## Approach

The epidemiology-environment work group began comprising common data elements for environmental exposures by selecting broad categories of exposure relevant to Parkinson’s disease (PD). The preference was to select existing instruments that were validated. When these criteria could not be met questions were developed by the group.

## Organization and classification of instruments

The elements are arranged by broad category with the case report forms (CRF), followed by the template and data dictionary. The dictionary provides the variable name and coding for permissible values for each variable.

Most instruments are designed to be administered by an interviewer with important exceptions such as the dietary questionnaires that are self report. Those classified as **core** may be appropriate for any study such as a clinical trial where the exposure information may be used in analyses as co-variables to account for possible confounding. Those elements classified as **common** provide detailed information regarding the exposure and may be appropriate for etiological studies, either case control or prospective. Users may consider selecting only the instrument case report forms for the exposure categories they are interested in. However, since most of the instruments have been validated as presented it is not recommended that questions be selected individually from an instrument.

## Overview of instruments

Many of the elements have been taken from the Risk Factor Questionnaire (RFQ). This was a questionnaire developed by an epidemiology working group sponsored by the Collaborative Centers for Parkinson’s Disease Epidemiology Research. It has been validated and is now available in eleven languages. Case report forms from the RFQ are included for occupation, physical activity and sleep, residential history, toxicants, history of smoking, home pesticide use, work pesticide use, height and weight (available with pictographs of body habitus or text), medications such as Non-steroidal anti-inflammatory agents (NSAIDS) and calcium channel blockers (CCB)

The Nurse’s Health Study (NHS) behavior assessment is a self administered assessment of smoking, physical activity, and other behaviors. The dietary assessment is a food frequency questionnaire consisting of a list of foods and questions regarding the frequency of use of each food on the list. These instruments have been extensively used and validated in large epidemiological studies. Both are copyrighted and permission for use should be obtained.

Some questions came from the Phenx tool kit.

Head injury is assessed with the Ohio State University traumatic brain injury (OSU TBI) instrument. Questions regarding history of illicit drug use are derived from the Drug History Questionnaire and the PhenX toolkit questionnaire. The PhenX toolkit consists of a list of high priority consensus measures for phenotypes and exposures for use in large scale genomic research studies.

The mini-environmental risk factor questionnaire (MERQ) is from the Parkinson’s Disease Data and Organizing Center (PD-DOC). It contains questions regarding use of medications linked to PD occurrence or progression such as NSAIDs, statins, and hormone replacement therapy. This instrument is copyrighted.

Questions regarding infection history were designed by the group and have not been validated.

List of environmental data elements

| Category | Instrument name | validation | Core or common | Admin time |
| --- | --- | --- | --- | --- |
| Occupation | RFQ | yes | common | 5-18 minutes |
| Physical activity | RFQ | yes | common | 9-13 minutes |
| Residential history | RFQ | yes | common | 4-8 minutes |
| Toxicants | RFQ | yes | common | 3-8 minutes |
| Smoking | RFQ | yes | Common or core | 1-4 minutes |
| Pesticides home use | RFQ | yes | common | 3-8 minutes |
| Pesticides work use | RFQ | yes | common | 3-8 minutes |
| Body habitus | RFQ | yes | common | 1-2 minutes |
| Medications (optional) | RFQ | yes | common | 1-5 minutes |
| Medications | PD DOC MERQ | Intentionally left blank | common | 1-5 minutes |
| Early life exposures | Intentionally left blank | no | common | 3-5 minutes |
| Head injury | OSU TBI | Intentionally left blank | Intentionally left blank | Intentionally left blank |
| Diet | NHS - FFQ | yes | Intentionally left blank | Intentionally left blank |
| Smoking and other behaviors | NHS – behavior assessment | yes | Intentionally left blank | Intentionally left blank |
| Non-prescribed meds | Drug history questionnaire/phenX | Intentionally left blank | common | Intentionally left blank |
| Infection history | Intentionally left blank | no | common | 3-5minutes |