APPENDIX B. Responsive Innovation Evidence Review Example: Advanced Access

VAIL-PACT Mini-Review

Advanced Access

For this mini-review, we searched the PubMed database from 1999-2011 for "advanced access" or "open access," "primary health care" or "primary care" or "ambulatory care." We also did a Google search for similar terms to identify relevant resources.

What is advanced access?
Advanced or open access is the reorganization of clinic practices to improve patients' access to care. The objective is to allow patients to see a physician or other primary care practitioner at a time and date that is convenient for them. The advanced access model is often considered to be another scheduling system; however, it is better to be considered a comprehensive approach to reengineering patient care delivery.

Since its introduction more than 12 years ago, advanced access has been the subject of much research. Advanced access converges to the following principles in determining successful implementation:

1. **Understand supply/capacity and demand**. Supply is the number of hours and appointments available in a clinical practice. Demand is the patients' requests for appointments. Calculating demand allows appropriate matching of supply of services.
2. **Reduce backlog**. Backlog is the number of patients waiting to see a physician. Reducing backlog initially requires an upfront commitment of time from providers to work extra hours to clear the backlog before advanced access scheduling can begin. In addition, long term strategies can help sustain low backlog. Examples of these strategies include extending visit intervals, fully utilizing other care team members to shift clinical care and most clerical work away from providers, optimizing continuity, maximizing activities for one visit so as to reduce future work and reviewing schedules for duplicate visits.
3. **Simplify appointment types and times**. This implies equal access for any problem, whether it is urgent, routine or preventative.

4. **Develop contingency plans to sustain the system**. The clinical practice needs to plan for vacations, seasonal increases in demand (e.g. influenza season, back-to-school physicals), and unexpected staff illness.
5. **Reduce demand for unnecessary visits**. This is done by emphasizing continuity of care, managing of primary care panel size, extending visit intervals, and providing other sources of access to care such as group visits, phone visits and e-visits.
6. **Optimize effective supply.** Multiple steps are required to achieve this principle. Delegate physicians' functions that can be performed by someone else and elevate all members of the care team to the highest level their education and training allows. In addition, standardize best practices.

Advanced access makes intuitive sense, which is why it is frequently considered in the context of patient-centered medical homes. Successful implementation of advanced access has the following theoretical benefits:

- Better patient access to services – all levels (primary, secondary and tertiary).
- Maximum utilization of staff – practitioners work at their full scope of practice thereby reducing practice overlaps and inefficiencies.
- Better clinical outcomes – illnesses/diseases are diagnosed earlier, thus improving the chances of cure and/or treatment.
- More patients able to access health care services – a more efficient clinical practice will be able to accommodate new patients.
- Provider satisfaction improves.. Appropriate clinical practice size is determined so that demand and supply are balanced. As a result, providers do not redirect patients to the emergency departments or put them on long waiting lists.
- Better utilization of financial resources – unnecessary and duplicate visits are eliminated and providers are engaged in appropriate service provision.

What is the evidence that advanced access works?

The evidence of the impact of advanced access has not been entirely positive. Early studies documenting the implementation of advanced access showed promising results such as reduced wait times and better patient satisfaction. But a recent review of 124 studies from 1998 to 2008 by Mehrotra et al.[1] showed the majority of studies had major methodological limitations. Among the studies that assessed outcomes beyond access to care, advanced access had mixed effects on patient satisfaction, staff satisfaction, and no-show rate. Mehrota et al. did an evaluation of six practices in the Boston area and showed that after implementation of advanced access, scheduling improved in some practices but none could achieve same-day access. Patient and staff satisfaction and patient no-show rate were unchanged. The author commented that there were multiple barriers contributing to the lack of demonstrative success after implementation. These barriers included extended provider leaves causing unexpected fluctuations of appointment supply; the inability to assess appointment demand accurately, which was caused by not knowing each physician's panel size, which in turn not allow accurate calculation of demand. Tantau[2] highlighted other pitfalls that prevented sustainable implementation. These included the failure of not rigorously monitoring and matching daily and weekly

demand and supply for each provider; practices revert to carving out strategies to reserve future supply rather than address backlog that will reemerge when demand and supply are not balanced; poor continuity of care, which drive up demand for visits; backlog reduction that relies solely on working harder and does not use other "smart strategies" to fundamentally change the way demand is managed; and after achieving improved delays, not continuing to aim for zero days' delay.

Recent qualitative research with patients has indicated that same-day appointments and the flexibility of accessing the appointment system at any time aren't necessarily as important as anticipated. [3] Among patients with chronic conditions, predictable and regular appointment times that could be planned in advance may be more preferable, especially when patients may not remember to call for their next routine appointment when the time approaches. In contrast, patients with non-chronic or urgent medical needs value sooner appointments (such as for a cold or viral infection) and are not as worried about seeing their own provider. In fact, in one study, after the implementation of advanced access scheduling, the number of chronic disease follow-up appointments decreased but non-chronic disease care visits increased.[3] It was hypothesized that patients previously combined their routine visits with consultations for non-chronic/urgent problems. With advanced access in place, there could be a "decoupling" of the two types of visits. What these recent studies show is that patient's preference may influence how advanced access scheduling might be modified to accommodate their different needs. A survey of 13,000 patients in the United Kingdom after the implementation of advanced access showed that the top priority for patients was to be seen on their day of choice rather than to be seen quickly. However, different patient groups had different priorities---younger patients preferred to be seen on a specific day, while patients with ongoing medical problems preferred the ability to book appointments well in advance.[4]

It is important to note that better and quicker access to appointments is not equivalent to improved access to care. Improved access is also about care that is coordinated, a strong care relationship between provider and patient, and care that is longitudinally continuous with a given care team/provider. Practices solely focused on advanced access to improve the availability of same-day appointments, could miss the broader picture of improving access to care.[5] For example, Phan et al.[6] and Salisbury et al.[7] found that after the implementation of advanced access, continuity of care (as measured patients seeing the same doctor in a given period of time) either remained the same or declined.

Thus, for successful implementation of advanced access practices should consider how the primary care practice functions and the way care is delivered, patients' preferences, and barriers to sustainability.

Resources for advanced access implementation

Many resources are available that could inform advance access planning and implementation. Below are a few to consider:

1. Alberta Access Improvement Measure website has a comprehensive list of brief articles covering all aspects of advance access implementation. The website includes a series of over 50 short articles covering a range of topics such as :
    a. Examining Demand, Supply and Activity
    b. Tips for balancing demand and supply
    c. Strategies for reducing no-shows
    d. Provider capacity limits
    e. Advanced access and contingency plans
    f. Plans for patients of the absent provider
    g. Five levels of mapping flow
    h. Key measures of advanced access
    i. Panel and caseload equity
    j. Scripting at the front desk

    http://www.albertaaim.ca/resourcespage.html

2. Mark Murray produced a short but helpful document on how to determine the panel size for doctors.
    http://www.aafp.org/fpm/2007/0400/p44.html

3. TransforMED, which is s a subsidiary of the American Academy of Family Physicians, is a firm that helps practices implement patient centered medical homes. Its resource website provides information on advanced access and other general access to care resource materials.
    http://www.transformed.com/resources/Access.cfm

References

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2. Tantau C. Accessing patient-centered care using the advanced access model. *J Ambul Care Manage.* Jan-Mar 2009;32(1):32-43.

3. Gladstone J, Howard M. Effect of advanced access scheduling on chronic health care in a Canadian practice. *Can Fam Physician.* Jan 2011;57(1):e21-25.'

4. Salisbury C, Goodall S, Montgomery AA, et al. Does Advanced Access improve access to primary health care? Questionnaire survey of patients. *Br J Gen Pract.* Aug 2007;57(541):615-621.

5. Pope C, Banks J, Salisbury C, Lattimer V. Improving access to primary care: eight case studies of introducing Advanced Access in England. *J Health Serv Res Policy.* Jan 2008;13(1):33-39.

6. Phan K, Brown SR. Decreased continuity in a residency clinic: a consequence of open access scheduling. *Fam Med.* Jan 2009;41(1):46-50.

7. Salisbury C, Montgomery AA, Simons L, et al. Impact of Advanced Access on access, workload, and continuity: controlled before-and-after and simulated-patient study. *Br J Gen Pract.* Aug 2007;57(541):608-614.

Evidence Table: Summary of articles cited in this overview

Author/Year/ Journal	Title	Study Design	Data Source	Context	Sample Size/Characteristics	Outcomes Measured	Results
Mehrotra (2008) *Ann Intern Med*	Implementing Open Access Scheduling of Visits in Primary Care practices: A Cautionary Tale	Case series	1. Manual and automated scheduling systems. 2. Surveys	3 family practices, 2 community health centers, and 1 internal medicine practice in the Boston, Massachusetts metropolitan area. No. of providers ranged from 4-8. There were up to 5 nurse practitioners/physician's assistants in these practices.	2 family practices served a middle class suburban patient population and 1 served a poor to working-class community. Both community clinics served Latino immigrants with one serving middle class communities as well. The internal medicine practice served a well-educated, wealthy, suburban patient community.	1. Time to third available appointments 2. No show rates 3. Patient and staff satisfaction with appointment availability	1. Substantial reduction in mean wait times to third available wait time within 4 months of implementation for 5 of the 6 clinics. 2. None of the 5 clinics with OAS attained the goal of same-day access and waits for third available appointments increased during the 2 year follow up period. 3. No consistent changes reported in patient and staff satisfaction or patient no-show rates. Barriers to OAS implementation: 4. Decreases in appointments due to leave of absence and physician departures 5. Increases in appointment demand when practices reopened to new patients after initial implementation of OAS.
Tantau (2009) *J Ambulatory Care Manage*	Accessing Patient Centered Care using the Advanced Access Model.	Case study	Not explicitly reported.	Ministry Medical Group (MMG) is a traditional multispecialty, mixed payer model with large and small practices in urban, rural and suburban areas in Wisconsin. Providence Community Health Centers (CHHC) provides services to an inner city, urban population in Providence, Rhode Island including pediatrics,	Not reported.	1. Access to third next available appointment 2. Appointment no show rates 3. Number of calendar days until third appointment 4. No. of office visits	1. Significant reduction in delays for patients at both clinics. 2. General reduction over time in time to next available long appointment (MMG), delays in OR scheduling for ENT surgery (MMG), delay in reduction of imaging services (MMG), no show rate (CHHC), and number of calendar days until third appointment (CHHC). 3. Increase in total number of physcian office visits and closer alignment of demand and supply over time at Huron Gastroenterology.

				obstetrics, gynecology and internal medicine.			
Gladstone & Howard (2011) *Can Fam Physician*	Effect of Advanced Access Scheduling on chronic health care in a Canadian Practice.	Pre-post (before and after installation of the Advanced Access Scheduling system)	Chart Abstraction	A primary care physician's practice in Canada	259 (51% male, 216 Hypertension, 156 Type 2 Diabetes, 77 Coronary Artery Disease)	1. No. of visits (chronic/non-chronic) 2. Blood Pressure (BP) 3.Hemogloblin (HbA1C) 4. Low Density Lipoprotein (LDL)	1. Significant decrease in mean number of chronic health appointments and an increase in mean number of non-chronic disease appointments. 2. Significant decreases in number of times BP, HbA_{1C},and LDL were measured per patient 3. Small but significant reduction in LDL levels. 4. No significant differences in the mean number of appointments per patient.
Salisbury (2007) *British Journal of General Practice*	Does Advanced Access improve access to primary health care?	Cross-sectional survey	General Practice Assessment Questionnaire (GPAQ) and patient questionnaire survey	24 practices that had implemented AAS and 23 controls in 12 primary care trust areas of England.	10,821 responses (84% response rate)	Describe patients' priorities and experiences of the appointment system	1. Reason for most patients appointments were for problems they had had for at least "a few weeks" 2. Patients in AA practices were able to have current appointment and see the doctor sooner, but less likely to be able to book in advance 3. No differences in satisfaction of appointment system 4. Patients' top priority was to be seen on a day of choice than quickly 5. Both groups experienced problems with telephone system
Pope (2008) *J Health Serv Res Policy*	Improving access to primary care: eight case studies of introducing Advanced Access in England.	Qualitative structured case studies.	A large mixed method study which used routine activity data, surveys, discrete choice experiments and qualitative research on Advanced Access Practices.	4 general practice clinics using Advanced Access and 4 which did not report using Advanced Access (controls).	Unit of analysis: clinic. The AA clinics had the following characteristics: 50% rural and 50% urban setting, with a list size ranging from 6500-12000. 75% had deprivation payments and all of them had various levels of same	Qualitatively understand the level of adherence to the 5 key components of the AAS system promoted in the UK.	1. Considerable variation in the interpretation and implementation of the advanced access practices. 2. Key principles were often not followed by clinics claiming to follow AAS. 3. There was a strong association of AAS with same day appointment scheduling which overshadowed other principle components of AAS like conceptualization of demand. 4. The guiding philosophy of "manageable demand" appeared counter intuitive to staff

					day scheduling and embargoed slots for emergencies/pre-booked appointments. 75% urban, 25% rural. List size range: 4000-6500. 100% had deprivation payments. All had various levels of pre-booked appointements, emergency/urgent slots with fewer choices of doctors and "open" surgery time.		in the context of general practice which made implementation problematic and the clinics used largely modified/adapted versions of the AAS.
Phan (2009) *Fam Med*	Decreased continuity ina residency clinic" A consequence of Open Access Scheduling.	Pre-post (before and after installation of the Open Access Scheduling system)	Patient visits and provider information obtained from the billing and scheduling system (SOURCE 2000).	Family Medicine Center (FMC) is the ambulatory care site for the Banner Good Samaritan Family Medicine Residency program in Phoenix. FMC serves an urban population. It has 32 physicians (24 residents & 8 faculty). The clinic has 12000 patient visits each year.	375 patients. Majority patients were in the age group of 13-30 years followed by 41-64 years. Patient population was predominantly female.	Continuity of care: 1. Usual Provider Continuity (UPC) Index 2. Modified Modified Continuity Index (MMCI)	Mean UPC and MMCI scores were lower during the open access scheduling period than during traditional scheduling implying a decrease in continuity of care in the residency clinic after the implementation of the open access scheduling system.

Salisbury (2007) British Journal of General Practice	Impact of Advanced Acces on access, workload and continuity: controlled before -and-after and simulated patient study.	Controlled trial and a simulated patient study.	Administrative data from AAS and control clinics.	24 practices that had implemented AAS and 24 controls in 12 primary care trust areas of England.	38% of AA practices offered personal medical services contracts compared to 29% of of controls, 50% had a training practice compared to 38% of controls, 54% received deprivation payments compared to 58% of controls, 17% had any dispensing patients compared to 13% of controls, and 46% were previously fund holding practices compared to 33% of controls. Mean list size was 8240 with 4.19 whole time equivalent doctors for AAS clinics and 6782 for controls with 3.80 whole time equivalent doctors for controls.	Access to care: 1. Time taken to make telephone contact 2. Wait for the first and third available appointments (for a specific doctor and any available doctor) Practice capacity and workload: 3. No. of bookable appointments (doctors & nurses) 4. No. of patients seen by the doctor in the surgery (doctors and nurses). Continuity of care: 5. Date/type/ professional status/clinical identifier data from patient records (used to calculate the Continuity of Care Index).	1. Wait time for appointment with any doctor slightly shorter than control practices. 2. No significant differences in wait times for appointments with a specific doctor. 3. No significant differences in continuity of care (for both doctors and nurses) between the AA and control practices. 4. AA practices provided considerably more appointments in the post AA-period than the pre AA-period. 5. The number of appointments offered, and patients seen increased over time across both AA and control practices with no significant differences between them. 6. AA practices met the NHS's target of doctors seeing patients within 48 hours of request for appointment on 71% of occasions compared to 60% for the control clinics, but this failed to reach statistical significance.

APPENDIX B. Responsive Innovation Evidence Review Example: Interactive Communication

VAIL-PACT Mini-Review [October 2011]

Communication between Primary Care and Mental Health Providers

Background

There is a large body of literature on collaboration between primary care and mental health professionals but success varies (see e.g., Smith et al., 2007). Variation may be due to the specific model of collaboration, the uptake and adherence, and the level of achieved collaboration. Communication between providers is facilitated through shared care documents and established in the form of referral letters. However, interactive communication (as opposed to one-way, static communication) may be a key element of successful models.

Review questions

The questions this review is aiming to address are

1. What are some effective and efficient evidence-based strategies to allow for two-way communication between primary care and mental health?
2. What are the known barriers and facilitators of communication among primary care and mental health providers?

The questions were rooted in concerns about communication and timely feedback for referrals in interactions between primary care and mental health providers. Two specific interventions that a VA innovation team discussed were the use of a common care document and co-location of primary care and mental health providers.

Review methods review question 1

To answer review question 1 we searched for meta-analyses on the topic coordinated care, integrated care, inter-professional collaboration and inter-professional communication and meta-analyses indexed with the MeSH term Interdisciplinary Communication* in October 2011.

We chose the recently published meta-analysis (Foy et al., 2010) prepared by the Southern California Evidence-based Practice Center (EPC) entitled "Meta-analysis: Effect of interactive communication between collaborating primary care physicians and specialists" to select studies investigating the effects of interactive communication. To identify effective strategies we chose comparative studies that reported on the effect of patient outcomes, testing whether the model of collaboration made a difference to patients' health compared to standard care arrangements.

Results review question 1

1. What are some effective and efficient evidence-based strategies to allow for two-way communication between primary care and mental health?

Collaboration models can range from coordinated care, co-located care, and integrated care (e.g., Collins et al., 2010). Coordinated care typically includes a referral relationship between primary and secondary care with routine screening done in primary care. Some healthcare organizations establish co-located services where primary and secondary care are located in the same building. An example of full integration between primary and mental healthcare would be one treatment plan established jointly by both provider types. However, interactive communication is not necessarily seen in practice through in referral or co-location arrangements. Referral systems are characterized by one-way communication. Co-location does not guarantee interactive communication; providers may just as well co-exist in the facility without inter-professional exchange.

The meta-analysis by Foy et al. (2010) highlighted interactive communication as a key feature for collaboration. The review included studies describing collaborative arrangements between primary care and specialist physicians that facilitated interactive communication about the care of individual patients. Interventions that were not part of a planned collaborative arrangement, such as specialist help-lines, and exclusively through a third party, such as a care manager, were not sought and the review did not assume that arrangements such as shared patient records or co-location automatically enabled interactive communication between primary care and specialist physicians.

It is assumed that coordination needs between primary and secondary care providers are not specific to mental health care, in particular patients with chronic illness are likely to receive care from both primary care physicians and specialists, but the majority of available evidence came from studies in mental health. The evidence table shows the individual interventions, how interactive communication was achieved in the particular study, and the effect sizes for patient outcomes. The table is ordered by effect sizes, listing most effective models first.

Table 1: Evidence table interactive communication

Author, Year	Type of Study	Setting	Clinical Problem Addressed	Outcome Measure Selected for Meta-analysis	Patients, n		Summary of Intervention	Point Estimate (95% Confidence Interval)
					Interven. Group	Comp. Group		
Mental Health								
van der Feltz-Cornelis et al (2006)	Cluster RCT (practice of physician-level allocation)	36 general practices with on-site psychiatric clinics in the Netherlands	Various mental health problems	Medically unexplained symptom severity at 6 mo	58	23	Following a joint patient consultation, the psychiatrist shares diagnostic and treatment advice with PCP; psychiatrist summarizes treatment options in a letter to PCP and patient, who then agree on management; psychiatrist checks usefulness of advice with PCP.	–1.76 (95% CI: –2.32 to –1.21)
Dietrich et al (2003)	Uncontrolled before-after studies	5 general practices and a supporting psychiatrist in the United States	Depression	Symptom Check List 20 at 2 mo	60	60	Care coordinated by care manager and supervised by a psychiatrist; psychiatrist regularly telephones PCP with updates and to offer management suggestions, if necessary; psychiatrist also available at designated times per week to answer queries.	–1.31 (95% CI: –1.71 to –0.92)
Katzelnick et al (2000)	Cluster RCT (practice of physician-level allocation)	163 primary care practices and psychiatrists in the United States	Depression	Hamilton Depression Scale at 12 mo	218	189	Depression management program; PCP and psychiatrist have ongoing contact via periodic case reviews and telephone consultations as needed; coordinators monitor adherence to treatment algorithms; consultation with psychiatrist for non-responders.	–1.23 (95% CI: –1.45 to –1.01)
Datto et al (2003)	Uncontrolled before-after studies	11 general practices and health system psychiatrists in the United States	Depression	CES-D at 3 mo	76	154	Psychiatrist supervises disease management nurse and facilitates treatment planning; results of assessment are discussed with and sent to referring PCP; latter has contact with the psychiatrist as necessary and access to treatment algorithm.	–1.02 (95% CI: –1.31 to –0.73)
Kennedy and Yellowlees (2003)	Controlled before-after studies	4 general practices and a private psychiatry service in Australia	Various mental health problems	Mental Health Inventory total score at 12 mo	32	92	Tele-psychiatry used for clinical consultations involving PCP and psychiatrist; objectives include initiation of treatment, discharge planning, and provision of other clinical advice.	–0.54 (95% CI: –0.80 to –0.28)
Chelminski et	Uncontrolled	1 general practice	Psychiatric	Pain disability	63	85	Multidisciplinary team that includes PCP	–0.48 (95% CI: –

al (2005)	before-after studies	and a multidisciplinary mental health team in the United States	comorbidities	index at 3 mo			and psychiatrist sees patient together; patient progress and medication use subsequently monitored by team and discussed with PCP when necessary.	0.81 to –0.15)
Datto et al (2003)	Cluster RCT (practice of physician-level allocation)	35 general practices and health system psychiatrists in the United States	Depression	CES-D at 4 mo	30	31	Psychiatrist supervises disease management nurse and facilitates treatment planning; summaries of assessment sent to PCP who has contact with the psychiatrist as necessary (method of communication unclear).	–0.42 (95% CI: –0.89 to 0.05)
Katon et al (1995)	RCTs (patient-level allocation)	1 primary care clinic and psychiatrist in the United States	Depression	Symptom Check List at 4 mo	108	109	Monthly case conference that involves psychiatrist and PCP, tailored to questions about depression treatment, that allows feedback and interaction through case-by-case consultations; delivery of care follows a structured schedule with psychiatrist and PCP seeing the patient regularly and PCP receiving information immediately after psychiatric consultations; psychiatrist advises on medication selection and monitors refills; treatment changes can be initiated after discussion.	–0.42 (95% CI: –0.90 to 0.06)
Katon et al (2002)	RCTs (patient-level allocation)	4 primary care clinics with on-site psychiatrists in the United States	Depression	Symptom Check List at 28 mo	114	114	Stepped-care approach; PCP treats patient, and psychiatrist provides on-site psychiatric consultation and recommends medication, additional psychotherapy, or facilitated referrals in short-term treatment; monitoring of depression outcomes and refills by both; psychiatrist discusses cases with PCP immediately after consultation and written summary from psychiatrist is sent within 1 week.	–0.35 (95% CI: –0.64 to –0.07)
Worrall et al (1999)	Cluster RCT (practice of physician-level allocation)	42 family practices and an education workshop team in Canada	Depression	CES-D at 6 mo	91	56	PCP invited to discuss individual cases with a psychiatrist within an educational workshop; psychiatrist also regularly available for advice on patient management each week.	–0.22 (95% CI: –0.56 to 0.11)
Hilty et al (2007)	RCTs (patient-level allocation)	8 primary care sites and psychiatrists in the United States	Depression	Symptom Check List-90 (depression) at 12 mo	52	41	PCP and tele-psychiatrist collaborate by discussing cases by telephone or videoconference after patient tele-psychiatric appointments; psychiatrist advises PCP on medication; PCP notified when patients miss an appointment.	–0.20 (95% CI: –0.61 to 0.21)
Dietrich et al (2004)	Cluster RCT (practice of physician-	60 general practices and a mental health service in the	Depression	Symptom Check List-20 at 6 mo	224	181	Care coordinated by care manager and supervised by psychiatrist; psychiatrist can suggest treatment changes through care	–0.16 (95% CI: –0.37 to 0.06)

	level allocation)	United States					manager or by directly contacting PCP; PCP able to contact the psychiatrist for informal telephone advice.	
Smit et al (2005)	RCTs (patient-level allocation)	General practices and psychiatrists in the Netherlands	Depression	Self-efficacy summary score at 12 mo	39	72	PCP provides psychiatrist with clinical information about patient before consultation; psychiatrist then discusses diagnostic findings and treatment with PCP; copy of the report goes to a depression prevention specialist (nurse or psychologist); PCP receives regular and then as-necessary written feedback on patient progress and medication.	–0.10 (95% CI: –0.53 to 0.32)
Carr et al (1997)	Controlled before-after studies	8 general practices and a consultation–liaison psychiatry service in Australia	Various mental health problems	Symptom Check List-90-Revised global severity index at 6 mo	86	59	Psychiatrist attends practice weekly to assess referred patient, either alone or jointly with PCP; advises on diagnosis and management through face-to-face interaction and written reports.	–0.02 (95% CI: –0.39 to 0.35)
Younès et al (2008)	Controlled before-after studies	General practices and 3 specialist consultation centers in public hospitals in France	Various mental health problems	Patients judged in remission at 18 mo	349	360	A psychiatric nurse liaises with PCP to assess whether referral to psychiatrist or psychologist is required; psychiatrist provides consultation, shared follow-up visits (temporary with the aim to hand back care to PCP), telephone case discussion, and education.	0.00 (95% CI: –0.18 to 0.18)
Hedrick et al (2003)	Cluster RCT (practice of physician-level allocation)	4 Veterans Affairs primary care firms and a general internal medicine clinic in the United States	Depression	Symptom Check List at 9 mo	168	186	Psychiatrist and care team meet weekly to review progress and treatment plans, communicating with PCP by using electronic progress notes; psychiatrist contacts PCP when necessary to reach consensus on treatment plan; team contacts PCP if prescriptions not issued as planned.	0.04 (95% CI: –0.18 to 0.26)
Ferguson et al (1992)	Nonrandomized, controlled trial	General practices and a Community psychiatric service in the United Kingdom	Various mental health problems	Comprehensive Psychopathological Rating Scale at 36 mo	103	78	Co-location that involves frequent contact between PCP and psychiatrist to disseminate knowledge and foster a common approach to therapy.	0.06 (95% CI: –0.24 to 0.35)
Katon et al (1992)	RCTs (patient-level allocation)	2 primary care clinics and psychiatrists in the United States	Psychiatric distress	Symptom Check List at 12 mo	124	127	Joint initial consultation involving psychiatrist and PCP; joint formulation of treatment plan; PCP provided with a written psychiatric consultation, treatment protocol, and further information about the diagnosed disorders; follow-up discussion between psychiatrist and PCP to review management.	0.07 (95% CI: –0.19 to 0.32)
Endocrinology								

King et al (2006)	Uncontrolled before-after studies	3 pediatric group practices and a diabetes research and training center in the United States	Diabetes	HbA1c at 12 mo	20	29	Pediatrician (as PCP) communicates records of long-term care visits to diabetes team, including pediatric endocrinologist; team responsible for initiating therapy, self-management training, consulting with pediatricians as requested, and maintaining written communication to pediatrician.	–1.43 (95% CI: –2.09 to –0.78)
Simmons (2003)	Uncontrolled before-after studies	A community Aboriginal health service and diabetes specialist clinic in Australia	Diabetes	HbA1c at 10 mo	47	47	Diabetes clinic based in primary care; diabetologist forms provisional care plan with patient and modifies after immediate discussion with PCP, nurse, and Aboriginal health worker; action plan sent to PCP; review by diabetologist or PCP and coordination by nurse; clinic provides opportunities for PCP to discuss other cases.	–1.22 (95% CI: –1.77 to –0.66)
Harris et al (2008)	Uncontrolled before-after studies	34 family practices and endocrinology services in Canada	Diabetes	HbA1c at 6 mo	260	240	PCP linked to specific endocrinologist for advice on insulin titration and other management (method of communication unclear).	–0.63 (95% CI: –0.81 to –0.45)
Maislos et al (2002)	Uncontrolled before-after studies	Primary care clinics and a mobile diabetes clinic in Israel	Diabetes	HbA1c (duration of follow-up uncertain)	492	492	Diabetologist and team run weekly clinics in primary care; treatment strategies for specific patients established after discussion with PCP.	–0.31 (95% CI: –0.45 to –0.17)
Abrahamian et al (2002)	Uncontrolled before-after studies	4 general practices and a diabetes center in Austria	Diabetes	Diabetes HbA1c at 12 mo	136	154	Videoconference links diabetologist with PCP and patient; patient progress and treatment subsequently reviewed and planned by both parties.	–0.25 (95% CI: –0.49 to – 0.01)

Notes: Data from Foy et al. (2010); negative effect sizes indicate the intervention group had lower mean outcomes which indicates improvement

Interactive communication modalities included face-to-face or telephone discussions concerning the care of individual patients and joint videoconferencing involving the patient, primary care physician and specialist. For example, an intervention by Katon and colleagues included an initial joint patient consultation involving the psychiatrist and primary care physician with formulation of a treatment plan and use of a protocol to guide subsequent review. Interactive communication included immediate (or 'real time') and delayed (or 'serial') exchanges. For example, an intervention by Hedrick and colleagues included a liaison psychiatrist who reviewed patient progress and treatment plans and then communicated with primary care physicians via electronic progress notes.

The evaluated collaboration models often used a structured approach to interactions with fixed scheduled meetings, e.g., following an intervention that included a joint patient consultation (see van der Feltz-Cornelis et al., 2006) or studies describing regular phone calls to communicate updates (e.g., Dietrich et al., 2003). Interventions did not rely on the physical proximity of providers (co-location); several effective models used video and phone conferences to facilitate interaction.

Review methods review question 2

To answer question 2 we used an exploratory search strategy "(Mental health AND (barriers OR facilitators) AND (integrated care OR collaborative care or coordinated care OR interprofessional collaboration) NOT hospital)" to identify provider perceptions of barriers and facilitators. We selected a seed article (Kilbourne et al., 2011) and used the Related Citations function in PubMed to identify further relevant studies. In addition, the PubMed Related Citations search function was used for all studies meeting inclusion criteria. Only open access and studies immediately available through RAND library holding were considered; the RAND library subscribes to 40,000 journals.

We selected studies reporting on perceived facilitators and barriers of collaboration (including, but not restricted to communication) between ambulatory healthcare professionals in the US treating adult patients. Studies had to report results of a structured elicitation of facilitators and barriers from primary and/or mental health providers. Only studies reporting on professional interactions between primary care and mental health providers were included. Studies primarily focused on improving care access in rural areas or barriers to healthcare in general rather than collaboration between primary care and mental health providers were not sought.

Results review question 2

2. What are the known barriers and facilitators of communication among primary care and mental health providers?

A small number of published provider surveys have tried to identify what the specific perceived barriers are for effective collaboration between primary and secondary care and tried to elicit how integrated care could be improved. The evidence table 2 describes results of provider surveys with regard to perceived barriers and facilitators of collaboration between primary care and mental health providers.

Table 2: Evidence table barriers and facilitators of collaboration between primary and secondary care

Author, Year	Type of Study	Respondents Notes	Barriers Topic	Perceived Barriers	Facilitators Topic	Perceived Facilitators
Cunningham et al. (2009)	Survey	Representative sample of 6,600 nonfederal physicians Reasons given by PC physicians for not getting needed services (% applicable)	Lack of or inadequate coverage Health plan barriers Shortage of providers	- 59% outpatients MH services - 48% specialist referrals - 35% nonemergency hospital admissions - 51% outpatients MH services; - 47% specialist referrals - 38% nonemergency hospital admissions - 59% outpatients MH services - 28% specialist referrals; - 19% nonemergency hospital admissions		
Fickel et al. (2007)	Semi-structured phone interviews	22 PC and MH providers leaders in 10 VA outpatients facilities Barriers nominated by between 1 to 7 PC and MH providers	Barriers to PC - MH collaboration in depression screening and management	- MH understaffed / insufficient resources - PC understaffed / insufficient resources / insufficient resources - PC and MH clinics too far apart - PC over-refers patients to MH - PC not interested in MH issues - Insufficient number of joint case conferences - Inadequate referral information from PC providers - History of not working closely together		
Franz et al. (2010)	Open-ended interview questions	40 PC physicians in Northern California treating patients with Alzheimer's disease (see also Hinton et al., 2007)	Structural, institutional, and administrative barriers to accessing specialty MH care	- Managed care - Double gatekeeper system (initial referral from PC provider to psychiatrist, followed by second gatekeeper (MH representative) to determine eligibility for care - Carve-outs ('managed care approach to cut costs for psychological or psychiatric services by separating those services from medical care services') - Patients schedule own appointment with MH, PC physician is unlikely or slow to know whether or when a visit occurred - Reimbursement policies - Lack of geriatric and psychiatric training of PC physicians necessitating referrals - inadequate number or maldistribution of trained psychiatrists or neuropsychologists (particularly in rural areas)		
Hinton et al.	Open-	40 PC physicians in Northern	Access and	- Difficulties in accessing and coordinating		- Specialist is on-site

Author, Year	Type of Study	Respondents Notes	Barriers Topic	Perceived Barriers	Facilitators Topic	Perceived Facilitators
(2007)	ended interview questions	California providing care for community-dwelling older adults with dementia (see also Franz et al., 2010)	communicating with specialists	specialty care - Long waiting lists - Limited availability - Cumbersome referral mechanisms - Insurance plans in which MH benefits are 'carved-out' to a MH care manager requiring patients to call and set up appointments (only persistent patients are successful) - Lack of or slow feedback (clinical notes or recommendations) allowing the PC physicians to discuss the specialist's recommendation with the patient and their family (patient comes back from appointment but doesn't understand the recommendation enough and is frustrated)		
Kilbourne et al. (2008)	Survey and Focus Groups	23 MH and /or general medical practices across the US Frequency of responses (% of all discussed issues) in focus groups were extracted	Administrative / operations barriers	- Administrative policies, standards, agreements: 27% - Common methods for analyzing data and constructing evaluation measures: 32% - Information technology and privacy concerns: 32% Other: 9%	Discussed solutions to barriers	- Template for memoranda of understanding and job descriptions - Access to standardized research methods, outcomes and analyses - Establishment of firewalls (secure electronic records) to protect MH data
			Financing barriers	- State variation in funding rules: 28% - Reimbursement codes: 20% - Demonstrate cost-efficiency, return-on-investment: 16% - Start-up costs to jump-start program: 4% - Other: 4%	Discussed solutions to barriers	- State to provide start-up funds for integrated care(e.g., PC provider in MH settings and vice-versa) - Instructions on how to bill Medicare/Medicaid for care - Data capturing costs of care(MH and general medical),integrated data sources - Information on interested foundations
			Clinical barriers	- Protocol and clarity in delineation of roles, balancing workflow: 32%	Discussed solutions to	- Templates/protocols for different models

Author, Year	Type of Study	Respondents Notes	Barriers Topic	Perceived Barriers	Facilitators Topic	Perceived Facilitators
				- Cultural differences and readiness to changes: 29% - Lack of common integrated care model: 14% - Lack of involvement of emergency rooms: 14% - Other: 10%	barriers	regarding integrated roles and workflow; - Co-location of general medical providers within MH clinics, and/or MH providers within general medical clinics; - Care management programs for those with chronic general medical and MH conditions - In-services to address unique roles and different organizational cultures of general medical and MHP - Standardized fidelity tool - Adapted model for ER settings
			Governance barriers Other barriers	- Profession clinical liability (lack of knowledge of state law and concerns about liability with multiple clinical roles and input): 12% - Other: 8% - Contact information, consultants: 4% - Involvement of national organizations: 4%	Discussed solutions to barriers	- Consultant for political issues on the state and federal level - Identification of legal "land minds"; clarifications on laws
Kilbourne, (2011)	Telephone interviews	32 MH clinicians (psychiatrists, psychologists, social workers, nurses) treating Veterans with Serious Mental Illnesses (SMI), 4 providers per site; 4 high-performing and 4 low-performing MH programs across the US	Lack of communication with PCPs	- Lack of opportunities to interact on a face-to-face basis - Lack of opportunities to have team meetings	Building informal relationships with PC providers	- Formal meetings, routine meetings - More informal, in-person communication, communication through notes in medical records
			Responsibility for medical problems (which provider is responsible), uncertainty regarding management of	- Lack of clarity who was responsible for general medical care for patients with SMI - Potential 'dumping' of PC responsibilities onto MH providers	Formal agreements or procedures might be helpful in delineating responsibilities	n/a

Author, Year	Type of Study	Respondents Notes	Barriers Topic	Perceived Barriers	Facilitators Topic	Perceived Facilitators
			routine medical issues (could be addressed within MH or PC)			
			Perception and stigma of SMI patients by PCPs General	- PC providers don't want to deal with MH patients - MH providers don't want to deal with medical problems -PC doesn't want to hear from MH providers -MH providers think that PC providers think MH patients just want to obtain pain medication (consequently patients are send directly to MH even if presenting to the ER) - Challenges to hiring enough support staff to facilitate coordination of medical and psychiatric care-	Each specialty should try to understand how they approach clinical problems differently in order to facilitate communication	- e.g., awareness of medical versus bio psychosocial model or that MH have more time with patients
Kushner, (2001)	Survey (questionnaire)	684 PC physicians in Wisconsin Barriers are given are broken down by all types of practices and specific practices. Scores reflect only all type of practices	Access to care (scores range from 1, extremely difficult, to 7, very easy, no problem) Responsibility (scores range from 1, usually	- Difficulty in finding MH treatment and consultation for patients on Medicaid or no insurance: 3.08 - Do MH practitioners in your area assume too much responsibility for ongoing care after a referral, or too little: 4.26	Access to care (scores range from 1, extremely difficult, to 7, very easy, no problem) Consultation (scores range from 1, usually want single consultation, to 7, usually want referral for treatment)	- Ease for patient of seeing a MH for non-psychiatric emergency: 4.29 - Ease for patient of seeing a MH for psychiatric emergency: 4.29 - Ease of arranging an informal phone consultation with MH professional: 4.36 - Desire to share responsibility when referred or MH to take over: 5

Author, Year	Type of Study	Respondents Notes	Barriers Topic	Perceived Barriers	Facilitators Topic	Perceived Facilitators
			take too much, to 7, usually do not take enough responsibility) Communication (scores range from 1, very bad, little communication, to 7, very good, regular exchange of communication)	- Quality of communication between PCP and MHP when sharing patients: 3.50		
Sanchez, (2010)	Survey	84 behavioral health and PC providers' response regarding integrated care between behavioral health and PC provider in Texas % endorsement extracted	Clinical barriers to treating behavioral health problems in PC Organizational barriers to treating behavioral health problems in PC	- Providers' limited training: 70% -Lack of training in evidence-based behavioral health treatments: 50% - Culture and language differences between PC and behavioral health providers: 42% - Providers' lack of awareness of evidence-based behavioral health treatments: 38% - Provider's stigmatizing attitudes: 37% - Workforce shortages: 86% - Physicians' limited time: 77% - Information-sharing obstacles: 67% - Physical separation of medical and behavioral health providers: 64% - PC's orientation towards acute (vs chronic) care: 54% - Behavioral health providers' lack of a public health perspective: 43% - Lack of agreement between medical and behavioral health providers about provider responsible for patient: 40%	Strategies for treating behavioral health problems in a PC setting: screening Strategies for treating behavioral health problems in a PC setting: Behavioral health treatment	- Screening for psychiatric disorders (other than substance abuse): 86% - Screening for substance abuse: 87% - Paper-based or verbal screening:86% - Computed-based screening: 23%% - Psychiatric consultation to PC staff: 39% - Co-treatment of behavioral health problems by PC and specialty behavioral health providers: 69% - Referrals to off-site specialty behavioral health providers: 85% - Co-location of behavioral health providers in PC setting: 65% - Psychiatric medications: 63% - Use of medication algorithms for behavioral health disorders: 27%

Author, Year	Type of Study	Respondents Notes	Barriers Topic	Perceived Barriers	Facilitators Topic	Perceived Facilitators
						- A single treatment plan that combines patient's physical and MH care goals: 39% - Medical record that combines physical and MH: 51%
			Financial barriers	- Lack of reimbursement for clinical care management and paraprofessionals' services: 71% - Lack of reimbursement for screening services: 68% - Lack of reimbursement for consultation between PC and behavioral health providers: 64% - PC providers' inability to bill for behavioral health services: 60% - Inability to bill using health and behavior codes: 56% - Same day billing restrictions: 41%	Strategies for treating behavioral health problems in a PC setting: Outcomes tracking strategies	-Tracking of behavioral health outcomes: 57% -Disease registry of patients with identified behavioral health issues: 29%
					Strategies for treating behavioral health problems in a PC setting: Training and education strategies	-Training PC staff on behavioral health issues: 73% - Patient education and self-management of behavioral health issues: 77%
					Strategies for treating behavioral health problems in a PC setting: Care management strategies	- Clinical care management of psychiatric disorders: 57% - Social service case management: 71% - Evidence-based psychotherapy: 65% - General counseling: 85% - Relapse prevention: 64%

Notes: PC: Primary care, MH: Mental health; vs: versus

Several surveys described difficulties with accessing mental health care for primary care providers. This was due to perceived insufficient resources as well as structural problems with patients having to make appointments with mental health professionals themselves. The lack of (timely) feedback or joint case conferences were also recurrent themes. In addition, providers indicated that the responsibility for managing medical problems that could be addressed by primary care or mental health providers, was not clear.

Fewer surveys elicited potential strategies to improve collaboration and communication between primary care and mental health providers. Suggestions included formal agreements to delineate responsibilities; co-location; care management programs or a collaborative, single treatment plan for patients; and regular scheduled meetings.

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