1116-43-2089 **Maxim J Goldberg** (mgoldber@ramapo.edu), Ramapo College of NJ, TAS, Mahwah, NJ 07430, and **Seonja Kim*** (seonja.kim@quinnipiac.edu), Quinnipiac University, Department of Mathematics, Hamden, CT 06518. *Equivalence of local uniform convergence and local equicontinuity for a general symmetric diffusion semigroup.* Preliminary report.

For a diffusion semigroup given by $A_t f(x) = \int_\Omega a_t(x,y) f(y)\, dy$ on a measure space Ω, it is of interest to connect smoothness of a function f with the convergence of $A_t f$ to f as $t \to 0^+$. A natural preliminary step is to define a distance on Ω related to the diffusion. For a bounded, increasing, non-negative function g, we define the distance D_g by $D_g(x,y) = \sup_{0<t\leq 1} g(t) \|a_t(x,\cdot) - a_t(y,\cdot)\|_{L^1}$.

We assume the following for our semigroup: it is symmetric, $A_t f$ converges to f strongly in L^2 (a reasonable and mild assumption), and balls of positive radius with respect to the distance D_g have positive measure. Our main result is that local equicontinuity of the family $\{A_t f\}$ is equivalent to locally uniform convergence of $A_t f$ to f as $t \to 0^+$, for example for f a bounded square-integrable function. As a corollary, we obtain that $A_{t+t_0} f$ converges to $A_{t_0} f$ locally uniformly. (Received September 21, 2015)