Start-Up and Incremental Practice Expenses for Behavior Change Interventions in Primary Care

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Background: If behavior-change services are to be offered routinely in primary care practices, providers must be appropriately compensated. Estimating what is spent by practices in providing such services is a critical component of establishing appropriate payment and was the objective of this study.

Methods: In-practice expenditure data were collected for ten different interventions, using a standardized instrument in 29 practices nested in ten practice-based research networks across the U.S. during 2006–2007. The data were analyzed using standard templates to create credible estimates of the expenses incurred for both the start-up period and the implementation phase of the interventions.

Results: Average monthly start-up expenses were $1860 per practice (SE=$455). Most start-up expenditures were for staff training. Average monthly incremental costs were $58 ($15 for provision of direct care [SE=$5]; $43 in overhead [SE=$17]) per patient participant. The bulk of the intervention expenditures was spent on the recruitment and screening of patient participants.

Conclusions: Primary care practices must spend money to address their patients' unhealthy behaviors—at least $1860 to initiate systematic approaches and $58 monthly per participating patient to implement the approaches routinely. Until primary care payment systems incorporate these expenses, it is unlikely that these services will be readily available.

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Introduction

Primary care practices in the U.S. currently are well positioned to address key unhealthy behaviors that lead to premature death and avoidable suffering.[1–3] However, two of the most commonly cited barriers to the incorporation of behavior-change services in primary care are the lack of practical tools and the lack of reimbursement.[4] While it is known that these crucial services do not come at zero cost, the evidence base to estimate how much practices spend to provide them is very slim. Only a handful of studies include estimates of expenditures. Standardized methods and tools to make these estimates are lacking, and few practices that provide these services currently know how much it costs them to do so.

Recognizing this need, the Prescription for Health program estimated the expenses that practices incurred to start up and to deliver ten interventions tested in 29 primary care practices to improve the delivery and effectiveness of behavior-change services in such practices.[5,6]

A review of the literature found no studies that reported the practice cost for implementing and delivering health behavior-change interventions. Only a handful of cost-effectiveness evaluations that addressed healthy eating, weight loss, or risky alcohol use were found, but these reported practice cost only in the context of cost effectiveness.[7–12] One of these studies[7] reported the costs to practices for the preparatory period before the intervention was launched (start-up). The rest looked at overall intervention cost and did not separate practice costs, and all assessed interventions addressing only one or two risk behaviors. The current study's contribution to this sparse field stems from the opportunity to examine the expenses of frontline primary care practices implementing ten innovative behavior-change interventions that simultaneously targeted tobacco use, unhealthy diet, physical inactivity, and risky alcohol use in adults, children, and adolescents using a common standardized instrument. The intent and the objective were to report credible estimates of the start-up and incremental expenses for primary care practices to field the Prescription for Health interventions.

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Table 1. Description of Prescription for Health interventions[18]

PBRN ID	Brief intervention description	Intervention components			
		Used IT	New or modified staff roles	Population screening/ outreach	Counseling outside practice
1	Collaboration with a local health department use of an extension agent model to promote screening, counseling, and community resource use (adults and adolescents aged ≥14 years)	X	X		X
2	Making a community health educator referral liaison available to practices who can provide patients health behavior counseling, follow up, and assistance in connecting to community resources (adults aged ≥18 years)		X		X
3	Modifying well visits for children aged 2 years with a screening tool and health educator to prevent unhealthy behaviors (infants aged 22–59 months)		X		X
4	Web-based tools to promote health behavior change accompanied by an IVR telephone system to prompt website use (adults aged ≥18 years)	X		X	X
5	Using practice enhancement assistants to provide performance feedback, training, practice change facilitation, and local quality improvement collaboratives for behavior change (adults and adolescents aged ≥14 years)		X	X	X
6	5A's intervention using EMR to link patients with community resources for improving unhealthy behaviors (adults aged ≥18 years)	X		X	X
7	Practice-tailored system to identify at-risk patients and connect them to community resources using web-referral resource	X		X	X
8	Use of existing medical assistants to identify patients at risk for poor health behaviors and offer counseling and referral to community resources (adults aged ≥18 years)		X	X	X
9	IVR telephone system to promote health behavior change (adults aged ≥18 years)	X			X
10	PDA health screener to enhance counseling, communication, referrals, and follow-up related to behavior change in adolescents (adolescents aged 12–19 years)	X			X

EMR, electronic medical record; IT, information technology; IVR, interactive voice recognition; PBRN, practice-based research network; PDA, personal digital assistant

Methods

A steering committee was convened to make decisions on the scope, perspective, sampling frame, and data to be collected in this study, using established economics methods.[13–16] The committee developed and piloted a user's guidebook and a common set of standard instruments to be used to collect the economic data.[17] The committee assisted and helped practices correctly use the standard data-collection templates, clarifying which expenditures should be collected. Details on the instruments, data collection, and results of the pilot evaluations will be described in a future methods paper.

This study was designed to estimate the start-up and incremental expenses of 29 practices implementing ten nested prospective pre–post interventions within ten practice-based research networks (PBRNs); each PBRN contained 2–3 participating practices. Each intervention was designed to assist with smoking cessation, improve diet, increase physical activity, and address risky alcohol use, using multiple tools and strategies (Table 1). The practice perspective was taken, and only data on start-up and incremental expenses associated with delivering the interventions to patients and incurred by practices were collected. Expenses incurred by patients and other groups were excluded. Expenses associated with the evaluation of the intervention and the development of research tools and strategies were absorbed by the PBRNs and others (not borne by the practices) and were excluded from this economic analysis. Start-up expenses were defined as all preparatory expenses incurred directly by practices to deliver the intervention, and incremental expenses were defined as the additional expenses incurred directly by practices as a result of delivering the Prescription for Health interventions. Definitions of the categories of the expenses collected are presented in Table 2.

Setting

Primary care practices included in the expenditure study were heterogeneous, selected by the leadership of the PBRNs par-

Table 2. Definitions

Terminology	Definition	Example
Start-up expenses	Expenses incurred during the preparatory phase before the intervention actually begins, when the necessary planning takes place for practices to implement and deliver the intervention	Any activities and items acquired in preparation for the intervention: training of practice staff, design and preparation of patient care and intervention materials
Incremental expenses	Additional expenses incurred directly by practices as a result of delivering the intervention. It is the difference in expenses between delivering usual care and delivering the intervention.	This is a calculation often applied to aggregate expenses.
Staff expenses	Expenses for the time spent by practice staff in delivering care or the intervention, often calculated using time spent, salary, and fringe benefit rates.	Physician, nurse, medical assistant, front office staff services
Nonstaff expenses	All other expenses not related to time, salaries, and fringe benefits that a practice incurred in the start-up period or during delivery of the intervention. In some instances, nonstaff expenses can also be capital assets or overhead expenses.	Computers, personal digital assistants, phone, administrative supplies, training materials
Nonrecurrent expenses	Any expenses that are not periodic and not recurrent. In some instances, nonrecurrent expenses can also be capital assets.	Administrative supplies, training materials, patient care materials
Capital assets	Expenses related to tangible capital property, including durable goods, equipment, and building space.	Computers, personal digital assistants, office space
Direct expenses	Expenses associated with the direct delivery of patient care or the intervention to individual patients. These may include staff, nonstaff, and overhead expenses.	Any expenses in provision of services directly to individual patients
Overhead expenses	Expenses associated with the delivery of care or the intervention to patients in general (not to any individual patients). Often associated with activities or items necessary to manage, administer, and maintain normal practice function.	Practice business management, clerical support, billing services, receptionist function, working from a general list of many patients (not individual patients)

PC, personal computer; PDA, personal digital assistant

ticipating in Prescription for Health to reflect the range of practice types within the PBRNs and representative of their participating sites. The selected practices included private practices and community health centers as well as large (>10 physicians) and small practices in rural, urban, and suburban locations in the northeast, midwest, south, and western regions of the U.S. Practices included various combinations of family physicians, pediatricians, internists, nurse practitioners, physician assistants, medical assistants, and nurses. The practices' patient populations included minority and nonminority children, adolescents, and adults—insured and uninsured people from high- and low-income groups.

Data Collection

Prior to data collection, the steering committee asked PBRNs to identify the key steps necessary to deliver their intervention and the major expense items that practices expect would be required at start-up and during the delivery phase of the intervention. PBRNs were prompted to consider vehicles, buildings, office space, and computers as capital assets, and office managers, clerical staff, supervisors, accounting staff, rent, and leases as overhead expenses. This resulted in a set of data-collection templates standard in main categories but tailored to fit the key steps of each intervention.

Aided by the user's guidebook and data-collection instruments,[17] practice managers and other selected practice staff collected start-up and intervention-delivery expenditure data. Data collection occurred as the studies were implemented or, in some instances, within a few months of implementation. Data sources included the financial records of practices, clinician and staff recall, tracking systems integrated into the interventions, and data sources used concurrently to evaluate the impact of interventions on health behaviors. Start-up expenses were collected for the entire start-up period, which varied by practice, and were reported as total start-up expenses regardless of the time required for start-up. To determine incremental expenses, monthly expenditure data were collected at baseline (pre-intervention); during the middle of the intervention-delivery phase (post-intervention Time 1); and at the end of the intervention-delivery phase (post-intervention Time 2). Data collection occurred during 2006 and 2007, and the specific data-collection months varied for each practice, depending on the launch date of the intervention at that practice.

Data Analysis

Start-up and incremental expenses were estimated separately. Start-up expenses were treated as overhead expenses. Total overhead staff expenses, nonstaff expenses, and capital assets were summed and reported for the entire start-up period. Incremental expenses were calculated and reported as expenditures per patient per month required to deliver the intervention. Although some interventions may not have been fielded long enough to achieve true steady state (range 5 weeks–23 months),[19,20] the average expenditures at baseline (pre-intervention) were subtracted from the average expenditures reported for the two post-intervention time periods

(Times 1 and 2) to calculate incremental costs. The number of patients receiving an intervention during post-intervention Time 1 was used as the best monthly estimate of the number of patients receiving the intervention.

Because the interventions were implemented between July 2005 and March 2007, all expense estimates were expressed in 2006 dollars. Given the short observation period, no discount or adjustment for time or inflation was made. Expenditures for computer hardware, equipment, fixtures, and other capital or durable assets were spread over their years of useful life using straight-line depreciation methods. Computer hardware, equipment, and furniture were assigned a useful life of 5 years.[21] Personal digital assistants (PDAs); computer software; and other light (hand-held) electronic hardware were assigned a useful life of 3 years, and capital assets were assigned a salvage value of zero.

This study was approved by the University of Colorado IRB.

Results

Start-up expenses were reported for 26 of 29 participating practices (Table 3, Column 7). One PBRN did not report start-up expenses for any of its participating practices, and one PBRN reported expenses for only two of its practices (Table 3). Practice expenses for delivering the interventions were reported for 29 of 29 practices (Table 4). The mean start-up expense for practices was $1860, and the mean incremental expense was $58 per patient per month. The median start-up expense was $983, and the median incremental expense was $18. There was significant variation in reported expenses, not only among PBRNs fielding different interventions but also among practices within PBRNs delivering the same intervention.

Table 3. Overall practice start-up expenses to implement the Prescription for Health interventions (in 2006 dollars)

PBRN ID	Practice ID	Start-up duration (months)	Staff expenses ($)	Nonstaff expenses ($)	Capital asset expenses ($)	Total start-up expenses ($)
4	181	1	0	0	0	0
	184	1	0	0	0	0
	186	1	0	0	0	0
	M	**1**	**0**	**0**	**0**	**0**
6	17	6	1,716	48	0	1,764
	20	6	10,296	126	0	10,422
	24	6	1,080	12	0	1,092
	M	**6**	**4,364**	**62**	**0**	**4,426**
9	216	4	2,604	0	0	2,604
	223	3	267	84	0	351
	236	3	375	36	0	411
	M	**3**	**1,082**	**40**	**0**	**1,122**
10	48	6	2,724	0	78	2,802
	49	6	2,334	0	78	2,412
	52	6	2,922	0	120	3,042
	M	**6**	**2,660**	**0**	**92**	**2,752**
3	1	3	915	0	18	933
	4	3	1,014	0	18	1,032
	5	6	720	0	36	756
	M	**4**	**883**	**0**	**24**	**907**
8	158	2	660	0	0	660
	159	2	564	0	0	564
	M	**2**	**612**	**0**	**0**	**612**
2	61	4	2,784	564	296	3,644
	77	3	4,200	1851	0	6,051
	84	4	3,708	124	0	3,832
	M	**4**	**3,564**	**846**	**99**	**4,509**
7	119	6	0	0	0	0
	122	6	0	0	0	0
	125	5	0	0	0	0
	M	**6**	**0**	**0**	**0**	**0**
5	No start-up data reported					
1	167	2	674	2000	92	2,766
	169	2	206	2000	92	2,298
	170	3	774	0	138	912
	M	**2**	**551**	**1333**	**107**	**1,992**
Overall						
M		4	1,559	263	37	**1,860**
SE		0.4	427	124	13	**455**
Median		3	747	0	0	**983**

Note: Nonstaff expenses here do not include capital assets expenses.
PBRN, practice-based research network

Table 4. Incremental practice expenses to deliver the Prescription for Health interventions (per patient per month, in 2006 dollars)

PBRN ID	Practice ID	Patient volume	Direct expenses ($)	Overhead expenses ($)	Overall incremental expenses ($)
4	181	1179	107	0	107
	184	1	22	0	22
	186	689	53	30	83
	M	**623**	**61**	**10**	**71**
6	17	211	−39	4	−35
	20	969	8	45	53
	24	218	10	8	17
	M	**466**	**−7**	**19**	**12**
9	216	25	2	0	2
	223	26	7	8	15
	236	75	1	1	1
	M	**42**	**3**	**3**	**6**
10	48	9	39	1	40
	49	37	65	1	66
	52	67	65	7	71
	M	**38**	**56**	**3**	**59**
3	1	31	10	1	11
	4	19	6	1	7
	5	39	12	0	12
	M	**30**	**9**	**1**	**10**
8	158	2119	−45	40	−5
	159	90	0	9	9
	M	**1105**	**−23**	**25**	**2**
2	61	95	22	15	37
	77	48	25	72	97
	84	57	11	44	55
	M	**67**	**19**	**44**	**63**
7	119	840	5	0	5
	122	150	10	44	54
	125	333	1	3	4
	M	**441**	**6**	**16**	**21**
5	690	590	6	0	6
	3680	383	16	0	16
	3770	383	−1	0	−1
	M	**452**	**7**	**0**	**7**
1	167	45	6	347	354
	169	5	2	275	277
	170	25	5	280	285
	M	**25**	**4**	**301**	**305**
Overall					
M		302	15	43	**58**
SE		88	5	17	**17**
Median		75	8	4	**18**

Note: Per patient per month was calculated using the number of patients who completed any element of the health behavior change intervention at post-intervention Time 1.
PBRN, practice-based research network

Start-Up Expenses

Participating practices had start-up periods that lasted from 1 to 6 months; the mean start-up duration was 4 months (Table 3). There was considerable variation in start-up duration among practices fielding different interventions and practices implementing the same interventions, with only four PBRNs (11 practices) reporting equal months of start-up periods. The main start-up expense for all practices was training time for practice staff to learn how to use the intervention. The practices conducting interventions that tested new or modified staff roles provided more-intensive training for their staff. In some instances, practices minimized training expenses by incorporating this training into regularly scheduled staff meeting (practices in PBRNs 4 and 7). However, in most cases training occurred during intervention-specific workshops and lunch-and-learn meetings (practices in PBRNs 1, 2, 3, 6, 8, 9, and 10).

None of the six PBRNs that tested interventions with an information technology component reported technologic equipment as a capital asset expense. Practices either already owned key start-up information technology assets (e.g., electronic medical records [EMRs]), or the start-up assets were considered an intervention development expense (e.g., creation of an interactive

voice response system [IVR]) and thus were borne by the PBRN or by different entities outside the practices. Only one PBRN (PBRN 6) reported information technology staff expenses for its practices to locally tailor their information technology intervention. Finally, practices in only four PBRNs reported additional nonrecurrent start-up expenses (PBRNs 1, 2, 3, and 6); these expenses included administrative supplies, patient materials, and staff training materials. Of note was the fact that only the practices in PBRN 2 reported start-up rent and utility expenses; the remaining practices reported no similar expenses.

Practices implementing seven of the nine interventions reported mean start-up expenses ranging from $612 to $4509 (Table 3). Practices in two PBRNs reported that their interventions had zero start-up expenses. Practices in PBRN 5 did not report start-up data.

Incremental Practice Expenses

The mean monthly practice patient volume during implementation of the interventions was 302 patients, and the median was 75. The wide variation in patient volume during the intervention might stem from the different approaches adopted by practices in conducting their health risk assessments. For example, while some practices adopted a general screening or population outreach strategy to identify the greatest number of patients who might benefit from their intervention, other practices used a more selective approach to screen specific patients for health risk behaviors (Table 1).

There was significant variation in the estimated direct, overhead, and overall incremental expenses for practices fielding different interventions and practices implementing the same intervention. Overall, the incremental practice expenses per patient per month ranged from $1 to $354, with a mean of $58 and a median of $18. Incremental expenses were calculated by adding direct expenses (range –$45 to $107 [mean $15]) and overhead expenses (range $0 to $347 [mean $43]) per patient per month (Table 4).

More than half the practices (15 of 29) had direct expenses of <$10 per patient per month, while four practices had significantly higher direct expenses of >$50 per patient per month. Similarly, most practices (19 of 29) had overhead expenses of <$10 per patient per month. Three practices had negative direct expenses, suggesting that those practices may have reduced staff time compared to usual practice. Eight practices reported that their interventions had $0 overhead expenses, including all three practices in PBRN 5.

Of the practices in the six PBRNs that implemented information technology interventions, only practices in two PBRNs reported information technology capital assets as an expense in the intervention-delivery period. PBRN 10 reported the cost of PDAs, and PBRN 1 reported the cost of tablet computers. These assets were operational (incremental) and not start-up expenses, because they had a limited lifespan and would need to be replaced periodically. Practices in other PBRNs considered information technology capital assets as expenses borne outside the practice (e.g., IVR equipment) or assets already existing in the practice (e.g., computers to support EMR), and thus reported zero information technology capital asset expenses. Practices in PBRN 1 reported significantly higher mean overhead expenses ($301 vs $0–$44) compared to those in other PBRNs, and these higher values were attributed to their tablet computer expenses.

Discussion

It was found that for behavior-change interventions, the average start-up expenditures over a mean period of 4 months were $1860 per practice, with incremental practice expenditures averaging $58 per participating patient per month. These findings further suggest that in order to prepare (start-up) prior to implementation, about $716 is needed to train staff, and $262 is needed for nonstaff and capital asset expenses for behavior-change interventions that are information technology–based (practices in PBRNs 1, 4, 6, 7, 9, and 10). For interventions that have new or modified staff roles, $1425 is needed to train staff, and $604 is needed for nonstaff and capital asset start-up expenses. For interventions that have a population screening/outreach component, $1267 is needed for training, and a further $18 is needed for nonstaff and capital asset start-up expenses. This study additionally suggests that the following amounts are needed per participating patient per month to cover the overhead expenses for the actual implementation of behavior-change interventions: about $58 for information technology–based interventions, $74 for interventions that have new or modified staff roles, and $14 for interventions that have population screening/outreach. The variation observed may be explained by the differences among practices in staffing, infrastructures, and organizational configuration.

It is still likely that these are underestimates of how much it actually costs to provide these services in a typical practice. For example, practices incurred expenses related to tool and instrument development (e.g., EMR prompts, health risk assessment surveys, PDA software, website creation) and practice assistance to implement the intervention (e.g., practice enhancement assistants, PBRN research staff). Such tools and services are not reflected in the estimates from this study, but would in some instances be another required expense borne by practices if they were not participating in a research effort. Also, some capital assets were probably underreported because the study methods stipulated that only expenses new and unique to the

intervention be included. Consequently, expenses such as computers to run an EMR were not considered additional expenses because practices already had these assets at the time of the intervention.

The estimates reported must be interpreted cautiously. Despite the advantages of standardized data-collection instruments, real-time consultative support, iterative practice-by-practice corrections, and multiple opportunities for confirmation of what was actually happening at the practice level, at least two factors limit the precision of these expenditure estimates. Practices varied in their identification of expenses and interpretations of categories to which expenses should be assigned. Slight differences in time estimations, such as a staff physician's time, could translate into large differences in practices' expenditure estimates.

Currently, practices are, at best, reimbursed inconsistently for health behavior counseling, and most often are not reimbursed at all. The Centers for Medicare and Medicaid Services (CMS) created and began reimbursement for two new Common Procedural Terminology (CPT) codes for smoking-cessation counseling in July 2005: G0375 (smoking and tobacco-use cessation counseling visit, intermediate, >3 min. up to 10 min.) and G0376 (smoking and tobacco-use cessation counseling visit, intensive, >10 min.).[22,23] While payment varies by region, in 2006 the average reimbursement was $13 for G0375 and $25 for G0376.[24] The G0376 reimbursement would cover the practice expenses incurred by some of the PBRN interventions, but the G0375 reimbursement is considerably less. Neither CPT reimbursement would cover start-up expenses or expenses incurred by patients for counseling received outside the practice, an expense also rarely covered currently by any insurers.[25] As illustrated in Table 1, all Prescription for Health interventions used counseling resources outside the practice in addition to in-practice resources.

The CMS has no similar reimbursement for diet, exercise, or alcohol counseling. Non-Medicare insurers are not bound to recognize G0375 and G03776 as reimbursable expenses, and frequently do not reimburse physicians for health behavior counseling, even smoking-cessation counseling. As a result, health behavior counseling in primary care currently occurs mostly at the expense of practices driven by professional motivation and commitment to help patients.[26]

This study, placed into the context of other practice-improvement work, begs for actions to move toward revised payment for primary care. Sensible approaches have been proposed that could accommodate the innovations developed and implemented in Prescription for Health.[27,28] Possible data exchanges to justify payments in a fee-for-service approach might include the number of patients screened for unhealthy behaviors and/or the number of patients beginning, continuing, and completing an intensive behavior-change service.

Assessing the cost effectiveness of the Prescription for Health interventions was beyond the scope and means of this study, but such analytic work is important. Some of the participating PBRNs may be able to make such estimates by combining their outcome data with their expenditure data. The practice-level expenditure data reported here can nonetheless be useful for considering either fee-for-service or blended payment revisions to compensate practices appropriately.

Conclusion

Even when supported with external resources, primary care practices bear additional expenses to start health behavior-change interventions and further expenses to deliver them to their patients. Average start-up expenditures of $1860 per practice and incremental practice expenditures of $58 per participating patient per month are in a range that suggests the plausibility of incorporating such services as core business in primary care and, specifically, in the medical home.[29–31] Given the likelihood that redesigned primary care practice can help address unhealthy behaviors that underlie serious and expensive chronic conditions, it is important to understand (1) the expenses associated with innovative strategies to address unhealthy behaviors in primary care practices, (2) the value of emerging interventions, and (3) how to compensate practices for providing these important services. Not surprisingly, practice expenditures vary, not only by the type of intervention but also according to the particular characteristics of different primary care practices. It is clear from this analysis that the adoption and implementation of health behavior-change services in primary care practices are not free.

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References

1. Center for the Advancement of Health. Integration of health behavior counseling in routine medical care. Washington DC: Center for the Advancement of Health, 2001.
2. Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. Milbank Q 2005;83:457–502.
3. Woolf SH, Glasgow RE, Krist A, et al. Putting it together: finding success in behavior change through integration of services. Ann Fam Med 2005; 3(2S):S20–7.
4. Rosal MC, Ockene JK, Luckmann R, et al. Coronary heart disease multiple risk factor reduction. Providers' perspectives. Am J Prev Med 2004; 27(2S):54–60.
5. The Prescription for Health (P4H). www.prescriptionforhealth.org.

6. Green LA, Cifuentes M, Glasgow RE, Stange KC. Redesigning primary care practice to incorporate health behavior change: Prescription for Health Round-2 results. Am J Prev Med 2008;35(5S):S347–S349.
7. Zarkin GA, Bray JW, Davis KL, Babor TF, Higgins-Biddle JC. The cost of screening and brief intervention for risky alcohol use. J Stud Alcohol 2003;64:849–57.
8. Kunz FM, French MT, Bazargan-Hejazi S. Cost-effective analysis of a brief intervention delivered to problem drinkers presenting at an inner-city hospital emergency department. J Stud Alcohol 2004;65:363–70.
9. Sevick MA, Dunn AL, Morrow MS, Marcus BH, Chen GJ, Blair SN. Cost-effectiveness of lifestyle and structures exercise interventions in sedentary adults: results of project ACTIVE. Am J Prev Med 2000;19:1–8.
10. Wylie-Rosett J, Swencionis C, Ginsberg M, et al. Computerized weight loss intervention optimizes staff time: the clinical and cost results of a controlled clinical trial conducted in a managed care setting. J Am Diet Assoc 2001;101:1155–62.
11. Byers T, Mullis R, Anderson J, et al. The costs and effects of a nutritional education program following work-site cholesterol screening [published erratum appears in Am J Public Health 1996;86:790]. Am J Public Health 1995;85:650–5.
12. Wolfe A, Conaway M, Crowther J, et al. Translating lifestyle intervention to practice in obese patients with type 2 diabetes: improving control with activity and nutrition (ICAN) study. Diabetes Care 2004;27:1570–6.
13. Drummond MF, Jefferson TO. Guidelines for authors and peer reviews of economic submission to the BMJ. The BMJ economic evaluation working party. BMJ 1996;313:275–83.
14. Drummond MF, Sculpher GW, Torrance GL, Stoddart GW. Methods for the economic evaluation in health care programmes. 3rd ed. Oxford: Oxford University Press, 2005.
15. Carande-Kulis VG, Maciosek MV, Briss PA, et al. Methods for systematic reviews of economic evaluations for the guide to community preventive services. Am J Prev Med 2000;18(1S):75–91.
16. Boardman A, Greenberg D, Vinning A, Weimer D. Cost benefit analysis: concepts and practice. 3rd ed. Upper Saddle River NJ: Prentice Hall, 2006.
17. Prescription for Health. www.prescriptionforhealth.org/toolkit/index.html.
18. Etz RS, Cohen DJ, Woolf SH. Bridging primary care practices and communities to promote healthy behaviors. Am J Prev Med 2008;35(5S):S390–S397.
19. Polsky D, Mandelblatt JS, Weeks JC, et al. Economic evaluation of breast cancer treatment: considering the value of patient choice. J Clin Oncol 2003;21:1139–46.
20. Yukich J, Tediosi F, Lengeler C. Operations, costs and cost-effective of five insecticide-treated net programs. Basel, Switzerland: Swiss Tropic Institute, 2007.
21. Doms ME, Dunn WE, Oliner SD, Sichel DE. How fast do personal computers depreciate? Concepts and new estimates. NBER Working Paper 10521. Cambridge MA: National Bureau of Economic Research, Inc., 2004.
22. USDHHS, Centers for Medicare & Medicaid Services (CMS). CMS manual system. Pub.100-04 Medicare claims processing. www.cms.hhs.gov.
23. USDHHS, Centers for Medicare & Medicaid Services (CMS). Medicare benefits policy manual, chapter 15: covered medical and other health services. www.cms.hhs.gov.
24. Pohlig C. Smoking cessation counseling: a practice management perspective. Chest 2006;130:1231–3.
25. Tershakovec AM, Watson MH, Wenner WJ, Marx AL. Insurance reimbursement for the treatment of obesity in children. Pediatrics 1999;134:573–8.
26. Grizzard T. Undertreatment of obesity. JAMA 2002;288:2177.
27. The Commonwealth Fund Commission on a High Performance Health System. Framework for a high performance health system in the U.S. 2006. www.commonwealthfund.org.
28. Goroll AH, Berenson RA, Schoenbaum SC, Gardner LB. Fundamental reform of payment for adult primary care: comprehensive payment for comprehensive care. J Gen Intern Med 2007;22:410–5.
29. Robert Graham Center for Policy Studies in Family Medicine and Primary Care. The patient centered medical home: history, seven core features, evidence and transformational change. www.graham-center.org.
30. Davis K, Schoenbaum S. Medical homes could improve care for all. www.commonwealthfund.org.
31. American Academy of Family Physicians (AAFP), American Academy of Pediatrics (AAP), American College of Physicians (ACP), American Osteopathic Association (AOA). Joint principles of the patient-centered medical home. http://www.aafp.org/online/etc/medialib/aafp_org/documents/policy/fed/jointprinciplespcmh0207.Par.0001.File.tmp/022107medicalhome.pdf.