New Features in Procedures:

**Administration of Substances (Instructions)**

1) **Please add the substances and indicate the order in which they are to be administered:**
   
   a. In a single procedure, only list substances that are given together at the same point in time. If there are multiple substances administered to the same animals at different time points, use separate procedures.
   
   b. Include diluents and/or vehicle controls for the substances when appropriate.

2) **Describe the procedure, including any combinations of substances:**
   
   a. Describe procedure technique (especially for retro-orbital administration, gavage administration, etc.). If combinations of substances will be administered (vehicles, controls, etc.) please list them here. Again, do not repeat information already included in the substance table.

3) **Describe monitoring:**
   
   a. Address monitoring in the immediate time period after administration (e.g. in the case of gavage) or monitoring for potential adverse effects of administering the substance.

**Screenshot:**

**Administration of Substances**

1.0  *Please add the substances and indicate the order in which they are to be administered:*

<table>
<thead>
<tr>
<th>Substance Type</th>
<th>Dose</th>
<th>Maximum Dosage</th>
<th>Route of Administration</th>
<th>Route of Administration</th>
<th>Site(s) of Injection</th>
<th>Number of Administrations</th>
<th>Range of Needle Gauge</th>
<th>Desired Effect of Injection</th>
<th>Duration of Survival</th>
<th>Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test</td>
<td>Chemical</td>
<td>100 mg/kg</td>
<td>200 ul</td>
<td>Intraperitoneal</td>
<td>Other</td>
<td>Description</td>
<td>Test</td>
<td>Varies; not limited by this substance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.0  *Describe the procedure including any combinations of substances:*

   Text box for description of procedure (i.e. gavage, injection technique) and combination of substances.

3.0  *Describe monitoring:*

   Monitoring details here.
Anesthetic Regimen (Instructions)

An anesthetic regimen procedure type is needed for all surgical procedures and any other procedure that is performed under anesthesia. The anesthetic regimen is embedded in surgical procedures while for other procedure types, the regimen must be listed as a procedure in the experimental group.

If there are alternative anesthetic regimens (e.g. ketamine/xylazine vs isoflurane), it is preferable to describe them in separate procedure, then to add both regimens to the surgery or experimental group.

1) **Please add the anesthetics and indicate the order in which they are to be administered:** Add anesthetics as substances to the substance table. If you are using other substances as part of the anesthetic regimen (e.g. pre-anesthetic agents, anti-cholinergics, paralytics, reversal agents), they should be listed in the Additional Substances table of the anesthetic regimen. Substances like artificial tears should be included within the surgery procedure during which they are administered as opposed to the anesthetic regimen.

2) **Describe administration of anesthetics (i.e., to be used in combination or as alternatives):** What combinations (e.g. Ketamine/Xylazine) of anesthetics will be administered? Only mention anesthetics listed in this procedure in this text box.

3) **Describe anesthetic monitoring and additional dosing anesthetics if necessary:** Describe the method for ensuring that an animal is under the appropriate plane of anesthesia here (i.e. toe pinch), what vitals will be monitored and how often during the anesthetic event, and how additional anesthetics will be administered if required.

4) **Describe how animals will be recovered from anesthesia:** Indicate how animals will be monitored as they are becoming ambulatory and before returning to the home cage.

**Screenshot:**

**Anesthetic Regimen**

1.0 * Please add the anesthetics and indicate the order in which they are to be administered:

<table>
<thead>
<tr>
<th>Substance Type</th>
<th>Dose</th>
<th>Maximum Dosage Volume</th>
<th>Route Of Administration</th>
<th>Route Of Administration Other Description</th>
<th>Site(s) of Injection</th>
<th>Number of Administrations</th>
<th>Range of Needle Gauge Size</th>
<th>Desired Effect</th>
<th>Duration of Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Chemical</td>
<td>100</td>
<td>200 ul</td>
<td>Intraperitoneal</td>
<td></td>
<td>Test</td>
<td>Varies, not limited by this substance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.0 * Describe administration of anesthetics (i.e., to be used in combination or as alternatives):

3.0 * Describe anesthetic monitoring and additional dosing anesthetics if necessary:

4.0 * Describe how animals will be recovered from anesthesia:

Recovery details here.
Core Lab Procedure (Instructions)

1) Please indicate the details regarding this procedure and the lab that will be performing it (PI, protocol number, etc.): List the PI’s lab that will be performing the procedure, the protocol number the core procedure is from, and the procedure name from that protocol. Do not include “version numbers” of procedures in this description. For example, if the procedure is titled “Kidney Transfer v3,” just indicate that the “Kidney Transfer” procedure will be performed by the core.

2) Is this a survival surgery? Mark “Yes” or “No.” If “Yes,” indicate whether the surgery is major or minor.

Screenshot:

Core Lab Procedure

1.0 Please indicate the details regarding this procedure and the lab that will be performing it (PI, protocol number, etc.):
The Jenny Zhang lab will perform the procedure "Heart Transplantation - Mice" and the associated anesthetic regimen from protocol IS00001663.

2.0 * Is this a survival surgery?
   ○ Yes ○ No

   * Surgery Type:
   Major
New Fields in Red

Imaging (Instructions)

1) Please add the contrast agent(s) administered during the imaging session: Add the contrast/tracing/imaging agent as a substance here.

2) Will anesthesia be used during this procedure? Yes/No
   a. If yes, 2.1) Select Anesthetic Regimen
   b. If no, 2.2) Describe how animals will be restrained during imaging: What type of restraint will be used for the imaging session?

3) Please provide a description of the imaging procedure: Describe the imaging session (i.e. the type of imaging, length of time, etc.)

4) Describe monitoring during imaging and recovery from anesthesia: Describe how the animal will be monitored before returning to the home cage or rack.

Screenshot:

Imaging

1.0 * Please add the tracing agent(s) administered during the imaging session:

<table>
<thead>
<tr>
<th>Substance Type</th>
<th>Maximum Dose/Volume</th>
<th>Route Of Administration</th>
<th>Route Of Administration Other Description</th>
<th>Site(s) of Injection</th>
<th>Number of Administrations</th>
<th>Range of Needle Gauge Size</th>
<th>Desired Effect</th>
<th>Duration of Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>View Test Substance 1</td>
<td>Chemical</td>
<td>200 ul</td>
<td>Intraperitoneal</td>
<td></td>
<td></td>
<td></td>
<td>Vehicle for compound</td>
<td></td>
</tr>
</tbody>
</table>

2.0 * Will anesthesia be used during this procedure?
   ☐ Yes ☐ No

2.1 Select Anesthetic Regimen(s):

<table>
<thead>
<tr>
<th>Name</th>
<th>Species</th>
<th>Reviewer Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>anesthesia</td>
<td>Mice</td>
<td>SmartForm</td>
</tr>
</tbody>
</table>

2.2 Describe how animals will be restrained during imaging.
   If anesthesia is not used, describe the restraint method here.

3.0 * Please provide a description of the imaging procedure:
   Provide description of imaging.

4.0 * Describe monitoring during imaging and recovery from anesthesia.
   Description of monitoring and recovery here.
New Fields in Red

Induction of Illness (Instructions)

1) Please describe the procedure in detail: Include details of the procedure here.
2) What potential impairment can be expected from the procedure? What impairments are expected as a result of the induction of illness?
3) Describe how animals will be monitored and frequency of monitoring: Include specific monitoring parameters here, including endpoint criteria for early removal from the study.
4) What supportive care is required for animals after illness is induced? What can be done, if anything, to alleviate pain and distress as a result of this procedure? List all supportive care measures here, including fluids and nutritional support. Substance entries (such as Clear H2O, DietGel, or warmed fluids for SQ injection) can be listed on the “Additional Substances” page.
5) What is the duration of survival after the procedure? Indicate the duration of survival after illness is induced.
6) What substances/agents will be used to induce the illness? Add substances that are used to induce the illness here.

Screenshot:

Induction of Illness

1.0  * Please describe the procedure in detail: Description of how the procedure will induce illness.
2.0  * What potential impairment can be expected from the procedure? Potential impairments or complications.
3.0  * Describe how animals will be monitored and frequency of monitoring: Monitoring details.
4.0  * What supportive care is required for animals after illness is induced? What can be done, if anything, to alleviate pain and distress as a result of this procedure?
Supportive care details.
5.0  * What is the duration of survival after the procedure? Duration of survival.
6.0  * What substances/agents will be used to induce the illness? (Indicate the substances that will be administered for supportive care on the following page.)
New Fields in Red

Surgery: Non-Survival (Instructions)

Use for surgical procedures (an incision is made) from which the animal will not recover and be euthanized.

1) **Duration of the procedure**: How long does the procedure take?
2) **Select Anesthetic Regimen(s)**: Select the appropriate anesthetic regimen procedure. If no procedures appear for selection, you must create a new procedure classified as an “Anesthetic Regimen” procedure-type. You can include more than one anesthetic regimen procedure in this field if you have two alternate procedures you would like to use. Mention the use of each in the text box below.
3) **Vital signs monitored and frequency of monitoring**: Indicate what vital signs will be monitored while the animal is under anesthesia and the frequency in which vitals will be recorded.
4) **Are you performing a thoracotomy/perfusion in rodents?** Select Yes or No. If “Yes,” it is recommended that you refer to the IACUC Thoracotomy-Perfusion for Rodents AAP in 5.0 below.
5) **Describe the non-survival surgery**: Describe the procedure and include the primary and secondary methods of euthanasia.
6) **Method(s) of Euthanasia**: Add the primary and secondary method of euthanasia to the table. Include justification for non-AVMA approved methods of euthanasia.

**Screenshot:**

**Surgery: Non-Survival**

1.0  * Duration of the procedure:
    <10 minutes

2.0  * Select Anesthetic Regimen(s):
    Name: anesthesia
    Species: Mice
    Reviewer Shortcut: SmartForm

3.0  * Vital signs monitored and frequency of recording:
    Monitoring details here.

4.0  * Are you performing a thoracotomy-perfusion in rodents?:  ☐ Yes  ☐ No

5.0  * Describe the non-survival surgery:
    Performed according to the AAP "Thoracotomy/Perfusion for Rodents."

6.0  * Method(s) of Euthanasia:
    Primary Method: Thoracotomy under deep anesthesia
    Secondary Method: Exsanguination
    Justification: no
    Embryonic Or Neonatal?: no
**New Fields in Red**

**Experimental Groups:**

Experimental Group Information:

The 2.0 Description section will now be a required field:

**Experimental Group Information**

1.0

* Group Name:
  Example Group

2.0 Description - Please relate this experimental group back to the scientific goals/specific aims of the study outlined in the Summary of Research (Aims & Significance, 2.0):

Relate this experimental group to the Aim(s) you are working toward in the group.

Upon selection of Pain Category E, labs will be required to justify their reasoning for doing so on this page.

5.0 USDA Pain Category:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery, but not yet used for such purposes.</td>
</tr>
<tr>
<td>C</td>
<td>Procedures that may result in only slight or momentary pain such as routine injections, blood collections, or other minor procedures are included in this category</td>
</tr>
<tr>
<td>D</td>
<td>Animals have the potential to experience pain/discomfort, but the necessary drugs to alleviate the symptoms are provided.</td>
</tr>
<tr>
<td>E</td>
<td>These procedures cause more than minimal or transient pain and/or distress but cannot be performed using anesthetics, analgesics or tranquilizers without adversely affecting the study</td>
</tr>
</tbody>
</table>

5.1 Please justify your reasoning for including animals in pain category E.

Justification for Category E here.
Procedures and Animal Numbers:

2.0 **Multiple Survival Surgery Justification**: This should only be filled in if multiple survival surgeries are used within an Experimental Group. This does NOT include a secondary surgery that is non-survival.

2.1 **Will multiple MAJOR survival surgeries be performed on the same animal?** If “Yes,” provide the combination of major surgeries, justification for major surgeries, and timeline of surgical procedures in text box 2.3.

2.2 **Will other combinations of multiple survival surgeries be performed on the same animal?** If a combination of major/minor or minor/minor survival surgeries will be performed, mark “Yes” to this question and include the timeline in 2.3.

The information in the red box below contains any text previously written in the multiple survival surgery justification field and cannot be edited.