Revised Preamble for the *IARC Monographs*:
Modernized and transparent evidence synthesis for cancer hazard identification

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### Systematic Review Steps

1. **Identification of relevant information**
   - Human cancer study synthesis
     - Causal inference for body of evidence, accounting for study quality & informativeness
     - Increased attention to quality of exposure assessment
   - Cancer bioassay study synthesis
     - Evidence of dose-related increases in tumour frequency in high-quality studies
   - Mechanistic data synthesis
     - Strength of evidence: mechanistic class; key characteristics of carcinogens; and relevance of mechanism for humans
     - Study quality considerations

2. **Screening, selection, organization of studies**

3. & 4. **Evaluation of study quality & reporting of results**

5. **Prepare meeting**

### Evidence Synthesis

<table>
<thead>
<tr>
<th>Evidence of Cancer in Humans</th>
<th>Evidence of Cancer in Experimental Animals</th>
<th>Mechanistic Evidence</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sufficient</td>
<td>Sufficient</td>
<td>Strong (exposed human)</td>
<td>Carcinogenic (Group 1)</td>
</tr>
<tr>
<td>Limited</td>
<td>Sufficient</td>
<td>Strong</td>
<td>Probably carcinogenic (Group 2A)</td>
</tr>
<tr>
<td>Sufficient</td>
<td>Strong (human cells or tissues)</td>
<td>Strong (mechanistic class)</td>
<td>Possibly carcinogenic (Group 2B)</td>
</tr>
<tr>
<td>Limited</td>
<td>Sufficient</td>
<td>Strong (experimental systems)</td>
<td>Not classifiable (Group 3)</td>
</tr>
</tbody>
</table>

### Hazard Communication

- **Exposure characterization**
- **Screening, selection, organization of studies**
- **Evaluation of study quality & reporting of results**
- **Prepare meeting**

**When? What?**
- Pre-meeting work: drafts, peer review, revision
- Monographs meeting, in subgroups
- Monographs meeting, in plenary sessions
- Monographs meeting, in subgroup sessions

**When?**
- 5-year agenda following Advisory Group

**Step 5**
- Evaluation of study quality & reporting of results

**Step 2**
- Screening, selection, organization of studies

**Step 1**
- Identification of relevant information

**Select agents**
- Screen, select, organize studies

**Screening, selection, organization of studies**
- Evaluation of study quality & reporting of results

**Step 3 & 4**
- Preparation of meeting

**Select independent experts**
- Identification of relevant information

**Who?**
- Pre-meeting Secretariat

**Pre-meeting Secretariat**
- Select agents
- Select independent experts

**Step 5**
- Evaluation of study quality & reporting of results

**Evaluation**
- Carcinogenic (Group 1)
- Probably carcinogenic (Group 2A)
- Possibly carcinogenic (Group 2B)
- Not classifiable (Group 3)

**Evidence of Cancer in Humans**
- Sufficient
- Limited

**Evidence of Cancer in Experimental Animals**
- Sufficient
- Limited

**Mechanistic Evidence**
- Strong
- Strong (exposed human)
- Strong (mechanistic class)
- Strong (experimental systems)