Sedation with Benzodiazepines in MICU

Analysis for Alcalde

Elizabeth Franco, Jen Cortes

March 17, 2016

Continuous Data

Shapiro-Wilk normality test is performed and if the data is not normally distributed (the p-value is < 0.05), then the Mann-Whitney test is used to compare the medians of the groups.

If the data is normally distributed, an F-test is performed to determine if the groups have equal variances (p-value is ≥ 0.05) and then the appropriate t-test (with or without equal variances) is used to compare the means of the my.groups.

Categorical Data

Data is evaluated using the Chi-squared test.

Results

- **age**:
  - **results**:

	BZD	No BZD
n	191	246
nvalid	191	246
mean	56.59	62.99
sd	15.6	17.23
min	19	19
Q1	48	53
median	58	64
Q3	66	74.75
max	94	97
percZero	0	0

  - **normality**:

Table 2: Shapiro-Wilk normality test: `x`

Test statistic	P value
0.983	5.319e-05 * * *

  - **comparison**:

Table 3: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

Test statistic	P value	Alternative hypothesis
18067	3.413e-05 * * *	two.sided

- **los**:
  - **results**:

	BZD	No BZD
n	191	246
nvalid	191	246
mean	11.38	9.69
sd	8.204	6.109
min	1.46	1.29
Q1	5.4	5.19
median	8.88	7.58
Q3	14.31	13.44
max	53	39.29
percZero	0	0

  - **normality**:

Table 5: Shapiro-Wilk normality test: `x`

Test statistic	P value
0.8525	7.88e-20 * * *

  - **comparison**:

Table 6: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

Test statistic	P value	Alternative hypothesis
25712	0.09032	two.sided

- **unit.los**:
  - **results**:

	BZD	No BZD
n	191	246
nvalid	191	246
mean	5.906	4.906
sd	5.17	3.478
min	1.009	1.187
Q1	2.669	2.696
median	4.018	3.727
Q3	7.423	6.174

	BZD	No BZD
max	34.48	23.44
percZero	0	0

- **normality**:

Table 8: Shapiro-Wilk normality test: `x`

Test statistic	P value
0.7501	3.579e-25 * * *

- **comparison**:

Table 9: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

Test statistic	P value	Alternative hypothesis
25367	0.1525	two.sided

- **vent.duration**:
  - **results**:

	BZD	No BZD
n	191	246
nvalid	191	246
mean	99.98	79.45
sd	102.8	70.25
min	24.17	24.25
Q1	40.42	37.07
median	65.08	56.88
Q3	115.8	92.79
max	747.6	566.8
percZero	0	0

  - **normality**:

Table 11: Shapiro-Wilk normality test: `x`

Test statistic	P value
0.6667	2.226e-28 * * *

  - **comparison**:

Table 12: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

Test statistic	P value	Alternative hypothesis
25852	0.07171	two.sided

Test statistic	P value	Alternative hypothesis

- **weight**:
  - **results**:

	BZD	No BZD
n	191	246
nvalid	191	246
mean	90.23	85.02
sd	32.15	32.44
min	36.36	36.36
Q1	68.64	63.73
median	81.82	77.27
Q3	104.8	96.31
max	222.3	238.6
percZero	0	0

  - **normality**:

Table 14: Shapiro-Wilk normality test: `x`

Test statistic	P value
0.9005	2.776e-16 * * *

  - **comparison**:

Table 15: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

Test statistic	P value	Alternative hypothesis
26453	0.02378 *	two.sided

- **height**:
  - **results**:

	BZD	No BZD
n	191	246
nvalid	191	246
mean	169.6	166.7
sd	12.77	17.72
min	121.9	7.62
Q1	162.6	160
median	170.2	167.6
Q3	177.8	175.3
max	256.5	198.1
percZero	0	0

- **normality**:

Table 17: Shapiro-Wilk normality test: `x`

Test statistic	P value
0.6977	2.871e-27 * * *

- **comparison**:

Table 18: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

Test statistic	P value	Alternative hypothesis
25407	0.1429	two.sided

- **num.packs.day**:
  - **results**:

	BZD	No BZD
n	191	246
nvalid	91	119
mean	0.2753	0.4781
sd	0.5868	1.907
min	0	0
Q1	0	0
median	0	0
Q3	0.1105	0.375
max	3	20
percZero	73.63	73.11

  - **normality**:

Table 20: Shapiro-Wilk normality test: `x`

Test statistic	P value
0.2297	1.217e-28 * * *

  - **comparison**:

Table 21: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

Test statistic	P value	Alternative hypothesis
5312	0.7646	two.sided

- **num.years.smk**:
  - **results**:

	BZD	No BZD
n	191	246
nvalid	86	107
mean	7.372	6.57
sd	15.62	15.28
min	0	0
Q1	0	0
median	0	0
Q3	0	0
max	61	60
percZero	77.91	81.31

  - **normality**:

Table 23: Shapiro-Wilk normality test: `x`

Test statistic	P value
0.5107	6.681e-23 * * *

  - **comparison**:

Table 24: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

Test statistic	P value	Alternative hypothesis
4746	0.5945	two.sided

- **pack.years**:
  - **results**:

	BZD	No BZD
n	191	246
nvalid	103	119
mean	14.76	11.33
sd	27.96	26.26
min	0	0
Q1	0	0
median	0	0
Q3	25	2.5
max	122	150
percZero	67.96	74.79

  - **normality**:

Table 26: Shapiro-Wilk normality test: `x`

Test statistic	P value
0.5551	1.803e-23 * * *

- **comparison**:

Table 27: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

Test statistic	P value	Alternative hypothesis
6580	0.2342	two.sided

- **sex**:
  - **counts**:

	BZD	No BZD
Female	101	134
Male	89	112
Unknown	1	0

  - **percents**:

	BZD	No BZD
Female	52.88	54.47
Male	46.6	45.53
Unknown	0.52	0

  - **chi.sq**:

Table 30: Pearson's Chi-squared test: `x` and `my.group`

Test statistic	df	P value
1.365	2	0.5053

- **race**:
  - **counts**:

	BZD	No BZD
African American	89	96
Asian	2	5
Other	29	42
Unknown	7	17
White/Caucasian	59	80

  - **percents**:

	BZD	No BZD
African American	47.85	40
Asian	1.08	2.08
Other	15.59	17.5

	BZD	No BZD
Unknown	3.76	7.08
White/Caucasian	31.72	33.33

– **chi.sq**:

Table 33: Pearson's Chi-squared test: `x` and `my.group`

Test statistic	df	P value
4.497	4	0.3429

- **disposition**:
  - **counts**:

	BZD	No BZD
Acute Care	0	1
Against Medical Advise	2	5
DC/DISC TO REHAB	4	11
DC/TF-Cancer/Childre	1	1
DC/TF TO COURT/LAW	5	1
DC/TF To Psych Hosp	2	5
Deceased	18	37
Discharged to Hospice-Home	1	7
Discharged to Hospice-Medical Facility	8	6
Home	81	84
Home Care with Home Health	37	45
Intermediate Care	5	8
Long Term Care	6	5
Skilled Nursing Facility	21	30

  – **percents**:

	BZD	No BZD
Acute Care	0	0.41
Against Medical Advise	1.05	2.03
DC/DISC TO REHAB	2.09	4.47
DC/TF-Cancer/Childre	0.52	0.41
DC/TF TO COURT/LAW	2.62	0.41
DC/TF To Psych Hosp	1.05	2.03
Deceased	9.42	15.04
Discharged to Hospice-Home	0.52	2.85
Discharged to Hospice-Medical Facility	4.19	2.44
Home	42.41	34.15
Home Care with Home Health	19.37	18.29
Intermediate Care	2.62	3.25
Long Term Care	3.14	2.03
Skilled Nursing Facility	10.99	12.2

- **chi.sq**:

Table 36: Pearson's Chi-squared test: `x` and `my.group`

Test statistic	df	P value
17.41	13	0.1811

- **alt**:
  - **counts**:

	BZD	No BZD
FALSE	164	210
TRUE	27	36

  - **percents**:

	BZD	No BZD
FALSE	85.86	85.37
TRUE	14.14	14.63

  - **chi.sq**:

Table 39: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
9.483e-05	1	0.9922

- **ast**:
  - **counts**:

	BZD	No BZD
FALSE	142	195
TRUE	49	51

  - **percents**:

	BZD	No BZD
FALSE	74.35	79.27
TRUE	25.65	20.73

  - **chi.sq**:

Table 42: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
1.211	1	0.2712

- **cam.icu.pos**:
  - **counts**:

	BZD	No BZD
FALSE	71	135
TRUE	120	111

  - **percents**:

	BZD	No BZD
FALSE	37.17	54.88
TRUE	62.83	45.12

  - **chi.sq**:

Table 45: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
12.83	1	0.000342 * * *

- **arf**:
  - **counts**:

	BZD	No BZD
FALSE	88	101
TRUE	103	145

  - **percents**:

	BZD	No BZD
FALSE	46.07	41.06
TRUE	53.93	58.94

  - **chi.sq**:

Table 48: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.9074	1	0.3408

- **asthma**:
  - **counts**:

	BZD	No BZD
FALSE	178	227
TRUE	13	19

  - **percents**:

	BZD	No BZD
FALSE	93.19	92.28
TRUE	6.81	7.72

  - **chi.sq**:

Table 51: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.03241	1	0.8571

- **ckd**:
  - **counts**:

	BZD	No BZD
FALSE	127	168
TRUE	64	78

  - **percents**:

	BZD	No BZD
FALSE	66.49	68.29
TRUE	33.51	31.71

  - **chi.sq**:

Table 54: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.08742	1	0.7675

- **copd**:
  - **counts**:

	BZD	No BZD
FALSE	145	171
TRUE	46	75

  - **percents**:

	BZD	No BZD
FALSE	75.92	69.51
TRUE	24.08	30.49

  - **chi.sq**:

Table 57: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
1.894	1	0.1687

- **dementia**:
  - **counts**:

	BZD	No BZD
FALSE	169	212
TRUE	22	34

  - **percents**:

	BZD	No BZD
FALSE	88.48	86.18
TRUE	11.52	13.82

  - **chi.sq**:

Table 60: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.325	1	0.5686

- **diabetes**:
  - **counts**:

	BZD	No BZD
FALSE	112	128
TRUE	79	118

  - **percents**:

	BZD	No BZD
FALSE	58.64	52.03
TRUE	41.36	47.97

  - **chi.sq**:

Table 63: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
1.638	1	0.2006

- **heart.failure**:
  - **counts**:

	BZD	No BZD
FALSE	126	159
TRUE	65	87

  - **percents**:

	BZD	No BZD
FALSE	65.97	64.63
TRUE	34.03	35.37

  - **chi.sq**:

Table 66: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.03583	1	0.8499

- **hypertension**:
  - **counts**:

	BZD	No BZD
FALSE	53	54
TRUE	138	192

  - **percents**:

	BZD	No BZD
FALSE	27.75	21.95
TRUE	72.25	78.05

  - **chi.sq**:

Table 69: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
1.653	1	0.1985

- **liver**:
  - **counts**:

	BZD	No BZD
FALSE	157	200
TRUE	34	46

  - **percents**:

	BZD	No BZD
FALSE	82.2	81.3
TRUE	17.8	18.7

  - **chi.sq**:

Table 72: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.01349	1	0.9076

- **seizure**:
  - **counts**:

	BZD	No BZD
FALSE	156	199
TRUE	35	47

  - **percents**:

	BZD	No BZD
FALSE	81.68	80.89
TRUE	18.32	19.11

  - **chi.sq**:

Table 75: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.007046	1	0.9331

- **diagnosis.categories**:
  - **counts**:

	BZD	No BZD
angioedema	8	5
blood glucose	6	15
cardiac	4	9
encephalopathy	4	11
htn	2	6
infection	25	19
other	43	54
renal failure	3	3
respiratory failure	47	70
shock	43	44
w/o	6	10

  - **percents**:

	BZD	No BZD
angioedema	4.19	2.03

	BZD	No BZD
blood glucose	3.14	6.1
cardiac	2.09	3.66
encephalopathy	2.09	4.47
htn	1.05	2.44
infection	13.09	7.72
other	22.51	21.95
renal failure	1.57	1.22
respiratory failure	24.61	28.46
shock	22.51	17.89
w/o	3.14	4.07

  - **chi.sq**:

Table 78: Pearson's Chi-squared test: `x` and `my.group`

Test statistic	df	P value
12.62	10	0.246

- **alcohol.use**:
  - **counts**:

	BZD	No BZD
FALSE	94	150
TRUE	36	31

  - **percents**:

	BZD	No BZD
FALSE	72.31	82.87
TRUE	27.69	17.13

  - **chi.sq**:

Table 81: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
4.391	1	0.03613 *

- **illicit.drug.use**:
  - **counts**:

	BZD	No BZD
FALSE	109	161
TRUE	25	22

– **percents**:

	BZD	No BZD
FALSE	81.34	87.98
TRUE	18.66	12.02

– **chi.sq**:

Table 84: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
2.197	1	0.1383

- **smoking**:

– **counts**:

	BZD	No BZD
current	49	49
none	67	86
past	21	46

– **percents**:

	BZD	No BZD
current	35.77	27.07
none	48.91	47.51
past	15.33	25.41

– **chi.sq**:

Table 87: Pearson's Chi-squared test: `x` and `my.group`

Test statistic	df	P value
5.709	2	0.05758

- **benzodiazepines**:

– **counts**:

	BZD	No BZD
FALSE	176	218
TRUE	15	28

– **percents**:

	BZD	No BZD
FALSE	92.15	88.62
TRUE	7.85	11.38

– **chi.sq**:

Table 90: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
1.138	1	0.2862

- **narcotic.analgesics**:

– **counts**:

	BZD	No BZD
FALSE	158	209
TRUE	33	37

– **percents**:

	BZD	No BZD
FALSE	82.72	84.96
TRUE	17.28	15.04

– **chi.sq**:

Table 93: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.2509	1	0.6164

- **antidepressants**:

– **counts**:

	BZD	No BZD
FALSE	162	203
TRUE	29	43

– **percents**:

	BZD	No BZD
FALSE	84.82	82.52
TRUE	15.18	17.48

- **chi.sq**:

Table 96: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.2621	1	0.6087

- **antipsychotics**:
  - **counts**:

	BZD	No BZD
FALSE	177	223
TRUE	14	23

  - **percents**:

	BZD	No BZD
FALSE	92.67	90.65
TRUE	7.33	9.35

  - **chi.sq**:

Table 99: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.3353	1	0.5625

- **anticonvulsants**:
  - **counts**:

	BZD	No BZD
FALSE	178	224
TRUE	13	22

  - **percents**:

	BZD	No BZD
FALSE	93.19	91.06
TRUE	6.81	8.94

  - **chi.sq**:

Table 102: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.4079	1	0.5231

- **gamma.aminobutyric.acid.analogs**:
  - **counts**:

	BZD	No BZD
FALSE	176	220
TRUE	15	26

  - **percents**:

	BZD	No BZD
FALSE	92.15	89.43
TRUE	7.85	10.57

  - **chi.sq**:

Table 105: Pearson's Chi-squared test with Yates' continuity correction: `x` and `my.group`

Test statistic	df	P value
0.6406	1	0.4235

Sedatives

- **dexmedetomidine**:
  - **time.wt.avg.rate**:

```
* **results**:

------------------------------
            BZD    No BZD
-------------- ------ --------
    **n**         13      13

  **nvalid**      13      13

   **mean**     0.3503  0.361

    **sd**      0.1748  0.2141

   **min**       0.1     0.1

    **Q1**      0.1823  0.1591
```

median	0.4084	0.3715
Q3	0.4433	0.531
max	0.6572	0.6615
percZero	0	0

* **normality**:

Test statistic	P value
0.9191	0.04276 *

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

Test statistic	P value	Alternative hypothesis
80	0.8374	two.sided

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

– **total.cont.dose**:

* **results**:

	BZD	No BZD
n	13	13
nvalid	13	13
mean	1493	1626
sd	1619	2248
min	3.409	22.27
Q1	202.7	167
median	591.1	631.7
Q3	2819	2590
max	4835	7634

```
 **percZero**    0      0
-----------------------------
```

* **normality**:

```
--------------------------------
 Test statistic      P value
---------------- ---------------
     0.7914      0.0001264 * * *
--------------------------------
```

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

```
-----------------------------------------------------
 Test statistic   P value   Alternative hypothesis
---------------- --------- ------------------------
       90          0.801          two.sided
-----------------------------------------------------
```

Table: Wilcoxon rank sum test: `x` by `my.group`

– **total.bolus.dose**:

* **results**:

	BZD	No BZD
n	13	13
nvalid	0	0
mean	NA	NA
sd	NA	NA
min	NA	NA
Q1	NA	NA
median	NA	NA
Q3	NA	NA
max	NA	NA
percZero	NA	NA

* **normality**: Insufficient sample size for normality testing
* **comparison**: Insufficient sample size for inference testing

– **total.dose**:

* **results**:

              BZD   No BZD
  -------------- ----- --------
      n   13   13

    nvalid   13   13

     mean   1493   1626

      sd   1619   2248

     min   3.409 22.27

      Q1   202.7   167

    median   591.1 631.7

      Q3   2819   2590

     max   4835   7634

   percZero   0   0
  ----

* **normality**:

   Test statistic   P value
  ---------------- ---------------
       0.7914   0.0001264 * * *

  Table: Shapiro-Wilk normality test: `x`

* **comparison**:

   Test statistic   P value   Alternative hypothesis
  ---------------- --------- ------------------------
         90   0.801   two.sided

  Table: Wilcoxon rank sum test: `x` by `my.group`

- **fentanyl**:
  - **time.wt.avg.rate**:

* **results**:

              BZD   No BZD
  -------------- ----- --------

n	257	293
nvalid	186	184
mean	78.67	67.06
sd	47.99	39.33
min	12.5	9.768
Q1	48.14	38.16
median	71.95	58.51
Q3	95.07	91.74
max	441.5	223.1
percZero	0	0

* **normality**:

Test statistic	P value
0.858	7.59e-18 * * *

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

Test statistic	P value	Alternative hypothesis
19878	0.007186 * *	two.sided

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

– **total.cont.dose**:

* **results**:

	BZD	No BZD
n	257	293
nvalid	186	184
mean	5497	2679
sd	7988	3743

```
   **min**      25    22.08

   **Q1**     1406   589.6

  **median**   2751    1698

   **Q3**     6111    3298

   **max**     51230  37680

 **percZero**    0      0
-----------------------------
```

* **normality**:

```
--------------------------------
 Test statistic      P value
---------------- ---------------
     0.5628      2.221e-29 * * *
--------------------------------
```

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

```
-------------------------------------------------------------
 Test statistic      P value      Alternative hypothesis
---------------- --------------- -----------------------
     21869       3.763e-06 * * *        two.sided
-------------------------------------------------------------
```

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

– **total.bolus.dose**:

* **results**:

```
-----------------------------
           BZD   No BZD
------------- ----- --------
    **n**       257    293

  **nvalid**    71     109

   **mean**    201.1  158.1

    **sd**     190.9   152

   **min**       2      1

    **Q1**      75      50

  **median**    125    100
```

```
      **Q3**      275    200

     **max**     1000    875

  **percZero**    0       0
-----------------------------
```

* **normality**:

```
--------------------------------
 Test statistic     P value
---------------- --------------
     0.7863      6.12e-15 * * *
--------------------------------
```

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

```
-------------------------------------------------
 Test statistic   P value   Alternative hypothesis
---------------- --------- ------------------------
      4376        0.1367          two.sided
-------------------------------------------------
```

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

– **total.dose**:

* **results**:

```
-----------------------------
           BZD   No BZD
------------- ----- --------
    **n**       257    293

  **nvalid**    257    293

   **mean**    4034    1741

    **sd**     7194    3206

   **min**       2       1

    **Q1**      275    125

  **median**    1655   538.5

    **Q3**      4156    2290

   **max**     51230  37680

 **percZero**    0       0
-----------------------------
```

* **normality**:

   Test statistic   P value
  ---------------- ---------------
       0.4987   1.253e-36 * * *

  Table: Shapiro-Wilk normality test: `x`

* **comparison**:

   Test statistic   P value   Alternative hypothesis
  ---------------- --------------- ------------------------
       46962   5.497e-07 * * *   two.sided

  Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

- **hydromorphone**:
  - **time.wt.avg.rate**:

* **results**:

              BZD   No BZD
  -------------- ------ --------
      n   16   24

    nvalid   3   11

     mean   2.249   0.9427

      sd   0.8415 0.7443

     min   1.624 0.09887

      Q1   1.77   0.4559

    median   1.917   0.6855

      Q3   2.561   1.324

     max   3.206   2.355

   percZero   0   0
  ----

* **normality**:

   Test statistic   P value
  ---------------- ---------

```
     0.932        0.3257
-------------------------
```

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

```
-------------------------------------------------
 Test statistic   P value   Alternative hypothesis
---------------- --------- ------------------------
       29         0.06044         two.sided
-------------------------------------------------
```

Table: Wilcoxon rank sum test: `x` by `my.group`

– **total.cont.dose**:

* **results**:

```
------------------------------
           BZD   No BZD
-------------- ----- --------
    **n**       16      24

  **nvalid**     3      11

   **mean**     207   65.86

    **sd**     177.7  96.39

   **min**      46    4.309

    **Q1**     111.7  10.69

  **median**   177.3  31.72

    **Q3**     287.5   46.2

   **max**     397.6  302.8

 **percZero**    0      0
------------------------------
```

* **normality**:

```
--------------------------------
 Test statistic     P value
---------------- ---------------
     0.7369      0.000915 * * *
--------------------------------
```

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

Test statistic	P value	Alternative hypothesis
28	0.08791	two.sided

Table: Wilcoxon rank sum test: `x` by `my.group`

– **total.bolus.dose**:

* **results**:

	BZD	No BZD
n	16	24
nvalid	13	13
mean	2.9	4.038
sd	3.824	4.611
min	0.2	0.2
Q1	1	1
median	2	2.8
Q3	3	5
max	15	17
percZero	0	0

* **normality**:

Test statistic	P value
0.6885	3.707e-06 * * *

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

Test statistic	P value	Alternative hypothesis
70.5	0.4854	two.sided

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

- **total.dose**:

    * **results**:

                  BZD   No BZD
      -------------- ----- --------
          n   16   24

        nvalid   16   24

         mean   41.16 32.37

          sd   104.8   71

         min   0.2   0.2

          Q1   1.375   2.6

        median   2   5.735

          Q3   6.75   31.07

         max   397.6 302.8

       percZero   0   0
      ----

    * **normality**:

       Test statistic   P value
      ---------------- ---------------
           0.4656   6.846e-11 * * *

      Table: Shapiro-Wilk normality test: `x`

    * **comparison**:

       Test statistic   P value   Alternative hypothesis
      ---------------- --------- ------------------------
           141.5   0.1666   two.sided

      Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

- **ketamine**:

    - **time.wt.avg.rate**:

        * **results**:

	BZD	No BZD
n	4	8
nvalid	2	2
mean	0.1178	0.5032
sd	0.05404	0.5844
min	0.07962	0.08994
Q1	0.09872	0.2966
median	0.1178	0.5032
Q3	0.1369	0.7098
max	0.156	0.9164
percZero	0	0

* **normality**:

Test statistic	P value
0.6969	0.01066 *

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

Test statistic	P value	Alternative hypothesis
1	0.6667	two.sided

Table: Wilcoxon rank sum test: `x` by `my.group`

– **total.cont.dose**:

* **results**:

	BZD	No BZD
n	4	8
nvalid	2	2
mean	314.7	718.2

```
      **sd**     190.1  811.6

     **min**     180.3  144.3

      **Q1**     247.5  431.3

    **median**   314.7  718.2

      **Q3**     381.9   1005

     **max**     449.1   1292

   **percZero**    0      0
  ------------------------------
```

  * **normality**:

```
  --------------------------
   Test statistic   P value
  ---------------- ---------
       0.8101       0.1215
  --------------------------
```

    Table: Shapiro-Wilk normality test: `x`

  * **comparison**:

```
  ----------------------------------------------------
   Test statistic   P value   Alternative hypothesis
  ---------------- --------- ------------------------
         2             1            two.sided
  ----------------------------------------------------
```

    Table: Wilcoxon rank sum test: `x` by `my.group`

– **total.bolus.dose**:

  * **results**:

```
  ------------------------------
              BZD   No BZD
  -------------- ----- --------
      **n**         4      8

    **nvalid**      3      6

     **mean**     97.58  195.8

      **sd**      76.39  60.03

     **min**       20     100

      **Q1**       60    162.5
```

```
  **median**    100   212.5

    **Q3**     136.4  243.8

   **max**     172.7   250

 **percZero**    0      0
-----------------------------
```

* **normality**:

```
--------------------------
 Test statistic   P value
---------------- ---------
     0.9308       0.4885
--------------------------
```

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

```
-----------------------------------------------------
 Test statistic   P value   Alternative hypothesis
---------------- --------- ------------------------
      2.5         0.1182          two.sided
-----------------------------------------------------
```

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

– **total.dose**:

* **results**:

```
------------------------------
            BZD   No BZD
-------------- ----- --------
    **n**         4      8

  **nvalid**      4      8

   **mean**     230.5  326.4

    **sd**      163.1  393.9

   **min**       100    100

    **Q1**      154.5  148.6

  **median**    176.5  212.5

    **Q3**      252.5   250

   **max**      469.1   1292

 **percZero**    0      0
```

```
------------------------------
```

* **normality**:

```
--------------------------------
 Test statistic      P value
---------------- ---------------
     0.5668      5.752e-05 * * *
--------------------------------
```

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

```
-----------------------------------------------------
 Test statistic   P value   Alternative hypothesis
---------------- --------- ------------------------
      13.5        0.7332          two.sided
-----------------------------------------------------
```

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

- **lorazepam**:
  - **time.wt.avg.rate**:
    * **results**:

```
--------------------------------
            BZD    No BZD
------------- ------- --------
    **n**        27       42

  **nvalid**      2       0

   **mean**     1.819     NA

    **sd**     0.03969    NA

   **min**      1.791     NA

    **Q1**      1.805     NA

  **median**    1.819     NA

    **Q3**      1.833     NA

   **max**      1.847     NA

 **percZero**     0       NA
--------------------------------
```

    * **normality**: Insufficient sample size for normality testing
    * **comparison**: Insufficient sample size for inference testing

  - **total.cont.dose**:

* **results**:

	BZD	No BZD
n	27	42
nvalid	2	0
mean	69.61	NA
sd	45.76	NA
min	37.25	NA
Q1	53.43	NA
median	69.61	NA
Q3	85.79	NA
max	102	NA
percZero	0	NA

* **normality**: Insufficient sample size for normality testing
* **comparison**: Insufficient sample size for inference testing

– **total.bolus.dose**:

* **results**:

	BZD	No BZD
n	27	42
nvalid	25	42
mean	4.18	4.661
sd	5.744	9.02
min	0.5	0.5
Q1	1.5	1
median	2	2
Q3	4	5
max	25	56.5
percZero	0	0

---

* **normality**:

Test statistic	P value
0.4457	1.731e-14 * * *

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

Test statistic	P value	Alternative hypothesis
533.5	0.9156	two.sided

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

– **total.dose**:

* **results**:

	BZD	No BZD
n	27	42
nvalid	27	42
mean	9.027	4.661
sd	20.39	9.02
min	0.5	0.5
Q1	1.75	1
median	2	2
Q3	4.5	5
max	102	56.5
percZero	0	0

---

* **normality**:

Test statistic	P value

```
     0.3826      1.653e-15 * * *
-------------------------------

Table: Shapiro-Wilk normality test: `x`
```

```
* **comparison**:

  ------------------------------------------------
   Test statistic   P value   Alternative hypothesis
  ---------------- --------- ------------------------
       616.5        0.5387          two.sided
  ------------------------------------------------

  Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`
```

- **midazolam**:
  - **time.wt.avg.rate**:

```
* **results**:

  ------------------------------
              BZD   No BZD
  -------------- ----- --------
      **n**        191    102

    **nvalid**     190     0

     **mean**     2.456    NA

      **sd**      2.148    NA

     **min**      0.25     NA

      **Q1**      1.143    NA

    **median**    1.849    NA

      **Q3**      3.108    NA

     **max**      15.12    NA

   **percZero**     0       NA
  ------------------------------
```

```
* **normality**:

  ---------------------------------
   Test statistic      P value
  ---------------- ---------------
       0.7371      4.481e-17 * * *
  ---------------------------------

  Table: Shapiro-Wilk normality test: `x`
```

    * **comparison**: Insufficient sample size for inference testing

– **total.cont.dose**:

    * **results**:

                    BZD   No BZD
      ---------------- -------- --------
          n   191   102

        nvalid   190   0

         mean   107.7   NA

          sd   227.1   NA

         min   0.008333   NA

          Q1   10.68   NA

        median   39.37   NA

          Q3   115.4   NA

         max   1939   NA

       percZero   0   NA
      ----

    * **normality**:

       Test statistic   P value
      ---------------- ---------------
           0.4457   5.642e-24 * * *

      Table: Shapiro-Wilk normality test: `x`

    * **comparison**: Insufficient sample size for inference testing

– **total.bolus.dose**:

    * **results**:

                  BZD   No BZD
      ---------------- ----- --------
          n   191   102

        nvalid   77   102

         mean   7.565 5.392

          sd   7.902 5.731

min	1	1
Q1	4	2
median	6	4
Q3	9	6.375
max	56	38
percZero	0	0

* **normality**:

Test statistic	P value
0.6431	3.528e-19 * * *

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

Test statistic	P value	Alternative hypothesis
5036	0.001087 * *	two.sided

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

– **total.dose**:

* **results**:

	BZD	No BZD
n	191	102
nvalid	191	102
mean	110.2	5.392
sd	228.2	5.731
min	0.008333	1
Q1	13.17	2
median	41.82	4

```
      **Q3**      117.2    6.375

     **max**       1945      38

   **percZero**     0        0
  --------------------------------
```

* **normality**:

```
  --------------------------------
   Test statistic      P value
  ---------------- ---------------
       0.3767      1.789e-30 * * *
  --------------------------------
```

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

```
  ------------------------------------------------------------
   Test statistic      P value      Alternative hypothesis
  ---------------- --------------- ------------------------
       17141       8.351e-27 * * *        two.sided
  ------------------------------------------------------------
```

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

- **propofol**:
  - **time.wt.avg.rate**:

```
* **results**:

  ------------------------------
              BZD   No BZD
  -------------- ----- --------
      **n**        29      61

    **nvalid**     27      61

     **mean**     26.59  19.89

      **sd**      11.2   13.43

     **min**      7.579   2.5

      **Q1**      17.53  8.611

    **median**    26.3   15.32

      **Q3**      35.93  30.76

     **max**      45.83  56.88

   **percZero**     0      0
```

```
------------------------------
```

* **normality**:

```
--------------------------------
 Test statistic      P value
---------------- ---------------
     0.9438      0.0008266 * * *
--------------------------------
```

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

```
-----------------------------------------------------
 Test statistic    P value     Alternative hypothesis
---------------- ------------ ------------------------
      1112       0.009287 * *        two.sided
-----------------------------------------------------
```

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

– **total.cont.dose**:

* **results**:

```
------------------------------
            BZD   No BZD
-------------- ----- --------
    **n**        29      61

  **nvalid**     27      61

   **mean**     6154    2851

    **sd**      16926   4675

   **min**       1.8   9.818

    **Q1**      449.5  281.5

  **median**    1451    780

    **Q3**      3609    3336

   **max**      88110  20100

 **percZero**     0       0
------------------------------
```

* **normality**:

```
--------------------------------
 Test statistic      P value
---------------- ---------------
```

```
     0.3445      5.754e-18 * * *
--------------------------------
```

Table: Shapiro-Wilk normality test: `x`

* **comparison**:

```
-------------------------------------------------
 Test statistic   P value   Alternative hypothesis
---------------- --------- ------------------------
      942         0.2857          two.sided
-------------------------------------------------
```

Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

– **total.bolus.dose**:

* **results**:

```
------------------------------
            BZD   No BZD
-------------- ----- --------
    **n**        29      61

  **nvalid**      3      0

   **mean**     103.3    NA

    **sd**      95.04    NA

   **min**       10      NA

    **Q1**       55      NA

  **median**     100     NA

    **Q3**       150     NA

   **max**       200     NA

 **percZero**     0      NA
------------------------------
```

* **normality**:

```
--------------------------
 Test statistic   P value
---------------- ---------
     0.9991        0.942
--------------------------
```

Table: Shapiro-Wilk normality test: `x`

* **comparison**: Insufficient sample size for inference testing

– **total.dose**:

* **results**:

              BZD   No BZD
  -------------- ----- --------
      n   29   61

    nvalid   29   61

     mean   5740   2851

      sd   16385   4675

     min   1.8   9.818

      Q1   352   281.5

    median   1388   780

      Q3   3629   3336

     max   88110   20100

   percZero   0   0
  ----

* **normality**:

   Test statistic   P value
  ---------------- ----------------
       0.3419   3.394e-18 * * *

  Table: Shapiro-Wilk normality test: `x`

* **comparison**:

   Test statistic   P value   Alternative hypothesis
  ---------------- --------- ------------------------
        950   0.5747   two.sided

  Table: Wilcoxon rank sum test with continuity correction: `x` by `my.group`

test2

```
library(tableone)
test <- data.demograph %>%
    mutate(group = ifelse(bzd == TRUE, "BZD", "No BZD")) %>%
    select(-pie.id, -bzd, -diagnosis)
```

```r
vars <- names(test)

cont <- keep(test, is.numeric)
contVars <- names(cont)

cat <- discard(test, is.numeric)
catVars <- names(cat)

tab <- CreateTableOne(vars, strata = "group", data = test, factorVars = catVars)
print(tab)
```

```
##                                          Stratified by group
##                                           BZD
##   n                                          191
##   age (mean (sd))                          56.59 (15.60)
##   sex (%)
##      Female                                101 (52.9)
##      Male                                   89 (46.6)
##      Unknown                                 1 ( 0.5)
##   race (%)
##      African American                       89 (47.8)
##      Asian                                   2 ( 1.1)
##      Other                                  29 (15.6)
##      Unknown                                 7 ( 3.8)
##      White/Caucasian                        59 (31.7)
##   los (mean (sd))                          11.38 (8.20)
##   disposition (%)
##      Acute Care                              0 ( 0.0)
##      Against Medical Advise                  2 ( 1.0)
##      DC/DISC TO REHAB                        4 ( 2.1)
##      DC/TF-Cancer/Childre                    1 ( 0.5)
##      DC/TF TO COURT/LAW                      5 ( 2.6)
##      DC/TF To Psych Hosp                     2 ( 1.0)
##      Deceased                               18 ( 9.4)
##      Discharged to Hospice-Home              1 ( 0.5)
##      Discharged to Hospice-Medical Facility  8 ( 4.2)
##      Home                                   81 (42.4)
##      Home Care with Home Health             37 (19.4)
##      Intermediate Care                       5 ( 2.6)
##      Long Term Care                          6 ( 3.1)
##      Skilled Nursing Facility               21 (11.0)
##   unit.los (mean (sd))                     5.91 (5.17)
##   vent.duration (mean (sd))               99.98 (102.76)
##   weight (mean (sd))                      90.23 (32.15)
##   height (mean (sd))                     169.65 (12.77)
##   alt = TRUE (%)                             27 (14.1)
##   ast = TRUE (%)                             49 (25.7)
##   cam.icu.pos = TRUE (%)                    120 (62.8)
##   arf = TRUE (%)                            103 (53.9)
##   asthma = TRUE (%)                          13 ( 6.8)
##   ckd = TRUE (%)                             64 (33.5)
##   copd = TRUE (%)                            46 (24.1)
##   dementia = TRUE (%)                        22 (11.5)
```

```
##   diabetes = TRUE (%)                              79 (41.4)
##   heart.failure = TRUE (%)                         65 (34.0)
##   hypertension = TRUE (%)                         138 (72.3)
##   liver = TRUE (%)                                 34 (17.8)
##   seizure = TRUE (%)                               35 (18.3)
##   diagnosis.categories (%)
##      angioedema                                     8 ( 4.2)
##      blood glucose                                  6 ( 3.1)
##      cardiac                                        4 ( 2.1)
##      encephalopathy                                 4 ( 2.1)
##      htn                                            2 ( 1.0)
##      infection                                     25 (13.1)
##      other                                         43 (22.5)
##      renal failure                                  3 ( 1.6)
##      respiratory failure                           47 (24.6)
##      shock                                         43 (22.5)
##      w/o                                            6 ( 3.1)
##   alcohol.use = TRUE (%)                           36 (27.7)
##   illicit.drug.use = TRUE (%)                      25 (18.7)
##   smoking (%)
##      current                                       49 (35.8)
##      none                                          67 (48.9)
##      past                                          21 (15.3)
##   num.packs.day (mean (sd))                      0.28 (0.59)
##   num.years.smk (mean (sd))                      7.37 (15.62)
##   pack.years (mean (sd))                        14.76 (27.96)
##   benzodiazepines = TRUE (%)                       15 ( 7.9)
##   narcotic.analgesics = TRUE (%)                   33 (17.3)
##   antidepressants = TRUE (%)                       29 (15.2)
##   antipsychotics = TRUE (%)                        14 ( 7.3)
##   anticonvulsants = TRUE (%)                       13 ( 6.8)
##   gamma.aminobutyric.acid.analogs = TRUE (%)       15 ( 7.9)
##   group = No BZD (%)                                0 ( 0.0)
##                                              Stratified by group
##                                               No BZD          p      test
##   n                                              246
##   age (mean (sd))                             62.99 (17.23)  <0.001
##   sex (%)                                                     0.505
##      Female                                     134 ( 54.5)
##      Male                                       112 ( 45.5)
##      Unknown                                      0 (  0.0)
##   race (%)                                                    0.343
##      African American                            96 ( 40.0)
##      Asian                                        5 (  2.1)
##      Other                                       42 ( 17.5)
##      Unknown                                     17 (  7.1)
##      White/Caucasian                             80 ( 33.3)
##   los (mean (sd))                              9.69 (6.11)    0.014
##   disposition (%)                                             0.181
##      Acute Care                                   1 (  0.4)
##      Against Medical Advise                       5 (  2.0)
##      DC/DISC TO REHAB                            11 (  4.5)
##      DC/TF-Cancer/Childre                         1 (  0.4)
##      DC/TF TO COURT/LAW                           1 (  0.4)
```

```
##      DC/TF To Psych Hosp                            5 (  2.0)
##      Deceased                                      37 ( 15.0)
##      Discharged to Hospice-Home                     7 (  2.8)
##      Discharged to Hospice-Medical Facility         6 (  2.4)
##      Home                                          84 ( 34.1)
##      Home Care with Home Health                    45 ( 18.3)
##      Intermediate Care                              8 (  3.3)
##      Long Term Care                                 5 (  2.0)
##      Skilled Nursing Facility                      30 ( 12.2)
##   unit.los (mean (sd))                           4.91 (3.48)    0.016
##   vent.duration (mean (sd))                     79.45 (70.25)   0.014
##   weight (mean (sd))                            85.02 (32.44)   0.096
##   height (mean (sd))                           166.68 (17.72)   0.052
##   alt = TRUE (%)                                36 ( 14.6)   0.992
##   ast = TRUE (%)                                51 ( 20.7)   0.271
##   cam.icu.pos = TRUE (%)                       111 ( 45.1)  <0.001
##   arf = TRUE (%)                               145 ( 58.9)   0.341
##   asthma = TRUE (%)                             19 (  7.7)   0.857
##   ckd = TRUE (%)                                78 ( 31.7)   0.767
##   copd = TRUE (%)                               75 ( 30.5)   0.169
##   dementia = TRUE (%)                           34 ( 13.8)   0.569
##   diabetes = TRUE (%)                          118 ( 48.0)   0.201
##   heart.failure = TRUE (%)                      87 ( 35.4)   0.850
##   hypertension = TRUE (%)                      192 ( 78.0)   0.198
##   liver = TRUE (%)                              46 ( 18.7)   0.908
##   seizure = TRUE (%)                            47 ( 19.1)   0.933
##   diagnosis.categories (%)                                   0.246
##      angioedema                                  5 (  2.0)
##      blood glucose                              15 (  6.1)
##      cardiac                                     9 (  3.7)
##      encephalopathy                             11 (  4.5)
##      htn                                         6 (  2.4)
##      infection                                  19 (  7.7)
##      other                                      54 ( 22.0)
##      renal failure                               3 (  1.2)
##      respiratory failure                        70 ( 28.5)
##      shock                                      44 ( 17.9)
##      w/o                                        10 (  4.1)
##   alcohol.use = TRUE (%)                        31 ( 17.1)   0.036
##   illicit.drug.use = TRUE (%)                   22 ( 12.0)   0.138
##   smoking (%)                                                0.058
##      current                                    49 ( 27.1)
##      none                                       86 ( 47.5)
##      past                                       46 ( 25.4)
##   num.packs.day (mean (sd))                     0.48 (1.91)    0.329
##   num.years.smk (mean (sd))                     6.57 (15.28)   0.720
##   pack.years (mean (sd))                       11.33 (26.26)   0.347
##   benzodiazepines = TRUE (%)                    28 ( 11.4)   0.286
##   narcotic.analgesics = TRUE (%)                37 ( 15.0)   0.616
##   antidepressants = TRUE (%)                    43 ( 17.5)   0.609
##   antipsychotics = TRUE (%)                     23 (  9.3)   0.563
##   anticonvulsants = TRUE (%)                    22 (  8.9)   0.523
##   gamma.aminobutyric.acid.analogs = TRUE (%)    26 ( 10.6)   0.423
##   group = No BZD (%)                           246 (100.0)  <0.001
```

```
pander(tab)
```

```
## Warning in pander.default(tab): No pander.method for "TableOne", reverting
## to default.
```

```
## Warning in pander.default(x[[i]], indent = indent + 1): No pander.method
## for "ContTable", reverting to default.No pander.method for "by", reverting
## to default.
```

```
## Warning in pander.default(x[[i]], indent = indent + 1): No pander.method
## for "CatTable", reverting to default.No pander.method for "by", reverting
## to default.
```

- **ContTable**:
  - **BZD**:

Table 106: Table continues below

	n	miss	p.miss	mean	sd	median	p25	p75
age	191	0	0	56.59	15.6	58	48	66
los	191	0	0	11.38	8.204	8.88	5.4	14.31
unit.los	191	0	0	5.906	5.17	4.018	2.669	7.423
vent.duration	191	0	0	99.98	102.8	65.08	40.42	115.8
weight	191	0	0	90.23	32.15	81.82	68.64	104.8
height	191	0	0	169.6	12.77	170.2	162.6	177.8
num.packs.day	191	100	52.36	0.2753	0.5868	0	0	0.1105
num.years.smk	191	105	54.97	7.372	15.62	0	0	0
pack.years	191	88	46.07	14.76	27.96	0	0	25

	min	max	skew	kurt
age	19	94	-0.3454	-0.1117
los	1.46	53	1.779	4.18
unit.los	1.009	34.48	2.54	8.663
vent.duration	24.17	747.6	2.844	10.51
weight	36.36	222.3	1.174	1.927
height	121.9	256.5	1.364	11.37
num.packs.day	0	3	2.512	6.478
num.years.smk	0	61	1.993	2.826
pack.years	0	122	2.049	3.757

  - **No BZD**:

Table 108: Table continues below

	n	miss	p.miss	mean	sd	median	p25	p75	min
age	246	0	0	62.99	17.23	64	53	74.75	19
los	246	0	0	9.69	6.109	7.58	5.19	13.44	1.29
unit.los	246	0	0	4.906	3.478	3.727	2.696	6.174	1.187

	n	miss	p.miss	mean	sd	median	p25	p75	min
vent.duration	246	0	0	79.45	70.25	56.88	37.07	92.79	24.25
weight	246	0	0	85.02	32.44	77.27	63.73	96.31	36.36
height	246	0	0	166.7	17.72	167.6	160	175.3	7.62
num.packs.day	246	127	51.63	0.4781	1.907	0	0	0.375	0
num.years.smk	246	139	56.5	6.57	15.28	0	0	0	0
pack.years	246	127	51.63	11.33	26.26	0	0	2.5	0

	max	skew	kurt
age	97	-0.3924	-0.0356
los	39.29	1.385	2.539
unit.los	23.44	1.945	4.768
vent.duration	566.8	2.927	12.12
weight	238.6	1.577	3.177
height	198.1	-5.46	46.14
num.packs.day	20	9.291	94.9
num.years.smk	60	2.255	3.876
pack.years	150	3.004	10.01

- **CatTable**:
  - **BZD**:

```
* **sex**:

  ---------------------------------------------------------
   n   miss   p.miss   level   freq   percent   cum.percent
  --- ------ -------- ------- ------ --------- -------------
  191   0       0     Female   101     52.88       52.88

  191   0       0      Male     89     46.6        99.48

  191   0       0     Unknown   1     0.5236        100
  ---------------------------------------------------------

* **race**:

  ------------------------------------------------------------------
   n   miss   p.miss       level        freq   percent   cum.percent
  --- ------ -------- ---------------- ------ --------- -------------
  191   5     2.618   African American   89     47.85       47.85

  191   5     2.618        Asian         2      1.075       48.92

  191   5     2.618        Other         29     15.59       64.52

  191   5     2.618       Unknown        7      3.763       68.28

  191   5     2.618   White/Caucasian    59     31.72        100
  ------------------------------------------------------------------
```

* **disposition**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	Acute Care	0	0	0
191	0	0	Against Medical Advise	2	1.047	1.047
191	0	0	DC/DISC TO REHAB	4	2.094	3.141
191	0	0	DC/TF-Cancer/Childre	1	0.5236	3.665
191	0	0	DC/TF TO COURT/LAW	5	2.618	6.283
191	0	0	DC/TF To Psych Hosp	2	1.047	7.33
191	0	0	Deceased	18	9.424	16.75
191	0	0	Discharged to Hospice-Home	1	0.5236	17.28
191	0	0	Discharged to Hospice-Medical Facility	8	4.188	21.47
191	0	0	Home	81	42.41	63.87
191	0	0	Home Care with Home Health	37	19.37	83.25
191	0	0	Intermediate Care	5	2.618	85.86
191	0	0	Long Term Care	6	3.141	89.01
191	0	0	Skilled Nursing Facility	21	10.99	100

* **alt**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	164	85.86	85.86
191	0	0	TRUE	27	14.14	100

* **ast**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	142	74.35	74.35
191	0	0	TRUE	49	25.65	100

* **cam.icu.pos**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	71	37.17	37.17
191	0	0	TRUE	120	62.83	100

* **arf**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	88	46.07	46.07
191	0	0	TRUE	103	53.93	100

* **asthma**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	178	93.19	93.19
191	0	0	TRUE	13	6.806	100

* **ckd**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	127	66.49	66.49
191	0	0	TRUE	64	33.51	100

* **copd**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	145	75.92	75.92
191	0	0	TRUE	46	24.08	100

* **dementia**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	169	88.48	88.48
191	0	0	TRUE	22	11.52	100

* **diabetes**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	112	58.64	58.64
191	0	0	TRUE	79	41.36	100

* **heart.failure**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	126	65.97	65.97
191	0	0	TRUE	65	34.03	100

* **hypertension**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	53	27.75	27.75
191	0	0	TRUE	138	72.25	100

* **liver**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	157	82.2	82.2
191	0	0	TRUE	34	17.8	100

* **seizure**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	156	81.68	81.68

191	0	0	TRUE	35	18.32	100

* **diagnosis.categories**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	angioedema	8	4.188	4.188
191	0	0	blood glucose	6	3.141	7.33
191	0	0	cardiac	4	2.094	9.424
191	0	0	encephalopathy	4	2.094	11.52
191	0	0	htn	2	1.047	12.57
191	0	0	infection	25	13.09	25.65
191	0	0	other	43	22.51	48.17
191	0	0	renal failure	3	1.571	49.74
191	0	0	respiratory failure	47	24.61	74.35
191	0	0	shock	43	22.51	96.86
191	0	0	w/o	6	3.141	100

* **alcohol.use**:

n	miss	p.miss	level	freq	percent	cum.percent
191	61	31.94	FALSE	94	72.31	72.31
191	61	31.94	TRUE	36	27.69	100

* **illicit.drug.use**:

n	miss	p.miss	level	freq	percent	cum.percent
191	57	29.84	FALSE	109	81.34	81.34
191	57	29.84	TRUE	25	18.66	100

* **smoking**:

n	miss	p.miss	level	freq	percent	cum.percent
191	54	28.27	current	49	35.77	35.77
191	54	28.27	none	67	48.91	84.67
191	54	28.27	past	21	15.33	100

* **benzodiazepines**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	176	92.15	92.15
191	0	0	TRUE	15	7.853	100

* **narcotic.analgesics**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	158	82.72	82.72
191	0	0	TRUE	33	17.28	100

* **antidepressants**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	162	84.82	84.82
191	0	0	TRUE	29	15.18	100

* **antipsychotics**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	177	92.67	92.67
191	0	0	TRUE	14	7.33	100

* **anticonvulsants**:

n	miss	p.miss	level	freq	percent	cum.percent

191	0	0	FALSE	178	93.19	93.19
191	0	0	TRUE	13	6.806	100

* **gamma.aminobutyric.acid.analogs**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	FALSE	176	92.15	92.15
191	0	0	TRUE	15	7.853	100

* **group**:

n	miss	p.miss	level	freq	percent	cum.percent
191	0	0	BZD	191	100	100
191	0	0	No BZD	0	0	100

– **No BZD**:

* **sex**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	Female	134	54.47	54.47
246	0	0	Male	112	45.53	100
246	0	0	Unknown	0	0	100

* **race**:

n	miss	p.miss	level	freq	percent	cum.percent
246	6	2.439	African American	96	40	40
246	6	2.439	Asian	5	2.083	42.08
246	6	2.439	Other	42	17.5	59.58
246	6	2.439	Unknown	17	7.083	66.67
246	6	2.439	White/Caucasian	80	33.33	100

* **disposition**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	Acute Care	1	0.4065	0.4065
246	0	0	Against Medical Advise	5	2.033	2.439
246	0	0	DC/DISC TO REHAB	11	4.472	6.911
246	0	0	DC/TF-Cancer/Childre	1	0.4065	7.317
246	0	0	DC/TF TO COURT/LAW	1	0.4065	7.724
246	0	0	DC/TF To Psych Hosp	5	2.033	9.756
246	0	0	Deceased	37	15.04	24.8
246	0	0	Discharged to Hospice-Home	7	2.846	27.64
246	0	0	Discharged to Hospice-Medical Facility	6	2.439	30.08
246	0	0	Home	84	34.15	64.23
246	0	0	Home Care with Home Health	45	18.29	82.52
246	0	0	Intermediate Care	8	3.252	85.77
246	0	0	Long Term Care	5	2.033	87.8
246	0	0	Skilled Nursing Facility	30	12.2	100

* **alt**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	210	85.37	85.37
246	0	0	TRUE	36	14.63	100

* **ast**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	195	79.27	79.27
246	0	0	TRUE	51	20.73	100

* **cam.icu.pos**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	135	54.88	54.88
246	0	0	TRUE	111	45.12	100

* **arf**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	101	41.06	41.06
246	0	0	TRUE	145	58.94	100

* **asthma**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	227	92.28	92.28
246	0	0	TRUE	19	7.724	100

* **ckd**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	168	68.29	68.29
246	0	0	TRUE	78	31.71	100

* **copd**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	171	69.51	69.51
246	0	0	TRUE	75	30.49	100

* **dementia**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	212	86.18	86.18
246	0	0	TRUE	34	13.82	100

* **diabetes**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	128	52.03	52.03
246	0	0	TRUE	118	47.97	100

* **heart.failure**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	159	64.63	64.63
246	0	0	TRUE	87	35.37	100

* **hypertension**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	54	21.95	21.95
246	0	0	TRUE	192	78.05	100

* **liver**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	200	81.3	81.3
246	0	0	TRUE	46	18.7	100

* **seizure**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	199	80.89	80.89

246	0	0	TRUE	47	19.11	100

* **diagnosis.categories**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	angioedema	5	2.033	2.033
246	0	0	blood glucose	15	6.098	8.13
246	0	0	cardiac	9	3.659	11.79
246	0	0	encephalopathy	11	4.472	16.26
246	0	0	htn	6	2.439	18.7
246	0	0	infection	19	7.724	26.42
246	0	0	other	54	21.95	48.37
246	0	0	renal failure	3	1.22	49.59
246	0	0	respiratory failure	70	28.46	78.05
246	0	0	shock	44	17.89	95.93
246	0	0	w/o	10	4.065	100

* **alcohol.use**:

n	miss	p.miss	level	freq	percent	cum.percent
246	65	26.42	FALSE	150	82.87	82.87
246	65	26.42	TRUE	31	17.13	100

* **illicit.drug.use**:

n	miss	p.miss	level	freq	percent	cum.percent
246	63	25.61	FALSE	161	87.98	87.98
246	63	25.61	TRUE	22	12.02	100

* **smoking**:

n	miss	p.miss	level	freq	percent	cum.percent
246	65	26.42	current	49	27.07	27.07
246	65	26.42	none	86	47.51	74.59
246	65	26.42	past	46	25.41	100

* **benzodiazepines**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	218	88.62	88.62
246	0	0	TRUE	28	11.38	100

* **narcotic.analgesics**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	209	84.96	84.96
246	0	0	TRUE	37	15.04	100

* **antidepressants**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	203	82.52	82.52
246	0	0	TRUE	43	17.48	100

* **antipsychotics**:

n	miss	p.miss	level	freq	percent	cum.percent
246	0	0	FALSE	223	90.65	90.65
246	0	0	TRUE	23	9.35	100

* **anticonvulsants**:

n	miss	p.miss	level	freq	percent	cum.percent

```
246   0       0      FALSE   224     91.06       91.06

246   0       0      TRUE     22     8.943        100
-------------------------------------------------------------
```

```
* **gamma.aminobutyric.acid.analogs**:

-------------------------------------------------------------
 n   miss   p.miss   level   freq   percent   cum.percent
--- ------ -------- ------- ------ --------- -------------
246   0       0      FALSE   220     89.43       89.43

246   0       0      TRUE     26     10.57        100
-------------------------------------------------------------
```

```
* **group**:

-------------------------------------------------------------
 n   miss   p.miss   level   freq   percent   cum.percent
--- ------ -------- ------- ------ --------- -------------
246   0       0       BZD     0        0           0

246   0       0     No BZD   246      100         100
-------------------------------------------------------------
```

- **MetaData**:
  - **vars**: *age*, *sex*, *race*, *los*, *disposition*, *unit.los*, *vent.duration*, *weight*, *height*, *alt*, *ast*, *cam.icu.pos*, *arf*, *asthma*, *ckd*, *copd*, *dementia*, *diabetes*, *heart.failure*, *hypertension*, *liver*, *seizure*, *diagnosis.categories*, *alcohol.use*, *illicit.drug.use*, *smoking*, *num.packs.day*, *num.years.smk*, *pack.years*, *benzodiazepines*, *narcotic.analgesics*, *antidepressants*, *antipsychotics*, *anticonvulsants*, *gamma.aminobutyric.acid.analogs* and *group*
  - **logiFactors**: *FALSE*, *TRUE*, *TRUE*, *FALSE*, *TRUE*, *FALSE*, *FALSE*, *FALSE*, *FALSE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *FALSE*, *FALSE*, *FALSE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE*, *TRUE* and *TRUE*
  - **varFactors**: *sex*, *race*, *disposition*, *alt*, *ast*, *cam.icu.pos*, *arf*, *asthma*, *ckd*, *copd*, *dementia*, *diabetes*, *heart.failure*, *hypertension*, *liver*, *seizure*, *diagnosis.categories*, *alcohol.use*, *illicit.drug.use*, *smoking*, *benzodiazepines*, *narcotic.analgesics*, *antidepressants*, *antipsychotics*, *anticonvulsants*, *gamma.aminobutyric.acid.analogs* and *group*
  - **varNumerics**: *age*, *los*, *unit.los*, *vent.duration*, *weight*, *height*, *num.packs.day*, *num.years.smk* and *pack.years*

```
# sed.test <- data.sedatives %>%
#     mutate(group = ifelse(bzd == TRUE, "BZD", "No BZD")) %>%
#     select(med, group, time.wt.avg.rate:total.dose) %>%
#     slice_rows(c("med", "group")) %>%
#     # by_slice(map_if, .p = is.null, .f = length)
#     by_slice(dmap, Summarize, .collate = "rows")
#
# pander(sed.test)
#
# test <- data.demograph %>%
#     mutate(group = ifelse(bzd == TRUE, "BZD", "No BZD")) %>%
```

```
#     select(-pie.id, -bzd, -diagnosis) %>%
#     slice_rows("group") %>%
#     by_slice(map, Summarize)


    # filter(med != "midazolam", med != "lorazepam") %>%
    # slice_rows("med") %>%
    # dmap(t.test, .$time.wt.avg.rate ~ .$group)
    # by_slice(dmap_at, c(3:6), t.test, .x ~ group)

    # group_by(med) %>%
    # do(twa = t.test(.$time.wt.avg.rate ~ .$group),
    #    total = t.test(.$total.dose ~ .$group)) %>%
    # dmap_at(2:3, tidy)

# sed.tidy <- sed.test %>% tidy(ttest)
# sed.aug <- sed.test %>% augment(ttest)
# sed.glnc <- sed.test %>% glance(ttest)

    # summarize_each(funs(t.test(. ~ group)), time.wt.avg.rate:total.dose)
```

References

Data was processed using R version 3.2.4 (2016-03-10) on a x86_64-w64-mingw32 system.

Prepared by: Brian Gulbis

```
##
## To cite R in publications use:
##
##   R Core Team (2016). R: A language and environment for
##   statistical computing. R Foundation for Statistical Computing,
##   Vienna, Austria. URL https://www.R-project.org/.
##
## A BibTeX entry for LaTeX users is
##
##   @Manual{,
##     title = {R: A Language and Environment for Statistical Computing},
##     author = {{R Core Team}},
##     organization = {R Foundation for Statistical Computing},
##     address = {Vienna, Austria},
##     year = {2016},
##     url = {https://www.R-project.org/},
##   }
##
## We have invested a lot of time and effort in creating R, please
## cite it when using it for data analysis. See also
## 'citation("pkgname")' for citing R packages.
```