

# Costs of a Train-the-Trainer Program to Teach Primary Care Faculty Mental Health Care

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**Background:** Mental health care must improve in this country. With the worsening shortage of psychiatrists and other mental health professionals, the next generation of physicians in primary care will need to be better trained in mental health care.

**Objectives:** We estimate the direct cost of implementing an evidence-based Train-the-Trainer (3T) program to disseminate mental health training to allopathic medical school faculty; once trained, faculty can teach a much-enhanced curriculum of mental health care to medical students and residents.

**Methods:** A combination of published standardized unit costs and an activity-based costing approach is used to estimate the direct costs (labor and nonlabor) for implementing the 3T program.

**Results:** The estimated direct cost of implementing the 3T program at one prototypical school, including the 12-month start-up period (1.1 million) and 18-month rollout period (8.6 million), is ~9.7 million dollars.

**Conclusions:** Successfully adopted in all US allopathic medical schools, the 3T program will provide over 3800 attitudinally competent and mental health skills-qualified primary care faculty members. They would then be available to train nearly 100,000 medical students per year and 55,000 primary care residents to be as competent in basic mental health care as in medical care. This 3T program will begin to meet the needs each year for the millions of adults with major mental disorders that now are largely unrecognized and untreated.

**Key Words:** mental health care, primary care, cost estimation, medical education, Train-the-Trainer, dissemination and implementation

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With an ever-worsening shortage of psychiatrists,<sup>1–5</sup> 85% of mental health care is provided in medical settings, mostly primary care.<sup>6</sup> But primary care providers are not trained for this.<sup>7–10</sup> This explains why mental health care, America's most common health condition,<sup>11</sup> is in a constant ever-worsening crisis.<sup>12,13</sup> Aiming to improve both the attitudes and skills of primary care physicians in mental health care, our group at Michigan State University developed the Mental Health Care Model (MHCM) to teach non-psychiatrists how to conduct mental health care.<sup>14–19</sup> We trained general medicine faculty intensively<sup>20,21</sup> in the MHCM, and they subsequently trained medical residents similarly over 3 years of residency.<sup>22</sup> Trained residents demonstrated highly significant learning of the MHCM in a quasi-experimental trial.<sup>23</sup> This Train-the-Trainer (3T) program is the first evidence-based approach to improving mental health care training in nonpsychiatry trainees.<sup>24–27</sup>

We propose that the 3T program is ideally suited to guide the broad implementation of mental health and other psychosocial training in allopathic medical schools. To facilitate this, we provide decision-makers an estimate of the implementation costs.

## METHODS

The cost estimation takes the perspective of US medical schools as they are most likely the ones to shoulder the costs. To identify implementation activities needed for getting a program off the ground and a successful rollout,<sup>28</sup> a narrative description of the 3T program is given for 1 prototypic medical school. A combination of published standardized unit costs and an activity-based costing approach<sup>29</sup> is used to estimate the direct costs (labor and nonlabor) for implementing the 3T program, not the indirect costs. Labor costs are derived from the Bureau of Labor Statistics (BLS) average annual salaries. Nonlabor costs are estimated using the authors' detailed budget of the completed 3T program for residents but do not include the costs for research or evaluation.<sup>20,22,23</sup> Although evaluation is an important component of any training program, each medical school may have different evaluation criteria that are not standardized or costed.

## Start-up—12 Months

We allot 12 months to prepare to rollout the 3T program initially. "Outreach Trainers" (5 mental health professionals or primary care physicians with mental health expertise) and 2 original developers of the MHCM will finalize the curriculum, review and ensure consistency of the materials, develop web-based teaching modules, delineate

duties and pilot test all teaching protocols and tools. Throughout the 12-month period, the 2 original developers will oversee fidelity of Outreach Trainers to the intended curriculum and methods. An Information Technology (IT) staff will obtain and set up necessary equipment and work with the MHCM developers to produce web-based interactive modules. A program manager will establish and coordinate contacts with medical schools and dry-run all procedures with the Outreach Trainers, and an assistant will perform day-to-day tasks in the office. This is a crucial period in which the team can resolve multiple anticipated or unanticipated logistic issues.

### Rolling Out the Train-the-Trainer Program—18 Months

In the rollout, we estimate the need for training 25 faculties at a prototypic medical school with 150 students per class. These “Faculty Learners” will comprise at least 6 each from the departments of family practice, internal medicine, obstetrics and gynecology, and pediatrics. Faculty Learners will be trained by a team of 5 Outreach Trainers over the course of 18 months.

#### Months 1–6

In the *first 6 months*, for 1 half-day every week, experiential learning and a lecture/reading series will be delivered by the Outreach Trainers to the Faculty Learners. Outreach Trainers will conduct 3-day visits every other month throughout the rollout to address pedagogical and organizational issues and to monitor progress as well as to teach; their remaining teaching contacts will be remote and occur once weekly for 1 half-day. The core training activities require ~100 contact hours, primarily experiential training but also including readings, lectures, self-awareness groups, and facilitation of teamwork in the many aspects of patient-centered interviewing.<sup>20,21</sup>

Successful educational experiences, particularly when accomplished through a blended program of on-site and distance learning, require the integration of a social, cognitive, and teaching presence.<sup>30</sup> The virtual component can be achieved via 3 processes: (1) videoconferencing for direct teaching of Faculty Learners and later for observing their student teaching; (2) facilitating training using a mobile device to provide immediate access to curricular materials and learning assignments and a permanent record to monitor implementation; and (3) multiple web-based modules to supplement the training of Faculty Learners and future medical students. An overview of these components is described in Appendix (Supplemental Digital Content 1, <http://links.lww.com/MLR/C313>). While formative and summative evaluations of the training will need to be conducted, we do not include them in the cost of dissemination.

#### Months 7–12

In the *middle 6 months*, the Outreach Trainers will advance the curriculum to train Faculty Learners in a new mental health clinic (called the Complex Patient Clinic—CPC) located in the regular clinic areas. It will be used to

teach Faculty Learners mental health diagnoses and care. CPC rooms resemble other examination rooms, except that they have a computer attached to an audio-video camera that delivers the physician-patient interaction live to another room, nearby or thousands of miles away, where an Outreach Trainer observes it via a software program (eg, Vidy; Vidy Inc., Hackensack, NJ). This will occur remotely each week and during a quarterly 3-day visit on-site. The CPC meets once weekly (half-day, 10% effort). This activity is described in greater detail elsewhere.<sup>20,22,23</sup>

#### Months 13–18

In the *last 6 months*, now with basic mental health expertise, Faculty Learners will be supervised by Outreach Trainers in teaching selected third-year and fourth-year medical students the MHCM in the CPC on a weekly basis; the remote and on-site schedule above applies here also. (During this period, all medical students may not be trained, only enough to satisfy the educational needs of the Faculty Learners; upon completion of faculty training, they will teach all students.)

Selected first-year and second-year students also will receive enhanced and integrated mental health lectures and experiential training from the Faculty Learners in the following: (1) seminar work in biopsychosocial model, patient-centered interview, informing/motivating patients, self-awareness, doctor-patient relationship, mental disorders, including substance misuse, chronic pain, the MHCM, and referral to mental health professionals; (2) skills work via role-play followed by patient interactions for different types of patient-centered interviewing; and (3) personal awareness group sessions.

### Costs of Rolling Out the Train-the-Trainer Program

To estimate the costs of rolling out such a complex training program is a challenge, and subjective judgments must be made about which costs to include and how much for each unit cost. The national occupational employment and wage estimates by the BLS<sup>31</sup> are used to estimate the labor costs for Outreach Trainers and original developers, Faculty Learners, IT technicians, and project managers. In the completed training program,<sup>22</sup> we systematically tracked the actual costs of delivering the training, which became the building block for estimating rollout costs for many nonlabor items.<sup>20,22,23</sup> The costs for truly developing a content management system, such as Desire to Learn,<sup>32</sup> would take years and include development costs (design and programming), hosting costs (central or cloud-based), and maintenance costs (improvement of existing curricular tools and the mobile device to assist training). Thus, we only conservatively estimate the hosting and maintenance costs based on the completed project. The space/rental costs for the CPC rooms and office space for new hires will be estimated using market rates for similar office/rentals in various areas available in online commercial real estate databases such as Zillow (Zillow Group Inc., Seattle, WA).

**TABLE 1.** Implementation Components of the 3T Model

Implementation Phase	Personnel	Objective and Tasks
Start-up (12 mo)	3T developer/OT	Convene OTs to ensure understanding Finalize curriculum Delineate duties Pilot test all tools
	IT	Understand the tasks Set up video equipment, just-in-time tools, web cases Produce interactive teaching and evaluation modules Pilot test all tools
	PM/MA	Contact medical school deans, deans of education, department chairs, residency directors, clerkship directors, directors of preclinical education, and prospective FLs (20 per school) Plan logistics Dry-run of all procedures
	3T developer/OT	Visit medical school site (3 d) Conduct experiential training, lectures, and readings for FLs Evaluate FLs
Rollout to FLs (12 mo)	FL	Learning the mental health models and self-awareness
	IT	Continued support of technical needs
	PM/MA	Continued support of logistics
Rollout to medical students (6 mo)	3T developer/OT	Visit medical school site (3 d) Supervise FLs in training medical students Evaluate FLs
	FL	Teaching students the mental health models and evaluating students using interactive teaching and evaluation modules Teach year 1/2 curriculum Teach year 3/4 curriculum (rotations in 4 departments, Complex Patient Clinic)
	IT	Continued support of logistics
	PM/MA	Continued support of logistics

FL indicates Faculty Learner; IT, Information Technology; MA, Master-level Assistant; OT, Outreach Trainer; PM, Program Manager; 3T, Train-the-Trainer.

## RESULTS

Table 1 summarizes the critical elements needed to accomplish the rollout activities. All costs are in 2019 dollars. We use the May 2019 BLS average annual salary of psychiatrists (\$220,430) for Outreach Trainers and original developers of the MHCM; average annual salary of family medicine physicians, general internal medicine physicians, pediatricians, and obstetricians and gynecologists (\$208,183) for Faculty Learners; average annual salary of health information technologists (\$58,600) for the IT support personnel; and average annual salary of project management specialists and business operations specialists (\$80,220) for the PhD-level project manager. The Masters-level assistant's salary (\$47,070) is based on the budget from the completed grant. For the start-up period, we project the original developers and Outreach Trainers will devote 25% full-time equivalent effort (FTE) in the 12-month period; and in the rollout period, they continue to devote 25% FTE in the 18-month period, and the Faculty Learners will devote 50%

FTE in the same period. Other labor costs for the 3T program in the 30-month period include a full-time IT technician to assist in remote education, a full-time PhD-level program manager and a full-time Masters-level assistant, who are needed for coordination and managing logistics, setting up the mental health clinics, scheduling patient visits, managing referrals, and facilitating the Faculty Learners' training needs. The total labor cost for the 30-month implementation is about \$8.0 million (about \$800k in the start-up period and \$7.2 million in rollout).

Table 2 shows the unit costs for nonlabor components by item categories and intended recipients. Assuming the school has 150 medical students per class, we need 630 copies of the textbooks for 4 classes of students, 5 Outreach Trainers and 25 Faculty Learners. For each unit cost in Table 2, we use the budgets from the completed project when possible and the best guesstimate for others. The total estimated nonlabor cost, including supplies, the travel time for the Outreach Trainers and office and clinic space rental, is about \$1.7 million at 1 school. Adding the labor and nonlabor costs together, the estimated direct cost for the 1-year start-up (\$1.1 million) and 18-month training period (\$8.6 million) was ~\$9.7 million. The direct cost per Faculty Learner in the rollout is roughly \$320,000.

## DISCUSSION

The estimated direct costs for implementing the 3T program in 1 typical medical school is a little <10 million dollars. Writ large to 154 allopathic medical schools, this is ~1.5 billion dollars. This cost can be paid from the savings that will accrue from a presently costly population—the 17% of chronic disease patients with a comorbid mental disorder such as depression, some 50 million patients in the United States.<sup>33</sup> Careful actuarial analyses show that \$26–\$48 billion could be *saved yearly* by integrating mental health care with the care for chronic diseases.<sup>34</sup> Sadly, only 12.7% of them receive even minimal treatment for comorbid mental health conditions.<sup>35</sup>

If the 3T program was successfully adopted in US medical schools, it would provide over 3800 culturally, attitudinally, and skills competent and qualified primary care faculty members to yearly train nearly 100,000 medical students—with about 25,000 graduating each year—and 55,000 primary care residents. These graduates will then be able to conduct basic mental health care, just as they now conduct basic medical care with, for example, surgical problems. This 3T program will begin to meet the needs each year for the millions upon millions of American adults with unrecognized and untreated mental disorders.

There are major limitations for an initial estimate of costs for a radical change in training. First, the costs for implementing the 3T program in a medical school cannot be estimated precisely. Our choices of costing elements may not be complete, with unforeseen expenses unaccounted or inaccurate monetary values. The wide variations of salaries and nonlabor supplies made it difficult to cost out, thus, we consider our estimates only a rough approximation to the average direct costs. Second, we have not accounted for the

**TABLE 2.** Nonlabor Costs of the Implementation

Category	Recipient	Items	Unit Cost (\$)	# of Units	
Teaching tools		Online curricular tools	100,000	1	
		JIT tools	100,000	1	
		Mobile device	400	30	
Supplies	OT, FL, students	Textbook: Patient-Centered Interviewing	40	630	
		Textbook: Essentials of Psychiatry in Primary Care	85	630	
	Students	Mobile device for students	400	600	
		Computers	4500	33	
	OT, FL, IT, PM, MA	Headphones with mike	50	90	
		Audio splitters	10	30	
		CPC room	Live streaming video camera	500	5
			Live streaming software	2000	5
		Tripod	22	5	
		Tripod mounts	15	5	
		Bluetooth microphones in CPC	70	5	
iPad mini in CPC	600	5			
Office and clinic space	OT, FL	150 sq ft CPC room	120	5	
		IT, PM	100 sq ft IT and PM office	120	2
	OT, FL, IT, PM	Furniture/equipment	10,000	7	
Travel	OT	Initial 3-d site visits (flight, lodging, per diem, car rental, parking)	5000	5	
		Quarterly 3-d visits	5000	30	
Miscellaneous		Cloud space	5000	1	
		JIT tools hosting	5000	1	
		Software licenses/annual fee	500	633	

Source: Authors' estimation based on completed grant budget, BestBuy, Zillow, and www.physicianpracticespecialists.com.

CPC indicates Complex Patient Clinic; FL, Faculty Learner; IT, Information Technology; JIT, Just-in-Time; MA, Master-level Assistant; OT, Outreach Trainer; PM, Program Manager; 3T, Train-the-Trainer.

uncertainty of the costs we used in the analysis or inflation over time. Third, we have not estimated the indirect or opportunity costs for the time and resources used in the implementation. Finally, it is foreseeable that booster training and monitoring in the longer term after the rollout will be needed, and those costs have not been estimated.

While many other issues remain to be resolved, estimating the direct costs of implementation of the 3T approach provides a necessary first step for policy decision making as leaders strive for sound investments that can improve mental health care for all Americans.

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