Nurse Practitioner & Dentist Model for Primary Care

A Guide for Implementing Collaborative Care in U.S. Dental Schools

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Preface

The impetus for creating this document was to share information about an exciting innovation in dental education—the creation and implementation of the Nurse Practitioner & Dentist (NPD) Model for Primary Care at the Harvard School of Dental Medicine (HSDM).

The concept for the NPD model was originated by Dr. Michael Alfano, former dean of New York University College of Dentistry, as a vehicle to further interprofessional collaborative practice and interprofessional education (Alfano, 2012). In 2015, faculty at HSDM and Northeastern University (NU) School of Nursing committed to implementing the model and began the process of integrating primary care services provided by a nurse practitioner into an academic dental practice environment. Lessons learned in the course of this endeavor are gathered here to assist others who want to follow in our footsteps or blaze similar paths.

We do not intend this document to serve as an exhaustive guide to implementing the NPD model at your dental school because each institution will have a different set of resources, goals, and challenges. Rather, we aim to provide you with a framework for implementation that includes steps to take and elements to consider in the planning, implementation, and evaluation phases of initiating a collaborative-care program involving nurse practitioners and dentists.

As many in dental education already know, HSDM is a unique institution, most notably different in its small size and historical connection with the Harvard Medical School. Given the distinct environment in which the NPD model was developed, the particular steps taken at HSDM may not all be feasible or appropriate for your institution. For example, HSDM's timeline for implementation may be too short for a larger institution, or some steps may be irrelevant if your nursing and dental schools are housed within the same university.

Despite these potential differences, our experience integrating primary care services into the academic dental practice at HSDM can still be instructive. We expect you will put your own imprint on our model by adapting it to suit your particular goals and setting.

To bring the structural elements of the NPD model to life, we have also included examples drawn from our experience to show how certain aspects of the model's implementation looked at HSDM. Our hope is to share what we learned, the challenges we faced, and the successes we experienced in order to spark further discussion and innovation in academic dentistry around interprofessional education and interprofessional collaborative practice.

Commonly Used Acronyms

CMS – Centers for Medicare and Medicaid Services

CODA – Commission on Dental Accreditation

EHR – Electronic health record

HRSA – Health Resources and Services Administration

HSDM – Harvard School of Dental Medicine

IPCP – Interprofessional collaborative practice

IPE – Interprofessional education

NP – Nurse practitioner

NPD – Nurse practitioner and dentist

NU – Northeastern University

PCP – Primary care provider

1 The NPD Model

In This Chapter

- Background
- Program overview
- Why you should consider this model

There has been much discussion in recent years about the potential benefits of integrating oral health and primary care to improve overall health outcomes, but the vast majority of people continue to see their dental provider in one location and their primary care provider (PCP) in another—and some see neither at all.

At the Harvard School of Dental Medicine (HSDM) in Boston, Massachusetts, talk turned into action with the creation of the Nurse Practitioner & Dentist (NPD) Model for Primary Care. The NPD model promotes interprofessional collaborative practice (IPCP) and interprofessional education (IPE) by integrating primary care services provided by a nurse practitioner (NP) into an academic dental practice environment. This guide will introduce you to the model and to the steps you can take to implement it.

Our school has as its mission to foster a community of global leaders dedicated to improving oral health by integrating dentistry and medicine at the forefront of education, research, and patient care. The NPD model supports this goal.

~ Dr. John D. Da Silva, Vice Dean and Associate Professor of Restorative Dentistry and Biomaterials Science, Harvard School of Dental Medicine

Background

The NPD model was built on the unique strengths of two partnering institutions: Northeastern University (NU) School of Nursing and HSDM.

Founded in 1898, NU is one of the largest private urban universities in the United States, with health professions programs that are structured to foster cross-disciplinary interaction among faculty and students. NU's School of Nursing is committed to an interprofessional team approach to health care and has a strong tradition of responding to trends in nursing education. The decision to place NP students in the Harvard Dental Center Teaching Practices at HSDM was a logical extension of the experiential and innovative learning opportunities already being offered at the school.

Similarly, HSDM's commitment to IPE made it a natural fit for piloting the NPD model. Unlike dental schools that have traditionally functioned independently of medicine, HSDM has enjoyed a close relationship with the Harvard Medical School since its inception. In fact, dentistry has long been considered a specialty of medicine at Harvard. Accordingly, during their first year, medical and dental students follow a shared curriculum that emphasizes the interconnectedness of oral health and general health. Further deepening this connection, Harvard's recently revised curriculum now requires first-year dental students to participate in a primary care medical rotation as part of their introduction to clinical dentistry.

Members of these two institutions teamed up in 2015 when they were awarded a 3-year cooperative agreement by the United States Department of Health and Human Services (HHS), Health Resources and Services Administration (HRSA), through the Nurse Education, Practice, Quality, and Retention Program for Interprofessional Collaborative Practice. The purpose of the cooperative agreement was to create and test a novel collaborative practice environment where NPs, dentists, and students of both professions work in teams to provide high-quality patient- and population-centered health care.

Program overview

The clinical practice site for the NPD model is the Harvard Dental Center Teaching Practices within HSDM. This center provides comprehensive, high-quality dental care to more than 5,000 patients each year in more than 23,000 dental visits. Faculty dentists, advanced graduate students, and predoctoral dental students provide dental care on a campus bordered by urban neighborhoods with high rates of cardiovascular disease, diabetes, and cancer.

The NPD model brings NP and dental students together in interprofessional teams that are jointly responsible for providing primary care and dental services. During supervised clinical rotations, students learn how each profession formulates diagnoses, implements preventive interventions, and makes referrals within their scopes of practice. Students also develop interprofessional plans of care under the direct supervision of NP and dental faculty. Older adults (≥65 years of age) living with one or more chronic health conditions, particularly diabetes and hypertension, constitute the target population.

Learning about the integration of primary care and dentistry in our dental school setting has been an unparalleled experience. Seeing patients who have previously undiagnosed chronic conditions receive the medical attention they need sheds light on how important it is to increase collaboration between the medical and dental worlds.

~ Yassee E. Pirooz, DMD candidate (class of 2018), Harvard School of Dental Medicine

Why you should consider this model

You are likely aware of the growing consensus that patients benefit when the care they receive from physicians, dentists, mental health providers, and others is integrated and delivered by interprofessional teams. Your academic institution may also be among those seeking to educate future professionals in IPCP by providing meaningful IPE opportunities.

The NPD model offers an avenue toward this goal by capitalizing on one area particularly well suited for IPE: the integration of oral health and primary care. A growing body of evidence connecting oral and systemic health underscores the need to make preventive dental care an essential component of comprehensive health care. This need provides a unique opportunity for interprofessional collaboration in health professions education. Whether your institution has an associated nursing school or you choose to partner with a neighboring institution, offering instruction that integrates primary care in the dental clinic environment will enrich your educational program and enhance your patients' care.

Adoption of the NPD model will enable you to bring nursing and dental students together to achieve the following aims:

- Increase access to high-quality patient- and population-centered primary care for culturally diverse, vulnerable, and medically underserved communities.
- Expand the number of dentists and NPs with demonstrated interprofessional core competencies to strengthen the health care system.
- Advance knowledge and the state of the science on interprofessional health teams and on the degree to which team-based, collaborative practice models improve health outcomes and increase access to care.
- Increase the number of dentists and NPs who understand the connection between oral health and systemic health and who have the competencies needed to integrate general and oral health care.

2 Getting Started

In This Chapter

- Identifying program pioneers
- Establishing a partnership between dentistry and nursing
- Making the case for implementation
- Selecting quality measures
- Complying with state and federal regulations
- Determining necessary faculty, staff, and resources
- Planning ahead

The addition of an NPD program to your academic dental clinic is an exciting prospect that can offer multiple opportunities for you to improve student learning and patient outcomes. As with any complex undertaking, proper planning is essential. You should allot ample time for planning and anticipate that it may take longer than expected to get your program up and running. To start you off on the right foot, this chapter will walk you through the foundational tasks you should undertake before implementation begins.

Chapter Resources

- Table 2.1 Recommended Elements of a Patient Interest Survey
- Table 2.2 NPD Model Quality Measures
- Figure 2.1 Project Timeline
- Lesson Learned: Anticipate resistance to change

Identifying program pioneers

Program pioneers are those individuals who have the vision, motivation, and resources to work as a team to help you get your NPD program off the ground. For this team, you will want to seek out an interprofessional group of individuals representing multiple levels of leadership, including administrators and faculty across institutions. The pioneer team will be charged with developing the NPD program. Members should plan to meet frequently (e.g., weekly) during the planning phase to generate ideas, establish a timeline, and set priorities.

Team members should represent all partner institutions and might include:

- Academic deans and program directors
- Directors of business operations
- Medical and dental clinic directors
- Faculty champions of integrated care
- Junior faculty seeking service or research opportunities
- Directors responsible for advancing IPE
- Leaders responsible for faculty development

Our Experience

A successful pioneer team will likely include leaders at various stages of their careers.

The NPD program pioneer team included both administrators and faculty members. Although the support of senior leaders was key to launching the initiative, junior faculty were instrumental in designing and executing the model. Because this program operated under a cooperative agreement funded through HRSA, the team also included a dedicated project coordinator.

As a junior faculty member, the NPD program allowed me to develop valuable leadership, administrative, and research skills. Because I was actively involved in teaching and clinical supervision, I was more familiar with typical student workflows in clinic than many senior faculty. I was able to use my knowledge to recommend how integration of NP students and NP visits could work best. Dental students knew me well, so I also became a resource for any questions that arose, and students who wished to become more involved with the program through student research usually reached out to me first.

~ Dr. Lisa Simon, Fellow in Oral Health and Medicine Integration, Harvard School of Dental Medicine

Establishing a partnership between dentistry and nursing

As a first order of business, your pioneer team should explore opportunities to partner with NP programs that can facilitate the integration of NP-delivered primary care services in your clinic. The pioneer team should identify potential collaborators who share your goals and can contribute to your initiative. Strong support from senior leadership and a committed cadre of faculty and staff from the schools of both nursing and dentistry will be essential to the success of your endeavor.

If you do not have an associated nursing school or NP program at your institution, consider partnering with NP programs at other schools in your area. Keep in mind that your NPD program will not succeed if NP students cannot get to the site easily. To anticipate commuting issues, consider the distances students will need to travel for clinical rotations and the means by which they will do so. Ask:

- Will students require a car?
- Is there adequate parking?
- Is public transportation available, and does it operate when students will need it?

Partnering with a local institution that is convenient to your dental clinic will ensure that transportation does not hinder student recruitment and participation.

While remaining open to a range of partnerships, you should also be savvy about establishing them. In addition to proximity, you will want to consider leadership support, mutual goals, and available resources to make sure prospective partners will help more than hinder your cause.

Once a partnership is established, a memorandum of understanding should be put in place between the schools of nursing and dentistry. This will include a clinical placement agreement for nurse practitioner students. To ensure a harmonious partnership, remember that decisions about clinical operations, patient care, and curricular requirements will inevitably affect NP as well as dental students. Having NP faculty in the loop every step of the way will help avoid conflict.

Our Experience

The absence of a nursing school or NP program within your academic institution presents an opportunity to mobilize talent across two institutions as well as across two different health professions. Harvard University has no nursing school, and NU has no dental school. Nevertheless, our shared commitment to the integration of oral health and primary care, our mutual interest in advancing IPE and collaborative practice, and our close proximity provided the basis for a successful partnership.

Before launching the NPD Model program, the Clinical Placements Office at NU School of Nursing and the Office of Clinical Affairs and Risk and Compliance at HSDM prepared a contract that outlined the specific responsibilities of both schools. The agreement addressed a number of elements, including instructional planning, supervision, recordkeeping, closet/locker space for NP students at the clinical site, emergency care in the case of accident or illness, supplies, and OSHA and HIPAA training.

Mutual goal setting. The success of your partnerships will hinge on your ability to establish common goals and identify competing interests that could hamper the project before the work begins. At institutions where IPE programs already exist, introducing an NPD program could affect existing IPE initiatives in unexpected or unwelcome ways. Leveraging established efforts to enhance the value of collaboration for new partners, and communicating how a new partnership will enhance educational opportunities at your home institution will smooth the waters as you endeavor to bring both sides on board.

For some institutions, forming an interprofessional partnership may represent a first foray into this kind of collaborative work, and inexperienced partners may be unclear about your expectations. To ensure everyone is on the same page, consider these elements when establishing mutual goals:

- Accreditation standards
- Curricular innovations
- Learning outcomes
- Health outcomes
- Care experience
- Research opportunities

Our Experience

Pioneer team members from HSDM and NU shared an interest in advancing knowledge around IPE and IPCP, so the team set mutual research goals early in the process to encourage team members to share what they learned in professional journals and at meetings and conferences. Participants agreed that research would focus on advancing knowledge and the state of the science on interprofessional health teams and on the degree to which team-based, IPCP models improve access to care and health outcomes.

Team members have since presented preliminary research findings in multiple meetings, particularly the 2016 and 2017 American Dental Education Association Annual Session & Exhibition.

With this high priority given to research, planners welcomed the efforts of a second-year dental student who volunteered to survey her peers about their experiences with the NPD model during the first year of implementation. This student continued her work into the succeeding years and, as of her final year of dental school, had conducted three student surveys. Her work shed light on some of the barriers and challenges dental students encountered during NPD model implementation, and spurred changes in educational programming. For example, the surveys showed dental students did not fully understand the NP role and scope of practice—a finding that prompted a series of didactic presentations by the NP as well as ongoing communication about the scope and role of the NP.

Too often the people most in need of health care receive the fewest services. By addressing both their oral health needs and chronic conditions, the NPD model puts patients front and center.

~ Dr. Maria C. Dolce, Co-Principal Investigator, Associate Professor, School of Nursing, State University of New York at Stony Brook

Making the case for implementation

In order to secure the support of university leaders, faculty, students, and external partners, you will want to show why and how delivering NP services in a dental setting can benefit students, patients, and the academic dental clinic.

To make your case, take a multifaceted approach that includes assessing patient, student, and faculty needs and your curriculum as well. First, you will want to demonstrate a need for primary care services among your patient population and show a student need for clinical IPE experiences. Assessment of both can be done concurrently using a variety of methods.

Patient needs assessment. Conducting a needs assessment to determine if access to primary care services is lacking among your patients will help you make a solid case for bringing NP students into your academic dental clinic. The findings of the assessment will also reveal specific targets for your program. These might include reducing the percentage of patients who report not having a primary care provider (PCP), identifying undiagnosed chronic conditions, or increasing the number of patients whose hypertension or blood sugar levels are under control.

Choose from the following tools and activities to assess your patients' needs:

- Electronic health record (EHR) query
- Patient interest survey
- Patient experience of care survey

EHR query. Conduct a review of retrospective EHR data to assess the patient needs that you wish to address. As a starting point, consider the following:

- Number of patients who report lacking a PCP
- Number of patients who report not visiting their PCP in the past 12 months
- Number of patients who self-report diagnoses of chronic conditions (e.g., diabetes, hypertension)
- Number of patients who currently use tobacco
- Number of patients who rate their health as "poor" or "fair"
- Number of patients with a body mass index $\geq$ 25.0
- Number of patients who report being dependent on alcohol, prescription and/or street drugs, or other substances

Our Experience

To assess patient needs at the Teaching Practices at HSDM, pioneer team members conducted a review of existing EHR data. They discovered that close to a third of patients reported they lacked a regular PCP, and more than a third reported they had not visited a PCP in the past 12 months. Data analysis also showed that a majority of patients self-reported a diagnosis of hypertension.

Based on these discoveries, team members developed a strategy for recruiting patients to the program. The NP led an IPE seminar to teach dental students how to integrate questions about a patient's PCP status into the health history assessment and how to complete a referral to the NP. The team also developed workflows for making referrals to the NP and established relationships with local PCPs who would accept referrals of new patients.

Patient interest survey. You can also establish that a demand for services exists by surveying patients to assess their interest in receiving primary care services in the dental clinic. Be sure to include questions related to the patient's PCP status if this data is not already being collected. Table 2.1 contains more information about the types of questions you might ask to assess patient knowledge of and interest in receiving integrated dental and primary care services.

Our Experience

A survey conducted in the planning phase revealed that a large proportion of HSDM's older adult patients did not understand how primary care services might be integrated into their dental visits. These results highlighted a need for patient education and consistent communication to patients about the program and its benefits. Survey questions that yielded this finding included the following:

- Are you interested in seeing a primary care provider, such as a nurse practitioner, at the Harvard Dental Center?
- On the same day as your dental appointment, would you be interested in seeing a nurse practitioner for an annual wellness exam?

The survey was originally administered to older adult patients via email, which yielded an 8% response rate (n = 69). It was discovered that a majority of older adult patients either did not have an email address or did not provide an email address when registering as a new patient. The team decided to insert the two questions about access to NP services into a separate patient experience-of-care survey that was delivered by U.S. Postal Service mail. Participants returned the completed survey in a postage-paid envelope. This strategy increased the response rate to 42% (n = 363) and provided valuable information about patient interest in receiving primary care services in the dental clinic.

Table 2.1 Recommended Elements of a Patient Interest Survey

Recommended survey element	Rationale	Sample question
Patient age[a]	This will help you assess whether your services should be targeted at patients of a specific age.	What is your age?
PCP status[a]	Unless this information is already being collected in the dental EHR, include this question to help you determine the proportion of patients who do not have a usual source of primary care.	Do you have one or more persons you think of as your personal doctor or health care provider? a. Yes, only one b. More than one c. No d. Don't know/Not sure e. Refused
Last visit with a PCP[a]	If the patient answered "yes" to having a PCP, ask this question to determine the proportion of patients who are due for a visit with their PCP.	How long has it been since you last visited a doctor for a routine checkup?[b] a. Within the past year (anytime less than 12 months ago) b. Within the past 2 years (1 year but less than 2 years ago) c. Within the past 5 years (2 years but less than 5 years ago) d. 5 or more years ago
Patient interest in receiving primary care[c]	Responses may highlight the need for patient education regarding NP services and why addressing the patient's overall health is important to oral health. Request an explanation if the patient answers "no" to being interested in receiving primary care services in a dental setting.	Are you interested in seeing a PCP at [name of dental clinic]? For example, on the same day as your dental appointment, would you be interested in seeing a nurse practitioner for a routine physical or to manage your high blood pressure?

Table 2.1 *Continued*

Recommended survey element	Rationale	Sample question
Patient interest in receiving specific primary care services[c]	This information will be helpful for determining what services the NPs will offer.	What types of primary care services would you be interested in receiving if offered at [*name of dental clinic*]? a. Routine physical b. Vaccination c. Diabetes screening d. High blood pressure monitoring e. Cholesterol screening f. Weight loss services g. Care for skin conditions h. Travel health services i. Women's health services
Health care coverage[a]	This information will guide you in establishing provider contracts with medical insurance carriers.	What is the primary source of your health care coverage? a. A plan purchased through an employer or union (includes plans purchased through another person's employer) b. A plan that you or another family member bought on your own c. Medicare d. Medicaid or other state program e. TRICARE, VA, or Military Health System f. Alaska Native, Indian Health Service, Tribal Health Services g. Some other source h. None (no coverage)
Name of health care coverage	This information will guide you in establishing provider contracts with medical insurance carriers.	If you currently have health care coverage, what is the name of your insurance plan?

[a]Centers for Disease Control and Prevention (2016).

[b]A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.

[c]Harvard School of Dental Medicine (2015).

Having a nurse practitioner at the dental center was very beneficial. The program worked for me. I was very fortunate that the nurse practitioner was a good listener and provided me with relevant medical information. After visiting with her several times, I was finally convinced that my blood pressure was slightly above normal and that the medication I was taking should be reevaluated.

~ Anonymous patient, NPD program, Harvard School of Dental Medicine

Patient experience of care survey. Understanding how your patients experience the care they receive will help you improve both their access to services and their health. The Consumer Assessment of Healthcare Providers and Systems (CAHPS®) surveys are designed to assess patient experience of care in a variety of health care settings. The CAHPS 2.0 Clinician and Group Survey was adapted for use in a dental practice setting and included supplemental CAHPS questions that address cultural competency and health literacy. You can use the information gleaned from this survey to help you develop targeted quality measures and student training activities specific to the needs of patients at your clinic.

Student needs assessment. All dental schools and NP programs are different, so in addition to assessing patient needs, you will want to assess the readiness of your students to participate in the NPD program. Conduct a student needs assessment and use the findings to develop targeted education and training activities that will build upon the IPE knowledge and experience your students already possess. To be sure your program is appropriately geared toward your student populations, take time to consider the following questions:

- What are the current IPE experiences being offered to your students?
- What do they know about the role and scope of practice of other health professionals?
- What do the students know about oral health?
- What do they know about primary care?
- What are their perceptions of teamwork and collaborative practice?

The answers to these questions will help you determine what your students do not know about IPCP and help you make the case for how your proposed program will enhance the education of both NP and dental students.

Use surveys to assess student knowledge and attitudes during the planning phase and throughout the development of the NPD program. Surveys should cover the following elements:

- Perceptions of patient demand for primary care services
  - Responses may reveal what types of primary care services dental students believe would be beneficial to their patients.
- Level of knowledge about the dentist and NP roles and scopes of practice
  - Responses can be used to inform the development of targeted seminars to educate students about the these topics.
- Perceived barriers to implementing primary care services in the academic dental clinic
  - Responses may highlight student attitudes or priorities that could pose challenges to implementation.
- Level of oral health knowledge and skills
  - Responses will demonstrate how prepared NP students are to collaborate with dental students and address the oral-systemic health needs of their patients.

Our Experience

A survey of HSDM students' perceptions of the proposed NPD program highlighted specific barriers to be addressed by the implementation team. These barriers included concerns about time pressures, a lack of familiarity with the referral process, and uncertainty about how patients might benefit from a visit with the NP. This information proved critical for decision-making regarding the design of clinical workflows.

Faculty needs assessment. Just as with the students, you will want to assess the readiness of your faculty to participate in the NPD program. Conduct an assessment of faculty knowledge, skills, and attitudes about IPE and oral-systemic health. Findings can be used to develop targeted professional development activities. You may want to consider the following:

- How do members of the faculty perceive teamwork?
- What attitudes do they have about IPE and collaborative practice?
- What level of knowledge do they possess about other health professionals' scopes of practice?
- How deep are their knowledge and skills related to oral-systemic health?

Curricular assessment. An assessment of the dental school curriculum will reveal what IPE experiences are currently offered and help you make the case for how introducing an NPD model can help the dental school meet Commission on Dental Accreditation (CODA) Standards for Predoctoral Education 1.9 and 2.19. (Chapter 3 provides a more detailed discussion of the curricular foundations of the NPD model and the accreditation standards that should guide your decisions about IPE).

Selecting quality measures

Set yourself up with the tools necessary to demonstrate the positive effects of your NPD program. Before students begin seeing patients, select quality measures that address both the patient health outcomes and the educational objectives you have set. These measurements should be coordinated in a comprehensive program monitoring and evaluation plan as outlined in Chapter 3.

Clinical measures. So you can better understand how IPCP innovations affect both dental and overall health outcomes, primary care measures should be integrated with existing dental outcome measures and tracked over time. For example, you might want to see whether an improving trend in blood sugar levels parallels an improving trend in periodontal bleeding on probing.

Clinical measures should also assess the patient experience of care. You might track changes in the percentage of patients who value the integration of dental and primary care, or examine how changes to clinic protocols affect the patient care experience. (A sample list of clinical measures developed for the NPD model is provided in Table 2.2).

Table 2.2 NPD Model Clinical Measures

Care of older adults
Percentage of older adults with annual medication review
Percentage of older adults with annual functional status assessment
Percentage of older adults with annual pain screening
Percentage of older adults who report ever having a pneumococcal vaccination
Percentage of older adults with annual influenza vaccination
Percentage of older adults who report completion of advance care planning
Percentage of older adults with annual screening for early detection of mild cognitive impairment or dementia
Percentage of older adults with annual depression screening
Hypertension
Percentage of older adults with hypertension
Percentage of older adults with latest BP < 150/90
Percentage of older adults with tobacco use query
Percentage of older adults who use tobacco
Percentage of older adults who receive tobacco cessation counseling
Diabetes mellitus (DM)
Percentage of older adults with DM[a]
Percentage of DM patients who have stable glycemic control with at least two HbA1c tests annually
Percentage of DM patients with HbA1c < 7.0%[b]
Percentage of DM patients with latest BP < 140/90
Percentage of DM patients with at least one LDL annually
Percentage of DM patients with latest LDL < 70 mg/dl
Percentage of DM Patients with foot exam performed annually
Percentage of DM patients with eye exam (retinal) performed annually.
Percentage of DM patients with eye exam referral
Percentage of DM patients with completed eye exam
Percentage of DM patients with tobacco use query
Percentage of DM patients who use tobacco
Percentage of DM patients with tobacco cessation counseling
Percentage of DM patients with annual micro albuminuria screening OR Receiving angiotensin converting enzyme inhibitor or angiotensin receptor blocker therapy

Note. BP = blood pressure; LDL = low-density lipoprotein; HbA1c = glycated haemoglobin.

Sources. National Committee for Quality Assurance (2017); James et al. (2014); "Standards of Medical Care in Diabetes" (2017).

[a]For the purposes of our research at HSDM, DM data were only collected on individuals with type 2 diabetes.

[b]< 8% in patients with limited life expectancy, history of severe hypoglycemia, advanced microvascular or macrovascular complications, and extensive comorbid conditions.

Educational measures. How are your students faring amid all this change? Consider these student performance measures to help you evaluate the educational success of your program:

- Percentage of students who are trained in the NPD environment
- Percentage of students that would recommend the clinical site
- Percentage of students that would recommend faculty preceptor(s)
- Passing rates on student summative assessments

Program monitoring and evaluation. Once you have established which performance measures will best demonstrate the health outcomes of your patients and the progress of your students, you will need to integrate these measures into a comprehensive program monitoring and evaluation plan. (See Chapter 3, Core Element III, for further details on developing this plan.)

Complying with state and federal regulations

You will want to make sure your clinic meets the legal requirements for providing medical services in a dental clinic. Compliance can be relatively straightforward if incorporated into the planning phase, so it is best not to let these requirements catch you off guard. Regulations vary by state. Be sure to consult with your state health department as well as HHS for current requirements.

Our Experience

HSDM was informed by the Massachusetts Department of Public Health (DPH) that in order to provide medical services, the dental school would need to obtain approval of its architectural plan. A Compliance Checklist, to be completed by the project architect or engineer, spelled out the state's architectural and building system requirements. Following DPH approval of the architectural plan, we submitted a Plan Review Application to the Department of Public Health Division of Health Care Facility Licensure and Certification. This application outlined renovations made to the Harvard Dental Center and included a project narrative describing the primary care services we intended to provide along with supporting documents.

HSDM was also informed that the dental school would need to obtain a waived Clinical Laboratory Improvement Amendments (CLIA) Certificate from the Centers for Medicare and Medicaid Services (CMS). CMS issues different CLIA certificates based on the type of testing performed by the laboratory. As a waived laboratory, HSDM was required to pay the applicable fee and follow manufacturers' instructions for testing equipment. For instance, the NP followed the manufacturer's instructions regarding the storage and handling of the control solution utilized by the HbA1c testing equipment. The CLIA application (CMS 2015) is required by CMS for all facilities that test human specimens for the purpose of providing information related to the diagnosis, prevention, or treatment of disease, or the health of a human being. The Massachusetts Department of Public Health Clinical Laboratory Program approved the application approximately 30 days after submission.

Determining necessary faculty, staff, and resources

Take time to identify what faculty, staff, and resources will be required to run your NPD program smoothly and efficiently. Every contributor matters, so consider high-level decision-makers as well as front-line team members who will perform daily operational tasks when determining additional hires. Evaluating the adequacy of data management systems, funding, and access to insurance reimbursement should also occur before you begin implementation.

Administrative staff. Administrative staff members will handle logistics and may also implement collaborative activities. To make the most of each position, identify administrative personnel with expertise in the following areas:

- Business operations
- Program management
- Curriculum development
- Quality improvement
- Data management
- Billing and reimbursement

Building a program implementation team. This team will serve as the core of your NPD program. Members will advise on planning, implementation, and evaluation, so select individuals who represent multiple levels of leadership within your institution. Be sure you also include a representative from the participating NP school or program. When complete, the team should include administrators who can advise on strategic decision-making, faculty who will be affected by implementation, and staff and students who can help to create buy-in and identify potential barriers and their solutions. Keep in touch. The team should meet weekly throughout the planning phase and maintain a standing monthly meeting once the program is established.

Executive committee. Having academic deans, directors, and other people at the helm who can hold teams accountable for achieving program goals will help ensure the smooth functioning and management of your NPD program. An effective executive committee will communicate a shared vision and set expectations for quality and safety. Your executive committee should also aim to create a culture of collaboration and an organizational climate of psychological safety and trust.

Faculty, staff, and student champions. The sustainability of your program will depend on its broad acceptance within your institution, so work early to identify champions across each partnering institution. To identify IPE champions, look for:

- Faculty with an interest in IPE
- Students who have demonstrated interest in leadership, research, or other extracurricular opportunities
- Staff who have taken on leadership roles in the past and are role models for other staff members

Collaborating physician. Roughly half of U.S. states require that NPs maintain a collaborative practice agreement with a physician in order to provide care. Each state's nurse practice act outlines requirements for NP practice. These range from no requirement (full practice authority), to requiring a written agreement with a physician to diagnose, treat, and/or prescribe. When a written collaborative agreement is required, NPs must identify a collaborating physician when applying for insurance credentialing or for a license to prescribe controlled substances. Collaborative practice agreements can be costly, ranging from a few hundred to thousands of dollars per month. *The Nurse Practitioner* publishes an Annual APRN Legislative Update that provides an overview of the relevant law by state.

Professional liability insurance. NPs who practice in your dental clinic must be covered by professional liability insurance. Those NPs who have faculty appointments may be covered by your school's professional liability insurance carrier. If not, investigate your options for securing coverage in the early stages of program development. The NPs you hire may have their own insurance, or they may be eligible for coverage under your institution's umbrella policy, or both. Check with your institution's human resources and risk compliance departments to determine how best to protect your institution and the NPs practicing at your dental school.

Our Experience

At HSDM, the NP was covered by her own professional liability insurance in addition to the dental school's professional liability umbrella policy through the Controlled Risk Insurance Company (CRICO), owned by and serving the Harvard medical community. To register, CRICO required a 10-year review of the NP's claims history along with relevant licensure information. HSDM received approval from CRICO within 24-hours of registering.

Massachusetts required that NPs who were eligible to write prescriptions designate a physician to provide medical direction for their prescribing practices. The dean at HSDM is a physician as well as a dentist and served as the collaborating physician for HSDM's NPD program. The collaborative practice agreement addressed the following elements: nature of practice, scope of practice, consultations, referrals, provisions for managing emergencies, scope of prescriptive practice, and methods for monitoring prescriptive practices.

Data management. Prior to implementing your NPD program, be sure you have identified the staff and infrastructure needed to collect and manage the data you will use to measure the quality of your program. Consider the following questions:

- Who will be responsible for ensuring that the EHR has the capabilities to collect all necessary data?
- Who will be responsible for extracting data from the EHR?
- Is the EHR system capable of creating custom reports to ease the process of data extraction?
- Do students, faculty, and staff require training regarding changes in EHR documentation as a result of the new NPD program?

(See Chapter 3, Core Element II, for more information on enhancing the EHR.)

Funding and insurance reimbursement. A high-quality NPD program will require an initial financial investment but, with proper planning, a self-sustaining program is not out of reach. Consider the following start-up expenses when formulating a budget and securing funding:

- Compensation for the NP and dental faculty members on your program team
- EHR integration and related information technology costs
- Development of a data management system to facilitate data reporting
- Renovation of clinical space to create a private examination room
- Office and clinical supplies
- Preparation and training for medical insurance billing and reimbursement
- Food and refreshments for collaborative activities

Before you begin providing primary care services, be sure to enroll with appropriate medical insurance carriers and plans. This will help you recover some expenses and sustain your program over time. Failure to enroll in a timely manner could undermine the financial viability of your program.

It may not be immediately evident which insurance carriers or plans will best serve your clinic. To identify the carriers and plans that serve your patient population before making insurance enrollment decisions, include questions about medical insurance carriers in the needs assessment survey used with your target patient population (see Table 2.1).

Reimbursement from Medicare and other medical insurers can create challenges if billing is not supported by your EHR. An unmodified dental EHR will likely provide limited functionality for an integrated, automated medical billing process. Consequently, staff charged with insurance enrollment and billing may require additional training to help them understand both the medical insurance enrollment requirements and the billing codes and processes integral to primary care. Depending on your NPD program, it may be necessary to contract with a practice management vendor to handle this aspect of running your practice. (See Chapter 4 for more information about insurance enrollment, billing, and reimbursement.)

Our Experience

Medicare enrollment and reimbursement for NP services was challenging for our program. HSDM had not previously enrolled as a provider organization with Medicare, and it took significant time for CMS administrators to grasp the nature of the NPD program. Several conversations were needed to resolve questions about the facility type and services being provided. As a result, CMS took approximately six months to approve our application.

Once Medicare enrollment was in place, implementation team members at HSDM partnered with a medical billing consultant to help them navigate Medicare's billing and reimbursement system. HSDM currently uses a third-party practice management solution that assists the center with billing Medicare for medical services provided through the NPD Program.

Lesson Learned: Anticipate resistance to change

Inevitably, not everyone will welcome the changes you make. By preparing for resistance from some faculty, staff, or students, you can minimize the challenges this might pose. To help you win over detractors before they derail your efforts:

- Allot ample time during the planning phase to educate faculty, students, and administrative and clinical staff about primary care integration, the value of IPE, and the kinds of changes the program will generate.
- Secure buy-in from all stakeholders by requesting input during planning and feedback during implementation.
- Write and publish formal policies and procedures to set clear guidelines for everyone involved.
- Reinforce changes through consistent modeling and communication by leadership.
- Celebrate successes as milestones are met during the planning process.
- Consult with established NPD programs.

Resistance to the implementation of an NPD program can come from outside your institution as well. During the planning phase, reach out to community PCPs to make them aware of your program and its goals as well as your intention to refer patients to local providers for primary care. This will alleviate concern that the presence of NPs at your center could reduce practice revenue or interfere with established patients' care.

Planning ahead

Assume that the development of your NPD program will take time and patience. Just how much of both will depend upon such factors as available resources, proposed IPE experiences, and leadership support. The pioneer team should create a timeline and share it with potential collaborators to clearly illustrate the commitments involved.

The suggested timeline below is based on HSDM's experience. While the steps will be universally applicable, the time needed to achieve these benchmarks may vary substantially from one institution to another.

Figure 2.1

Project Timeline

Months 0–1

Identify program pioneers

Establish collaborative partnerships

Execute memorandum of understanding between partner institutions

Assess resources and leadership support

Agree on timing, location, and mutual goals

Investigate state regulation of NP practice, primary care service delivery, billing, and reimbursement

Develop NP job description

Months 2–4

Review and approve NP job description with the human resources office

Identify and engage implementation team members

Establish weekly team meetings

Conduct patient, student, and faculty needs assessments

Secure a collaborating physician if necessary

Practice environment
Identify space, equipment, and staffing needs

Assess EHR capability to integrate primary care

Identify clinical quality measures to be tracked

Curriculum design
Identify existing IPE opportunities and gaps

Identify learning outcomes

Plan IPE and IPCP teamwork training

Design clinical rotations

Define academic quality measures

Months 3–6

Recruit, interview, and hire NP(s)

Execute collaborative practice agreement between NP(s) and the collaborating physician if required

Practice environment
Select space

Procure equipment

Complete EHR modifications

Line up staff and resources

Redesign clinical and operational workflows

Apply for CLIA Waiver Certificate

Prepare faculty, students, and staff for changes to practice operations

Submit medical insurance credentialing applications, e.g., to CMS

Train staff in primary care billing and reimbursement

Develop custom data reports

Inform local primary care community

Curriculum
Finalize and conduct NP and dental student learning activities

Finalize and implement IPE teamwork training plans

Month 7

Launch the program

Conduct Plan–Do–Study–Act (PDSA) cycles to test changes for improvement

Introduce medical billing as soon as insurance credentialing takes effect

Begin program monitoring and evaluation

Months 8–12

Share data on quality measures weekly and monthly

Continue testing changes for improvement using PDSA cycles

Elicit feedback from students and patients

Schedule monthly team meetings

Month 13+

Conduct ongoing program monitoring and evaluation

3 Program Fundamentals

In This Chapter

- Core Element I: Curriculum design and implementation
- Core Element II: Practice environment transformation
- Core Element III: Program monitoring and evaluation

Central to the creation of your NPD program is a set of core elements that will serve as the program's backbone. These represent the pedagogical, environmental, and evaluative aspects of the NPD model and are essential to decision-making about education, daily operations, and your ability to demonstrate benefits.

Chapter Resources

- Table 3.1 Nurse Practitioner and Dental Education Competency Alignment
- Table 3.2 Nurse Practitioner and Dental Student Learning Outcomes
- Table 3.3 Sample Evaluation Matrix
- Figure 3.1 Models for Primary Care and Preventive Services
- Figure 3.2 Dental EHR With Integrated Primary Care Template
- Figure 3.3 Sample New Patient Screening Workflow
- Figure 3.4 Referral Flyer
- Figure 3.5 Sample PDSA Cycle #1
- Figure 3.6 Sample PDSA Cycle #2
- Lesson Learned: Budget adequate time and money for EHR redesign
- Lesson Learned: Take seriously the challenges posed by scheduling
- Lesson Learned: Budget adequate time to implement PDSA cycles

Core Element I: Curriculum design and implementation

An IPE program can only be as strong as its foundation. To help you envision your program and the foundation on which you will build it, this section outlines the dental and NP accreditation standards and professional and interprofessional competencies relevant to your curricular decision-making. You will also find information about how to integrate IPE elements into your existing curriculum and define the learning outcomes that will help you measure your success.

- Foundations for IPE
  - Accreditation standards
  - Competency alignment
  - Dental student learning activities
  - NP student learning activities
- Student learning outcomes
- Clinical rotation
  - Oral health
  - Primary care
- IPE teamwork training

Foundations for IPE. To create a learning environment tailored to the needs of both dental and NP students, you and your program pioneer team will want to consider various frameworks for IPE and IPCP alongside both dental and NP curricula.

You will find considerable similarities in the education of dentists and NPs. New York University's 2005 comparison of 63 national dental competencies with 124 national NP competencies showed partial or total overlap in 38% of the cases. The authors of the study concluded that this level of overlap justifies combining some aspects of dental and nursing education—a move that would make education more efficient for faculty and institutions while also enriching the educational experience of students (Spielman, Fulmer, Eisenberg, & Alfano, 2005).

Your NPD program will give NP and dental students a chance to learn together in a clinical environment. The aim of the NPD model, however, is not simply to give students a clinical rotation opportunity; it is to provide a multifaceted learning experience. Pedagogies that support the model include self-directed online modules, IPCP leadership and teamwork training sessions, supervised clinical rotations, and shared learning—a teaching strategy that emphasizes the use of teamwork and communication to facilitate problem solving in face-to-face clinical interactions among students and faculty from diverse programs (Pardue, 2015).

Accreditation standards. The CODA *Accreditation Standards for Dental Education Programs* (2017) directly references IPE. Specifically, accredited predoctoral dental education programs must comply with the following standards:

- CODA standard 1–9. The dental school must show evidence of interaction with other components of the higher education, health care education, and/or health care delivery systems.
- CODA standard 2–19. Graduates must be competent in communicating and collaborating with other members of the health care team to facilitate the provision of health care.

Although there is no specific nursing accreditation standard that references IPE or collaboration, Standard I–A of the *Standards for Accreditation of Baccalaureate and Graduate Nursing Programs* (Commission on Collegiate Nursing Education, 2013) requires compliance with professional nursing standards and guidelines. The following guidelines address IPE and collaborative practice:

- *The Essentials of Master's Education in Nursing* (American Association of Colleges of Nursing, 2011), Essential VII: Interprofessional Collaboration for Improving Patient and Population Health Outcomes, recognizes that the master's-prepared nurse, as a member and leader of interprofessional teams, communicates, collaborates, and consults with other health professionals to manage and coordinate care.
- *The Essentials of Doctoral Education for Advanced Nursing Practice* (American Association of Colleges of Nursing, 2006), Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes, stresses that "healthcare professionals must function as highly collaborative teams" (p. 14).

Competency alignment. Once you have considered the accreditation standards that address IPE, turn your attention to the ways nursing and dental competencies align. Table 3.1 highlights areas of alignment that serve the NPD model. After completing your needs assessment, you may want to review the dental and NP education competencies specific to your patient population to seek areas of further alignment.

Table 3.1 Nurse Practitioner and Dental Education Competency Alignment

Dental competencies[a]		NP competencies[b]	
Domain	**Competency**	**Domain**	**Competency**
Professionalism	Applies ethical and legal standards in the provision of dental care.	Ethics	Advocates for the patient's and family's rights regarding health care decision-making, taking into account ethical and legal standards.
Health promotion	Participates with dental team members and other health care professionals in the management and health promotion of all patients.	Independent practice	Collaborates, as appropriate, with others to diagnose and manage acute complications of chronic or multisystem health problems.
	Provides prevention, intervention, and educational strategies.		Provides age appropriate wellness promotion and disease prevention services weighing the costs, risks, and benefits to individuals.
Practice management and informatics	Evaluates and applies contemporary and emerging information including clinical and practice management technology resources.	Technology and information literacy	Integrates appropriate technologies into health care delivery for adult-gerontology populations in remote and face-to-face encounters.
	Applies quality assurance, assessment, and improvement concepts.	Quality	Demonstrates continuous quality improvement of one's practice.
Patient care	Manages the oral health care of the infant, child, adolescent, and adult, as well as the unique needs of women, geriatric, and special needs patients.	Independent practice	Independently manages common, complex, acute, and chronically ill patients across the spectrum of adolescence to the older adult, including the frail older adult.
	Formulates a comprehensive diagnosis, treatment, and/or referral plan for the management of patients.		Develops a plan for long-term management of chronic health care problems with the individual, family, and health care team.

[a]American Dental Education Association (2008).
[b]National Organization of Nurse Practitioner Faculties (2016).

Dental student learning activities. To engage your students and make the most of the NPD environment, develop practice-based experiences and integrate them into the existing predoctoral dental student curriculum in a way that is tailored to your students' level of learning. You can structure the program so that participation in experiential, practice-based learning activities occurs in a spiral fashion over the course of 4 years. Students can rotate through experiences that include, but are not limited to, teamwork training, interprofessional team meetings, case conferences, grand rounds, clinical patient encounters, and quality improvement and patient safety initiatives.

To keep student experiences relevant and meaningful, let patient needs drive clinical encounters between dental and NP students, and be sure activities vary from chairside consults to handling referrals. If peer-to-peer learning is employed at your institution, then consider requiring fourth-year dental students to lead interprofessional teams that include student NPs and first-year dental students.

Our Experience

HSDM introduced first-year dental students to the NPD environment in a course called Practice of Medicine. This course included a clinical rotation in HSDM's Foundational Continuity Clinic (FCC), which aims to help dental students develop primary care clinical skills in the context of oral health care delivery. The FCC paired first-year and fourth-year dental students to provide direct clinical care to a single patient each week during a 4-hour patient care session. Integrating the NP student into the dental student care team was a natural fit due to the clinical focus on oral-systemic health conditions. Following the clinical care session, students attended a 30-minute, small-group debriefing session in which they talked with dental and NP faculty about the challenges encountered during the session related to the specific aspects of primary care and oral health assigned each week.

Clinical experiences cannot stand alone, so be sure to also offer nonclinical opportunities where dental students can learn about the NPD model. First, consider existing courses to determine if students already receive content aimed at developing their collaborative or primary care clinical skills. In addition to existing coursework, design case-based IPE seminars that will develop skills related to collaborative decision-making and teamwork. Seminars using a team-based learning format will allow students to work as part of a team to review and discuss patient cases. Ideally these should highlight common health conditions such as hypertension or diabetes and encourage students to consider the role of the dentist in the interprofessional primary care team. When possible, engage medical, dental, and NP faculty to co-lead the class.

Our Experience

HSDM offered case-based IPE seminars co-led by medical, dental, and NP faculty each month during the academic year. The seminars were integrated into a course on emergent clinical experiences. Groups of eight students were assigned to one of six teams, which remained constant throughout the year. Students discussed patient cases focused on the oral-systemic health connection. Topics included hypertension, diabetes, chronic kidney disease, and arthritis.

NP student learning activities. NP students can participate in most if not all of the learning activities you develop for your dental students, but before joining dental students in clinical experiences, NP students should engage in learning activities related to oral health and the population to be served.

In preparation for clinical experiences, NP students should practice the oral examination in the classroom or a simulated clinical environment. Teaching NP students to integrate the oral examination into the traditional head, ears, eyes, nose, and throat (HEENT) examination is an approach that was developed by colleagues at New York University College of Nursing (Haber et al., 2015). The head, ears, eyes, nose, *oral*, throat (HEENOT) examination for assessment, diagnosis, and treatment of oral-systemic health can be taught as part of an advanced health assessment course.

Smiles for Life: A National Oral Health Curriculum was developed by the Society of Teachers of Family Medicine Oral Health Group and covers oral health across the lifespan. The curriculum has the endorsement of the American Dental Association and several professional nursing organizations including the National Organization of Nurse Practitioner Faculties. *Smiles for Life* courses that NPs should complete prior to starting the first clinical rotation are:

- Course 1: The Relationship of Oral to Systemic Health
- Course 7: The Oral Exam

You can select other courses according to the specific needs of your clinic's patient population. For example, if your clinic serves a large percentage of older adults, NPs would also benefit from completing Course 8: Geriatric Oral Health. In accordance with *Smiles for Life* guidelines, your students should achieve a passing score of 80% on the *Smiles for Life* posttest assessment for each *Smiles for Life* course they complete.

Our Experience

NP students were introduced to the NPD environment in a first-year, first-semester course on health assessment and a first-year, second-semester clinical course on health promotion with adults and older adults. During the clinical rotation, NP students conducted a thorough oral examination on a dental patient under the guidance of a fourth-year dental student and the supervision of dental and NP faculty.

Student learning outcomes. It can be easy to get caught up in the details of running an interprofessional dental practice, but be sure to keep your eye on the big picture by taking steps to ensure your students are learning what you set out to teach. You can do this by adopting learning outcomes, which will also help you demonstrate the success of your program.

The *Core Competencies for Interprofessional Collaborative Practice* were established in 2011 by an Interprofessional Education Collaborative (IPEC) expert panel representing six national associations of schools of health professions. The competencies were updated in 2016. Under the overarching competency domain of interprofessional collaboration, the panel defined four competency domains (IPEC, 2016) that apply to both NP and dental students in the NPD environment:

1. Values/Ethics for Interprofessional Practice
2. Roles/Responsibilities
3. Interprofessional Communication
4. Teams and Teamwork

Table 3.2 lists interprofessional competencies and corresponding learning outcomes to guide you in developing learning outcomes for the students in your program.

Table 3.2 Nurse Practitioner and Dental Student Learning Outcomes

Core Competencies for Interprofessional Collaborative Practice[a]	Student learning outcomes
Values/Ethics	
Work with individuals of other professions to maintain a climate of mutual respect and shared values.	Collaborate with interdisciplinary team members to promote a climate of teamwork.
Roles/Responsibilities	
Use the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of patients and to promote and advance the health of populations.	Conduct an oral examination and risk assessment as an essential component of a comprehensive patient assessment.
Interprofessional Communication	
Communicate with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease.	Use TeamSTEPPS communication strategies to exchange patient information with other health care team members.
Teams and Teamwork	
Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient/population-centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable.	Lead an interprofessional team to develop a patient-centered plan of care.

[a] Interprofessional Education Collaborative (2016).

My experience visiting the Harvard School of Dental Medicine allowed me to learn about the skills of dentistry alongside dental students who were learning simultaneously. The chance to learn from other health professionals, and also our patients, is a rare and valuable experience that left me feeling excited about our ability to collaborate between fields. My experience at Harvard also heightened my awareness regarding the importance of the oral exam in my practice as a future NP.

~ Kate Sciacca, NP student, Northeastern University

Clinical rotation. Ideally, you should integrate NPD programming into the existing dental curriculum when dental students first encounter the dental practice setting. This will establish the connection between oral and overall health for new students from the outset. NP students may participate in the NPD clinical rotation at any time during their education as long as they have first completed necessary oral health education and training activities such as the *Smiles for Life* courses.

During patient encounters, each member of the student team should address the role-appropriate oral and systemic health needs of the patient according to the Chronic Care Model and the Common Risk Factor Approach (see Figure 3.1). Using peer-to-peer learning, student teams can provide care to patients at the dental chairside or in a private examination room designated for primary care and preventive services.

Oral health. During chairside encounters, NP students can provide real-time feedback to first-year dental students after the dental student conducts a health history and medication review. In addition, NP students can observe dental students perform oral examinations, oral health risk assessments, and dental procedures such as routine cleanings, periodontal evaluations, root canal therapy, simple extractions, and scaling and root planing.

This chance to observe provides a unique opportunity for the NP student to visualize and identify common oral pathologies that might be routinely seen in primary and acute care settings. During the dental visit, NP students should also perform their own oral examinations as modeled on the *Smiles for Life* oral exam module. NP students should collaborate with dental students in counseling patients on the link between oral and systemic health. Following patient care sessions, NP students should join the dental students for a collaborative debriefing.

Primary care. When a dental student encounters dental patients who report they do not have a PCP or who have unmet general health needs such as persistently elevated blood pressure, the dental student should refer the patient to the NP faculty and students for a primary care visit.

During primary care visits, NP students will perform individualized screenings and counseling to address health concerns such as high blood pressure, body mass index, alcohol and tobacco use, and substance abuse. NP students will also practice obtaining a comprehensive personal and family medical history and conducting a health risk assessment. When appropriate, NP students should assist in the coordination of patient referrals to primary care, specialty care, and community services.

This novel learning environment allows NP students to review and practice skills most relevant to their individual learning needs. When possible, the referring dental student should participate in the primary care visit to learn how to address the patient's chronic health conditions and promote patient self-management. The presence of both NP and dental students will provide real-time integration of oral and systemic health promotion.

Figure 3.1 Models for Primary Care and Preventive Services

The Chronic Care Model

A theoretical framework that promotes high-quality chronic disease care (Improving Chronic Illness Care, 2017; Wagner, 1998).

The Chronic Care Model is applicable in a variety of health care settings. The essential elements include the community, the health care system, self-management support, delivery system design, decision support, clinical information systems, patient safety, cultural competency, care coordination, community policies, and case management. Implementation of the Chronic Care Model within the academic dental clinic will:

- Promote a culture, organization, and mechanism that assures safe, high quality care.
- Assure the delivery of effective, efficient clinical care and self-management support.
- Promote clinical care that is consistent with scientific evidence and patient preferences.
- Organize patient and population data to facilitate efficient and effective care.
- Empower and prepare patients to manage their health and health care.
- Mobilize community resources to meet the needs of patients.

The Common Risk Factor Approach

An integrated approach to oral health care that recognizes the connection between oral diseases and chronic systemic conditions, as well as the limitations associated with disease-specific interventions and recommendations (Sheiham & Watt, 2000; Watt & Sheiham, 2012).

This approach was applicable in the NPD environment because many, if not most, of the major causes of oral diseases are also common causes of chronic systemic conditions. For example, diet and smoking are common risk factors for tooth decay, periodontal disease, heart disease, and obesity. This approach to oral health care highlights the importance of collaborating across disciplines and emphasizing preventive health care.

IPE teamwork training. Key to the delivery of IPCP is a commitment to teamwork. If your institution's IPE initiative does not already include teamwork training, consider the Team Strategies and Tools for Enhanced Performance and Patient Safety (TeamSTEPPS®) curriculum as a way of introducing IPE didactic and team training sessions for NP and dental faculty, students, and staff. TeamSTEPPS is an evidenced-based training system designed to improve communication and teamwork skills among health care professionals. This curriculum was developed by the U.S. Department of Defense's Patient Safety Program in collaboration with the Agency for Healthcare Research and Quality (AHRQ). It is a free online resource that has been widely implemented in U.S. health care systems.

Aim to integrate teamwork training across all academic programs for students, faculty, and staff. Ideally, everyone should participate and do so early, when they are first introduced to the clinical setting. Training can and should be repeated based on the needs of your clinic. For example, if patients report a lack of coordinated care, that points to the need for more teamwork training.

To assess changes in perceptions of teamwork before and after teamwork training sessions, use the Teamwork Perceptions Questionnaire (T-TPQ) provided in the TeamSTEPPS curriculum (AHRQ, n.d.). The T-TPQ survey can also be used to assess the progress made by students across the entire NPD experience.

Our Experience

HSDM used the TeamSTEPPS curriculum to teach NP and dental students, faculty, and staff about the core components of teamwork: team structure, leadership, communication, mutual support, and situation monitoring. Training sessions were conducted as "brown-bag" lunch seminars at a set time and day each week during the academic semester. Information about the sessions was shared with students via email and with faculty and staff at scheduled meetings. Due to potential scheduling conflicts, participation was voluntary, but everyone was strongly encouraged to take part.

Seven "master trainers" from HSDM conducted the brown-bag lunch seminars. The master trainers had all completed free, in-person training available through TeamSTEPPS.

Because the sessions were voluntary and held during the lunch hour, attendance was inconsistent and sometimes lower than desired. This also made evaluation of the sessions difficult. To overcome these challenges, we recommend that the TeamSTEPPS curriculum, which offers a dental module and office-based care version, be formally adopted as part of the curriculum.

To supplement formal training, strategies taught in the TeamSTEPPS curriculum were used to improve communication between students and faculty. For example, dental students were encouraged to use the SBAR (Situation–Background–Assessment–Recommendation/Request) communication technique when requesting a consult with the NP. The Check-Back technique was also used often to verify information exchanged between providers. These communication strategies helped to ensure that all relevant information was clearly and accurately exchanged in a concise and timely manner.

Core Element II: Practice environment transformation

Establishing an NPD program will require several major adaptations to your dental practice environment. To ensure your practice site is ready, address the following tasks before implementation begins.

- Identify space and procure equipment
- Enhance the EHR
- Redesign clinical and operational workflow processes

Identify space and procure equipment. Although a number of interactions with the NP can take place chairside, a dedicated private examination area adds the benefit of patient privacy. If an existing room is not available, enclose a section of the dental clinic for this purpose. Consult local and federal codes to ensure that any new construction meets current building standards and that the finished examination area is accessible for all patients.

To facilitate oral health and primary care integration, furnish the examination room with both dental and medical equipment and supplies. Consider including the following items for use by the NP and NP students:

- Point-of-care testing supplies (e.g., glycated hemoglobin [HbA1c] and glucose analyzers)
- Eye-level height and weight scale
- Measurement tape to measure waist circumference
- Stethoscope
- Standard sphygmomanometer
- Storage and handling equipment (e.g., portable refrigerator for vaccines and bins for sharps disposal)
- Otoscope
- Vaccines (e.g., for pneumonia or influenza)
- Vision chart

NPs who work in the dental clinic will also require a designated work station. Locate this workstation within or near the examination room and provide adequate space for administrative activities such as scheduling appointments, patient care coordination, and EHR documentation.

Our Experience

A private examination room did not exist in the HSDM Teaching Practices, so planners constructed one by enclosing an office workstation and supply area. Planners furnished the room with dental and medical equipment and supplies, including a standard dental chair, which the NP tested and found functional for performing physical examinations. A workstation for NP use was also constructed adjacent to the private examination room. Estimated costs associated with the examination room and the NP workstation totaled $35,000–$40,000. These costs included construction, painting, one sliding door, one privacy curtain, one computer cart, one filing cabinet, phone installation, two side chairs, a cubical workstation and desk chair for the NP, clinical decision support software, EHR enhancements, and two computers (one each for the workstation and the exam room). The dental chair and seating for the dentist and dental assistant were donated to the program. (See Chapter 4, Figures 4.2 and 4.3, for a sample budget.)

Enhance the EHR. To fully capitalize on the value of your NPD program, invest in a way to capture the additional general health information gleaned from patients and make that information accessible to all providers. Developing an integrated primary care template that allows for documentation and clinical decision support will make information sharing among providers easier. You will also need the capability to generate reports that are meaningful to your specific performance measures.

The capabilities of the EHR will depend on your dental school's existing EHR system and information technology infrastructure. If your budget allows, enhance the existing EHR to most efficiently gather and share information.

An integrated EHR should enable you to do the following activities:

- Document and collect primary care data in a template integrated within your dental EHR.
- Print patient educational materials and instructions.
- Document, track, and print patient referrals.
- Consider any specific population needs related to language and literacy.
- Allow all providers access to the patient's medical and dental history, list of health conditions, treatment plan, encounter notes, odontogram, and other critical patient information.
- Provide functionality for an integrated, automated billing process.

Our Experience

The information technology team at HSDM collaborated with axiUm developers to make changes to HSDM's existing EHR and develop integrated primary care templates and custom data reports (see Figure 3.2). These changes included the addition of seven primary care tabs with individual data entry fields to facilitate data collection.

The program focused on the older adult population, so planners chose the Medicare Annual Wellness Visit (AWV)—a no-cost preventive benefit for Medicare beneficiaries—as a model for what the comprehensive exam should look like and as a framework to inform modifications made to the axiUm EHR.

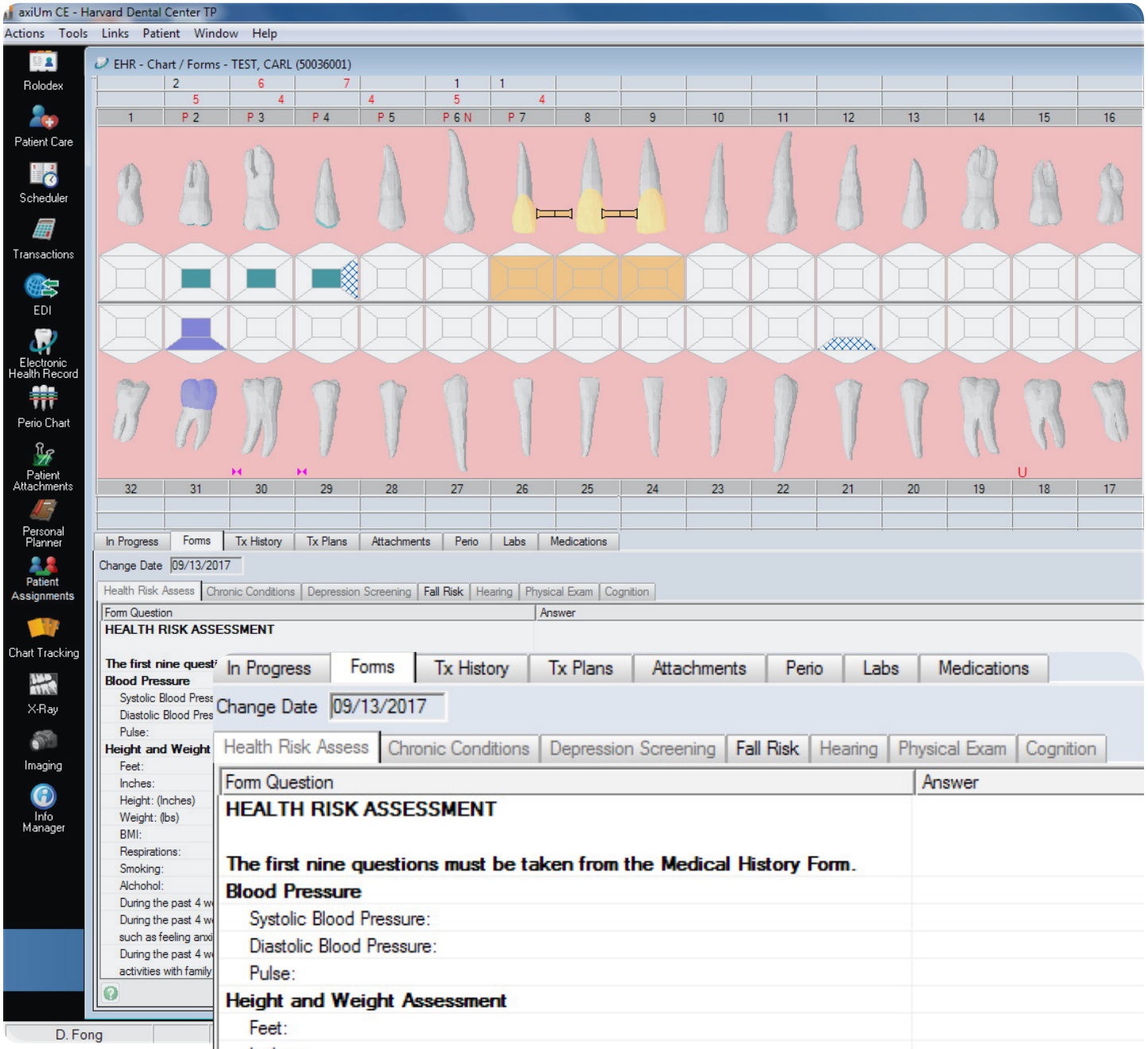
Research shows that many PCPs are not conducting AWVs (Chung et al., 2015). Offering the AWV to older adult dental patients presented an opportunity to provide a reimbursable service and support patients' overall health. Components of the Medicare Annual Wellness Visit can be found online.

The following sources were used to design the templates that appear under the health risk assessment tabs:

- Depression screening assessed with the Patient Health Questionnaire
- Risk of falling assessed with the Fall Risk Assessment Tool
- Hearing screening assessed with the Handicap Inventory for the Elderly Screening Version
- Cognitive impairment screening assessed with the Mini Mental State Examination

Figure 3.2 Dental EHR W Primary Care Template

Template includes the Health Risk Assessment fields (inset below) from Medicare's Annual Wellness Visit



Lesson Learned: Budget adequate time and money for EHR redesign

Anticipate that it will take significant time and effort to modify the EHR so that it can accommodate documentation of primary care services. You will need one or more dedicated individuals who understand the capabilities of the EHR and who have the appropriate skills and the time to make needed changes. This redesign will require coordination between developers and program staff to be sure that the documentation of primary care services being provided can be accurately tracked and trended. These kinds of modifications can be costly and should be considered during the planning process.

Redesign clinical and operational workflow processes. Adjust clinical and operational workflow processes to integrate the roles of NP faculty and students before program implementation. Workflow processes include patient intake, patient discharge, treatment planning, appointment scheduling, and referrals. Decisions about workflow will vary according to the needs and objectives of your NPD program. For example, the new patient screening form (Figure 3.3) can be revised to include questions about the patient's PCP status and interest in seeing an NP to address questions or concerns related to overall health. Based on the patient's responses, a scheduled appointment with the NP can be inserted into the workflow.

To best integrate NP appointments into your workflow, run multiple test cycles of the proposed changes. Once you have established the most favorable scenario, document the new procedures, adopt them as clinical protocols, and share them with all clinic providers and staff. Insist on consistent and transparent communication by leadership to faculty, staff, and students regarding workflow changes so that new processes are clear and expectations are known.

Our Experience

Before implementation and at the beginning of each new academic year, brief educational sessions were conducted with students and at faculty and staff meetings. These sessions described the purpose and goals of the NPD program and explained how patients could be referred to the NP. When appropriate, program leaders sought feedback on these processes. For instance, they informed front-desk staff that patient check-in and check-out workflows were being assessed for change and solicited input on how to optimize the process. In addition, leadership at HSDM posted information around the clinic to communicate procedures to students and patients. The Oral Health Delivery Framework (Hummel, Phillips, Holt, & Hayes, 2015) was adapted to facilitate referrals and coordinate care with the NP. A flyer was posted throughout the clinic as a reminder for students. A sample is provided in Figure 3.4.

Figure 3.3 Sample New Patient Screening Workflow

Actions	Patient	Patient Services Liaison	Phone Ops	Dental Assistant	Student	Tutor/ Faculty
Bring patient to operatory					X	
Perform Appropriate Operatory Preparation Workflow					X	
Exam Begins					X	
Sterile instruments presented				X		X
Verify premeds taken					X	
Take blood pressure					X	
If blood pressure is out of limits, act according to guidelines					X	
Complete Short Medical History form and confirm chief complaint					X	
Ask patient questions and document answers related to PCP status: 1) Do you have a PCP? 2) When was your last visit with a PCP? 3) Are you interested in seeing the NP for any questions or concerns related to your overall health?					X	
Highlight procedures/expectations for today					X	
Schedule NP visit upon check out if: 1) Patient reports no PCP 2) Patient has not seen PCP in 12+ months 3) Patient answers “yes” to interest in seeing the NP.					X	X
Review any referral notes					X	
Instructor approval (start check for pre-doc)						X
Begin Oral Diagnosis Exam form					X	
Perform screening exam identifying patient needs					X	
If patient is not accepted, go to **Not Accepted Workflow**	X					
If patient has their own radiographs, review radiographs					X	X
Go to **Exam Continues**					X	
Treatment plan the exam (D0150)					X	
Chart planned radiographs (D0210 or D0274 or D0220)					X	
Escort patient to front desk				X	X	
Accept payment for planned radiographs and D0150		X				
Escort patient to radiography				X	X	
Radiographs taken					X	
Radiographs reviewed					X	X
Patient escorted back to operatory				X	X	

Figure 3.3 *Continued*

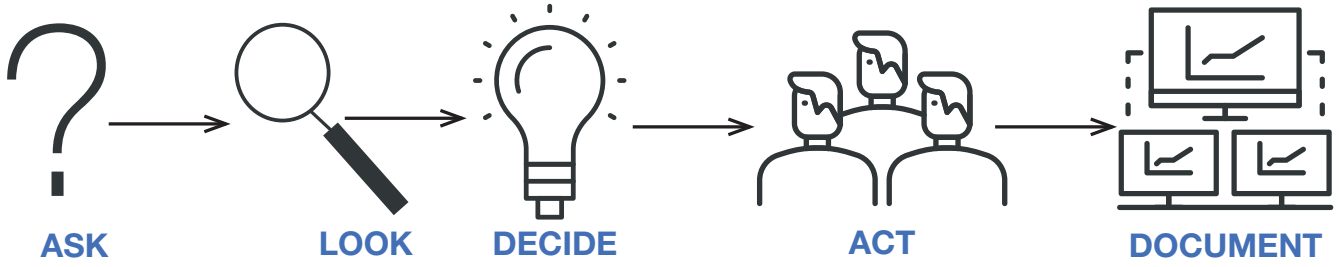
Actions	Patient	Patient Services Liaison	Phone Ops	Dental Assistant	Student	Tutor/ Faculty
Exam Continues						
Complete Oral Diagnosis Exam form and Practice Assignment						X
Record patient needs						X
D0150 marked as in progress					X	
Escort patient to the front desk				X	X	
Request NPI, AG, and/or NP appointment				X	X	
- Schedule NP appointment (if needed)		X				
- Retrieve medical insurance information from patients who are scheduled with NP		X				
Documentation: complete forms, case notes, and charting if applicable					X	
Instructor approval						X

Note. Modifications highlighted in blue. NPI = new patient intake; AG = advanced graduate; NP = nurse practitioner.

Figure 3.4 Referral Flyer

Nurse Practitioner Referral

The Harvard Dental Center offers primary care services as part of an innovative practice model between nurse practitioners and dentists.



1. **ASK,** Do you have a primary care provider? If so, when was your last appointment?
2. **LOOK** for signs that indicate health risks or active chronic conditions.
3 **DECIDE** if the patient will benefit from seeing the nurse practitioner based on the medical/family history and exam findings.
4. **ACT** if the patient does have a PCP, or it has been more than one year since the last visit.
5. **DOCUMENT.** Provide a referral to the nurse practitioner and schedule an appointment.

For more information, contact:

[Insert provider name and contact infomation here]

Source. Adapted, with permission, from the Oral Health Delivery Framework. (Hummel, Phillips, Holt, & Hayes, 2015).

Lesson Learned: Take seriously the challenges posed by scheduling

Scheduling time for primary care services requires more than a simple workflow adjustment. It requires the coordination of patient, dental provider, and NP schedules. Achieving this level of coordination in a busy dental clinic can pose multiple challenges. Because the duration of dental appointments in the academic environment varies considerably, with some appointments lasting 2 to 4 hours, planning and scheduling can be difficult. After longer appointments, patients are not always able or willing to commit additional time to meet with an NP. Further, in the event that a dental appointment lasts longer than expected (and appointments with student providers often do), patients can miss appointments with NPs.

Our Experience

At HSDM, NP consultations were originally envisioned as an integral part of the dental visit for targeted patients, but working the NP encounter into a dental visit of unpredictable duration proved difficult. To overcome scheduling challenges, dental faculty encouraged dental students to plan ahead and allot sufficient time for the patient to visit the NP on the same day as the patient's dental appointment. Faculty also reminded dental students about the oral-systemic health connection to reinforce the NP visit as a care priority. Chairside consults with the NP were generally brief, lasting fewer than 15 minutes. When a chairside consult was not feasible or adequate, separate NP appointments were scheduled. These lasted 30–60 minutes, and the length of each visit varied with the needs of the patient.

Core Element III: Program monitoring and evaluation

To ensure your NPD program benefits patients and students and functions well for faculty and staff, decide in advance how you will evaluate your activities. Once the program begins, regularly monitor progress and evaluate your findings with the aim of identifying opportunities for improvement.

This chapter offers guidelines for monitoring and evaluating your NPD program so you can gauge your successes and address your challenges:

- Program monitoring and evaluation plan
- Implementation team meetings
- Data management
- Quality improvement

Program monitoring and evaluation plan. Program monitoring and program evaluation go hand in hand. *Program monitoring* refers to the gathering of data and *evaluation* refers to the analysis of that data. Your plan for program monitoring and evaluation will reflect your specific quality measures and goals for the program.

To develop your plan, first identify what information (e.g., measures of clinical outcomes, educational outcomes, patient experience, practice operations) you need to determine how well you have integrated primary care services into the academic dental clinic.

Consider the following questions from the Centers for Disease Control and Prevention (CDC, 2011) when developing your program monitoring and evaluation plan:

- What are the program's outcomes and how are they linked to specific program activities?
- How will processes be evaluated to determine if the program is being implemented as intended?
- How will the program outcomes be used to measure the effectiveness of the program?

Expect quality measures to change as your NPD program progresses through cycles of evaluation and modification. An evaluation matrix can help you organize the phases of evaluation by aligning questions, methods, performance indicators, and data sources (see Table 3.3).

Table 3.3 Sample Evaluation Matrix

Evaluation question	Indicators/ performance measures	Methods	Instrument	Data sources
How do faculty, students, and staff perceive the core components of teamwork?	Construct-level mean scores • Team structure • Leadership • Situation • Monitoring • Mutual support • Communication Overall mean scores	Self-administered survey	TeamSTEPPS Teamwork Perceptions Questionnaire Manual	• Faculty • Students • Staff
What are patients' experiences with health care providers and staff?	Composite measures • Do patients have access to timely appointments, care, and information? • Is office staff helpful, courteous, and respectful? • How well do providers communicate with patients? • Do they discuss tests, results, and the medicines patients are taking? • How do patients rate their providers? • Are providers polite and considerate? • Are providers caring? Do they inspire trust?	Self-administered survey	Consumer Assessment of Healthcare Providers and Systems	Patients
What IPE activities are being implemented?	Description of IPE activities and extent of student participation	Curricular mapping	Curricular mapping tool	• Course syllabi • Faculty • Program directors

Note. IPE = Interprofessional education.

Our Experience

Program evaluators surveyed NP students after each clinical rotation to assess their experiences with the clinical site and preceptors. Student responses that highlighted areas needing improvement informed program changes. For example, the first cohort of NP students expressed a desire for additional opportunities to practice the oral examination during the clinical rotation. To satisfy this request, planners added a demonstration by a dental faculty member and an opportunity for students to practice the oral exam on a peer.

Implementation team meetings. Effective program monitoring requires oversight by the implementation team. Recruit staff from the educational and practice arms of the program and include individuals with the following areas of expertise: familiarity with all aspects of the program, knowledge of regulating bodies, or knowledge of current educational standards.

To monitor progress toward program objectives and make sure program improvements occur in a timely manner, schedule monthly implementation team meetings. The implementation team should connect with the standing quality improvement team to share information about what is and is not working and to ensure planned changes to NPD programming align with plans for overall quality improvement.

Our Experience

Members of the implementation team at HSDM held monthly 1-hour meetings to discuss project updates; review data on patient outcomes, student progress, and billing and reimbursement; address challenges and barriers; and plan for upcoming program activities. Members of the dental school's operations team and clinical management personnel attended each meeting, led logistical activities, and provided oversight to ensure all activities complied with regulating bodies and current educational standards.

Data management. Data related to health-outcome and patient-experience measures should be tracked weekly, trended monthly, and reported quarterly to your institution's quality improvement committee. Programming your EHR to collect data and produce reports on a regular schedule will ensure transparency regarding program outcomes, facilitate systems change, and reduce data entry errors.

To get the most out of your data collection effort, engage in regular analysis so you can take advantage of opportunities for program improvement and implement changes while they are most relevant. Data sharing can also be a useful tool for student education and training when handled in a timely manner. Sharing data at weekly meetings will ensure you do not miss critical opportunities for refining the educational program, patient care, or practice operations. Collecting data for specific indicators may also be useful for health system reporting.

It is rarely useful to work in a silo, so be sure to compare your outcomes with standardized, public benchmark data. This will help you gauge the effectiveness of your initiative against national standards and other health systems. Sources of quality measures and benchmark data include:

- National Quality Forum
- National Committee for Quality Assurance Healthcare Effectiveness Data and Information Set

This alliance between dentistry and nursing is yielding scientific data that supports the value of integrating primary and oral health care, especially for older adults.

~ Dr. Nancy Hanrahan, Dean, School of Nursing, Northeastern University

Our Experience

The technology director at HSDM worked with axiUm developers to configure the EHR to collect and monitor previously identified core clinical measures (see Chapter 2, Table 2.2) and develop customized reports. These reports were generated each month by the NP and distributed to team members at scheduled team meetings. The reports were reviewed and evaluated to inform program improvement.

Quality improvement. The best data in the world will not improve your program if you do not have a plan to turn information into action. To maximize the value of the information you gather, implementation team members should collaborate with your school's quality improvement committee or other evaluative body on the evolution and implementation of the program monitoring and evaluation plan.

To test proposed improvements to your NPD program, consider using the Plan–Do–Study–Act (PDSA) strategy (PDSA Cycle, 2013) advocated by the Institute for Healthcare Improvement:

Step 1: Plan. Plan the test or observation, including a plan for collecting data.

Step 2: Do. Try out the test on a small scale.

Step 3: Study. Set aside time to analyze the data and study the results.

Step 4: Act. Refine the change based on what was learned from the test.

Each cycle of PDSA leads to another in a continuum that helps guide further action (see Figures 3.5 and 3.6). You can integrate the PDSA cycle into ongoing quality improvement efforts, particularly in the early phases of implementation before every aspect of the program is set in stone. Share the results of the PDSA cycles at regular team meetings and with all individuals affected by the changes under review. The PDSA Worksheet (Institute for Healthcare Improvement, n.d.) is a resource for this process.

Our Experience

Early on, program evaluators became concerned that the established patient workflow was limiting the number of patients seen by the NP. HSDM used PDSA cycles to evaluate different ways of increasing the number of new, older adult patients who completed a visit with the NP in the dental clinic. Evaluators began by addressing three questions prescribed by the PDSA model:

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What changes can we make that will result in an improvement?

Figure 3.5 Sample PDSA Cycle #1

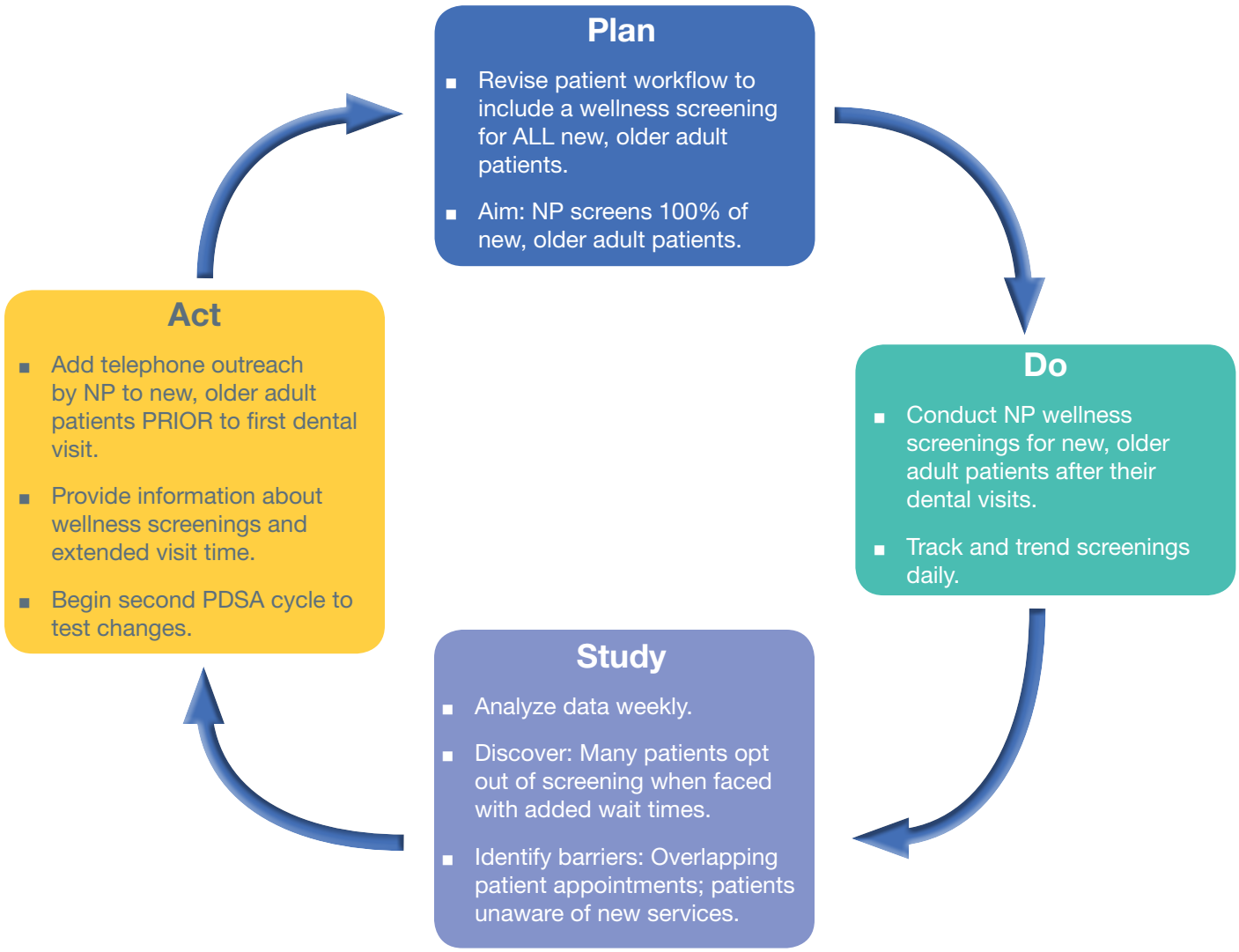
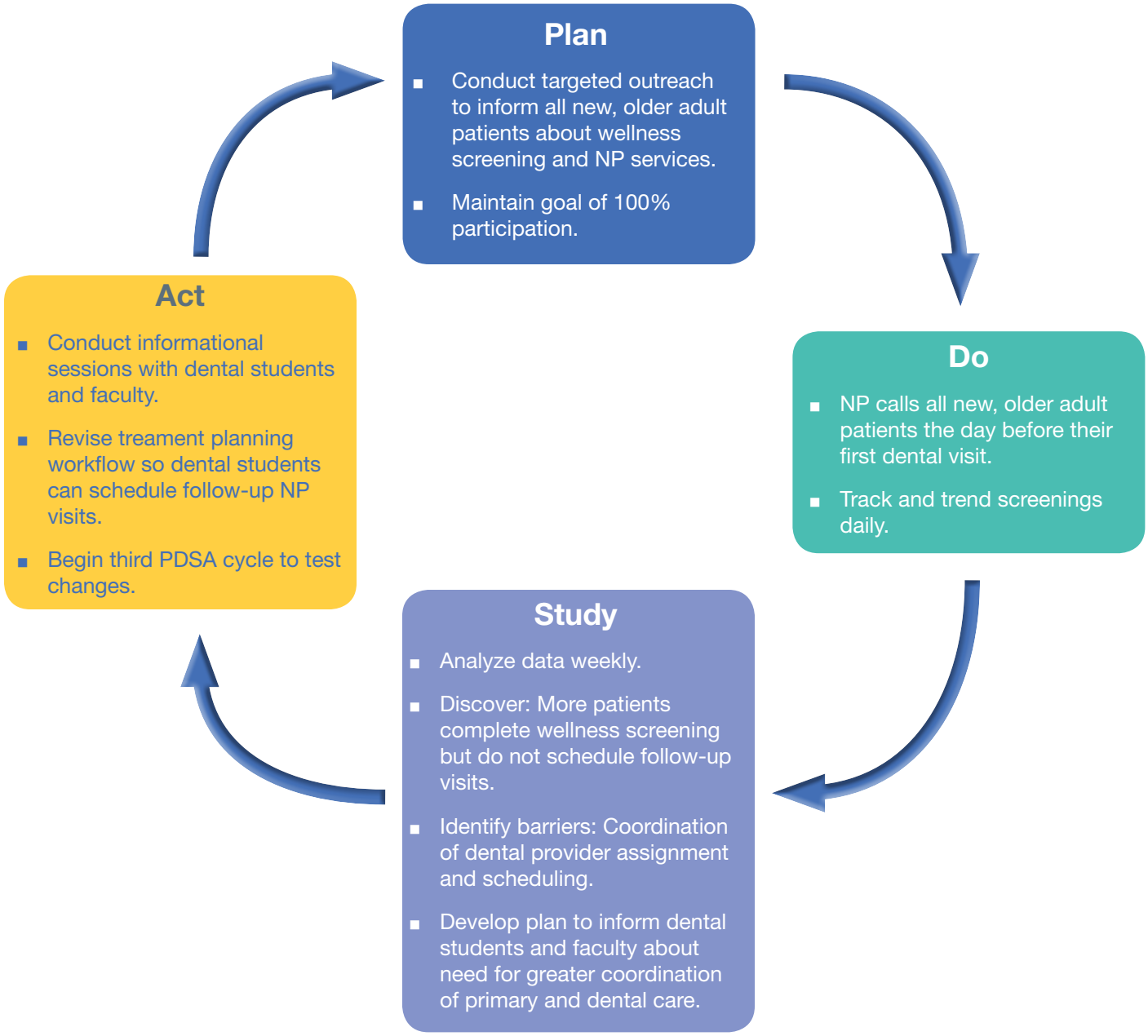


Figure 3.6 Sample PDSA Cycle #2



Lesson Learned: Budget adequate time to implement PDSA cycles

Program monitoring and evaluation activities require prompt and active involvement from leadership, faculty, staff, students, and members of the implementation team. The NPD model program coordinator and NP were responsible for collecting PDSA cycle data and presenting findings to the implementation team at weekly meetings. Subsequent cycle plans were coordinated with appropriate faculty and staff in a timely manner to avoid significant gaps between cycles. When necessary, meetings were scheduled with leadership, faculty, and staff to review test results and identify barriers to change before the next cycle of testing began.

For the PDSA cycle example in Figure 3.4, the revised patient workflow was planned with the Teaching Practices manager and a dental faculty member responsible for screening new dental patients. The NP tracked and trended wellness screenings daily and studied the data with the project coordinator. Findings were then presented at the weekly team meeting, where barriers to the change were identified and a new plan was developed.

4 Sustaining Your Program

In This Chapter

- Contracting
- Payment and denial
- Keeping your program financially sound

Your program's sustainability rests in part on your ability to offset your ongoing costs—a goal that is well within reach if you introduce medical billing in your dental school. Because medical billing uses diagnostic as well as procedure codes to document services provided, it will take some time for your team to acclimate to the new processes and for student providers to learn how insurers calculate the value of primary care services and reimburse for them. Despite this learning curve, investing in medical billing is well worth your time, your effort, and the attendant upfront costs since financial viability could make or break your program's long-term success.

To establish a system for medical insurance reimbursement, you must first obtain insurance (payer) contracts from the insurance companies that serve your patient population. (See Chapter 2 for more information on deciding which insurance companies to approach.) Insurance payers include government-funded programs such as Medicare and Medicaid

Chapter Resources

- Table 4.1 Vaccines Covered by Medicare
- Figure 4.1 Sample Superbill
- Figure 4.2 NPD Model: Year 1 Budget
- Figure 4.3 NPD Model: Year 2 Budget

and private carriers such as BlueCross BlueShield, United Healthcare, Aetna, and Cigna. Once you have identified the insurance companies you want to approach, you will need to "credential" or enroll your NP providers in contracts with those payers so that the primary care services the NPs provide can be billed. With these contracts in place, your final step will be to establish processes for submitting charges and collecting payments.

Contracting

The insurance contract determines how reimbursement will occur, so take time to review the contract terms provided by each payer very carefully. The devil is often in the details, and those details may shift from year to year as CMS and private payers modify their programs.

Credentialing. The NPs who see patients through your program must be credentialed with each insurance carrier you want to bill for primary care services. Credentialing is an administrative task that you should assign to your billing department. Although the process itself is straightforward, approval comes at the discretion of the insurer, so applications are sometimes denied. In the event of a denial, you can file an appeal. You should expect to wait anywhere from two to six months for your application to be reviewed, so begin this process as soon as you choose your NP provider.

Fee schedules. When reviewing contracts with private insurers, pay close attention to which services are billable and what fees you will receive for each service performed. Be sure the fee schedule for each contract lists every individual primary care service you will be providing. Discussing a patient's history of falling, for instance, is a billable service with its own medical billing code. You will not be reimbursed for this or other eligible services unless they are included in the contract *before* the services are rendered.

Negotiating. Medicare and Medicaid reimbursement rates are determined by CMS. CMS rates are updated on an annual basis, and they are nonnegotiable. Rates vary by ZIP Code, but typically not by more than 10% within a single state. If your NPD program will operate in an underserved area, you may be eligible for bonus payments based on the population you serve. Be sure to inquire about this source of revenue if you think you may be eligible.

Although private payers typically follow the lead of CMS in determining which services to cover, each payer has its own specific guidelines, and reimbursement rates may vary by up to 15% of Medicare rates. Payers may refuse to negotiate their rates, but in general, you can use CMS reimbursement rates as a threshold when negotiating rates with private payers. As a rule of thumb, try never to accept reimbursement rates that are lower than CMS rates.

One more tip for the negotiating process: Arranging in-person meetings with payers can help build a favorable working relationship. Face-to-face contact makes negotiations less impersonal and can lead to more productive talks for all parties involved. Many insurers must also meet quality measures in order to maintain certifications. Establishing a positive relationship with the payers and identifying mutual goals will be beneficial.

Practice management and charge entry

Dental EHRs do not typically have the capability to bill for medical services, so while the sometimes-lengthy contract negotiations with insurers are underway, take the opportunity to evaluate and select an appropriate billing solution. There are several commercial options that can address this need.

Practice management solution. This term refers both to the business arrangement and the software that allow a third-party to interface with your dental EHR and conduct medical billing on your behalf. A practice management (PM) solution complements the EHR by capturing the clinical data in a way that facilitates billing and other administrative tasks.

A number of resources can acquaint you with the pros and cons of various PM solutions before you begin shopping for a vendor:

- CMS Medicare Learning Network
- Medical Group Management Association
- Modern Medicine Network
- Physicians Practice

Carefully research the choice of PM solution for your NPD program, because switching down the road can be costly and time consuming. You should expect to wait 60 to 90 days from the date of an executed contract before your PM solution is up and running.

Charge entry. In addition to securing the technological capability to conduct medical billing, you may need to modify your established billing and collection processes. Streamlined charge entry (the process of entering billing codes into the dental EHR) will make billing more accurate and reliable and make sure NPs can focus on their most important task: care of the patient. Look for ways to incorporate the charge entry process into each provider's workflow so these administrative tasks happen seamlessly during and after patient encounters.

Another way to increase efficiency is to make the appropriate procedure codes readily available to NPs. Current procedure terminology (CPT) is a set of medical codes that report medical, surgical, and diagnostic procedures and services to physicians, health insurance companies, and accreditation organizations.

Similarly, the ICD-10-CM (*International Classification of Disease, 10th Revision, Clinical Modification*; CMS and NCHS, 2010) is a set of diagnostic and procedure codes developed by the World Health Organization and modified by the National Center for Health Statistics, the federal agency responsible for use of the International Statistical Classification of Diseases and Related Health Problems. Guidelines regarding the ICD-10-CM codes can be found on the CDC National Center for Health Statistics website.

Medical billing requires that every CPT procedure code is supported by at least one ICD-10-CM diagnostic code. Identifying the relevant CPT and ICD-10-CM codes before the NP begins to see patients will streamline patient visits and ensure timely and accurate charge entry.

There are three ways to enter CPT and ICD-10-CM codes into the EHR:

1. The provider identifies the CPT or ICD-10-CM code on a *superbill*. This is an itemized billing template that lists all the potential services that could be rendered by the NP. The NP selects the services actually rendered, and this determines what goes on the bill.

2. The provider enters the charges into an electronic medical record that accepts both diagnostic and procedure codes using the superbill as a guide.

3. The provider documents the patient encounter through notes, and a certified professional coder reviews the encounter record and codes it appropriately.

Superbills. Using a billing template known as a superbill (sometimes called a *charge slip* or *charge ticket*) will make it easier for your providers to document services rendered. A superbill captures all available services, making providers aware of the full range of services they can provide (see Figure 4.1). Using such a template also reminds providers to document all services rendered, facilitates that documentation through embedded rules, and ensures the ability to invoice insurance carriers and patients for each of the services provided.

A superbill should significantly improve your accuracy in documenting billable services and positively impact your revenue stream. Discussing a patient's history of falling, for example, can add to the revenue from a visit if the conversation is properly documented and coded.

Figure 4.1 Sample Superbill

CODE		CODE	
	OFFICE VISITS - NEW PATIENTS		**ICD 10 DIAGNOSES CODE**
99201	LEVEL 1. BRIEF: 10 min	E11.9	Type 2 diabetes mellitus without complications
99202	LEVEL 2. LIMITED: 20 min	I10	Essential (primary) hypertension
99203	LEVEL 3. EXPANDED: 30 min	E66.3	Overweight
99204	LEVEL 4. COMPREHENSIVE: 45 min	E66.9	Obesity, unspecified
99205	LEVEL 5. COMPREHENSIVE: 60 min	F32.9	Major depressive disorder, single episode, unspecified
	PREVENTIVE EXAM - NEW PATIENTS	F41.8	Other specified anxiety disorders
G0438	MEDICARE, Annual Wellness Visit, Initial	Z00.00	Encounter for general adult medical exam w/o abnormal findings
G0439	MEDICARE, Annual Wellness Visit, Subsequent		
99387	PREVENTIVE MEDICINE, 65+	Z00.01	Encounter for general adult medical exam w/abnormal findings
	OFFICE VISITS - EST. PATIENTS	R03.0	Elevated blood pressure reading w/o Dx of HTN
99211	LEVEL 1. BRIEF: 5 min	Z00.01	Encounter for general adult medical exam w/abnormal findings
99212	LEVEL 2. LIMITED: 10 min	M13.80	Other specified arthritis, unspecified site
99213	LEVEL 3. EXPANDED: 15 min	Z01.30	Encounter for exam of blood pressure w/o abnormal findings
99214	LEVEL 4. COMPREHENSIVE: 25 min	Z01.31	Encounter for exam of blood pressure w/abnormal findings
99215	LEVEL 5. COMPREHENSIVE: 40 min	Z13.1	Encounter for screening for diabetes mellitus
	PREVENTIVE EXAM - EST. PATIENTS	R63.4	Abnormal weight loss
99397	PREVENTIVE MEDICINE, 65+	R63.5	Abnormal weight gain
	COUNSELING	Z63.79	Other stressful life events affecting family and household
99401	PREVENTIVE COUNSELING: 15 MIN	R53.82	Chronic fatigue, unspecified
99402	PREVENTIVE COUNSELING: 30 MIN	R86.19	Personal history of other infectious/parasitic disease
99403	PREVENTIVE COUNSELING: 45 MIN	Z86.73	Personal history of transient ischemic attack (TIA)
99406	MEDICARE, smoking and tobacco-use cessation counseling visit, intermediate	Z91.81	History of falling
		Z95.1	Presence of aortocoronary bypass graft

You can further refine your billing process by embedding rules into your superbill that automatically link services and procedures that are provided together in routine medical practice. Providers often make an initial investment of up to $1,000 to have a coding company make sure their superbills are comprehensive. Many practices feel the superbill is worth the investment because it is an efficient way to ensure they are reimbursed for all services rendered. A superbill can also dramatically reduce the number of rejections and denials you receive from payers.

Payment and denial

Why not make it as easy as possible for insurance companies to pay you once they have decided to do so? Insurance companies will usually send payment electronically, through an electronic remittance advice (ERA). ERAs include explanations of benefits, details about payments, and, if the claim is denied, the required explanations. Receipt of ERAs instead of traditional paper payments and claim denials will save time and paper, reduce the number of posting errors made by staff, and shorten the time you must wait to receive the payer's response.

If claims are denied, do not let them languish in the system. By efficiently tracking and processing them, you can move quickly to the final phase of the reimbursement process: patient billing. If you do not already have a process in place for mailing or emailing statements and following up with patients in the event their claims are denied, establish one. Remember that it is also important to educate patients about their financial responsibilities before a claim is ever submitted. If your patients know what to expect, they will be more likely to pay their bills in a timely manner.

Keeping your program financially sound

Just as you monitor the health of your patients and the progress of your students, you will want to keep a close eye on the financial stability of your NPD program to be sure it can sustain itself over time. Be sure your accounting system can generate reports that provide a clear picture of the program's financial status so that you can identify opportunities for improvement. Reporting on aging accounts receivables (to determine which payments are overdue), collections by payer (to determine your chief revenue sources), provider productivity (to determine the relative cost of providing care), and payments received (to chart income flows) will help you make adjustments so your program remains financially viable.

Patient evaluation and management. Insurance payers apply the American Medical Association's evaluation and management (E&M) guidelines to determine how primary care services should be documented and coded. The level of E&M needed to properly care for the patient is determined by three factors:

1. The patient's documented history
2. The extent of the examination
3. The level of medical decision-making involved

CMS regularly issues documentation guidelines with tables that illustrate the relationship between these factors and the codes used to indicate the E&M level associated with each visit (CMS, 2017). The higher the level of E&M required, the higher the reimbursement rate.

Our Experience

NPD Program Budget

NPD program planners estimated that the total cost of starting and operating the NPD program in the first year would equal $236,450 (see Figure 4.2). This figure included a full-time NP and a dental faculty member who committed 20% effort to the project. No additional staff were hired for scheduling, billing, or reimbursement.

To calculate how much revenue could be anticipated through insurance reimbursement, planners made the following assumptions:

- Planners would seek reimbursement through Medicare because older adults were the target population for the program.
- Projections would be based on reimbursement for an average visit (E&M level 3, CPT code of 99213).
- Revenue per visit would equal $68.56 because NPs are reimbursed at 85% of the Medicare physician fee schedule rate of $80.66 for this code in Massachusetts.
- Services would be provided 255 working days per year. (Accounts for state and federal holidays and academic recesses.)
- The NP would be able to see eight patients within a 4-hour period.

8 visits @ $68.56/visit x 255 days* = $139,862 annual Medicare revenue

Based on this calculation, planners projected that if they employed an NP full time, they would be able to meet their revenue goals and maintain the capacity for additional patients and revenue.

For the second year and beyond, planners estimated NPD expenses at $177,950 (see Figure 4.3). Assuming other conditions to be the same (an average CPT code of 99213, with a Medicare reimbursement of $68.56 for that code, and an average of 255 working days per year), planners calculated they could employ a full-time NP and break even if they served at least 10 to 11 patients per day.

Figure 4.2 NPD Model: Year 1 Budget

Harvard School Of Dental Medicine Teaching Practices NPD Model: Year 1 Budget

	FY 2016 Budget	% of Budget
Expenses		
Nurse Practitioner Salary (100% effort)	115,000	48.64%
Dental Faculty (20% effort)	20,000	8.46%
Fringe Benefits (25%)	33,750	14.27%
Personnel	168,750	71.37%
Adaption of physical space	35,000	14.80%
Office Supplies	In-kind	0.00%
Medical supplies	4,800	2.03%
NP Malpractice Insurance	1,200	0.51%
EHR enhancements	7,000	2.96%
Clinical support software	500	0.21%
Consulting services: Billing & reimbursement	16,500	6.98%
Marketing & promotion	2,700	1.14%
Other Expenses	67,700	28.63%
Total Expenses	236,450	100.00%

Note: According to the U.S. Bureau of Labor Statistics, in 2016 the national NP mean salary was $104,610.

Figure 4.3 NPD Model: Year 2 Budget

Harvard School Of Dental Medicine Teaching Practices NPD Model: Year 2 Budget

	FY 2017 Budget	% of Budget
Expenses		
Nurse Practitioner Salary (100% effort)	115,000	64.62%
Dental Faculty (20% effort)	20,000	11.24%
Fringe Benefits (25%)	33,750	18.97%
Personnel	168,750	94.83%
Office Supplies	In-kind	0.00%
Medical supplies	4,800	2.70%
NP Malpractice Insurance	1,200	0.67%
Clinical support software	500	0.28%
Marketing & promotion	2,700	1.52%
Other Expenses	9,200	5.17%
Total Expenses	177,950	100.00%

To ensure that your clinic receives the full reimbursement to which it is entitled, instruct NPs to follow specific guidelines when documenting patient interactions:

- Identify a chief complaint. For what specific illness is the patient seeking treatment?
- Indicate the frequency and duration of the complaint(s). How often do they occur? Are they constant? Do they come and go?
- Document modifying factors. Does it feel better after applying ice or when lying down? Is it aggravated by heavy lifting?
- Note associated signs or symptoms. Is or was there loss of consciousness, headache, back pain, neck pain, joint stiffness, tingling, or swelling?
- Document reviews of systems conducted, e.g., respiratory (shortness of breath); cardiology (chest pain, palpitations); dermatology (rashes, lacerations); endocrinology (fatigue, intolerance to heat or cold); gastroenterology (nausea, vomiting, abdominal pain); hematology/lymphatic (easy bruising); musculoskeletal (neck pain, back pain, joint stiffness, joint pain/swelling, tingling/numbness, swelling/bruising); eyes, ears, mouth (pupils and iris, ears and nose, oral mucosa).
- Report the level of medical decision-making required by reviewing the number of possible diagnoses and the number of management options considered.
- Differentiate between new and established patients. New patients are those who have not received care from any medical provider within your clinic in the previous three years.

Additional reimbursable services. In addition to treating patients' specific complaints, your clinic can offer several other reimbursable primary care services with tangible benefits to dental patients. All patients can benefit from the convenience of receiving immunizations while visiting the dental clinic. Table 4.1 outlines vaccines that are reimbursable through Medicare. Medicare patients are also entitled to two screening visits (preventive and annual wellness), and patients with newly identified or documented health problems should be encouraged to return for follow-up care if they do not already have another PCP.

"Welcome to Medicare" preventive visit. This benefit is available to Medicare patients within the first 12 months after the patient obtains Part B coverage. The visit allows for a review of the patient's medical and social history, a consultation regarding required immunizations, preventive care screenings, and a discussion to create an advance directive spelling out the patient's wishes regarding medical care should the person lose the ability to communicate. In 2017, physicians in the state of Massachusetts—which has slightly higher reimbursement rates than most other states—were reimbursed for these visits at $129.40. Reimbursement for the same visit conducted by an NP is typically 85% of the physician fee (AANP, 2013).

Annual wellness visit. This annual preventive care visit is used to identify health factors associated with aging and can be offered at no cost to patients covered under Medicare Part B. In 2015, CMS reported that fewer than 15% of beneficiaries took advantage of this benefit. Physician reimbursement for the visit was $116.27 in Massachusetts in 2017. Reimbursement for the same visit conducted by an NP is typically 85% of the physician fee.

Follow-up appointments. Follow-up appointments are important for continued care. To be sure your patients return for progress monitoring, set standard protocols for scheduling follow-up appointments with patients who are taking maintenance medications or have high-risk conditions.

Table 4.1 Vaccines Covered by Medicare

Vaccine type	Medicare coverage	Coverage rules and frequency	Fee (MA 2017)
Influenza	Part B	Medicare pays for (and recommends) one shot every flu season. Additional flu vaccines may be covered if considered medically necessary.	$25.11
Shingles	All Part D plans must cover	Medicare pays for one shot after age 60. Patient must check with plan to find out specific rules for administration and payment.	$170.00–$220.00
Pneumococcal (pneumonia)	Part B	Medicare pays for two shots (PPSV23 and PCV13). Recommended for all adults ages 65+.	$23.87
Hepatitis B	Part B	Series of three shots, paid for by Medicare for high- or medium-risk individuals, including those with hemophilia, end stage renal disease, diabetes, and other chronic conditions that lower resistance to infection.	$25.11

Source. Reprinted from *Vaccines: What Medicare Pays For*, National Center for Benefits Access (2016), p. 1.

Other ways to defray costs. Although insurance reimbursement is the most effective mechanism for sustaining your NPD program over time, other options may be available to offset the cost of integrating NP-provided primary care services into your dental clinic. Government and foundation grants for IPE and IPCP are in short supply, but your academic or health institution partners may have funds that can be awarded to further these activities. Future innovations in payment reform or participation in value-based payment arrangements may also present opportunities for NPD reimbursement.

Cost sharing is another option that could contribute to the sustainability of the program. Cost sharing can take several forms: a commitment of faculty effort, an expenditure of school funds, or the use of equipment or supplies. For example, the dental school could commit school funds for the creation of space for a private examination room and the purchasing of equipment and supplies while the nursing school could match that commitment by absorbing some of the cost of NP faculty needed to oversee the clinical care provided by students.

5 Are You Ready?

In This Chapter

- A new vision for dentistry
- Beyond your dental school

How can you prepare for a future where health care is driven by patients and provided by IPCP teams?

- Educate dental students about the connections among systemic conditions and oral health.
- Prepare NP students to recognize common oral conditions and make appropriate referrals.
- Advance knowledge around the value of IPE and IPCP.
- Facilitate care integration to improve the health of your patients.

Your academic dental clinic provides an untapped venue for all of these activities. Although it may be challenging for you to execute the NPD model in precisely the way it was done at HSDM, most dental schools are fully capable of integrating aspects of primary care delivery in ways that will enhance education and improve health outcomes.

Our vision is to transform dentistry by removing the distinction between oral and systemic disease. The NPD program is all about teamwork and collaboration in the interest of reduced cost, access to care, and, most importantly, the best care of the patient.

~ Dr. R. Bruce Donoff, Walter C. Guralnick Distinguished Professor of Oral and Maxillofacial Surgery and Dean, Harvard School of Dental Medicine

A new vision for dentistry

The NPD model is flexible, so you can adapt it to local conditions and use it to help you and your partners reach parallel goals. Together, you can meet accreditation standards related to IPE or develop clinical placement opportunities for dental and NP students. Currently, very few NP programs collaborate with dental clinics, and few dental students understand the role of NPs in the health care delivery system. As NPs make up the fastest growing sector of the primary care workforce, the ability of these two professionals to collaborate takes on increasing importance.

It is impossible to predict the future, but recent history suggests that, over time, patients will sit in the driver's seat when it comes to their health care. They will call on professionals who understand one another's competencies, communicate clearly, and know how to work in teams to deliver well-coordinated care. Integrating primary care into your dental clinic and educating students to provide this type of person-centered care will place you at the vanguard of the future health care delivery system.

Beyond your dental school

A spirit of collaboration resides at the core of the NPD model. In that vein, adopt a network mindset as you embark on this new venture. Just as health care professionals must learn to share information, solve problems in tandem, and work in collaborative teams for the benefit of individual and population health outcomes, school administrators and decision-makers should collaborate across institutions and health professions. By sharing successes, failures, and best practices—along with real-world examples—they can accelerate the adoption of integrated care models and advance IPE to support better care delivery.

Here are several suggestions for sharing what you learn about IPE and IPCP through the implementation of your NPD program:

- Connect with The National Center for Interprofessional Practice and Education (NEXUS) at the University of Minnesota.
- Share with and through professional associations:
  - American Dental Education Association
  - American Association of Colleges of Nursing
  - National Organization of Nurse Practitioner Faculties
- Share through peer-reviewed, interprofessional journals:
  - Journal of Interprofessional Care
  - Journal of Dental Education
  - Journal of Professional Nursing

Our Experience

To contribute to the ongoing evaluation of how well IPCP improves health outcomes, members of the NPD model implementation team share educational and clinical data with The National Center for Interprofessional Practice and Education (NEXUS) at the University of Minnesota. NEXUS is a data repository and resource center that supports evaluation, research, data, and evidence related to interprofessional practice and education. NEXUS gathers and analyzes data from project sites and reports aggregated data to increase the quality of information about new education models and health care processes.

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