

SWAN Repository Dataset Codebook

Study: App001, “Estrogen Metabolism, Menopause and Health Outcomes”, MFSowers

Dataset: SWANRep001_C2C16

Cohort: SWAN, all sites

Dataset “SWANRep001_C2C16” contains 2-OHE1 (“C2”) and 16 σ -OHE1 (“C16”) data for 2239 SWAN participants from all sites. This is a longitudinal dataset with data from both Visit 1 and Visit 5. 631 women contributed only one observation, and 1608 women contributed two (Table 1).

C2 and C16 are estrogen metabolites found in urine. All SWAN participants with available urine specimens from Visits 1 and 5 when funding for the measurement of C2 and C16 was secured were selected for measurements. Urine samples were collected at the annual SWAN core visits for sites 11, 12, 14, 15, and 17. For women from sites 13 and 16, urine samples from the Daily Hormone Substudy (DHS) were used instead because annual urine collection was not part of the two sites’ protocols. For the DHS specimens, urine samples from the early follicular stage of a menstrual cycle were selected to ensure comparability with the non-DHS specimens.

Table 1 Count of women by N of observations			
N of observations	N of women	Percent	Cumulative Frequency
1	631	28.18	631
2	1608	71.82	2239

C2 and C16 measurements were conducted in the CLASS Lab at the Michigan site. According to previous publications^{1,2} using these data,

“2-OHE1 and 16 α -OHE1 were assayed by enzyme immunoassay (ESTRAMET™) in triplicate. Inter-assay and intra-assay CVs were less than 10% for each analyte. Because urinary forms of 2-OHE1 and 16 α -OHE1 are found as 3-glucuronides or 3,3,16-glucuronides, it was necessary to remove these sugars to achieve recognition sites for the monoclonal antibodies. Therefore, the estrogens were deconjugated from glucuronic acid and sulfate using a mixture of β -glucuronidase and arylsulphatase enzyme isolated from the snail *Helix Pomatia*. The assay range was 0.6 to 40.0 ng/mL”.

Dataset contents

Variable	Label
ARCHID	Encrypted SWAN Subject ID
visit	Study visit
C2resu	C2(2-OHE1) (ng/mL)

Variable	Label
C16resu	C16(16alpha-OHE1) (ng/mL)

References

1. Sowers M, McConnell D, Jannausch ML, et al. Oestrogen metabolites in relation to isoprostanes as a measure of oxidative stress. *Clin Endocrinol (Oxf)*. 2008;68(5):806-813. doi:10.1111/j.1365-2265.2007.03108.x.
2. Sowers MR, Crawford S, McConnell DS, et al. Selected diet and lifestyle factors are associated with estrogen metabolites in a multiracial/ethnic population of women. *J Nutr*. 2006;136(6):1588-1595.