"Meaningful Use" of EHR in Dental School Clinics: How to Benefit from the U.S. HITECH Act's Financial and Quality Improvement Incentives

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Abstract: Through the 2009 HITECH (Health Information Technology for Economic and Clinical Health) Act, the U.S. government committed $27 billion to incentivize the adoption and "meaningful use" of certified electronic health records (EHRs) by providers, including dentists. Given their patient profiles, dental school clinics are in a position to benefit from this time-delimited commitment to support the adoption and use of certified EHR technology under the Medicaid-based incentive. The benefits are not merely financial: rather, the meaningful use objectives and clinical quality measures can drive quality improvement initiatives within dental practices and help develop a community of medical and dental professionals focused on quality. This article describes how dentists can qualify as eligible providers and the set of activities that must be undertaken and attested to in order to obtain this incentive. Two case studies describe the approaches that can be used to meet the Medicaid threshold necessary to be eligible for the incentive. Dentists can and have successfully applied for meaningful use incentive payments. Given the diverse set of patients who are treated at dental schools, these dental practices are among those most likely to benefit from the incentive programs.

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Through the 2009 HITECH (Health Information Technology for Economic and Clinical Health) Act, the U.S. government committed $27 billion to incentivize the adoption and "meaningful use" of certified electronic health records (EHRs) by eligible providers (EPs), including dentists.[1] At the individual provider level, the maximum incentive over six years is $63,750.[2] The incentives are aimed at providers who see a minimum threshold of patients covered under Medicare or Medicaid. Given their patient profiles, dental school clinics are in a position to benefit from this time-delimited commitment to support the adoption and use of certified EHR technology under the Medicaid-based incentive.

The unprecedented national support for EHR adoption and use is grounded in the belief that it will 1) improve the accuracy and completeness of patient information, 2) allow better coordination of care, 3) provide secure access for patients to their own health data and thus foster shared decision making, and 4) provide safer and lower cost care.[1] To catalyze the realization of this potential, the incentive programs are aimed not only at EHR adoption, but also "meaningful use" of EHR technology. Meaningful use is not a generic phrase: it is a set of specific but evolving demonstrable activities that must be undertaken and attested to.[3] These criteria are intended to spur action not only in the clinic but also among EHR vendors, as certified systems must support meaningful use activities. The activities necessary to demonstrate meaningful use will evolve over time. Currently, the incentive programs are based upon Stage 1 meaning-

ful use criteria. The proposed rule for meaningful use Stage 2 was announced on February 23, 2012,[4] and it is anticipated that an additional stage will be issued prior to the close of the incentives in 2016.

In order to qualify for the Medicaid-based incentive payments, EPs within a given clinic must adopt, implement, upgrade, or demonstrate "meaningful use" of a certified EHR in the first year of participation and successfully demonstrate meaningful use in subsequent participation years. Completing the steps to apply for the incentives can, at first glance, appear complex. Health Information Technology Regional Extension Centers[5] have been established to assist practices in the adoption and meaningful use of EHRs, but the primary focus of these centers is physician practices. To make the process more accessible to dental school clinics, we here review the specific eligibility rules and guidelines; in addition, we provide a case study to demonstrate the practical application of the rules in dental school clinics and an estimation of the financial value of the Medicaid incentive payments at the clinic level. Finally, we describe the quality measures that signify meaningful use and the non-financial benefits to pursuing meaningful use in dental schools.

Key Terms and Concepts

The rules underpinning the incentive payments introduce a number of terms that we will use according to their rule-based meanings. In service of clarity, we define the terms here:

- Attestation: the process of formally confirming completion of the requirements for payment.
- Certified electronic health record (EHR): EHR technology that has been tested and certified by an Office of the National Coordinator Authorized Testing and Certification Body.
- Clinic: a legally distinct entity. Clinics operating under the same institutional banner may or may not be considered as separate entities for the purposes of the incentive program.
- Clinical Quality Measures (CQMs): along with objectives, CQMs define meaningful use of a certified EHR. CQMs are clinical measures reported by a certified EHR through the development of electronic specifications including the data elements, logic, and definitions for that measure in a format that can be captured or stored in the EHR so that the data can be sent or shared electronically with other entities in a structured, standardized format.
- Eligible provider (EP): Type of health care provider who is eligible to receive incentive payments.
- Encounter: any one day in which Medicaid (or other payment options for needy individuals in the Federally Qualified Health Center [FQHC] or Rural Health Center [RHC] settings) paid for all or part of the service.
- Meaningful use: attainment of a set of objectives and reports of CQMs using certified EHR technology.
- Needy individuals: individuals whose care is covered by Medicaid, Children's Health Insurance Program (CHIP), uncompensated care, and no cost/reduced cost based on a sliding scale.
- Objectives: along with CQMs, objectives define meaningful use of a certified EHR. Objectives are performance standards that must be met to demonstrate meaningful use.
- Office of the National Coordinator for Health Information Technology (ONC): part of the U.S. Department of Health and Human Services dedicated to coordination of nationwide efforts to implement and use the most advanced health information technology and the electronic exchange of health information.
- Patient volume threshold: percentage of Medicaid (or other payment options for needy individuals in the FQHC or RHC settings) patients who need to be seen to qualify as an EP.
- Regional Extension Center: sixty-two centers funded to assist EPs in engaging in meaningful use of EHRs.

The following is a distillation of the more detailed information about the Medicaid meaningful use incentive program provided in the remainder of this article. Under meaningful use, dentists with National Provider Identifier (NPI) numbers are eligible providers, but to qualify for the incentive, they must either achieve 30 percent of Medicaid-paid patient encounters ("individual approach") or work in a clinic that has achieved 30 percent Medicaid-paid patient encounters ("proxy approach"). During the first year of the program (Figure 1), a dentist needs to be registered at the state and federal levels and attest through the same website that he or she has purchased or upgraded to a certified EHR. At that point, the dentist will be eligible to receive $21,250 of incentive money. In years two through six, the dentist will need to achieve meaningful use objectives and report on CQMs. At the end of year two, the dentist attests at the state level to having met the objectives and CQMs for a ninety-day period during the previous year. Years three through six require attestation

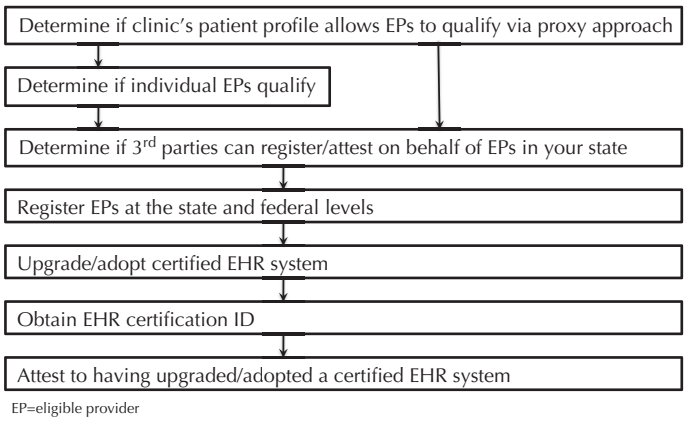

Figure 1. Summary of Year 1 attestation process

to a year of meeting the objectives and CQMs. At the end of six years, the dentist may be eligible to receive a total of $63,750 in incentive monies. In most institutions, the advanced graduate students (residents) will be eligible providers as they are most likely to meet the Medicaid threshold requirement.

Schools and clinics themselves are not eligible to receive incentive payments: EPs are eligible to receive these payments. However, the assignment of incentive payments to an employer, school, or other organization with which a provider has a contractual relationship is allowed. Thus, the socio-legal aspects of this process, in which residents and/or faculty members agree to assign their incentive payments to the clinic, must not be neglected. Finally, it should be noted that the meaningful use rules exist in a dynamic policy environment. Most significantly, lawmakers are considering including not only Medicaid-paid encounters but all encounters with patients that are covered by Medicaid, even if the service they received was not paid for by Medicaid.

Provider Eligibility

First and foremost, it should be noted that the rules surrounding the incentive programs are continually evolving. For instance, policymakers are considering an alteration to the patient threshold volume formula. Currently, the numerator of the patient threshold volume formula is the number of Medicaid-*paid* encounters, but policymakers are considering expanding this to include all encounters with a Medicaid-*covered* patient, whether or not the services provided during the encounter were paid for by Medicaid. This would significantly increase the number of EPs in states with limited dental coverage under Medicaid.

There are both Medicare and Medicaid EHR incentive programs. A dentist is considered an EP under both the Medicare and Medicaid EHR incentive programs. However, an individual EP may apply for an incentive under only one of these programs. In practice, most dentists will only qualify under the Medicaid incentive program because, to qualify for the Medicare incentive program, an EP must bill the Medicare Physician Fee Schedule for patient services. This fee schedule does not contain dental services; thus, only dentists who provide medical care, such as oral surgeons and oral pathologists, may qualify for the Medicare incentive program. Thus, we focus here on the Medicaid incentive program.

There is a minimum Medicaid patient threshold volume necessary to qualify for the incentive payments. This threshold may be met in one of two ways: on the basis of the patients seen by the clinic in which they work, hence referred to as the "proxy approach," or on the basis of the patients they themselves see, hence referred to as the "individual approach" (Figure 2). The calculations are described in Table 1. All of the EPs in the clinic must qualify in the same way, i.e., there cannot be some providers who qualify under the proxy approach and others who qualify under the individual approach.

The proxy approach is considered before the individual approach due to the fact that a larger

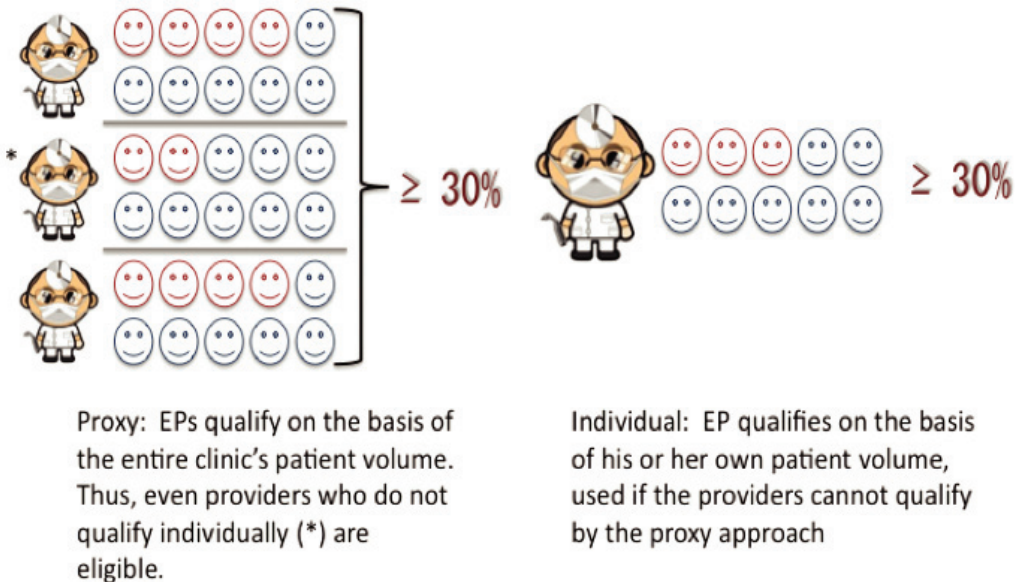

Figure 2. Proxy vs. individual approach to the patient threshold volume eligibility requirement (EP=eligible provider)

Table 1. Calculating patient threshold volume

In order to qualify for the Medicaid Incentive, an eligible provider (EP) must meet certain patient threshold volumes, either individually or by proxy through his or her clinic. These patient threshold volumes must be met for every year in which the EP is seeking payment. In general, the patient threshold volume may be calculated in one of two ways: the encounter option or the patient panel option. The encounter option applies when Medicaid reimburses providers on a fee-for-service basis, as is the case in dentistry. The patient panel option applies when Medicaid reimburses providers in a managed care fashion, which does not apply to dentistry. Thus, this description is only for the encounter option calculation for determining patient threshold volume:

$$\frac{\text{Medicaid (or other) patient encounters in a 90-day period over the previous calendar year}}{\text{Total Patient Encounters in a 90-day period over the previous calendar year}} \times 100$$

Multiple visits on the same day and for the same service count only once. The clinic or practice must use the entire practice's patient volume and not limit it in any way. Encounters that contribute to the numerator must also contribute to the denominator.

Note: Other payment options are those for needy individuals in FQHC or RHC settings. Several states have an 1115 waiver that allows them to include CHIP patients in the numerator.

number of providers may qualify for the incentive following the proxy approach, as shown in Table 2. EPs who work in clinics in which at least 30 percent of services were furnished to Medicaid patients qualify for the Medicaid incentive program. Some states, described in Table 3, have an 1115 waiver, which allows CHIP patients to be counted toward the threshold. (See also Figure 3.) The requirements for EPs working in FQHCs and RHCs are less stringent than those for other clinics. To qualify in those settings, 30 percent of services may have been furnished to a broader range of needy patients who 1) received medical assistance from Medicaid or CHIP, 2) were furnished uncompensated care by the provider, or 3) were furnished services at either no cost or reduced cost based on a sliding scale. A number of dental schools have separate practices (e.g., teaching practices, faculty practices, and pediatric practices) working under the same institutional banner but may have markedly different patient profiles

Table 2. Examples of the proxy vs. individual approach to meeting the patient threshold volume

CLINIC A
EP #1 (resident): individually had 40% Medicaid encounters (80/200 encounters)
EP #2 (resident): individually had 50% Medicaid encounters (50/100 encounters)
Practitioner at the clinic but not an EP (dental student): individually had 75% Medicaid encounters (150/200)
Practitioner at the clinic but not an EP (hygienist): individually had 80% Medicaid encounters (80/100)
EP #3 (faculty): individually had 10% Medicaid encounters (30/300)
EP #4 (faculty): individually had 5% Medicaid encounters (5/100)
EP #5 (faculty): individually had 10% Medicaid encounters (20/200)
There are 7 practitioners associated with Clinic A, 5 of whom are EPs. Although 2 of the practitioners are not eligible EPs, their clinical encounters at Clinic A must be included in the proxy approach calculation. There are 1200 encounters in the selected 90-day period for Clinic A. There are 415 encounters attributable to Medicaid, which is 35% of the clinic's volume. This means that the 5 EPs would meet the Medicaid patient volume criteria under the rules for the EHR Incentive Program. Only 2 of the EPs, #1 and #2, would qualify under the individual approach.
CLINIC B
EP #1 (faculty): individually had 10% Medicaid encounters (20/200 encounters)
EP #2 (resident): individually had 32% Medicaid encounters (32/100 encounters)
Practitioner at the clinic but not an EP (dental student): individually had 75% Medicaid encounters (150/200)
Practitioner at the clinic but not an EP (hygienist): individually had 15% Medicaid encounters (30/100)
EP #3 (faculty): individually had 10% Medicaid encounters (30/300)
EP #4 (faculty): individually had 5% Medicaid encounters (5/100)
EP #5 (faculty): individually had 10% Medicaid encounters (20/200)
Clinic B only had 23.9% Medicaid encounters. Thus, its EPs cannot qualify under the proxy approach. Only EP #2 qualified under the individual approach, and this is the only individual who is eligible for the EHR incentive payment in this clinic.

in terms of Medicaid coverage. In theory, it would be advantageous to treat these as different clinics as some may qualify under the proxy approach while the amalgamation of practices would not. In practice, however, the incentive programs stipulate that clinics treated as separate must be "legally distinct entities" or have separate electronic health records.[6] Schools should contact their Regional Extension Centers to determine whether their clinics qualify as distinct entities.

When a new EP joins a clinic that has a patient profile that allows qualification under the proxy approach, the new EP is immediately eligible to apply for the incentive payment. Otherwise, the new EP must wait ninety days to determine whether he or she can qualify via the individual approach. Since an EP may receive only one payment, he or she may not receive a payment under both the individual and proxy approaches. Furthermore, he or she may only receive one payment regardless of the number of clinics in which he or she works. To illustrate, consider the scenario described in Table 2. If EP #2 is practicing part-time at both Clinic A and Clinic B and both clinics are using the clinic-level proxy option, each such clinic would use the encounters associated with the respective clinic when developing a proxy value for the entire clinic. EP #2 could then apply for an incentive using data from one clinic or the other. Similarly, if EP #4 is practicing at Clinic A and has also her own solo practice, EP #4 could choose to use the proxy-level Clinic A patient volume data or the patient volume associated with her solo practice. She could not, however, include the Clinic A patient encounters in determining her individual practice's Medicaid patient volume. Her Clinic A patient encounters *would* be included in determining that clinic's overall Medicaid patient volume if Clinic A were seeking to qualify the remaining EPs under the proxy approach.

A large number of predoctoral and postdoctoral students practice in dental school clinics. While predoctoral students are not eligible to receive the incentive, postdoctoral students will be considered eligible if they have a National Provider Identifier (NPI), according to the specialized staff at the Medicaid Incentive Program.[7] Some schools currently process claims under a single faculty NPI (often the medical director or dean of clinics). This approach will not influence the number of faculty providers within the clinic who would qualify for incentive payments, as long as each of the EPs applying for the incentive payment has an NPI.

Table 3. Overview of states with adult and/or childhood dental benefits and Medicaid 1115 waivers

State	Adult Medicaid Dental Benefits	Children Medicaid Dental Benefits	Medicaid 1115 Waivers
Alabama	No	Yes	No
Alaska	Yes	Yes	No
Arizona	Yes (emergency only)	Yes	Yes
Arkansas	No	Yes	Yes
California	Yes	Yes	Yes
Colorado	No	Yes	No
Connecticut	Yes	Yes	No
Delaware	No	Yes	Yes
District of Columbia	Yes	Yes	Yes
Florida	Yes (emergency only)	Yes	Yes
Georgia	Yes (emergency only)	Yes	No
Hawaii	Yes	Yes	Yes
Idaho	Yes	Yes	Yes
Illinois	Yes	Yes	No
Indiana	Yes	Yes	Yes
Iowa	Yes	Yes	Yes
Kansas	Yes (emergency only); other procedures only for persons with disabilities and categorized as elderly	Yes	No
Kentucky	Yes	Yes	Yes
Louisiana	Yes (only for pregnant women)	Yes	Yes
Maine	Yes (emergency only)	Yes	Yes
Maryland	No	Yes	Yes
Massachusetts	Yes (emergency and extractions only)	Yes	Yes
Michigan	Yes	Yes	Yes
Minnesota	Yes	Yes	Yes
Mississippi	Yes (emergency only) and oral surgery	Yes	No
Missouri	Yes (emergency only); other procedures only for the elderly, persons with disabilities, and pregnant women	Yes	Yes
Montana	Yes (emergency only); other procedures only for persons with disabilities and the elderly	Yes	Yes
Nebraska	Yes	Yes	No
Nevada	Yes (only emergency and dentures); preventive and periodontal only for pregnant women	Yes	No
New Hampshire	Yes (emergency only)	Yes	No
New Jersey	Yes	Yes	Yes
New Mexico	Yes	Yes	Yes
New York	Yes	Yes	Yes
North Carolina	Yes	Yes	No
North Dakota	Yes	Yes	No
Ohio	Yes	Yes	No
Oklahoma	Yes (emergency only); other procedures for persons with disabilities and pregnant women	Yes	Yes
Oregon	Yes (emergency only); other procedures only for persons with disabilities, the elderly, and pregnant women	Yes	Yes
Pennsylvania	Yes	Yes	No
Rhode Island	Yes	Yes	Yes
South Carolina	Yes (emergency only)	Yes	No
South Dakota	Yes	Yes	No
Tennessee	No	Yes	Yes
Texas	Yes (emergency only); other procedures only for persons with disabilities and the elderly	Yes	No
Utah	Yes	Yes	Yes
Vermont	Yes	Yes	Yes
Virginia	Yes (emergency only)	Yes	No

(continued)

Table 3. Overview of states with adult and/or childhood dental benefits and Medicaid 1115 waivers *(continued)*

State	Adult Medicaid Dental Benefits	Children Medicaid Dental Benefits	Medicaid 1115 Waivers
Washington	Yes	Yes	Yes
West Virginia	Yes (emergency only)	Yes	No
Wisconsin	Yes	Yes	Yes
Wyoming	Yes	Yes	No

Sources: McGinn-Shapiro M. Medicaid coverage of adult dental services: state health policy monitor. 2008. At: http://nashp.org/sites/default/files/Adult%20Dental%20Monitor.pdf?q=files/Adult%20Dental%20Monitor.pdf. Accessed: April 10, 2012; Kaiser Commission on Medicaid and the Uninsured. Children's oral health benefits: CHIP tips, 2010. At: www.kff.org/medicaid/upload/8054.pdf. Accessed: April 10, 2012; U.S. Department of Health and Human Services. 2008 national dental summary. At: www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Downloads/2008-National-Dental-Sum-Report.pdf. Accessed: April 10, 2012; and U.S. Department of Health and Human Services. What is Medicaid: connecting kids to coverage, 2011. At: www.insurekidsnow.gov/index.html. Accessed: April 10, 2012.

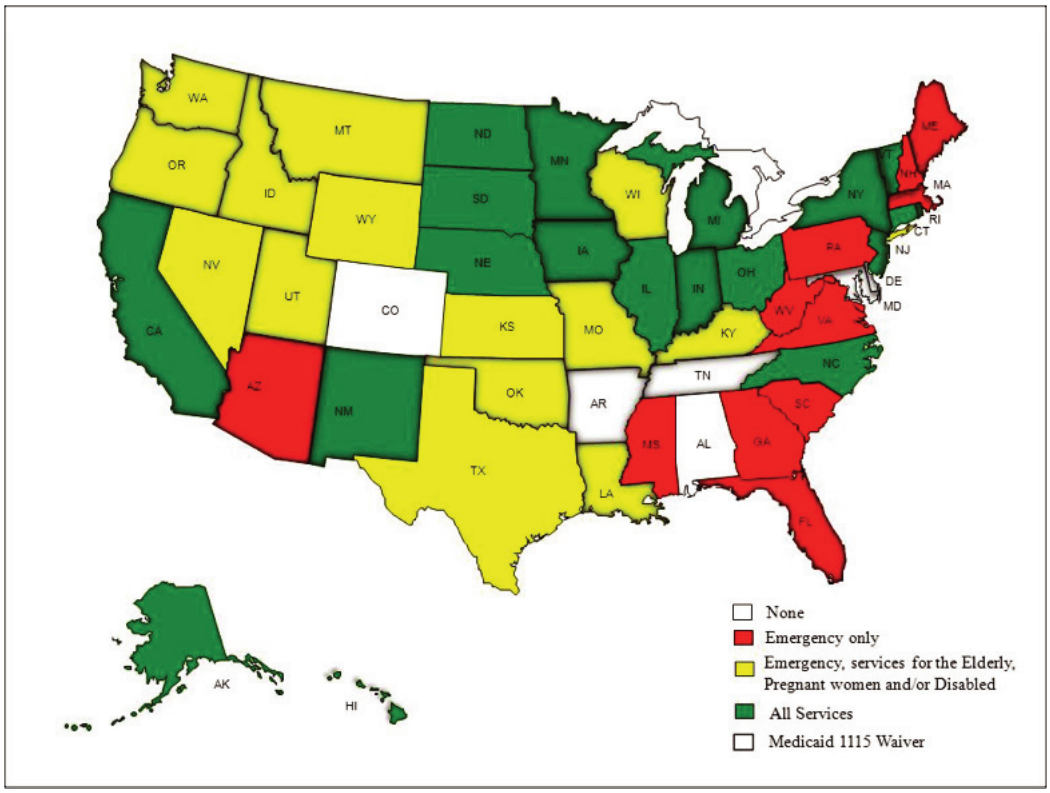

Figure 3. State Medicaid coverage of adult dental benefits and Medicaid 1115 waivers, 2012

Patient allocation patterns may reduce the number of EPs in the clinic. For instance, suppose that EPs #1 and #2 are both second-year pediatric residents practicing in a teaching practice. The clinic characteristics are such that the residents will not qualify for incentive payments under the proxy approach. EP #1 has a Medicaid patient volume of 50/100 encounters, whereas EP #2 has a Medicaid patient volume of 25/100 encounters. With the existing patient distribution, EP #1 meets the threshold patient volume, whereas EP #2 does not. However, if the clinical circumstances allow it, the patient allocation might be adjusted to allow for more equitable Medicaid patient volumes, allowing both EPs to qualify.

Becoming a Certified EHR: Two Approaches

To qualify for the incentive payments, each EP is responsible for ensuring that his or her EHR solution is certified, although in practice this will most often be done at the clinic level. For EHR products that have received "complete" certification, this process is clear-cut, but for "modular" products it becomes the EP's/clinic's responsibility to assemble a complete solution by implementing modular products. These are two separate approaches: the complete and modular approaches to obtaining a CMS EHR Certification ID.

Following the complete certified EHR approach, a clinic will have a single system that fulfills all of the meaningful use certification requirements. One can determine whether an EHR is complete by referring to the database at http://onc-chpl.force.com/ehrcert/EHRProductSearch?setting=Ambulatory. When consulting this reference, attention should be paid to the version number. To generate the CMS EHR Certification ID, the EP/clinic would simply select the complete system at this website.

Modular products receive certification for just a subset of the meaningful use requirements. Thus, to create a system that achieves the full meaningful use certification necessary to qualify for incentive payments, an EP/clinic would have to augment the modular product with one or more additional certified products. To obtain the CMS EHR Certification ID, the EP/clinic would go to http://onc-chpl.force.com/ehrcert/EHRProductSearch?setting=Ambulatory and select the products that, together, comprise a complete system. After the clinic has assembled the ONC Certification Numbers for each of the products in use at the practice, the ONC would then assess whether this combination of products represents a complete solution. If so, the ONC would issue a *new* certification number, specific to that combination of modular products, which should be used by the EP/clinic in applying for the incentive payments.

Attestation and Incentive Payments

Conceptually, the attestations and incentive payments can be divided into two phases: Year 1 and Years 2-6. The Year 1 payment is $21,250, followed by five equal payments of $8,500 for each subsequent qualified year, as shown in Table 4. EPs can qualify for Year 1 payments until 2016 and will then be eligible for subsequent payments for Years 2-6 until 2021. The years are with respect to provider, rather than clinic. For instance, if established EPs within a given clinic have been demonstrating meaningful use of an EHR for three years, any new EP (who has not received incentive payments previously) will be considered to be in Year 1. Likewise, an EP who has collected Year 1 payment in Clinic A and then moves to Clinic B would not be eligible to collect a second Year 1 payment, just as an EP who switches

Table 4. Medicaid incentive payments by year

	Medicaid EPs Who Adopted In					
Year	2011	2012	2013	2014	2015	2016
2011	$21,250					
2012	$8,500	$21,250				
2013	$8,500	$8,500	$21,250			
2014	$8,500	$8,500	$8,500	$21,250		
2015	$8,500	$8,500	$8,500	$8,500	$21,250	
2016	$8,500	$8,500	$8,500	$8,500	$8,500	$21,250
2017		$8,500	$8,500	$8,500	$8,500	$8,500
2018			$8,500	$8,500	$8,500	$8,500
2019				$8,500	$8,500	$8,500
2020					$8,500	$8,500
2021						$8,500
Total	$63,750	$63,750	$63,750	$63,750	$63,750	$63,750

clinics mid-year may only receive one payment for that year. Similarly, an EP who works in two clinics is eligible for only one incentive for one clinic. We consider each phase in this section.

Year 1 Attestation and Incentive Payments

To receive incentive payments, an EP must first register with the federal government at https://ehrincentives.cms.gov/hitech/login.action. For the federal registration, an EP may designate a third party (e.g., a dental school clinic) to register and attest on his or her behalf.[7] To do so, users working on behalf of an EP must have an Identity and Access Management System (I&A) web user account and be associated to the EP's NPI. If the third party does not have an s\I&A web user account, it can obtain one at https://nppes.cms.hhs.gov/NPPES/IASecurityCheck.do.

The next step is to obtain an EHR Certification ID, which confirms that the EHR/EHR Modules in use is/are certified. One can do this at http://healthit.hhs.gov/chpl, as described in a previous section.

The EP must then register with the state for the Medicaid EHR Incentive Program. As of February 2012, almost all states were planning on accepting registrations by the end of 2012.[8] More information about the availability of the program for each state can be found at https://www.cms.gov/apps/files/statecontacts.pdf. States may not necessarily allow third-party registration and attestation. Schools should contact their regional extension center to determine the policies in their own state.

Following registration, an EP/third party designate (e.g., clinic manager) attests to the EP's eligibility (based upon the criteria previously described) and to having purchased/adopted/implemented/demonstrated meaningful use of a certified EHR. Clinics themselves are not eligible to receive incentive payments; only EPs are eligible to receive these payments. However, the assignment of incentive payments to an employer or other organization with which a provider has a contractual relationship is permissible, provided certain conditions are met: first, EPs are permitted to reassign their incentive payments to their employer or to an entity with which they have a contractual arrangement allowing the employer or entity to bill and receive payment for the EP's covered professional services; and, second, each EP may reassign the entire amount of the incentive payment to only one employer or entity.

There is no one-size-fits-all solution to payment reassignment, but we consider some options here. In the case of residents who are EPs, schools may want to consult with their legal department regarding their ability to make it a requirement that residents assign the meaningful use incentive funds to the school. If the residents are paid employees of the school and thus have an employment contract, it might mean a revision of the employment contract. If the residents are tuition-paying, university counsel might want to suggest a revision of the student handbook. The law governing student handbooks provides broad discretion to modify the rules governing its students from time to time in order to further the institution's academic mission.[9] Incorporating registration and assignment of incentives is best done at time of "on-boarding" of the residents, at the beginning of their residency. For current residents, however, it behooves the school to create buy-in by sharing the rationale for implementing meaningful use and the positive impact the program will have on patient care. Additionally, a school may want to consider sharing how the financial incentive will help offset the significant capital investment the school has made in adopting or upgrading to a certified EHR. Schools may also want to consider setting some of the incentive money aside for scholarship funds. For those schools in which faculty qualify, approaches to obtaining buy-in to reassignment will vary depending on the employment relationship. For faculty members who are 100 percent salaried, a change in employment contract may be considered, reflecting the notion that salaried faculty members are employees and as such are not eligible for the incentive. For faculty members who are paid a percentage of production or collection, a similar split may be considered with the incentive payment.

In contrast to Years 2-6, one need not demonstrate meaningful use or attest at the federal level to qualify for payment in Year 1. The entire Year 1 process, from determination of the patient threshold volume to attestation, is summarized in Figure 1.

Years 2-6 Attestation and Incentive Payments

It bears repeating that the incentive payment years are with respect to the EP, rather than the clinic. Thus, within the same clinic, some EPs may be applying for the Year 1 payment, while others might be applying for later payments.

In Year 2, an EP will be required to report on ninety days of meaningful use, whereas in Years 3-6, he or she will be required to report on a full year of meaningful use. The criteria for what constitutes meaningful use will be staged in three steps over the course of the next five years.[10] Stage 1 (2011 and 2012) sets the baseline for electronic data capture and information sharing. Stage 2 (expected to be implemented in 2013) and Stage 3 (expected to be implemented in 2015) will continue to expand on this baseline and be developed through future rule-making. In order to demonstrate meaningful use, an EP must report on objectives and CQMs. We currently are in Stage 1 of the meaningful use requirements. Stage 1 includes a total of twenty-five meaningful use objectives. To qualify for an incentive payment, twenty of these twenty-five objectives must be met: fifteen required core objectives (see Table 5) and five objectives chosen from a list of ten menu set objectives (see Table 6), including at least one public health objective. An EP may exclude specific objectives when explicitly allowed for by meaningful use regulations.

Stage 1 meaningful use also requires an EP to report on six total CQMs: three required core CQMs (Table 7, substituting alternate core measures where necessary) and three additional CQMs (selected from a set of thirty-eight CQMs; Table 8). The three additional measures that need to be reported must be chosen from a set of thirty-eight further CQMs. Some may not be appropriately met in a dental setting. For example, most dental clinics could not meet the CQM that requires the documentation of the percentage of patients aged eighteen years and older with a diagnosis of primary open angle glaucoma who have been seen for at least two office visits and who have an optic nerve head evaluation during one or more office visits within twelve months. Some measures are not traditionally recorded by dental teams but may represent a reasonable and simple extension of the dentist's role as a health care provider, e.g., documentation of the percentage of patients sixty-five years of age and older who have ever received a pneumococcal vaccine.

Each EP needs to calculate the CQMs as part of attestation, though the basis of the CQM calculations may be data from the entire EHR, encompassing more than just the patients of the individual EP. This approach is applied regardless of whether the EP is part of a clinic in which the proxy or individual method was used to calculate the patient threshold volume.

For dental students and residents, adherence to the quality measures can be measured through the normal evaluation processes in place, which for many schools are already automated through the EHR system. For the faculty members who actively practice in the school, one might consider the implementation of a monetary quality bonus system to incentivize the adherence to the quality measures. Such monetary rewards are currently in place in the hospital setting and appear to be well accepted by practitioners.[11]

Apart from financial incentives, there are important non-financial reasons to adopt technology that enables meaningful use. Failing to keep pace with the quality measures and objectives that are being followed in medicine may have a detrimental effect on the perception of dentistry as a profession focused on quality. Additionally, meaningful use technology provides the practical tools for standardized local and national quality improvement initiatives that extend beyond the risk-management approach that is most common in dentistry.[12]

Case Studies

The following two case studies demonstrate the potential financial value of the Medicaid EHR incentive programs in two different settings.

Dental Clinic Using the Proxy Approach

Dental Clinic A is located in a state that provides Medicaid coverage for children only. Legal counsel at the dental institution has determined that the pediatric clinic can be considered a separate entity as it operates independently. The pediatric clinic employs twelve pediatric residents (six first-year residents and six second-year residents) overseen by several clinical faculty members. In the previous calendar year, over a specific ninety-day period, 60 percent of encounters were determined to be Medicaid encounters. This pediatric dental clinic can thus use the proxy method for qualifying its EPs.

Table 9 provides an overview of the incentive payments that can be claimed in this clinic. In Year 1 (2012), all twelve pediatric residents can qualify for the first-year incentive payment (12 x $21,250 = $255,000). The pediatric residency at this institution is a two-year program, so each year six incoming residents will qualify as new EPs. Further, six of the continuing residents will qualify for the second-year

Table 5. Fifteen required core objectives under Stage 1 meaningful use

Objective	Measure	Exclusions
Record patient demographics (gender, race, date of birth, preferred language)	Over 50% of patients' demographic data recorded as structured data	None
Record vital signs and chart changes (height, weight, blood pressure, BMI, growth chart for children)	Over 50% of patients 2 years of age or older have weight, height, and blood pressure recorded as structured data	Any EP who either sees no patients 2 years or older or who believes that all three vital signs of height, weight, and blood pressure of their patients have no relevance to their scope of practice during the EHR reporting period qualifies for an exclusion from this objective/measure
Maintain up-to-date problem list of current and active disease	Over 80% of patients have at least one entry recorded as structured data	None
Maintain active medication list	Over 80% of patients have at least one entry recorded as structured data	None
Maintain active medication allergy list	Over 80% of patients have at least one entry recorded as structured data	None
Record smoking status for patients 13 years of age or older	Over 50% of patients 13 years of age or older have smoking status recorded as structured data	Any EP who sees no patients 13 years or older during the EHR reporting period qualifies for an exclusion from this objective/measure
Provide patients with clinical summaries for each office visit	Clinical summaries provided to patients over 50% of all office visits within 3 business days	Any EP who has no office visits during the EHR reporting period qualifies for an exclusion from this objective/measure
On request, provide patients with an electronic copy of their health information (including diagnostic tests results, problem list, medication list, medication allergies)	Over 50% of requesting patients receive electronic copy within 3 business days	Any EP who has no requests from patients or their agents for an electronic copy of patient health information during the EHR reporting period qualifies for an exclusion from this objective/measure
Generate and transmit permissible prescriptions electronically	Over 40% are transmitted electronically using certified EHR technology	Any EP who writes fewer than 100 prescriptions during the EHR reporting period qualifies for an exclusion from this objective/measure
Computer provider order-entry (CPOE) for medication orders	Over 30% of patients with at least one medication in their medication list have at least one medication ordered through CPOE	Any EP who writes fewer than 100 prescriptions during the EHR reporting period qualifies for an exclusion from this objective/measure
Implement drug-drug and drug-allergy interaction checks	Functionality is enabled for these checks for the entire reporting period	None
Implement capability to electronically exchange key clinical information among providers and patient-authorized entities	Perform at least one test of EHR's capability to electronically exchange information	None
Implement one clinical decision support rule and ability to track compliance with the rule	One clinical decision support rule implemented	None
Implement systems to protect privacy and security of patient data in the EHR	Conduct or review a security risk analysis, implement security updates as necessary, and correct identified security deficiencies	None
Report clinical quality measures to CMS or states	For 2011, provide aggregate numerator and denominator through attestation; for 2012, electronically submit measures	None

Table 6. Menu set of Stage 1 meaningful use objectives: to qualify for an incentive payment, an eligible provider (EP) must meet five of these objectives, including at least one public health objective (indicated with *)

Objective	Measure	Exclusions
Implement drug formulary checks	Drug formulary check system is implemented and has access to at least one internal or external drug formulary for the entire reporting period	None N/A for academic dentistry (may apply to those who write more than 100 RX)
Incorporate clinical laboratory test results into EHRs as structured data	Over 40% of clinical laboratory test results whose results are in positive/negative or numerical format are incorporated into EHRs as structured data	An EP who orders no lab tests whose results are either in a positive/negative or numeric format during the EHR reporting period, qualifies for an exclusion from this objective/measure
Generate lists of patients by specific condition to use for quality improvement, research, reduction of disparities, or outreach	Generate at least one listing of patients with specific condition	None
Use EHR technology to identify patient-specific education resources and provide those to the patient as appropriate	Over 10% of patients are provided patient-specific education resources	None
Perform medication reconciliation between care settings	Medication reconciliation is performed for over 50% of transitions of care	An EP who was not the recipient of any transitions of care during the EHR reporting period qualifies for an exclusion from this objective/measure N/A for academic dentistry
Provide summary of care record for patients referred or transitioned to another provider or care setting	Summary of care record is provided for over 50% of patient transitions or referrals	An EP who neither transfers a patient to another setting nor refers a patient to another provider during the EHR reporting period qualifies for an exclusion from this objective/measure
Submit electronic immunization data to immunization registries or immunization information systems*	Perform at least one test of data submission and follow-up submission (where registries can accept electronic data)	An EP who administers no immunizations during the EHR reporting period or where no immunization registry has the capacity to receive the information electronically qualifies for an exclusion from this objective/measure May apply to those dentists who provide flu immunizations
Submit electronic syndromic surveillance data to public health agencies*	Perform at least one test of data submission and follow-up submission (where public health agencies can accept electronic data)	EPs who do not collect any reportable syndromic information on their patients during the EHR reporting period or do not submit such information to any public health agency that has the capacity to receive the information electronically qualify for an exclusion from this objective/measure
Send reminders to patients (per patient preference) for preventive and follow-up care	Over 20% of patients 65 years of age or older or 5 years of age or younger are sent appropriate reminders	An EP who has no patients 65 years old or older or 5 years old or younger with records maintained using certified EHR technology qualifies for an exclusion from this objective/measure
Provide patients with timely electronic access to their health information (including laboratory results, problem list, medication lists, medication allergies)	Over 10% of patients are provided electronic access to information within 4 days of its being updated in the EHR	Any EP who neither orders nor creates any of the information listed at 45 CFR 170.304(g) (e.g., lab test results, problem list, medication list, medication allergy list, immunizations, and procedures) during the EHR reporting period qualifies for an exclusion from this objective/measure

Table 7. Core and alternative core clinical quality measures (CQMs)

Core Set of CQM	Alternative Core Set of CQM
Hypertension	Weight assessment and counseling for children and adolescents
Tobacco use assessment AND tobacco cessation	Influenza immunization for patients 50 years old or older
Adult weight screening AND follow-up	Childhood immunization status

Note: If the denominator is 0 for any of the core CQMs, one must replace the measure with an option from the alternative core CQMs. The denominator for any or all of the alternate CQM measures may be reported to be 0.

Table 8. Thirty-eight additional clinical quality measures, of which eligible provider must report three

Non-Core Clinical Quality Measure	Applicability to Dentistry
Diabetes: Hemoglobin A1c Poor Control	No
Diabetes: Low Density Lipoprotein (LDL) Management and Control	No
Diabetes: Blood Pressure Management	Yes
Heart Failure (HF): Angiotensin-Converting Enzyme (ACE) Inhibitor or Angiotensin Receptor Blocker (ARB) Therapy for Left Ventricular Systolic Dysfunction (LVSD)	No
Coronary Artery Disease (CAD): Beta-Blocker Therapy for CAD Patients with Prior Myocardial Infarction (MI)	No
Pneumonia Vaccination Status for Older Adults	Yes
Breast Cancer Screening	No
Colorectal Cancer Screening	No
Coronary Artery Disease (CAD): Oral Antiplatelet Therapy Prescribed for Patients with CAD	No
Heart Failure (HF): Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	No
Anti-depressant medication management: a) Effective Acute Phase Treatment, b) Effective Continuation Phase Treatment	No
Primary Open Angle Glaucoma (POAG): Optic Nerve Evaluation	No
Diabetic Retinopathy: Documentation of Presence or Absence of Macular Edema and Level of Severity of Retinopathy	No
Diabetic Retinopathy: Communication with the Physician Managing Ongoing Diabetes Care	No
Asthma Pharmacologic Therapy	No
Asthma Assessment	Yes
Appropriate Testing for Children with Pharyngitis	No
Oncology Breast Cancer: Hormonal Therapy for Stage IC-IIIC Estrogen Receptor/Progesterone Receptor (ER/PR) Positive Breast Cancer	No
Oncology Colon Cancer: Chemotherapy for Stage III Colon Cancer Patients	No
Prostate Cancer: Avoidance of Overuse of Bone Scan for Staging Low Risk Prostate Cancer Patients	No
Smoking and Tobacco Use Cessation, Medical assistance: a) Advising Smokers and Tobacco Users to Quit, b) Discussing Smoking and Tobacco Use Cessation Medications, c) Discussing Smoking and Tobacco Use Cessation Strategies	Yes
Diabetes: Eye Exam	No
Diabetes: Urine Screening	No
Diabetes: Foot Exam	No
Coronary Artery Disease (CAD): Drug Therapy for Lowering LDL-Cholesterol	No
Heart Failure (HF): Warfarin Therapy Patients with Atrial Fibrillation	No
Ischemic Vascular Disease (IVD): Blood Pressure Management	No
Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic	No
Initiation and Engagement of Alcohol and Other Drug Dependence Treatment: a) Initiation, b) Engagement	No
Prenatal Care: Screening for Human Immunodeficiency Virus (HIV)	No
Prenatal Care: Anti-D Immune Globulin	No
Controlling High Blood Pressure	No
Cervical Cancer Screening	No
Chlamydia Screening for Women	No
Use of Appropriate Medications for Asthma	No
Low Back Pain: Use of Imaging Studies	No
Ischemic Vascular Disease (IVD): Complete Lipid Panel and LDL Control	No
Diabetes: Hemoglobin A1c Control (<8.0%)	No

Table 9. Summary of potential Medicaid EHR incentive payments for a dental residency clinic using the proxy approach

	2012	2013	2014	2015	2016	Total
2012	$255,000 12 New EPs					$255,000
2013	$51,000 6 Year Two EPs	$127,500 6 New EPs				$178,500
2014	0	$51,000 6 Year Two EPs	$127,500 6 New EPs			$178,500
2015	0	0	$51,000 6 Year Two EPs	$127,500 6 New EPs		$178,500
2016	0	0	0	$51,000 6 Year Two EPs	$127,500 6 New EPs	$178,500
2017	0	0	0	0	$51,000 6 Year Two EPs	$51,000
2018		0	0	0	0	0
2019			0	0	0	0
2020				0	0	0
2021					0	0
Total						$1,020,000

incentives. The pediatric clinic would therefore be eligible for $1,020,000 in incentive payments.

Dental Clinic Using the Individual Approach

Dental Clinic B has an 8 percent Medicaid rate among its advanced graduate residents. Its private faculty practice does not see Medicaid patients at all. Dental Clinic B's EPs cannot meet the patient threshold volume via the proxy approach, so the clinic considers whether any EPs achieve the patient threshold volume individually.

For the 2012 qualification period, it is found that although twenty-one residents provided Medicaid services, only three residents met the threshold patient volume. As shown in Table 10, the clinic is eligible to receive $63,750 (3 x $21,250) in 2012. In subsequent years and after careful workflow analysis, the clinic intentionally redistributes Medicaid patients and demonstrates that seven residents met the threshold as new EPs in 2013 and 2015 and six residents met the threshold as new EPs in 2014 and 2016. As the residents progress into their second year, only one was found to have the required patient threshold volume. In total, Clinic B was thus eligible to receive $650,250 in incentive payments.

Conclusion

Dentists can and have successfully applied for meaningful use incentive payments, with $13,557,500 having been paid out to 638 dentists as of December 2011.[8] Given the diverse set of patients who are treated at dental schools, these practices are among those most likely to benefit from the incentive programs. Dental schools should seize the opportunity to receive substantial support in adopting or upgrading their EHR to a system that can participate fully in the national movement to improve the accuracy and completeness of patient information, allow for better coordination of care, provide patients with secure access to their own health data, foster shared decision making, and provide safer and lower cost care. In parallel, we urge the dental profession to proactively engage with the meaningful use policymaking process to ensure that dentistry-specific measures are incorporated into the menu set of clinical quality measures and objectives.

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Table 10. Summary of potential Medicaid EHR incentive payment for a dental school using the individual approach

	2012	2013	2014	2015	2016	Total
2012	$63,750 3 New EPs					$63,750
2013	0	$148,750 7 New EPs				$148,750
2014	0	$8,500 1 Year Two EP	$127,500 6 New EPs			$136,000
2015	0	0	$8,500 1 Year Two EP	$148,750 7 New EPs		$157,250
2016	0	0	0	$8,500 1 Year Two EP	$127,500 6 New EPs	$136,000
2017	0	0	0	0	$8,500 1 Year Two EP	$8,500
2018		0	0	0	0	0
2019			0	0	0	0
2020				0	0	0
2021					0	0
Total						$650,250

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