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Poissant L, Pereira J, Tamblyn R, Kawasumi Y. *The impact of electronic health records on time efficiency of physicians and nurses: a systematic review.* J Am Med Inform Assoc. 2005 Sep-Oct;12(5): 505-16.

Shea S, Weinstock RS, Starren J, Teresi J, Palmas W, Field L, et al. *A randomized trial comparing telemedicine case management with usual care in older, ethnically diverse, medically underserved patients with diabetes mellitus.* J Am Med Inform Assoc 2006 Jan-Feb;13(1):40-51 33

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