Health care markets are increasingly dominated by large, highly-integrated systems. Understanding the impact of this integration on market outcomes is central to designing good antitrust and regulatory policy. Integration presents a central trade-off for productivity: It may improve the productive efficiency of care through coordination between primary care providers (PCPs) and specialists, but it may also reduce allocative efficiency by allowing systems to distort PCPs’ care recommendations through encouragement to steer patient referrals towards affiliated specialists. We study how these forces shape referrals to orthopedic joint surgeons in Massachusetts. We find evidence of both effects: Removing vertical ties would reallocate nearly 40% of patients away from formerly-integrated orthopedists but, counterintuitively, would also increase expected costs by 5%. This is driven by the fact that orthopedist demand is cost-insensitive, meaning that the allocative efficiency gains from removing the steering distortion are small in aggregate and do not offset the loss of productive efficiencies. This aggregate effect masks substantive cross-system heterogeneity in both the size of the efficiency gain and the extent of the allocative distortion.