SUPPLEMENTAL MATERIALs

Appendix C. Terminologies and Picklists

Supplementary Table 2. Animal Data Extraction Fields

field	verbose_name	Choices	help_text
name	name		Short-text used to describe the experiment (i.e. 2-Year Cancer Bioassay, 10-Day Oral, 28-Day Inhalation, etc.) using title style (all words capitalized). If study contains more than one chemical, then also include the chemical name (e.g. 28-Day Oral PFBS).
type	type	Acute (<24 hr) Short-term (1-30 days) Subchronic (30-90 days) Chronic (>90 days) Cancer Mechanistic Reproductive 1-generation reproductive 2-generation reproductive Developmental Other Not-reported	Type of study being performed; be as specific as possible

chemical	Chemical name		This field may get displayed in visualizations, so consider using a common acronym, e.g., BPA instead of Bisphenol A
chemical_source	Source of chemical		
purity	Chemical purity (%)		Percentage (ex: 95%)
vehicle	Chemical vehicle		Describe vehicle (use name as described in methods but also add the common name if the vehicle was described in a non-standard way). Enter "not reported" if the vehicle is not described. For inhalation studies, air can be inferred if not explicitly reported. Examples: "corn oil," "filtered air," "not reported, but assumed clean air."
name	name		Name should be: sex, common strain name, species (plural) and use Title Style (e.g. Male Sprague Dawley Rat, Female C57BL/6 Mice, Male and Female C57BL/6 Mice). For developmental studies, include the generation before sex in title (e.g., F1 Male Sprague Dawley Rat or P0 Female C57 Mice)
species	species		
strain	strain		When adding a new strain, put the stock in parenthesis, e.g., "Sprague-Dawley (Harlan)."
sex	sex	Male Female Combined Not reported	

animal_source	animal source		Source from where animals were acquired
lifestage_exposed	Exposure lifestage		Definitions: Developmental: Prenatal and perinatal exposure in dams or postnatal exposure in offspring until sexual maturity (~6 weeks in rats and mice). Include studies with pre-mating exposure if the endpoint focus is developmental. Adult: Exposure in sexually mature males or females. Adult (gestation): Exposure in dams duringpregnancy. Multi-lifestage: includes both developmental and adult (i.e., multi-generational studies, exposure that start before sexual maturity and continue to adulthood)
lifestage_assessed	lifestage assessed		Definitions: Developmental: Prenatal and perinatal exposure in dams or postnatal exposure in offspring until sexual maturity (~6 weeks in rats and mice). Include studies with pre-mating exposure if the endpoint focus is developmental. Adult: Exposure in sexually mature males or females. Adult (gestation): Exposure in dams during pregnancy. Multi-lifestage: includes both developmental and adult (i.e., multi-generational studies, exposure that start before sexual maturity and continue to adulthood)
diet	diet		Describe diet as presented in the paper (e.g., "soy-protein free 2020X Teklad," "Atromin 1310", "standard rodent chow").
dose_units	dose units		
dose	dose		

route_of_exposure	route of exposure	Oral Oral capsule Oral diet Oral gavage Oral drinking water Inhalation Inhalation - gas Inhalation - particle Inhalation - vapor Dermal Subcutaneous injection Intraperitoneal injection Intravenous injection in ovo Parental Whole body Multiple Unknown Other	Primary route of exposure. If multiple primary-exposures, describe in notes-field below

name	Endpoint/Adverse outcome	Available endpoint names can be found at https://hawc.epa.gov/vocab/ehv/ (Endpoint/Outcome column)	Follow “Recommended Terminology for Outcomes/Endpoints“: https://hawc.epa.gov/assessment/100000039/. Use title style (capitalize all words). Ex. Hyperthyroidism This field is commonly used in HAWC visualizations
litter_effects	litter effects	Not applicable Not reported Yes, statistical control Yes, study-design No Other	Type of controls used for litter-effects. The "No" response will be infrequently used. More typically the information will be "Not reported" and assumed not considered. Only use "No" if it is explicitly mentioned in the study that litter was not controlled for.
response_units	Response units		Units the response was measured in (i.e., µg/dL, % control, etc.)
data_type	Dataset type	Continuous Dichotomous Percent Difference Dichotomous Cancer Not reported	
NOEL	NOEL		No observed effect level
LOEL	LOEL		Lowest observed effect level
n	n		

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1 ***Supplementary Table 3. Epidemiology Data Extraction Fields***

field	verbose_name	Choices	help_text
system	system		Select the most relevant system from the drop down menu. If more than one system is applicable refer to assessment team instructions.
effect	effect		The health effect of interest. Effect is generally broader than the Endpoint/Outcome and may represent multiple endpoints (e.g., Serum lipids, Asthma, Cognition). However, if there is not a finer categorization, they may be the same. Use controlled vocabulary when available.
effect_detail	effect detail		Optional. If additional specification to the Effect is needed, it can be entered here (e.g., IQ).
endpoint	Endpoint/Outcome		A unique name for the specific endpoint/outcome being measured. The endpoint is generally more specific than the effect (e.g., total cholesterol, incident asthma within the previous year, WISC-IV full scale). Use controlled vocabulary when available.
measurement_type	Exposure measurement types		Select the most appropriate type from the list. If a study includes multiples exposure measurement types but they are analyzed with outcomes separately, create a separate entry for each. If more than one type are combined for analysis with an outcome, you can select

			multiple options from the list. "Occupational" should be used when the exposure is based on job duties, etc. (i.e., not occupational exposure measured by biomarkers or air).
biomonitoring_matrix	biomonitoring matrix	Blood (portion: Plasma) Blood (portion: Whole blood) Blood (portion: Serum) Urine Teeth Nails Hair Saliva Breast milk Semen Feces Cerebrospinal fluid Exhaled breath Other	
biomonitoring_source	biomonitoring source	From participant Maternal	

		Paternal Cord	
exposure_route	exposure route	Inhalation Oral Dermal In utero Intravenous Unknown/Total	Select the most appropriate route. In most cases, biomarkers will be "Unknown/Total" unless a clear exposure source is known.
study_name	Study name (if applicable)		Study name assigned by authors. Typically available for cohorts.
study_design	study design	Cohort Case-control Nested case-control Case report Case series Randomized controlled trial Non-randomized controlled trial Cross-sectional Ecological Other	Select the most appropriate design from the list. If more than one study design applies (e.g., a cohort with cross-sectional analyses of baseline measures), can either a) select one design ("cohort") and clarify different timing in remaining extraction or b) select "other" and provide details in comments.

source	source	General population Occupational Other	
age_profile	Population age category		Select all that apply. Note: do not select "Pregnant women" if pregnant women are only included as part of a general population sample
sex	sex	Not reported Male Female Male and Female	
participant_n	Overall study population N		Enter the total number of participants enrolled in the study (after exclusions). Note: Sample size for specific result can be extracted in qualitative data extraction
years_enrolled	Year(s) of enrollment		
years_followup	Year(s) or length of follow-up		
region	Other geographic information		
name	name		This field is commonly used in visualizations, so consider using a common acronym, e.g., BPA instead of Bisphenol A

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1 ***Supplementary Table 4. Automated Data Extraction Fields***

Field name	Description	Model generation	Animal or EPI
TestArticle	Test Article	v1	Animal
Species	Animal Species	v1	Animal
Strain	Animal Strain	v1	Animal
Sex	Animal Sex	v1	Both
Endpoint	Experiment Endpoint	v1	Animal
Dose	Dose Amount	v1	Both
DoseRoute	Route of Dose Administration	v1	Animal
DoseUnits	Units for Dose	v1	Animal
CellLine	Cell Line Used	v1	Animal
Participant	Study participants (P in PICO in EPI studies)	v1	EPI
Intervention	Intervention (I in PICO in EPI studies)	v1	EPI
Outcome	Outcome (O in PICO in EPI studies)	v1	EPI
Result	Study Result	v1	Animal
DoseDuration	Duration for which the dose was administered	v1	Animal
DoseDurationUnits	Units for the duration of the dose	v1	Animal
DoseFrequency	Frequency with which the dose was administered	v1	Animal

EndpointUnitOfMeasure	Unit of measure for the endpoint	v1	Animal
GroupName	Name of the experimental group	v1	Animal
GroupSize	Number of animals in the experimental group	v1	Animal
SampleSize	Total number of animals in the experiment	v1	Animal
TestArticlePurity	Purity of the test article	v1	Animal
TestArticleVerification	Method of test article verification	v1	Animal
TimeAtDose	Time at which the dose was administered	v1	Animal
TimeAtFirstDose	Time at which the first dose was administered	v1	Animal
TimeAtLastDose	Time at which the last dose was administered	v1	Animal
TimeEndpointAssessed	Time at which the endpoint was assessed	v1	Animal
TimeUnits	Units for the time	v1	Animal
Vehicle	Vehicle used to administer the dose	v1	Animal
AnimalStudyType	[acute (< 24 hours), short term (1–30 days), subchronic (30–90 days), chronic (>90 days), developmental, peripubertal, multigenerational]	v2	Animal
HealthSystem	Mapped to EHV dictionary	v2	Both
Country	Country where the study was conducted	v2	EPI
Study design	One of: animal bioassay, RCT, prospective observational, retrospective observational, ...	v2	Both
Exposure measurement	E.g., blood, feces	v2	EPI

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