\_table.rows %}

| ID | Citation | {%tc for header in review.appendix\_c.suitability\_all\_table.rows[“headers”]%} | {{header}} | {%tc endfor %} |
| --- | --- | --- | --- | --- |
|  |  |  | {%tr for content\_row in review.appendix\_c.suitability\_all\_table.rows.content  %} |  |
| {{content\_row.id}} | {{content\_row.citation}} | {%tc for item in content\_row.cols %} | {{ item }} | {%tc endfor %} |
|  |  |  | {%tr endfor %} |  |

Table 07 Criteria for Data Suitability Level - All Retained Citations

**{% else %}**

No Device Related Citations to display.

**{% endif %}**

## Criteria for Data Contribution - Retained and Included Citations

The following table summarizes the suitability of the clinical literature on the criteria described above.

The citations selected in this table were both Retained for evaluation AND Included for the full review.

{% if review.appendix\_c.data\_contribution\_retinc\_table.rows %}

| ID | Citation | {%tc for header in review.appendix\_c.data\_contribution\_retinc\_table.rows[“headers”]%} | {{header}} | {%tc endfor %} |
| --- | --- | --- | --- | --- |
|  |  |  | {%tr for content in review.appendix\_c.data\_contribution\_retinc\_table.rows.content %} |  |
| {{content.id}} | {{content.citation}} | {%tc for item in content.cols %} | {{ item }} | {%tc endfor %} |
|  |  |  | {%tr endfor %} |  |

Table 08 Criteria for Data Contribution - Retained and Included Citations

**{% else %}**

No Device Related and Included Citations to display.

**{% endif %}**

## Data Extraction Results – Detailed

The following section contains expanded detail on extracted data of all Retained and Included citations.

{% if review.appendix\_c.extraction\_detail\_table.rows %}

| S. No | Bibliography | Study design/Objective | Treatment Modality/ Indication/Comparator (I/O) | Study Result/Conclusion (O) |
| --- | --- | --- | --- | --- |
|  | {%tr for row in review.appendix\_c.extraction\_detail\_table.rows %} |  |  |  |
| {{ row[‘id’] }} | {{ row[‘Citation’] }}  **Data Suitability**  {{ row[‘Grade 01’] }}  **Data Contribution**  {{ row[‘Grade 02’] }}  **MDCG Ranking**  {{ row[‘Rank’] }} | {%p for field in row[“extra\_fields”] %}  {%p if field.category == “ST” %}  **{{field.name}}**  {{field.value}}  {%p endif %}  {%p endfor %} | {%p for field in row[“extra\_fields”] %}  {%p if field.category == “T” %}  **{{field.name}}**  {{field.value}}  {%p endif %}  {%p endfor %} | {%p for field in row[“extra\_fields”] %}  {%p if field.category == “SR” %}  **{{field.name}}**  {{field.value}}  {%p endif %}  {%p endfor %} |
|  | {%tr endfor %} |  |  |  |

Table 09 Data Extraction Results – Detailed

**{% else %}**

No Device Related Retained and Included Citations to display.

**{% endif %}**

## Retained Citations Not Appraised (Device)

### {% if review.appendix\_c.excluded\_table.rows %}

| Citation | Justification |
| --- | --- |
| {%tr for row in review.appendix\_c.excluded\_table.rows %} |  |
| {{ row[‘Citation’] }} | {{ row[‘Justification’] }} |
| {%tr endfor %} |  |

### Table 10 Retained Citations Not Appraised (Device)

### {% else %}

All retained citations were appraised.

### {% endif %}