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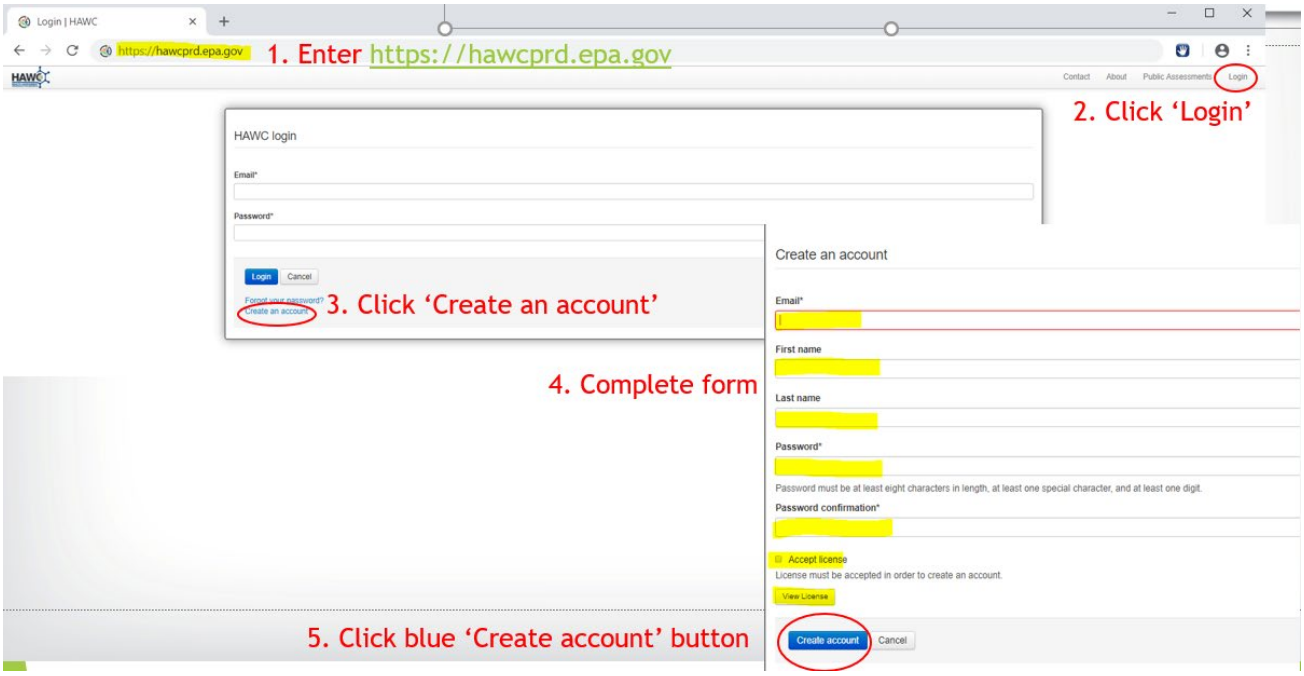
HAWC Extraction Guide for the Data Abstraction Project

Getting Started with HAWC:

1. Creating an account

1. Enter https://hawcprd.epa.gov into a non-Internet Explorer browser
2. Click 'Login'
3. Click 'Create an account'
4. Complete form
5. Click the blue 'Create account' button



2. Viewing recommended HAWC videos

The following videos can be accessed from the HAWC 'About' tab (you may need to scroll down page) or via the following link: http://hawcprd.epa.gov/about (note: you may need to log into HAWC). Please note the 'HAWCPRD.epa.gov' site contains information specific to EPA projects. General HAWC videos and information can be accessed from http://hawcproject.org/about.

1. Creating an EPA HAWC account (1:16 minutes)
2. #2 Creating a New Assessment (4:07 minutes)
3. #6a Animal Bioassay Study Extraction: Updating Study Details and Adding Attachments (1:56 minutes)
4. #6b Animal Bioassay Study Extraction: Creating Experiments (2:36 minutes)

5. #6c Animal Bioassay Study Extraction: Creating Animal Groups & Dosing Regime (4:23 minutes)
6. #6c1 Animal Bioassay Study Extraction: Creating Animal Groups & Dosing Regime (6:03 minutes)
7. #6d Animal Bioassay Extraction: Adding Endpoints and Results (3:32 minutes)

HAWC Risk of Bias/Study Evaluation

Please refer to "Instructions for answering study evaluation domains.pdf" for examples and guidance for completing the study evaluation.

HAWC Data Extraction

Team members will populate categories shown in gray

Study Editing: (See Tutorial Video #6a)

- Study name: Short Citation that is Author last name, year, HERO ID
- COI reported
- COI details
- Funding source
- Full text URL
- If the author was contacted and details of that correspondence.
- Comments field: sometimes a study will be linked to another (e.g. NTP protocol and tables) fill in that information here.

Create experiments: (See Tutorial Video #6b)

- Under "Animal Bioassay Editing"
- Option to "Create New" or "Copy from Existing"
- Name should include: duration and route (e.g. 28 Day Oral)
- Use Title Style
- Fill all other fields (chemical name, CAS#, purity, vehicle, etc.)
- DO NOT FILL COMMENTS FIELD – leave blank

Create Animal Groups: (See Tutorial Video #6c)

- From the Experiments page create animal groups
- Name should be: sex, common strain name, species (e.g. Male Sprague Dawley Rat)
    - For developmental studies, include the generation before sex in title (e.g., F1 Male Sprague Dawley Rat or P0 Female C57 Mice)
- Use Title Style
- Fill all fields
- Copy paste animal husbandry information from materials and methods, use quotation marks around all text directly copy/pasted from paper.

Create dosing regime: (See Tutorial Video #6c1)

Fill all fields and include (copy/paste and use quotation marks around all text directly copy/pasted from paper) dosing description from materials and methods

- Dose groups should be listed lowest to highest (dose group 1 = 0 mg/kg/day, etc.)
- For dose groups with multiple timepoints please hold on entering the data at this time, we need to implement a code change in HAWC.
- Extract more than the dose groups and route of administration and include any information on how dosing solutions were prepared, any independent analytical varication of purity (and measured impurities), and information on stability. Most academic studies won't include independent analytical verification and stability assessment, but GLP studies do. In addition, please include the summary of the testing like what was done in this paragraph below
    - Mice were divided into groups exposed for periods of 4 days or 3, 6, or 13 weeks (90 days) for female mice and 3 or 13 weeks for male mice. Daily exposure was conducted for 6 hr, from 4:00AM to 10:00AM, 7 days/week. To compare the effects of a 7 days/week exposure to the conventional 5 days/week schedule, separate groups of mice were exposed to 30 or 90 ppm chloroform for 6 hr/day, 5 days/week for 13 weeks. To investigate the reversibility of chloroform-induced changes, separate groups of mice were exposed to 10 to 90 ppm chloroform for 6 hr/day, 7 days/week for 6 consecutive weeks, after which mice were housed in the 0-ppm chamber for the remaining 7 weeks (6 weeks exposure, stop, 7 weeks holding).
    - The target exposure concentrations of chloroform were 0, 0.3, 2, 10, 30, and 90 ppm. The exposure atmospheres were generated by a vaporization technique. Chloroform, 99.5% purity and stabilized with 0.006% amylenes (Aldrich Chemical Co., Inc., Milwaukee, WI), was stored in 10-gallon stainless steel pressure vessels. A non-pressurized system was used in the 30- and 90-ppm chambers. Nitrogen, metered by a mass flow controller, was admitted into the vessel through a dip tube with its opening located below the surface of the chloroform. The nitrogen-containing chloroform vapor flowed through the vessel and into the supply air duct for the exposure chamber. For the 0.3-, 2-, and 10-ppm chambers, nitrogen was used to pressurize the vessel to 5 psi and carry the chloroform into the chamber through a mass flow controller. Chamber concentrations of chloroform were monitored using a Miran 1A infrared gas analyzer. Certified gas standards of 0.3, 2, 10, 30, and 90 ppm were used to check the calibration on a monthly basis throughout the exposures. Author's present data on the target and actual concentration (Table 1; means ± SD for entire 13-week period) and the values are very close.

Create a new endpoint: (See Tutorial Video #6d)

- Endpoint name
    - Use title Style
    - Name should not include descriptive information captured in other fields within HAWC such as sex, strain, species, duration, route, etc.
    - Include common abbreviation in parenthesis if applicable
    - Example: Relative Liver Weight, Alanine Aminotransferase (ALT), Thyroid Stimulating Hormone (TSH).
- Enter System: Should be System that is being affected
    - Example: Hepatic, Endocrine
- Enter Organ: Should be Organ being affected
    - Example: Liver, Thyroid
- Enter Effect:
    - Example: Organ Weight, Alanine Aminotransferase, Hormone
- Enter Effect Subtype (might be left blank)

    - Example: Relative, Enzyme, Thyroid Hormone (T3)
- Additional Tags: For now, tag the endpoint confidence in this field
    - Example: Liver Function, High - Are we reserving tags for study confidence until we are able to add another field
- Fields with asterisks will need input
    - Observational time units
    - If data re reported in text check "data reported"
    - To extract data into HAWC check "data extracted"
    - To extract data into HAWAC measured with a digital ruler check "values estimated"
    - Select Dataset type
    - Select Variance Type (for continuous data) or add 95%CI for percent difference
- Input all other fields. Copy and paste materials and methods into the "General notes/methodology" field. Add statistical tests used to analyze data into the "statistical test field". Add the alpha and beta in the power notes field.
- For data requiring a digital ruler use the Grab-it tool and save the extracted data in. http://www.datatrendsoftware.com/instructions.html

Additional important information about endpoints:

1. **Definition of Meta-Terms as used in HAWC Data Extractions**
    1. Target System and Target Organ – The target organ/system is that which is being affected and not the organ/system from where the evidence for the outcome may have been collected, or which may have been a contributor to the health effect or endpoint being measured (e.g., in asthma the Target System is "Respiratory" but is modulated through the immune and sometimes nervous systems).
    2. Outcome/Effect – A biochemical change, functional impairment, or pathologic lesion that affects the performance of the whole organism, or reduces an organism's ability to respond to an additional environmental challenge. This may include consequence such as disease, illness, injury, birth defect, organ damage, death, etc. that can be synonymous to the overarching Health Effect/Hazard.
    3. Health Effect/Hazard – An overarching set of Outcomes/Effects which describe a clearly defined disease, illness, injury, birth defect, organ damage, death, etc.
    4. Endpoint – An observable or measurable biological event or chemical concentration (e.g., metabolite concentration in a target tissue) used as an index of an effect resulting from exposure to a stressor (e.g., a toxic chemical).
    5. Subtype – More detailed description or refinement of either the Outcome/Effect or the Target Organ. For many organs, the actual target may be a particular region of the organ, tissue, cell type or even organelle; such information can be captured here. Similarly, more detailed sub-groups of more general effects may be of particular importance but defining that refined level in the Outcome/Effect field may limit aggregating similar effects together for visualizations of other analyses.

Submitting Materials & Communication

Risk of Bias/Study evaluations and extractions will be completed within HAWC. The surveys are automatically submitted upon completion. If you have questions, please contact [redacted]