

Stata can be used to calculate the probability a binomial random variable takes a value less than or equal to  $y$  as follows. Let  $n$  be the number of subjects and  $y$  be the number of successes, with probability of success  $\pi$ . Then use the code

`display binomial(n,y,pi)` to give you the probability of  $y$  or fewer successes.

For IVF data, implanting  $n=4$  embryos:

`. display binomial(4,4,.35)` [Probably of  $\leq 4$  successes]

1

`. display binomial(4,3,.35)` [Probably of  $\leq 3$  successes]

.98499375

`. display binomial(4,2,.35)` [Probably of  $\leq 2$  successes]

.87351875

`. display binomial(4,1,.35)` [Probably of  $\leq 1$  successes]

.56298125

`. display binomial(4,0,.35)` [Probably of 0 successes]

.17850625

No babies: 18%

Exactly 1 baby:  $56\% - 18\% = 38\%$

Twins:  $87\% - 56\% = 31\%$  (also can calculate as  $87\% - 38\% - 18\% = 31\%$ )

Triplets:  $98\% - 87\% = 11\%$  (also can calculate as  $98\% - 31\% - 38\% - 18\%$ )

Quadruplets:  $100\% - 98\% = 2\%$