

# Q&A with Harvard Vanguard Medical Associates and Atrius Health about Health Systems Change to Address Smoking

## Background on Harvard Vanguard Medical Associates and Atrius Health

Harvard Vanguard Medical Associates (Harvard Vanguard) is a nonprofit multi-specialty medical group providing care to 495,000 adult and pediatric patients at more than 21 offices across eastern Massachusetts. As an affiliate of Harvard Medical School, Harvard Vanguard physicians are on the staff of Boston's academic medical centers and community hospitals. Harvard Vanguard's 4,300 employees, including more than 600 physicians and 1,000 health care professionals, are committed to making it easier for patients to be and stay healthy.

Harvard Vanguard is an affiliate of Atrius Health (Atrius), an alliance of six nonprofit community-based medical groups and a home health care, private duty nursing and hospice agency in Massachusetts, representing more than 1,000 physicians and more than 1,700 other health professionals, with a total of 10,000 employees serving more than one million patients across eastern and central Massachusetts.

In the question and answer (Q&A) below, Harvard Vanguard and Atrius respond to questions about an extensive health systems change effort they undertook in 2007 to improve tobacco dependence treatment in their health care system.

### 1. What was the impetus to improve how Harvard Vanguard addressed tobacco use?

In 2007, our Chief Medical Officer identified smoking cessation as an important initiative to improve the overall health of our population. Accordingly, we launched a quality improvement initiative to improve rates of identification and intervention with our patients who smoke cigarettes. Our first step was to review data available from our electronic health record system (EHR) for tobacco cessation and establish a quality improvement goal. Before 2007, we had fields in our EHR to code for smoking and assessment, but the workflows and interventions that produced the data were unclear. Data from our EHR system showed that 84% of patients had a documented smoking status in the EHR, and 31% of smokers' visits were coded for "tobacco assessment/counseling." However, we could not determine how many smokers received prescriptions for cessation medications, nor was there a record of evidence-based interventions delivered (with the exception of the half of one percent of smokers who were referred to the state's quitline—the QuitWorks fax-referral program). We had no tools in place to support clinicians in conducting evidence-based, routine, tobacco cessation interventions with patients; we had no academic detailing programs, and we only had a loose affiliation with the Massachusetts quitline. In short, we did not have a system-level or system-wide intervention approach.

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Based on this review and assessment, Harvard Vanguard set a quality goal to intervene with 25% of smokers across the organization. We began by designing a system to implement at four pilot sites. Clinic participation was voluntary; no monetary or other incentives were offered. Rather the focus was on doing "the right thing" (e.g., addressing tobacco use with patients). Within just a few years, our participating clinics greatly surpassed the initial goal.

## 2. What kinds of changes did you have to make to create a system to support consistent clinical interventions?

We made changes in four areas: clinical pharmacy, information technology, patient health education and marketing, and team training. These are described briefly below, and discussed in more detail in subsequent questions.

- **Medications Decision Support:** We developed evidence-based decision support tools for clinicians with a goal to ensure that cigarette smokers were assisted and offered cessation medications. For example, a Smoking Cessation Drug Therapy guide was built into the EHR with information on first-line drug options, cost and insurance coverage for drugs, and a link to information on how to order a quitline referral.
- **Information Technology:** We made changes to our EHR to support documentation of interventions with smokers, and we integrated decision support into the EHR as shown in Figure 1. We also worked to “close-the-loop” on documentation of fax-referrals to the quitline. Now we receive patient-level Excel spreadsheet reports back from the quitline on all the patients we have referred and our tobacco cessation coordinator enters the outcomes (contact, services, quits) back into the patient record. Lastly, we developed a methodology to create reports in real-time to track the performance of our individual providers.
- **Team Training:** We developed a team-based approach to perform the 5As, assigning specific roles to each of three team members—a medical assistant (MA), the visit clinician (usually an MD), and an advance practice clinician (APC), typically a nurse practitioner. To prepare clinicians to conduct this work, we created and offered mid-level provider (nurse) education and medical assistant training, tailored to each role. We also presented to the physician group at each site to inform them of the change in the MA role and to discuss the important role that physicians play in advising the patient to quit.
- **Health Education and Marketing:** Patient education handouts were developed and included in the clinical workflow, which serves as a flow diagram of the steps or actions clinicians follow to perform routine tasks and generate results.

## 3. What guided the development of your new system of clinical interventions and EHR supports?

First, we developed a set of principles to guide how we designed the system of interventions. We agreed that the intervention must:

- Be evidence-based.
- Be iterative.
- Be consistent throughout the system.
- Integrate into daily practice.
- Support clinician intervention at point-of-care.
- Involve all members of the clinical team.
- Leverage community resources (like the QuitWorks— the state’s quitline referral program).
- Include feedback on process measures to the clinical team (e.g., monthly rates of identification and intervention with cigarette smokers by site).

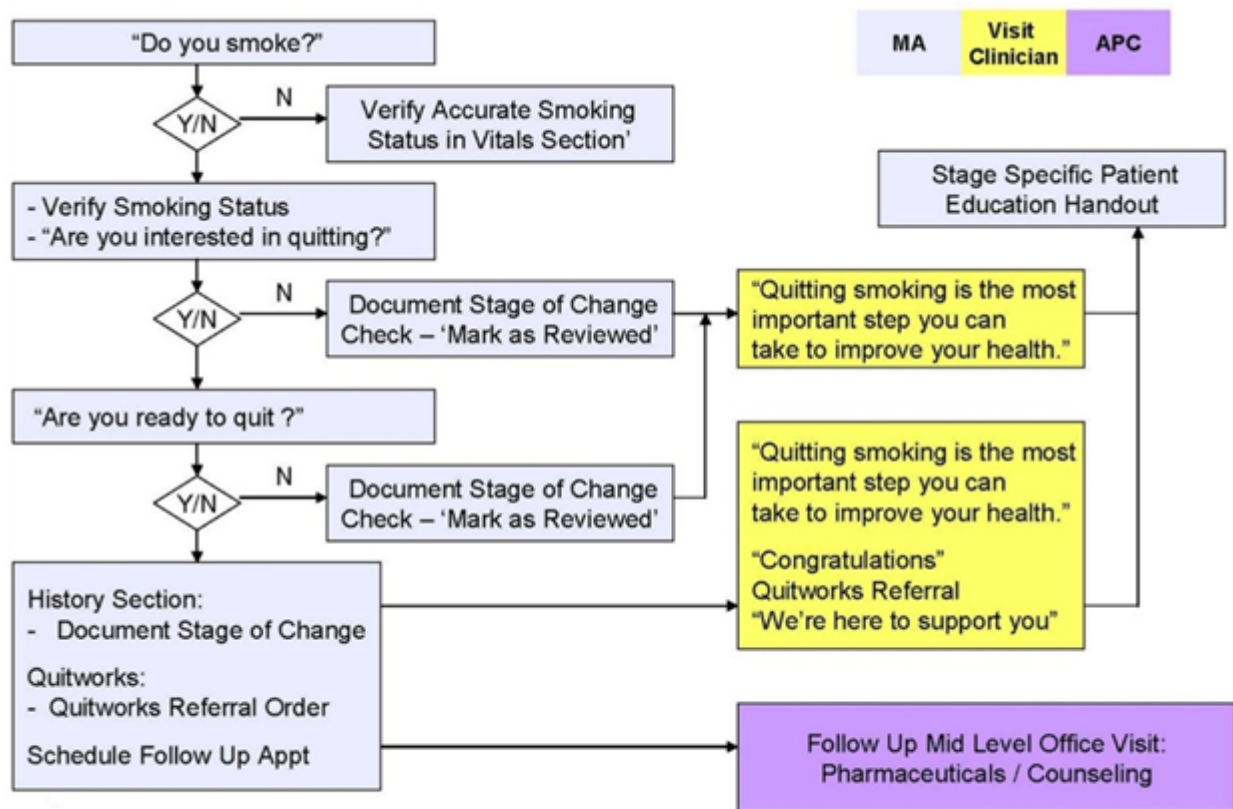
We then developed a clinical workflow model that features a *teaming approach* (See Figure 1) with roles defined for medical assistants, visit clinicians (usually an MD), and advanced practice clinicians. The workflow includes scripts and prompts for each step in the intervention built into our EHR. Real-time data entry in the EHR is required; that is, the identification of smokers and interventions has to be recorded as they occurred during the patient visit.

## 4. Putting it all together, what role does each member of the team play in the interventions, and what does your clinical and EHR workflow look like?

The team-based intervention consists of the simple steps shown in Figure 1: identify tobacco users, deliver a brief intervention, and offer medications and refer patients to QuitWorks— the state’s quitline fax or electronic referral service for providers in Massachusetts, which links to the Mass Smokers Helpline. The steps are carried

out by a three-person team, each with an assigned role: the Medical Assistant (MA), the Visit Clinician, and the Advance Practice Clinician (APC), shown in blue, yellow, and purple, respectively in Figure 1. In our systems, before the clinical visit, the medical assistant (MA) asks each patient about their smoking, documents smoking status, and verifies or determines readiness to quit (stage of change). The MA also orders the QuitWorks quitline referral for patients ready to quit and schedules a follow-up visit with an advance practice clinician, typically a nurse practitioner. The information recorded by the MA is available immediately in the EHR to the Visit Clinician (typically an MD), who is prompted by the EHR to deliver strong advice to quit during the patient visit. If the patient has indicated that they are ready to quit, the Visit Clinician delivers a congratulatory statement, confirms the QuitWorks referral, and offers the team’s support for a patient’s quit attempt. The advanced practice clinician (APC) then prescribes medications and provides counseling.

**Figure 1. Atrius and Harvard Vanguard Medical Associates Tobacco Intervention Workflow**



Legend: Y = Yes; N = No; MA = Medical Assistant; APC = Advanced Practice Clinician

## 5. What was your implementation plan? How did you roll out the new system and how long did it take?

Our project team, led by our physician-champion, developed a phased implementation plan, rolling out the new system to four clinics at a time, on a voluntary basis. We conducted academic detailing at the volunteer clinical sites and our project team (a physician champion and an assistant) trained the tobacco intervention teams. In May 2007, we recruited four Internal Medicine (IM) department pilot sites, and recruited a clinical champion at each site. In addition to training the clinical teams assigned to perform smoking interventions, we provided training materials for all clinic staff. In 2008–2009, we added six additional IM departments. By 2010, 12 of 17 Harvard Vanguard’s IM clinical sites were on board. Today, this system of tobacco interventions has been implemented in all Harvard Vanguard clinics. Through our common EHR, the workflow and decision support tools are also available to all five medical groups that operate within the Atrius organization.

We also worked with Massachusetts Tobacco Control Program (MTCP) to close the referral loop to QuitWorks—the state’s quitline referral service for providers. Initially, we arranged with the quitline to send referring providers regular patient-level feedback data in Excel format, with our patient medical ID attached. We then encouraged

MTCP and its quitline to offer a fully electronic referral option, because faxed referrals no longer fit within our fully electronic systems. Today, we send referrals to QuitWorks electronically from the EMR, but we decided to continue to receive patient feedback reports in Excel spreadsheet form. Our project assistant reviews the information and enters it manually into patient records.

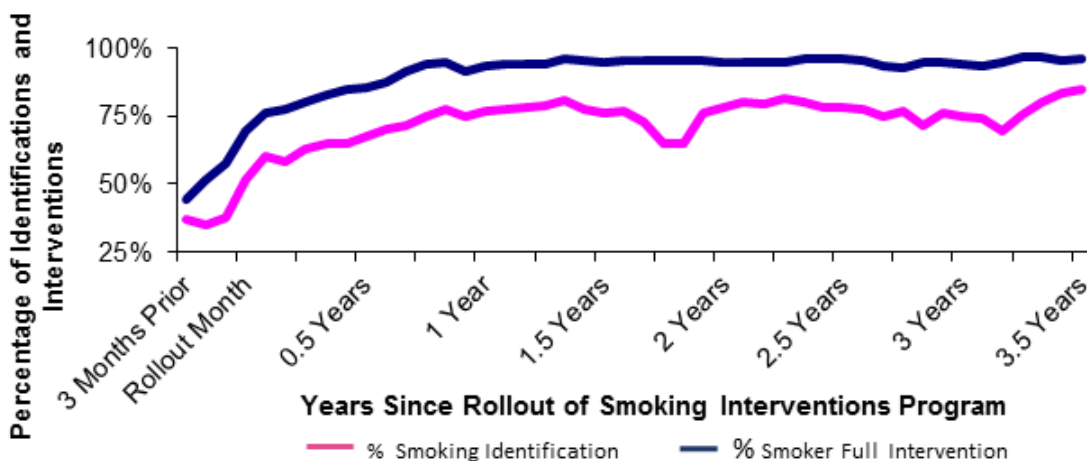
## 6. What makes your system work day-to-day and year-over-year?

A number of things contribute to a functional and consistent system. First, we embedded decision-support tools in our EHR system—with prompts and scripts for each team member to follow. This makes the clinical workflow we agreed on easier for clinicians to remember and follow.

Second, we monitor performance data monthly by clinic, by team, and by team member on the “ask,” “assess,” and “assist” steps. We provide each department, clinician, and medical assistant with monthly feedback reports and we review performance with each clinic team on each measure (supervisors conduct these reviews now). Some supervisors post the scores within the departments. They can also request detailed reports on each patient to review cases with missing assessments and identify staff for coaching to improve assessment and identification rates.<sup>a</sup> They also conduct periodic refreshers on the EHR screens that contain the smoking assessment and intervention prompts for staff with lower scores, and some supervisors incorporate the reports into performance reviews. It is this active review process with each team, not simply providing reports, that is critical to performance improvement. The Harvard Vanguard team that is responsible for implementing the systems reviews performance over time and compares progress and results across clinics.

Figure 2 is an example of how we review our performance across the whole organization and for the long haul—as shown here, over three years. In 2009, we worked with the state’s largest commercial insurance company, with whom we have a global payments contract, to include a tobacco metric.

**Figure 2. Atrius Harvard Vanguard Identification and Intervention Rates**  
(3 months prior to roll out – 3.5 years post rollout)



System sustainability is also a function of Atrius organizational commitment to quality care and our high performance culture. Chief among success factors are personnel dedicated to oversee the system of tobacco interventions, including an MD champion and a department supervisor. They were charged to design and implement the interventions, train clinical teams, and monitor performance continuously, reporting back periodically on both process and outcome measures to the Atrius CEO and Executive Team. Monthly reports detailing Medical Assistant performance are also shared with IM Supervisors and Managers, IM Chiefs and Site Administrators; high level data from all of the sites are posted so sites may view each other’s performance.

In January 2014, a “best practice alert” was added to our EMR with logic built in that triggers an alert when smokers are identified as “ready to quit” by automatically providing the visit clinician with an order screen to place a Quitline referral. This has made it easier for clinicians to remember to refer and has subsequently increased the volume of referrals.

## 7. What outcomes were achieved within Harvard Vanguard Medical Associates sites that implemented and sustained a systems-level change?

As shown in the feedback report above, the Harvard Vanguard sites that implemented the new tobacco cessation systems change program rapidly reached high performance levels of “ask” and “assist.” In 2009–2010, Harvard Vanguard partnered with the Massachusetts Tobacco Control Program to analyze more than 4,000,000 encounter records from their EPIC system for the period January 1, 2005, to November 30, 2010.<sup>1</sup> The results, published in 2010, report the following:

- Among Harvard Vanguard clinics implementing the new systems changes,<sup>b</sup> a clinical intervention occurred during 82.5% of visits where patients were identified as smokers, compared with 59.4% at sites with no systems change.
- Quitline electronic referrals were implemented and referrals doubled within 3 months.
- Quits increased in clinics that had made systems changes, compared with sites that did not. In particular
  - Smoking rates were reduced by 10% in participating clinic sites.
  - Decreases in self-reported smoking prevalence were 40% greater at clinics that achieved systems change (13.6% vs. 9.7%,  $p < .01$ ).
- On average, the likelihood of quitting increased by 2.6% ( $p < 0.05$ , 95% CI: 0.1%–4.6%) per occurrence of brief intervention; after 3 years, a patient with a history of smoking who had 3 visits per year would be as much as 26% more likely to have quit smoking.<sup>1</sup>

## 8. How has the partnership between Atrius and the MA Tobacco Control Program evolved? What is the status today?

The Massachusetts Tobacco Control Program has had a longstanding partnership with Harvard Vanguard, initiated in 2000, when the QuitWorks fax-referral program was first launched. Over time, Harvard Vanguard became one of the largest and most consistent sources of quitline referrals, and Quit Works became increasingly integrated into both the Atrius clinical workflow and the Atrius EHR system. As a longtime user, Harvard Vanguard worked frequently with Quit Works to recommend improvements—including feedback reports—to align QuitWorks more closely with Harvard Vanguard’s workflow. Harvard Vanguard’s request for MTCP to develop a fully-electronic referral capability moved MTCP forward in its ultimate development of this capability. We were the first large health care delivery system in MA to adopt fully electronic referrals—doubling our referrals to QuitWorks within 3 months. Today, all medical groups and clinical sites within the Atrius organization can make fully electronic referrals from our common EPIC EHR.

### Footnotes

- a. Currently the QuitWorks disposition on each patient is faxed to the secure Atrius Medical Record server (we call it e-faxing) . The Medical Records staff retrieve them electronically and attach the disposition to the referral in the EMR which then routes thru the provider’s EMR for review. This also allows for it to be stored permanently in the EMR.
- b. Land et al. (2012) defined “health systems change” as first month when more than half of all office visits at a given site included an identification for cigarette smoking. In all months following that date, the rate of cigarette smoker identifications could never drop below 50%. Furthermore, there had to be at least 12 consecutive months with rates above 50%. By this definition, 12 of the 17 Harvard Vanguard sites had achieved “systems change.”<sup>1</sup>

### References

1. Land TG, Rigotti NA, Levy DE, Schilling T, Warner D, et al. The effect of systematic clinical interventions with cigarette smokers on quit status and the rates of smoking-related primary care office visits. *PLoS ONE*. 2012; 7(7):e41649.doi:10.1371/journal.pone.