Applied Epidemiology I: Data clearance
A review of using Stata

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Acknowledgements

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Outline

Set up working directory

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- Where is it?

  ```
  . cd
  /Users/Desktop
  . pwd
  /Users/Desktop
  ```

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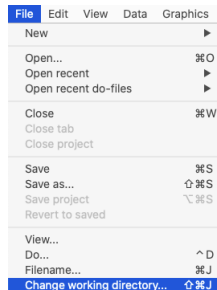
- Where is it?

  . cd
  /Users/Desktop
  . pwd
  /Users/Desktop

- Change working directory
  - cd "/Users/Download"
  - Click File - Change Working Directory

Import and save data: Import

- **Excel (.xls or .xlsx)**

  `import excel filename, clear firstrow`

- **Delimited (.csv) or text (.txt)**

  `import delimited filename, clear`
  `infile filename, clear`

- **Stata (.dta)**

  `use filename, clear`

- **SAS (.xpt)**

  `fdause filename, clear`

Import and save data: Save

- Save your dataset as a Stata file .dta
- The replace option lets you overwrite the existing dataset.
  ```
  save "filename", replace
  ```

Manage datasets: Merge

merge adds new variables from a second dataset to your existing dataset.
(Make the dataset wider)

```
. sysuse cancer, clear
(Patient Survival in Drug Trial)

. gen id = _n

. keep id

. merge 1:1 id using cancer

    Result                                  # of obs.
    -----------------------------------------
    not matched                                     0
    matched                                        48  (_merge==3)
    -----------------------------------------
```

Manage datasets: Append

append adds new observations to existing variables in your current dataset.
(Make the dataset longer)

```
. use cancer_drug12, clear
(Patient Survival in Drug Trial)

. append using cancer_drug3.dta // append patients using drug 3
```

Get to know the data: Summarize

`summarize` gives summaries for all your variables, such as number of observations, mean, standard deviation, etc.

```
. sysuse cancer, clear
(Patient Survival in Drug Trial)

. keep if drug ==1 | drug == 2
(14 observations deleted)

. summarize age  // One variable only (age)

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         age |         34    56.41176    6.010686         47         67
```

Get to know the data: Describe

describe gives descriptions for all your variables, such as storage type and labels.

```
. describe  age

              storage   display value
variable name   type    format  label variable label
-------------------------------------------------------------------
age             byte    %8.0g          Patient's age at start of exp.
```

Get to know the data: Codebook

codebook is a combination of summarize and describe and will give a detailed summary of all your variables, including mean, sd, range, percentiles, missing, frequency, etc.

```
. codebook age

-------------------------------------------------------------------------------------------------------------
age                                                                              Patient's age at start of exp.
-------------------------------------------------------------------------------------------------------------

              type:  numeric (byte)

             range:  [47,67]                        units:  1
      unique values:  15                         missing .:  0/34

              mean:  56.4118
          std. dev:  6.01069

        percentiles:       10%       25%       50%       75%       90%
                            49        51        56        61        65
```

Get to know the data: List

list lists the observations of specified variables.

```
. list      age if age < 50

     +-----+
     | age |
     |-----|
12.  |  49 |
15.  |  49 |
18.  |  49 |
25.  |  49 |
33.  |  47 |
     +-----+
```

Manage variables: Numeric and string

- **Numeric variables**: have values that are numbers
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Manage variables: Numeric and string

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```
// Make age (numeric) into a string variable.
tostring age, replace
// convert string into numeric
destring age, replace
```

Manage variables: Drop/Keep

- drop is used to delete variables or observations.
- keep is used to keep variables or observations.

```
. sysuse cancer, clear
(Patient Survival in Drug Trial)
. drop if drug ==1 | drug == 2
(34 observations deleted)

. sysuse cancer, clear
(Patient Survival in Drug Trial)
. keep if drug ==1 | drug == 2 // So drug == 3 will be dropped
(14 observations deleted)
```

Manage variables: Label

- `label` helps you keep track of your dataset and variables, and helps others understand your data.

```
. // Label a dataset
. label data "cancerdata"
```



```
. // Label variable in the "Variables" window
. label variable drug "1=placebo, 2=mild, 3=strong"
```

Manage variables: Label

```
. // Label define claims the value label
. label define drug_label 1 "placebo" 2 "mild" 3 "strong"

. // Label value then assigns the label to the variables
. label values drug drug_label
```

Manage variables: Rename, recode, generate, replace

- `rename` changes the name of a variable.
  - `. rename died death`
- `recode` changes variable values.
  - `. recode drug (3=4)`
- `generate` creates a new variable.
  - `. generate placebo = 1 if drug == 1`
- `replace` replaces existing variables (or variable values).
  - `. replace placebo = 0 if drug != 1`

Manage variables: Sort, by, if, in

- sort orders observations in ascending order.

  . sort death

- by executes a command within a specified variable (e.g. by age group), but data should be sorted first.

  . by death: summarize

- bysort combines the by and sort commands into one.

  . bysort death: summarize // by death, sort: summarize

- if is used to select by a condition.

  . list age if death == 1

- in is used to select by observations.

  . gen id = _n
  . list id 1/10

Manage variables: Operators

Operator	Purpose	Example
=	Sets equal operator	generate sex $=$ 1
==	Tests for equality	summarize if sex==1
$\sim=$ or !=	Indicates 'not equal'	summarize if sex!=0
$<, <=$ $>, >=$	Less than (equal to) or greater than (equal to)	summarize if age$<$35
&	Indicates 'and'	summarize outcome if sex==1 & age$>=$60
|	Indicates 'or'	gen x=1 if a==1 & (b==1 | c==1)