We present a class of transport equations arising from stochastic models of congestion control. This class contains two cases of loss models as particular cases: the rate-independent case where the packet loss rate is independent of the throughput of the flow and the rate-dependent case where it depends on it. This class of equations covers both the case of persistent (TCP) flows and of non-persistent (HTTP) flows. There is a unique density solving the associated differential equation. This density and its mean value are provided as closed form expressions thereby generalizing the well know "square root formula" for persistent TCP flows to non-persistent HTTP flows.