



- 1 **Individuals and pets** – excreted medications, disposal to sewage treatment plant.
- 2 **Hospital wastes, pharmacies** – disposal to sewage treatment plant.
- 3 **Septic tanks and on-site waste treatment systems** – normal leach fields and system leaks.
- 4 **Biosolids applications, agriculture** – application to fields, manure from treated animals.
- 5 **Washing, bathing, swimming** – direct release to open waters.
- 6 **Drug manufacturing** – permitted process waste discharges, illegal drug labs and usage.
- 7 **Landfills and cemeteries** – leachate from refuse, medical and hazardous wastes, cemeteries.
- 8 **Aquaculture** – release to open waters of medicated feed and excreta.
- 9 **Pest control agents** – homes, orchards, animal and insect chemical controls.
- 10 **Ultimate transport and fate:**
 - a. Most PPCPs eventually transported from terrestrial to aquatic environments.
 - b. Photo-transformation – reactions with UV light.
 - c. Physicochemical changes – alteration, degradation, and ultimate mineralization.
 - d. Volatilization – mainly certain anesthetics and fragrances.
 - e. Uptake by plants – in some cases.
 - f. Respirable particulates that contain sorbed drugs (e.g., medicated feed dusts).