

Both physician-led primary care practices and integrated health delivery systems have established medical homes. We report outcomes for both (see [Exhibit 5](#)). However, most studies included in our analysis evaluated physician-led practices, and our comments focus on their results.

We report outcomes for both general patient populations and for the higher-risk elderly or chronically-ill patients within medical homes.⁷⁹

General patient populations in physician-led practices. Among general patient populations, we find that medical homes, on average, reduce emergency department visits by 5%, hospital admissions by 3%, and specialist visits by 3%. We also find evidence that total medical costs are reduced by 2% (see [Exhibit 5](#)).

These estimates are based on eight medical home studies, three of which evaluate PCMHs that include financial incentives to reduce utilization or cost.⁸⁰

High-risk patient populations in physician-led practices. We find that medical homes, on average, reduce emergency department visits by 6% among higher-risk patients. We did not find other reliable effects for high-risk patients.⁸¹

⁷⁹ The Medicaid Health Home, a more recent variant of the medical home model, focuses on patients with serious mental illness and substance misuse disorders. WSIPP has reviewed the evidence on health homes; those findings are reported on our website: <http://www.wsipp.wa.gov/BenefitCost/Program/496>

⁸⁰ See: Rosenthal, M.B., Alidina, S., Friedberg, M.W., Singer, S.J., Eastman, D., Li, Z., & Schneider, E.C. (2016). A difference-in-difference analysis of changes in quality, utilization and cost following the Colorado multi-payer patient-centered medical home pilot. *Journal of General Internal Medicine*, 31(3), 289-296; Friedberg, M.W., Schneider, E.C., Friedberg, M.W., Schneider, E.C., Friedberg, M.W., Schneider, E.C., Rosenthal, M.B., . . . Volpp, K.G. (2015). Effects of a medical home and shared savings intervention on quality and utilization of care. *Jama Internal Medicine*, 175(8), 1362-1368; Cuellar, A., Helmchen, L.A., Gimm, G., Want, J., Burla, S., Kells, B.J., Kicing, I., . . . Nichols, L.M. (2016). The CareFirst patient-centered medical home program: Cost and utilization effects in its first three years. *Journal of General Internal Medicine*, 1-7.

⁸¹ Sinaiko and colleagues find a significant 4.2% reduction in total costs for high morbidity patients in their meta-analysis of seven medical home implementations. The authors, in collaboration with the researchers evaluating these implementations, were able to impose a consistent definition of high-risk across the studies (two or more comorbidities). Sinaiko, A., Landrum, M., Meyers, D., Alidina, S., & Rosenthal, M. (2016). *A meta-analysis of patient centered medical home initiatives*. PowerPoint presentation prepared for the ASHE 2016 Meetings.



Appendices

Interventions to Promote Health and Increase Health Care Efficiency: December 2016 Update

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I. Topics Examined but Meta-Analyses Not Supported by Literature

There were not sufficient studies to produce meta-analytic results for some topics reviewed in collaboration with the CEBP. This appendix summarizes the relevant literatures. The topics include:

- Medication-assisted therapies for opioid use during pregnancy—buprenorphine vs. methadone
- Long-acting reversible contraception (LARC)
- Prenatal depression screening
- Chronic Care Model (CCM) interventions
- Collaborative primary care for posttraumatic stress disorder

Medication-assisted therapies for opioid use during pregnancy – buprenorphine vs. methadone

Opioid use—including heroin use and prescription drug misuse—is on the rise.⁸² Opioid use during pregnancy is strongly linked to increased maternal and neonatal complications, including third trimester bleeding, low birthweight delivery, neonatal mortality, and neonatal abstinence syndrome (narcotic withdrawal symptoms).⁸³

Methadone maintenance therapy has been the recommended treatment for pregnant opioid users since the late 1960s. In recent years, buprenorphine has also been used in this population. These two treatments, while both used as a medication-assisted therapy for opioid use disorder, function differently in the body and have different applications in the real world. Methadone is an opioid and is currently considered the “standard of care” for treating pregnant women with opioid use disorder. Patients must visit a dispensing clinic every day to receive their dose of methadone. Buprenorphine is a semi-synthetic, partial agonist opioid receptor modulator—it blocks opioid receptors but is not a full opioid. This medication has been approved for use in opioid-dependent adults since 2002.⁸⁴ Buprenorphine can be prescribed by a doctor in a clinic-based setting, in which patients may fill the prescription on their own. For both medications, there is concern about adverse pregnancy and birth outcomes among users.

We located no studies investigating the effects of buprenorphine versus no medication-assisted treatment in pregnant populations. Therefore, we investigated head-to-head studies of two common agonist therapies for

⁸² Brogly, S.B., Saia, K.A., Walley, A.Y., Du, H.M., & Sebastiani, P. (2014). Prenatal buprenorphine versus methadone exposure and neonatal outcomes: systematic review and meta-analysis. *American Journal of Epidemiology*, 180(7), 673-686.

⁸³ Minozzi, S., Amato, L., Bellisario, C., Ferri, M., & Davoli, M. (2013). Maintenance agonist treatments for opiate-dependent pregnant women. *The Cochrane Library*.

⁸⁴ Brogly et al. (2014).

opioid-dependent pregnant women: methadone (standard of care) and buprenorphine (“new” treatment). With literature review support from CEbP, we reviewed 64 articles.

We find insufficient evidence to produce meta-analytic results or conduct a benefit-cost analysis on this topic at this time, for two main reasons. First, most studies evaluated treatments in a manner that does not reflect the real world application of these treatments. In randomized controlled trials, all subjects (including buprenorphine-treated subjects) must attend clinics daily to receive their dose of either methadone or buprenorphine. Therefore, effect sizes observed from these studies do not capture the real world difference between methadone and buprenorphine therapies. Second, none of the studies reviewed reported an intent-to-treat analysis. There is differential attrition for methadone and buprenorphine across all studies. Most studies report greater attrition in the buprenorphine group than the methadone group. Since there are no data on a significant proportion of participants, we do not have sufficient evidence to calculate reliable effect sizes comparing these treatments.

Long-acting reversible contraception

We examined studies evaluating the effectiveness of long-acting reversible contraception (LARC) methods for preventing unplanned pregnancies. LARC methods include intrauterine devices (IUD) and birth control implants.

Almost half (49%) of pregnancies in the United States are unplanned.⁸⁵ A recent study estimated that the annual medical costs of unplanned pregnancy in the United States were \$4.6 billion, and that 53% of those pregnancies were due to failing to consistently use contraception.⁸⁶ Although they have higher up-front costs, LARC methods are roughly as effective as sterilization in preventing pregnancy during the first year of typical use and significantly more effective than birth control pills, the patch, or the ring.⁸⁷

In cooperation with the CEbP, we conducted a search for quasi-experimental and randomized controlled trials of LARC to prevent unplanned pregnancy. We identified 38 studies for a more thorough review. Thirty-four of those studies were excluded from our analysis for falling outside our search parameters. For example, these studies did not report on LARC methods or on the outcomes of interest (particularly unintended pregnancies). The remaining four studies were rejected for failing to satisfy WSIPP’s standards for methodological rigor. Key reasons for rejection included the use of self-assigned groups for the treatment group or significant and uncontrolled differences between the treatment and control groups.

Prenatal depression screening

Rates of depression for pregnant women are thought to be substantial, peaking at about 17% for women in their third trimester.⁸⁸ Research has linked prenatal mental health problems with a variety of poor outcomes,

⁸⁵ Finer, L.B., & Zolna, M.R. (2011). Unintended pregnancy in the United States: incidence and disparities, 2006. *Contraception*, 84(5), 478-485.

⁸⁶ Trussell, J., Henry, N., Hassan, F., Prezioso, A., Law, A., & Filonenko, A. (2013). Burden of unintended pregnancy in the United States: potential savings with increased use of long-acting reversible contraception. *Contraception*, 87(2), 154-161.

⁸⁷ <http://www.acog.org/Patients/FAQs/Long-Acting-Reversible-Contraception-LARC-IUD-and-Implant>

⁸⁸ Bennett, H.A., Einarson, A., Taddio, A., Koren, G., & Einarson, T.R. (2004). Prevalence of depression during pregnancy: systematic review. *Obstetrics & Gynecology*, 103(4), 698-709.

including an increased risk of preterm birth,⁸⁹ postpartum mental health problems,⁹⁰ and poor infant cognitive development.⁹¹

In cooperation with the CEBP, we searched for studies evaluating the effectiveness of prenatal screening for maternal depression as well as screening in conjunction with pharmacological treatments and/or psychotherapy. We attempted to identify studies that evaluated how prenatal depression screening or screening plus treatment could affect maternal outcomes, like postpartum depression, and/or infant outcomes, including pre-term birth. We identified only two studies that satisfied these search parameters. One study failed to separately analyze pregnant and postpartum women. The other study had several methodological problems that included small sample sizes and high attrition rates. At this time, we have insufficient evidence to conduct a meta-analysis of pre-partum depression screening.

Chronic Care Model interventions

The Chronic Care Model (CCM) focuses on the care for patients with conditions that require ongoing management, such as diabetes, coronary heart disease, or asthma. The model emphasizes effective team care, support for patient self-management, decision support to increase use of evidence-based practices, patient registries and other supportive information technology, and links to available community resources.⁹² Elements of the CCM have been adopted in the patient-centered home model.

In cooperation with the CEBP, we identified several evaluations of CCM implementations. Among the studies identified for our review, a few measured hospital and emergency department utilization outcomes for patients in CCM practices. Unfortunately, these studies either had poor research designs or other methodological problems that limited the usefulness of findings. Several studies reported health related outcomes, such as changes in HbA1c, cholesterol levels, or blood pressure, for patients in CCM practices. However, each study typically focused on patients with a given chronic condition (i.e. diabetes). At this time, we did not feel that there were a sufficient number of studies for a given patient population to pursue a meta-analysis for condition-specific outcomes.

Collaborative primary care for posttraumatic stress disorder

Many individuals with posttraumatic stress disorder (PTSD) do not seek mental health treatment and their symptoms can go undetected in primary care settings.⁹³ Even when PTSD symptoms are detected in primary care settings, patients may not receive adequate treatment.

At this time, we do not find sufficient evidence to produce meta-analytic results on the impact of collaborative primary care for individuals with PTSD.⁹⁴ We conducted a literature review and identified ten

⁸⁹ Grigoriadis, S., VonderPorten, E.H., Mamisashvili, L., Tomlinson, G., Dennis, C.L., Koren, G., Steiner, M. (2013). The impact of maternal depression during pregnancy on perinatal outcomes: A systematic review and meta-analysis. *The Journal of Clinical Psychiatry*, 74(4), e321–41.

⁹⁰ Thoppil, J., Riutcel, T.L., & Nalesnik, S.W. (2005). Early intervention for perinatal depression. *American Journal of Obstetrics and Gynecology*, 192(5), 1446-1448.

⁹¹ Brouwers, E.P., van Baar, A.L., & Pop, V.J. (2001). Maternal anxiety during pregnancy and subsequent infant development. *Infant Behavior and Development*, 24(1), 95-106.

⁹² See Pearson, M.L., Wu, S., Schaefer, J., Bonomi, A.E., Shortell, S.M., Mendel, P.J., Marsteller, J.A., . . . Keeler, E.B. (2005). Assessing the implementation of the chronic care model in quality improvement collaboratives. *Health Services Research*, 40(4), 978-996; Coleman, K., Austin, B., Brach, C., & Wagner E. (2009). Evidence on the chronic care model in the new millennium. *Health Affairs*, 28(1), 75-85.

⁹³ Taubman-Ben-Ari, O., Rabinowitz, J., Feldman, D., & Vaturi, R. (2001). Post-traumatic stress disorder in primary care settings: prevalence and physicians' detection. *Psychol Med*, 31, 555–60.

evaluations to be examined more thoroughly. Of these evaluations, eight were excluded from further analysis because they did not meet WSIPP's methodological standards (i.e. inadequate comparison groups and high attrition rates), did not report our primary outcome of interest (PTSD symptom severity), and did not fit the definition of collaborative primary care.⁹⁵ Two studies did meet methodological standards, reported PTSD outcomes, and were defined as collaborative primary care. However, we could not calculate a reliable effect size estimate at this time because these studies varied across interventions (i.e. types of care management, follow-up periods, and populations).

⁹⁴ WSIPP has conducted meta-analyses and benefit-cost analyses on other treatments for posttraumatic stress disorder for cognitive behavioral therapy (CBT) for adult posttraumatic stress disorder and Eye Movement Desensitization and Reprocessing (EMDR) for adult posttraumatic stress disorder. For the most up-to-date results, please visit: <http://www.wsipp.wa.gov/BenefitCost/Program/241> and <http://www.wsipp.wa.gov/BenefitCost/Program/635>, respectively.

⁹⁵ Excluded studies used collaborative care models but did not specifically focus on patients treated in primary care settings.

II. Studies used in the Meta-Analyses

Intensive behavioral interventions for smoking cessation during pregnancy

- Albrecht, S.A., Caruthers, D., Patrick, T., Reynolds, M., Salamie, D., Higgins, L.W., . . . Mlynarchek, S. (2006). A randomized controlled trial of a smoking cessation intervention for pregnant adolescents. *Nursing Research, 55*(6), 402-410.
- Bullock, L., Everett, K.D., Mullen, P.D., Geden, E., Longo, D.R., & Madsen, R. (2009). Baby BEEP: A randomized controlled trial of nurses' individualized social support for poor rural pregnant smokers. *Maternal and Child Health Journal, 13*(3), 395-406.
- Cook, C., Ward, S., Myers, S., & Spinnato, J. (1995). A prospective, randomized evaluation of intensified therapy for smoking reduction in pregnancy. *American Journal of Obstetrics and Gynecology: Part 2, 172*(1), 290.
- Dornelas, E.A., Magnavita, J., Beazoglou, T., Fischer, E.H., Oncken, C., Lando, H., Greene, J., Barbagallo, J., Stepnowski, R., & Gregonis, E. (2006). Efficacy and cost-effectiveness of a clinic-based counseling intervention tested in an ethnically diverse sample of pregnant smokers. *Patient Education and Counseling, 64*, 342-349.
- El-Mohandes, A.A., El-Khorazaty, M.N., Kiely, M., & Gantz, M.G. (2011). Smoking cessation and relapse among pregnant African-American smokers in Washington, DC. *Maternal and Child Health Journal, 15*, 96-105.
- Ershoff, D.H., Quinn, V.P., Boyd, N.R., Stern, J., Gregory, M., & Wirtschafter, D. (1999). The Kaiser Permanente prenatal smoking cessation trial: when more isn't better, what is enough? *American Journal of Preventive Medicine, 17*(3), 161-168.
- McBride, C.M. (1999). Prevention of relapse in women who quit smoking during pregnancy. *American Journal of Public Health, 89*(5), 706-711.
- Naughton, F., Prevost, A.T., Gilbert, H., & Sutton, S. (2012). Randomized controlled trial evaluation of a tailored leaflet and SMS text message self-help intervention for pregnant smokers (MiQuit). *Nicotine & Tobacco Research, 14*(5), 569-577.
- Patten, C.A., Windsor, R.A., Renner, C.C., Enoch, C., Hochreiter, A., Nevak, C., . . . Brockman, T. (2010). Feasibility of a tobacco cessation intervention for pregnant Alaska Native women. *Nicotine and Tobacco Research, 12*(2), 79-87.
- Rigotti, N.A., Park, E.R., Regan, S., Chang, Y., Perry, K., Loudin, B., & Quinn, V. (2006). Efficacy of telephone counseling for pregnant smokers. *Obstetrics & Gynecology, 108*(1), 83-92.
- Ruger, J.P., Weinstein, M.C., Hammond, S.K., Kearney, M.H., & Emmons, K.M. (2008). Cost-effectiveness of motivational interviewing for smoking cessation and relapse prevention among low-income pregnant women: A randomized controlled trial. *Value in Health, 11*(2), 191-198.
- Secker-Walker, R.H., Solomon, L.J., Flynn, B.S., Skelly, J.M., Lepage, S.S., Goodwin, G.D., & Mead, P.B. (1994). Individualized smoking cessation counseling during prenatal and early postnatal care. *American Journal of Obstetrics and Gynecology, 171*(5), 1347-1355.
- Secker-Walker, R.H., Solomon, L.J., Flynn, B.S., Skelly, J.M., & Mead, P.B. (1998). Reducing smoking during pregnancy and postpartum: physician's advice supported by individual counseling. *Preventive Medicine, 27*(3), 422-430.
- Sexton, M., & Hebel, J.R. (1984). A clinical trial of change in maternal smoking and its effect on birth weight. *Jama: the Journal of the American Medical Association, 251*(7), 911-915.
- Stotts, A.L., Diclemente, C.C., & Dolan-Mullen, P. (2002). One-to-one: A motivational intervention for resistant pregnant smokers. *Addictive Behaviors, 27*(2), 275-292.
- Stotts, A.L., DeLaune, K.A., Schmitz, J.M., & Grabowski, J. (2004). Impact of a motivational intervention on mechanisms of change in low-income pregnant smokers. *Addictive Behaviors, 29*(8), 1649-1657.
- Stotts, A.L., Groff, J.Y., Velasquez, M.M., Benjamin-Garner, R., Green, C., Carbonari, J.P., & DiClemente, C.C. (2009). Ultrasound feedback and motivational interviewing targeting smoking cessation in the second and third trimesters of pregnancy. *Nicotine & Tobacco Research, 11*(8), 961-968.

Contingency management for smoking cessation during pregnancy

- Heil, S.H., Higgins, S.T., Bernstein, I.M., Solomon, L.J., Rogers, R.E., Thomas, C.S., . . . Lynch, M.E. (2008). Effects of voucher-based incentives on abstinence from cigarette smoking and fetal growth among pregnant women. *Addiction (Abingdon, England)*, *103*(6), 1009-18.
- Higgins, S.T., Heil, S.H., Solomon, L.J., Bernstein, I.M., Lussier, J.P., Abel, R.L., . . . Badger, G.J. (2004). A pilot study on voucher-based incentives to promote abstinence from cigarette smoking during pregnancy and postpartum. *Nicotine & Tobacco Research*, *6*(6), 1015-20.
- Higgins, S.T., Washio, Y., Lopez, A.A., Heil, S.H., Solomon, L.J., Lynch, M.E., . . . Bernstein, I.M. (2014). Examining two different schedules of financial incentives for smoking cessation among pregnant women. *Preventive Medicine*, *68*, 51-57.
- Ondersma, S.J., Svikis, D.S., Lam, P.K., Connors-Burge, V.S., Ledgerwood, D.M., & Hopper, J.A. (2012). A randomized trial of computer-delivered brief intervention and low-intensity contingency management for smoking during pregnancy. *Nicotine & Tobacco Research*, *14*(3), 351-60.
- Tappin, D., Bauld, L., Purves, D., Boyd, K., Sinclair, L., MacAskill, S., . . . Cessation in Pregnancy Incentives Trial Team. (2015). Financial incentives for smoking cessation in pregnancy: randomised controlled trial. *Bmj (clinical Research Ed)*, *350*, h134.
- Tuten, M., Fitzsimons, H., Chisolm, M.S., Nuzzo, P.A., & Jones, H.E. (2012). Contingent incentives reduce cigarette smoking among pregnant, methadone-maintained women: results of an initial feasibility and efficacy randomized clinical trial. *Addiction*, *107*(10), 1868-1877.

Nicotine replacement treatment during pregnancy

- Berlin, I., Grange, G., Jacob, N., & Tanguy, M.L. (2014). Nicotine patches in pregnant smokers: randomised, placebo controlled, multicentre trial of efficacy. *BMJ*, *348*, g1622.
- Coleman, T., Cooper, S., Thornton, J.G., Grainge, M.J., Watts, K., Britton, J., & Lewis, S. (2012). A randomized trial of nicotine-replacement therapy patches in pregnancy. *Obstetrical & Gynecological Survey*, *67*(7), 387-388.
- El-Mohandes, A.A., Windsor, R., Tan, S., Perry, D.C., Gantz, M.G., & Kiely, M. (2013). A randomized clinical trial of transdermal nicotine replacement in pregnant African-American smokers. *Maternal and Child Health Journal*, *17*(5), 897-906.
- Oncken, C., Dornelas, E., Greene, J., Sankey, H., Glasmann, A., Feinn, R., & Kranzler, H.R. (2008). Nicotine gum for pregnant smokers: a randomized controlled trial. *Obstetrics and Gynecology*, *112*(4), 859-67.
- Pollak, K.I., Oncken, C.A., Lipkus, I.M., Lyna, P., Swamy, G.K., Pletsch, P.K., . . . Myers, E.R. (2007). Nicotine replacement and behavioral therapy for smoking cessation in pregnancy. *American Journal of Preventive Medicine*, *33*(4), 297-305.

Postpartum smoking relapse prevention

- Jiménez-Muro, A., Nerín, I., Samper, P., Marqueta, A., Beamonte, A., Gargallo, P., . . . Rodríguez, G. (2013). A proactive smoking cessation intervention in postpartum women. *Midwifery*, *29*(3), 240-245.
- McBride, C.M. (1999). Prevention of relapse in women who quit smoking during pregnancy. *American Journal of Public Health*, *89*(5), 706-711.
- Reitzel, L.R., Vidrine, J.I., Businelle, M.S., Kendzor, D.E., Costello, T.J., Li, Y., . . . Wetter, D. W. (2010). Preventing postpartum smoking relapse among diverse low-income women: a randomized clinical trial. *Nicotine & Tobacco Research*, *12*(4), 326-35.
- Ruger, J.P., Weinstein, M.C., Hammond, S.K., Kearney, M.H., & Emmons, K.M. (2008). Cost-Effectiveness of Motivational Interviewing for Smoking Cessation and Relapse Prevention among Low-Income Pregnant Women: A Randomized Controlled Trial. *Value in Health*, *11*(2), 191-198.

Interventions to prevent excessive gestational weight gain in the general population

- Althuizen, E., Wijden, C.L.V.D., Mechelen, W.V., Seidell, J.C., & Poppel, M.N.M.V. (2012). The effect of a counseling intervention on weight changes during and after pregnancy: a randomised trial. *BJOG: an International Journal of Obstetrics & Gynecology*, *120*(1), 92-99.

- Barakat, R., Lucia, A., & Ruiz, J.R. (2009). Resistance exercise training during pregnancy and newborn's birth size: a randomised controlled trial. *International Journal of Obesity*, 33(9), 1048-1057.
- Barakat, R., Pelaez, M., Lopez, C., Lucia, A., & Ruiz, J.R. (2013). Exercise during pregnancy and gestational diabetes-related adverse effects: a randomised controlled trial. *British Journal of Sports Medicine*, 47(10), 630-36.
- Haakstad, L.A.H., & Bø, K. (2011). Effect of regular exercise on prevention of excessive weight gain in pregnancy: A randomised controlled trial. *The European Journal of Contraception and Reproductive Health Care*, 16(2), 116-125.
- Hui, A.L., Ludwig, S.M., Gardiner, P., Sevenhuysen, G., Murray, R., Morris, M., & Shen, G.X. (2006). Community-based exercise and dietary intervention during pregnancy: A pilot study. *Canadian Journal of Diabetes*, 30(2), 169-175.
- Hui, A.L., Back, L., Ludwig, S., Gardiner, P., Sevenhuysen, G., Dean, H.J., . . . Shen, G.X. (2014). Effects of lifestyle intervention on dietary intake, physical activity level, and gestational weight gain in pregnant women with different pre-pregnancy Body Mass Index in a randomized control trial. *BMC Pregnancy and Childbirth*, 14(1), 331-40.
- Olson, C.M., Strawderman, M.S., & Reed, R.G. (2004). Efficacy of an intervention to prevent excessive gestational weight gain. *American Journal of Obstetrics and Gynecology*, 191(2), 530-536.
- Polley, B.A., Wing, R.R., & Sims, C.J. (2002). Randomized controlled trial to prevent excessive weight gain in pregnant women. *International Journal of Obesity*, 26(11), 1494-1502.
- Ronnberg, A.K., Ostlund, I., Fadl, H., Gottvall, T., & Nilsson, K. (2015). Intervention during pregnancy to reduce excessive gestational weight gain-a randomised controlled trial. *BJOG: an International Journal of Obstetrics & Gynaecology*, 122(4), 537-544.
- Ruiz, J.R., Perales, M., Pelaez, M., Lopez, C., Lucia, A., & Barakat, R. (2013). Supervised exercise-based intervention to prevent excessive gestational weight gain: a randomized controlled trial. *Mayo Clinic Proceedings*, 88(12), 1388-97.
- Smith, K.M. (2014). *The Blossom Project Online: Use of a behaviorally-based website to promote physical activity and prevent excessive gestational weight gain in previously sedentary pregnant women*. Digital Repository @ Iowa State University.
- Stafne, S.N., Salvesen, K.A., Romundstad, P.R., Eggebø, T.M., Carlsen, S.M., & Mørkved, S. (2012). Regular exercise during pregnancy to prevent gestational diabetes: a randomized controlled trial. *Obstetrics and Gynecology*, 119(1), 29-36.

Interventions to prevent excessive gestational weight gain among women with obesity-related risk factors

- Bogaerts, A.F., Devlieger, R., Nuyts, E., Witters, I., Gyselaers, W., & Van den Bergh, B.R. (2013). Effects of lifestyle intervention in obese pregnant women on gestational weight gain and mental health: a randomized controlled trial. *International Journal of Obesity*, 37(6), 814-21.
- Dodd, J.M., Turnbull, D., McPhee, A.J., Deussen, A.R., Grivell, R.M., Yelland, L.N., . . . Robinson, J.S. (2014). Antenatal lifestyle advice for women who are overweight or obese. *Obstetrical & Gynecological Survey*, 69(6), 311-313.
- Harrison, C.L., Lombard, C.B., Strauss, B.J., & Teede, H.J. (2013). Optimizing healthy gestational weight gain in women at high risk of gestational diabetes: a randomized controlled trial. *Obesity*, 21(5), 904-909.
- Hawkins, M., Hosker, M., Marcus, B.H., Rosal, M.C., Braun, B., Stanek, E.J., . . . Chasan-Taber, L. (2015). A pregnancy lifestyle intervention to prevent gestational diabetes risk factors in overweight Hispanic women: a feasibility randomized controlled trial. *Diabetic Medicine*, 32(1), 108-15.
- Luoto, R., Kinnunen, T.I., Aittasalo, M., Kolu, P., Raitanen, J., Ojala, K., Mansikkamäki, K., . . . Tulokas, S. (2011). Primary prevention of gestational diabetes mellitus and large-for-gestational-age newborns by lifestyle counseling: A cluster-randomized controlled trial. *Plos Medicine*, 8(5), e1001036.
- Nobles, C., Marcus, B.H., Stanek, E.J., Braun, B., Whitcomb, B.W., Solomon, C.G., . . . Chasan-Taber, L. (2015). Effect of an exercise intervention on gestational diabetes mellitus: a randomized controlled trial. *Obstetrics and Gynecology*, 125(5), 1195-204.
- Oostdam, N., van Poppel, M.N.M., Wouters, M.G.A.J., Eekhoff, E.M.W., Bekedam, D.J., Kuchenbecker, W.K.H., . . . Mechelen, W. van. (2012). No effect of the FitFor2 exercise programme on blood glucose, insulin sensitivity, and

- birthweight in pregnant women who were overweight and at risk for gestational diabetes: Results of a randomised controlled trial. *BJOG: An International Journal of Obstetrics & Gynaecology*, 119, 1098-1107.
- Poston, L., Briley, A.L., Barr, S., Bell, R., Croker, H., Coxon, K., . . . Sandall, J. (2013). Developing a complex intervention for diet and activity behaviour change in obese pregnant women (the UPBEAT trial); assessment of behavioural change and process evaluation in a pilot randomised controlled trial. *BMC Pregnancy and Childbirth*, 13(1) 148-164.
- Poston, L., Bell, R., Croker, H., Flynn, A.C., Godfrey, K.M., Goff, L., . . . Briley, A. (2015). Effect of a behavioural intervention in obese pregnant women (the UPBEAT study): a multicentre, randomised controlled trial. *The Lancet. Diabetes & Endocrinology*, 3(10), 767-777.
- Quinlivan, J.A., Lam, L.T., & Fisher, J. (2011). A randomised trial of a four-step multidisciplinary approach to the antenatal care of obese pregnant women. *Australian and New Zealand Journal of Obstetrics and Gynecology*, 51(2), 141-146.
- Renault, K.M., Norgaard, K., Nilas, L., Carlsen, E.M., Cortes, D., Pryds, O., & Secher, N.J. (2014). The Treatment of Obese Pregnant Women (TOP) study: a randomized controlled trial of the effect of physical activity intervention assessed by pedometer with or without dietary intervention in obese pregnant women. *American Journal of Obstetrics and Gynecology*, 210(2), 134.e1-9.
- Thornton, Y.S., Smarkola, C., Kopacz, S.M., & Ishoof, S.B. (2009). Perinatal outcomes in nutritionally monitored obese pregnant women: a randomized clinical trial. *Journal of the National Medical Association*, 101(6), 569-577.
- Vesco, K.K., Karanja, N., King, J.C., Gillman, M.W., Leo, M.C., Perrin, N., . . . Stevens, V.J. (2014). Efficacy of a group-based dietary intervention for limiting gestational weight gain among obese women: a randomized trial. *Obesity*, 22(9), 1989-96.

Group prenatal care

- Fausett, M.B. (2014). *Centering Pregnancy (CP): A Longitudinal Correlational Study Designed to Evaluate Maternal and Fetal Outcomes After Participation in CP*.
- Ford, K., Weglicki, L., Kershaw, T., Schram, C., Hoyer, P.J., & Jacobson, M.L. (2002). Effects of a prenatal care intervention for adolescent mothers on birth weight, repeat pregnancy, and educational outcomes at one year postpartum. *The Journal of Perinatal Education*, 11(1), 35-38.
- Ickovics, J.R. (2007). Group prenatal care and perinatal outcomes: A randomized controlled trial. *Obstetrics and Gynecology*, 111(4), 993-994.
- Ickovics, J.R., Earnshaw, V., Lewis, J.B., Kershaw, T.S., Magriples, U., Stasko, E., . . . Tobin, J.N. (2016). Cluster randomized controlled trial of group prenatal care: perinatal outcomes among adolescents in New York City health centers. *American Journal of Public Health*, 106(2), 359-365.
- Ickovics, J.R., Reed, E., Magriples, U., Westdahl, C., Schindler, R.S., & Kershaw, T.S. (2011). Effects of group prenatal care on psychosocial risk in pregnancy: Results from a randomised controlled trial. *Psychology & Health*, 26(2), 235-250.
- Kennedy, H.P., Farrell, T., Paden, R., Hill, S., Jolivet, R.R., Cooper, B.A., & Rising, S.S. (2011). A randomized clinical trial of group prenatal care in two military settings. *Military Medicine*, 176(10), 1169-77.

Enhanced prenatal care programs delivered through Medicaid

- Arima, Y., Guthrie, B.L., Rhew, I.C., & De Roos, A.J. (2009). The impact of the First Steps prenatal care program on birth outcomes among women receiving Medicaid in Washington State. *Health Policy (Amsterdam, Netherlands)*, 92(1), 49-54.
- Buescher, P.A., Roth, M.S., Williams, D., & Goforth, C.M. (1991). An evaluation of the impact of maternity care coordination on Medicaid birth outcomes in North Carolina. *American Journal of Public Health*, 81(12), 1625-9.
- Hillemeier, M.M., Domino, M.E., Wells, R., Goyal, R.K., Kum, H.C., Cilenti, D., . . . Basu, A. (2015). Effects of maternity care coordination on pregnancy outcomes: propensity-weighted analyses. *Maternal and Child Health Journal*, 19(1), 121-7.
- Korenbrodt, C.C., Gill, A., Clayson, Z., & Patterson, E. (1995). Evaluation of California's statewide implementation of enhanced perinatal services as Medicaid benefits. *Public Health Reports (Washington, D.C.: 1974)*, 110(2).

Nason, C.S., Alexander, G.R., Pass, M.A., & Bolland, J.M. (2003). An evaluation of a Medicaid managed maternity program: the impact of comprehensive care coordination on utilization and pregnancy outcomes. *Journal of Health and Human Services Administration, 26*(2), 239-67.

Willems Van Dijk, J., Anderko, L., & Stetzer, F. (2011). The impact of prenatal care coordination on birth outcomes. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 40*(1), 98-108.

Non-Medicaid enhanced prenatal care for adolescents

Hardy, J.B., King, T.M., & Repke, J.T. (1987). The Johns Hopkins Adolescent Pregnancy Program: an evaluation. *Obstetrics and Gynecology, 69*(3), 300-6.

Korenbrot, C.C., Showstack, J., Loomis, A., & Brindis, C. (1989). Birth weight outcomes in a teenage pregnancy case management project. *Journal of Adolescent Health Care, 10*(2), 97-104.

Sangalang, B.B., Barth, R.P., & Painter, J.S. (2006). First birth outcomes and timing of second births: A statewide case management program for adolescent mothers. *Health & Social Work, 31*(1), 54-63.

Covington, D.L., Peoples-Sheps, M.D., Buescher, P.A., Bennett, T.A., & Paul, M.V. (1998). An Evaluation of an Adolescent Prenatal Education Program. *American Journal of Health Behavior, 22*(5), 323-33.

Non-Medicaid enhanced prenatal care programs for African-American women

Herman, A.A., Berendes, H.W., Yu, K.F., Cooper, L.C., Overpeck, M.D., Rhoads, G., . . . Coates, D.L. (1996). Evaluation of the effectiveness of a community-based enriched model prenatal intervention project in the District of Columbia. *Health Services Research, 31*(5), 609-21.

Klerman, L.V., Ramey, S.L., Goldenberg, R.L., Marbury, S., Hou, J., & Cliver, S.P. (2001). A randomized trial of augmented prenatal care for multiple-risk, Medicaid-eligible African American women. *American Journal of Public Health, 91*(1), 105-11.

Norbeck, J.S., DeJoseph, J.F., & Smith, R.T. (1996). A randomized trial of an empirically-derived social support intervention to prevent low birthweight among African American women. *Social Science & Medicine, 43*(6), 947-954.

Peoples, M.D., Grimson, R.C., & Daughtry, G.L. (1984). Evaluation of the effects of the North Carolina Improved Pregnancy Outcome Project: implications for state-level decision-making. *American Journal of Public Health, 74*(6), 549-54.

Prenatal home visiting programs delivered by professional providers

Meghea, C.I., Raffo, J.E., Zhu, Q., & Roman, L. (2013). Medicaid home visitation and maternal and infant healthcare utilization. *American Journal of Preventive Medicine, 45*(4), 441-7.

Meghea, C.I., You, Z., Raffo, J., Leach, R.E., & Roman, L.A. (2015). Statewide Medicaid Enhanced Prenatal Care Programs and infant mortality. *Pediatrics, 136*(2), 334-42.

Roman, L., Raffo, J.E., Zhu, Q., & Meghea, C.I. (2014). A statewide Medicaid enhanced prenatal care program: impact on birth outcomes. *Jama Pediatrics, 168*(3), 220-7.

Villar, J., Farnot, U., Barros, F., Victora, C., Langer, A., & Belizan, J.M. (1992). A randomized trial of psychosocial support during high-risk pregnancies. The Latin American Network for Perinatal and Reproductive Research. *The New England Journal of Medicine, 327*(18), 1266-71.

Prenatal home visiting programs delivered by paraprofessionals

Aracena, M., Krause, M., Púerez, C., Múendez, M. J., Salvatierra, L., Soto, M., . . . Altimir, C. (2009). A cost-effectiveness evaluation of a home visit program for adolescent mothers. *Journal of Health Psychology, 14*(7), 878-887.

Heins, H.C. Jr., Nance, N.W., & Ferguson, J.E. (1987). Social support in improving perinatal outcome: the Resource Mothers Program. *Obstetrics and Gynecology, 70*(2), 263-6.

Kothari, C.L., Zielinski, R., James, A., Charoth, R.M., & Sweezy, L.C. (2014). Improved birth weight for Black infants: outcomes of a Healthy Start program. *American Journal of Public Health, 104*(96).

- Redding, S., Conrey, E., Porter, K., Paulson, J., Hughes, K., & Redding, M. (2015). Pathways community care coordination in low birth weight prevention. *Maternal and Child Health Journal*, *19*(3), 643-50.
- Rogers, M.M., Peoples-Sheps, M.D., & Suchindran, C. (1996). Impact of a social support program on teenage prenatal care use and pregnancy outcomes. *Journal of Adolescent Health*, *19*(2), 132-140.

Methadone maintenance for opioid use

- Bale, R.N., Van, S.W.W., Kuldau, J.M., Engelsing, T.M., Elashoff, R.M., & Zarcone, V.P.J. (1980). Therapeutic communities vs methadone maintenance. A prospective controlled study of narcotic addiction treatment: design and one-year follow-up. *Archives of General Psychiatry*, *37*(2), 179-193.
- Dolan, K.A., Shearer, J., MacDonald, M., Mattick, R.P., Hall, W., & Wodak, A.D. (2003). A randomised controlled trial of methadone maintenance treatment versus wait list control in an Australian prison system. *Drug and Alcohol Dependence*, *72*(1), 59-65.
- Gronbladh, L. & Gunne, L. (1989). Methadone-assisted rehabilitation of Swedish heroin addicts. *Drug and Alcohol Dependence*, *24*(1), 31-37.
- Gruber, V.A., Delucchi, K.L., Kielstein, A., & Batki, S.L. (2008). A randomized trial of 6-month methadone maintenance with standard or minimal counseling versus 21-day methadone detoxification. *Drug and Alcohol Dependence*, *94*(1), 199-206.
- Kinlock, T., Gordon, M., Schwartz, R., O'Grady, K., Fitzgerald, T., & Wilson, M. (2007). A randomized clinical trial of methadone maintenance for prisoners: Results at 1-month post-release. *Drug and Alcohol Dependence*, *91*(2-3), 220-227.
- Newman, R., & Whitehill, W. (1979). Double-blind comparison of methadone and placebo maintenance treatments of narcotic addicts in Hong Kong. *The Lancet*, *314*(8141), 485-488.
- Schwartz, R.P., Highfield, D.A., Jaffe, J.H., Brady, J.V., Butler, C.B., Rouse, C.O., . . . Battjes, R.J. (2006). A randomized controlled trial of interim methadone maintenance. *Archives of General Psychiatry*, *63*(1), 102-9.
- Schwartz, R.P., Jaffe, J.H., Highfield, D.A., Callaman, J.M., & O'Grady, K.E. (2007). A randomized controlled trial of interim methadone maintenance: 10-Month follow-up. *Drug and Alcohol Dependence*, *86*(1), 30-36.
- Strain, E.C., Stitzer, M.L., Liebson, I.A., & Bigelow, G.E. (1993). Dose-response effects of methadone in the treatment of opioid dependence. *Annals of Internal Medicine*, *119*(1), 23-27.
- Vanichseni, S., Wongsuwan, B., Choopanya, K., & Wongpanich, K. (1991). A controlled trial of methadone maintenance in a population of intravenous drug users in Bangkok: Implications for prevention of HIV. *International Journal of the Addictions*, *26*(12), 1.
- Wilson, M.E., Schwartz, R.P., O'Grady, K.E., & Jaffe, J.H. (2010). Impact of interim methadone maintenance on HIV risk behaviors. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, *87*(4), 586-591.

Early initiation of methadone treatment

- Kinlock, T., Gordon, M., Schwartz, R., O'Grady, K., Fitzgerald, T., & Wilson, M. (2007). A randomized clinical trial of methadone maintenance for prisoners: Results at 1-month post-release. *Drug and Alcohol Dependence*, *91*(2-3), 220-227.
- McKenzie, M., Zaller, N., Dickman, S., Green, T., Parihk, A., Friedman, P., & Rich, J. (2012). A Randomized Trial of Methadone Initiation Prior to Release from Incarceration. *Substance Abuse*, *33*(1), 19-29.
- Rich, J.D., McKenzie, M., Larney, S., Wong, J.B., Tran, L., Clarke, J., Noska, A., . . . Zaller, N. (2015). Methadone continuation versus forced withdrawal on incarceration in a combined US prison and jail: a randomised, open-label trial. *Lancet (london, England)*, *386*(9991), 350-9.
- Schwartz, R.P., Highfield, D.A., Jaffe, J.H., Brady, J.V., Butler, C.B., Rouse, C.O., . . . Battjes, R. J. (2006). A randomized controlled trial of interim methadone maintenance. *Archives of General Psychiatry*, *63*(1), 102-9.

Buprenorphine maintenance for opioid use

- Cropsey, K.L., Lane, P.S., Hale, G.J., Jackson, D.O., Clark, C.B., Ingersoll, K.S., Islam, M.A., Stitzer, M.L. (2011). Results of a pilot randomized controlled trial of buprenorphine for opioid dependent women in the criminal justice system. *Drug and Alcohol Dependence*, 119(3), 172-178.
- Fudala, P.J., Bridge, T.P., Herbert, S., Williford, W.O., Chiang, C.N., Jones, K., . . . Tusel, D. (2003). Office-based treatment of opiate addiction with a sublingual-tablet formulation of buprenorphine and naloxone. *The New England Journal of Medicine*, 349(10), 949-958.
- Kakko, J., Svanborg, K.D., Kreek, M.J., & Heilig, M. (2003). 1-year retention and social function after buprenorphine-assisted relapse prevention treatment for heroin dependence in Sweden: A randomised, placebo-controlled trial. *Lancet*, 361(9358), 662-668.
- Krook, A.L., Brørs, O., Dahlberg, J., Grouff, K., Magnus, P., Røysamb, E., & Waal, H. (2002). A placebo-controlled study of high dose buprenorphine in opiate dependents waiting for medication-assisted rehabilitation in Oslo, Norway. *Addiction*, 97(5), 533-542.
- Liebschutz, J.M., Crooks, D., Herman, D., Anderson, B., Tsui, J., Meshesha, L.Z., Dossabhoy, S., Stein, M. (2014). Buprenorphine treatment for hospitalized, opioid-dependent patients: a randomized clinical trial. *Jama Internal Medicine*, 174(8), 1369-76.
- Ling, W., Charuvastra, C., et al. (1998). Buprenorphine maintenance treatment of opiate dependence: A multicenter, randomized clinical trial. *Addiction*, 93(4): 475.
- Lucas, G.M., Chaudhry, A., Hsu, J., Woodson, T., Lau, B., Olsen, Y., . . . Moore, R.D. (2010). Clinic-based treatment of opioid-dependent HIV-infected patients versus referral to an opioid treatment program: A randomized trial. *Annals of Internal Medicine*, 152(11), 704-711.
- Rosenthal, R.N., Ling, W., Casadonte, P., Vocci, F., Bailey, G.L., . . . & Beebe, K.L. (2013). Buprenorphine implants for treatment of opioid dependence: Randomized comparison to placebo and sublingual buprenorphine/naloxone. *Addiction*, 108(12), 2141-2149.

Early initiation of buprenorphine treatment

- D'Onofrio, G., Pantalon, M.V., Owens, P.H., Bernstein, S.L., O'Connor, P.G., . . . & Fiellin, D.A. (2015). Emergency department-initiated buprenorphine/naloxone treatment for opioid dependence: A randomized clinical trial. *JAMA*, 313(16), 1636-1644.
- Gordon, M.S., Kinlock, T.W., Schwartz, R.P., Fitzgerald, T.T., O'Grady, K.E., & Vocci, F.J. (2014). A randomized controlled trial of prison-initiated buprenorphine: prison outcomes and community treatment entry. *Drug and Alcohol Dependence*, 142, 33-40.
- Liebschutz, J.M., Crooks, D., Herman, D., Anderson, B., Tsui, J., Meshesha, L.Z., Dossabhoy, S., Stein, M. (2014). Buprenorphine treatment for hospitalized, opioid-dependent patients: a randomized clinical trial. *Jama Internal Medicine*, 174(8), 1369-76.
- Lucas, G.M., Chaudhry, A., Hsu, J., Woodson, T., Lau, B., Olsen, Y., . . . Moore, R.D. (2010). Clinic-based treatment of opioid-dependent HIV-infected patients versus referral to an opioid treatment program: A randomized trial. *Annals of Internal Medicine*, 152(11), 704-711.

Injectable naltrexone for opioid use

- Comer, S.D., Sullivan, M.A., Yu, E., Rothenberg, J.L., Kleber, H.D., Kampman, K., . . . O'Brien, C.P. (2006). Injectable, sustained-release naltrexone for the treatment of opioid dependence: A randomized, placebo-controlled trial. *Archives of General Psychiatry*, 63(2), 210-218.
- Krupitsky, E., Nunes, E.V., Ling, W., Illeperuma, A., Gastfriend, D.R., & Silverman, B.L. (2011). Injectable extended-release naltrexone for opioid dependence: A double-blind, placebo-controlled, multicentre randomised trial. *Lancet*, 377(9776), 1506-1513.
- Lee, J.D., McDonald, R., Grossman, E., McNeely, J., Laska, E., Rotrosen, J., & Gourevitch, M.N. (2015). Opioid treatment at release from jail using extended-release naltrexone: A pilot proof-of-concept randomized effectiveness trial. *Addiction*, 110(6), 1008-1014.

Lee, J.D., Friedmann, P.D., Kinlock, T.W., Nunes, E.V., Boney, T.Y., Hoskinson, R.A., . . . O'Brien, C.P. (2016). Extended-release naltrexone to prevent opioid relapse in criminal justice offenders. *New England Journal of Medicine*, 374(13), 1232-1242.

Naltrexone implants for opioid use

- Krupitsky, E., Zvartau, E., Blokhina, E., Verbitskaya, E., Wahlgren, V., Tsoy-Podosenin, M., . . . Woody, G.E. (2012). Randomized trial of long-acting sustained-release naltrexone implant vs oral naltrexone or placebo for preventing relapse to opioid dependence. *Archives of General Psychiatry*, 69(9), 973-981.
- Kunøe, N., Lobmaier, P., Vederhus, J.K., Hjerkin, B., Hegstad, S., Gossop, M., . . . Waal, H. (2009). Naltrexone implants after in-patient treatment for opioid dependence: randomised controlled trial. *The British Journal of Psychiatry*, 194(6), 541-546.
- Tiihonen, J., Krupitsky, E., Verbitskaya, E., Blokhina, E., Mamontova, O., Föhr, J., . . . Zvartau, E. (2012). Naltrexone implant for the treatment of polydrug dependence: A randomized controlled trial. *The American Journal of Psychiatry*, 169(5), 531-536.
- Tiurina, A., Krupitsky, E., Zvartau, E., & Woody, G. (2010). Long acting naltrexone implants for heroin dependence. *European Neuropsychopharmacology*, 20(S1), S79-S80.

Buprenorphine implants for opioid use

- Ling, W., Casadonte, P., Bigelow, G., Kampman, K.M., Patkar, A., Bailey, G.L., . . . & Beebe, K.L. (2010). Buprenorphine implants for treatment of opioid dependence: a randomized controlled trial. *JAMA*, 304(14), 1576-1583.
- Rosenthal, R.N., Ling, W., Casadonte, P., Vocci, F., Bailey, G.L., Kampman, K., . . . Beebe, K.L. (2013). Buprenorphine implants for treatment of opioid dependence: Randomized comparison to placebo and sublingual buprenorphine/naloxone. *Addiction*, 108(12), 2141-2149.

Cognitive-behavioral coping skills therapy for opioid misuse

- Fiellin, D.A., Barry, D.T., Sullivan, L.E., Cutter, C.J., Moore, B.A., O'Connor, P.G., & Schottenfeld, R.S. (2013). A randomized trial of cognitive behavioral therapy in primary care-based buprenorphine. *The American Journal of Medicine*, 126(1).
- Ling, W., Hillhouse, M., Ang, A., Jenkins, J., & Fahey, J. (2013). Comparison of behavioral treatment conditions in buprenorphine maintenance. *Addiction*, 108(10), 1788-1798.
- Moore, B.A., Barry, D.T., Sullivan, L.E., O'Connor, P.G., Cutter, C.J., Schottenfeld, R.S., & Fiellin, D.A. (2012). Counseling and directly observed medication for primary care buprenorphine/naloxone maintenance. *Journal of Addiction Medicine*, 1.
- Moore, B.A., Fazzino, T., Barry, D.T., Fiellin, D.A., Cutter, C.J., Schottenfeld, R.S., & Ball, S.A. (2013). The Recovery Line: A pilot trial of automated, telephone-based treatment for continued drug use in methadone maintenance. *Journal of Substance Abuse Treatment*, 45(1), 63-69.

Contingency management for opioid misuse

- Bronner, R.K., Kidorf, M.S., King, V.L., Stoller, K.B., Neufeld, K.J., & Kolodner, K. (2007). Comparing adaptive stepped care and monetary-based voucher interventions for opioid dependence. *Drug and Alcohol Dependence*, 88, S14-S23.
- Carroll, K.M., Ball, S.A., Nich, C., O'Connor, P.G., Eagan, D.A., Frankforter, . . . Rounsaville, B.J. (2001). Targeting behavioral therapies to enhance naltrexone treatment of opioid dependence: efficacy of contingency management and significant other involvement. *Archives of General Psychiatry*, 58(8), 755-761.
- Chen, W., Hong, Y., Zou, X., McLaughlin, M.M., Xia, Y., & Ling, L. (2013). Effectiveness of prize-based contingency management in a methadone maintenance program in China. *Drug and Alcohol Dependence*, 133(1), 270-274.
- Hser, Y.I., Li, J., Jiang, H., Zhang, R., Du, J., Zhang, C., Zhang, B., . . . Zhao, M. (2011). Effects of a randomized contingency management intervention on opiate abstinence and retention in methadone maintenance treatment in China. *Addiction*, 106(10), 1801-1809.

- Kidorf, M., Brooner, R.K., Gandotra, N., Antoine, D., King, V.L., Peirce, J., & Ghazarian, S. (2013). Reinforcing integrated psychiatric service attendance in an opioid-agonist program: A randomized and controlled trial. *Drug and Alcohol Dependence*, 133(1), 30-36.
- Ling, W., Hillhouse, M., Ang, A., Jenkins, J., & Fahey, J. (2013). Comparison of behavioral treatment conditions in buprenorphine maintenance. *Addiction*, 108(10), 1788-1798.
- Preston, K.L., Umbricht, A., & Epstein, D.H. (2000). Methadone dose increase and abstinence reinforcement for treatment of continued heroin use during methadone maintenance. *Archives of General Psychiatry*, 57(4), 395-404.
- Preston, K.L., Umbricht, A., & Epstein, D.H. (2002). Abstinence reinforcement maintenance contingency and one-year follow-up. *Drug and Alcohol Dependence*, 67(2), 125-137.
- Rowan-Szal, G.A.P.D., Joe, G.W.E.D., Hiller, M.L.P.D., & Simpson, D.D.P.D. (1997). Increasing early engagement in methadone treatment. *Journal of Maintenance in the Addictions*, 1(1), 49-61.

Collaborative primary care for anxiety

- Craske, M.G., Stein, M.B., Sullivan, G., Sherbourne, C., Bystritsky, A., Rose, R.D., . . . Roy-Byrne, P. (2011). Disorder-specific impact of coordinated anxiety learning and management treatment for anxiety disorders in primary care. *Archives of General Psychiatry*, 68(4), 378-88.
- Muntingh, A., van der Feltz-Cornelis, C., van Marwijk, H., Spinhoven, P., Assendelft, W., de Waal, M., Ader, A., van Balkom, A. (2014). Effectiveness of collaborative stepped care for anxiety disorders in primary care: A pragmatic cluster randomised controlled trial. *Psychotherapy and Psychosomatics*, 83(1), 37-44.
- Price, D., Beck, A., Nimmer, C., & Bensen, S. (2000). The treatment of anxiety disorders in a primary care HMO setting. *The Psychiatric Quarterly*, 71(1), 31-45.
- Rollman, B.L., Belnap, B.H., Mazumdar, S., Houck, P.R., Zhu, F., Gardner, W., . . . Shear, M.K. (2005). A randomized trial to improve the quality of treatment for panic and generalized anxiety disorders in primary care. *Archives of General Psychiatry*, 62(12), 1332-1341.

Collaborative primary care for depression among adults

- Adler, D.A., Bungay, K.M., Wilson, I.B., Pei, Y., Supran, S., Peckham, E., . . . Rogers, W.H. (2004). The impact of a pharmacist intervention on 6-month outcomes in depressed primary care patients. *General Hospital Psychiatry*, 26(3), 199-209.
- Aragones, E., Lluís, P.J., Caballero, A., Lopez-Cortacans, G., Casaus, P., Maria, H. J., . . . Folch, S. (2012). Effectiveness of a multi-component programme for managing depression in primary care: A cluster randomized trial. The INDI project. *Journal of Affective Disorders*, 142(1-3), 297-305.
- Berghöfer, A., Hartwich, A., Bauer, M., Unützer, J., Willich, S.N., & Pfennig, A. (2012). Efficacy of a systematic depression management program in high utilizers of primary care: A randomized trial. *BMC Health Services Research*, 12(298).
- Capoccia, K.L., Boudreau, D.M., Blough, D.K., Ellsworth, A.J., Clark, D.R., Stevens, N.G., . . . Sullivan, S.D. (2004). Randomized trial of pharmacist interventions to improve depression care and outcomes in primary care. *American Journal of Health-System Pharmacy*, 61(4), 364-372.
- Datto, C.J., Thompson, R., Horowitz, D., Disbot, M., & Oslin, D.W. (2003). The pilot study of a telephone disease management program for depression. *General Hospital Psychiatry*, 25(3).
- Dietrich, A.J., Oxman, T.E., Williams, J.J. W., Schulberg, H.C., Bruce, M.L., Lee, P.W., . . . Nutting, P.A. (2004). Re-engineering systems for the treatment of depression in primary care: Cluster randomised controlled trial. *BMJ: British Medical Journal*, 329(7466), 602.
- Dobscha, S.K., Corson, K., Hickam, D.H., Perrin, N.A., Kraemer, D.F., & Gerrity, M.S. (2006) Depression decision support in primary care: A cluster randomized trial. *Annals of Internal Medicine*, 145(7), 477-487.
- Finley, P.R., Rens, H.R., Pont, J.T., Gess, S.L., Louie, C., Bull, S.A., . . . Bero, L.A. (2003). Impact of a collaborative care model on depression in a primary care setting: A randomized controlled trial. *Pharmacotherapy*, 23(9), 1175-1185.

- Gensichen, J., von Korff, M., Peitz, M., Muth, C., Beyer, M., G uthlin, C., . . . Gerlach, F.M. (2009). Case management for depression by health care assistants in small primary care practices: a cluster randomized trial. *Annals of Internal Medicine*, 151(6), 369-378.
- Hedrick, S.C., Chaney, E.F., Felker, B., Liu, C.-F., Hasenberg, N., Heagerty, P., . . . Katon, W. (2003). Effectiveness of collaborative care depression treatment in veterans' affairs primary care. *Journal of General Internal Medicine*, 18(1), 9-16.
- Katon, W., Robinson, P., Von Korff M., Lin, E., Bush, T., Ludman, E., . . . Walker, E. (1996). A multi-faceted intervention to improve treatment of depression in primary care. *Archives of General Psychiatry*, 53(10), 924-932.
- Katon, W., Von Korff M., Lin, E., Simon, G., Walker, E., Unutzer, J., . . . Ludman, E. (1999). Stepped collaborative care for primary care patients with persistent symptoms of depression: a randomized trial. *Archives of General Psychiatry*, 56(12), 1109-15.
- Katzelnick, D.J., Simon, G.E., Pearson, S.D., Manning, W.G., Helstad, C.P., Henk, H.J., . . . Kobak, K.A. (2000). Randomized trial of a depression management program in high utilizers of medical care. *Archives of Family Medicine*, 9(4), 345-351.
- Klinkman, M.S., Bauroth, S., Fedewa, S., Kerber, K., Kuebler, J., Adman, T., & Sen, A. (2010). Long-term clinical outcomes of care management for chronically depressed primary care patients: A report from the depression in primary care project. *Annals of Family Medicine*, 8(5), 387-396.
- Landis, S.E., Gaynes, B.N., Morrissey, J.P., Vinson, N., Ellis, A.R., & Domino, M.E. (2007). Generalist care managers for the treatment of depressed Medicaid patients in North Carolina: A pilot study. *BMC Family Practice*, 8(1), 7-11.
- Lin, E.H., VonKorff, M., Russo, J., Katon, W., Simon, G.E., Un tzer, J., . . . Ludman, E. (2000). Can depression treatment in primary care reduce disability? A stepped care approach. *Archives of Family Medicine*, 9(10), 1052-1058.
- Menchetti, M., Sighinolfi, C., Di Michele, V., Peloso, P., Nespeca, C., Bandieri, P.V., . . . Berardi, D. (2013). Effectiveness of collaborative care for depression in Italy. A randomized controlled trial. *General Hospital Psychiatry*, 35(6), 579-586.
- Richards, D.A., Lovell, K., Gilbody, S., Gask, L., Torgerson, D., Barkham, M., . . . Richardson, R. (2008). Collaborative care for depression in UK primary care: A randomized controlled trial. *Psychological Medicine*, 38(2), 279-287.
- Richards, D.A., Hill, J.J., Gask, L., Lovell, K., Chew-Graham, C., Bower, P., . . . Barkham, M. (2013). Clinical effectiveness of collaborative care for depression in UK primary care (CADET): Cluster randomised controlled trial. *BMJ Clinical Research Ed*, 347.
- Rost, K., Nutting, P., Smith, J., Werner, J., & Duan, N. (2001). Improving depression outcomes in community primary care practice. A randomized trial of the QuEST Intervention. *Journal of General Internal Medicine*, 16(3), 143-149.
- Schoenbaum, M., Unutzer, J., Sherbourne, C., Duan, N., Rubenstein, L. V., Miranda, J., . . . Wells, K. (2001). Cost-effectiveness of practice-initiated quality improvement for depression: results of a randomized controlled trial. *Jama : the Journal of the American Medical Association*, 286(11), 1325-30.
- Shippee, N.D., Shah, N.D., Angstman, K.B., DeJesus, R.S., Wilkinson, J.M., Bruce, S.M., & Williams, M.D. (2013). Impact of collaborative care for depression on clinical, functional, and work outcomes: A practice-based evaluation. *The Journal of Ambulatory Care Management*, 36(1), 13-23
- Simon, G.E., VonKorff, M., Rutter, C., & Wagner, E. (2000). Randomised trial of monitoring, feedback, and management of care by telephone to improve treatment of depression in primary care. *BMJ*, 320(7234), 550-554.
- Simon, G.E., Ludman, E.J., & Rutter, C.M. (2009). Incremental benefit and cost of telephone care management and telephone psychotherapy for depression in primary care. *Archives of General Psychiatry*, 66(10), 1081-9.
- Smit, A., Kluiter, H., Conradi, H.J., van der Meer, K., Tiemens, B.G., Jenner, J.A., . . . Ormel, J. (2006). Short-term effects of enhanced treatment for depression in primary care: Results from a randomized controlled trial. *Psychological Medicine*, 36(1), 15-26.
- Swindle, R.W., Rao, J.K., Helmy, A., Plue, L., Zhou, X. H., Eckert, G.J., & Weinberger, M. (2003). Integrating clinical nurse specialists into the treatment of primary care patients with depression. *International Journal of Psychiatry in Medicine*, 33(1), 17-37.

- Uebelacker, L.A., Marootian, B.A., Tigue, P., Haggarty, R., Primack, J.M., & Miller, I.W. (2011). Telephone depression care management for Latino Medicaid health plan members: A pilot randomized controlled trial. *The Journal of Nervous and Mental Disease, 199*(9), 678-683.
- Wells, K.B., Sherbourne, C., Schoenbaum, M., Duan, N., Meredith, L., Unützer, J., . . . Rubenstein, L.V. (2000). Impact of disseminating quality improvement programs for depression in managed primary care: a randomized controlled trial. *JAMA, 283*(2), 212-220.

Collaborative primary care for depression among older adults

- Blanchard, M.R., Waterreus, A., & Mann, A.H. (1995). The effect of primary care nurse intervention upon older people screened as depressed. *International Journal of Geriatric Psychiatry, 10*(4), 289-298.
- Bruce, M.L., Ten, H.T.R., Reynolds, C.F., Katz, I.I., Schulberg, H.C., Mulsant, B.H., . . . Alexopoulos, G.S. (2004). Reducing suicidal ideation and depressive symptoms in depressed older primary care patients: A randomized controlled trial. *JAMA, 291*(9), 1081-1091.
- Chew-Graham, C.A., Lovell, K., Roberts, C., Baldwin, R., Morley, M., Burns, A., . . . Burroughs, H. (2007). A randomised controlled trial to test the feasibility of a collaborative care model for the management of depression in older people. *The British Journal of General Practice: The Journal of the Royal College of General Practitioners, 57*(538), 364-370.
- Gallo, J.J., Bogner, H.R., Morales, K.H., Post, E.P., Lin, J.Y., & Bruce, M.L. (2007). The effect of a primary care practice-based depression intervention on mortality in older adults: a randomized trial. *Annals of Internal Medicine, 146*(10), 689-98.
- McCusker, J., Sewitch, M., Cole, M., Yaffe, M., Cappeliez, P., Dawes, M., . . . Latimer, E. (2008). Project Direct: Pilot study of a collaborative intervention for depressed seniors. *Canadian Journal of Community Mental Health, 27*(2), 201-218.
- Unützer, J., Katon, W., Callahan, C.M., Williams, J.W., Hunkeler, E., Harpole, L., . . . Lin, E.H.B. (2002). Collaborative care management of late-life depression in the primary care setting: A randomized controlled trial. *Journal- American Medical Association, 288*, 2836-2845.
- Unützer, J., Tang, L., Oishi, S., Katon, W., Williams, J. W., Hunkeler, E., . . . Langston, C. (2006). Reducing suicidal ideation in depressed older primary care patients. *Journal of the American Geriatrics Society, 54*(10), 1550-1556.

Collaborative primary care for depression among adults with comorbid medical conditions

- Bogner, H.R., de Vries, H.F., Kaye, E.M., & Morales, K.H. (2013). Pilot trial of a licensed practical nurse intervention for hypertension and depression. *Family Medicine, 45*(5), 323-329.
- Coventry, P., Lovell, K., Dickens, C., Bower, P., Chew-Graham, C., McElvenny, D., . . . Gask, L. (2015). Integrated primary care for patients with mental and physical multimorbidity: cluster randomised controlled trial of collaborative care for patients with depression comorbid with diabetes or cardiovascular disease. *BMJ, 350*, h638.
- Davidson, K.W., Rieckmann, N., Clemow, L., Schwartz, J.E., Shimbo, D., . . . Burg, M. M. (2010). Enhanced depression care for patients with acute coronary syndrome and persistent depressive symptoms: Coronary psychosocial evaluation studies randomized controlled trial. *Archives of Internal Medicine, 170*(7), 600-608.
- Davidson, K.W., Bigger, J.T., Burg, M.M., Duer-Hefele, J., Medina, V., Newman, J.D., . . . Vaccarino, V. (2013). Centralized, stepped, patient preference-based treatment for patients with post-acute coronary syndrome depression: CODIACS vanguard randomized controlled trial. *JAMA Internal Medicine, 173*(11), 997-1004.
- Ell, K., Katon, W., Xie, B., Lee, P.J., Kapetanovic, S., Guterman, J., & Chou, C.P. (2010). Collaborative care management of major depression among low-income, predominantly Hispanic subjects with diabetes: A randomized controlled trial. *Diabetes Care, 33*(4), 706-713.
- Katon, W., Russo, J., Lin, E. H., Schmittdiel, J., Ciechanowski, P., Ludman, E., . . . Von Korff, M. (2012). Cost-effectiveness of a multicondition collaborative care intervention: a randomized controlled trial. *Archives of General Psychiatry, 69*(5), 506-514.

- Katon, W.J., Von Korff, M., Lin, E.H., Simon, G., Ludman, E., Russo, J., . . . Bush, T. (2004). The Pathways Study: A randomized trial of collaborative care in patients with diabetes and depression. *Archives of General Psychiatry*, *61*(10), 1042-1049.
- Katon, W.J., Lin, E.H., Von, K.M., Ciechanowski, P., Ludman, E.J., Young, B., . . . McCulloch, D. (2010). Collaborative care for patients with depression and chronic illnesses. *The New England Journal of Medicine*, *363*(27), 2611-2620.
- Morgan, M.A.J., Coates, M.J., Dunbar, J.A., Schlicht, K., Reddy, P., & Fuller, J. (2013). The TrueBlue model of collaborative care using practice nurses as case managers for depression alongside diabetes or heart disease: A randomised trial. *BMJ Open*, *3*(1).
- Rollman, B.L., Belnap, B.H., LeMenager, M.S., Mazumdar, S., Houck, P.R., Counihan, P.J., . . . Reynolds, C.F. (2009). Telephone-delivered collaborative care for treating post-CABG depression: A randomized controlled trial. *JAMA : The Journal of the American Medical Association*, *302*(19), 2095-2103.
- Simon, G.E., Katon, W.J., Lin, E.H., Rutter, C., Manning, W.G., Von, K.M., . . . Young, B. A. (2007). Cost-effectiveness of systematic depression treatment among people with diabetes mellitus. *Archives of General Psychiatry*, *64*(1), 65-72.
- Vera, M., Perez-Pedrogo, C., Huertas, S.E., Reyes-Rabanillo, M.L., Juarbe, D., Huertas, A., . . . Chaplin, W. (2010). Collaborative care for depressed patients with chronic medical conditions: A randomized trial in Puerto Rico. *Psychiatric Services*, *61*(2), 144-150.
- Williams, L.S., Kroenke, K., Bakas, T., Plue, L.D., Brizendine, E., Tu, W., & Hendrie, H. (2007). Care management of poststroke depression: A randomized, controlled trial. *Stroke*, *38*(3), 998-1003.
- Wu, B., Jin, H., Vidyanti, I., Lee, P.J., Ell, K., & Wu, S. (2014). Collaborative depression care among Latino patients in diabetes disease management, Los Angeles, 2011-2013. *Preventing Chronic Disease*, *11*, E148.

Collaborative primary care for depression among older adult with comorbid medical conditions

- Bogner, H.R., & de Vries, H.F. (2008). Integration of depression and hypertension treatment: A pilot, randomized controlled trial. *Annals of Family Medicine*, *6*(4), 295-301.
- Bogner, H.R., & de Vries, H.F. (2010). Integrating type 2 diabetes mellitus and depression treatment among African Americans a randomized controlled pilot trial. *The Diabetes Educator*, *36*(2), 284-292.
- Williams, J.W.J., Katon, W., Lin, E.H., Nöel, P.H., Worchel, J., Cornell, J., . . . IMPACT Investigators. (2004). The effectiveness of depression care management on diabetes-related outcomes in older patients. *Annals of Internal Medicine*, *140*(12), 1015-24.

Telemedicine for behavioral health in primary care for posttraumatic stress disorder

- Fortney, J.C., Pyne, J.M., Kimbrell, T.A., Hudson, T.J., Robinson, D.E., Schneider, R., . . . Schnurr, P.P. (2015). Telemedicine-based collaborative care for posttraumatic stress disorder: a randomized clinical trial. *Jama Psychiatry*, *72*(1), 58-67.
- Frueh, B.C., Monnier, J., Yim, E., Grubaugh, A.L., Hamner, M.B., & Knapp, R.G. (2007). A randomized trial of telepsychiatry for post-traumatic stress disorder. *Journal of Telemedicine and Telecare*, *13*(3), 142-147.
- Morland, L.A., Mackintosh, M.-A., Morland, L.A., Greene, C.J., Rosen, C.S., Rosen, C.S., . . . Frueh, B.C. (2014). Cognitive processing therapy for posttraumatic stress disorder delivered to rural veterans via telemental health: A randomized noninferiority clinical trial. *Journal of Clinical Psychiatry*, *75*(5), 470-476.
- Morland, L.A., Mackintosh, M.-A., Rosen, C.S., Willis, E., Resick, P., Chard, K., & Frueh, B.C. (2015). Telemedicine versus in-person delivery of cognitive processing therapy for women with posttraumatic stress disorder: A randomized noninferiority trial. *Depression and Anxiety*, *32*(11), 811-820.

Telemedicine for behavioral health in primary care for depression

- Moreno, F.A., Chong, J., Dumbauld, J., Humke, M., & Byreddy, S. (2012). Use of standard Webcam and internet equipment for telepsychiatry treatment of depression among underserved Hispanics. *Psychiatric Services*, *63*(12), 1213-1217.
- Nelson, E.L., Barnard, M., & Cain, S. (2003). Treating childhood depression over videoconferencing. *Telemedicine Journal and E-Health*, *9*(1), 49-55.

Ruskin, P.E., Silver-Aylaian, M., Kling, M.A., Reed, S.A., Bradham, D.D., Hebel, J.R., . . . Hauser, P. (2004). Treatment outcomes in depression: comparison of remote treatment through telepsychiatry to in-person treatment. *The American Journal of Psychiatry*, 161(8), 1471-1476.

Patient-centered medical homes

- Boult, C., Leff, B., Boyd, C.M., Wolff, J.L., Marsteller, J.A., Frick, K.D., . . . Scharfstein, D.O. (2013). A matched-pair cluster-randomized trial of guided care for high-risk older patients. *Journal of General Internal Medicine*, 28(5), 612-621.
- Cuellar, A., Helmchen, L.A., Gimm, G., Want, J., Burla, S., Kells, B.J., . . . Nichols, L.M. (2016). The CareFirst patient-centered medical home program: Cost and utilization effects in its first three years. *Journal of General Internal Medicine*, 1-7.
- David, G., Gunnarsson, C., Saynisch, P.A., Chawla, R., & Nigam, S. (2014). Do patient-entered medical homes reduce emergency department visits? *Health Services Research*, 5.
- Friedberg, M.W., Schneider, E.C., Friedberg, M.W., Schneider, E.C., Friedberg, M.W., Schneider, E.C . . . Volpp, K.G. (2014). Association between participation in a multipayer medical home intervention and changes in quality, utilization, and costs of care. *Journal of the American Medical Association*, 311(8), 815-825.
- Friedberg, M.W., Schneider, E.C., Friedberg, M.W., Schneider, E.C., Friedberg, M.W., Schneider, E.C., . . . Volpp, K.G. (2015). Effects of a medical home and shared savings intervention on quality and utilization of care. *Jama Internal Medicine*, 175(8), 1362-1368.
- Liss, D.T., Fishman, P.A., Rutter, C.M., Grembowski, D., Ross, T.R., Johnson, E.A., & Reid, R.J. (2013). Outcomes among chronically ill adults in a medical home prototype. *The American Journal of Managed Care*, 19(10), 348-58.
- Maeng, D.D., Khan, N., Tomcavage, J., Graf, T.R., Steele, G.D., & Davis, D.E. (2015). Reduced acute inpatient care was largest savings component of geisinger health system's patient-centered medical home. *Health Affairs*, 34(4), 636-644.
- Reid, R.J., Johnson, E.A., Hsu, C., Ehrlich, K., Coleman, K., Trescott, C., . . . Fishman, P.A. (2013). Spreading a medical home redesign: effects on emergency department use and hospital admissions. *Annals of Family Medicine*, 11(Suppl 1), S19-S26.
- Rosenthal, M.B. (2013). Effect of a multipayer patient-centered medical home on health care utilization and quality: The Rhode Island Chronic Care Sustainability Initiative Pilot Program. *Jama Internal Medicine*, 173(20), 1907.
- Rosenthal, M.B., Sinaiko, A.D., Eastman, D., Chapman, B., & Partridge, G. (2015). Impact of the Rochester medical home initiative on primary care practices, quality, utilization, and costs. *Medical Care*, 53(11), 967-73.
- Rosenthal, M.B., Alidina, S., Friedberg, M.W., Singer, S.J., Eastman, D., Li, Z., & Schneider, E.C. (2016). A difference-in-difference analysis of changes in quality, utilization and cost following the Colorado multi-payer patient-centered medical home pilot. *Journal of General Internal Medicine*, 31(3), 289-296.
- Rosenthal, M.B., Alidina, S., Friedberg, M.W., Singer, S.J., Eastman, D., Li, Z., & Schneider, E.C. (2016B). Impact of the Cincinnati aligning forces for quality multi-payer patient centered medical home pilot on health care quality, utilization, and costs. *Medical Care Research and Review*, 73(5), 532-45.
- van Hasselt, M., McCall, N., Keyes, V., Wensky, S.G., & Smith, K.W. (2014). Total cost of care lower among Medicare fee-for service beneficiaries receiving care from patient-centered medical homes. *Health Services Research*, 50(1), 253-272.
- Wang, Q.C., Chawla, R., Colombo, C.M., Snyder, R.L., & Nigam, S. (2014). Patient-centered medical home impact on health plan members with diabetes. *Journal of Public Health Management and Practice*, 20(5), E12-E20.
- Werner, R.M., Duggan, M., Duey, K., Zhu, J., & Stuart, E.A. (2013). The Patient-centered Medical Home: An Evaluation of a Single Private Payer Demonstration in New Jersey. *Medical Care Philadelphia*, 51(6), 487-493.

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