Electronic Portfolio Implementation Committee (ePIC)

Recommendations and Next Steps for Implementation of Electronic Portfolios in Medical Education

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University of California, San Francisco
School of Medicine
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Executive Summary

About this Report
This report summarizes the work of the Electronic Portfolio Implementation Committee (ePIC) during the 2006-2007 academic year. The ePIC committee was tasked with creating educational, technical and strategic recommendations on the implementation of an electronic portfolio system in the UCSF School of Medicine undergraduate medical student curriculum. (See the appendix for the committee’s complete charge and description.) While the charge was specific to undergraduate medical education, every effort was made to consider graduate and continuing medical education needs.

This report is intended to inform faculty, staff and students in the School of Medicine on current initiatives and proposed next steps for electronic portfolios in medical education.

Need for Change
Today, being a physician requires the physician to take ownership of her personal and professional growth, actively continuing her education and developing skills for lifelong learning. At all levels of medical education, expectations are increasing from both the public and the profession of medicine for the learner to actively document, communicate, engage and certify competency-based achievement. Furthermore, active, learner-centered systems are replacing passive, top-down assessment mechanisms. Together these forces are creating a need for the School of Medicine to examine current medical educational experiences and ensure that systems are in place to meet these needs.

The Vision
The portfolio allows a learner to collect and present evidence of strengths and mastery of competencies to augment the current modes of academic assessment.

The portfolio supports an interactive process with robust advising that engages a learner in self-reflective, individualized development as a professional.

The learner, with the mentor’s advice, selects the best examples as proof of achievement of competency.

The learner uses the portfolio to assist in determining competency relative to benchmarks and as a decision aid in the development of further learning goals.
The Definition

“A portfolio is a purposeful and longitudinal collection of tangible evidence of learner-selected work that exhibits the learner’s efforts, progress or achievement. This portfolio features the criteria for selection and judging merit, and includes evidence of learner reflection.”

(Adapted from the Committee on Student Assessment’s (COSA) portfolio definition from Reckase, 1995)

The definition is supported by the following standards:

- The portfolio is centered on the learner.
- Purposes for the portfolio can include personal reflection, self-directed learning, academic advancement, or application to a program or employer.
- The portfolio is longitudinal, covering the continuum of experience extending, potentially, from pre-matriculation to well into a learner’s professional career.
- Reflection is the retrospective analysis of what the contents of the portfolio indicate about learning.

Adding Value & Integrating into the Curriculum

As a recent study on the impact of electronic portfolios by the BECTA group in the United Kingdom determined, “E-portfolios benefit learning most effectively when considered as an integrated part of the educational system, rather than as a discrete entity.” Currently, there are many learning experiences in the curriculum that are not necessarily part of the traditional assessment. For example, students in their first year write a description about their experience in the clinical interlude. While this essay is discussed in their Foundations small group, it is not used any further in the curriculum. A learner could put this in her portfolio, reflect further on the experience and set some goals for herself about health care systems that emanated from that experience. With feedback from her advisor, she can undertake some activities to meet those goals. She will generate tangible evidence of what she has done and the level of achievement that she has had relative to first-year student benchmarks. This information can then be added to other measures of systems-based practice available in the traditional system.

The ability to exchange information electronically contributes to feasibility of such an approach to learning. An electronic portfolio system can thus increase the value of our educational experience without necessarily adding more work. For this to happen, a portfolio must be integrated into the assessment system. Learners need to understand how the electronic portfolio fits in the curriculum.
and how a learner can enhance mentoring and career planning, as well as monitor progress and the achievement of competency.

The strength of a portfolio is that it captures skills not measured in traditional assessment: critical thinking, self-directed learning and reflection. We envision that a student will use the portfolio to demonstrate achievement of competencies by providing evidence of her growth and development. This process is facilitated by interaction with a mentor who guides a formative process with the learner. In the end the student will strengthen her self-directed and reflective skills while being able to demonstrate competency that compliments what appears in the traditional assessment programs. This process transforms the culture of learning to one that empowers students to take responsibility for their own learning and the subsequent outcomes. It places value on the role of feedback and advisement at a higher level than is present at UCSF.

Key Findings

1. Portfolios will require a shift in culture
   The successful use of electronic portfolios in learning and assessment in the School of Medicine will require the establishment and careful nurturing of a culture that supports and values the portfolio as an integral part of the educational experience. The use of electronic portfolios for formative and summative assessments and as a learning tool will require educators to make adjustments to the educational experiences offered in the curriculum. Electronic portfolios cannot simply be overlaid on the existing curriculum and assessment system.

2. Implementation will be a complex multi-year process
   The selection of an electronic portfolio system to support and enable the portfolio activities that will be introduced in the curriculum will be a complex and multi-year process. The committee has identified a core set of criteria to guide the evaluation and selection of an electronic portfolio system. However, the implementation and adoption process will require informing the community about portfolios, obtaining active support from the faculty, incorporating opportunities to generate evidence for a portfolio in the curriculum, developing a technology to support the effort and ensuring that students find this a meaningful and informative development and assessment process.

3. There are many stakeholders in an electronic portfolio system
   There are numerous educational and technical stakeholders in a potential electronic portfolio system at UCSF and beyond. It will be important to communicate broadly with these groups as implementation of the electronic portfolio gets underway.
4. **Pilot projects will be a vital next step**

The selection and implementation of pilot projects and technologies will be vital and necessary first steps in implementing an electronic portfolio. The pilot projects will allow for the testing of specific features and functions of a portfolio and will further help to refine the criteria by which we may evaluate a more robust technology-enabled solution, as well as improve upon the educational processes and workflows that will make up the portfolio. Pilot projects will also directly engage members of the educational community in the use of portfolios and, if managed successfully, will help to build consensus and a shared vision for portfolios in the curriculum.

5. **Portfolios will require robust, longitudinal advising and mentoring**

Portfolios offer the promise of enabling learners and mentors to have rich, substantive conversations about a learner’s progress over time. To be successful, the portfolio requires robust and sustained mentorship. Learners and mentors require protected time to meet regularly to use and discuss the portfolio. Mentors and advisors need to be well trained and informed about the portfolio and its purpose. This will require a substantial faculty development effort.

6. **Portfolios should assist medical students in the career planning and decision-making process**

Graduating medical students continually note the need for more robust career planning and decision-making tools at UCSF. The portfolio should enable and assist medical students in their career planning process and augment existing tools and services provided by UCSF.
Successful Outcomes
The committee has identified educational and technical outcomes for a successful portfolio implementation. These outcomes describe how the environment and culture of the school should be aligned to ensure positive outcomes for our educational mission.

Educational

- Vision of portfolio clearly stated.
- Learner maintains intellectual ownership of a portfolio. From this portfolio the learner manages her own learning based on evidence and provides evaluative information to meet university expectations.
- Learner may develop a portfolio that allows for creativity while respecting the expectations of the institution for a portfolio to show professional development.
- Advisor is empowered to be the advocate and guide for the learner to facilitate learning and to advise on materials that demonstrate competency. The advisor does not serve as the evaluator of the learner.
- Advisor reinforces the value of the portfolio for the learner’s future and provides examples to guide input into the portfolio and development of the presentation portfolio.
- University leadership requires the portfolio to be part of the learning and evaluation process.
- University leadership supports the use of portfolio across the continuum of medical education.
- University leadership shows commitment to the portfolio by dedicating curricular time, providing faculty, learner and staff development and providing educationally appropriate technology resources.
- University maintains a portfolio oversight committee that includes administration, faculty and learners.
- Research and scholarship about portfolios is conducted, which allows UCSF to be recognized for this contribution to learning.
Technical

- Adequate resources, such as hardware, personnel and infrastructure are allocated for implementation, training, development and maintenance.
- The electronic portfolio system is available to students when and where they need it, is technology platform neutral (PC or Mac) and supports the latest web browsers and web technologies.
- Scheduled maintenance and downtimes are congruent with times system is least used by learners.
- The electronic portfolio system integrates with other key School of Medicine applications used to manage medical education, such as Ilios, ISIS, and the GME management system, and provides a seamless experience for users navigating amongst the systems.
- The electronic portfolio is capable of importing existing student portfolios from other institutions or applications (e.g. undergraduate institutions) and also exporting learner portfolios upon graduation to other portfolio systems (e.g. residency programs, CME programs, and Maintenance of Certification Programs) (See Appendix for models that are in use or being developed along the medical education continuum.)
- The electronic portfolio is robust and scalable, capable of supporting 600+ students, 1500+ faculty and staff users and potentially 1200+ resident users.
- Students are able to use the electronic portfolio to assemble and display media-rich portfolios.
- The electronic portfolio features are highly rated by users and its development cycle supports continued growth and adoption of the system.
- The electronic portfolio is user-friendly and easily adopted by users with minimal training.
Stakeholders

The education and technical standards working groups used a graphical facilitation process to document the major stakeholders in the electronic portfolio. Interestingly the two groups identified very different stakeholders, not only in who the stakeholders were, but also in how they were categorized and defined. The one key similarity between the two sets of stakeholders is the centrality of the learner to the process, as both groups identified the learner (or student) as one of the primary stakeholders.

Educational

The educational standards group placed the learner at the center of the map, closely aligned with the portfolio mentor or advisor. Key supporters for UME included the Advisory College mentors, associate deans and technical staff. Core medical student curriculum and programs constituted tightly linked alliances. Key supporters for GME include Residency Program Directors. Customers, such as potential employers, advancement committees and residency programs, were identified as well as other constituents, such as family, accreditation agencies and oversight bodies.
Technical
The technical standards group identified students, education units, and the Office of Educational Technology as central stakeholders. Suppliers of services and potential alliances, such as vendors and the Registrar, were documented. Oversight boards, direct customers such as medical student education programs, and other constituents were identified.
Role in Learner Evaluation & Assessment

The portfolio is envisioned as both a formative and summative assessment. Learners and advisors interact over the choice of content and its associated reflection. The advisor can provide feedback to the learner. Contents and reflections must be purposefully selected at specific time points to demonstrate competency related to school-established benchmarks as a form of summative assessment. While portfolios will provide the summative assessment for the benchmarks related to reflection, it also can serve to augment other assessments of competency. This will allow the learner to present a comprehensive view of her competency at selected periods.

Evaluation Standards

<table>
<thead>
<tr>
<th>Component</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formative portfolio</td>
<td>Learner assembles a formative portfolio at specified intervals for review with the portfolio advisor</td>
</tr>
<tr>
<td>Summative (presentation) portfolio</td>
<td>Created by the learner to demonstrate that specified benchmarks are met at specified time periods</td>
</tr>
<tr>
<td>Assessors</td>
<td>Independent of portfolio advisors</td>
</tr>
<tr>
<td>Evaluation timeframe</td>
<td>Formative and summative assessments take place in specified timeframes</td>
</tr>
<tr>
<td>Benchmarks</td>
<td>Tied to the ACGME competencies and delineated across the four years of medical school as specified by COSA and the GMEC for competencies in patient care and communication with patients, medical knowledge, professionalism and communication with the health care team, practice-based learning and improvement and systems-based practice.</td>
</tr>
<tr>
<td>Evaluation Rubrics</td>
<td>Rubrics available for each entry and tied to benchmark</td>
</tr>
</tbody>
</table>
Components & Features

Educational Standards

The educational component standards outlined below provide an overview of the desired features and functionality of an electronic portfolio system. For a more detailed list of features and functionality, see the Portfolio Application Selection and Evaluation Criteria available later in this section.

<table>
<thead>
<tr>
<th>Component</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>ePortfolio guidelines</td>
<td>Describe use of space for formative and summative processes</td>
</tr>
<tr>
<td></td>
<td>Definitions of all spaces</td>
</tr>
<tr>
<td></td>
<td>Attractive and engaging</td>
</tr>
<tr>
<td></td>
<td>Help menu/tool/FAQ</td>
</tr>
<tr>
<td>Tangible evidence of learning/work</td>
<td>Generated by opportunities in the curriculum (pre-populate when possible)</td>
</tr>
<tr>
<td></td>
<td>or generated by the learner</td>
</tr>
<tr>
<td></td>
<td>Self-generated such as from extracurricular activity</td>
</tr>
<tr>
<td></td>
<td>Tagged relative to the competencies (organizing framework for storing/retrieving evidence) and to the learning plan</td>
</tr>
<tr>
<td></td>
<td>Unlimited storage capacity</td>
</tr>
<tr>
<td>Reflective Space</td>
<td>Ability to reflect about specific evidence of learning</td>
</tr>
<tr>
<td>Learning Plan</td>
<td>Learner develops a plan according to guidelines and receives formative feedback from the advisor</td>
</tr>
<tr>
<td>Sharing Criteria</td>
<td>Learner controls who has access to what portion of the portfolio; Advisor has access to all but personal reflection space</td>
</tr>
<tr>
<td>Learning Journal</td>
<td>Personal reflection space/journal/blog</td>
</tr>
<tr>
<td>Calendar</td>
<td>Personal but also contains dates for periodic and summative portfolio review; tied to curriculum</td>
</tr>
<tr>
<td>Collaborative Space</td>
<td>Designed for joint projects with ease of movement into Presentation Portfolio when necessary</td>
</tr>
<tr>
<td>Chat space</td>
<td>Discussion (open to whomever learner wishes)</td>
</tr>
<tr>
<td>Feedback space for advisors upon request</td>
<td>Specifically for advisor to give feedback on evidence or to provide general comments</td>
</tr>
<tr>
<td></td>
<td>Learner may request feedback from either individuals or existing groups</td>
</tr>
<tr>
<td></td>
<td>Peers would have access to this space to give feedback to the owner of the portfolio</td>
</tr>
<tr>
<td>Automatic Notification</td>
<td>To Learner/Advisor when something has been posted to shared spaces</td>
</tr>
<tr>
<td>Multimedia space</td>
<td>Upload images/video/audio to support presentation portfolio</td>
</tr>
</tbody>
</table>
Data management and analysis tools
Present individual achievement compared to selected groups (data cannot be edited).
Populate with peer and faculty evaluation data; achievement in curriculum; benchmark achievement

Search Tools
To locate evidence of learning/descriptions/discussion by keyword/tags

Benchmarks
Written and available

Presentation Portfolio
Purpose of specific presentation portfolio, such as for advancement
Format is standardized with a table of contents specified for presentation portfolio purpose
Criteria for selection of supporting evidence
Criteria for evaluation
Learner choice of evidence to meet expectation set out in above criteria
Criteria for reflection

Portability
Contents of portfolio can be taken with the learner

Appearance
Must be engaging, dynamic interface and can be personalized

Curriculum Vita
Form to facilitate maintaining an up-to-date vita

Criteria for Evaluation of an Electronic Portfolio System
The committee identified 8 categories of criteria for the evaluation and selection of an electronic portfolio system. These criteria were adapted from the EduTools ePortfolio Review Criteria available at [http://eportfolio.edutools.info/](http://eportfolio.edutools.info/). The criteria were modified to include the component standards identified by the educational standards working group.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Highlights of Key Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look &amp; Feel</td>
<td>How the application interface appears</td>
<td>Easy to use content editors; intuitive, attractive and engaging user interface; ability to link external and internal content.</td>
</tr>
<tr>
<td>Features</td>
<td>The core functions of the application</td>
<td>Discussion tools</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project &amp; collaboration tools</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reflection templates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Documentation tools</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Goal setting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation &amp; assessment tools</td>
</tr>
<tr>
<td>Template Actions</td>
<td>What functions can be performed on a template or tool</td>
<td>Create &amp; modify templates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Share &amp; link templates</td>
</tr>
</tbody>
</table>

13
<table>
<thead>
<tr>
<th>Publish/Share</th>
<th>How users share and present content</th>
<th>User’s ability to restrict access to content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Notification via email of changes, updates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ability to publish a publicly accessible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>view of the portfolio</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ability to create multiple portfolios</td>
</tr>
<tr>
<td>Organize</td>
<td>How users organize the portfolio’s  content</td>
<td>Tagging via keyword</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Linking content together</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bookmarking</td>
</tr>
<tr>
<td>Analysis Tools</td>
<td>Tools to aid users in interpreting  and using data in the portfolios</td>
<td>Reporting &amp; tracking Tools</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Automatic generation of statistics and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>summary views</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Competence &amp; Performance Tracking Tools</td>
</tr>
<tr>
<td>Sustainability</td>
<td>How a system is managed to ensure   long-term viability</td>
<td>Staffing Requirements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technical Support Requirements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Migration Tools</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ability to export information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pricing &amp; Licensing</td>
</tr>
<tr>
<td>Technical</td>
<td>Technical criteria which outlines  the architecture of the portfolio system</td>
<td>Authentication Protocols</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Storage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Performance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accessibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Security</td>
</tr>
</tbody>
</table>
Implementation

Implementation Standards
The educational standards group has outlined the following standards to govern and inform upon the implementation of an electronic portfolio.

<table>
<thead>
<tr>
<th>Component</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Updates</td>
<td>Clear guidelines need to be developed and repeatedly updated / informed by the experiences and observations from the implementation phase.</td>
</tr>
<tr>
<td>Training for learners, advisors and staff</td>
<td>Learners, portfolio advisors and staff must be trained and have ongoing access to robust training materials and resources.</td>
</tr>
<tr>
<td>Protected time</td>
<td>There must be protected time in the curriculum (for learners) and work schedules (for portfolio advisors) for initial training and ongoing implementation.</td>
</tr>
<tr>
<td>Support</td>
<td>Technical support must exist and be readily available for students and portfolio advisors.</td>
</tr>
<tr>
<td>Access</td>
<td>Easily available 24 hours/day.</td>
</tr>
<tr>
<td>Curricular Capacity</td>
<td>Prior to initial use, the school must verify that there has been an adequate aggregation of robust evidences of learning that the students may choose to include in the portfolio.</td>
</tr>
<tr>
<td>Benchmarks</td>
<td>Standards for each presentation portfolio developed.</td>
</tr>
<tr>
<td>Exemplars for learners</td>
<td>Develop example portfolios.</td>
</tr>
<tr>
<td>Exemplars for evaluators</td>
<td>Develop example portfolios for promotion to train assessors.</td>
</tr>
<tr>
<td>Training for assessors</td>
<td>All assessors trained by review of exemplars and with expert guidance.</td>
</tr>
</tbody>
</table>

Pilot Projects & Technologies
The fostering of pilot projects and the availability of technologies to support these pilots are essential to the successful implementation of an electronic portfolio system. Pilots allow for the incubation and real world testing of key functions, features and purposes of an electronic portfolio system and can serve to further refine the priorities for the evaluation criteria and features list. Furthermore, pilots engage members of our educational community and begin to create the culture and shared vision of portfolios in the School of Medicine.

Structure & Support for Pilots
The structure and oversight of pilot projects, including methods of incorporating and disseminating their findings, will be crucial to ensure both the pilots’ and portfolio’s success. The committee recommends the creation of a centralized
mechanism to determine which pilots will be supported. This mechanism could take the form of a common application process which would give priority to pilots based upon identified needs within the curriculum and congruent with portfolio development priorities. This consequently would force setting priorities on resources. A group would need to be formed or identified to steward this process.

The programs below are examples of programs that may lend themselves, either in structure or purpose, to piloting facets of a portfolio system. In reality, almost any medical student course, residency or fellowship program could serve as a pilot.

Advisory Colleges
Areas of Concentration
Clerkship Programs
Foundations of Patient Care Preceptorships
PRIME-US
Student-run Journal Clubs
Summer Curriculum Ambassador Program
Residency and Fellowship Programs

Potential Technologies to Support Pilots
The technologies outlined below are currently supported and potentially able to facilitate electronic portfolio pilots in the near term. The one exception is online file storage, which is not currently supported, but is deemed worthy of further investigation for its potential contributions in the near term.

KEEP Toolkit
Developed by The Carnegie Foundation for the Advancement of Teaching, the KEEP Toolkit is a set of web-based tools that helps individuals quickly create compact and engaging knowledge representations on the Web. The KEEP Toolkit allows for the creation of templates for the documenting of educational experience as well as prompting analysis and reflection. The Toolkit also allows individuals to select, organize and display rich multimedia materials on the Web.

Confluence Wiki
The Confluence wiki, hosted by the library, is a web-based collaboration tool that makes it easy for anyone to develop, edit and link content pages together. It also functions as a type of social software, allowing for easy online communication and collaboration.

iROCKET discussion groups
The discussion groups within iROCKET courses provide students and faculty the ability to engage in asynchronous discussion. Users can attach documents to messages and conduct both public and private discussions.
Online File Storage
We do not currently have the ability to upload, share, and organize digital files through the Web. Online file storage solutions often have the ability for users to tag content and selectively share files with other individuals.

Integrated Student Information System (ISIS)
The School of Medicine’s Integrated Student Information System (ISIS) has the current functionality for the Advisory College mentors to document events and meetings with the students, as well as review assessment data. These functions should be explored further for their utility in supporting portfolio pilots. Furthermore, it is recommended that future ISIS development should consider adding functionality to support portfolio pilots.

E*Value™
E*Value™ currently is beta-testing a portfolio tool as part of its suite of assessment tools. Furthermore, E*Value’s ability to create data capture forms and assessment instruments might lend itself to use in portfolio pilots.

Multimedia Tools in Center for Instructional Technology Lab
The Library’s Center for Instructional Technology (CIT) lab currently has a range of multimedia authoring tools, such as video cameras and content editing hardware and software. Potential pilot projects could make use of the CIT resources for the authoring of multimedia content for inclusion in a portfolio.

EncounterIt
EncounterIt, a component of the iROCKET suite of online learning services, enables learners to track their clinical learning in a centralized and standardized way via both the World Wide Web and a mobile device. EncounterIt also provides the ability for faculty to provide feedback on individual clinical encounters.

Guiding Coalition
The maintenance and fostering of a guiding coalition for electronic portfolios is essential for the potential of future success and positive outcomes. The committee has identified the following key groups and individuals in building this guiding coalition:

Director of Student Assessment
The Director of Student Assessment is tasked with overseeing and developing the longitudinal competency-based assessment of medical students. As the proposed standards outline a strong use of an electronic portfolio system for assessment purposes, as well as the core medical student competencies, it will be essential to coordinate with Director of Student Assessment.
Director of Program Assessment
The Director of Program Assessment is tasked with overseeing and developing evaluation systems for medical student programs, including curricular innovations as well as evaluation of instructors and learners.

Educational Standards Working Group
The Educational Standards Working Group will assist with the development of a learning plan that will engage students with advisory college mentors, and will recommend the use of this plan periodically through the first year. The Office of Medical Education will devise a faculty development offering for advisory college mentors to help with the implementation of this plan. These activities will be handed over to the advisory college as they are willing to assume the responsibility.

Advisory College Mentors
Advisory Colleges are designed to provide personalized academic advising, promote service and social activities and provide guidance regarding career options. They serve a key role in advising students on the development of their portfolios.

Career Advisors
Career planning and decision-making has been identified as a key use of the portfolio. It is also a very tangible and concrete use for students and may spur adoption of the portfolio amongst students. As the Career Advisors assist medical students in their career choice decision-making and in the residency application process, they will be a key group to engage going forward.

GME Curriculum Committee
The GME Curriculum Committee of the GMEC will work closely with residency and fellowship program directors to develop systems for integration of the portfolio into GME programs, and will work with UME leaders to ensure integration between UME and GME.

Resources & Staffing
Implementing an electronic portfolio solution will require continued allocation of resources to support pilot projects and oversee the selection and development of an electronic portfolio. This committee recommends the identification of an individual with protected time to oversee pilot projects and coordinate portfolio implementation activities and communication.
Conclusions & Next Steps

The educational and professional environment in medicine is quickly moving towards physicians’ active maintenance of competency. Electronic portfolios offer the ability for learners to collect, reflect and present evidence of their experience and demonstrate their achievement of competency. However, implementing an electronic portfolio system across medical education is a large endeavor, requiring careful planning and alignment of institutional resources. Carefully building and maintaining a guiding coalition and the implementation of near-term pilot projects will be critical to a successful implementation. Furthermore, robust, sustained and longitudinal mentoring and advising is crucial to achieving a successful outcome.

Next Steps

Create a standing portfolio committee to:

- develop orientation materials, guidelines and rubrics that can be used by the Director of Student Assessment to determine whether students have met benchmarks established for competencies and self-directed learning and reflection.
- foster, support, oversee and evaluate pilot projects.
- evaluate commercial ePortfolio systems and make recommendations regarding components of commercial and UCSF systems that can meet our needs.
- outline the specific portfolio activities expected of learners, faculty and assessors, with linkages to the curriculum and role in assessment.
- engage faculty in articulating the relationship between coursework and the portfolio to ensure that the portfolio is a benefit and not an “add-on”.
- create an implementation plan for electronic portfolios beginning with the Class of 2012 in the fall of 2008.

The Vice Dean for Education will identify a staff position with protected time to steward this process.

The Director of Student Assessment will recommend how the electronic portfolio will be used in the promotions process.

Portfolio advisors need to be identified. The Advisory College Mentors have expressed a willingness to serve as portfolio advisors. The Mentors need to plan how they will undertake the role of portfolio advisor.

Essential Core and Clinical Studies leadership must lay the groundwork for use of the portfolio in undergraduate medical education. For example, they must ensure that sufficient experiences exist for a student to demonstrate progress on competency and the relationship of the portfolio to existing assessment mechanisms.
The GME Curriculum Committee and GMEC need to elaborate potential applications of an electronic portfolio based upon ACGME and ABMS guidelines and coordinate with undergraduate medical education.

The Director of Program Evaluation must develop an evaluation plan to determine the success of the electronic portfolio.
Appendix

Electronic Portfolio Implementation Committee

About
The Electronic Portfolio Implementation Committee was created on September 29, 2006 by the Committee on Curriculum & Educational Policy to craft recommendations on the implementation of electronic portfolios in the School of Medicine. The committee is composed of the faculty, staff and students who represent the stakeholders in a new electronic portfolio system for medical student learning, assessment and presentation. The committee is comprised of an oversight body with two working groups: The Educational Standards Working Group and the Technical Standards Working Group. The committee was charged to complete their work by June 30, 2007.

Charge
The Oversight Body is responsible for coordinating and guiding the development of:

- A Request for Proposal (RFP) of features and functions required to support the ePortfolio.

The Educational Standards working group is to:

- Provide a literature summary of electronic portfolios
- Identify and define the educational stakeholders in an electronic portfolio system
- Develop a list of current and potential pilots
- Outline educational standards/definitions of experiential artifacts, evidence of reflection, criteria for selection of artifacts and criteria for judging merit of artifacts.
- Determine educational workflows and curriculum linkages
- Define outcomes of a successful educational standards implementation
- Make recommendations regarding necessary student and faculty development
The Technical Standards working group is to:

- Complete an external scan of medical schools and undergraduate institutions which have successfully implemented electronic portfolio systems.
- Identify the technical stakeholders in an electronic portfolio system.
- Identify any existing technical standards (IMS, etc.) which could be leveraged for describing and building a portfolio system.
- Describe a security framework for portfolio management that addresses ownership of artifacts and sharing of items and collections with others, while ensuring the division of learner-owned portfolio items and school owned materials.
- Review current SOM educational management systems including ISIS and Ilios and make recommendations on how to leverage these technologies for the portfolio implementation.
- Define outcomes of a successful technical implementation.

Membership

Oversight Body
Helen Loeser, MD, MSc; Chandler Mayfield; Patricia O'Sullivan, EdD; Maxine Papadakis, MD; Kevin H. Souza, MS

Educational Standards
Patricia O’Sullivan, EdD, (Chair); Sylvia DeCourcey (Coordinator); Cindy Irvine, MS; Karen Hauer, MD; Kathy Healy; Sharad Jain, MD; Lee Learman, MD; Kevin Mack, MD; Josephine Tan, MLIS; Arianne Teherani, PhD; Jason Park (MS1); Brian Niehaus (MS2); Kathy Hyland. PhD

Technical Standards
Chandler Mayfield (Chair); Kevin H. Souza, MS; Christina Cicoletti (Coordinator); Bonnie Hellevig; Tom Manley; Susan Masters, PhD; Daniel Orjuela (MS2); Gail Persily, MLIS; Heidi Schmidt; Lowell Tong, MD; Duncan Henry (MS4); Edwin Rodriguez (MS1)
Summary of Electronic Portfolio Literature

Background
Electronic portfolios pervade education at all levels. They exist for a variety of purposes and have become increasingly sophisticated to meet a broad set of objectives ranging from individual representation and feedback to collaborative learning. Electronic portfolios can allow for collection and evaluation of course requirements (artifacts), but also can allow for selection from such artifacts to demonstrate a specific set of goals.

The various electronic portfolios may look quite different depending not only on sophistication but also on purpose. Some are self-contained sets of exercises that will be created and used for evaluation (see UC Davis portfolio) and others are very much controlled by the learner (see U Minnesota). Commercial vendors (Blackboard™) have greatly enhanced what can be done within an electronic portfolio.

Backgrounds about portfolios vary and therefore the article by Challis (1999) serves as a comprehensive reference.

Purpose
The purpose of the review was to ascertain significant outcomes of various electronic portfolio implementation experiences reported in the literature.

Summary
This summary reflects reports about electronic portfolios and their implementation.

Culture
Following the diffusion of innovation literature there is clear need to develop the portfolio within a culture that values the process and what can be achieved. (Wetzel & Strudler, 2005; Strudler & Wetzel, 2005). The faculty must understand and be supported in their role in the portfolio process (Skiba, 2005).

Implementation
Strudler and Wetzler (2005) conducted a study of the diffusion of electronic portfolios in teacher education. Their study of six schools answering two broad questions may give some guidance. The first was, “What was the situational and historical context in which electronic portfolios were adopted and implemented?” Findings most applicable to a new implementation without a paper transition or an accreditation standards impetus related to leadership and governance.
Respected individuals were key to setting the vision and then they had to sell that vision to others. Faculty need to be involved.

The second question was, “What do the various facets of the e-portfolio process look like as implemented?” There was variation in the tools selected. The Iowa system sounded very interesting because it had: (a) Digital Backpack containing standards, performance assessments and artifacts, and links to course syllabi, (b) collection of best works for employment, and (c) the Cyber ToolBox which stores materials for use after graduation." All approaches allowed students to upload/attach artifacts and align them to specific standards. Students had to use technology such as scanning, editing and sizing digital graphics and converting documents to PDFs.

To select artifacts, four of the studied schools ask students to select their best work demonstrating progress toward the standard. They provide adequate instruction for this selection. It is perceived that student self-selection leads to a deeper learning experience. The artifacts may be evaluated as part of a course or at checkpoints. Using checkpoints requires faculty time to conduct the reviews. Those with checkpoints used rubrics aligned with standards and objectives for evaluations. Students had to reflect on their work. The role of reflection ranged from receiving cursory review to being very substantive. Students had step-by-step guides, online tutorials with short videos illustrating each step, as well as phone support. It was helpful when faculty took time to discuss the portfolios during their course.

Wetzel and Strudler (2005) in a companion article addressed two further questions. Their first question, related to next steps, helped us anticipate components that need to be addressed from the beginning. One was efficient use of time both for faculty evaluating and the students. Second, concerns about technology include server reliability and software accessibility. Third, schools need to develop a plan for program evaluation.

**Elements**

In Chang (2001), a number of elements are included in the electronic portfolio, such as an online guide, discussion, bulletin and suggestion boards. This system had a way for students to maintain data. There are also searching, browsing and posting functions. The portfolio included basic information about the student, learning goals, course work, student self-reflection, records of teachers’ feedback, assessment records of peer feedback and a student’s personal web page. It was interesting that a little over half of the students browsed any of the feedback. Experts expressed a need to make completing the portfolio more interesting, including more variation in content and a livelier and vivid interface.
Use of electronic portfolios in continuing medical education
Dornan, Carroll and Parboosingh (2002) reported on the use of an electronic portfolio, PC Diary, designed to support reflective continuing professional development. Nearly a third of those surveyed setup the site, but did not use it; 32% used it infrequently and 10% used it at least twice a month. Some who had never used it were committed to doing so. Some thought it matched their learning style or helped to manage their learning, and some really did not like it. Time was the dominant issue. There were a number of technical difficulties related to inexperience, lack of support and connecting to the system. Matching the reporting format to physician requirements seems important.

Use of portfolio in basic science laboratory
Thomé and colleagues (2006) described how they were using a portfolio in laboratory sciences. Their content included reflections at three time periods. The initial student and advisor meeting included a reflection about personal strengths and weaknesses with learning in the program; the second a reflection on achievements so far, verification in seven lab areas, laboratory notebook and documentation from PBL tutor; and third a reflection on professional role, laboratory manuscript, certificate on seminar/poster presentation and documentation from PBL tutor.

Stakeholder Benefits
Based on Batson’s (2002) summary students are most interested in the ways an e-portfolio can help their resumes. Students want to see how they are making progress. Faculty members are interested in how the use of portfolios can improve review, reflection and comment on student work. Administrators may like the tracking of student work. The ability to aggregate student work to show how students as a whole are making progress and thus be able to evaluate the program may help in accreditation. The eportfolio is a way to organize curricula around professional standards.

Standards
One article explicitly referred to standards (Treuer and Jenson, 2003) and was concerned about standards for entering, storing and sharing information. Entering data relates to both the students and faculty. The storage standards are pertinent to establishing technical standards. Sharing information is important as the owner identifies what folders can be shared with whom and how. Gathercoal and colleagues (2002) envision a webfolio composed of modules that include a statement of the standard, a student assignment, detailed help, an assessment and metadata (such as how this module fits in context of the overall course). This perspective is a faculty-based rather than student owned portfolio.
Conclusions
We could have considered more articles describing electronic portfolios but the themes seem to be consistently mentioned in the literature. Reviewing this literature has prompted the committee to think about this implementation as one would the introduction to any innovation. Loeser and colleagues (2007) have identified these steps. This summary points to the need to consider and make plans for stakeholders. Wetzel and Strudler (2005) identified recommendations that implementers of electronic portfolios should follow: 1) involve a broad spectrum of stakeholders; 2) have a clear purpose for the electronic portfolio for all stakeholders that is well-communicated to those stakeholders; 3) provide sufficient access, training and support; 4) plan with incremental steps and pilot programs and 5) recognize the time required for change; 6) streamline the process to make it “do-able” and sustainable.

Finally, the specifics of educational standards have not been elaborated in the discussion specifically of electronic portfolios but can be generated from this literature and that of the portfolio literature in general.

References:


Portfolio Application Selection and Evaluation Criteria

Key to Priorities
1 = High  
2 = Medium  
3 = Low

1. Look & feel

**Customize Styles**  
Ability to alter, or personalize, the visual appearance, including fonts, colors, themes. Priority: 3

**WYSIWYG editors**  
Content editors which allow for easy content creation and manipulation, such as rich-text editors, in-line text editing, drag and drop functionality. Priority: 1

**Edit/Customize Content tools**  
Enables modification of content including images and other media. Priority: 2

**Internal/external linking**  
Ability to link to resources both within the application and external to the application. Priority: 1

**Intuitive user interface**  
The user interface requires minimal training and main functions are accomplishable in reasonable amount of time. Priority: 2

The user interface is attractive, engaging, and user-centric and has a contemporary look and feel. Priority: 1

2. Features

**Asynchronous Discussion**  
Support asynchronous discussion between portfolio users (learners, mentors) via forums, commenting, annotations or similar method. Priority: 1

**Synchronous Discussion**  
Ability to hold real-time synchronous chats between users within the portfolio system about portfolio objects or items. Priority: 3
Calendar
Calendar for tracking and scheduling events related to the portfolio, such as meetings with mentor, deadlines, milestones. Contains both public and private entries. Priority: 1

Integrates with notification system to provide event reminders.
See also: external/internal notification system. Priority: 2

Calendar information can be integrated with other calendar solutions (Ilios, Gmail, Outlook). Priority: 3

Reflection
Templates for Reflection support conscious and careful consideration about one’s actions and about the thinking that accompanies actions. One intended pedagogical impact of the process of reflection is to enable the learner to generalize lessons learned beyond the context in which they were learned and be better able to cope with new situations. (EduTools). Priority: 1

Group/Collaboration
Ability for users to create and manage group permissions for collaboration templates or spaces for group work, such as research or community projects. Priority: 1

Career development
Templates to support career planning and decision making. Priority: 1

Templates for the learner to develop resumes, curriculum vitae. Priority: 1

Concept mapping
See also: content linking
Templates/tools to create visual diagrams showing relationships between concepts. Priority: 2

Blogging
Templates for Blogging generally provide a text box structure for easy entry of content to publish quickly and may optionally provide ways to also include attached files. The attached files may be video files, audio files, or just images depending on the system. (EduTools). Priority: 1

Assessment/Evaluation/Rubrics
Templates for the creation and dissemination of criteria for the assessment or evaluation. Priority: 1
**Presentation (Organization tools)**
Templates for Presentation provide web forms or similar mechanisms to enable portfolio resources to be organized and communicated to an audience of one or more. Presentation templates usually provide structure for visual design and visual style. (EduTools). Priority: 1

**Goal setting**
Templates for drafting, revising and communicating goals, milestones and learning plans. Priority: 1

**Competencies/performance measures**
Standards templates provide for the input of text of standards, the description of performance keyed to existing standards, and assessment of the gap between performance achieved and relevant standards. (EduTools). Priority: 1

**RSS Reader**
*See also: Syndicate content via RSS*
Able to interpret and capture information from RSS standards compliant feeds. Priority: 2

3. Template Actions

**Create new templates**
The create templates feature is the provision for creating templates to extend the functionality of the templating system. (EduTools). Priority: 1

**Modify existing templates**
This feature allows users to change or add components to a pre-existing template. For example, a student could add a new section to the standard template created by an instructor or advisor. (EduTools). Priority: 1

**Send templates amongst users**
The ability for users to disseminate templates within the system. Templates can be assigned to individuals with due dates and other restrictions. Priority: 1

**Link templates**
Templates can be linked together both sequentially and non-sequentially to create relationships amongst templates. Priority: 1
4. Publish/Share

**Access Control**

Ability to restrict and control access to tools, template and other content at the user level, enabling users to share content. Priority: 1

Ability for users to create and manage group permissions for collaboration. Priority: 1

Ability to grant access to public users through a user-generated key, password or encrypted URL. Priority: 1

**Output for assistive viewing/ portable devices**

The view feature includes alternate formatting of the portfolio to enable viewing with assistive devices and other platforms such as handheld devices. (EduTools). Priority: 2

**Archive/Download content**

Publishing to an archive and downloading function as ways to save content resources in a safe place for later reuse if necessary. (EduTools). Priority: 1

**Publish to a public web view**

Publishing to the web allows content resources from a portfolio to be made available to a general audience. (EduTools). Priority: 1

**Multiple portfolios**

This feature involves the ability for a user to create multiple portfolios simultaneously within the portfolio system, either packaging components from the same collection of artifacts for different audiences or creating multiple versions of a portfolio. (EduTools). Priority: 1

**Syndicate content via RSS**

Ability to syndicate or create feeds of content from the portfolio to subscribed users. Feeds could be public or private (require authentication). Priority: 2

**External/internal notification system**

Ability to contact users, for both messaging and reminders, both internal and external to the system. Priority: 1

**Searching and browsing**

Searching and browsing features, such as text search, tag clouds, site maps, support ways of finding information and making it available. (EduTools). Priority: 1

**Digital Rights Management**
Ability to support technologies which allow copyright owners to control access to or usage of digital assets. Priority: 1

Ability for users to assign creative commons licenses to work created or housed within the portfolio. Priority: 2

**Private/secure space**
Personal space accessible to the user only for work in progress. Access to this space requires express permission of the user. Priority: 1

5. Organize artifacts

**Repository**
A space for users to store and collect evidence. Priority: 1

**Categorization/tagging**
The ability to assign metadata to evidence. This can take the form of user generated tags or the linking of objects to competencies or frameworks. Priority: 1

**Sequencing**
Sequencing functionality enables organizing content resources into some form of ordered list such as an alphabetic list or a chronological list. Some sequencing arrangements enable dynamic sequencing based on actions of the user. (EduTools). Priority: 1

**Content linking**
Mapping functionality enables the making of links between content resources that may be as simple as one-to-one alternatives to a more complex network of interconnecting links analogous to a map of roads linking destination resources. (EduTools). Priority: 1

**Selecting/Ranking**
Functionality which supports the user decision processes to pick out and thereby value some content resources over others. Note that this is in contrast to semiautomatic procedures such as filtering. (EduTools). Priority: 1

**Bookmarking**
Bookmarking feature includes a variety of approaches from user bookmark list to elaborate navigation supports. (EduTools). Priority: 2

**Reuse/remix internal/external content**
Reuse/Remix feature supports reusing and combining content from sources both inside and outside of the portfolio system or systems. Priority: 2
6. Analysis Tools

**Usage Tracking**
Ability to track page hits and other usage indicators and deliver information back to users. Priority: 1

**Reporting**
Ability to provide data on the status of portfolios, completion of requirements, number of artifacts, tags used, etc. Priority: 1

**Automatic statistics of quantitative/assessment data**
Gradebook-style management of assessment data with system-wide reports on academic progress. Priority: 1

**Automatic summary of qualitative data**
Automatically and directly transform a source text into an abstract. Priority: 3

**Comparison Tools**
Ability for user to make comparisons of data relative to other groups or individuals. Priority: 1

Functionality which enables a user to notice differences and similarities between content resources. Sometimes this functionality takes the form of side by side visual comparisons in the same view. (EduTools). Priority: 1

**Competence/performance Tracking**
Ability to track overall achievement of competence for each stage of the degree program and the entire degree program. Priority: 1

7. Sustainability

**Company or Community profile**
Vendor is capable of demonstrating long term financial viability and commitment to product line. For open-source solutions, a robust support and solutions community must exist. Priority: 1

**Hosting options**
Hosting options demonstrate robust and scalable infrastructure which meets or exceeds technical requirements. Priority: 2

**Systems integration**
System must be capable of integrating and sharing data with key SOM systems. Priority: 1
Migration tools/Global export
Standards-based migration and export functionality to allow for the porting of key
data to alternate portfolio systems. For example the ability for a graduate to
transport their portfolio to another institution’s standards-compliant system
See also: Archive/Download content. Priority: 1

Pricing and licensing
Pricing and licensing is clearly articulated and can be reasonably guaranteed
over an agreed upon time frame. Additionally source code escrow arrangement
is established in the event the vendor goes out of business. Priority: 2

Staffing requirements
Detailed description of skills and time required to support the technical and user
requirements of the application. User/Admin training.
Optional training of portfolio application administrators and end users. Priority: 2

Technical support
24/7 server support and M-F 8-5 pm PT user support. Priority: 1

8. Technical

Standards Based
Compliant with IMS ePortfolio Schema. Priority: 1

Standards-based or compliant architecture for tools/templates. Priority: 1

AuthN/AuthZ protocols
Capable of leveraging future UCSF auth-n/auth-z infrastructure. Priority: 2
Capable of utilizing LDAP for authentication. Priority: 1

Has a robust internal authorization system capable of managing both internal and
public users’ access control. See also: Access Control. Priority: 1

Storage
Robust storage capability, with reasonable limits, ability to store large media files.
Priority: 1

Robust backup and restore strategy. Priority: 1

Server/ OS
Use industry standard server hardware/software. Priority: 1
Database
Use industry standard database technologies. Priority: 1

Database architecture is robust and scalable. Priority: 1

Accessibility
Cross browser and operating system compatible, with no difference in functionality or experience. Priority: 1

Mobile and Assistive Device/Technology accessible See also: Output for assistive viewing/ portable devices. Priority: 2

Uptime/Performance
System provides guaranteed uptime of at least 97% while meeting mutually-agreed upon performance metrics. Priority: 1

Supported File Types
Support for common media types, including flash, QuickTime, Windows Media, Real Player, as well as common document formats, .doc, .xls, pdf. Priority: 1

Security Framework
Capable of supporting robust roles, permissions and security to ensure compliance with applicable regulations & policies, notably FERPA and HIPAA. Priority: 1
Portfolio Examples along the Medical Education Continuum

Mock Portfolio

We have developed a rudimentary mock portfolio with a single entry for a learning plan with advisor feedback and a collection of evidence for one competency and the advisor feedback.

Portfolio Contents:

I. CV
II. Learning Plan (example follows)
III. Patient Care and Communication with Patients (example follows)
IV. Medical Knowledge
V. Professionalism and Communication with the Health Care Team
VI. Practice-Based Learning and Improvement
VII. Systems-Based Practice
VIII. Presentation Portfolio (Summative Evaluation)

I. CV:

The student is expected to develop and maintain a curriculum vita that can be used for applications for honors and summer opportunities. The portfolio advisor can recommend areas in the CV needing to be strengthened depending on career aspirations.

Resources: There are CV templates and examples available.

Process: You should save versions of your CV from various points in your academic career so that you can examine how the CV is developing.

II. Learning Plans:

In this section should be a continual progression of Learning Plans including an exchange with the portfolio advisor.

A learning plan should have the following elements:

What are my learning goals?
What strategies could I use to meet the goal?
What are the steps to implementing each strategy?
What data do I have to show that I have improved?

Here is an example developed by a first year student:
Goal:
Maintain your social life

Strategies:
Stay in touch with friends from outside medical school.
Meet up with friends for social activities.
Make time for social activities.

Action Steps:
1a) Use Facebook™ to send messages to friends.
1b) Send emails to friends once in a while.
1c) Keep up with people's blogs and online photo albums.

2a) Keep friends' numbers in your cell phone and call them whenever you're planning a trip out.
2b) Plan fun activities for lots of people like barbecues, trips to the beach, sports, etc.

3a) Use an online or paper planner to schedule out blocks of time for social activities (like Friday nights / Saturday afternoons).
3b) Finish academic work efficiently.

How to know if I've made progress:
Feel more involvement in friends' lives and more involvement of friends in your life. Feel less stressed out. Feel like you are enjoying yourself even while maintaining the busy academic schedule of a medical student.

Advisor (or Peer) Feedback
In reviewing this learning plan I would suggest being a bit more specific about when and how often you will undertake your action steps. Also on making progress, could you enumerate how often you did get together with your friends over a time period, the kinds of activities done so that you would have evidence that you were making progress?

Your Advisory College Mentor

III. Patient Care and Communication with the Patient

Year 1 COSA Benchmarks:
- Begin to develop rapport with patients (eye contact, open-ended questions, limited interruptions)
- Begin to elicit patients' perspective of illness
- Begin to develop an awareness of the cultural forces that arise and affect the dr-pt relationship
- Begin to develop an awareness of the physician role and boundaries in the doctor-patient relationship
• Begin to gather information for a basic history
• Begin to organize information into categories (HPI, PMH, FH, etc)
• Recognize basic communication challenges, including language barriers and use of interpreters
• Begin to communicate with patients about the history and physical exam (explain what you are doing and why)

Year 1 UCSF Assessments:
• Mini OSCE performance
• FPC performance
• Preceptor evaluations
• Patient Care logs (EncounterIt)

Competency-related student work:
• Clinical interlude write-up on observations about medical team, etc.
• Foundation Groups
• problem lists
• DDx
• patient interviews
• learning issues?
• Preceptorship
• H&P write-up for presentation
• Physical Exam practice sessions
• Psych apprenticeship write-up
• Neuro apprenticeship write-up? (not one currently)

EXAMPLE (contains reflection and 3 pieces of evidence)

To demonstrate progress in this competency, I am including evidence from my patient interviews during my Foundation group. I have attached the write-up that I did for the second patient interview that I completed this year. {imagine attachment here} When reviewing it, I think it shows that I have begun to organize the information into the basic categories. When we returned from the interview, my peers gave me the following feedback which my facilitator jotted down and sent to me later {imagine attachment here}. Also, with the patient’s permission I had recorded my interview. {imagine mp3 file here}. My colleagues said that I used too many closed questions and spoke too fast, but they liked the way I responded non-verbally to the patients. I listed to my mp3 file and counted 16 closed questions and 3 open questions. Based on this information, I have been practicing with a set of cue cards that contain open questions that will capture the same information that I would get with the closed question {see question cards}. I anticipate in my next patient interview that I will be giving more open-ended questions.

Advisor Feedback
Dear X,
Thanks for this analysis of your status in patient care and communication with the patient. I liked the fact that you have taken information from various sources and crafted a plan. I am looking forward to seeing the data that indicates your progress with open-ended questions. I looked over the evaluations that your peers made and I am in agreement that they did give you that advice and I am impressed that you took the time to review what you had done (the mp3 was clever).

Shifting slightly as I listened a bit to the mp3 file I note that you are beginning to organize your interview, but this is something that you may want to work on since it does become part of our way of getting information. This might be an ideal time to set a learning goal with your FPC faculty member. Here is an outline of a learning goal. Could you send me a completed one when you have talked to your FPC faculty member?
Goal: Improve my organization during the interview
Strategy (what could you could do?)
Actions (what would the next steps be?)
Evidence (How will you be able to demonstrate that you have made progress)

Are there other places in the curriculum or in your extra curricular activity where you are getting to practice? Maybe these could be places to focus your learning plan.

Thanks so much. You have done a lot of work and clearly are on the path to having excellent patient communication skills at this early phase of your career.

Your Advisory College Mentor
UCSF Medical Student Portfolio

Learning Plan

Hermione Granger (MS1)

Goal: Maintain my social life

Strategies:
1. Stay in touch with friends from outside medical school.
2. Meet up with friends for social activities
3. Make time for social activities

Action Steps:
• 1.1) Keep up with friends through Facebook.
• 2.2) Follow Blogs and online photo albums of friends and family.
• 2.1) Keep friends' numbers in your cell phone and call them whenever you're planning a trip out.
• 3.1) Plan fun activities for lots of people like barbecues, trips to the beach, sports, etc.
• 3.1) Use an online or paper planner to schedule blocks of time for social activities (like Friday nights / Saturday afternoons).
• 3.2) Finish academic work efficiently.

How to know if I've made progress:
Feel more involved with friends' lives. Feel less stressed out. Feel like I am enjoying myself even while maintaining the busy academic schedule of a medical student.

Adviser Feedback

In reviewing this learning plan, I would suggest being a bit more specific about when and how often you will undertake your action steps. Also, on making progress, could you enumerate how often you did get together with your friends over a time period; the kinds of activities done so that you would have evidence that you were making progress.
Patient Care and Communication with the Patient

Hermione Granger (MS1)

**Exercise 3:**
To demonstrate progress in this competency, I am including evidence from my patient interviews during my Foundation group. I have attached the write-up that I did for the second patient interview that I completed this year.

When reviewing it, I think it shows that I have begun to organize the information into the basic categories. When we returned from the interview, my peers gave me the following feedback which my facilitator jotted down and sent to me later.

Also, with the standardized patient’s permission I had recorded my interview. My colleagues said that I used too many closed-ended questions and spoke too fast, but they liked the way I responded non-verbally to the patients. I listened to my mp3 file and counted 16 closed questions and 3 open questions.

Based on this information, I have been practicing with a set of cue cards that contain open questions that will capture the same information that I would get with the closed question. I anticipate in my next patient interview that I will be giving more open-ended questions.

**Evidence:**
- Patient Interview Writeup - March 2009
- Peer Feedback - March 2009
- Patient Interview Recording - March 2009
- Question Cards

**Advisor Feedback:**
Dear Hermione:

Thanks for this analysis of your status in patient care and communication with the patient. I liked the fact that you have taken information from various sources and crafted a plan. I am looking forward to seeing the data that indicates your progress with open-ended questions. I looked over the evaluations that your peers made and I am in agreement that they did give you that advice and I am impressed that you took the time to review what you had done (the mp3 was clever).

Shifting slightly as I listened a bit to the mp3 file I note that you are beginning to organize your interview, but this is something that you may want to work on since it does become part of our way of getting information. This might be an ideal time to set a learning goal with your FPC faculty member. Here is an outline of a learning goal. Could you send me a completed one when you have talked to your FPC faculty member.

**Goal:** Improve my organization during the interview

**Strategy:** (what could you do?)

**Actions:** (what would be the next steps?)

**Year 1 Benchmarks for Patient Care and Communication with the Patient**
- Begin to develop rapport with patients (eye contact, open-ended questions, limited interruptions)
- Begin to elicit patients' perspective of illness
- Begin to develop an awareness of the cultural forces that arise and affect the doctor-patient relationship
- Begin to develop an awareness of the physician role and boundaries in the doctor-patient relationship
- Begin to gather information for a basic history
- Begin to organize information into categories (HPI, PMH, FH, etc)
- Recognize basic communication challenges, including language barriers and use of interpreters
- Begin to communicate with patients about the history and physical exam (explain what they are doing and why)

Benchmarks relative to this exercise are indicated in **BOLD** Green type.

Evidence: (How will you be able to demonstrate that you have made progress)

Are there other places in the curriculum or in your extra curricular activity where you are getting to practice? Maybe these could be places to focus your learning plan.

Thanks so much. You have done a lot of work and clearly are on the path to having excellent patient communication skills at this early phase of your career.

- Nirvana McGonigal

Patient Interview with comments
ACGME Residency Portfolio

Below is a brief description of what is envisioned and some views from the Alpha test version of the ACGME portfolio.

- One place for record of resident experience: evaluations, case logs, other work. Portions of record can move forward with resident after completion of training.
- With a better record of what residents have done and how they have demonstrated competency, PDs can more easily assess their program outcomes and DIOs their institutional outcomes. RRCs can benefit from aggregated data; aspects of portfolio could replace some of PIF narrative
1) Did anything surprise you about this month’s statistics review or case discussion?

2) How will you move forward on addressing the systems issues raised by today’s conference?

Please, use this rating system below to rate quality of your work.
Your experience is not visible for others unless you decided otherwise.

- Not applicable
- I still feel like a novice at this!
- I see demonstrable evidence that I'm mostly meeting this!
- I believe this work fulfills my goals
- I feel extremely competent at this!

Would you like to share your learning experience with others?
- No
- Yes

(Max file size: 100 MB)
Fellowship Individual Development Plan Example

INSTRUCTIONS
INDIVIDUAL DEVELOPMENT PLAN
Academic Fellows, UCSF Department of Pediatrics

SECTION 1 – NAME

SECTION 2 – DATES OF REVIEW/PROJECTED GOAL PERIOD (involves time since last IDP review during current academic year): Year 1 07/YY-04/YY; Year 2: 04/YY-11/YY; Year 3: 11/YY-10/YY; Other: MM/YY-MM/YY

- Date IDP submitted:

SECTION 3 – BEST WAY TO CONTACT YOU (telephone, cell, beeper, email, Div. admin., etc. You must have a UCSF Email address)

Section 4 – Departmental Division Appointment (E.G., CLINICAL FELLOW IN GI, PEDIATRICS)

- Year of Fellowship Other programs/affiliations: IE, PDSP, MMP, CVRI,

SECTION 5 – FELLOWSHIP SUPPORT

- Funding source for Years 1-3-list training grant type/name (e.g., Dept. T-32), research foundation, div./dept. funds, etc.
- If you have no known source of funding for next fellow year(s), state your plans for support for Years 2, 3 or 4.

SECTION 6 – YOUR POST-GRADUATE DEGREES (MD, MPH, PHD, ETC.)

- Fast-tracking: if yes, must have an approval letter from ABP at start of fellowship; send copy to SOC office or attach to IDP form.

SECTION 7 – LONG-RANGE GOALS

A. List long-range goals
Having difficulty thinking about these goals? Consider:
- Why did you decide to do your current fellowship?
- What did you hope to accomplish?
- You are about to apply for an academic position, what are the accomplishments and/or activities you want your fellowship director/mentor to be able to write about in a letter of recommendation?

♫ To accomplish your long-term fellowship goals, what should be the major areas of energy/focus during fellowship?
B. List your planned career track

Definition of career tracks

- **Physician Research Scientist** - Academic MD w/wo advanced master’s or PHD whose main focus is research > clinical or teaching
- **Physician Educator Scientist** - Academic MD w/wo advanced master’s or PHD whose main focus is teaching > clinical or research
- **Consulting Master Clinical Subspecialist** - Non academic MD consultant usually based in community based practice
- **Research Scientist (PhD. other non-clinician)** - Academic scientist with PHD/other advanced degree-(non-MD)
- **Other (explain)** -
- **Undecided** (If currently considering two fields, check them)

Section 8 – Specific Short-Range Goals

State your professional goals for this academic year (use definitions below).

8a. Specific Short Range goals for current academic fellowship Year (all Years 1-3)
8b. For Year 1 ONLY: Specific Short Range goals for the next 12 months of Fellowship:

Definitions

Distribution of Areas of Effort

There are six central areas of effort to which fellows mainly direct their activities:

- **Research and Other Scholarly Activity** – conducting basic science and/or clinical research, presentations and publications, funding and grant support and application, and peer review of articles, review articles
- **Patient Care (Clinical Activities)** – direct patient care, related clinical activities, learning new skills, specific new clinical experiences
- **Professional Self-Development** – training activities (coursework taken, training, earning advanced degrees, participation in professional academic associations or societies, “sub-board” pretests taken)
- **Education (Teaching Activities)** – graduate/medical student and/or resident teaching, CME/Curriculum teaching/development, evaluation of students/residents, development of Teaching tools, etc.
- **Administration**** - participation in governance of the unit, department, program, school, committees, other
- **Other Professional Accomplishments (not covered above)** – e.g. community/volunteer work

Section 9 – Year in Review

Review your accomplishments for this academic year.

A. Research Activities: Please list last year’s significant accomplishments (abstracts, publications, grants, research projects on target, etc.)

Patient Care (Clinical Activities): Please list last year’s goals and significant accomplishments (patient care, development of new skills, specific new clinical experiences, etc.).

Professional Self-Development: Please list abstracts, papers, grants, CME training, coursework taken, earning advanced degrees, preparing for certification/recertification, participation in professional academic associations or societies from last year. If goals not met, explain and identify barriers. Please attach any abstracts/papers published in the last year. (Give your overall assessment for being “on track” for each of the 3 categories.)

Education (Teaching Activities): Please list last year’s significant accomplishments (teaching, development of teaching tools, teaching CME course, etc.).

Other Professional Accomplishments: (those not covered above)

B. Formal Coursework: List all formal courses, seminars, etc. that you participated in last year, including course numbers.

C. Distribution of Effort: Please refer to definitions above

Section 10 – This is very important. Be honest. What were/are the barriers to your success?
If you have identified needed resources and barriers:

- What specific action-oriented steps can you take to put you back “on track” to achieve your long-term goals?
- Who can help you if you’re stuck?
- What resources are available to guide you?

**SECTION 11** – What helped you the most in your successes/progression in your professional development this past year (support, mentors, colleagues, faculty, Fellows College, other)?

**SECTION 12** – What would you suggest that entering fellows know as they begin Fellowship?

**SECTION 13** – Other comments or suggestions

**SECTION 14 - ABP SCHOLARLY ACTIVITY/WORK PRODUCT ABSTRACT: CLINICAL/LAB RESEARCH PROJECT**

- Definition of anticipated focus area of ABP scholarly activity; work product; abstract of fellowship scholarly activity project
- **ABSTRACT**: Limit to 300 words

**SECTION 15 – ABP SCHOLARLY ACTIVITY/WORK PRODUCT ABSTRACT: EDUCATION**

- Scholarly activity/work product mentor(s): Named Office of Medical Educators (OME) faculty or educator from the Department will be one of the mentors
- ABSTRACT: Limit to 300 words
- Please refer to the UCSF AME Education Day abstract guidelines [http://medschool.ucsf.edu/academy/events/ed_day_guidelines.aspx](http://medschool.ucsf.edu/academy/events/ed_day_guidelines.aspx)

**A: Educational research project**: Summary of research designed to test hypotheses in medical education

- **Purpose**: Provide a clear statement of the study’s goals including what hypothesis was being tested
- **Background**: Describe the project’s importance and how it extends what is known from prior scholarly work in this area
- **Methods**: Describe the study’s subjects, procedures and methods used for data analysis, linking them to the study’s purpose.
- **Results**: Summarize the study’s key results, including the results of analyses done to test the primary research hypothesis.
- **Discussion**: State concisely the data-driven conclusion of your project and how the results of the project are being (or will be) made available to colleagues (talks, posters, publications, websites, etc.)?
- **Reflective critique**: Describe the steps taken to solicit feedback regarding your research project and how it has been (or will be) modified based on the feedback

**B: Curriculum development project with an assessment component**: Summary of curricular innovations and their outcomes

- **Purpose**: Provide a clear statement of project’s goals and objectives
- **Background**: Describe how the curriculum innovation was informed by knowledge of previous scholarly work or knowledge of educational principles
- **Methods**: Describe the approaches used to teach in this setting and how these approaches have been adjusted to the particular features of the material, setting, and learners.
- **Evaluation plan**: Describe the outcomes that will tell you whether your curriculum is effective
- **Results/progress report**: Summarize the study’s key results, including the results of analyses done to test the methods
- **Dissemination**: Describe your plans for making the results of your curriculum project available to colleagues (talks, posters, publications, websites, etc.)
- **Reflective critique**: Describe the steps taken to solicit feedback regarding your curriculum development and how it will be modified based on the feedback
INSTRUCTIONS

INDIVIDUAL DEVELOPMENT PLAN
UCSF Department of Pediatrics

Fellows are responsible for completing their IDP and providing the requisite information by the deadline. In the event the IDP is not submitted or is turned in substantially incomplete may cause the SOC to declare the fellow ‘delinquent’ and/or a delay in their review by the SOC. 

Please attach this checklist completed to your IDP upon submission to the SOC.

<table>
<thead>
<tr>
<th>SUBMISSION CHECKLIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Please send an electronic copy of your IDP packet (PDF or Word RTF format preferable) to the SOC Administrator</td>
</tr>
<tr>
<td>Fax the completed signature sheet to the attention of the SOC Administrator</td>
</tr>
<tr>
<td>Nannette Nemenzo</td>
</tr>
<tr>
<td>Email: <a href="mailto:nannette.nemenzo@ucsf.edu">nannette.nemenzo@ucsf.edu</a></td>
</tr>
<tr>
<td>Fax: 476-6106</td>
</tr>
<tr>
<td>Box: 0503</td>
</tr>
<tr>
<td>2. Submit 1 original of the complete IDP Packet: <strong>Packet must be complete including IDP, abstract and signatures</strong></td>
</tr>
<tr>
<td>□ IDP hard copy completed form (typed, not handwritten)</td>
</tr>
<tr>
<td>□ ABP Scholarly Activity/Work Product Abstract</td>
</tr>
<tr>
<td>□ Signature sheet</td>
</tr>
<tr>
<td>□ Signature of Fellow</td>
</tr>
<tr>
<td>□ Signature of Training Director</td>
</tr>
<tr>
<td>□ Signature of Research Mentor</td>
</tr>
<tr>
<td>A copy of important products of scholarly activity representing your anticipated focus area of ABP approved scholarly activity as stated in your attached work product abstract (e.g., if your work product focus is biomedical research, attach research abstracts, original or review papers on topic; if you are planning on developing an education product: attach curricula you developed, teaching handouts, etc.) LIMIT 25 PAGES</td>
</tr>
<tr>
<td>3. □ Current curriculum vitae in UCSF format</td>
</tr>
</tbody>
</table>

*Use document as you meet with your mentors throughout the year. You will be required to submit your IDP, CV, and products of scholarly activity each year of your fellowship to the departmental Scholarship Oversight Committee per ABP. Dates will be announced each academic calendar year for Years 1 - 3.*
Maintenance of Certification

Maintenance of Certification is now required for all practitioners. The Program of Maintenance of Certification in Pediatric (PMCP) will serve as an example.

PMCP consists of four primary parts:

Part One: Evidence of professional standing
Part Two: Evidence of lifelong learning and self-assessment
Part Three: Evidence of cognitive expertise
Part Four: Evidence of satisfactory performance in practice

The requirements for Part Four have elements analogous to the portfolio process.

PART FOUR: Evidence of Satisfactory Performance in Practice

Part Four consists of two components designed to address quality improvement in the general pediatrician’s practice.

Component A: Patient surveys solicit information about a participant's interpersonal and communication skills and professionalism.

Once during the seven-year life span of a certificate, diplomates will circulate patient surveys provided by the ABP. Patients will submit anonymous responses directly to the ABP. Feedback will provide comparisons of ratings on key competencies relative to other pediatricians who are participating in the PMCP-G process.

The intent of the patient survey process is to provide meaningful feedback to diplomates regarding their interpersonal and communication skills and professionalism. Therefore, there will be no minimum score for this activity. Feedback is intended to give diplomates opportunity to reflect on their patients’ perceptions of these skills.

NOTE: This activity will be available by 2008 or 2009.

Component B: The Practice Performance component of PMCP-G is designed to help physicians learn about quality improvement strategies, collect and analyze practice data over time, and document improved quality of care. This component is satisfied by successful participation in any ABP-approved programs. Currently, the Education in Quality Improvement for Pediatric Practice (eQIPP) program administered by the American Academy of Pediatrics through its PediaLink™
program is the only approved program for this requirement. eQIPP involves the use of anonymous patient chart information from one’s own practice and may include the use of simulated chart information supplied by the eQIPP program.

**eQIPP is designed to help you:**

1. Understand the benefits of collecting data from your own practice.

2. Collect data on a specific disease entity from your patients’ charts.

3. After collecting data, interpret and analyze it so you can use it.

4. Based on your analysis, identify opportunities for improvement within your practice.

Participants must engage in eQIPP through one complete quality improvement cycle once every seven years for PMCP-G, but they may wish to take advantage of this program more frequently in order to measure improvement in practice on a continuous basis. Participants may access eQIPP and all other PMCP-G activities directly through their personal Diplomate Progress Report. The AAP does not share individual results of eQIPP with the ABP; the ABP only receives notification from the AAP when a participant has completed the minimum required activity for PMCP-G. Other ABP-approved practice performance programs may become available in the future; if so, the ABP will post information about them on its Web site.

Please see the eQIPP Web site ([www.eqipp.org](http://www.eqipp.org)) for more information on eQIPP.