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## SOCIAL LIVING MITIGATES THE COSTS OF A CHRONIC ILLNESS IN A COOPERATIVE CARNIVORE

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Infection risk is assumed to increase with social group size, and thus be a cost of group living. We assess infection risk and costs with respect to group size using data from an epidemic of sarcoptic mange (*Sarcoptes scabiei*) among gray wolves (*Canis lupus*). We demonstrate that group size does not predict infection risk and that large individual costs of infection, in terms of reduced survival, can be entirely offset by having sufficient numbers of pack-mates. Infected individuals also increase the mortality risk of their pack-mates, but the magnitude of this burden is comparatively small. The mechanisms by which pack-size offsets survival costs of infection remain unknown and we speculate that it is mediated through enhanced food acquisition and territory defense. This is likely a common phenomenon among other social species and parasites, although it is difficult to detect in systems where infection status cannot be measured continuously over time.