Distribution	Type	Range	Skew	# param	Parameters	Mean	Variance	Examples	Notes
Binomial	D	0,N	A	1*	p	Np	Np(1-p)	# killed/infected of total N	For known maximum count, N
Poisson	D	0,∞	R	1	λ	λ	λ	# counted	Variance=mean
Negative Binomial	D	0, ∞	R	2	μ,k (size) or p,n(size)	μ=n(1-p)/p	$\mu+\mu^2/k$	# counted	Variance can be greater than mean
Geometric[a]	D	0, ∞	R	1	P	1/(p-1)	$(1-p)/p^2$	Discrete lifetimes	Special case of NB (k=1)
Beta-Binomial	D	0, ∞	A	3*	p,θ (or p,a,b)	Np	Np(1-p)(1+(N-1)/(θ+1))	# killed/infected of total	Binomial with more variation
Uniform[b]	C	a,b	N	2	a,b	(a+b)/2	$(b-a)^2/12$	Cover proportion	
Normal	C	-∞,∞	N	2	μ,σ	μ	σ^2	Difference in masses	Default for continuous data
Gamma	C	0,∞	R	2	shape,scale (=1/ rate)	sh*sc	$sh*sc^2$	Survival time, distance	Default for positive continuous
Beta	C	0,1	A		a,b	a/(a+b)	$ab/((a+b)^2(a+b+1))$	Survival prob w/ unk N	
Exponential[c]	C	0,∞	R	1	λ	$1/\lambda$	$1/\lambda^2$	Survival time, distance	Special case of gamma (sh=1)
Lognormal	C	0,∞	R	2	μ,σ	$\exp(\mu+\sigma^2/2)$	$\exp(\mu+\sigma^2/2)(\exp(\sigma^2)-1)$	Size, mass, pop	Similar to gamma

Notes: Type: D = Discrete; C = Continuous; Skew: A = Any; R = Right; N = None

Right skewed continuous data that could be fit by Gamma or Lognormal can sometimes be log-transformed to be normal.

a – Not used much since it's a special case of Negative binomial

b – Not used much except to draw random numbers from a range

c – Not used much since it's a special case of Gamma

* N is known – total sampled/observed